SAN DIEGO RURAL FIRE PROTECTION DISTRICT

November 3, 2010

Patrick Brown, Project Planner
County of San Diego
Department of Planning and Land Use
5201 Ruffin Road, Suite B
San Diego, CA 92123

RE: Tule Wind Project

Dear Patrick:

This letter is to inform you that the San Diego County Rural Fire Protection District (the "District") at its November 2, 2010 meeting approved the enclosed Fire Services Agreement (the "Agreement"), including the Fire Protection Plan revised as of November, 2010, to incorporate the District's comments, attached as Exhibit "D" to the Agreement (the "FPP").

The District is responsible for providing fire and emergency protection services to almost all of the wind turbines included in the Project, as noted in the enclosed Agreement. The District's approval of the FPP is based in part on Iberdrola's agreement to include fire suppression systems in each of the wind turbine nacelles, and to provide 200 foot vegetation clearance around the base of each turbine. The fire suppression systems will address fire risk associated with the nacelles, and will limit their potential as a source of wildland fire. Their inclusion illustrates Iberdrola's effort to address the fire risks of the Project.

The District has determined that Iberdrola's satisfaction of each of the requirements of the FPP and satisfaction of each of Iberdrola's obligations under the Agreement will adequately mitigate for the potential impacts to the District's resources and to potential fire risks reasonably foreseeable as a result of that portion of the Project that is proposed to be located within the District's jurisdiction and which will be provided services under the Agreement. The District has determined that no additional mitigation is required from Iberdrola for these potential impacts (to the District's resources and to potential fire risks reasonably foreseeable as a result of that portion of the Project for which services will be provided under the Agreement), provided that the Project conforms in all respects to the Project Description attached as Exhibit "B" to the Agreement (except that the number of wind turbines to be located within the District's jurisdiction may change, as provided for in the Agreement).

Please do not hesitate to contact me if you have any questions.

Sincerely,

David Nissen, Division Chief
San Diego Rural Fire Protection District

Cc: Cynthia L. Eldred, Esq. Tule Wind, LLC, attention Ms. Harley McDonald

14024 Peaceful Valley Ranch Road • Jamul, California 91935 • (619) 669-1188 Fax (619) 669-1798

To: Applicant Tule Wind, LLC
Attn: Ravy Raviv or Trevor Mihalik
1125 NW Couch Street, Suite 700
Portland, OR 97209
Telephone No. (503) 796-7000
Facsimile No. (503) 796-6906

With a copy to: Latham & Watkins LLP
Attn: Christopher W. Garrett, Esq.
600 W. Broadway, Suite 1800
San Diego, CA 92101
Telephone No. (619) 236-1234
Facsimile No. (619) 696-7419

Any such notice or demand shall be deemed served at the time of delivery if delivered in person, by facsimile transmission, or electronic mail, or on the business day following deposit thereof in the U.S. Mail where sent by registered or certified mail.

"Applicant"

Tule Wind, LLC

By: _____
Ravy Raviv
Authorized Representative

By: _____
Doug Wilkinson
Authorized Representative

"District"

San Diego Rural Fire Protection District

By: _____
David Nissen
Fire Marshal/Fire Chief

AGREEMENT FOR PROVISION OF FIRE AND EMERGENCY PROTECTION SERVICES

THIS AGREEMENT FOR PROVISION OF FIRE PROTECTION AND EMERGENCY SERVICES ("Agreement") dated as of November 2 2010 (the "Effective Date"), by and between SAN DIEGO RURAL FIRE PROTECTION DISTRICT, a legal agency formed by the Board of Supervisors of the County of San Diego under the Fire Protection Law of 1961 (the "District"), and TULE WIND, LLC (the "Applicant") (sometimes referred to individually as a "Party" and collectively as "the Parties").

RECITALS

WHEREAS, the Applicant leases certain real property located within the unincorporated area of County of San Diego and within the District's jurisdiction (the "Property"), as more particularly described on the attached Exhibit "A" incorporated herein by reference; and

WHEREAS, the Applicant has applied to the County of San Diego (the "County") to construct the Tule Wind Project on the Property (the "Project"), as more fully described on the attached Exhibit "B" incorporated herein by reference; and

WHEREAS, as a condition of the County's approval of the Project, the Applicant is required to procure fire and emergency protection services for the Project; and

WHEREAS, the Applicant desires to contract with the District for fire and emergency protection services for the Project; and

WHEREAS, the District desires to provide fire and emergency protection services for the Project as agreed herein.

NOW, THEREFORE, in consideration of the foregoing, the Parties hereby agree as follows:

1. The Project

The description of the Project site is contained in Exhibit "B" attached hereto and incorporated by this reference.

2. Scope of Services

Provided that the Applicant timely complies with each of its obligations under this Agreement, the District agrees to provide fire and emergency protection services to the Project, as more fully set forth in the Scope of Services attached hereto as Exhibit "C" and incorporated by this reference (the "Services"). The District will issue a will-serve letter to the Applicant for the Project upon receipt of all of the following: (a) the Applicant's signature on this Agreement; (b) confirmation that the Deposit (as defined below) has been delivered to the Escrow Depository (as defined below); (c) documentation that establishes legal access to the Property as provided in

Section 7, below; and (d) a Fire Protection Plan approved by the District, attached hereto as Exhibit "D" and incorporated herein by this reference, that incorporates the changes to the Applicant's Fire Protection Plan, dated October 2010, as set forth in the District's letter to the County, dated October 18, 2010.

3. Term

This Agreement shall be effective upon the Effective Date. The initial term of this Agreement shall begin upon Commencement of Construction (as defined below) of the Project and be in effect for a period of ten (10) years thereafter (the "Initial Term"). The Applicant shall give notice to the District at least thirty (30) calendar days prior to the Commencement of Construction pursuant to items (a), (b), or (c) of this paragraph. "Commencement of Construction" shall be the first to occur of: (a) any ground disturbance of any portion of the Property in connection with the Project, except for geotechnical investigation or other environmental analysis required as part of the permitting process; (b) delivery of any materials to any portion of the Property in connection with the Project; (c) delivery of any equipment, including but not limited to a construction trailer, but excluding meteorological tower(s), to the Property in connection with the Project; or (d) notice by the District to the Applicant that the District is aware that any of items (a), (b), or (c) of this paragraph have occurred. The notice by the Applicant to the District pursuant to items (a), (b), or (c), above, or the notice by the District to the Applicant pursuant to item (d), above, shall each be referred to as the "Construction Notice". The Construction Notice shall set forth the number of wind turbines approved in the Approvals (defined in Section 5, below) for the Project.

This Agreement shall be automatically renewed following the Initial Term for consecutive five (5)-year periods (each referred to as a "Renewal Term") for the life of the Project. The Applicant may terminate this Agreement by providing the District sixty (60) calendar days prior written notice if: (aa) the Applicant fails to obtain the Approvals described more fully in Section 5, below on or prior to June 30, 2016; or, (bb) Project operations on the Property entirely cease subsequent to issuance of the Approvals and the Applicant removes all Project improvements from the Property.

4. Annual Compensation

A "Fiscal Year" means the period starting on July 1 and ending on the following June 30. For the Fiscal Year 2010-2011, the Applicant shall pay to the District $996.44 per acre (or any portion of an acre) multiplied by the whole number of acres (or any portion of an acre) occupied (the "Base Rate") for the Services. The Base Rate shall increase by three percent (3%) each Fiscal Year thereafter (i.e., the rate in effect for the prior Fiscal Year multiplied by 1.03 to obtain the following Fiscal Year's rate). The Applicant anticipates obtaining Approvals to construct and operate 103 wind turbines on the Property, however, the actual number of turbines approved may be more or less. The Parties agree that each wind turbine will be located on one acre (or a portion thereof). If the Approvals allow the Project to be developed with 103 wind turbines to be constructed on the Property, and Commencement of Construction occurs in Fiscal Year 2010-2011, the Applicant shall pay to the District for Fiscal Year 2010-2011 the amount of $102,633.32, prorated for the number of days for the period beginning with the date of

Commencement of Construction and ending on June 30, 2011. If the Approvals allow fewer than 103 wind turbines to be constructed on the Property, or greater than 103 wind turbines to be constructed on the Property, then the Parties shall make an adjustment of annual compensation based on the number of wind turbines allowed by the Approvals to be constructed on the Property. The Applicant hereby agrees to pay to the District for the Services, in advance, for each Fiscal Year, an amount equal to the Base Rate, increased by 3% for each Fiscal Year thereafter. Payment shall be as follows.

Concurrently with execution of this Agreement, the Applicant shall: (a) execute irrevocable escrow instructions substantially in the form attached hereto as Exhibit "E", incorporated by this reference (the "Irrevocable Escrow Instructions"); (b) deliver the signed Irrevocable Escrow Instructions to the Escrow Depository defined therein, with a copy to the District; and (c) deposit with the Escrow Depository the amount of $102,633.32 (the "Deposit"). The Applicant acknowledges and agrees that the Escrow Depository shall release the Deposit to the District without further action by the Applicant upon the delivery of the Construction Notice to the Escrow Depository by either the Applicant or the District.

If, on June 30, 2013, this Agreement remains in effect and the Construction Notice has not yet been delivered to the Escrow Depository, then the Applicant shall make an additional deposit (the "Additional Deposit") to the Escrow Depository equal to $16,346.83, which is the difference between the Deposit increased by three percent (3%) per Fiscal Year from Fiscal Year 2011-12 through 2015-2016 ($118,980.15), less the Deposit ($102,633.32). The Applicant acknowledges and agrees that the Escrow Depository shall release the Additional Deposit to the District without further action by the Applicant upon the delivery of the Construction Notice to the Escrow Depository by either the Applicant or the District.

Upon the release of the Deposit to the District, and Additional Deposit, if applicable, the District shall: (aa) calculate the number of days remaining in the current Fiscal Year by determining the days from and including the date of the Construction Notice to and including the next following June 30 (the "Remainder"); (bb) determine the Base Rate for the Services applicable to the Fiscal Year in which the Remainder is calculated (the "Rate"); (cc) multiply the applicable Base Rate times a fraction, the numerator of which is the Remainder, and the denominator of which is 365, which is equal to the proportionate amount of the Base Rate due for the portion of the Fiscal Year in which Commencement of Construction begins (the "Stub Year Amount"); (dd) subtract the Stub Year Amount from the Deposit to calculate the amount of the Deposit remaining (the "Following Year Amount") to be applied to the next following Fiscal Year (the "Following Year"); (ee) calculate the Base rate applicable to the next following Fiscal Year (the "New Rate"); (ff) subtract the Following Year Amount from the New Rate to obtain the "Amount Due For the Following Year". The District shall calculate all of the above and give notice thereof to the Applicant. The Applicant shall pay, on or before July 1 of the Following Year the Amount Due for the Following Year. Thereafter, on or before July 1 of each year the Applicant shall pay to the District the amount equal to the Base Rate increased by 3% per Fiscal Year.

5. Approvals

The Parties agree that the Applicant may terminate this Agreement if the Applicant is unable to obtain all governmental licenses, permits, and/or approvals required of or deemed necessary or appropriate by the Applicant or the County in order to begin Commencement of Construction of the Project, including without limitation applications for zoning variances, zoning ordinances, amendments, special use permits, and construction permits (collectively, the "Approvals") on or before June 30, 2016. The Applicant acknowledges and agrees that the District has no duty or obligation to obtain any such Approvals on behalf of the Applicant

6. Indemnification

The Applicant shall indemnify, defend (with Counsel acceptable to District in its good faith judgment) and hold the District harmless from and against any and all injury, loss, claims of whatsoever character, nature, and kind, including without limitation the Applicant's negligence or willful misconduct whether directly or indirectly arising from or connected with an act or omission of the Applicant or any agents of the Applicant or other persons acting by or on behalf of Applicant, damages, liabilities, costs, and expenses (including reasonable attorney's fees and court costs) arising from or related to or claimed to be caused by the installation, use, maintenance, repair, removal, and/or any other work or service for or in connection with the Project, except to the extent attributable to the bad faith or gross negligence of the District, its employees, agents, or the District's independent contractors. The Applicant's obligations under this Agreement shall be effective upon the Effective Date, regardless of whether any or all approvals and/or actions of the County regarding the Project remain valid or are invalidated by any court. The Applicant's obligations to indemnify, defend, and hold the District harmless shall survive the termination of this Agreement, but shall be limited to events that occurred during the term of this Agreement.

7. Access

At all times during the term of this Agreement, the Applicant shall ensure that the District will have twenty-four (24) hours per day, seven (7) days per week, pedestrian and vehicular access to, over, around, and across the Property for purposes of providing the Services as provided by this Agreement. As a condition of this Agreement, prior to the Effective Date of this Agreement, the Applicant shall demonstrate to the satisfaction of the District that the District, its employees, agents, volunteers, representatives, contractors, successors and assigns, and all other local, state, and federal fire-fighting and/or emergency response agencies and their respective employees, agents, volunteers, representatives, contractors, successors and assigns, will have legal access to the Property that will allow fire and emergency personnel and apparatus entry onto the Property for the purpose of providing the Services during the term of this Agreement.

The Parties acknowledge that this Agreement is not intended to expand, limit, or modify in any way the District's independent rights as a governmental agency to access the Property for purposes of providing the Services described in this Agreement.

8. Site Maintenance

The Applicant agrees to keep and maintain the Property in good condition and clear of hazardous substances (other than hazardous substances used or useful in the construction, operation, or maintenance of the Project in accordance with applicable law) at all times so as to avoid and prevent the creation and/or maintenance of fire or emergency hazards.

9. Assignment

The Applicant may assign this Agreement if the Applicant is transferring all or substantially all of the Project to the assignee; provided, however, to be valid, (a) any such assignment shall be in writing substantially in the form of Exhibit "F" ("Form of Assignment of Agreement For Provision of Fire and Emergency Protection Services") (the "Assignment") attached hereto and incorporated by this reference; (b) the Assignment provides for the Applicant's assignment of all of its obligations under this Agreement to the assignee and the assignee assumes all of such obligations; (c) the Applicant is not released of its obligations to the District under this Agreement that existed prior to the date of the Assignment but is otherwise released; (d) the Assignment contains the name, address, telephone number, facsimile number, and contact person for the assignee; and (e) the District has provided the Applicant and the assignee with written acknowledgement of receipt of the Assignment signed on behalf of the Applicant and the assignee. Any attempted assignment in violation of the foregoing provision shall be void and a material default by the Applicant of this Agreement.

10. Project Site Safety

Unless otherwise provided by the Scope of Services in this Agreement, the District, its employees, agents and independent contractors are not responsible for any condition of the Property or Project site conditions during the term of this Agreement. The Parties acknowledge and agree that the Applicant has responsibility for all conditions of the Property and all Project site conditions, including safety of all persons and property.

11. Breach

Failure to abide by any terms of this Agreement shall constitute a breach of this Agreement. The Party asserting a breach must notify the other Party in writing pursuant to Section 20 below. Each Party shall have the right but not the obligation or duty to cure any breach by the other Party of the terms of this Agreement. An "Event of Default" shall exist if: (a) the breach can be cured solely by the payment of money and the breach is not cured within five (5) business days after the notifying Party delivers notice (a "Breach Notice") thereof to the breaching Party; (b) the breach concerns the District's access to the Property, is within the Applicant's control, and the breach is not cured within five (5) business days after the notifying Party delivers a Breach Notice thereof to the breaching Party; (c) the breach concerns the District's access to the Property, is not within the Applicant's control, and the breach is not cured within thirty (30) days after the notifying Party delivers a Breach Notice thereof to the breaching Party (nothing in this agreement is intended to limit the District's authority to access the Property); or (d) the breach cannot be cured solely by the payment of money and does not

concern the District's access to the Property and the breach is not cured within thirty (30) days after the notifying Party delivers a Breach Notice thereof to the breaching Party. If an Event of Default occurs, the notifying Party shall be entitled to any and all remedies available at law. Should the notifying Party unilaterally elect to cure any such breach by the breaching Party, the breaching Party shall promptly reimburse the notifying Party for all costs and expenses incurred by the notifying Party to effectuate such cure.

12. Jurisdiction and Venue

The venue for any suit or proceeding concerning this Agreement, the interpretation or application of any of its terms, or any related disputes shall be in the County of San Diego, State of California.

13. Successors in Interest

This Agreement and all rights and obligations created by this Agreement shall remain in full force and effect whether or not any Parties to the Agreement have been succeeded by another entity, and all rights and obligations created by this Agreement shall be vested and binding on such Party's successor in interest.

14. Integration

This Agreement and the Exhibits and references incorporated into this Agreement fully express all understandings of the Parties concerning the matters covered in this Agreement. No change, alteration, or modification of the terms or conditions of this Agreement, and no verbal understanding of the Parties, their officers, agents, or employees shall be valid unless made in the form of a written change agreed to in writing by both Parties or by a written amendment to this Agreement agreed to by both Parties. All prior negotiations and agreements are merged into this Agreement. The Parties acknowledge and agree that the Recitals set forth above are true and correct and are hereby incorporated by reference.

15. No Third Party Beneficiaries

The Parties hereto agree that there shall be no third-party beneficiaries to this Agreement. This Agreement is not intended to and shall not confer any rights or remedies hereunder upon any other party other than the Parties to this Agreement and their respective successors in interest.

16. Counterparts

This Agreement may be executed in counterparts, which when taken together shall constitute a single signed original as though all Parties had executed the same page. The Parties agree that a signed copy of this Agreement transmitted by one Party to the other Party by facsimile transmission or electronic mail as a PDF, shall be binding upon the sending Party to the same extent as if it had delivered a signed original of this Agreement.

17. No Waiver

No failure of any Party to require strict performance by the other Party of any covenant, term or condition of this Agreement, nor any failure of any Party to exercise any right or remedy consequent upon a breach of any covenant, term, or condition of this Agreement, shall constitute a waiver of any such breach of such covenant, term or condition. No waiver of any breach shall affect or alter this Agreement, and each and every covenant, condition, and term hereof shall continue in full force and effect regardless of any existing or subsequent breach. A waiver of any such breach shall not be interpreted to mean that any Party has waived its right to demand in the future the full and complete performance by the other Party of its duties and obligations under this Agreement.

18. Signing Authority

The representative for each Party signing on behalf of a corporation, partnership, joint venture, or governmental entity hereby declares that authority has been obtained to sign on behalf of the corporation, partnership, joint venture, or governmental entity and agrees to indemnify and hold the other Party hereto harmless if it is later determined that such authority does not exist.

19. Attorneys' Fees

In the event any action or proceeding is initiated to challenge, invalidate, enforce, or interpret any of the terms of this Agreement, the prevailing party shall be entitled to all attorneys' fees and litigation fees, costs, and expenses in addition to any other relief granted by law. For purposes of this Agreement, "prevailing party" means the party who substantially receives the remedy or award it requested.

20. Notices

All letters, statements, or notices required pursuant to this Agreement shall be deemed effective upon receipt when personally served, transmitted by facsimile machine or electronic mail, or sent certified mail, return receipt requested, to the following addresses:

To: District
San Diego Rural Fire Protection District
Attn: Fire Chief David Nissen
14024 Peaceful Valley Ranch Road
Jamul, CA 91935
Telephone No. (619) 669-1188
Facsimile No. (858) 362-8448

With a copy to:
Cynthia L. Eldred, Esq.
Law Office of Cynthia L. Eldred
2481 Congress Street
San Diego, CA 92110
Telephone No. (619) 233-7366
Facsimile No. (619) 233-7390

To: Applicant Tule Wind, LLC
Attn: Ravy Raviv or Trevor Mihalik
1125 NW Couch Street, Suite 700
Portland, OR 97209
Telephone No. (503) 796-7000
Facsimile No. (503) 796-6906

With a copy to: Latham & Watkins LLP
Attn: Christopher W. Garrett, Esq.
600 W. Broadway, Suite 1800
San Diego, CA 92101
Telephone No. (619) 236-1234
Facsimile No. (619) 696-7419

Any such notice or demand shall be deemed served at the time of delivery if delivered in person, by facsimile transmission, or electronic mail, or on the business day following deposit thereof in the U.S. Mail where sent by registered or certified mail.

"Applicant"

Tule Wind, LLC

By: _____
Ravy Raviv
Authorized Representative

By: _____
Doug Wilkinson
Authorized Representative

"District"

San Diego Rural Fire Protection District

By: _____
David Nissen
Fire Marshal/Fire Chief

Exhibit "A"

Legal Description of the Property

(subject to modification and supplement as project design is finalized)

EXHIBIT "A"

All that certain real property situated in the County of San Diego, State of California, described as follows:

The Southwest Quarter of the Southeast Quarter; the East Half of the Southwest Quarter and the Southeast Quarter of the Northwest Quarter of Section 28, Township 16 South, Range 7 East, San Bernardino Base and Meridian, in the County of San Diego, State of California, according to United States Government Survey approved August 27, 1880.

Excepting all the coal or other minerals in said land as reserved in Patent from the United States of America, recorded in Book 15, Page 26 of Patents.

Assessor's Parcel Number: **529-110-01**

EXHIBIT "A"

All that certain real property situated in the County of San Diego, State of California, described as follows:

The South Half of the Southeast Quarter; the Northwest Quarter of the Southeast Quarter; the West Half of the Northeast Quarter of Section 33, Township 16 South, Range 7 East, San Bernardino Base and Meridian, in the County of San Diego, State of California.

Excepting all the coal or other minerals in said land as reserved in Patent from the United States of America, recorded in Book 15, Page(s) 26 of Patents.

Assessor's Parcel Number: **529-140-01**

EXHIBIT "A"

All that certain real property situated in the County of San Diego, State of California, described as follows:

The South Half of the South Half of Section 34, Township 16 South, Range 7 East, San Bernardino Base and Meridian, in the County of San Diego, State of California, according to United States Government Survey approved August 27, 1880.

Excepting all the coal or other minerals in said land as reserved in Patent from the United States of America, recorded in Book 15, Page(s) 26 of Patents.

Assessor's Parcel Number: **529-150-01**

Exhibit "B"

Project Description

1.1.2 Project Description

IBR is proposing to construct and operate the Tule Wind Project located near Boulevard, California, shown **in Figure 1**. The proposed project will consist of wind turbines, an overhead and underground electrical collection system and transmission line, a project collector substation, an O&M building, transportation haul routes and access roads, a temporary concrete batch plant, a parking area, a temporary laydown (staging) areas, and meteorological towers.

The Tule Wind Project will consist of the following components:

- Up to 134 wind turbines, ranging in size between 328 and 492 feet in height and generating capacity between 1.5 megawatts (MW) and 3.0 MW, to produce 200 MW of electricity;
- A 34.5 kilovolt (kV) transmission collector cable system linking each turbine to the next and to the project collector substation, which will run principally underground except in select areas where cultural, environmental, or logistical conditions require an overhead line;
- A 138 kV overhead transmission line running south from the project collector substation to interconnect with SDG&E's proposed Rebuilt Boulevard Substation;
- A 5-acre collector substation site and 5-acre O&M building site;
- Access roads between turbines, as well as improvements to existing roadways and new roadways to accommodate construction and delivery of equipment;
- A temporary batch plant for construction located on a 5 acre area;
- A 10-acre parking area;
- Nineteen 2-acre temporary lay down areas; and
- Two permanent meteorological towers and one sonic detection and ranging (SODAR) unit.

The maximum build-out of the project allows for up to 200 MW of installed wind turbine capacity. This 200 MW could consist of as many as 134 1.5 MW turbines, as little as 67 3.0 MW turbines, or some intermediate mix of turbines ranging in output from 1.5 MW to 3.0 MW. Turbines with a smaller output can be spaced closer together, whereas turbines with a larger output require larger spacing. At this time, the 134-turbine layout proposes 97 wind turbines on BLM land, 17 turbines on Tribal lands, 7 turbines on State lands, and 13 turbines on privately-owned land, commonly known as Rough Acres Ranch.

The project will include an approximate 5,000 square foot, pre-engineered metal O&M building, located next to the collector substation to house operations personnel and critical spare parts. A typical O&M Building is illustrated in **Figure 4**.[1] The O&M building will include a foundation, with electrical and heating, ventilation, and air conditioning (HVAC) systems. The O&M building will also include a septic system and well to provide up to 5 gallons per minute of potable water throughout operations. Once the project is operational, the O&M facility will use approximately 2,500 gallons per day of water.

The only staffed structure as part of the project is the proposed O&M building. The project is expected to be supported by up to 12 full time employees on the O&M staff. Typically, O&M staff will be present on-site during normal business hours.

[1] Note: Figure 4 is a typical example and does not identify the required fuel modification zone. However, as described within this Conceptual Draft FPP, a minimum 100-foot radius fuel modification zone will be provided.

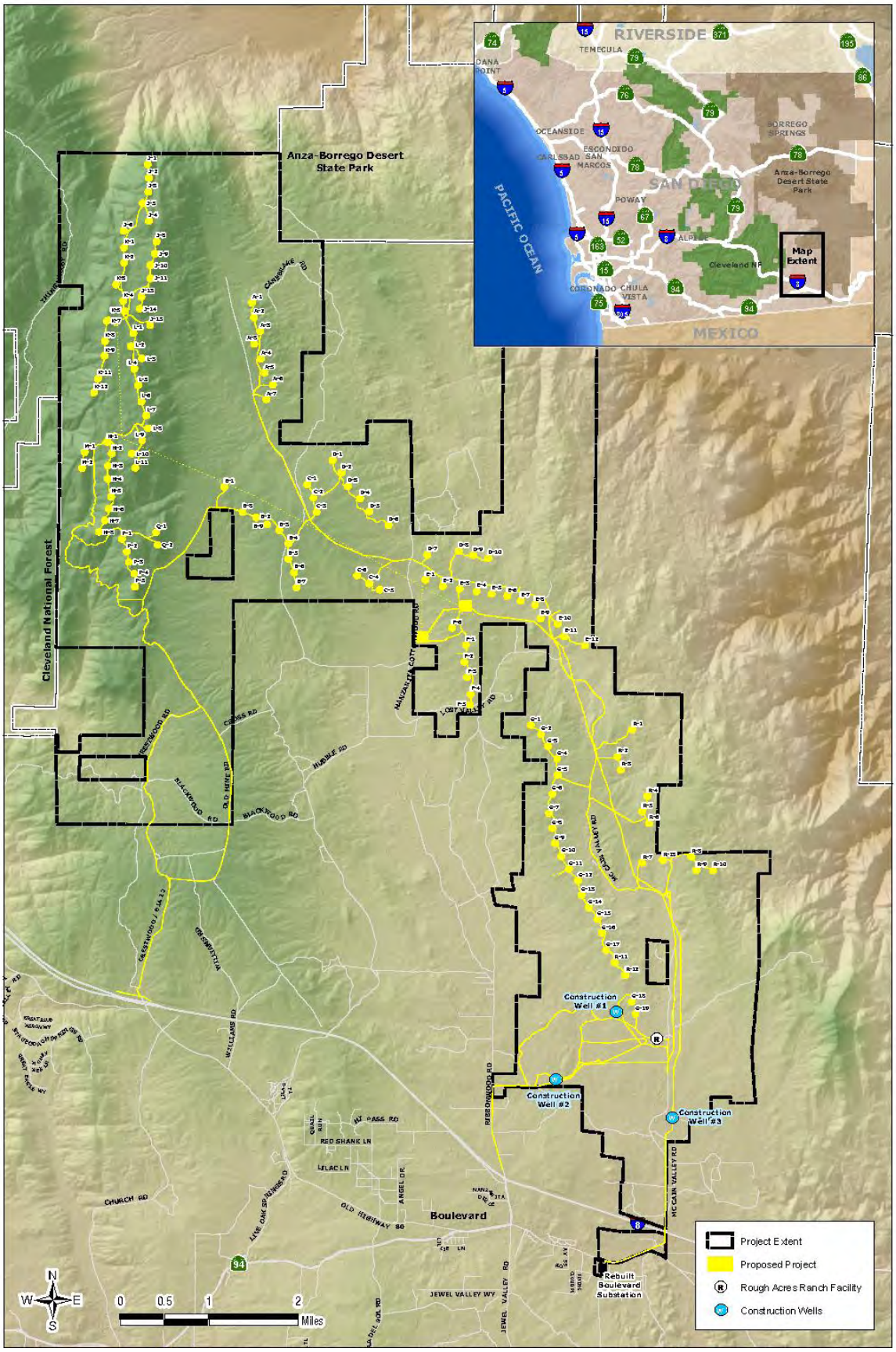
The proposed location for the project collector substation is shown on **Figure 2**. Construction will generally consist of the installation of concrete pads and electric transformers. Areas not covered by concrete pads will be surfaced with gravel to minimize erosion and surface runoff, and to provide fire protection through prevention of weedy growth. The collector substation will be fenced with security fencing to minimize the potential for entry by non-authorized personnel. A typical substation site is included as **Figure 5**.[2]

Proposed turbine locations are shown on **Figure 2**. The wind tower foundations will be approximately 60 feet in diameter, and 7 to10 feet deep. The project proposes up to a 200-foot cleared area around each turbine depending on the site topography. Upon completion of construction, with the exception of an area 60 feet in diameter (gravel up to a 10-foot radius to provide surface stabilization), the 200-foot cleared area would be revegetated with fire safe (non-combustible), low fuel vegetation, in a spacing and height configuration consistent with fire agency standard practices for a distance necessary to provide a minimum of 100 feet of fuel management from the turbine base and/or transformer. The impact analysis in the environmental document assumes a permanent impact to a 200-foot radius around each turbine. Fuel management within the 200-foot radius area would be performed, annually prior to May 1 and more often as needed. A typical turbine tower design is illustrated in **Figure 6**. A typical turbine site is illustrated in **Figure 7**. A typical turbine nacelle with labeled internal equipment is illustrated in **Figure 8**.

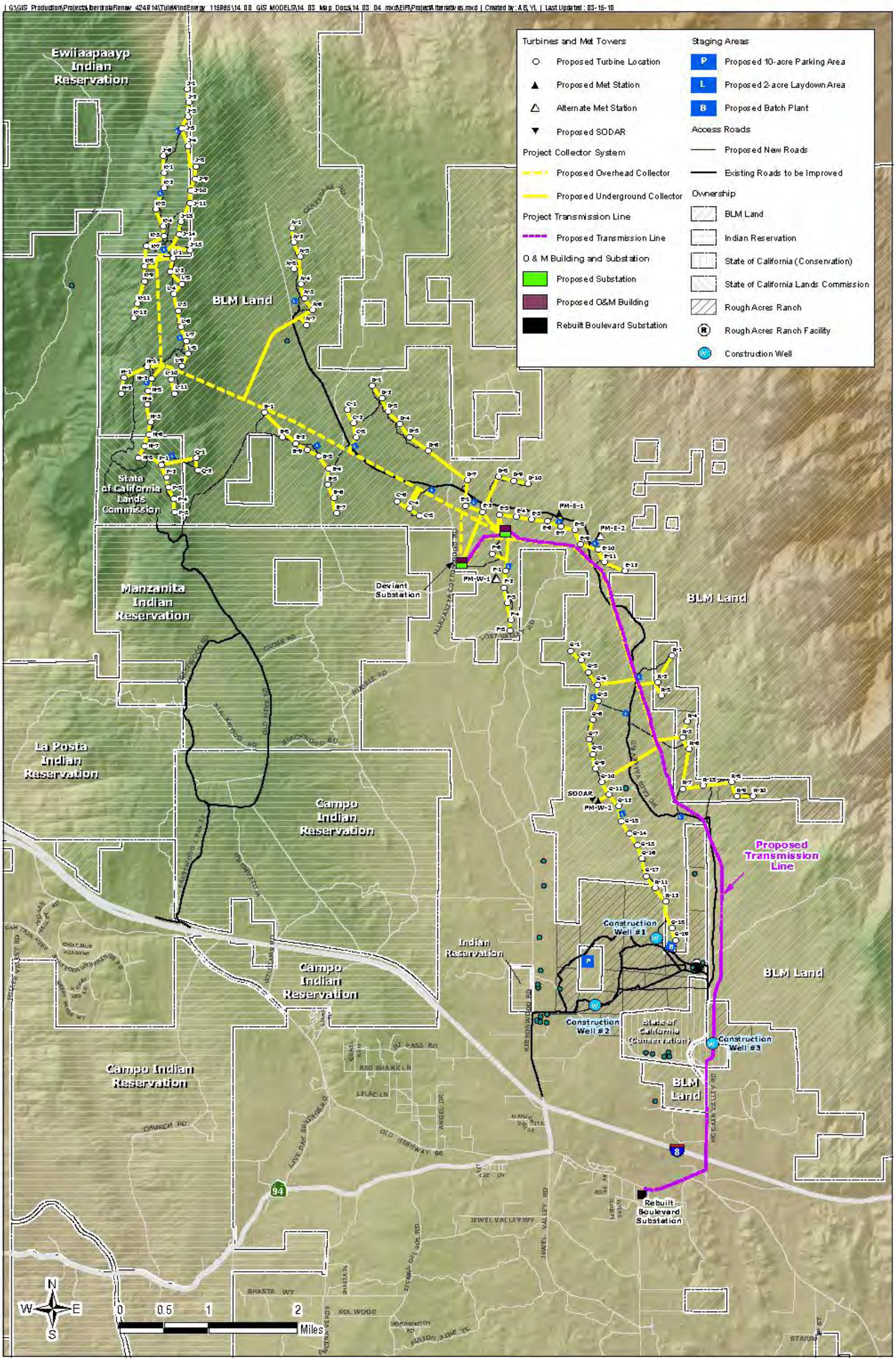
Two permanent meteorological towers will also be installed; their locations are noted on **Figure 2**. The towers will be free standing (no guy wires) and approximately 196 feet high with a concrete foundation. Installation will follow all safety measures contained in IBR's Health and Safety Manual. A permanent sonic detection and ranging SODAR unit will also be placed on-site and fenced.

Electricity generated by the wind turbines will be collected through 34.5kV collector lines and delivered to the project collector substation. The 34.5kV collector lines will principally be placed underground, except in locations where site-specific conditions require that they run aboveground.
After the electricity is stepped up to 138 kV at the project collector substation, an approximate 9.7-mile long 138 kV transmission line will interconnect the project collector substation with SDG&E's proposed Rebuilt Boulevard Substation, which is part of the SDG&E ECO Substation Project.

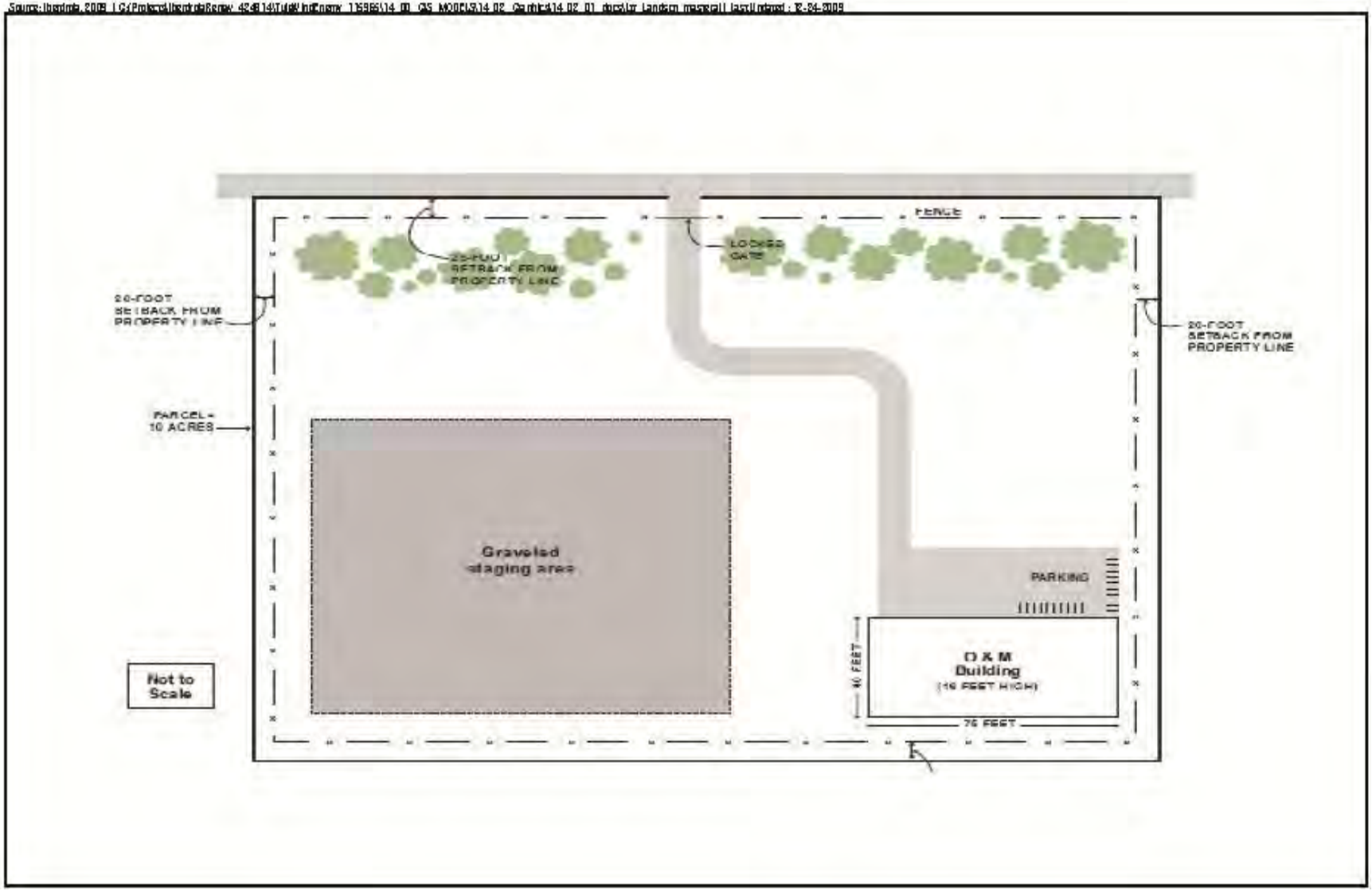
[2] Note: Figure 5 is a typical example and does not identify the required fuel modification zone. However, as described within this Conceptual Draft FPP, a minimum 100-foot fuel modification zone will be provided.



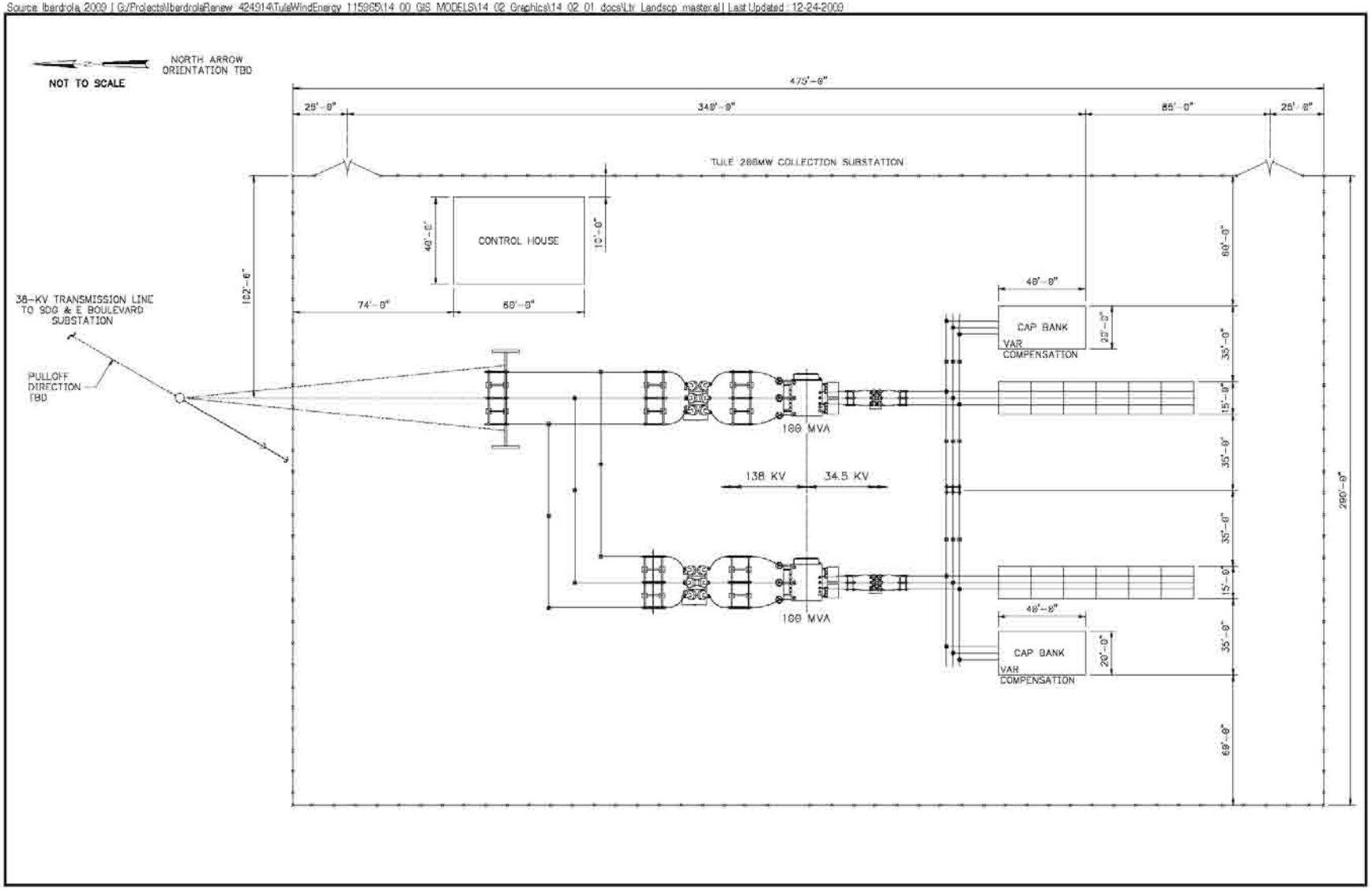
Region and Vicinity **Figure 1**



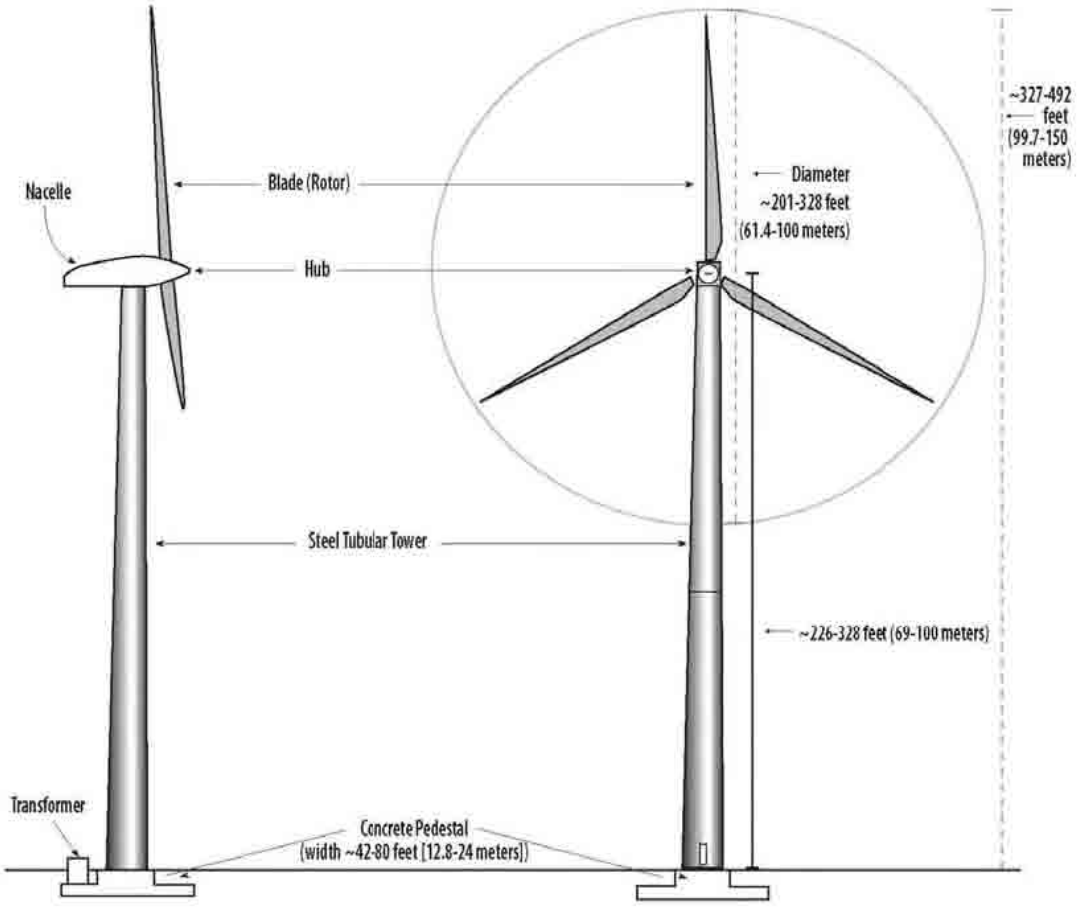
Proposed Project **Figure 2**



Typical Operations and Maintenance Facility Site **Figure 4**



200 MW Collection Plan Station View **Figure 5**



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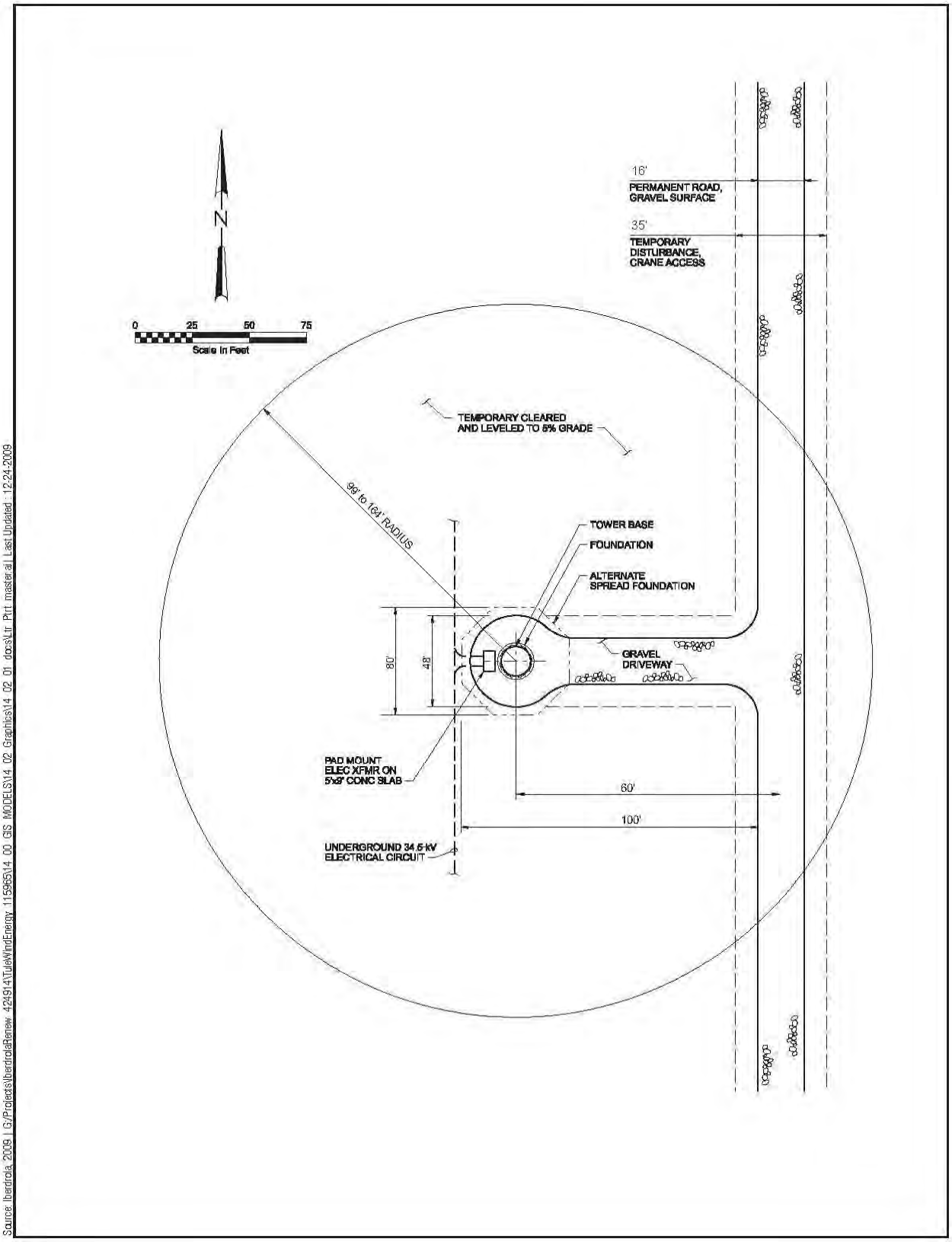
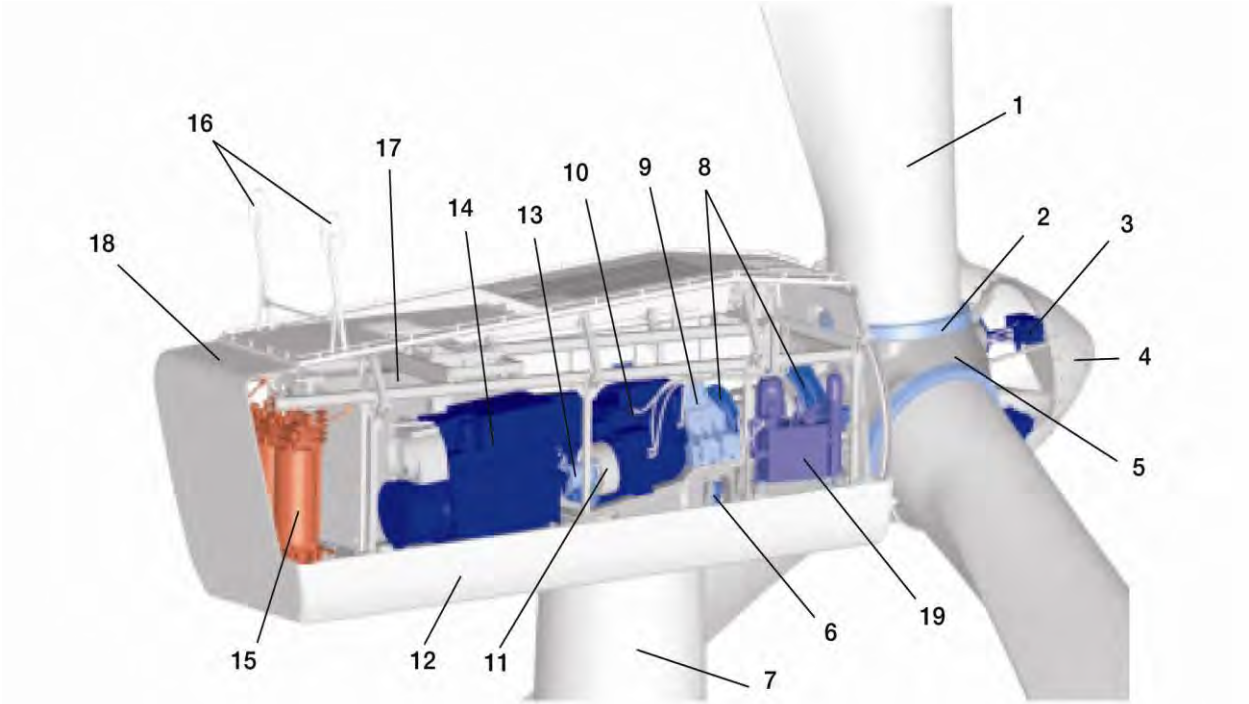
Preliminary Turbine Tower Design **Figure 6**



Source: Iberdrola, 2009 | G:/Projects/IberdrolaRenew 4249141/TuleWindEnergy 115965/14 00 GIS MODELS/14 02 Graphics/14 02 01 docs/Ltr Prt master.ai | Last Updated : 12-24-2009

Typical Turbine Site **Figure 7**



1. Blade
2. Blade bearing
3. Hydraulic pitch actuator
4. Hub cover
5. Hub
6. Active yaw control
7. Tower
8. Main bearing house
9. Gear tie rod
10. Gearbox
11. Main disc brake
12. Nacelle support frame
13. Cardan or composite shaft
14. Doubly fed generator
15. Transformer
16. Anemometer and wind vane
17. Top controller
18. Nacelle cover
19. Hydraulic unit

Figure 8

Exhibit "C"

Scope of Services

The District will provide necessary fire suppression and emergency medical support services as the first responder provider and will stand by in a state of readiness to perform these duties when not engaged in active fire suppression or emergency services.

The District will engage in the control or extinguishment of a fire of any type and perform activities which are required for and directly related to the control and extinguishment of fires.

The District has the right to review all building plans to ensure that the plans comply with all applicable fire codes and regulations. The District's fire prevention inspectors may conduct periodic inspections of construction activities or facilities to ensure that business operations are conducted in a safe manner and are consistent with all applicable fire suppression rules and regulations.

Exhibit "D"

Applicant's Approved Fire Protection Plan

Exhibit "E"

Form of Irrevocable Escrow Instructions

San Diego Rural Fire Protection District
Attn: Fire Chief David Nissen
14024 Peaceful Valley Ranch Road
Jamul, CA 91935
Telephone No. (619) 669-1188
Facsimile No. (858) 362-8448

IRREVOCABLE ESCROW AGREEMENT

This Irrevocable Escrow Agreement ("**Escrow Agreement**") is made and entered into as of _____, 2010 ("**Effective Date**"), by and among Tule Wind, LLC (the "**Applicant**" or "**Provider**"), the San Diego Rural Fire Protection District, a legal agency formed by the Board of Supervisors of the County of San Diego under the Fire Protection Law of 1961 (the "**District**" or "**Escrow Holder**").

R E C I T A L S

A. The Applicant and the District have entered into that certain Agreement for Provision of Fire and Emergency Protection Services as of the Effective Date, _____, 2010 ("**Fire Services Agreement**").

B. The Fire Services Agreement provides that the Applicant will deposit certain funds with an Escrow Holder. The Applicant and the District have designated the District to act as such Escrow Holder and wish to provide joint written instructions to the District as to the conditions under which the Deposit and any Additional Deposit (as defined below) will be held.

C. The District has agreed to act as the Escrow Holder provided that it is understood that this is a limited escrow only and is being opened solely for the purposes set forth, and is subject only to the terms and conditions contained, in this Escrow Agreement.

NOW, THEREFORE the parties agree as follows.

A G R E E M E N T S

1. **Incorporation of Recitals**. The recitals set forth above are incorporated and by this reference are made a part of this Section 1 as if said recitals were set forth in full as warranties and covenants.

2. **Fire Services Agreement**. The Applicant and the District agree that, as between themselves, to the extent that any terms in this Escrow Agreement vary from the terms in the Fire Services Agreement, the terms of the Fire Services Agreement shall govern.

3. **Deposit**. Concurrently with execution of this Escrow Agreement and delivery of signatures to District, Provider will deposit the sum of **$102,633.32,** (the "**Deposit**") with the Escrow Holder. Upon receipt of the Deposit, the Escrow Holder will do the following:

A. **Invest Funds** Place the Deposit into an interest bearing account with all interest accruing to the account of the Applicant. Concurrently with the deposit of a signed copy of this Escrow Agreement, the Applicant will provide the Escrow Holder with the required IRS Form W-9 and Investment Instructions required to establish such account.

B. **Give Notice** The Escrow Holder will send a written notice to Provider and to District at the address shown, confirming that the Deposit has been received by Escrow Holder:

To the Applicant:
Tule Wind, LLC
Attn: Ravy Raviv or Trevor Mihalik
1125 NW Couch Street, Suite 700
Portland, OR 97209
Telephone No. (503) 796-7000
Facsimile No. (503) 796-6906

With a Copy to:
Latham & Watkins LLP
Attn: Christopher W. Garrett, Esq.
600 W. Broadway, Suite 1800
San Diego, CA 92101
Telephone No. (619) 236-1234
Facsimile No. (619) 696-7419

To the District:
San Diego Rural Fire Protection District
Chief Dave Nissen
San Diego Rural Fire Protection District
14024 Peaceful Valley Ranch Road
Jamul, CA 91935
Phone: (619) 669-1188
Facsimile: (619) 669-1798
Email: dave.nissen@fire.ca.gov

With a Copy to:
Cynthia L. Eldred, Esq.
The Law Office of Cynthia L. Eldred
2481 Congress Street
San Diego, CA 92110
Telephone: (619) 233-7366
Fax: (619) 233-7390
Email: cindy@eldredlaw.com

4. **Additional Deposit**. If, on June 30, 2013, the Fire Services Agreement remains in effect and the Construction Notice has not yet been delivered to the Escrow Depository, then the Provider will deposit the sum of **$16,346.83,** (the "**Additional Deposit**") with the Escrow Holder. Upon receipt of the Additional Deposit, the Escrow Holder will take the same actions described in Section 3.A and 3.B, above.

5. **Release of Cash Deposit**. The Escrow Holder shall immediately release the Deposit, and Additional Deposit, if applicable, upon the occurrence of one or more of the following events:

A. **Release to District** The Escrow Holder will immediately, and without requirement for any further instructions, release the Deposit to the District upon the earlier to occur of the following:

(1) **Applicant Notice** Written notice from the Applicant to the Escrow Holder that Commencement of Construction has occurred or is about to occur on the Applicant's Tule Wind Project (the "Project"); or

(2) **District Notice** Written notice from the District that Commencement of Construction has occurred on the Project.

B. **Joint Instructions** At any time, or from time to time, the Applicant and the District may provide a joint written notice ("Joint Notice") to the Escrow Holder as to the release of all or a portion of the Deposit and the interest thereon. Upon receipt of such Joint Notice, the Escrow Holder shall release the Deposit or portions thereof, as provided in the Joint Notice.

C. **Court Order** Upon the Escrow Holder's receipt of a conformed copy of an order from a court of competent jurisdiction, which specifically instructs the Escrow Holder to disburse the funds, the Escrow Holder will disburse the funds as provided in such order.

D. **Release on June 30, 2016** If, as of June 30, 2016 (the "**Outside Termination Date**"), the Deposit or any portion thereof, and/or the Additional Deposit or any portion thereof, remains in escrow, then this escrow shall automatically terminate and the Escrow Holder shall release to the Applicant the Deposit, and the Additional Deposit, if applicable, and any interest accrued thereon less any amounts owing to the Escrow Holder. It is understood that the Escrow Holder shall not be responsible for "calendaring" the Outside Termination Date, and if the Escrow Holder discovers after such date that the escrow terminated, then at such later date the Escrow Holder will disburse the funds to the Applicant.

6. **Limited Escrow**. It is understood and agreed that the obligations and responsibilities of the Escrow Holder shall be **strictly limited to those specifically set forth in this Escrow Agreement**. The Escrow Holder shall have no liability or concern for any acts not specifically described in this Escrow Agreement, including any acts to any third party or beneficiary. The Escrow Holder is accepting this escrow based on the following representations of the Applicant and the District.

A. **Legal Counsel** The Escrow Holder has accepted this escrow based on the representations of the Applicant and the District that each is represented by legal counsel.

B. **Action in Interpleader** In the event of a controversy involving this escrow, the Escrow Holder reserves the right, at the Escrow Holder's option, to file an Action in Interpleader.

7. **Escrow Holder's Fee**. The Escrow Holder shall charge no fee for services herein.

8. **General Conditions**.

A. **Counterparts** This Escrow Agreement may be executed in any number of identical counterparts, and each counterpart shall be deemed to be an original instrument, but all counterparts taken together shall constitute but a single instrument. The Parties agree that a signed copy of this Escrow Agreement transmitted by one Party to the other Party by facsimile transmission or electronic mail as a PDF, shall be binding upon the sending Party to the same extent as if it had delivered a signed original.

B. **Amendments** No amendments to this Agreement shall be effective unless they are in writing, executed by all parties and deposited into this escrow.

IN WITNESS WHEREOF, this Escrow Agreement has been executed by the parties effective as of the date indicated above.

"Applicant"

Tule Wind, LLC

By: _____
Ravy Raviv
Authorized Representative

By: _____
Trevor Mihalik
Authorized Representative

"District"

San Diego Rural Fire Protection District

By:_____
David Nissen
Fire Marshal/Fire Chief

"Escrow Holder"

San Diego Rural Fire Protection District

By:_____
David Nissen
Fire Marshal/Fire Chief

Exhibit "F"

Form of Assignment of Agreement For Provision of Fire and Emergency Protection Services

ASSIGNMENT OF AGREEMENT FOR PROVISION OF FIRE AND EMERGENCY PROTECTION SERVICES

THIS ASSIGNMENT OF AGREEMENT FOR PROVISION OF FIRE AND EMERGENCY PROTECTION SERVCIES (this "Assignment") is entered into as of _____, 20__ by and between TULE WIND, LLC, an Oregon limited liability company ("Assignor"), and _____, a _____ ("Assignee").

W I T N E S S E T H:

WHEREAS, Assignor is a party to that certain Agreement For Provision of Fire and Emergency Protection Services, dated as of _____ (the "Agreement"), pursuant to which the San Diego Rural Fire Protection District ("District") provides fire and emergency protection services to the Tule Wind Project ("Project") constructed on certain real property located within the unincorporated area of County of San Diego and within the District's jurisdiction (the "Property"), including certain real property in the unincorporated area of San Diego County;

WHEREAS, Assignor hereby represents and warrants to the District that it is selling, transferring, and assigning to Assignee all of its right, title, interest, powers and privileges in, to and under the Project, including the Agreement, and Assignee intends hereby to accept the assignment and to assume as and to the extent provided below the obligations of Assignor with respect to the Agreement;

WHEREAS, Assignee hereby represents and warrants to the District that it is buying and receiving from Assignor all of Assignor's right, title, interest, powers and privileges in, to and under the Project, including the Agreement, and Assignee intends hereby to accept the assignment and assume as and to the extent provided below the obligations of Assignor with respect to the Agreement;

NOW, THEREFORE, in consideration of the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. **Assigned Agreement**. Assignor hereby sells, transfers and assigns to Assignee all of its right, title, interests, powers and privileges in, to and under the Agreement. Assignee hereby accepts and agrees to perform all of the terms, covenants and conditions of the Agreement, and to make all payments when due with respect thereto, in each case due to be performed or made on or after the date hereof but not prior hereto (which prior obligations and payments Assignor agrees to perform and pay).

2. **Successors and Assigns**. This Assignment shall inure to the benefit of, and be binding upon, the successors, executors, administrators, legal representatives and assigns of the parties hereto.

3. **Governing Law**. This Assignment shall be governed by, and construed and interpreted in accordance with, the laws of the State of California, without regard to conflict of law principles that would result in the application of any law other than the law of the State of California. **EACH OF THE PARTIES HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING ARISING OUT OF OR RELATING TO THIS ASSIGNMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY.** Any legal action or proceeding with respect to this Assignment or any of the transactions contemplated herein may be brought in the courts of the State of California located in San Diego County or of the United States of America for the State of California, and, by execution and delivery of this Assignment, each of the parties hereto hereby accepts generally and unconditionally, the exclusive jurisdiction of the aforesaid courts. Each of the parties hereto hereby irrevocably waives, in connection with any such action or proceeding, any objection, including, without limitation, any objection to the laying of venue or based on the grounds of forum non conveniens, which it may now or hereafter have to the bringing of any such action or proceeding in such respective jurisdictions.

4. **Attorneys' Fees**. In the event of a proceeding or action by one party against the other party with respect to the interpretation or enforcement of this Assignment, the prevailing party shall be entitled to recover reasonable costs and expenses, including reasonable attorneys' fees and expenses, whether at the investigative, pretrial, trial or appellate level. The prevailing party shall be determined by the court based upon an assessment of which party's major arguments or position prevailed.

5. **Miscellaneous**.

a. This Assignment may be executed, including executed by facsimile or electronic signature, in any number of counterparts and it shall be sufficient that the signature of each party appear on one or more such counterparts. All counterparts shall collectively constitute a single agreement. A facsimile or electronic signature to this Assignment shall be sufficient to prove the execution hereof by any person.

b. Any provision of this Assignment that is prohibited or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such prohibition or unenforceability without invalidating the remaining provisions hereof, and any such prohibition or unenforceability in any jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction.

6. **Further Assurances**. In case at any time after the date hereof any reasonable further action is necessary to carry out the purposes of this Assignment, including, without limitation, the delivery of any consents, the Agreement, or any written notices, plans, studies, drawings, specifications or other documentation to Assignee, Assignor and Assignee will take or cause to be taken such further action (including the execution and delivery of such further instruments and documents) as the other party reasonably may request, all without further consideration.

7. **Notices**. Unless otherwise provided in this Assignment, any notice or request ("Notice") shall be in writing to the address provided below and delivered by hand delivery, United States mail, overnight courier service, facsimile, or electronic mail. Notice by facsimile, electronic mail, or hand delivery shall be effective at the close of business on the day received, if the entire document was received during business hours on a Business Day, and otherwise shall be effective at the close of business on the next Business Day after it was sent for "next-day delivery" or its equivalent by a nationally-recognized overnight courier or personally delivered. Notice by overnight courier service shall be effective on the next Business Day after it was sent. Notice by United States mail shall be effective on the day it was received. A Party may change its address by providing Notice of same to the other Party in accordance with this Section 7.

To Assignor:

Tule Wind, LLC
1125 NW Couch Street, Suite 700
Portland, OR 97209
Attn: Ravy Raviv or Trevor Mihalik
Telephone No. (503) 796-7000
Facsimile No. (503) 796-6906

To Assignee:

_____
_____
_____
Attention: _____
Telephone: _____
Facsimile: _____

[REMAINDER OF PAGE LEFT BLANK INTENTIONALLY]

IN WITNESS WHEREOF, this Assignment has been duly signed and sealed by the parties as of the date set forth above.

ASSIGNOR	ASSIGNEE
Tule Wind, LLC,	_____,
an Oregon Limited Liability Company	a _____
By: _____	By: _____
Ravy Raviv	Name:_____
Authorized Representative	Its:_____

By: _____
Trevor Mihalik
Authorized Representative

The San Diego Rural Fire Protection District hereby acknowledges the receipt of the foregoing Assignment.

By: _____
Name:_____
Its:_____

FIRE PROTECTION PLAN

for the

Tule Wind Project

Prepared for the County of San Diego

May 2010, Revised November 2010
Major Use Permit Application Number: MUP 3300-09-019
Environmental Review Number: 3910-1000001

Submitted to the San Diego Rural Fire Protection District

The San Diego Rural Fire Protection District hereby approves and accepts this Fire Protection Plan (FPP) prepared for the Tule Wind Project.

Date: 11-3-10

By: _____

David Nissen
Division Chief – CAL FIRE
San Diego Rural Fire Protection District

Prepared for: HDR Engineering, Inc.
8690 Balboa Avenue, Suite 200
San Diego, CA 92123

and

Tule Wind, LLC
1125 NW Couch Street, Suite 700
Portland, OR 97209

Prepared by: RC Biological Consulting, Inc.
P.O. Box 1568
Lemon Grove, CA 91946-1568
(619) 463-1072

Robin Church

Robin Church
County Approved Fire Consultant

Technical review and contributions by:

Hunt Research Corporation
Jim Hunt, President
P.O. Box 291
Solvang CA 93464
805-688-4625

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FIGURES, TABLES AND APPENDICES

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ACRONYMS

AFFF	Aqueous Film Forming Foam
ANSI	American National Standards Institute
BLM	Bureau of Land Management
CAL FIRE	California Department of Forestry and Fire Protection
CBC	County Building Code
CCR	California Fire Code
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CPUC	California Public Utilities Commission
CSA	County Service Areas
CSD	Community Service District
CSLC	California State Lands Commission
EIS	Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
FMZ	Fire Management Zone
FMP	Fire Management Plan
FPP	Fire Protection Plan
GO	General Order
gpm	Gallons per minute
HVAC	Heating, ventilation, and air conditioning
I-8	Interstate 8
IBR	Iberdrola Renewables, Inc.
IEEE	Institute of Electrical and Electronics Engineers
IFC	International Fire Code
kV	Kilovolt
MW	Megawatt
NCC	National Control Center
NEPA	National Environmental Protection Act
NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
O&M	Operations and maintenance
PDF	Project Design Feature
ROW	Right-of-Way
SanGIS	San Diego Geographic Information Source
SCADA	Supervisory Control and Data Acquisition System
SDFCA	San Diego County Fire Authority
SDRFPD	San Diego Rural Fire Protection District
SODAR	Sonic detection and ranging
SRA	State Responsibility Areas
TVMP	Transmission Vegetation Management Program

EXECUTIVE SUMMARY

Tule Wind, LLC, a wholly owned subsidiary of Iberdrola Renewables, Inc. (IBR) is proposing to construct and operate the Tule Wind Project (proposed project) near Boulevard, California. The proposed project will consist of wind turbines, an overhead and underground electrical collection system and transmission line, a project collector substation, an operations and maintenance (O&M) building, transportation haul routes and access roads, a temporary concrete batch plant, a temporary parking area, temporary laydown staging areas, and meteorological towers. The project is proposed on lands administered by the Bureau of Land Management (BLM), California State Lands Commission (CSLC), Tribal lands, and privately-owned lands under the jurisdiction of the County of San Diego.

The project is located in an area with varied topography with gentle to moderate slopes, and a range in elevation between 3,600 to 5,600 feet above mean sea level. Vegetation includes a variety of types of scrub, chaparrals, and non-native grasslands, in addition to agriculture, disturbed, landscaped and developed lands. The site is located within the interior and desert climate zones. Rainfall averages 11 to 18 inches a year with the lowest amount occurring in the eastern portion of the project area. The project area has been identified by California Department of Forestry and Fire Protection (CAL FIRE) as being located in a high to very high fire hazard severity area. However, there have been no fires mapped in the project area in recent history.

Fire Agency Jurisdiction: The responsibility for fire suppression within the project area is shared by the San Diego County Fire Authority (SDFCA), San Diego Rural Fire Protection District (SDRFPD), CAL FIRE, BLM and Tribal governments. The portions of the project area located on privately owned lands fall within the jurisdiction of the SDCFA County Service Areas (CSA) 111 and 135, SDRFPD, and CAL FIRE. CAL FIRE has the primary responsibility for wildfire protection within State Responsibility Areas (SRA).

Emergency Response to the project area is provided by the CAL FIRE Monte Vista dispatch center. According to the dispatch center, per the Automatic Aid Agreement, the area is located in an SRA and the first alarm dispatched to a vegetation fire is the same whether it is on private, state, federal, or tribal lands.

Fire Protection Plan (FPP): The FPP evaluates adequate emergency services, fire access, water supply, ignition resistant construction and fire protection systems, fire fuel assessment, fire behavior modeling, defensible space and vegetation management, and cumulative impacts.

The FPP evaluates the potential for adverse effects of construction, and operations and maintenance of a proposed project that may result in a wildland fire occurring on or adjacent to the project. The FPP also evaluates the positive environmental effects that may occur due to the development of this project.

The Project Design Features (PDFs) and proposed plans are presented in the FPP to exhibit how the potential fire impacts to the surrounding area and the community will be mitigated. The project addresses the applicable federal, state, and local fire regulations, including the California

Fire Code and the County Consolidated Fire Code. The project is consistent with the County of San Diego Department of Planning and Land Use recommendations including fuel modification.

As a mitigation measure to reduce the potential for fire ignition within the wind turbine nacelle to a level less than significant, a fire suppression system shall be provided in each wind turbine nacelle and in the operation and maintenance facility, which includes the on-site control room. Fire Suppression technology in the nacelle is in development and IBR will be an early adopter of this technology. At this early stage, IBR does not know if the fire suppression system will be provided by the wind turbine manufacturer or if it will be an aftermarket system. In either case, the system will have the same effect of providing fire suppression in each wind turbine nacelle, including the associated electrical equipment in the nacelle.

The project components effects' have been analyzed using California Environmental Quality Act (CEQA), County of San Diego's Wildland Fire and Fire Protection Guidelines, and California Public Utilities Commission (CPUC) Guidelines to determine the potential for fire ignition. Based on application of the County of San Diego's Wildland Fire and Fire Protection Guidelines for Determining Significance, it has been determined that construction and operation and maintenance of the proposed project would result in a less than significant impact with the implementation of PDFs and required Mitigation Measures. In addition, the project's contribution to cumulative impacts with the implementation of PDF and identified mitigation measures are less than cumulatively considerable.

1.0 INTRODUCTION

This FPP has been prepared for the proposed project. IBR is proposing to construct and operate the proposed project near Boulevard, California. The proposed project will consist of wind turbines, an overhead and underground electrical collection system and 138 kV transmission line, a project collector substation, an operations and maintenance building, transportation haul routes and access roads, a temporary concrete batch plant, a parking area, temporary laydown (staging) areas, and meteorological towers. The majority of the project would be built on lands administered by the BLM although turbines and other project components are also proposed on the Ewiiaapaayp Reservation, Manzanita and Campo Reservation (access only), lands administered by the California State Land Commission (CSLC), and privately-owned lands under the jurisdiction of the County of San Diego. The BLM is the Lead Agency under National Environmental Protection Act (NEPA), the CPUC is the Lead Agency under CEQA, and the County of San Diego is the permitting agency for the Major Use Permit and Building Permits.

The largest owner/operator of wind generation in the world, IBR owns and operates over 2,600 wind turbines at 43 wind farms totaling 4.8GW of wind generating capacity across the United States. IBR has over 49 million operating hours on its U.S. fleet.

Since fire danger in the project area is a significant concern, the project is being designed to eliminate or minimize potential ignition sources. IBR has participated in numerous meetings with fire agency personnel from various agencies, including CAL FIRE, the SDCFA, the SDRFPD, and BLM Fire, to discuss the overall approach to providing appropriate fire prevention, protection, and suppression as part of the project, neither consultant preparing these documents were in attendance at these meetings. A site meeting was conducted at IBR's Dillon

Wind Farm in Palm Springs, California on August 12, 2010 and included staff from the SDCFA, SDRFPD, and CAL FIRE, as well as Mr. Jim Hunt of Hunt Research. The meeting included a briefing by the site manager of the Dillon Wind Farm. The site manager provided a briefing on the Supervisory Control and Data Acquisition System (SCADA) system and how it is linked to the on-site monitoring system and to IBR's National Control Center (NCC) in Portland, Oregon, which is staffed 24-hours per day. The operational system implemented at the Dillon Wind Farm would be very similar to the system implemented for the proposed project. To address potential sources of ignition risk, the project is being designed with features and components to reduce the risk of wildland fire below a level of significance.

The purpose of the FPP is to assess the potential impacts resulting from wildland fire hazards and identify the measures necessary to adequately mitigate those impacts. As part of the assessment, the property location, topography, geology, combustible vegetation (fuel types), climatic conditions, and fire history were all taken into consideration in developing the FPP. The FPP addresses water supply, access (including secondary/emergency access where applicable), structural ignitability and fire resistive building features, fire protection systems and equipment, impacts to existing emergency services, defensible space, and vegetation management. The FPP identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment that will protect one or more-at-risk communities and essential infrastructures.

1.1 Project Location, Description, and Environmental Setting

1.1.1 Project Location

The general project location is shown in **Figure 1**. The project area lies in the McCain Valley in the In-Ko-Pah Mountains, just north of U.S. Interstate-8 (I-8) and Live Oak Springs. The area is accessible via the Crestwood Road, Ribbonwood Road, and McCain Valley Road exits off of I-8. The primary access routes to the project area will be from Ribbonwood and McCain Valley Roads. The majority of the project is proposed on lands administered by the BLM although turbines and other project components are also proposed on the Ewiiaapaayp Reservation, Manzanita and Campo Reservation (access only), lands administered by the CSLC, and privately-owned lands under the jurisdiction of the County of San Diego.

The proposed wind turbines will be located on a series of north-to-south and northwest-to-southeast ridges. The project site layout is shown in **Figure 2**. The majority of the area is composed of undeveloped land. The project area encompasses approximately 24,500 acres; however, the construction footprint of the project would impact approximately 772.7 acres, and does not include the entire parcels.

The fire agencies' jurisdictional responsibilities are shown in **Figure 3** and outlined in more detail in Section 1.2.

1.1.2 Project Description

IBR is proposing to construct and operate the Tule Wind Project located near Boulevard, California. The proposed project will consist of wind turbines, an overhead and underground

electrical collection system and transmission line, a project collector substation, an O&M building, transportation haul routes and access roads, a temporary concrete batch plant, a parking area, a temporary laydown (staging) areas, and meteorological towers.

The Tule Wind Project will consist of the following components:

- Up to 134 wind turbines, ranging in size between 328 and 492 feet in height and generating capacity between 1.5 megawatts (MW) and 3.0 MW, to produce 200 MW of electricity;
- A 34.5 kilovolt (kV) transmission collector cable system linking each turbine to the next and to the project collector substation, which will run principally underground except in select areas where cultural, environmental, or logistical conditions require an overhead line;
- A 138 kV overhead transmission line running south from the project collector substation to interconnect with SDG&E's proposed Rebuilt Boulevard Substation;
- A 5-acre collector substation site and 5-acre O&M building site;
- Access roads between turbines, as well as improvements to existing roadways and new roadways to accommodate construction and delivery of equipment;
- A temporary batch plant for construction located on a 5-acre area;
- A 10-acre parking area;
- Nineteen 2-acre temporary lay down areas; and
- Two permanent meteorological towers and one sonic detection and ranging (SODAR) unit.

The maximum build-out of the project allows for up to 200 MW of installed wind turbine capacity. This 200 MW could consist of as many as 134 1.5 MW turbines, as little as 67 3.0 MW turbines, or some intermediate mix of turbines ranging in output from 1.5 MW to 3.0 MW. Turbines with a smaller output can be spaced closer together, whereas turbines with a larger output require larger spacing. At this time, the 134-turbine layout proposes 97 wind turbines on BLM land, 17 turbines on Tribal lands, 7 turbines on State lands, and 13 turbines on privately-owned land, commonly known as Rough Acres Ranch.

The project will include an approximate 5,000 square foot, pre-engineered metal O&M building, located next to the collector substation to house operations personnel and critical spare parts. A typical O&M Building is illustrated in **Figure 4**.[1] The O&M building will include a foundation, with electrical and heating, ventilation, and air conditioning (HVAC) systems. The O&M building will also include a septic system and well to provide up to 5 gallons per minute of potable water throughout operations. Once the project is operational, the O&M facility will use approximately 2,500 gallons per day of water.

The only staffed structure as part of the project is the proposed O&M building. The project is expected to be supported by up to 12 full time employees on the O&M staff. Typically, O&M staff will be present on-site during normal business hours.

[1] Note: Figure 4 is a typical example and does not identify the required fuel modification zone. However, as described within this Draft FPP, a minimum 100-foot radius fuel modification zone will be provided.

The proposed location for the project collector substation is shown on **Figure 2**. Construction will generally consist of the installation of concrete pads and electric transformers. Areas not covered by concrete pads will be surfaced with gravel to minimize erosion and surface runoff, and to provide fire protection through prevention of weedy growth. The collector substation will be fenced with security fencing to minimize the potential for entry by non-authorized personnel. A typical substation site is included as **Figure 5**.[2]

Proposed turbine locations are shown on **Figure 2**. The wind tower foundations will be approximately 60 feet in diameter, and 7 to10 feet deep. The project proposes up to a 200-foot cleared area around each turbine depending on the site topography. Upon completion of construction, with the exception of an area 60 feet in diameter (gravel up to a 10-foot radius to provide surface stabilization), the 200-foot cleared area would be revegetated with fire safe (non-combustible), low fuel vegetation, in a spacing and height configuration consistent with fire agency standard practices for a distance necessary to provide a minimum of 100 feet of fuel management from the turbine base and/or transformer. The impact analysis in the environmental document assumes a permanent impact to a 200-foot radius around each turbine. Fuel management within the 200-foot radius area would be performed, annually prior to May 1 and more often as needed. A typical turbine tower design is illustrated in **Figure 6**. A typical turbine site is illustrated in **Figure 7**. A typical turbine nacelle with labeled internal equipment is illustrated in **Figure 8**.

Two permanent meteorological towers will also be installed; their locations are noted on **Figure 2**. The towers will be free standing (no guy wires) and approximately 196 feet high with a concrete foundation. Installation will follow all safety measures contained in IBR's Health and Safety Manual. A permanent sonic detection and ranging SODAR unit will also be placed on-site and fenced.

Electricity generated by the wind turbines will be collected through 34.5kV collector lines and delivered to the project collector substation. The 34.5kV collector lines will principally be placed underground, except in locations where site-specific conditions require that they run aboveground. Typical overhead 34.5 kV single circuit collector line is shown in **Figure 9a** and a typical overhead 34.5 kV double circuit collector line is shown in **Figure 9b**.

After the electricity is stepped up to 138 kV at the project collector substation, an approximate 9.7-mile long 138 kV transmission line will interconnect the project collector substation with SDG&E's proposed Rebuilt Boulevard Substation, which is part of the SDG&E ECO Substation Project. A typical 138kV steel tangent pole is shown in **Figure 10**.

[2] Note: Figure 5 is a typical example and does not identify the required fuel modification zone. However, as described within this Draft FPP, a minimum 100-foot fuel modification zone will be provided.

1.1.3 Environmental Setting

1.1.3.1 Topography

The topography of the area is gently-to-moderately sloping with an elevation ranging between about 3,600 and 5,600 feet above mean sea level. Given the site location and size, slopes are widely variable with aspects in every direction. Tule Creek is the primary drainage feature in the project vicinity and drains the central portion of McCain Valley, towards the southeast as shown in **Figure 11**.

1.1.3.2 Climate and Fire History

San Diego County is an extremely fire-prone landscape. San Diego County is dominated by a Mediterranean-type climate with mild, wet winters and hot, dry summers. The County is divided into five climate zones from the coast to the desert (Climates of San Diego County, Agricultural Relationships, University of California, Agricultural Extension Service, and U.S. Weather Bureau). These climate zones are determined by several factors: proximity to the ocean, terrain, elevation, and latitude. The site is located within the interior and desert climate zones. Rainfall averages 11 to 18 inches a year with the lowest amount occurring in the eastern portion of the project area.

The climate in central San Diego County supports dense, drought-adapted shrublands that are highly flammable, especially in the fall as fuel moistures reach very low levels. The combination of the climate and drought adapted shrubs results in a fire season that is year around. Most critically, winds originating from the Great Basin, locally known as Santa Anas, which create extreme fire weather conditions characterized by low humidity, sustained high-speed winds, and extremely strong gusts. Santa Ana winds typically blow from the northeast over the Peninsular Range. As the air is forced through coastal mountain passes, wind speeds of 40 miles per hour (mph) at measured at ground level can be maintained for hours with gusts from 70 to 115 mph possible (Schroeder et al., 1964). Santa Ana winds create extremely dangerous fire conditions and have been the primary driver of most of Southern California's catastrophic wildfires.

Santa Ana winds are at their peak during fall and early winter months, which marks the height of fire season. Because of the presence of dense, dry fuels and periodic Santa Ana winds, southern California has been characterized as having one of the most fire-prone landscapes in the world. **Figure 12** presents a map of San Diego County overlain with Fire Hazard Severity Zones, defined as a measure of the likelihood that an area will burn combined with the severity of burn behavior characteristics (such as intensity, speed, and embers produced).

The project area is mapped as being located within an area of high and very high fire hazard severity as identified by CAL FIRE, and shown on **Figure 13**. The fire history of the area was reviewed and is depicted on **Figure 14**. Fire history information was derived from CAL FIRE and the San Diego Geographic Information Source (SanGIS) Data Warehouse from July 2008. The assessment includes most fires greater than 10 acres in size, however not all historic fires may be documented. No fires have been mapped within the project area.

A review of the 2003 and 2007 Fire Storms in San Diego County are enough to illustrate the result of a wildland fire during extreme fire conditions. Within San Diego County, these fires include the Paradise, Otay, Cedar, Witch, Guejito, Rice, Harris, and Poomacha fires. Extreme weather conditions in the height of fire season drove the wildfires to expand rapidly into major events.

Recent reports by CAL FIRE and the CPUC have highlighted the fire risks associated with powerlines. CAL FIRE documented their analysis of the causes associated with the Witch, Guejito, and Rice fires of 2007 (http://www.fire.ca.gov/fire_protection/fire_protection_firereports.php) in a series of published reports. Key findings indicate that winds in the vicinity of the fire area peaked at velocities approaching 50 mph. In each case the fires started when the lines came in contact with each other, vegetation, or other wires, causing sparks that ignited dry vegetation. The Witch Fire was associated with a 69 kV line, and the Guejito and Rice fires were associated with 12 kV lines. The CPUC report (http://docs.cpuc.ca.gov/published/Graphics/87470.PDF) also documents peak winds in the 50 to 60 mph range. The CPUC reports conclude that winds in that velocity range are not unusual for the area.

1.1.3.3 Vegetation and Fuels

The native vegetation type within the project area is predominantly chaparral and related shrublands. The existing vegetation was mapped by HDR Engineering, Inc. (**Appendix A,** Biological Resources Maps). Vegetation included a variety of types of scrub, chaparrals and non-native grasslands, in addition to agriculture, disturbed, landscaped and developed lands. Overall the chaparrals dominate the project area. Accumulation of fuels in these shrubland systems is a natural process. However in the past century, human wildfire ignitions have had a greater influence on the shrubland fire frequency due to the steep population rise in Southern California (Keeley and Fotheringham, 2003). This is especially evident at lower elevations where agricultural expansion followed by rapid urban growth has extended into wildland areas, introducing more ignitions and increasing the number of wildfires across the landscape.

1.2 Fire Agency Jurisdiction

The responsibility for fire suppression within the project area is shared by the SDCFA, SDRFPD, CAL FIRE, BLM and Tribal governments. The portions of the project located on privately-owned lands fall within the jurisdiction of the SDCFA CSA 111 and 135, SDRFPD, and CAL FIRE. CAL FIRE has the primary responsibility for wildfire protection within SRAs. Fire Responsibility Areas and fire stations are shown in **Figure 3**.

San Diego County Fire Authority (SDCFA)

The San Diego County Fire Authority was created by the County Board of Supervisors in July 2008 to improve fire protection and emergency medical services in the region. The goal of the SDCFA is to unify the administrative support, communications and training of 15 rural fire agencies and extend around the clock protection to 1.5 million acres of the unincorporated County lands that previously had either limited, or part-time on-call protection, by 2012.

San Diego Rural Fire Protection District (SDRFPD)

The San Diego Rural Fire Protection District was formed on May 18, 1983 through the consolidation of 13 East County volunteer fire departments. SDFPD, under a cooperative fire protection agreement with CAL FIRE, protects an area of approximately 720 square miles and provides emergency medical services, structural fire protection and rescue services. SDRFPD also responds to wildland fires; although wildland fire protection within this area is primarily the responsibility of CAL FIRE and the United States Forest Service (USFS).

California Department of Forestry and Fire Protection (CAL FIRE)

CAL FIRE is the state's largest fire protection organization, whose fire protection team includes extensive ground forces, supported by a variety of fire-fighting equipment. CAL FIRE has joined with federal and local agencies to form a statewide mutual aid system. This system insures a rapid response of emergency equipment by being able to draw on all available resources regardless of jurisdiction.

County Service Areas (CSA)

CSAs are organized under the authority of the Board of Supervisors to provide a level of emergency response within a defined jurisdictional boundary by using volunteers. CSAs have defined boundaries and most participate in the Fire Mitigation Fee program, which funds facilities and equipment, but the CSAs lack the authority to adopt a fire code or provide official response to planning and building projects. A portion of the project is located within CSAs 135 and CSA 111.

Bureau of Land Management (BLM)

BLM has land use jurisdiction throughout the majority of the project area. However, BLM has no local emergency response resources.

The BLM maintains several programs in the disciplines of fire suppression, preparedness, fuels management, prevention and education, community assistance, and protection and safety, all of which are intended to safely protect the public, natural landscape, and wildlife habitat from fire-related damage. The various programs of the BLM are discussed briefly below.

- The Fire and Aviation Directorate Program is tasked with providing aerial firefighting support for fires occurring on BLM lands. Aircraft used by the BLM are BLM-owned and contracted.
- The Community Assistance and Protection Program includes mitigation and prevention, education, and community outreach. Experts within this program are typically deployed to fire-prone areas before a fire starts to educate the community regarding fire management and suppression activities.
- The Fuels Management Program focuses on protecting communities and natural resources while providing for local economic opportunities. Through this program, fuels are

effectively managed through collaboration with local communities and agencies in the form of community wildfire protection programs, fuels treatment, biomass utilization, and local fuels management contracts.

It should be noted that in addition to maintaining these programs, the BLM provides funding for firefighting efforts (through Community Assistance Grants) in the rural areas of San Diego County. In the past, funding has been used for wildfire training to local volunteers responsible for responding to fires on BLM lands. In San Diego County, BLM lands are under a Direct Protection Agreement with CAL FIRE, which specifies that CAL FIRE provides fire response resources and is responsible for conducting investigations regarding the recovery of fire suppression costs (CPUC and BLM 2008a).

The project is located within the California Desert District Planning Area and in the El Centro Fire Management Zone (FMZ) of the BLM. The current Fire Management Plan (FMP) for the California Desert District was developed in 1998 and was designed around a "fire management zone" concept based on distinct vegetation communities and the strategies for fire suppression within each of those communities. The intent was for objectives and constraints identified for fire-suppression activities to be developed by Land Use Plan decisions associated with resources. The FMP categorized the Planning Area as FMZ 6, which is a CAL FIRE Direct Protection Area. CAL FIRE is the primary fire protection agency for BLM-administered lands in the area (CPUC and BLM 2008a).

The primary objective of CAL FIRE is to suppress all vegetation fires of 10 acres or less upon initial attack, based on "assets at risk analysis," which favors protection of structures in the urban interface. CAL FIRE and BLM operate under a Cooperative Fire Protection Plan that implores CAL FIRE to consider BLM's resource protection standards in order to develop the least-cost/least-damaging suppression strategy possible. BLM is required to send a resource advisor to work directly with the CAL FIRE incident commander to ensure resource values are fully protected or at least mitigated. This requirement is applicable to all vegetation fires occurring in the Planning Area.

Tribal Lands

Emergency response to fires on tribal lands is provided by the Campo Indian Reservation Fire Department by agreement with the other tribes. The Fire Department has one Type III brush fire engine, and staffing is variable from day to day. They are dispatched as part of the first alarm fire assignment to the project area, as described in Adequate Emergency Services, Section 4.1.

1.3 Applicable Regulations, Plans, and Standards

This section summarizes federal, state and local regulations, plans and standards relevant to fire suppression and fire prevention.

1.3.1 Federal Regulations and Nationally Recognized Standards

This section provides a description of the regulations and guidance pertinent to the project. As described in the following sections, a wide range of standards are used throughout the industry.

The BLM is the federal lead agency under the National Environmental Policy Act (NEPA). This FPP will serve as part of the analysis in the Environmental Impact Statement (EIS). The NEPA analysis will be based upon the Council on Environmental Quality (CEQ) regulation for implementing NEPA (40 Code of Federal Regulations [CFR] 1500 et seq.), and the BLM NEPA Handbook (H-1790-1).

According to a 2004 Federal Energy Regulatory Commission (FERC) report, the vast majority of transmission owners follow the National Electrical Safety Code (NESC) rules or American National Standards Institute (ANSI) guidelines, or both when managing vegetation around transmission system equipment. The NESC manages electric safety rules, including transmission wire clearance standards, whereas the applicable ANSI code manages the practice of pruning and removal of vegetation. However, in California, the CPUC has adopted General Order (GO) 95 rather than NESC as the key electric safety standard for the state. The following standards, guidelines, rules and regulations identify requirements and suggested practices for vegetation management in transmission line corridors.

In addition the National Fire Protection Association (NFPA) has prepared a Standard (guidance document) on Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations (NFPA 850) that contains relevant information.

National Electric Safety Code 1977, 2006

The NESC is a national code covering a variety of basic provisions regarding electric supply stations, overhead electric supply and communication lines, and underground electric supply and communication lines. It contains work rules for construction, maintenance, and operation of electric supply and communication lines and equipment. The NESC must be adopted by states, and the State of California has adopted its own standard (GO 95; discussed in Section 1.3.2) governing overhead transmission lines in the State. Therefore, the NESC is not discussed further.

North American Electric Reliability Council (NERC)

NERC is a nonprofit corporation whose members are ten regional reliability councils. NERC's function is to maintain and improve the reliability of the North American integrated electric transmission system, including preventing outages from vegetation located on transmission right-of-ways (ROWs), minimizing outages from vegetation located adjacent to ROWs and maintaining clearances between transmission lines and vegetation along transmission ROWs. As a result of the recommendations following the August 14, 2003 blackouts on the East Coast, NERC was charged with developing a vegetation management standard that would be applicable to all utilities and that would provide greater specificity than the NESC and ANSI standards.
Standard FAC-003-1, Transmission Vegetation Management Program (TVMP), became effective April 7, 2006, and mandatory for all utilities, pursuant to Section 1211 of the Energy Policy Act of 2005. This standard applies to all transmission lines operated at 200 kV and above and to any lower voltage lines considered critical to the reliability of the electric system in the region. The transmission line owner must prepare, and keep current, a formal TVMP. The TVMP must identify and document clearances between vegetation and overhead, ungrounded supply conductors, taking into consideration transmission line voltage, the effects of ambient

temperatures on conductor sag under maximum design loading, and the effects of wind velocities on conductor sway. Minimum clearance distances must be no less than those set forth by the Institute of Electrical and Electronics Engineers (IEEE) Standard 516-2003.

Institute of Electrical and Electronics Engineers Standard 516-2003

The IEEE is a leading authority in setting standards for the electric power industry. Standard 516-2003, Guide for Maintenance Methods on Energized Power Lines, provides minimum vegetation-to-conductor clearances to maintain electrical integrity.

National Fire Protection Association (NFPA) Codes, Standards, Practices and Guides

NFPA® codes, standards, recommended practices, and guides ("NFPA Documents"), are developed through a consensus standards development process approved by ANSI. This process brings together professionals representing varied viewpoints and interests to achieve consensus on fire and other safety issues. NFPA standards are recommended guidelines and nationally accepted good practices in fire protection but are not law or "codes" unless adopted as such or referenced as such by the California Fire Code or the Local Fire Agency.

- NFPA 850, Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations, 2010: NFPA 850 was prepared for the guidance of those charged with the design, construction, operation, and protection of electric generating plants and high voltage direct current converter stations that are covered by the scope of this document. This document provides fire hazard control recommendations for the safety of construction and operating personnel, the physical integrity of plant components, fire protection systems and equipment, and the continuity of plant operations.
- NFPA 10, Fire Extinguishers: A long-standing standard, which specifies the types, sizes, rating and locations for portable fire extinguishers. It also provides information on how to calculate the number and size of portable fire extinguishers needed.
- NFPA 11, Fire fighting foam (Low, Medium, and High Expansion Foam): NFPA 11 is a longstanding standard, which provides recommendations for design and installation of firefighting foam systems and portable equipment. It also provides recommendations regarding calculating the amount of foam concentrate and solution needed on a flammable or combustible liquid fire.
- NFPA 13, Standard for Installation of Sprinkler systems: NFPA 13 is the standard for design and installation of fire sprinkler systems in a building. It provides the requirements for the type of system needed in a particular occupancy, water supply, sprinkler head flow and pressures, the locations of sprinkler heads, and installation of the system. This standard is referenced by the California Fire Code.
- NFPA 22, Standard for water tanks for private fire protection: Provides recommendations for the design, construction and installation of water storage tanks for private fire protection systems.

- NFPA 30, Flammable and Combustible Liquids Code: This standard provides recommendations for storage, use and handling of flammable and combustible liquids. It provides detailed information regarding tank storage, spacing, dispensing of liquids, portable containers and other related operations. NFPA 30 is referenced by the California Fire Code.
- NFPA 70, National Electrical Code: NFPA 70 is the standard for the design and installation of electrical systems. It includes recommendations for various types of occupancies and also provides recommendations and criteria for the location and installation of "explosion proof" electrical systems.
- NFPA 72, National Fire Alarm and Signaling Code: NFPA 72 is the standard for the design, installation and operation of fire alarm systems in various occupancies. This standard is used by fire alarm system designers when designing and installing a system. It is utilized also by Fire Agencies when reviewing plans for new systems.
- NFPA 497, Classification of Flammable liquids, Gases and Vapors, and for Electrical Area Installations in Chemical process areas: NFPA 497 is the standard, which is utilized along with NFPA 70 to determine flammable gas, flammable liquid and combustible liquid hazards and recommend the areas which require explosion proof electrical systems. It also sets forth the extent of the classified areas. Although the title says chemical process areas, it is used as a standard for explosion proof electrical as it defines various risks and contains numerous diagrams to help the electrical system designer.

International Fire Code (IFC)

The IFC is published by the International Code Council, is a code which may be adopted by a jurisdiction. It forms the basis of the current California Fire Code (CCR Title 24, part 9). The IFC is the underlying nationally recognized code that sets standards and requirements to safe guard against the threat fires may pose to public health, safety, and the environment. The IFC, when adopted by a jurisdiction, regulates the planning, construction, and maintenance of development in all areas.

International Wildland-Urban Interface Code

The International Wildland-Urban Interface Code is published by the IFC, and is a model code addressing wildfire issues.

1.3.2 State Regulations and Standards

This section provides a description of the regulations and guidance pertinent to the to management of vegetation as they relate to the reliability of electric transmission systems as regulated by the CPUC, GO 95, CAL FIRE objectives to reduce wildfire and hazard clearance standards, the California Code of Regulations (CCRs), and CAL FIRE recovery costs project.

California Public Utilities Commission

GO 95: Rules for Overhead Electric Line Construction

GO 95 is the key standard governing the design, construction, operation, and maintenance of overhead electric lines in the State. It was adopted in 1941 and updated most recently in 2006. GO 95 includes safety standards for overhead electric lines, including minimum distances for conductor spacing, minimum conductor ground clearance, standards for calculating maximum sag, and vegetation clearance requirements. The latter, governed by Rule 35, is summarized here.

GO 95: Rule 35, Tree Trimming, defines minimum vegetation clearances around power lines. Rule 35 guidelines specify, at the time of trimming require:

- 4 feet radial clearances are required for any conductor of a line operating at 2,400 volts or more, but less than 72,000 volts;
- 6 feet radial clearances are required for any conductor of a line operating at 72,000 volts or more, but less than 110,000 volts;
- 10 feet radial clearances are required for any conductor of a line operating at 110,000 volts or more, but less than 300,000 volts (this would apply to the project);
- 15 feet radial clearances are required for any conductor of a line operating at 300,000 volts or more.

GO 95 has been periodically updated over the last six decades. Under Public Utilities Code Section 1708.5, any person may petition the Commission to amend the regulation.

CAL FIRE

CAL FIRE has a primary objective of reducing wildfire occurrence and enforcing fire hazard clearance standards around structures and utilities in order to protect the public from loss of life property and resources. Within CAL FIRE jurisdiction areas, the LE-38 Fire Safety Inspection Program is implemented for community outreach enforcement of fire safe codes. These laws include the California Public Resources Codes (PRC) 4291, 4292, and 4293 that define defensible space clearance requirements around private structures and aboveground power lines.

CCR, Title 14 Section 1254 (described below) applies to minimum clearances around utility poles. CAL FIRE inspections of utility facilities entail making notes on violations and defects in the infrastructure. Joint inspections of electrical facilities by CAL FIRE and the utility company are encouraged for the mutual benefit of fire prevention on the part of each entity. Violations identified during inspections must be brought into compliance before the utility follow-up inspections otherwise the responsible party could face misdemeanor charges for violating fire safety laws. In the event that a fire safety violation results in a fire, the inspection records can be used later in fire-cause investigations to determine the liable party. The responsible party could pay for the resulting damage of the wildfire through the CAL FIRE Civil Cost Recovery Program, described below.

In the section of Southern California where the project is proposed, the power line hazard reduction standards are applicable year round due to the scope of the fire season. More detailed descriptions of the applicable codes and regulations and images of exempt and non-exempt power line structures may be found in CAL FIRE Power Line Fire Prevention Field Guide (CAL FIRE 2008).

- PRC § 4291, Reduction of Fire Hazards Around Buildings, requires 100 feet of vegetation management around all buildings, and is the primary mechanism for conducting fire prevention activities on private property within CAL FIRE jurisdiction.
- PRC § 4292, Powerline Hazard Reduction, requires clearing vegetation inside a 10-foot circumference of such pole or tower which supports a switch, fuse, transformer, lightning arrestor, line junction, or which is a dead end or corner pole.
- PRC § 4293, Powerline Clearance Required presents guidelines for line clearance.
- CCR, Title 14 Section 1254 presents guidelines for minimum clearance requirements around utility poles.

CCR, Title 14 Section 1254

The firebreak clearances required by PRC § 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of CCR, Title 14 Section 1255 or PRC § 4296.

The radius of the cylindroids is 10 feet measured horizontally from the outer circumference of the specified pole or tower with height equal to the distance from the intersection of the imaginary vertical exterior surface of the cylindroid with the ground to an intersection with a horizontal plane passing through the highest point at which a conductor is attached to such pole or tower. Flammable vegetation and materials located wholly or partially within the firebreak space shall be treated as follows:

- At ground level – remove flammable materials, including but not limited to, ground litter, duff and dead or desiccated vegetation that will propagate fire;
- From 0 to 8 feet above ground level – remove flammable trash, debris or other materials, grass, herbaceous and brush vegetation. All limbs and foliage of living trees shall be removed up to a height of 8 feet;
- From 8 feet to horizontal plane of highest point of conductor attachment – remove dead, diseased or dying limbs and foliage from living sound trees and any dead, diseased or dying trees in their entirety.

CCR, Title 14, Forest Practice Rules Article 8, Rule #918 Fire Protection

The requirements of Title 14, Section 918 applies to all vegetation operations in SRAs. This includes patrols for two hours subsequent to vegetation removal activities to ensure that the activity has not sparked a fire.

CAL FIRE Civil Cost Recovery Program

The CAL FIRE Civil Cost Recovery Program was established to recover the cost of fighting fires caused by people (or entities) that violate the law or were negligent in their actions. For overhead electric lines, these violations are generally related to non-compliance with vegetation clearance requirements.

California Code of Regulations - California Building and Fire Codes

California Code of Regulations, Title 24 parts 2 & 9, (http://osfm.fire.ca.gov/). Title 24 contains several International Codes that address fire safety including the International Fire Code, International Building Code. Additional safety regulations adopted by the California Building Standards Commission include the Uniform Mechanical Code, and Uniform Plumbing Code, which are also part of the California Code of Regulations.

California Environmental Quality Act

The CPUC is the state lead agency under CEQA. This FPP will serve as part of the basis for analysis in the Environmental Impact Report (EIR). Appendix G of CEQA Guidelines does not specify evaluation criteria for identifying potentially significant impacts regarding for fire fuel management. Section 15382 of the *CEQA Guidelines* states that a significant effect on the environment means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air and water. The CEQA analysis will be conducted pursuant to Section 15060-15065 of the *CEQA Guidelines.*

1.3.3 Regional and Local Regulations and Standards

CAL FIRE San Diego Unit "Pre-Fire Management Plan 2009"

As directed by the California State Fire Plan, the CAL FIRE San Diego Unit has prepared a "Pre-fire Management Plan" that encompasses 1,237,201 acres of SRA within San Diego County and Western portions of Imperial County. This document was last updated in 2005. Of particular concern to the unit is the continuation of drought induced tree and vegetation mortalities caused by bark beetle infestations. By proclamation of the Governor, CAL FIRE has taken steps to reduce the fire hazard by allowing the immediate removal of dead and dying trees from landowners' properties. This proclamation also directs CAL FIRE to protect public safety by clearing effective evacuation and emergency response routes and by establishing fire safe evacuation centers. In order to facilitate these projects, CAL FIRE San Diego is to coordinate and cooperate with all agencies involved. Areas of high priority that will be focused on for future fire prevention activities will be determined based on ignition trends and fire history. The overall goal of the San Diego Pre-Fire Management Plan is to protect public safety and assets by reducing wildfire ignitions and increasing initial attack successes.

County of San Diego

The County of San Diego Department of Planning and Land Use (DPLU) is the permitting authority for the Major Use Permit (MUP) and Building Permits. The main entities that are

responsible for ensuring the health and public safety in unincorporated areas of the County are provided by San Diego County and fire protection districts (FPDs). The enforcement responsibilities within CAL FIRE and the FPDs are by any person designated by the FPD's Chief to exercise the powers and perform the duties of the fire code official as set forth in their respective fire code as ratified by the Board of Supervisors. In the unincorporated areas of the County outside of a FPD, the enforcement responsibility lay with the person designated by the Chief Administrative Officer of San Diego County or his/her authorized representative.

County of San Diego Building and Fire Codes (Title 9, Divisions 1, 2 and 6, San Diego County Code of Regulatory Ordinances).

Following the October 2003 and fall 2007 wildfires, assessments were made of damaged and destroyed homes in an effort to identify areas where codes could be strengthened in order to enhance the chances of a structure surviving a wildfire. As a result, in February 2008, the County further amended the Fire Code and Building Code to include strengthened ignition-resistive construction requirements, modifying the previous two-tiered system and requiring "enhanced" standards for all new construction.

The County of San Diego's Wildland Fire and Fire Protection Guidelines for Determining Significance are described in detail in the next section of this FPP.

2.0 GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE

The FPP must evaluate the adverse environmental effects that a proposed project may have from wildland fire and properly mitigate those impacts to ensure that development projects do not unnecessarily expose people or structures to a significant risk of loss, injury or death involving wildland fires. Detailed guidelines for the determination of significance are identified in the County of San Diego's Wildland Fire and Fire Protection Guidelines for Determining Significance (see http://www.co.san-diego.ca.us/dplu/docs/Fire-Guidelines.pdf), as are guidelines for preparing Fire Protection Plans (*see* http://www.co.san-diego.ca.us/dplu/docs/Fire-Report-Format.pdf).

This section of the FPP must include the following Guidelines for the Determination of Significance:

1. 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?

2. Would the project result in inadequate emergency access?

3. 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 service ratios, response times or other performance objectives for fire protection?

4. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

3.0 ANALYSIS OF SOURCES OF WIND FARM FIRE RISK AND PROJECT DESIGN FEATURES TO MINIMIZE FIRE RISK

This section describes potential sources of fire risk associated with the proposed project and identifies PDFs that minimize fire risk and provide fire protection and prevention as it relates to the potential sources of fire risk associated with the project.

3.1 Sources of Wind Farm Fire Risk

The potential sources of fire risk associated with the proposed project include the following and are discussed in detail below.

- Construction activities;
- Electrical 34.5 kV collection and 138 kV transmission system;
- Wind turbines; and
- Operations and maintenance activities.

3.2 Construction

For purposes of identifying potential sources of fire risk from the proposed project, the following issues have been identified as having the potential to elevate the risk of fire ignition. **Table 1** below identifies the sources of fire risk associated with particular construction activities. Additionally, **Table 1** identifies and briefly describes PDF that avoid and/or minimize the potential for fire risk associated with the particular construction activities. Detailed discussion of the PDF is provided below in Section 3.6.1.

3.3 Electrical 34.5 kV Collection and 138 kV Transmission System

The project's electrical system will consist of three key elements: (1) an underground and overhead collector system, which will connect the wind turbines at a voltage of 34.5 kV; (2) the project collector substation, where the voltage will be increased from 34.5 kV to 138 kV; and (3) a 138 kV transmission line that will deliver the electricity to the SDG&E proposed Rebuilt Boulevard Substation.

The electrical collection and distribution system will be designed to be in compliance with Rule 250 of the NESC, which covers all wind and ice loading requirements for overhead lines. Pole design will comply with the Avian Powerline Interaction Committee (APLIC) "Suggested Practices for Avian Protection on Power Lines" and anti-perching devices will be utilized where poles are within 0.5 miles of turbines.

Table 1. Construction Fire Risk, Project Design Features and Code Requirements

Source of Fire Risk	Project Design Feature (Section 3.6.1) and Code Requirements
Hot Work occurring during a Red Flag Alert.	**PDF-1:** Hot Work Procedure (Section 3.6.1)
Pioneering Work (initial brush clearing by bulldozer, which can result in ignition to vegetation from engine sparks or bulldozer blade strikes against rocks)	**PDF-2:** Construction, Operations, and Maintenance Fire Prevention/Protection Plan
Some areas may require blasting to obtain the required roadway profiles and to install power poles, underground collector cables, and install turbine foundations.	**PDF-3:** Blasting Plan **PDF-4:** County of San Diego Consolidated Fire Code, Section 96.1.3301.2, Explosives and Fireworks Applicability.
Construction waste, consisting of wood waste from wood forms used for concrete foundation construction, additional wastes, consisting of erosion control materials such as straw bales and silt fencing, and packaging materials for associated turbine parts and other electrical equipment could create a fuel hazard.	**PDF-5:** Construction Waste Disposal. As a standard practice, IBR does not allow construction waste to accumulate. Waste associated with project construction will be contained in metal containers and/or designated cleared construction staging areas (large items). The metal containers and staging areas will be monitored and emptied on a regular basis.
Chemicals such as lubricating oils and cleaners for the turbines create a fuel hazard.	**PDF-6:** *Storage, Use and Handling of Oils, Flammable Liquids, Hazardous Materials and Vehicle Fuels.* The proper storage, use, and handling of these materials are regulated under the California Fire Code (CFC).
Adequate water supply onsite to meet firefighter flow requirements in case of wildfire.	**PDF-7:** See Section 4.3. Based on the well pump tests performed at wells on Rough Acres Ranch and the Ewiiaapaayp Native American Reservation and other off-site water source options, an ample water supply exists for the project construction period. If a fire were to occur in the project area, during construction activities, construction activities would cease and the groundwater available from these sources could be used to for fire fighting, in addition to the water tanks identified above. In addition, based on informal conversations with the staff members of the various fire agencies, Lake Tule and other sources could be utilized for firefighting purposes (HDR communication with County Fire Authority).
Inadequate fire or emergency services capacity.	**PDF -8:** Fire and Emergency Service Agreement. A Fire and Emergency Protection Services Agreement for the project shall be executed between IBR and the SDRFPD, and other agencies as appropriate.

34.5 kV Overhead Collector System

Portions of the project's electrical collector system will be aboveground due to the rugged topography of the project area. The overhead collector system is approximately 9.4 miles in length. The majority of the collector system will be underground. The underground portion of the collector system is approximately 29 miles in length. Only 30 percent of the collector system is planned to be overhead. The 34.5 kV overhead collector system will be supported by a maximum of 250 wood or steel poles that will be 60 to 80 feet in height and 2 feet in diameter, with single and double circuit collectors.

138 kV Transmission Line

The overhead 138 kV transmission line will begin at the project collector substation and run south on either side of McCain Valley Road, and across I-8 to the SDG&E proposed Rebuilt Boulevard Substation located on Old Highway 80. The transmission line will be constructed as a single circuit without any under build attachments and would be a maximum of 9.7 miles.

A maximum of 116 steel galvanized or weathered steel finish transmission poles will be necessary to support the 138 kV transmission line. The steel galvanized or weathered steel finish poles supporting the transmission line will be approximately 74.5 feet in height; with typical span length of 600 feet and a maximum length of 700 feet.

For purposes of identifying potential sources of fire risk, the following issues have the potential to elevate the risk of fire ignition. The table below identifies the sources of fire risk associated with power lines. Additionally, **Table 2** identifies PDFs that minimize the potential for fire risk associated with power lines. Detailed discussion of each PDF is provided below in Section 3.6.2.

3.4 Wind Turbines

Wind turbines have a number of safety features that minimize the potential for fire ignition. All electrical components are protected by current limiting devices, either thermal circuit breakers or traditional fuses. Should any of these devices register an out-of-range condition, it will immediately command a shutdown of the turbine and will disengage it from the electrical collection system. The project will be monitored IBR's proprietary wind turbine monitoring Supervisory, Control and Data Acquisition system (SCADA). This system will be located in the Operations and Maintenance building (O&M) and will collect operation, performance data, and allow for remote operation of the wind turbines. In addition, this system informs personnel at IBR's NCC in Portland, Oregon. The monitoring system for the SCADA will have a backup emergency power source.

Table 2. Electrical Collector and Transmission System Fire Risk, Project Design Features and Code Requirements

Source of Fire Risk	Project Design Feature (Section 3.6.2) and Code Requirements
Vegetation contact with conductors resulting in arcing.	**PDF-9:** The 34.5 kV overhead collector lines as well as the 138 kV transmission lines will be designed in accordance with CPUC GO 95 "Rules For Overhead Electric Line Construction" and the current edition of the NESC to ensure sufficient clearance between conductors and vegetation to prevent contact. For example, the 138kV transmission line will have a minimum clearance from the conductor to the ground of 30 feet and the 34.5 kV overhead collector lines will have a minimum of 18.5 feet. Although, IBR's standard practice is to place the lines at a greater distance apart (e.g., 25 feet). Based on regular visual inspections, vegetation removal and management will be conducted below the lines to ensure this clearance is maintained.
Malfunctioning hardware such as transformers and capacitors or arcing from pole mounted hardware.	**PDF-10:** The area within the project substation, which will contain transformers, capacitors, and other electrical components, will be cleared of vegetation, graveled, and maintained vegetation free. In addition, a 5-foot wide area outside the substation fence will be cleared and graveled. A 15-foot diameter area around transformers located at turbine towers will be cleared and graveled. Additional fuel management will occur for a balance of 100 feet from the turbine base. No switching devices with moving parts (fused cutouts, switches, reclosers) will be located on the poles. This removes a potential ignition source from arcing. Equipment within the substation, including transformers, will be protected in compliance with NFPA 850 and the CFC. Fire fighting foam concentrate will be required at the substation location in the event of an oil fire.
Avian contact with power lines.	**PDF-11:** The design of the power lines will comply with APLIC "Suggested Practices for Avian Protection on Power Lines" which is the industry standard developed to minimize avian contact with power lines. Bird caused flashovers are very unlikely for the project because the energized 134 kV conductors will have minimum distances of 30 vertical feet and 12 horizontal feet apart, and the 34.5 kV overhead collector lines will have a minimum distance of 18.5 feet Vertical feet and 5 feet horizontal feet apart.
Conductor-to-conductor contact or floating/wind-blown debris contact with conductors or insulators.	**PDF-12:** The lines and associated facilities will be designed in accordance with CPUC GO 95 "Rules For Overhead Electric Line Construction" and the current edition of the NESC to ensure the design minimizes the potential for inadvertent conductor contact.

Source of Fire Risk	Project Design Feature (Section 3.6.2) and Code Requirements
Wood support poles being blown down in high winds.	**PDF-13:** Self supporting steel poles will be utilized for the 138 kV transmission line. Steel and wood are being considered for 34.5 kV overhead collector system poles. If guy wires and anchors are used, they will be rated for a minimum of 150% of expected loading. This design approach eliminates the most likely cause of pole collapse, which is failure of a guy wire and/or anchor.
Dust or dirt on insulators.	**PDF-14:** Periodic visual inspection of the 138 kV transmission line will occur and washing will occur on an "as needed" basis as determined by the visual inspections.
Airplane and/or helicopter contact with conductors or support structures.	**PDF-15:** Electrical collection and transmission system and turbines will include the required FAA and CAL FIRE lighting and markings.

For purposes of identifying potential sources of fire risk, as it relates to the wind turbines, the following issues have the potential to elevate the risk of fire ignition:

- Nacelle Fire resulting from:
  - Electrical components and wiring;
  - Flammable gear and bearing lubricants;
  - Overheating due to blade over speed, wind or vibration; and
  - Lightning.
- Electrical Components elsewhere in the turbine.

Nacelle Fire

The turbine system is equipped with an arc flash detection sensors optical technology to detect the presence of the initial arc flash, over-current sensing transducers and smoke detectors. All electrical components are protected by current limiting devices, either thermal circuit breakers or traditional fuses. Should any of these devices register an out-or-range condition, the turbine will shutdown and will disengage from the electrical collection system. In addition, the SCADA system will alarm. The following two types of turbine electrical components are proposed for the project:

1) Up-Tower - Turbines with electrical (medium-voltage) equipment in the nacelle have a number of safety devices to detect electrical arc and smoke. The up-tower turbines being considered for this project include fire detection components that are included and mounted on key power cables within the nacelle. The fire detection and safety features include:

- Smoke detectors;
- Arc-flash sensors – Provide a clear arc flash measurement. Since the light emitted during an arc flash event is significantly brighter than normal background light, optical

technology can easily detect the light present at the initiation of the flash. If an arch-flash is detected, the turbine will immediately command a shutdown; and,

- Over-current sensing transducers – All electrical components are protected by current limiting devices, either thermal circuit breakers or traditional fuses. If any of these devices register an out-of-range condition, it will immediately command a shutdown of the turbine and will disengage it from the electrical collection system. The entire turbine is electrically protected by current-limiting switchgear that is installed inside the base of the tower.

2) Down-Tower - This type of turbine being considered for the project has the electrical components installed in metal cabinets inside the base of the tower, and a low-voltage-to-medium-voltage transformer installed adjacent to the transformer. In this configuration, the probability of an uncontained electrical fire in the nacelle is extremely remote, as there are no combustible materials inside the tower; however the same potential for a fire within the electrical components and transformer exists. As with the other turbine type, a tower-based circuit breaker electrically protects the entire machine. The down-tower turbine type will include similar fire detection, fire suppression, and safety features in the nacelle as the up-tower turbine type (e.g., smoke detectors, arc flash mitigation relays and over-current protection), however, fire suppression on the down-tower transformer is unnecessary due to the enclosed conditions of the turbine and improved fire access to the site. For the down-tower turbine type, there is a very low potential of an electrical fire escaping the turbine and causing a wildland fire.

A fire in the nacelle can melt and ignite the fiberglass enclosures and burning debris can drop to the ground, igniting other fires. Portions of the turbine could ignite and could fall to the ground. However, the project is proposing up to a 200-foot cleared area around each turbine depending on the site topography at the time of construction. Upon completion of construction, with the exception of an area 60 feet in diameter (gravel up to a 10-foot radius to provide surface stabilization), the cleared area would be revegetated using low fuel vegetation in a spacing and height configuration approved by the Fire District for a distance necessary to provide a minimum of 100 feet of fuel management from the turbine base and/or transformer. The environmental analysis conducted for the project assumed a permanent impact to a 200-foot radius around each turbine. Fuel management would be performed annually prior to May 1 and more often as needed.

Based on IBR's experience, burning debris from a nacelle fire could fall up to 100-feet from the turbine; however, this is speculative as the distance that debris would fall is dependant upon the wind conditions of that particular day. Burning material could travel in a windy condition and start a vegetation fire. Burning embers in wind driven vegetation fires can also travel distances from the main fire and start spot fires.

As a supplement to the fire detection and protection features (smoke detectors, arc-flash sensors, over-current sensing transducers, SCADA system, fuel modification, fire extinguishers) provided as part of the turbine design, IBR will provide one tank at the O&M building and four (4) water tanks with locations to be confirmed with the SDRFPD. Water tanks would be located within portions of the project area that the agencies feel are strategic from a firefighting perspective.

Water tanks will be installed and maintained by IBR, with the SDRFPD maintaining adequate water levels to support fire protection services.

It is possible for fire to occur in the wind turbine nacelles due to the presence of electrical control panel, and capacitor panels. Fires may be caused by electrical malfunctions, arcing in the nacelle, and excessive heat build-up in the nacelle. Hydraulic lubricating oils can also be ignited by an arc.

It is unlikely that fire ignition in the nacelle due to blade over speed would occur due to the design of the turbine blades, which are equipped with a pitch system that allows the blades to be rotated in order to control and stop the turbine. As back-up to the three independent blade pitch systems, the turbines are equipped with a mechanical breaking system. In addition, turbines are equipped with vibrations sensors that automatically shut the turbines down if vibrations exceed the normal operating conditions.

Lightning

Wind turbines are vulnerable to lightning strikes due to their height and location on elevated features such as ridges. Turbine blades are manufactured from fire resistant components, composites, fiberglass, carbon fiber, or a combination of all. However, to address this issue, the wind turbines being considered for this project include "grounding" features within the wind turbine blades to reduce the potential for fire due to lighting.

For purposes of identifying potential sources of fire risk, the following issues have the potential to elevate the risk of fire ignition. **Table 3** below identifies the sources of fire risk associated with wind turbines. Additionally, the table identifies PDF that minimize the potential for fire risk associated with wind turbines. Detailed discussion of the PDF regarding turbine components and the tower itself is provided below in Section 3.6.3.

3.5 Operations and Maintenance

Maintenance activities will be limited to areas accessible by the permanent access roads. Typical turbine maintenance activities involve deploying personnel to the turbine to service parts within the turbine, but may also include temporarily deploying a crane within the previously disturbed construction area around the turbine, removing the turbine rotor, replacing generators, and bearings. See discussion below in Section 3.6 regarding IBR's Hot Work Procedure that would be implemented during any operations and/or maintenance activities that occur during Red Flag Alerts.

Table 3. Wind Turbine Fire Risk, Project Design Features, and Code Requirements

Source of Fire Risk	Project Design Feature (Section 3.6.3) and Code Requirements
Nacelle Fire – Electrical • Electrical components and wiring • Flammable gear and bearing lubricants Nacelle Fire – Braking • Overheating due to turbine blade over speed, wind, and vibration	**PDF-16:** **1) Up-Tower -** Turbines with electrical (medium-voltage) equipment in the nacelle have a number of safety devices to detect electrical arc and smoke. The up-tower turbines being considered for this project include fire detection components mounted on key power cables within the nacelle. The fire detection features include: • Smoke detectors, • Arc-flash sensors, • Over-current sensing transducers; and • Portable fire extinguishers. Should any of these devices register an out-of-range condition, it will immediately command a shutdown of the turbine, disengage it from the electrical collection system, and send a notice through the SCADA system to the NCC in Portland, Oregon. The entire turbine is electrically protected by current-limiting switchgear that is installed inside the base of the tower. The project will be operated and maintained by approximately 12 permanent full-time employees, who will monitor the wind turbines during normal business hours. In addition, IBR's NCC in Portland, Oregon monitors and can control all of IBR's wind turbines through the SCADA and is staffed 24 hours a day. Both IBR's on-site staff and staff at the NCC will have the emergency contact information for the fire agencies, and will coordinate to make sure that the fire agencies will be called in the event of a fire or medical emergency. Primary communications with the wind farm is via Telco T1 lines, and all plants have satellite backup capability. The NCC has the ability to control each turbine individually, as well as control the substation. Should any out-of-range issue occur at the project, the NCC will contact the sites' dedicated on-call person to deploy to the site to investigate and/or call emergency services if warranted by the type of out-of-range signal transmitted to the NCC. **(2) Down-Tower -** This type of turbine being considered for the project has the medium voltage electrical components installed in metal cabinets inside the base of the tower, and a low-voltage-to-medium-voltage

Source of Fire Risk	Project Design Feature (Section 3.6.3) and Code Requirements
	transformer installed adjacent to the transformer. In this configuration, the probability of an uncontained electrical fire in the nacelle is extremely remote, as there are no combustible materials inside the tower. However this turbine style still has the same risk of a fire associated with electrical components as the Up-Tower style does. As with the other turbine type, a tower-based circuit breaker electrically protects the entire machine. The down-tower turbine type will include similar fire detection, fire suppression, and safety features in the nacelle as the up-tower turbine type (e.g., smoke detectors, arc flash mitigation relays and over-current protection), however, fire suppression on the down-tower transformer is unnecessary due to the enclosed conditions of the turbine and improved fire access to the site. For the down-tower turbine type, there is a very low potential of an electrical fire escaping the turbine and causing a wildland fire. The potential for fire ignition in the nacelle due to blade over speed, wind or vibration is limited due to the design of the turbine blades, which are equipped with a pitch system that allows the blades to be rotated in order to control and stop the turbine in high wind conditions. As back-up to the three independent blade pitch systems, the turbines are equipped with a mechanical breaking system. In addition, turbines are equipped with vibrations sensors that automatically shut the turbines down if vibrations exceed the normal operating conditions.
Lightning	**PDF-17:** All wind turbine models for this project will incorporate blade lightning protection systems. In general, these systems consist of: air-receptors on various locations along the length of the blade, ground-conducting straps in the hub, nacelle, and tower, lightning detection tell-tale circuit cards, and tower grounding to earth.

As described previously, the project will be operated and maintained by approximately 12 permanent full-time employees, who will monitor the wind turbines during normal business hours. In addition, IBR's NCC in Portland, Oregon monitors and can control all of IBR's wind turbines through the SCADA and is staffed 24 hours a day. Primary communications with the wind farm is via Telco T1 lines, and all plants have satellite backup capability. The NCC has the ability to control each turbine individually, as well as control the substation. Should any out-of-range issue occur at the project, the NCC will contact the sites' dedicated on-call person to deploy to the site to investigate and/or call emergency services if warranted by the type of out-of-range signal transmitted to the NCC. Both IBR's on-site staff and staff at the NCC will have the

emergency contact information for the fire agencies, and will coordinate to make sure that the fire agencies will be called in the event of a fire or medical emergency.

For purposes of identifying potential sources of fire risk, the following issues have the potential to elevate the risk of fire ignition. **Table 4** identifies the sources of fire risk associated with operations and maintenance activities. Additionally, the table identifies PDF that minimize the potential for fire risk associated with operations and maintenance activities. Detailed discussion of the PDF is provided below in Section 3.6.4.

3.6 Project Design Features

Included below is a detailed discussion of the PDF's identified above.

3.6.1 Construction

PDF-1 Hot Work: IBR will comply with the applicable sections in NFPA 51-B "Fire prevention during welding, cutting and other hot work" and CFC Chapter 26 "Welding and other Hot Work". During Red Flag Alerts, operations involving cutting, welding, thermit welding, brazing, soldering, grinding, thermal spraying, use of torches, or other similar activity during construction or maintenance activities will be conducted according to NFPA 51-B. Red Flag Warnings are issued by the U.S. National Weather Service based on humidity of less than or equal to 25 percent, temperature greater than 75 F degrees and a sustained wind average of 15 miles per hour or greater. The project area is located in the National Weather Service San Diego Mountain (CA 258) zone.

IBR will implement a Hot Work Procedure on-site to minimize the potential for fire ignition. Components of the Hot Work Procedure will include:

- Prior to hot work activity commencing, the on-site IBR fire safety coordinator will monitor daily the National Weather Service Red Flag Alert system.
- In the event of a Red Flag Alert, prior to hot work activity commencing, the on-site IBR fire safety coordinator will contact the local fire agency to determine the level of alert specific to the project area.
- The on-site IBR fire safety coordinator will require all hot work to be conducted according to NFPA 51-B.
- IBR will require all employees and/or sub-contractors who perform hot work during Red Flag Alerts to be trained under the applicable sections of NFPA 51-B.
- The on-site IBR fire safety coordinator will have the authority to modify hot work activities associated with construction and/or maintenance activities to the degree necessary to prevent fire ignition.

Table 4. Operations and Maintenance Fire Risk, Project Design Features and Code Requirements

Source of Fire Risk	Project Design Feature (Section 3.6.4) and Code Requirements
Off-road vehicle use • Pioneering Work • Sparks from road grading equipment	**PDF-18:** • No off-road vehicle use would be necessary because all wind turbine and associated project components (e.g., substation and O&M building) will be located in cleared areas. As part of the project design, existing access roads will be improved and new access roads are proposed that meet the requirements of the County of San Diego Consolidated Fire Code (2009). • Hot Work Procedure (PDF-1). • Construction, Operations, and Maintenance Fire Prevention/Protection Plan (PDF-2). • Road maintenance activities requiring the use of grading equipment will be suspended during red flag events. • Permanently assigned project vehicles will carry, as a minimum, a fire extinguisher, shovel, and two-way-radio.
On highway activities located in particularly hazardous fuel conditions • Idling or parked vehicles and equipment in areas of brush, grass, vegetation.	**PDF-19:** No vehicle will be idle or parked in areas of combustible fuels, such as brush or grass. All wind turbine and associated project components (e.g., substation and O&M building) are located in cleared areas. As part of the project design, existing access roads will be improved and new access roads are proposed.
Chain saw use of any kind	**PDF-1:**Hot Work Procedure (Section 3.6.1)
Operation of generators, pumps, augers, two-cycle motors, or other equipment capable of producing sparks or ample exhaust heat to cause ignition	**PDF-20:** Portable equipment powered by two cycle engines or capable of producing significant exhaust heat will be located within the 100-foot radius surrounding the turbine in which vegetative fuel reduction will take place. **PDF-1:** Hot Work Procedure (Section 3.6.1)
Tree removal equipment including but not limited to grinders, chippers, skidders, excavators, etc.	**PDF-1:** Hot Work Procedure (Section 3.6.1) **PDF-2:** Construction, Operations, and Maintenance Fire Prevention/Protection Plan (PDF-2). **PDF-20:** Tree removal not anticipated for O&M period.
Grinding and welding	**PDF-1:** Hot Work Procedure (Section 3.6.1)
Working on energized electrical equipment or facilities	**PDF-21:** Work on energized equipment will be avoided whenever possible. Personnel performing work on energized equipment will be trained in applicable OSHA and other safety requirements.
Smoking	**PDF-22:** Limited to cleared areas around the O&M building.
Red Flag Warnings	**PDF-1:** Hot Work Procedure (Section 3.6.1)
Turbine Fire – Human Activity	**PDF-1:** Hot Work Procedure (Section 3.6.1)

Source of Fire Risk	Project Design Feature (Section 3.6.4) and Code Requirements
(Hotwork)	
Inadequate Site Access	**PDF-23:** Existing access roads will be improved and new access roads will be constructed.
O&M Building Fire Risk	**PDF-24:** O&M building construction will include fire prevention and protection. • Construction to comply with County Building Code (CBC). • O&M building to be surrounded by 4-acre cleared area, with a minimum of 100 feet of fuel management. Structure will comply with County Code Title 9 for defensible space. • Batteries will have secondary containment and required ventilation. • Sprinkler systems installed, with the exception of the control room. • SCADA monitoring system will have emergency power source. • CFC and CBC compliance for fire separation. • Control room will have 1-hour fire rated walls. • Building will be equipped with smoke detectors. • Building will be equipped with a Knox box on the exterior by the main door.
Substation, Transformers, or Electrical Fire Risk	**PDF-25:** Transformers walls will have secondary containment adequate to contain the total amount of oil plus firefighting water for 15 minutes. To be approved by SDRFPD and SDCFA.
Inadequate Fire or Emergency Services Capacity	**PDF-8:** Fire and Emergency Service Agreement.
Combustible Storage	**PDF-26:** • Minimize the accumulation of combustible material. Storage of flammable materials in fire rated cabinets. • Perform periodic housekeeping inspections and unsure employees are trained in the use of fire extinguishers. • Combustible storage and trash will be removed from site as soon as possible.

PDF-2: Construction Activities - Develop and implement a Construction and Maintenance Fire Prevention/Protection Plan. IBR shall develop a multi-agency Construction and Maintenance Fire Prevention Plan. Plan reviewers shall include: CPUC, CAL FIRE, BLM, CSLC, and the County of San Diego. IBR shall provide a draft copy of this Plan to each listed agency at least 90 days before the start of construction activities. Comments on the Plan shall be provided by

IBR to all other participants, and IBR shall resolve each comment in consultation with and to the satisfaction of CAL FIRE, SDRFPD and the SDCFA. The final Plan shall be submitted to CAL FIRE, SDRFPD and SDCFA at least 30 days prior to the initiation of construction activities. IBR shall fully implement the Plan during all construction and maintenance activities. All construction work on the project shall follow the Construction Plan guidelines and commitments, and Plan contents are to be incorporated into the standard construction contracting agreements for the construction of the project. Primary Plan enforcement and implementation responsibility will remain with IBR.

At a minimum, Plan contents will include the requirements of Title 14 of the California Code of Regulations, Article 8 #918 "Fire Protection" and the elements listed below:

1. During the construction phase of the project, IBR shall implement ongoing fire patrols. IBR shall maintain fire patrols during construction hours and for 1 hour after end of daily construction, and hotwork.
2. Fire Suppression Resource Inventory – In addition to CCR Title 14, 918.1(a), (b), and (c), IBR shall update in writing the 24-hour contact information and onsite fire suppression equipment, tools, and personnel list on quarterly basis and provide it to the CAL FIRE, SDRFPD, SDCFA, CPUC, BLM, and to state and federal fire agencies.
3. During Red Flag Warning events, as issued daily by the National Weather Service in SRAs and Local Responsibility Areas (LRA), all non-essential, non-emergency construction and maintenance activities shall cease. Utility and contractor personnel will be informed of changes to the Red Flag event status as stipulated by CAL FIRE.
4. All construction crews and inspectors shall be provided with radio and cellular telephone access that is operational along the entire length of the approved route to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction activities at each construction site. The radio shall allow communications with other IBR vehicles and construction trailer. All fires will be reported immediately upon detection.
5. Each member shall carry at all times a laminated card listing pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on contact cards will be updated and redistributed to all crewmembers as needed, and outdated cards destroyed, prior to the initiation of construction activities on the day the information change goes into effect.
6. Each member of the construction crew shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats.
7. Water storage tanks and access roads shall be installed and operational at time of start of construction.

PDF-3: Blasting – As part of the project design, a blasting plan will be prepared. The blasting plan will include identification of planned blasting locations, a description of the planned blasting methods, an inventory of receptors potentially affected by the planned blasting, and to determination the area affected by the planned blasting. Blasting methods will take into consideration the high wildland fire hazard conditions in and surrounding the project area.

Precautions to prevent fire will be included in the blasting plan will include requirements to have all blasting charges capped with soil and/or other materials that are not combustible.

Blasting activities are required to be observed by a Blasting Inspector. A Blasting Inspector is a person on the Sheriff's approved list of inspectors authorized to conduct inspections, before and after a blast. To be on the Sheriff's approved list, an inspector shall be certified by or registered with the International Conference of Building Officials, the International Code Counsel/Counsel of American Building Officials, the Building Officials & Code Administrator or the Southern Building Code Congress International.

PDF-4: County of San Diego Consolidated Fire Code, Section 96.1.3301.2, Explosives and Fireworks Applicability – The project will comply with the County of San Diego Consolidated Fire Code, Section 96.1.3301.2, Explosives and Fireworks Applicability. The Fire Code requires a permit application to be issued prior to the start of blasting activities. Blasting activities shall be limited to Monday through Saturday between the hours of 7:00 a.m. and 6:00 p.m. or one-half hour before sunset, whichever occurs first, unless issuance of grant approval. Surrounding residents within 600 feet will be notified in writing within 600 feet of any major blast location or 300 feet from any minor blast location.

PDF-5: Construction Waste Disposal – As a standard practice, IBR does not allow construction waste to accumulate. Waste associated with project construction will be contained in metal containers and/or designated cleared construction staging areas (large items). The metal containers and staging areas will be monitored and emptied on a regular basis.

PDF-6: Storage, Use and Handling of Oils, Flammable Liquids, Hazardous Materials and Vehicle Fuels – As part of the project construction and operations, chemicals such as oils and cleaners for turbines will be properly storage, used, and handled as regulated under the California Fire Code (CFC). Areas on the project site that store, use or handle these materials will be at least 50 feet from any building or turbine, and will have a fuel modification zone around them of at least 30 feet and will be constructed in compliance with the CFC.

Dispensing of any motor vehicle fuels shall comply with the CFC. Spill control will be provided in all areas, and shall contain the contents of the largest container. Electrical systems shall comply with the CFC and with the National Electrical Code; NFPA 70, and with NFPA 497 where applicable. Grounding and bonding will be provided where necessary. Any transfer or dispensing pumps shall have a remote emergency shut down device 75 feet away. There shall be portable fire extinguishers with a minimum rating of 20 BC, located approximately 50 feet away and mounted on a visible post approximately 4 feet off ground. Safety signage shall be provided for any transfer/dispensing areas and "No Smoking" signs shall be posted.

PDF-7: Water Availability – Based upon the *Estimate of Water Availability* memorandum (Geo-Logic Associates September 7, 2010 – **Appendix B**), on the conservative peak water use requirements of 250,000 gallons per day (associated with road construction, concrete mixing and dust control activities), an estimated continuous supply of water (24 hours per day, 7 days per week) will be required from wells pumping at a cumulative continuous rate of 124 gpm.

Although there are several wells on the project site, two wells on the project site have been identified as readily available for project use:

1. One well is located on Rough Acres Ranch approximately one to two miles north of I-8 between Ribbonwood Road and McCain Valley Road. Drilled in 2009, data provided on the well log for this well indicates that the estimated well yield is 60 gallons per minute (gpm); however, with the current pump in this well, the Ranch Manager indicates that the well produces at a rate of 50 gpm. A 72-hour constant rate aquifer pumping test was performed at this well at 50 gpm. Based on the current preliminary test data, there was very little response from pumping in the adjacent observation well, about 30 feet from the pumping well, and therefore it is reasonable to assume that sustained pumping at 50 gpm, at a minimum can be achieved from this well. Further, with a higher volume pump it may be possible to pump at greater volumes without significant impacts to other adjacent groundwater users;

2. One well is located on the Ewiiaapaayp Reservation, about 7 miles north of Interstate 8 on La Posta Road. A 72-hour constant rate aquifer pumping test was conducted at this well at 80 gpm. Based on the preliminary test results it is reasonable to assume that sustained pumping at 80 gpm is feasible at this well location.

Therefore, based on the preliminary data from two recent pumping tests with a combined total pumping rate of 130 gpm, it is likely that the necessary water supply requirements for the project (124 gpm of continuous pumping, seven days a week) can be met from these two wells.

There are four potential additional water supply sources available for the project. The State Correctional Facility is located about one half mile north of Interstate 8 off of McCain Road. This correctional facility maintains two wells with estimated production of 45 and 65 gpm. The Live Oak Springs Resort located south of Interstate 8 on Old Highway 80 about ¾-mile northwest of the intersection with Highway 94 may provide a source of water supply. This resort (and water company) operates a well that pumps about 40,000 gallons per day (25 to 30 gpm) and maintains a 100,000 gallon pond, and two large tanks with an additional 50,000 gallons of storage capacity. They have committed to providing 40,000 for immediate use and up to 80,000 gallons per day with additional storage tanks (pers. comm., September 8, 2010); equivalent to 28 to 55 gpm. The Jacumba Community Service District (CSD) also has indicated that their well produces 200 gpm and they will commit up to 40,000 gallons per day to the project (pers. comm., September 8, 2010); equivalent to about 28 gpm. Finally, the City of El Centro has indicated that they are willing to sell wastewater plant effluent to the project for use during the construction phase.

In summary, as outlined above, the available on-site groundwater can provide the required project water requirements through continuous pumping at a rate of 124 gpm. Current pumping test results indicate at least 130 gpm can be achieved from the two tested wells, and potential greater volumes with a higher volume pump at the Rough Acres Ranch test well. However, with off-site water from the State Correctional Facility, Live Oak Springs Resort, and Jacumba CSD for purchase, an additional 80,000 to 120,000 gallons of water per day, or approximately 55 to 83 gpm of water could be available to support the project water supply needs; ample water for the

nine-month construction period. With these additional off-site sources, the combined on-site and off-site water could be equivalent to an estimated 213 gpm could be made available in support of the project.

If a fire were to occur in the project area, construction activities utilizing ground water would cease and the groundwater available from these sources could be used for firefighting purposes. In addition, based on informal conversations with the staff members of the various fire agencies, Lake Tule and other sources would be utilized for firefighting purposes (HDR staff, Pers. Comm.).

IBR will provide four (4) additional water tanks to the SDRFPD to place at strategic locations throughout the site. The tanks will be installed and maintained by IBR, with SDRFPD maintaining adequate water levels for fire protection services. The water tanks will provide a supplemental water source that can be utilized for additional fire suppression for the community of Boulevard and BLM lands that have limited access to water.

The same wells will provide the source of water during operations. When the project turbines become operational, only a limited quantity of water will be required, estimated at 2,500 gallons per day to supply the operations and maintenance building services and support staff.

3.6.2 Electrical Collection and Transmission System

The project's electrical system will consist of three key elements: (1) an overhead and underground collector system, which will connect the wind turbines at a voltage of 34.5 kV; (2) the project collector substation, where the voltage will be increased from 34.5 kV to 138 kV; and (3) a 138 kV transmission line which will deliver the electricity to the SDG&E proposed Rebuilt Boulevard Substation.

Portions of the project's electrical collector system will be aboveground due to the rugged topography of the project area. The overhead collector system is approximately 9.4 miles in length. The majority of the collector system will be underground. The underground portion of the collector system is approximately 29 miles in length. Only 15 percent of the collector system is planned to be overhead. The 34.5 kV overhead collector system will be supported by a maximum of 250 wood or steel poles that will be 60 to 80 feet in height and 2 feet in diameter, with single and double circuit collectors.

The overhead transmission system is proposed to be a 138 kV overhead transmission line running south from the project collector substation to interconnect with SDG&E's proposed Rebuilt Boulevard Substation. IBR will utilize steel poles for the transmission lines and IBR is considering the use of wood and/or steel poles for 34.5 kV distribution lines. The length (in miles) of the proposed 138 kV transmission line totals 9.74 miles with 7.42 miles on BLM lands, 0.36 miles of State of California lands, and 1.96 miles on County of San Diego lands, with no transmission lines located on tribal lands. The following describes the 138 kV transmission line and 34.5 collector line design:

- 138 kV Transmission and 34.5 kV collector line designs will include longer insulators to support the wires. The long insulators assure adequate conductor separation to prevent

arcing during high-wind conditions. This design also protects raptors with wide wingspans.

- No switching devices with moving parts (fused cutouts, switches, reclosers) will be located on the poles. This removes a potential ignition source from arcing.
- The transmission line will be designed so under all load conditions, the line will be no closer to the ground than 25 feet. In areas where a distribution circuit is also placed on the pole at a lower elevation, the minimum clearance for the distribution circuit to the ground is 25 feet. The distance between the transmission and distribution circuits is a minimum of 10 feet, assuming worst case conditions maximum sag for the transmission circuit and minimum sag for the distribution circuit.
- Self supporting poles for both 138 kV and 34.5 kV lines will generally be used at locations where the line changes direction rather than guy wires and anchors. If guy wires and anchors are used, they will be rated for a minimum of 150% of expected loading. This design approach eliminates the most likely cause of pole collapse, which is failure of a guy wire and/or anchor.

PDF-8: Execute a Fire and Emergency Protection Services Agreement **-** A Fire and Emergency Protection Services Agreement for the project shall be executed between IBR and the SDRFPD, and other agencies as appropriate. The Agreement shall be executed by all parties prior to commencement of construction of the project. The purpose of the Agreement is to fund the employment and training of personnel, and acquisition and maintenance of equipment to provide fire and emergency protection services for the project. The Agreement will describe the scope of services to be provided by the SDRFPD, and other agencies as appropriate, and will be maintained throughout the life of the project.

IBR will educate the construction crew and maintenance employees as to potential dangers that may occur during construction and maintenance of the project. To reduce the possibility of fire ignition during hot work, IBR will implement the Hot Work Procedure and coordinate with local fire authority regarding the specific conditions in the project area. The PDFs discussed in Section 3.6 will minimize the risk of ignition sources; therefore the project's contribution to this impact is less than cumulatively considerable.

PDF-9: Overhead collector lines (138 kV and 34.5 kV) transmission lines - Will be designed in accordance with CPUC GO 95 "Rules for Overhead Electric Line Construction" and the current edition of the NESC to ensure sufficient clearance between conductors and vegetation to prevent contact.

PDF-10: The area within the project substation, which will contain transformers, capacitors, and other electrical components, will be cleared of vegetation, graveled, and maintained vegetation free. In addition, a 5-foot wide area outside the substation fence will be cleared and graveled. A 15-foot diameter area around transformers located at turbine towers will be cleared and graveled. Additional fuel management will occur for a balance of 100 feet from the turbine base.

No switching devices with moving parts (fused cutouts, switches, reclosers) will be located on the poles. This removes a potential ignition source from arcing. Equipment within the substation,

including transformers, will be protected in compliance with NFPA 850 and the CFC. Fire fighting foam concentrate will be required at the substation location in the event of an oil fire.

***PDF-11*:** The design of the power lines will comply with APLIC "Suggested Practices for Avian Protection on Power Lines" which is the industry standard developed to minimize avian contact with power lines. Bird caused flashovers are very unlikely for the project because the energized 134 kV conductors will have minimum distances of 30 vertical feet and 12 horizontal feet apart, and the 34.5 kV overhead collector lines will have a minimum distance of 18.5 feet vertical feet and 5 feet horizontal feet apart.

PDF-12: The lines and associated facilities will be designed in accordance with CPUC GO 95 "Rules For Overhead Electric Line Construction" and the current edition of the NESC to ensure the design minimizes the potential for inadvertent conductor contact.

PDR-13: Self supporting steel poles will be utilized for the 138 kV transmission line. Steel and wood are being considered for 34.5 kV overhead collector system poles. If guy wires and anchors are used, they will be rated for a minimum of 150% of expected loading. This design approach eliminates the most likely cause of pole collapse, which is failure of a guy wire and/or anchor.

PDF-14: Periodic visual inspection of the 138 kV transmission line will occur and washing will occur on an "as needed" basis as determined by the visual inspections.

PDF-15: Electrical collection and transmission system and turbines will include the required FAA and CAL FIRE lighting and markings.

3.6.3 Wind Turbines

The turbines proposed for this project have a number of safety features that minimize the potential for a fire. All electrical components are protected by current limiting devices, either thermal circuit breakers or traditional fuses. Should any of these devices register an out-of-range condition, it will immediately command a shutdown of the turbine and will disengage it from the electrical collection system. An alarm is indicated on the wind farm SCADA as well as on screens at IBR's NCC in Portland, Oregon. Both IBR's on-site staff and staff at the NCC will have the emergency contact information for the fire agencies, and will coordinate to make sure that the fire agencies will be called in the event of a fire or medical emergency.

PDF-16 Nacelle Fire Risk Reduction

There are two basic wind turbine designs:

(1) Up-Tower - Electrical equipment in the nacelle; and
(2) Down-Tower - Electrical equipment mounted at ground level.

On the site tour of IBR's Dillon Wind Farm (August 12, 2010), attendees viewed a wind turbine that included the electrical equipment mounted at ground level.

(1) Up-Tower - Turbines with electrical (medium-voltage) equipment in the nacelle have a number of safety devices to detect electrical arc and smoke. For example, the turbine design being considered for the following fire detection components are included and mounted on key power cables within the nacelle:

- Smoke detectors;
- Arc-flash sensors; and
- Over-current sensing transducers.

Should any of these devices register an out-of-range condition, the device immediately commands a shutdown of the turbine and will disengage it from the electrical collection system. The entire turbine is electrically protected by current-limiting switchgear that is installed inside the base of the tower.

The project will be operated and maintained by approximately 12 permanent full-time employees, who will monitor the wind turbines during normal business hours. In addition, IBR's NCC in Portland, Oregon monitors and can control all of IBR's wind turbines through the SCADA and is staffed 24 hours a day. Primary communications with the wind farm is via Telco T1 lines, and all plants have satellite backup capability. The NCC has the ability to control each turbine individually, as well as control the substation. Should any out-of-range issue occur at the project, the NCC will contact the sites' dedicated on-call person to deploy to the site to investigate and/or call emergency services if warranted by the type of out-of-range signal transmitted to the NCC.

(2) Down-Tower - This type of turbine being considered for the project has the electrical components installed in metal cabinets inside the base of the tower, and a low-voltage-to-medium-voltage transformer installed adjacent to the transformer. In this configuration, the probability of an uncontained electrical fire in the nacelle is extremely remote, as there are no combustible materials inside the tower. However the same risk of a fire associated with electrical components exists. As with the other turbine type, a tower-based circuit breaker electrically protects the entire machine. The down-tower turbine type will include similar fire detection, fire suppression, and safety features in the nacelle as the up-tower turbine type (e.g., smoke detectors, arc flash mitigation relays and over-current protection), however, fire suppression on the down-tower transformer is unnecessary due to the enclosed conditions of the turbine and improved fire access to the site. For the down-tower turbine type, there is a very low potential of an electrical fire escaping the turbine and causing a wildland fire.

In addition, a potential fire risk associated with wind turbines is improperly installed electrical equipment (e.g., technical defects or components in the power electronics, failure of power switches, failure of control electronics, high electrical resistance caused by insufficient contact surface with electrical connections, such as loose connections, insufficient electrical protection concept with respect to the identification of insulation defects and the selectivity of switch-off units, no pole mounted disconnected switches, inadequate surge protection, inadequate grounding due to incorrect design or improper installation).

If fire ignition occurred within the Up-Tower or Down-Tower turbine type due to improperly installed electrical equipment, the fire protection and prevention features identified above would be triggered and the device that registered an out-of-range condition would immediately shutdown and an alarm would be indicated on the wind farm SCADA as well as on screens at IBR's NCC in Portland, Oregon. In addition signage will be posted at the NCC to call a 10 digit 24/7 landline phone number to emergency dispatch center in San Diego County in the case of an emergency.

PDF-17: Lightning - Although a final decision on the type of wind turbine has not been made, the majority of turbine manufacturers have imbedded "grounding" systems within the turbine blades to prevent ignition of a fire due to lighting. All wind turbine models being considered for this project will incorporate blade lightning protection systems. In general, these systems consist of air-receptors on various locations along the length of the blade, ground-conducting straps in the hub, nacelle, and tower, lightning detection tell-tale circuit cards, and tower grounding to earth. As mentioned earlier, IBR has nearly 50 million operating hours on its U.S. fleet, and over that time, lightning-induced fire has not occurred.

To provide separation of installed equipment from combustible vegetation, gravel will be placed in and around substation, O&M building, wind turbines, and transformers. The project proposes up to a 200-foot cleared area around each turbine depending on the site topography at the time of construction. Upon completion of construction, with the exception of an area 60 feet in diameter (gravel up to a 10-foot radius to provide surface stabilization), the 200-foot cleared area would be revegetated with fire safe (non-combustible), low fuel vegetation, in a spacing and height configuration consistent with fire agency standard practices for a distance necessary to provide a minimum of 100 feet of fuel management from the turbine base and/or transformer. The impact analysis in the environmental document assumes a permanent impact to a 200-foot radius around each turbine. Fuel management would be performed, annually prior to May 1 and more often as needed.

3.6.4 Operations and Maintenance

IBR's NCC in Portland, Oregon monitors and controls all of IBR's wind turbines and is staffed continuously. Primary communications with the wind farm is via Telco T1 lines, and all plants have satellite backup capability. The NCC has the ability to control each turbine individually, as well as control the substation. Should any out-of-range issue occur at the plant, the NCC will contact the sites' dedicated on-call person to deploy to the site to investigate and/or call emergency services if warranted by the type of out-of-range signal transmitted to the NCC. Both IBR's on-site staff and staff at the NCC will have the emergency contact information for the fire agencies, and will coordinate to make sure that the fire agencies will be called in the event of a fire or medical emergency. Construction related activities that occur during operations and maintenance activities will be conducted according the same Hot Work Procedure identified above under the PDF. This will minimize the potential for fire ignition.

PDF-18:

- No off-road vehicle use would be necessary because all wind turbine and associated project components (e.g., substation and O&M building) will be located in cleared areas.

As part of the project design, existing access roads will be improved and new access roads are proposed;

- Hot Work Procedure (PDF-1);
- Construction, Operations, and Maintenance Fire Prevention/Protection Plan (PDF-2).
- Road maintenance activities requiring the use of grading equipment will be suspended during red flag events;
- Permanently assigned project vehicles will carry, as a minimum, a fire extinguisher, shovel, and two-way-radio.

PDF-19: No vehicle will be idle or parked in areas of combustible fuels, such as brush or grass. All wind turbine and associated project components (e.g., substation and O&M building) are located in cleared areas. As part of the project design, existing access roads will be improved and new access roads are proposed.

PDF-20: Portable equipment powered by two cycle engines or capable of producing significant exhaust heat will be located within the 200-foot radius surrounding the turbine in which vegetative fuel reduction will take place.

PDF-21: Work on energized equipment will be avoided whenever possible. Personnel performing work on energized equipment will be trained in applicable OSHA and other safety requirements.

PDF-22: Smoking is limited to cleared areas around the O&M building.

PDF-23: Existing and New Access Roads - As part of the project design, existing access roads will be improved and new access roads are proposed that meet the requirements of the County of San Diego Consolidated Fire Code (2009) where they occur on County lands with the exception of spurs that serve turbines only (See Section 4.2 Fire Access). These improvements will have the effect of decreasing fire response times to the project area and general area, in the event of a fire or other emergency.

The proposed access road improvements will also improve public safety should a vegetation fire occur in the area by providing alternate routes of egress. Currently the only public exit road from the McCain Valley area is McCain Valley Road. The proposed connector road between Ribbonwood and McCain Valley Road is proposed as a private road; however, it will not be gated. As a result this road will be available to the community in the event of an emergency. This road will be improved to meet County of San Diego private road standards. Additionally, the turbine roads will improve access allowing fire crews and tanker trucks faster initial response in the project area. Fire and other emergency vehicles will also be able to utilize the access roads to improve response times to remote areas. BLM roads or turbine roads that are proposed to be gated shall be provided with an approved Knox Box as discussed in Section 5.1.

PDF-24: Operations and Maintenance Facility

The O&M facility is the only new structure proposed that will include IBR staff during business hours. The O&M building will include the PDF that provide fire prevention and protection.

- The facility construction, including walls, penetrations through walls, doors, vents, roof, glazing and any skylights, will comply with the County Building Code (CBC) Wildland Urban Interface construction standards in Section 92.1.704, and Chapter 7-A of the CBC, and the CFC.
- The O&M building will be located on a 5-acre site including a parking lot and will be surrounded by a 4-acre cleared area. The substation facility will have the required 3-acre graveled fenced cleared area around it and will have adequate spacing from transformers and other potential fire sources. The project will provide a minimum of 100 feet of fuel management.
- Any batteries would comply with the requirements in the CFC and would have secondary containment and required ventilation to prevent build up of hydrogen gas.
- Various occupancies in the building, as classified by the CBC, will have the required fire separations and will comply with the CFC and CBC for the type of occupancy and activities therein; for example, storage, or maintenance shop.
- Sprinklers with exception of control room, which may have an alternative suppression system. Fire Sprinkler system will be supervised by IBR's Portland Control center and to the offsite 24/7 alarm monitoring company. Determination will be made by IBR as to supervision by the alarm monitoring company. Supervision to a Fire District approved remote alarm monitoring company required based on number of sprinkler heads. Twenty heads requires electrical supervision of all valves in system, pumps, water tank level, etc. CFC Section 903.4.
- The SCADA monitoring system will have emergency power source at the O&M building, in addition to 24/7 monitoring at the NCC. Both IBR's on-site staff and staff at the NCC will have the emergency contact information for the fire agencies, and will coordinate to make sure that the fire agencies will be called in the event of a fire or medical emergency.
- The control room will be separated from remainder of building by 1-hour fire rated walls for fire safety and will have exterior exits.
- The building will have smoke detectors, which are supervised in control room, activate an alarm on exterior of building, and are supervised to the NCC. Alarms may not be transmitted to the offsite 24/7 alarm monitoring company, so as to avoid false calls to 911 resulting in an unnecessary response.
- The building will have a KNOX key box on exterior by main door for use by firefighters.

Per the requirements of PRC 4291, *Reduction of Fire Hazards Around Buildings*, the project will provide 100 feet of fuel modification around all buildings, and is the primary mechanism for conducting fire prevention activities on property within CAL FIRE jurisdiction.

In addition, IBR will implement a brush management plan at its project O&M facility, turbine pads, and substation. This plan will be consistent with the following County Consolidated Fire Code:

- Under the County Consolidated Fire Code, brush is to be modified within 100 feet (31 meters) of structures in radius, called defensible space (Section 4707.2a). There are two zones to be aware of when creating a defensible space for fire mitigation.
- Zone 1, From structure out to a minimum of 50 feet: "The area within 50 feet (15 meters) of a building or structure shall be cleared of vegetation that is not fire resistant and/or replanted with fire-resistant plants" (County Fire Code Section 4707.2a).
- Zone 2, Between 50 to 100 feet from structures: "In the area between 50 to 100 feet (15 to 31 meters) from a building all dead and dying vegetation shall be removed. Native vegetation may remain in this area provided that the vegetation is modified so that combustible vegetation does not occupy more than 50 percent of the square footage of this area" (County Fire Code, Section 4707.2a).

PDF-25: Substation Transformers

Transformers contain cooling oil, which can be ignited by an electrical arc. NFPA 850, including Section 10.5.2.6, provides recommendations for transformer protection. These recommendations will be followed. Transformers associated with the substation will be located approximately 50 feet from the O&M building and will a minimum of 100 feet of fuel management. The substation is proposed to be located adjacent to the O&M building on a 5-acre parcel and will be surrounded by a 3-acre graveled parcel providing a minimum of 100 feet of fuel management around the substation.

Transformers will utilize fire walls for exposure protection and will have secondary containment to control any oil that could be released. The size of the containment must be adequate to contain the total amount of oil plus firefighting water for 15 minutes. NFPA 850 recommends 10 minutes however, per NFPA 11, foam delivery from hand lines assumes an application time frame of 15 minutes. Firefighting foam concentrate will be stored at substation for use by firefighters. Typically a 3% Aqueous Film Forming Foam (AFFF) concentrate is used, and the application rate is 0.16 gpm/sq. ft. for 15 minutes from a firefighter hose line. In concept, the needed gpm flow rate for the hose lines is 250 gpm. This is subject to detailed design and size of the containment. Fire resistant oils can also be used if they do not contain polychlorinated biphenyls (PCBs) or other toxic materials. Prior to operations of the facility, actual design of the transformer fire protection measures will be determined by IBR and submitted to SDRFPD and SDCFA for approval.

PDF-26: Combustible Storage

Prevention and minimization of fire risk is a primary concern for IBR. Other typical best management practices related to combustible storage that will be implemented on the project site include:

- Minimizing accumulation of combustible material, only allow storage of flammable materials in fire rated cabinets, ensure all combustible waste material is collected and disposed of properly including the storage of oily rags in approved containers, maintain a list of potential fire hazards at the plant including how sources of ignition will be controlled for each of these potential hazards.
- Perform periodic housekeeping inspections to find and mitigate any fire hazards found, ensure employees and sub-contractors are trained in fire prevention, and ensure employees are trained in the use of fire extinguishers.
- Combustible storage and trash on site during construction and operation phases will be properly stored in a clear area with fuel modification around it, and be away from turbines and the substation. Such storage will be orderly and be removed from the site as soon as possible.

4.0 ANALYSIS OF PROJECT EFFECTS

Section 15382 of the State *CEQA Guidelines* states that a "significant effect on the environment" means a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."

This FPP analyzes the project's potential effects on wildland fire and fire protection along three lines of inquiry. The County of San Diego's Wildland Fire and Fire Protection Guidelines for Determining Significance are described as follows:

1. 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?

2. Would the project result in inadequate emergency access?

3. 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 service ratios, response times or other performance objectives for fire protection?

4. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

These significance guidelines are analyzed in Sections 4.1 through 4.9, and consider emergency services, fire access, water, ignition resistant construction and fire protection, fire fuel assessment, defensible space and vegetation management, and cumulative impacts.

Second, the County of San Diego's Wildland Fire and Fire Protection Guidelines for Determining Significance explain that an affirmative response to or confirmation of any one of

the following Guidelines will generally be considered a significant impact related to wildland fire and fire protection as a result of project implementation, in the absence of scientific evidence to the contrary. These additional Guidelines would become significant where:

1. The project cannot demonstrate compliance with the following fire regulations: California Fire Code, California Code of Regulations, County Fire Code, and the County Consolidated Fire Code.

2. A comprehensive FPP has been required and the project is inconsistent with its recommendations including fuel modification.

3. The project cannot meet the emergency response objectives identified in the Public Facilities Element of the County General Plan or offer Same Practical Effect.

These significance guidelines are analyzed in Section 4.10.

Third, the CPUC and BLM are considering potential project effects according to the following four guidelines, which overlap with the previously described County guidelines. The CPUC Guidelines are as follows:

1. Would the presence of project facilities (overhead transmission lines, overhead collector lines, and/or wind turbines) significantly increase the probability of a wildfire?

2. Would project construction and/or operation and maintenance and decommissioning activities significantly increase the probability of a wildfire?

3. Would the presence of the overhead transmission lines, overhead collector lines, and/or wind turbines reduce the effectiveness of firefighting?

4. Would project activities contribute to an increased ignition potential and rate of fire spread through the introduction of non-native plants?

The CPUC/BLM significance guidelines are considered in Section 4.11. The significance determinations made through all three lines of inquiry are summarized within each section, and presented together in the Conclusion, Section 6.0.

4.1 Adequate Emergency Services

Emergency dispatch is handled by the CAL FIRE Monte Vista dispatch center. According to the dispatch center, per the Automatic Aid Agreement the area is located in a SRA and the first alarm dispatched to a vegetation fire is the same whether it is on private, state, federal, or tribal lands. The following describes the identified fire entities providing service for the project area including: response times, travel distance, travel time, and compliance/non-compliance with the Public Facilities Element of the San Diego County General Plan.

Table 5 describes the agencies, equipment and staffing for the areas in the vicinity of the Project.

Table 5. Fire and Emergency Services Agencies, Equipment, and Staff

Station/Agency	Equipment	Staff
CAL FIRE – Whitestar (Campo)	• Five engines • One bulldozer • Two air tankers • Two helicopters	• Four firefighters • One Battalion Chief • Two hand crews
Boulevard Fire Department Station # 87 (San Diego County Fire Authority)	• One Type I engine • Two Type II engines, • One Type III engine, • One water tender (1,000 gallons)	• Two stipend firefighters
Campo Fire Department	• One water tender; or • One engine company	• Two firefighters
Campo Indian Reservation	• One Type III engine	• Day-to-day staffing varies
Jacumba Fire Station Station # 43 (San Diego Rural Fire Protection District)	• Engine • 1,500-gallon tender	• Two stipend firefighters
Lake Morena Fire Station Station #42 (San Diego Rural Fire Protection District)	• One engine; or • Water tender	• Two firefighters
Bureau of Land Management	• None	• None
U.S. Forest Service – Cameron, Cottonwood, or Glencliff	• Two engine companies	• Four firefighters per company

For a building fire, the dispatch would be:

- Two or three CAL FIRE engine companies;
- Boulevard Fire Department;
- Campo Volunteer Fire Department;
- San Diego Rural Fire Protection District;
- Campo Indian reservation.

Travel times will vary depending on the responding entity, response route and location of the fire. Travel times have been determined for the following responding entities: Boulevard Fire District, CAL FIRE Whitestar station and Cal FIRE Campo station (see **Figure 3** for station locations).

Emergency response time standards for land use categories in Table 1 the County of San Diego's Wildland Fire and Fire Protection Guidelines for Determining Significance are provided in three categories shown in the **Table 6**.

Table 6. Emergency Response Travel Times

Land Use Category	Maximum Travel Time	Land Use Category Defined
Town	5 minutes	Single-family residential lots of less than two acres, or more intensive uses such as multi-family residential includes all industrial development and all commercial development except neighborhood commercial.
Estate	10 minutes	Single-family residential lots from two to four acres in size, Includes neighborhood commercial development.
Rural	20 minutes	Large lot single-family residential and agricultural development. Lot sizes of grater than four acres.

The Project areas within the County of San Diego are designated in the County General Plan as General Agriculture 1 du/10, 40 acres (one dwelling unit allowed per 10 or 40 acres), and is zoned as A72 – Agricultural, or S80 Open Space. Because neither the "Town" (1 du per 2 ac.) nor "Estate" (1 du per 2-4 ac.) land use categories defined above would apply to the Project area, the closest applicable land use category is "Rural" with a maximum travel time of 20 minutes.

All land uses within the County are classified into a limited number of "use types," based on common functional, product, or compatibility characteristics. The project is considered to be a Civic Use Type– Major Impact Services and Utility per Section 1350 of the County of San Diego Zoning Ordinance. Emergency response travel times, as found in the County General Plan, were intended to apply to habitable development such as residential and commercial. The only portion of the project which will be occupied on a regular basis is the O&M Building. The 20 minute maximum travel time standard applies to the County portions of the Project alone, but not to those portions of the Project that lie on BLM, SLC, or Ewiiaapaayp tribal land.

Travel times for the Project have been calculated from the nearest station to the following points in the Project: (1) the entrance of the Project site (defined as the intersection of McCain Valley Road and Rocky Knoll Road); (2) the northern County boundary of the Project; (3) the O&M Building on BLM land; and (4) turbine J1, which is the furthest turbine at the terminus of the northern-most string of turbines on Ewiiaapaayp tribal land. Travel times were calculated using NFPA 1142 Table C.11 (b), or based on personal conversations between Jim Hunt and the applicable agency personnel.

The nearest fire station to the entrance of the project area is the Boulevard FD. The next nearest fire stations are the Whitestar CAL FIRE station in Boulevard, on Del Sol road, and the SDRFPD fire station in Jacumba. There is also a CAL FIRE station in Campo on Highway 94 and Buckman Springs Road. **Table 7** identifies the travel times for the stations that would be the first to respond.

Table 7. Estimated Travel Time from Nearest Fire Departments

Station	Location	Route	Distance (miles)	Rate of Speed (MPH)	Travel Time* (minutes)
Boulevard FD Station 87	Entrance	Old Hwy 80 / McCain Valley	**2.9**	35	**5.75**
	Northern County Boundary	Old Hwy 80 / McCain Valley/Turbine Road	5.65 3.7 **Total 9.35**	35 25	10.25 9.53 **Total 19.78**
	O&M Building	Via Ribbonwood / McCain Valley	3.6 7.7 **Total 11.3**	35 25	6.77 19.13 **Total 25.9**
	Turbine (Turbine J1)	Interstate 8 / Crestwood / Turbine Roads	5.87 9.47 **Total 15.34**	35 25	10.6 23.4 **Total 34**
CAL FIRE White Star	Entrance	Tierra Del Sol / Hwy 94 / McCain Valley	**6.2**	35	**11.2**
	Northern County Boundary	Tierra Del Sol / Hwy 94 / McCain Valley/Turbine Road	8.95 3.7 **Total 12.65**	35 25	15.9 9.53 **Total 25.43**
	O&M Building	Tierra Del Sol / Ribbonwood / McCain Valley	6.2 7.7 **Total 13.9**	35 35	11.2 19.13 **Total 30.3**
	Turbine (Turbine J1)	Tierra Del Sol / Interstate 8 / Crestwood / Turbine Roads	6.39 9.47 **Total 15.86**	35 25	11.5 23.4 **Total 34.9**
Jacumba Fire Station # 43	Entrance	Old Hwy 80/McCain Valley	**6.9**	35	**12.4**
	Northern County Boundary	Old Hwy 80/McCain Valley/Turbine Road	9.7 3.7 **Total 13.4**	35 25	17.1 9.53 **Total 26.6**
	O&M Building	Old Hwy 80/McCain Valley	9.7 7.3 **Total 17**	35 25	17.1 18.2 **Total 35.3**
	Turbine (Turbine J1)	Old Hwy 80/Interstate 8 / Crestwood / Turbine Roads	14 9.47 **Total 23.47**	35 25	24.5 23.4 **Total 47.9**

As shown in **Table 7**, the portions of the project that occur on County lands comply with the County's travel time requirements. The O&M facility is proposed to be located on BLM land and is not subject to this requirement. Nevertheless, the O&M building will be constructed of enhanced fire resistive materials, and have automated and remotely supervised fire detection and suppression systems (see PDF-24). Furthermore, the O&M building is only staffed during business hours.

Similarly, the turbines will be constructed of fire resistant materials and will include PDF and mitigation measures to reduce the risk of fire, as summarized in Section 5.0. Furthermore, the project is performing road improvements to McCain Valley Road and throughout the project area, which will reduce travel times within the general vicinity and provide a community benefit.

As discussed previously, a Fire and Emergency Protection Services Agreement for the project shall be executed between IBR and the SDRFPD, and other agencies as appropriate. The Agreement shall be executed by all parties prior to commencement of construction of the project. The purpose of the Agreement is to fund the employment and training of personnel, and acquisition and maintenance of equipment to provide fire and emergency protection services for the project. The Agreement will describe the scope of services to be provided by the SDRFPD, and other agencies as appropriate, and will be maintained throughout the life of the project.

Therefore, this project would comply with the County's emergency and fire response requirement at the County's northernmost boundary. In addition, due to the remote location and the fact that this is not a residential development, but is a Service and Utility Project with a low occupant load, the available emergency response is adequate. Services would not be adversely affected by implementation of the project. The project will improve and create new access roads, which will have the effect of improving emergency response time to remote locations within the project area (see Section 4.2 Fire Access) for additional information.

4.2 Fire Access

The project area is accessible via the Crestwood, Ribbonwood, and McCain Valley Road exits off of I-8. The primary access routes will be Ribbonwood and McCain Valley Roads. Additional access is provided by Crestwood Road and Old Mine Road and will primarily serve the western portion of the project area including the western ridgeline. Access road locations are shown on **Figure 2**.

To facilitate construction activity, existing and new access road improvements will include widening from approximately 16 to 20-foot widths to 36-foot widths to accommodate large cranes and equipment delivery. The access roads will be restored from the 36-foot temporary width (accommodates large equipment and deliveries) to the widths identified below, after the turbines have been installed.

Upon completion of construction activities, existing and proposed access roads located on land under the jurisdiction of the County of San Diego will be improved to comply with the Department of Public Works Private Road Standard of 24 feet (28 foot graded extent). The main project roads (Ribbonwood Road and McCain Valley Road) throughout the project site will be improved to a maximum of 20 feet to comply with the California Fire Code Standards on lands outside of the County's jurisdiction. Spur roads to the turbines (on land under any jurisdiction) will be improved to a maximum of 18 feet wide to comply with SRA Fire Safe Regulations. These requirements were provided by the SDCFA (personal communication, James Pine, Fire Marshal). A detailed map of County roadways to be upgraded is shown in **Figure 15**.

Thirty feet of fuel management shall occur adjacent to the access roads for the proposed facilities including the turbine roads. This shall be the reduction or where reclaimed of high fuel vegetation to less than 50% cover.

Appropriate site mapping, showing roads, turbines, structures, substation, power line route, and water tank locations will be provided to the SDRFPD and other local response agencies for use during emergencies. Maps will also be kept in a KNOX data box at the main entrance to facility. The maps shall be submitted to the SDRFPD for approval. The KNOX box will also contain a copy of the Emergency Response Plan and Emergency action checklists, and IBR 24/7 contact information.

4.3 Water

IBR will need to construct a well and septic system on-site to obtain water for potable and sewer use at the O&M building. The proposed O&M building will be approximately 5,000 square feet in size, and will include a well to provide up to 5 gallons per minute of potable water and a septic system. It is anticipated that the O&M facility will use approximately 2,500 gallons of water per day. In addition to the water required for use by the facility water must be available in conformance with Sec. 508.2.2 of the County of San Diego Consolidated Fire Code - Water tanks.

The water will be stored in aboveground metal tanks complying with the requirements of the SDRFPD. The tank installation, including all notes on the SDRFPD standard drawing, will be complied with. In addition the tank shall comply with NFPA 22, Private Fire Protection Water Tanks. The water capacity of each tank shall be 10,000 gallons which is the maximum required by the SDRFPD tank standard. In order to allow firefighting aircraft to dip into the tank and obtain water, the top of the tank will be left open.

The capacity of the water tank at the substation will be based upon the demand for the fire sprinkler system plus hand lines for the O&M building (estimated to be 33,000 gallons for a one hour supply to an ordinary Group 2 system per NFPA 13, 2002 ed., Chapter 11), plus hand lines, plus a reasonable allocation for water supply for Fire Engine to generate firefighting foam for 15 minutes at an application density of 0.16 gpm/sq ft from a hose line using a 3% AFFF concentrate, for use on an oil fire in transformer containment. A conceptual estimate at this point, prior to detailed design, is 250 gpm for 15 minutes (3,750 gallons of water) plus 112.5 gallons of foam concentrate for oil firefighting. The actual amount of stored water is to be determined upon detailed design of the substation, transformer secondary containment, and O&M building, and distance of the O&M building from transformers. The actual size of the water tank will be determined by the fire sprinkler contractor and the appropriate agencies, at time of detailed system design. This tank will need to be on an elevated plane or have an approved pump for fire sprinkler supply. A procedure for ongoing inspection, maintenance and filling of tanks will be in place.

IBR will provide four (4) additional 10,000 gallon water tanks to the SDRFPD for SDRFPD to place at strategic locations based on its expert knowledge throughout the project area. The tanks will be installed and maintained by the IBR with SDRFPD maintaining adequate water supply

for fire protection services. The supplemental water can be utilized as additional fire suppression for the community of Boulevard and BLM lands that have limited access to water.

The tank and fire engine connection for water tanks shall be located on the side of the road. The width of the road at that point should be at least 18 feet (travel width) plus an additional 10 foot width, for a distance of 50 feet, to allow for fire engine to park and connect to the tank, while leaving travel lanes open. Tanks shall be labeled "Fire Water: 10,000 gallons. Open top" in reflective paint.

The purpose of the tank is to allow a fire engine or water tender to refill it's on board water tank and to allow firefighting helicopters to dip into the tank.

Conceptually, the following tank locations could be employed by SDRFPD:

- Near main entrance to site on side of main trunk road; and/or
- At main intersections of access roads; and/or
- On roads to turbine pads, located subject to approval of the SDRFPD and SDCFA Fire Marshal, upon submittal of a detailed drawing; and/or
- At the substation for water supply for fire sprinklers in the O&M building and for water supply for foam making.

Actual tank locations shall be approved by the SDRFPD, and SDCFA Fire Marshal, based on a tank location drawing to be submitted by IBR Engineers. Drawings shall show tank location, road, and shall include the SDRFPD tank standard drawing and notes.

4.4 Fire Fuel Assessment

The existing vegetation was mapped by HDR Engineering, Inc. (**Appendix A** – Biological Resources Maps). Approximately 96 percent of project area include the following vegetation communities include: upper Sonoran sub-shrub scrub; montane buckwheat scrub; big sagebrush scrub; northern mixed chaparral; semi-desert chaparral; chamise chaparral; redshank chaparral; scrub oak chaparral; upper Sonoran manzanita chaparral; southern north slope chaparral; coast live oak woodland; mule fat scrub; southern willow scrub; southern riparian woodland; and non-native grassland. The remaining four percent of the project area supports land use in the form of rural residential development, agriculture, heavily disturbed land, roads, and non-vegetated channels.

Accumulation of fuels in these shrubland systems is a natural process. However in the past century, human wildfire ignitions have had a greater influence on the shrubland fire frequency due to the steep population rise in southern California (Keeley and Fotheringham, 2003). This is especially evident at lower elevations where agricultural expansion followed by rapid urban growth has extended into wildland areas, introducing more ignitions and increasing the number of wildfires across the landscape.

The project area is mapped as being located within an area of high and very high fire hazard severity as identified by CAL FIRE, shown on **Figure 12**. The fire history of the area was reviewed and is depicted on **Figure 14**. The source of the fire history information is CAL FIRE and the San Diego Geographic Information Source (SanGIS) Data Warehouse from July 2008. The assessment includes most fires greater than 10 acres in size; however, not all historic fires may be documented. No fires have been mapped within the project Area.

4.5 Ignition Resistant Construction and Fire Protection Systems

The section provides a discussion of the ignition resistant construction materials and fire protection systems associated with components of the proposed project. These specific components include the potential ignition sources associated with the project. These include: (1) wind turbines; (2) O&M building; (3) substation transformer; and (4) storage, use and handling of oils, flammable liquid, hazardous materials, and vehicle fluids.

4.5.1 Wind Turbines

As described previously in Section 3.6, the turbines proposed for this project have a number of safety features that minimize the potential for a fire. All electrical components are protected by current limiting devices, either thermal circuit breakers or traditional fuses. Should any of these devices register an out-of-range condition, it will immediately command a shutdown of the turbine and will disengage it from the electrical collection system. An alarm is indicated on the wind farm SCADA as well as on screens at IBR's National Control Center in Portland, Oregon. The monitoring system for the SCADA will have an emergency power backup. A fire suppression system shall be provided in each wind turbine. Fire suppression technology in the nacelle is in development and IBR will be an early adopter of this technology. At this early stage, IBR does not know if the fire suppression system will be provided by the wind turbine manufacturer or if it will be an aftermarket system. In either case, the system will have the same effect of providing fire suppression in each wind turbine nacelle.

There are two basic wind turbine designs:

1. Electrical equipment in the nacelle (Up-Tower).
2. Electrical equipment mounted at ground level (Down-Tower).

On the site tour of IBR's Dillon Wind Farm (August 12, 2010), attendees viewed a wind turbine that included the electrical equipment mounted at ground level.

1. Up-Tower Turbines with electrical (medium-voltage) equipment in the nacelle have a number of safety devices to detect electrical arc and smoke. For example, in one turbine design being considered for the following fire detection components are included and mounted on key power cables within the nacelle:

    - Smoke detectors;
    - Arc-flash sensors; and
    - Over-current sensing transducers.

Should any of these devices register an out-of-range condition, it will immediately command a shutdown of the turbine and will disengage it from the electrical collection system, and send an alarm to the on-site O&M facility and the NCC. The entire turbine is electrically protected by current-limiting switchgear that is installed inside the base of the tower.

2. Down-Tower turbines being considered for this project have the electrical components installed in metal cabinets inside the base of the tower, and a low-voltage-to-medium-voltage transformer installed adjacent to the transformer. The down-tower turbine type will include similar fire detection, fire suppression, and safety features in the nacelle as the up-tower turbine type (e.g., smoke detectors, arc flash mitigation relays and over-current protection), however, fire suppression on the down-tower transformer is unnecessary due to the enclosed conditions of the turbine and improved fire access to the site. For the down-tower turbine type, there is a very low potential of an electrical fire escaping the turbine and causing a wildland fire. In this configuration, the probability of an uncontained electrical fire is extremely remote, as there are no combustible materials inside the tower. As with the Up-Tower turbine type, a tower-based circuit breaker electrically protects the entire machine.

Turbine blades are manufactured from composites, fiberglass, carbon fiber, or a combination of each. Given the components of the turbine blades, they are not considered a flammable source.

A fire suppression system shall be provided in each wind turbine nacelle. Fire suppression technology in the nacelle is in development and IBR will be an early adopter of this technology. At this early stage, IBR does not know if the fire suppression system will be provided by the wind turbine manufacturer or if it will be an aftermarket system. In either case, the system will have the same effect of providing fire suppression in each wind turbine nacelle, including the associated electrical equipment in the nacelle.

4.5.2 Operations and Maintenance Building

To provide separation of the building and installed equipment from combustible vegetation, gravel will be placed in and around O&M building. The O&M building and the substation will have a minimum of 100 feet of fuel management.

The O&M building is the only new structure proposed that will include IBR staff during business hours. The O&M building will include the following ignition resistant construction features and fire protection systems:

Ignition Resistant Construction

- The building construction, including walls, penetrations through walls, doors, vents, roof, glazing and any skylights, will comply with the County Building Code Wildland Urban Interface construction standards in Section 92.1.704, and Chapter 7-A of the CBC, and the CFC.

- Any batteries would comply with the requirements in the CFC and would have secondary containment and required ventilation to prevent build up of hydrogen gas.
- Various occupancies in the building, as classified by the CBC, will have the required fire separations and will comply with the CFC and CBC for the type of occupancy and activities therein; for example, storage, or maintenance shop.

Fire Protection Systems

- Sprinklers with exception of control room, which may have an alternative suppression system. Fire Sprinkler system will be supervised by IBR's NCC and to the offsite 24/7 alarm monitoring company. Determination will be made by IBR as to supervision by the alarm monitoring company. If there are twenty heads or more, remote supervision of all valves is required by a Fire District approved 24/7 monitoring company. Both IBR's on-site staff and staff at the NCC will have the emergency contact information for the fire agencies, and will coordinate to make sure that the fire agencies will be called in the event of a fire or medical emergency.
- The SCADA monitoring system will have emergency power backup.
- The control room will be separated from remainder of building by 1-hour fire rated walls for fire safety and will have exterior exits.
- The building will have smoke detectors, which are supervised in control room, activate an alarm on exterior of building, and are supervised to the Portland NCC. Alarms may not be transmitted to the offsite 24/7 alarm monitoring company, so as to avoid false calls to 911 resulting in an unnecessary response.
- The building will have a KNOX key box on the exterior by the main door for use by firefighters.

4.5.3 Substation Transformers

Ignition Resistant Construction

Transformers contain cooling oil, which can be ignited by an electrical arc. NFPA 850, including Section 10.5.2.6., provides recommendations for transformer protection. These recommendations will be followed. Transformers associated with the substation will be located a minimum of 50 feet from the O&M building and any other buildings, and will have a minimum of 100 feet of fuel modification.

Fire Protection Systems

The transformers will utilize fire walls for exposure protection and secondary containment to control any oil that could be released. The size of the containment must be adequate to contain the total amount of oil plus firefighting water for 15 minutes. NFPA 850 recommends 10 minutes however, per NFPA 11, foam delivery from hand lines assumes an application time frame of 15 minutes Firefighting foam concentrate will be stored at substation for use by firefighters. Typically a 3% AFFF concentrate is used, and the application rate is 0.16 gpm/sq ft for

15 minutes from a firefighter hose line. In concept, the needed gpm flow rate for the hose lines is 250 gpm. This is subject to detailed design and size of the containment. Fire resistant oils can also be used if they do not contain PCB or other toxic materials. Prior to operations of the facility, actual design of the transformer fire protection measures will be determined by IBR and plans submitted to SDRFPD and SDCFA for approval.

4.5.4 Storage, Use and Handling of Oils, Flammable Liquids, Hazardous Materials and Vehicle Fuels

Ignition Resistant Construction

The proper storage, use, and handling of these materials are regulated under the California Fire Code (CFC). Areas on the project site that store, use or handle these materials will be at least 50 feet from any building or turbine, and shall have a fuel modification zone around them of at least 30 feet and will be constructed in compliance with the CFC.

Fire Protection Systems

Dispensing of any motor vehicle fuels shall comply with the CFC. Spill control will be provided in all areas, and shall contain the contents of the largest container. Electrical systems, shall comply with the CFC and with the National Electrical Code; NFPA 70, and with NFPA 497 where applicable. Grounding and bonding will be provided where necessary. Any transfer or dispensing pumps shall have a remote emergency shut down device 75 feet away. There shall be portable fire extinguishers with a minimum rating of 20 BC, located approximately 50 feet away and mounted on a visible post approximately 4 feet off ground. Safety signage shall be provided for any transfer/dispensing areas and "No Smoking" signs shall be posted.

4.6 Fire Behavior Modeling

As discussed in Section 4.4 the project is mapped as being located within an area of high and very high fire hazard severity as identified by CAL FIRE. A review of the 2003 and 2007 Fire Storms in San Diego County are enough to illustrate the result of a wildland fire during extreme fire conditions. Within San Diego County, these fires include the Paradise, Otay, Cedar, Witch, Guejito, Rice, Harris, and Poomacha fires. Extreme weather conditions in the height of fire season drove the wildfires to expand rapidly into major events. As a result of the fact that the site is known to occur within a high fire hazard severity zone, recent fires illustrating the results of fires occurring within these zones, and the project being a linear non-residential, primarily non-human occupied project fire modeling utilizing the Behave software was not performed. Instead, the fireshed approach that was performed for the Sunrise Powerlink, a similar type project is being utilized.

According to **Figure 12**, the proposed project would be located primarily within a very high fire hazard severity zone (CAL FIRE 2010). CAL FIRE uses Fire Hazard Severity Zones to classify the anticipated fire-related hazard for SRAs. Fire hazard measurements take into account the following elements: vegetation, topography, weather, crown fire production, and ember production and movement. The very high fire hazard severity designation can be attributed to a variety of factors including highly flammable, dense, drought-adapted desert chaparral

vegetation, seasonal, strong winds, and a Mediterranean climate that results in vegetation drying during the months most likely to experience Santa Ana winds.

Firesheds

"Firesheds" are defined as regional landscapes that are delineated based on a number of fire-related features including fire history, fire regime, vegetation, topography, and potential wildfire behavior (CPUC and BLM 2008a). The fireshed concept is one way to evaluate fire risk across a given landscape and in relation to proposed projects. As defined in the Sunrise Powerlink EIR/EIS, the Tule Wind Project is primarily in the La Posta Fireshed with southern portions in the Boulevard Fireshed. The following sections describe the firesheds.

Boulevard Fireshed Description

The Boulevard Fireshed is located in the extreme southeastern corner of San Diego County. Nearby communities include Boulevard, Manzanita, and Jacumba, all receiving designation as communities at risk of wildfire (California Fire Alliance 2010; CAL FIRE 2001). Terrain varies throughout the fireshed with elevations ranging from below 1,700 feet amsl to nearly 4,700 feet amsl. Vegetation throughout the fireshed varies, but large portions are dominated by sparse, semi-arid vegetation including desert scrub, chaparral, juniper woodland, and oak woodland. Land ownership within the fireshed includes BLM lands, State lands, tribal lands, and private holdings. Population density is a sparse 34 people per square mile.

Fire History

Fire history within the Boulevard Fireshed indicates that over the last roughly 50 years, 29 wildfires have been recorded. Most fires have been small, either due to lack of fuel or quick response and control. Only three fires have grown to 500 to 1,000 acres and another three fires are considered "major" fires of over 1,000 acres. Large portions of the fireshed have not burned in the last 50 years. The xeric environment within the fireshed supports sparse vegetation, which is likely the primary limiting factor for wildfire ignition and spread. However, invasive annual grasses are establishing throughout the fireshed and may, over time, cause a shift to more frequent and larger fires (CPUC and BLM. 2008a). Recorded ignitions within the fireshed include a variety of sources, including equipment use, vehicles, campfires (including fires from illegal immigrants), debris burning, lightning, smoking, and powerline-related ignitions.

Fire Suppression

The Boulevard Fireshed is divided between the SDRFPD, CAL FIRE, and the SDCFA, Boulevard and Campo Fire Stations. The Boulevard Fireshed is covered by the CAL FIRE Whitestar Station, Boulevard Fire Station, Campo Fire Department, and Jacumba Fire Station. Between these agencies, there are significant firefighting resources to serve the area's wildfire potential, especially with CAL FIRE's air attack capabilities that can reach the area within 20 minutes.

Wildfire Modeling Results

The Boulevard Fireshed was modeled (CPUC and BLM. 2008a) for fire behavior, burn probability, and escape potential. Based on those results, and independent San Diego County fire behavior modeling confirmations, the fireshed includes vegetation, topography, and weather that are favorable to wildfire spread. Large expanses of naturally vegetated areas occur throughout the fireshed and could result in large-scale wildfire from an ignition, regardless of source. Supporting this conclusion is CAL FIRE's Fire Threat ranking, which indicates the level of fire threat based on the potential fire behavior (fuel rank) and expected fire frequency (fire rotation). The proposed project occurs in varying classification areas, but generally occurs within areas ranked high, very high, or extreme (CAL FIRE 2010).

La Posta Fireshed Description

The La Posta Fireshed is located directly to the west of the Boulevard Fireshed in southeastern San Diego County and includes the northern portion of the Tule Wind Project. Nearby communities include Boulder Grove, Live Oak Springs, Cuyapaipe, and La Posta, all receiving designation as communities at risk of wildfire (California Fire Alliance 2010; CAL FIRE 2001). The La Posta Fireshed is generally at higher elevations than the Boulevard Fireshed, with elevations ranging from nearly 4,000 feet amsl to nearly 6,000 feet amsl. Vegetation throughout the fireshed varies, with coniferous forests at the higher elevations and sparse chaparral and sagebrush communities in the eastern portions of the fireshed. Land ownership within the fireshed includes USFS lands, BLM lands, State lands, City of San Diego lands, SDG&E lands, County of San Diego lands, and private holdings. Population density is higher than the Boulevard Fireshed at 56 people per square mile.

Fire History

Fire history within the La Posta Fireshed indicates that over the last 50 years, 36 wildfires have been recorded. Most fires have been small, either due to lack of continuous fuels or quick response and control. A total of five fires have grown to 500 to 1,000 acres and another four fires are considered "major" fires of over 1,000 acres. Of note, the 1970 Laguna Fire in this fireshed was ignited by a downed electrical distribution line. Over the 13-year period between 1995 and 2008, there have been 419 reported ignitions. Lightning, campfire, equipment use, vehicle fires, and arson are among the primary causes.

Fire Suppression

Fire suppression responsibilities are tasked to SDRFPD, CAL FIRE, SDCFA and USFS within the La Posta Fireshed. These agencies include significant firefighting resources to serve the area's wildfire potential, especially with the combined CAL FIRE and USFS air attack capabilities that can reach the area within 20 minutes or less.

Wildfire Modeling Results

The La Posta Fireshed was modeled (CPUC and BLM 2008a) for fire behavior, burn probability, and escape potential. Based on those results, and independent San Diego County fire behavior

modeling confirmations, the fireshed includes vegetation, topography, and weather that are favorable to wildfire spread. Large expanses of naturally vegetated areas occur throughout the fireshed and could result in large-scale wildfire from an ignition, regardless of source. Supporting this conclusion is CAL FIRE's Fire Threat ranking, which indicates the level of fire threat based on the potential fire behavior (fuel rank) and expected fire frequency (fire rotation). Fire Threat classifications vary over the project extent and include rankings of high, very high, or extreme (CAL FIRE 2007a).

4.7 Defensible Space and Vegetation Management

The O&M building will be located on a 5-acre site including a parking lot and will be surrounded by a 4-acre cleared area. The substation facility will have the required 3-acre graveled fenced cleared area around it and will have adequate spacing from transformers and other potential fire sources. The project proposes up to a 200-foot cleared area around each turbine depending on the site topography at the time of construction. Upon completion of construction, with the exception of an area 60 feet in diameter (gravel up to a 10-foot radius to provide surface stabilization), the 200-foot cleared area would be revegetated with fire safe (non-combustible), low fuel vegetation, in a spacing and height configuration consistent with fire agency standard practices for a distance necessary to provide a minimum of 100 feet of fuel management from the turbine base and/or transformer. The impact analysis in the environmental document assumes a permanent impact to a 200-foot radius around each turbine. Fuel management would be performed, annually prior to May 1 and more often as needed.

In conformance with the Section 4702.2 of the County of San Diego Consolidated Fire Code IBR will provide a minimum of 100 feet of Fuel Management adjacent to buildings (primarily proposed for human habitation) associated with the O&M building and project collector substation.

The area within 50 feet of a building or structure shall be cleared of vegetation that is not fire resistant and re-planted with fire-resistant plants. In the area between 50 to 100 feet from a building all dead and dying vegetation shall be removed. Native vegetation may remain in this area provided that the vegetation is modified so that combustible vegetation does not occupy more than 50% of the square footage of this area. Trees may remain in both areas provided that the horizontal distance between crowns of adjacent trees and crowns of trees and structures is not less than 10 feet.

4.8 Significance Conclusions - County of San Diego Wildland Fire and Fire Protection Guidelines for Determining Significance

Based on the foregoing analysis in Sections 3.1 through 4.7, the following determinations regarding the first line of inquiry can be made.

1. 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 project area is mapped as being located within an area of high and very high fire hazard severity as identified by CAL FIRE, and shown on Figure 11. As described in Section 3.0, the potential sources of fire risk associated with the proposed project include the following. An analysis of potential impacts associated with each fire risk is provided below.

- ***Construction Activities*** – Fire ignition risks and PDFs that address those risks are identified in Section 3.2, Table 1. Based on the high and very high fire hazard conditions in the project area, even after application of the PDFs (PDF-1 through PDF-8), a significant impact related to potential fire ignition during construction activities will occur. Implementation of the Mitigation Measures FPP-1 through FPP-7 (**Table 8**) will reduce this impact to a level less than significant.

  Electrical 34.5 kV Collection and 138 kV Transmission System - Fire ignition risks and PDFs that address those risks are identified in Section 3.3, Table 2. Based on the high and very high fire hazard conditions in the project area, even after application of the PDF (PDF-9 through PDF-15), a significant impact related to potential fire ignition associated with the electrical collection and transmission system will occur. Implementation of the Mitigation Measures FPP-8 and FPP-9 (Table 8) will reduce this impact to a level less than significant.

- ***Wind Turbines*** - Fire ignition risks and PDFs that address those risks are identified in Section 3.4, Table 3. Based on the high and very high fire hazard conditions in the project area, even after application of the PDFs (PDF-16 and PDF-17) a significant impact related to potential fire ignition associated with electrical fire in the nacelle or other areas of the turbine will occur. This impact is considered a significant impact. Implementation of Mitigation Measure FPP-10 and project design features will reduce the potential for fire ignition within the wind turbine nacelle to a level of less than significant.

- ***Operations and Maintenance Activities*** - Fire ignition risks and PDFs that address those risks are identified in Section 3.5, Table 4. Based on the high and very high fire hazard conditions in the project area, even after application of the PDFs (PDF-1, 2, 18 through 26) a significant impact related to potential fire ignition during construction activities will occur. Implementation of the Mitigation Measures FPP-1 through FPP-7, and FPP-11 (Table 8) will reduce this impact to a level less than significant.

2. Would the project result in inadequate emergency access?

   As shown in **Table 7**, the portions of the project that occur on County lands comply with the County's travel time requirements. The O&M facility is proposed to be located on BLM land and is not subject to this requirement. Nevertheless, the O&M building will be constructed of enhanced fire resistive materials, and have automated and remotely supervised fire detection and suppression systems. Furthermore, the O&M building is only staffed during business hours.

Table 8. Impacts, Project Design Features, Mitigation Measures, and Significance Criteria

Significance Guideline	Project Design Feature	Mitigation Measure	Significance (Yes/No) Significance Determination after Implementation of Project Design Features and/or Mitigation Measures
First Line of Inquiry – County of San Diego Guidelines			
1. 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?	***Construction Activities*** (PDF 1-8) ***Electric Collector and Transmission*** (PDF 15) ***Wind Turbine*** (PDF 16 and 17) ***Operations and Maintenance*** (PDF 1, 2, 18–26)	***Construction Activities*** **FPP-1:** Develop and implement a Construction and Maintenance Fire Prevention/Protection Plan. IBR shall develop a multi-agency Construction and Maintenance Fire Prevention Plan. Plan reviewers shall include: CPUC, CAL FIRE, BLM, CSLC, and the County of San Diego. IBR shall provide a draft copy of this Plan to each listed agency at least 90 days before the start of construction activities. Comments on the Plan shall be provided by IBR to all other participants, and IBR shall resolve each comment in consultation with and to the satisfaction of CAL FIRE, SDRFPD and the SDCFA. The final Plan shall be submitted to CAL FIRE, SDRFPD and SDCFA at least 30 days prior to the initiation of construction activities. IBR shall fully implement the Plan during all construction and maintenance activities. All construction work on the project shall follow the Construction Plan guidelines and commitments, and Plan contents are to be incorporated into the standard construction contracting agreements for the construction of the project. Primary Plan enforcement and implementation responsibility will remain with IBR.	***Construction Activities*** – Yes, impact reduced to a level less than significant after implementation of mitigation. ***Electric Collector and Transmission*** – Yes, impact reduced to a level less than significant after implementation of mitigation. ***Wind Turbine*** – Yes, impact will be less than significant with the installation of fire suppression system in each wind turbine nacelle. ***Operations and Maintenance*** – Yes, impact reduced to a level less than significant after implementation of mitigation.

Significance Guideline	Project Design Feature	Mitigation Measure	Significance (Yes/No) Significance Determination after Implementation of Project Design Features and/or Mitigation Measures
		At a minimum, Plan contents will include the requirements of Title 14 of the California Code of Regulations, Article 8 #918 "Fire Protection" and the elements listed below: 1. During the construction phase of the project, IBR shall implement ongoing fire patrols. IBR shall maintain fire patrols during construction hours and for 1 hour after end of daily construction, and hotwork. 2. Fire Suppression Resource Inventory – In addition to CCR Title 14, 918.1(a), (b), and (c), IBR shall update in writing the 24-hour contact information and onsite fire suppression equipment, tools, and personnel list on quarterly basis and provide it to the CAL FIRE, SDRFPD, SDCFA, CPUC, BLM, and to state and federal fire agencies. 3. During Red Flag Warning events, as issued daily by the National Weather Service in SRAs and Local Responsibility Areas (LRA), all non-essential, non-emergency construction and maintenance activities shall cease or be required to operate under IBR's Hot Work Procedure. Utility and contractor personnel will be informed of changes to the Red Flag event status as stipulated by CAL FIRE.	

Significance Guideline	Project Design Feature	Mitigation Measure	Significance (Yes/No) Significance Determination after Implementation of Project Design Features and/or Mitigation Measures
		4. All construction crews and inspectors shall be provided with radio and cellular telephone access that is operational along the entire length of the approved route to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction activities at each construction site. The radio shall allow communications with other IBR vehicles and construction trailer. All fires will be reported immediately upon detection. 5. Each member shall carry at all times a laminated card listing pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on contact cards will be updated and redistributed to all crewmembers as needed and outdated cards destroyed, prior to the initiation of construction activities on the day the information change goes into effect. 6. Each member of the construction crew shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. 7. Water storage tanks and access roads shall be	

Significance Guideline	Project Design Feature	Mitigation Measure	Significance (Yes/No) Significance Determination after Implementation of Project Design Features and/or Mitigation Measures
		installed and operational at time of start of construction. **FPP-2:** Develop a Wildland Fire Prevention and Fire Safety Guide. IBR shall prepare and adopt a Wildland Fire Prevention Plan and Fire Safety Guide. The Plan will, at a minimum, include all of the provisions of the Construction Fire Prevention Plan (as described above). The Plan will be revisited and updated once every five years to incorporate new regulations, practices, technologies, and fire science research. IBR shall submit the Plan for review and comment by the following agencies at least 90 days prior to energizing the proposed project: CPUC, BLM, CAL FIRE, SDRFPD, SDCFA, and the CSLC. IBR will submit the Plan (with agency comments incorporated) for review and approval by CAL FIRE, SDRFPD and the SDCFA at least 60 days prior to commencing construction for the proposed project. **FPP-3: MOU -** Ensure coordination for emergency fire suppression. IBR shall ensure that personnel, construction equipment, and aerial operations do not create obstructions to firefighting equipment or crews. The following provisions shall be defined based on consultation with CAL FIRE and the SDRFPD. a. Onsite IBR and contracted personnel shall coordinate	

Significance Guideline	Project Design Feature	Mitigation Measure	Significance (Yes/No) Significance Determination after Implementation of Project Design Features and/or Mitigation Measures
		fire suppression activities through the active fire agency designated Fire Incident Commander, and emergency ingress and egress to construction-related access roads will remain unobstructed at all times. Construction and/or maintenance work shall cease in the event of a fire within 1,000 feet of the work area. The work area includes the transmission ROW, construction laydown areas, pull sites, access roads, parking pads, turbines, O&M building, and substation and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. **FPP-4:** Remove hazards from the work area. IBR shall comply with PRC 4291, *Reduction of Fire Hazards Around Building*, to provide 100 feet fuel modification around all buildings, and the County Code Title 9 regarding brush management. IBR and/or its contractor shall clear brush and dead and decaying vegetation from the work area prior to starting construction and/or maintenance work. The work area includes only those areas where personnel are active or where equipment is in use or stored, and may include portions of the transmission ROW, construction laydown areas, pull sites, access roads, parking pads,	

Significance Guideline	Project Design Feature	Mitigation Measure	Significance (Yes/No) Significance Determination after Implementation of Project Design Features and/or Mitigation Measures
		turbine pads, O&M building, substation and any other sites adjacent to the ROW where personnel are active or where equipment is in use or stored. **FPP-5:** Helicopter Use: IBR shall contact CAL FIRE and the SDRFPD dispatch centers two days prior to helicopter use and will provide dispatch centers with radio frequencies being used by the aircraft, aircraft identifiers, the number of helicopters that will be used while working on or near SRA lands at any given time, and the flight pattern of helicopters to be used. Should a wildfire occur within one (1) mile of the work area, upon contact from a CAL FIRE Incident Commander and/or Forest Aviation Officer, helicopters in use by IBR will immediately cease construction activities and not restart aerial operations until authorized by the appropriate fire agency. **FPP-6:** Roads: Any BLM roads or turbine roads that are proposed to be gated shall be provided with an approved Knox Box. **FPP-7, Combustible Storage: (CFC Chapter 3):** Combustible storage and trash on site during construction and operation phases shall be properly stored in a clear area with fuel modification around it, and be away from turbines and the substation. Such storage shall be orderly and be removed from the site as soon as possible.	

Significance Guideline	Project Design Feature	Mitigation Measure	Significance (Yes/No) Significance Determination after Implementation of Project Design Features and/or Mitigation Measures
		Electric Collector and Transmission **FPP-8:** Perform climbing inspections. IBR shall perform climbing inspections on 10 percent of project structures supporting overhead lines annually, such that every project structure has been climbed and inspected at the end of a 10-year period, for the life of the project. In addition, IBR will keep a detailed inspection log of climbing inspections, and any potential structural weaknesses or imminent component failures shall be acted upon immediately. The inspection log will be maintained on-site and available for review by CAL FIRE/SDRFD upon request. **FPP-9: Line Clearance.** For the 138 kV transmission line, IBR shall establish and maintain adequate line clearance in conformance with CPUC GO 95. Only trees or vegetation with a mature height of 15 feet or less shall be permitted within the transmission right of way except where the transmission line spans a canyon. In addition, tree branches that overhang the ROW within 10 horizontal feet of any conductor shall be trimmed or removed, as appropriate, including those on steep hillsides that may be many vertical feet above the facility. Conductor clearance of 10 radial feet under maximum sag and sway will be maintained at all times. Cleared vegetation shall be removed to	

Significance Guideline	Project Design Feature	Mitigation Measure	Significance (Yes/No) Significance Determination after Implementation of Project Design Features and/or Mitigation Measures
		comply with requirements of the County of San Diego. During the life of the project, IBR shall maintain adequate conductor clearances by inspecting the growth of vegetation along the entire length of the overhead transmission line at least once each spring and documenting the survey and results. The inspection log shall be maintained on-site and available for review by CAL FIRE/SDRFPD upon request. ***Wind Turbine*** **FPP-10:** Fire Suppression in the Nacelles - IBR shall provide a manufacturer or aftermarket fire suppression system in each wind turbine nacelle, including the associated electrical equipment in the nacelle. ***Operations and Maintenance*** **FPP-1 through FPP-7.**	
2. Would the project result in inadequate emergency access?	As shown in **Table 7**, the portions of the project that occur on County lands comply with the County's travel time requirements. The O&M facility is proposed to be located on BLM land and is not subject to this requirement. See Section 4.2 Fire Access for additional information.	No mitigation is required.	No, a less than significant impact is identified.

Significance Guideline	Project Design Feature	Mitigation Measure	Significance (Yes/No) Significance Determination after Implementation of Project Design Features and/or Mitigation Measures
3. 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 service ratios, response times or other performance objectives for fire protection?	As shown in **Table 7**, the portions of the project that occur on County lands comply with the County's travel time requirements. The O&M facility is proposed to be located on BLM land and is not subject to this requirement. See Section 4.2 Fire Access for additional information.	No mitigation is required.	No, a less than significant impact is identified.
4. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	PDF-7	No mitigation is required.	Yes, sufficient water supplies are available. A less than significant impact is identified.
Second Line of Inquiry – County of San Diego Guidelines			
1. Can the project demonstrate compliance with the following fire regulations: California Fire Code, California Code of Regulations, County Fire Code, and the County Consolidated Fire Code?	PDF-1 through PDF-26. The project will be consistent with the requirements of this plan.	No mitigation is required.	Yes, a less than significant is identified.

Significance Guideline	Project Design Feature	Mitigation Measure	Significance (Yes/No) Significance Determination after Implementation of Project Design Features and/or Mitigation Measures
2. Will the project be consistent with the recommendations of the Fire Protection Plan, including fuel modification?	PDF-1 through PDF-26. The project will be consistent with the requirements of this plan.	The project will be consistent with the requirements of this plan	Yes, a less than significant impact is identified.
3. Can the project meet the emergency response objectives identified in the Public Facilities Element of the County General Plan or offer Same Practical Effect?	As shown in **Table 7**, the portions of the project that occur on County lands comply with the County's travel time requirements. The O&M facility is proposed to be located on BLM land and is not subject to this requirement. See Section 4.2 Fire Access for additional information.	No mitigation is required.	Yes, a less than significant impact is identified.
Third Line of Inquiry – CPUC / BLM Guidelines			
1. Would the presence of project facilities (overhead transmission lines, and/or wind turbines) significantly increase the probability of a wildfire?	Please refer to the *First Line of Inquiry – County of San Diego Guidelines*, question number one. The PDFs identified for those potential fire risks are applicable to this threshold question and associated fire risks.	Please refer to the *First Line of Inquiry – County of San Diego Guidelines*, question number one. The Mitigation Measures for those potential fire risks are applicable to this threshold question and associated fire risks.	***Construction*** Activities – Yes, impact reduced to a level less than significant after implementation of mitigation. ***Electric Collector and Transmission*** – Yes, impact reduced to a level less than significant after implementation of mitigation. ***Wind Turbine*** – Yes, impact is less than significant with the installation of a fire suppression system in each wind turbine nacelle. ***Operations and Maintenance*** – Yes, impact

Significance Guideline	Project Design Feature	Mitigation Measure	Significance (Yes/No) Significance Determination after Implementation of Project Design Features and/or Mitigation Measures
			reduced to a level less than significant after implementation of mitigation.
2. Would project construction and/or operation and maintenance and decommissioning activities significantly increase the probability of a wildfire?	Please refer to the *First Line of Inquiry – County of San Diego Guidelines*, question number one. The PDFs identified for those potential fire risks related to construction and/or operation and maintenance and decommissioning are applicable to this threshold question and associated fire risks.	Please refer to the *First Line of Inquiry – County of San Diego Guidelines*, question number one. The Mitigation Measures for those potential fire risks related to construction and/or operation and maintenance and decommissioning are applicable to this threshold question and associated fire risks.	***Construction*** Activities – Yes, impact reduced to a level less than significant after implementation of mitigation. ***Operations and Maintenance*** – Yes, impact reduced to a level less than significant after implementation of mitigation. ***Decommissioning*** **–** These activities are very similar to Construction discussed above. Yes, impact reduced to a level less than significant after implementation of mitigation measures.
3. Would the presence of the overhead transmission lines, overhead collector lines, and/or wind turbines reduce the effectiveness of firefighting?	PDF-9 through PDF-15	**FPP-11:** De-Energize Electrical System - IBR shall immediately de-energize the electrical collector and transmission systems during fire emergencies in which SDG&E de-energizes its local 138 kV system. Appropriate fire agencies shall be immediately notified of the line de-energizing. Additionally, IBR shall provide all appropriate local, state, and federal fire	Potential impact reduced to a level less than significant after implementation of PDFs and mitigation measures.

Significance Guideline	Project Design Feature	Mitigation Measure	Significance (Yes/No) Significance Determination after Implementation of Project Design Features and/or Mitigation Measures
		dispatching agencies with an on-call contact person (Fire Coordinator) who has the authority to shut down the line in areas affected by a fire. The transmission line shall be de-energized prior to and during fire suppression activities within 1 mile of the transmission corridor to maintain firefighter safety, and re-energizing shall require notification and approval of all the responsible fire agencies. **FPP-12:** Site Maps - All responsible agencies shall be provided with maps indicating the location of the water tanks, turbines, access roads, and project layout and towers. **FPP-13:** Communication Devices - In order to easily communicate immediate fire incidence during construction, operation or maintenance of the project, all crews and inspectors shall be equipped with operational communication equipment and open communication pathways shall be established.	
4. Would project activities contribute to an increased ignition potential and rate of fire spread through the introduction of non-native plants		**FPP-14:** Noxious Weed and Invasive Species Control Plan and Habitat Restoration Plan will be completed prior to construction.	No, with the implementation of the Noxious Weed and Invasive species Control Plan a less than significant impact is identified.

Similarly, the turbines will be constructed of fire resistant materials and will include PDFs and a mitigation measure to reduce the risk of fire, as summarized in Section 5.0. Furthermore, the project is performing road improvements to McCain Valley Road and throughout the project area, which will reduce travel times within the general vicinity and provide a community benefit.

Therefore, this project would comply with the County's emergency and fire response requirement at the County's northernmost boundary. In addition, due to the remote location and the fact that this is not a residential development, but is a Service and Utility Project with a low occupant load, the available emergency response is adequate. Services would not be adversely affected by implementation of the project. The project will improve and create new access roads, which will have the effect of improving emergency response time to remote locations within the project area (see Section 4.2, Fire Access for additional information). A less than significant impact is identified for this issue.

3. 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 service ratios, response times or other performance objectives for fire protection?

   As described above, the project will comply with the County's emergency and fire response requirement at the County's northernmost boundary. In addition, due to the remote location and the fact that this is not a residential development, but is a Service and Utility Project with a low occupant load, the available emergency response is adequate. Services would not be adversely affected by implementation of the project. The project will improve and create new access roads, which will have the effect of improving emergency response time to remote locations within the project area (see Section 4.2 Fire Access for additional information). The project will not result in substantial adverse impacts associated with the provision of new or physically altered governmental facilities that would cause a significant environmental impact. However, the project is required to upgrade access roads and to provide adequate fuel modification areas to meet fire code requirements. Additionally IBR shall enter into a Fire and Emergency Protection Services Agreement with the SDRFPD, and other agencies as appropriate. These aspects of the project will result in impacts to biological resources, which area addressed separately as part of the Biological Technical Report (August 2010). This issue will result in a less than significant impact.

4. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

   As discussed in Section 3.6.1, Construction, the project has sufficient water supplies available to meet the peak construction demand, and operational demand. A less than significant impact is identified for this issue.

4.9 Cumulative Impact Analysis

CEQA and NEPA require an analysis of cumulative impacts. Cumulative impacts to fire and fuels management would impact area fire service providers. The SDCFA, portions of the County Service Area 135, the SDRFPD, CAL FIRE, BLM and Tribal governments service the surrounding area. The project is located in an area that has the potential for wildfires. The project area has been identified in the County of San Diego Draft General Plan Update (April 2010) as having moderate to very high in the majority of the project area and extreme potential for wildland fires in the western portion of the project area.

There currently are several energy projects within the general vicinity. There are five energy projects, nine transmission and other renewable projects, ten federal development projects, and 39 County Development projects located in the general vicinity of the Tule Wind Project area. The proposed project is considered a connected action with the SDG&E ECO Substation project which is proposing upgrades to the existing substation and a double-circuit 230 kV or a single-circuit 500 kV transmission line and the Energia Sierra Jaurez United States Transmission Generation Tie Line project (ESJ) which proposes either a double circuit 230 kV or a single circuit 500 kV transmission line. The project area is also identified as a proposed transmission route for the Sunrise Power Link project. This would add an additional 230 kV double-circuit or single circuit along McCain Valley Road. In addition to the energy projects, the Campo Indian Reservation is in the process of adding an additional 80 turbines to the existing 25 turbines. These additional energy projects could have a cumulative effect on the surrounding area due to wildfire and wildfire management. Other projects in the area are composed of residential developments, mining operations, cell towers, and commercial development.

The components of the area energy projects may have an affect on fire fighting capability due to the transmission lines and turbines absent implementation of PDFs and Mitigation Measures. Cumulative impact research was conducted for the Tule Wind Project, and three private projects were identified as having impacts due to wildland fire hazards.
The following cumulative impacts have the potential to occur:

- Introduction of non-native plants which can contribute to fire spread rate.

  IBR will implement a Noxious Weed and Invasive Species Control Plan to reduce the introduction of non-native plants into the project area. Given natural state of the project area consideration of the combined energy projects that are scheduled for development, it is anticipated that collectively non-native plants will be introduced into the area. However, the implementation of the Invasive Species Plan that will be in place for the project will render the project's contribution to this impact less than cumulatively considerable by preventing non-native species from being introduced.

- Alter the natural fire system.

  The project area is considered to be in a high to very high fire danger area and historically has not experienced a catastrophic fire in recent history. The vegetation in the area will be altered due to the construction of the turbines, the roadways, and structures. The mitigation measures that will be in place for the project, including a Disturbed Area Revegetation Plan, will render the project's contribution to this impact less than

cumulatively considerable by minimizing the potential for ignition which would result in an alteration to the natural fire system.

- Impact natural resources.

  The project and cumulative projects will impact vegetation communities due to the construction of transmission lines, turbines, and structures. IBR will implement several Mitigation Measures, including a Disturbed Area Revegetation Plan, which will render the project's contribution to this impact less than cumulatively considerable because temporary impacts to vegetation communities will be revegetated to pre-construction conditions and permanent impacts will be mitigated. A comprehensive analysis is provided in the Biological Technical Report for the project (HDR 2010).

- Impact firefighting effectiveness due to the project components (turbines, transmission lines).

The project and cumulative projects will include wind turbines, transmission lines, and non-residential structures that absent mitigation could hamper firefighting effectiveness. Helicopter use likely will not be limited in the area during a wildland fire because the wind turbines can be shut-down from the on-site O&M building and/or IBR's NCC in Portland, Oregon, which is staffed continuously. Turbines and transmission structures will include any required FAA lighting and markings, which will make them visible reducing the potential for contact from aerial fire fighting. The transmission lines are spaced far enough apart to not restrict aircraft maneuverability and significantly increase the risk of contact by aircraft or water buckets. Water drops are performed at 150 feet above the ground otherwise known as the "150 foot drop zone". The transmission towers are proposed to be 75 feet in height, less than half the height of the drop.

Ground based fire fighting could be compromised by the presence of downed transmission and collector lines could make an area too dangerous to enter for firefighting/fire suppression activities. In order to prevent this, IBR shall immediately de-energize the electrical collector and transmission systems during fire emergencies in which SDG&E de-energizes its local 138 kV system. Appropriate fire agencies shall be immediately notified of the line de-energizing. Additionally, IBR shall provide all appropriate local, state, and federal fire dispatching agencies with an on-call contact person (Fire Coordinator) who has the authority to shut down the line in areas affected by a fire. The transmission line shall be de-energized prior to and during fire suppression activities within 1 mile of the transmission corridor to maintain firefighter safety, and re-energizing shall require notification and approval of all the responsible fire agencies (FPP 11). The project is also improving existing access roads and constructing new roads which will improve access for firefighting.

In addition FDF-8, A Fire and Emergency Protection Services Agreement for the project shall be executed between IBR and the SDRFPD, and other agencies as appropriate. The Agreement shall be executed by all parties prior to commencement of construction of the project. The purpose of the Agreement is to fund the employment and training of personnel, and acquisition and maintenance of equipment to provide fire and emergency protection services for the project. The Agreement will describe the scope of services to be provided by the SDRFPD, and other agencies as appropriate, and will be maintained throughout the life of the project. This will

prevent the project from contributing to a decrease in service through the additional demand of services from the project.

The PDFs discussed in Section 3.6 will minimize the risk of ignition sources; therefore the project's contribution to this impact is less than cumulatively considerable. Therefore, the project's contribution to this impact is less than cumulatively considerable.

4.10 Analysis of Additional County Guidelines for Determining Significance

Based on the foregoing analysis in Sections 3.1 through 4.7, the following determinations regarding the second line of inquiry can be made.

4.10.1 Can the Project Demonstrate Compliance With Fire Regulations?

The project will comply with California Fire Code, California Code of Regulations, County Fire Code and the County Consolidated Fire Code as listed in Section 1.3. Accordingly, the project will have a less than significant wildland fire impact.

4.10.2 Has a Fire Protection Plan Been Required and Will the Project Be Consistent With Its Recommendations, Including Fuel Modification?

An FPP has been required for the proposed project. The FPP evaluates adequate emergency services, fire access, water supply, ignition resistant construction and fire protection systems, fire fuel assessment, fire behavior modeling, defensible space and vegetation management, and cumulative impacts.

As part of this FPP, as it relates to the topics identified above, the plan identifies PDFs and mitigation measures to comply with the County of San Diego Consolidated Fire Code, including fuel modification.

As described in Section 3.5.4, the O&M building will have a 4-acre cleared area surrounding building and the substation facility, and the building will be placed such that a 100' fuel modification zone will give adequate spacing form transformers and potential fire sources. The project proposes up to a 200-foot cleared area around each turbine depending on the site topography at the time of construction. Upon completion of construction, with the exception of an area 60 feet in diameter (gravel up to a 10-foot radius to provide surface stabilization), the 200-foot cleared area would be revegetated with fire safe (non-combustible), low fuel vegetation, in a spacing and height configuration consistent with fire agency standard practices for a distance necessary to provide a minimum of 100 feet of fuel management from the turbine base and/or transformer. The impact analysis in the environmental document assumes a permanent impact to a 200-foot radius around each turbine. Fuel management within the area would be performed, annually prior to May 1 and more often as needed.

In addition, IBR will implement a brush management plan for the O&M building and substation facility in accordance to Title 9 of the San Diego County Code to clear brush away from structures.

Accordingly, the project will have a less than significant wildland fire impact.

4.10.3 Can the Project Meet the Emergency Response Objectives Identified in the Public Facilities Element of the County General Plan, or Offer Same Practical Effect?

As discussed in Section 4.1 Adequate Emergency Services, the project is serviced by several fire entities; CAL FIRE; Boulevard Fire Department; Campo Volunteer Fire Department; San Diego Rural Fire Protection District; and Campo Indian reservation.

As shown in **Table 7**, the portions of the project that occur on County lands comply with the County's travel time requirements. The O&M facility is proposed to be located on BLM land and is not subject to this requirement. Nevertheless, the O&M building will be constructed of enhanced fire resistive materials, and have automated and remotely supervised fire detection and suppression systems. Furthermore, the O&M building is only staffed during business hours.

Similarly, the turbines will be constructed of fire resistant materials and will include PDFs and mitigation measures to reduce the risk of fire, as summarized in Section 5.0. Furthermore, the project is performing road improvements to McCain Valley Road and throughout the project area, which will reduce travel times within the general vicinity and provide a community benefit.

Therefore, this project would comply with the County's emergency and fire response requirement at the County's northernmost boundary. In addition, due to the remote location and the fact that this is not a residential development, but is a Service and Utility Project with a low occupant load, the available emergency response is adequate. Services would not be adversely affected by implementation of the project. The project will improve and create new access roads, which will have the effect of improving emergency response time to remote locations within the project area. Therefore, the project will have a less than significant wildland fire impact.

4.11 Additional Questions Considered By the California Public Utility Commission and Bureau of Land Management

Based on the foregoing analysis in Sections 3.1 through 4.7, the following determinations regarding the third line of inquiry can be made.

4.11.1 Would the Presence of Project Facilities (Overhead Transmission Lines, Overhead Collector Lines, and/or Wind Turbines) Significantly Increase the Probability of a Wildfire?

34.5 kV Overhead Collector Lines and 138 kV Transmission Lines

The majority of the 34.5 kV collector lines are proposed to be undergrounded and would not significantly increase the probability of a wildfire. The overhead collector system is approximately 9.4 miles in length. The majority of the collector system will be underground. The underground portion of the collector system is approximately 29 miles in length. Only 30 percent of the collector system is planned to be overhead.

The presence of the turbines and overhead 138 kV transmission line may create a new source of potential wildfire ignitions. Line faults could occur as a result of any of the reasons identified in Section 3.3 and the fire hazards associated with the turbines is discussed in Section 3.4. Any line

faults or turbine related events that create sparks that ignite vegetation could result in a wildland fire if the ignition was to occur during extreme weather conditions. Due to the existing high-fire hazard conditions in and surrounding the project area, construction of the project components (transmission line and turbines) could increase the risk of fire. This impact is considered significant because certain ignition sources are unavoidable, for example contact with floating or windblown debris.

The steel galvanized or weathered steel finish poles supporting the transmission line will be approximately 74.5 feet in height; with typical span length of 600 feet and a maximum length of 700 feet. The 34.5 kV overhead collector system will be supported by a maximum of 250 wood or steel poles that will be 60 to 80 feet in height and 2 feet in diameter, with single and double circuit collectors.

Due to the potential for ignitions related to the 34.5 kV overhead lines, 138 kV transmission and lines, or turbines during extreme fire weather, construction and operation of the project within area could significantly increase the likelihood of a fire. A significant impact is identified related to this issue.

The risk of ignitions and risk of damage from a project-related ignition can be reduced to a level of less than significant through the application of PDF-8 through PDF-15 and the Mitigation Measures (**Table 8**).

Wind Turbine - It is possible for fire to occur in the wind turbine nacelles due to the presence of electrical control panel, and capacitor panels. Fires may be caused by electrical malfunctions, arcing in the nacelle, and excessive heat build-up in the nacelle. Hydraulic lubricating oils can also be ignited by an arc.

Fire ignition risks and PDFs that address fire ignition risks associated with wind turbines are identified in Section 3.4, **Table 3**. Based on the high and very high fire hazard conditions in the project area, even after application of the PDFs (PDF-16 and PDF-17) a significant impact related to potential fire ignition associated with electrical fire in the nacelle or other areas of the turbine will occur. This impact is considered a significant impact. Implementation of Mitigation Measure FPP-10 and project design features will reduce the potential for fire ignition within the wind turbine nacelle to a level of less than significant.

4.11.2 Would Project Construction and/or Operation and Maintenance and Decommissioning Activities Significantly Increase the Probability of a Wildfire?

Construction activities associated with the proposed project would include, but not be limited to, use of vehicles and heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, construction of collector tower and tower pads, and the installation of conductors. Additional heavy equipment, vehicles, and tools would be used for preparation construction of the turbine pads, of staging areas, and new roads. The use of heavy equipment along with the personnel required to construct, repair, and maintain the project features line introduce the potential for a variety of wildfire ignition sources to surrounding vegetation fuels and combustible materials (such as diesel fuel and herbicide) associated with project activities.

The use of heavy equipment and the presence of personnel may increase the wildfire ignition potential in the project construction areas compared with existing conditions.

Maintenance activities would include the periodic use of vehicles and presence of personnel and could also include the use of heavy equipment for repairs or replacement of project components. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 30 years or more. Project-related ignitions within the proposed project corridor have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fuel loads, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape.

During the operations and maintenance phase of the project, smoking would be limited to the cleared areas around the O&M building and as with the construction phase of the project hot work would be limited during Red Flag alerts.

Decommissioning – These activities are very similar to Construction discussed above. Impacts would be reduced to a level less than significant after implementation of mitigation measures.

The proposed project would require construction and maintenance activities that will increase the risk of fire to communities, firefighter health and safety, and natural resources. This issue is considered a significant impact. This increase can be mitigated to a level that is less than significant through the application of the PDF-1 through PDF-8 and PDF 17 through PDF22 and the implementation of Mitigation Measures FPP-1 through FPP-7 (**Table 8**).

4.11.3 Would the Presence of the Overhead 138 kV Transmission Lines, Overhead 34.5 kV Collector Lines, and/or Wind Turbines Reduce the Effectiveness of Firefighting?

As described previously, the project design will upgrade roadway widths to provide better infrastructure to the area for fire emergency vehicles. The project would increase the amount of overhead transmission lines, overhead collector lines, but they would be located along roadways and would not impede firefighting apparatus. In addition, the transmission lines will be at a height of approximately 74 feet with a typical span of 600 feet and a maximum of 700 feet, which would give adequate clearance for emergency vehicles and fire truck ladders. Turbines will have a maximum of 328 feet for the steel tower, with a rotor diameter of 328 feet for a maximum height of 492 feet. The turbines will be connected by an access roadway, located approximately one-quarter mile from each other.

Fire and Emergency Access: The project's upgraded access roads, which include County roads, BLM roads and turbine roads, will serve to improve access to areas that are currently not accessible by fire-fighting vehicles and reduce response times.

The project roads will also improve public safety should a vegetation fire occur in the area by providing alternate routes of egress. Currently, the only public exit road from the McCain Valley area is McCain Valley Road. The proposed connector road between Ribbonwood Road and McCain Valley Road is proposed as a private road, however will not be gated. As a result this road will be available to the community in the event of an emergency. Additionally the

turbine roads will improve access allowing fire crews and tanker trucks faster initial response to remote portions of the BLM land and/or the project area. Any BLM roads or turbine roads that are proposed to be gated shall be provided with an approved Knox Box as discussed in Section 5.1.

Aerial and Ground-based Firefighting: Aerial firefighting efforts would not be compromised by implementation of the project. The turbines are located approximately one-quarter mile apart which would allow helicopters to navigate between the towers. Furthermore, the turbines and towers will be equipped with safety lighting as required by the FAA.

The transmission lines are spaced far enough apart to not restrict aircraft maneuverability and significantly increase the risk of contact by aircraft or water buckets. Water drops are performed at 150 feet above the ground otherwise known as the "150 foot drop zone". The transmission towers are proposed to be 75 feet in height, less than half the height of the drop. Ground based fire fighting could be compromised by the presence of downed transmission and collector lines could make an area too dangerous to enter for firefighting/fire suppression activities. Any reduction in the ability of fire fighting/suppression activities to occur during extreme weather conditions could, in part, restrict fire fighting/suppression. Implementation of PDFs and Mitigation Measures FPP-11 through FPP-13 will be implemented to further reduce impacts to below a level of significance.

Prepare and Implement a Multi-agency Fire Prevention MOU

A Memorandum of Understanding (MOU) for the project shall be created and implemented between IBR and the SDCFA, CAL FIRE, BLM, and other agencies as appropriate. The MOU shall be adopted by all parties prior to energizing the new transmission line. The purpose of this Multi-agency Fire Prevention MOU is to efficiently coordinate all aspects of agency and utility fire prevention plans and practices. The MOU will integrate the following components of the IBR fire plan with existing agency fire plans: fire prevention, firefighter safety, and emergency communication, firefighter training of both ground and aerial utility personnel, and others as appropriate.

4.11.4 Would Project Activities Contribute to an Increased Ignition Potential and Rate of Fire Spread Through the Introduction of Non-Native Plants?

Project activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the proposed project could contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a "spotting" effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an

increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the proposed project ROW would adversely influence fire behavior by increasing fuel load, fire frequency, and fire spread.

The project has been designed to place gravel on roads and around the base of the turbines. This will reduce the area in which invasive weeds can invade in these locations.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread. To minimize fire impacts due to non-native plants mitigation measure FFP-17 will be implemented, with the preparation and implementation of a Noxious Weed and Invasive Species Control Plan. The plan addresses monitoring, education of personnel on weed identification, and methods for treating infestations.

IBR will prepare and implement the Noxious Weed and Invasive Species Control Plan for pre-construction and long-term invasive weed abatement. The plan will be prepared prior to construction. Where IBR owns the ROW property, the Plan will include specific weed abatement methods, practices and treatment timing developed in consultation with the San Diego County Agriculture Commissioner's Office and the California Invasive Plant Council (Cal-IPC**)**, or the tribal government, as appropriate. On the ROW easement lands administered by public agencies (BLM, CSLC), and Wildlife Agencies the Noxious Weed and Invasive Species Control Plan will incorporate all appropriate and legal agency-stipulated regulations. The Plan will be submitted to the ROW land-holding governmental entities for final authorization of weed control methods, practices, and timing prior to implementation of the plan on public lands. For those ROW easements located on private lands IBR will work with the landowners to obtain authorization of the weed control treatment that is required.

In addition to the Noxious Weed and Invasive Species Control Plan, a Habitat Restoration Plan will also be developed upon the completion of the biological technical report and in compliance with the report to minimize or mitigate negative impacts on vulnerable plants and wildlife to the project area. The combination of these two monitoring plans will help to ensure that both revegetation and weed control efforts are successful. Based on implementation of Mitigation Measure FPP-14, the Noxious Weed and Invasive Species Control Plan and Habitat Restoration Plan, would reduce impacts to less than significant for the potential for ignitability of fuels through the introduction of non-native plants during construction and/or maintenance is identified.

5.0 IMPACTS, PROJECT DESIGN FEATURES, MITIGATION MEASURES, AND SIGNIFICANCE CRITERIA

The fire impacts, PDFs, proposed mitigation measures, and level of significance after implementation PDFs and mitigation measures are presented below in **Table 8.**

6.0 CONCLUSION

As is shown previously in **Table 8**, the impacts due to the construction and the operations and maintenance of the project would be reduced to a level of less than significance with the implementation of the proposed project design features and required mitigation measures, provided suppression systems are provided in the nacelle, including the associated electrical equipment in the nacelle. All impacts under the first, second, and third lines of inquiry to the significance guidelines have been determined to be a less than significant impact after implementation of project design features and mitigation measures that could expose people and/or structures to a significant risk of loss, injury or death involving wildland fires.

7.0 LIST OF PREPARERS AND PERSONS AND ORGANIZATIONS CONTACTED

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Technical Input:
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Solvang, CA 93464

8.0 PERSONS AND ORGANIZATIONS CONTACTED

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- Chief Hendrie, Rural Fire Protection District
- CAL FIRE Monte Vista Dispatch Center
- Boulevard Fire Department
- CAL FIRE Boulevard Fire Station
- James Pine, San Diego County Fire Authority
- FireTrace International

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10.0 PREPARERS' LIABILITY STATEMENT

RC Biological Consulting, Inc. disclaims liability for any personal injury, property or other damages of any nature whatsoever, whether special, indirect, consequential or compensatory, directly or indirectly resulting from the publication, use of, or reliance on this document by IBR, or any regulatory or permitting agency.

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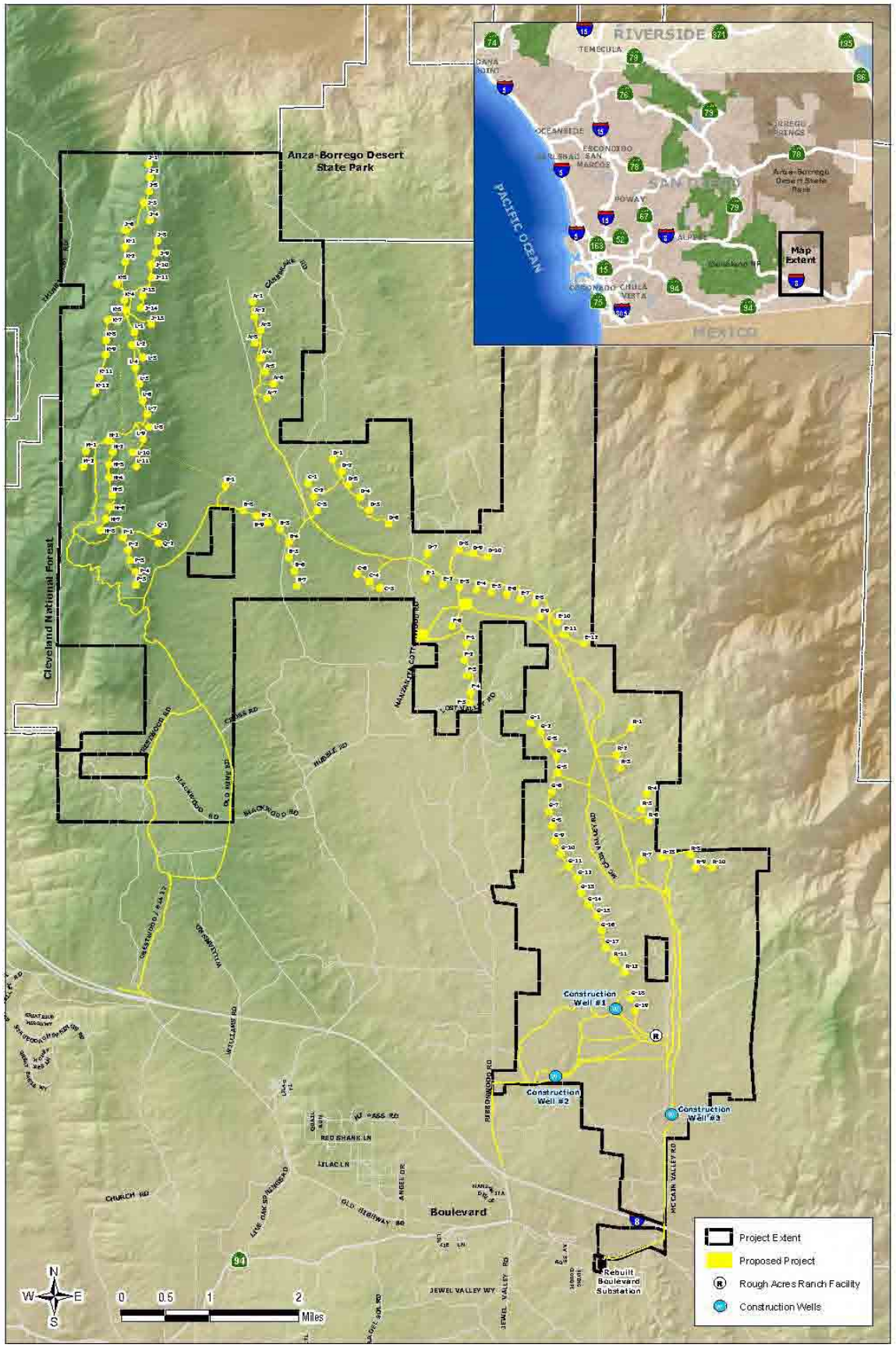
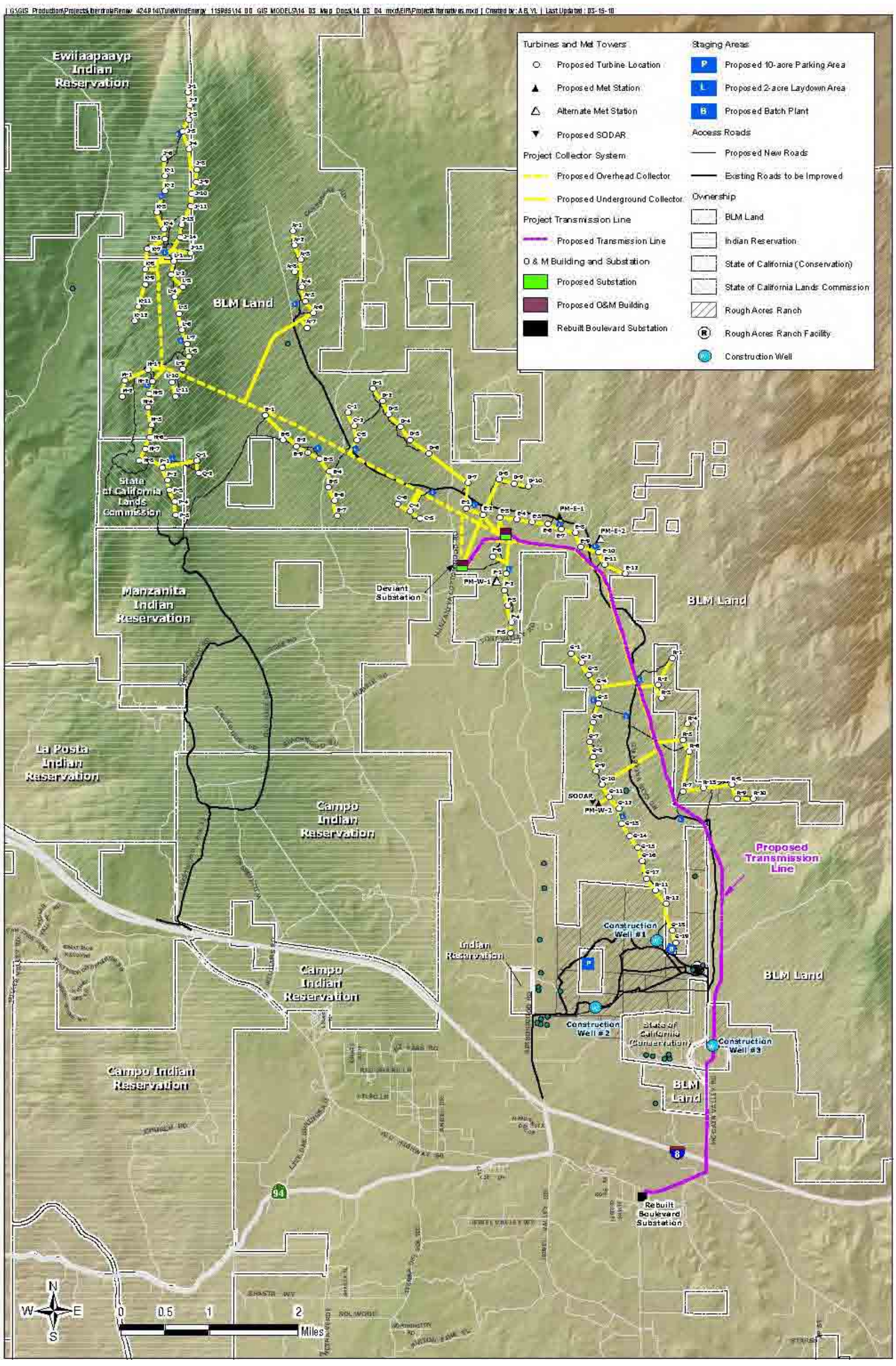
As fire is dynamic and unpredictable, the technical information provided by Hunt Research Corporation does not guarantee that a fire will not occur or will not cause property damage, injury or loss of life. No expressed or implied guarantees are made regarding the adequacy or effectiveness of the recommendations and requirements in those sections for all situations. Engineering, architecture and construction are out of the scope of Jim Hunt with Hunt Research Corporation.



Region and Vicinity **Figure 1**



Proposed Project **Figure 2**

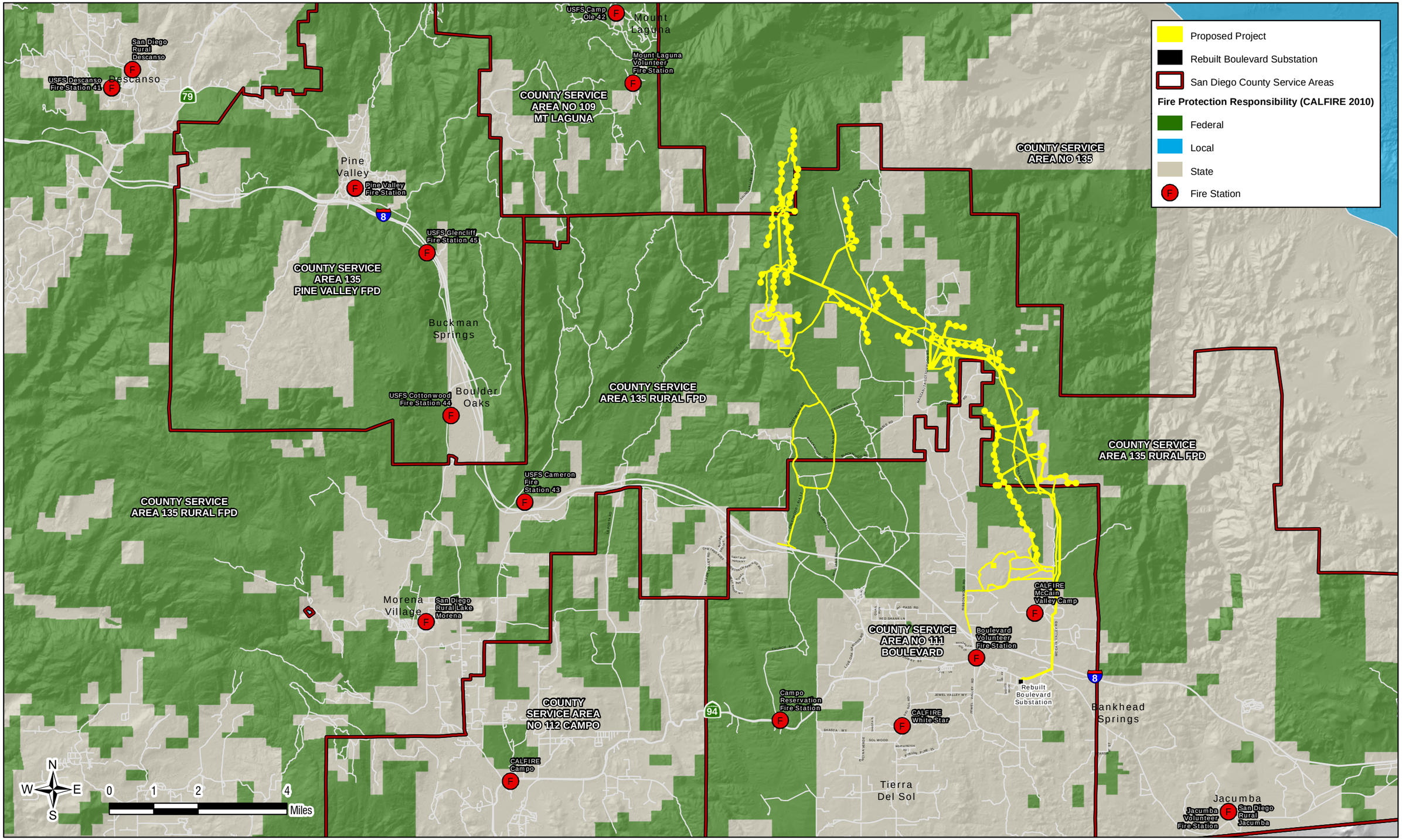
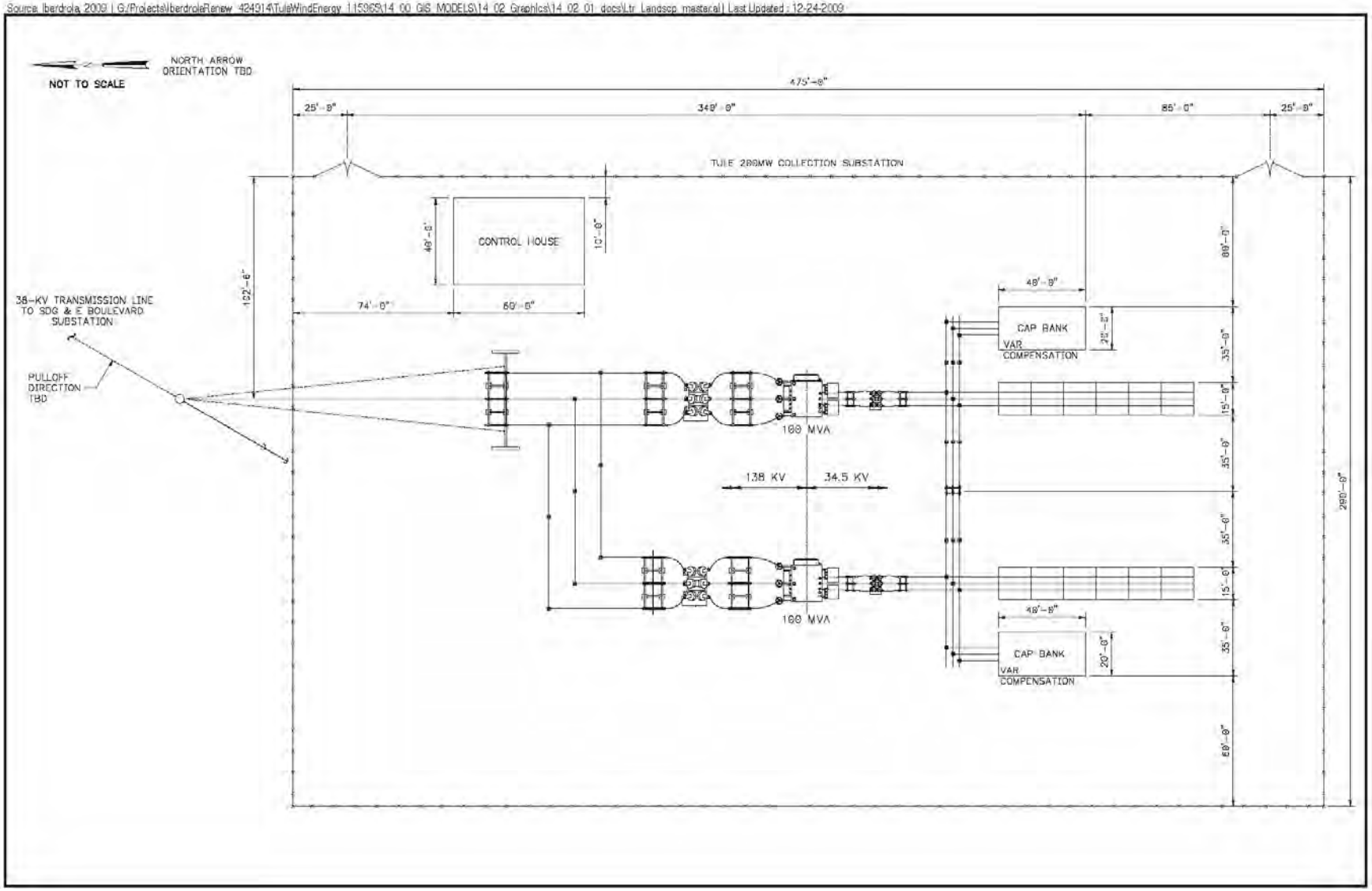
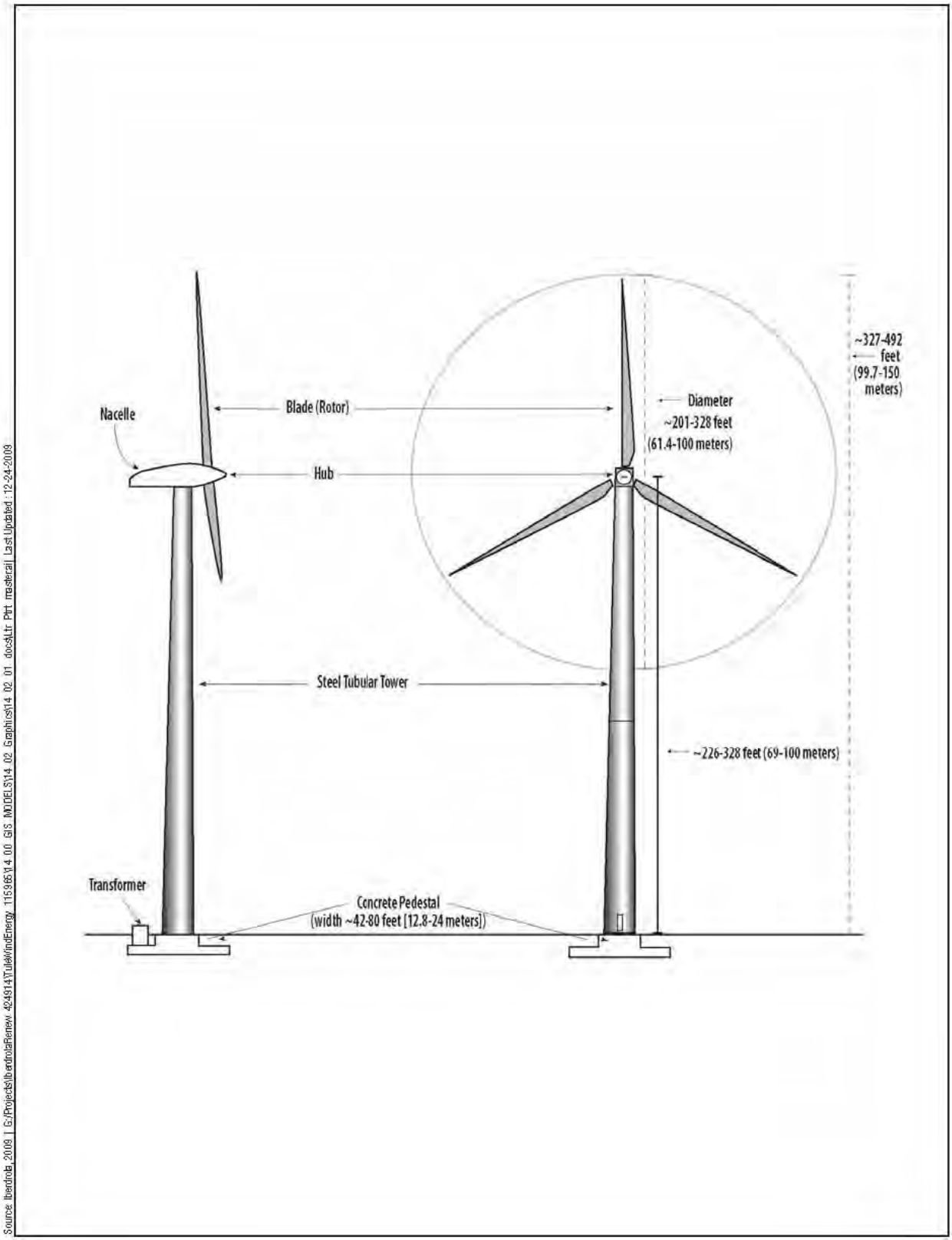


Figure 3
Fire Facilities and Fire District Areas

Typical Operations and Maintenance Facility Site **Figure 4**



200 MW Collection Plan Station View **Figure 5**



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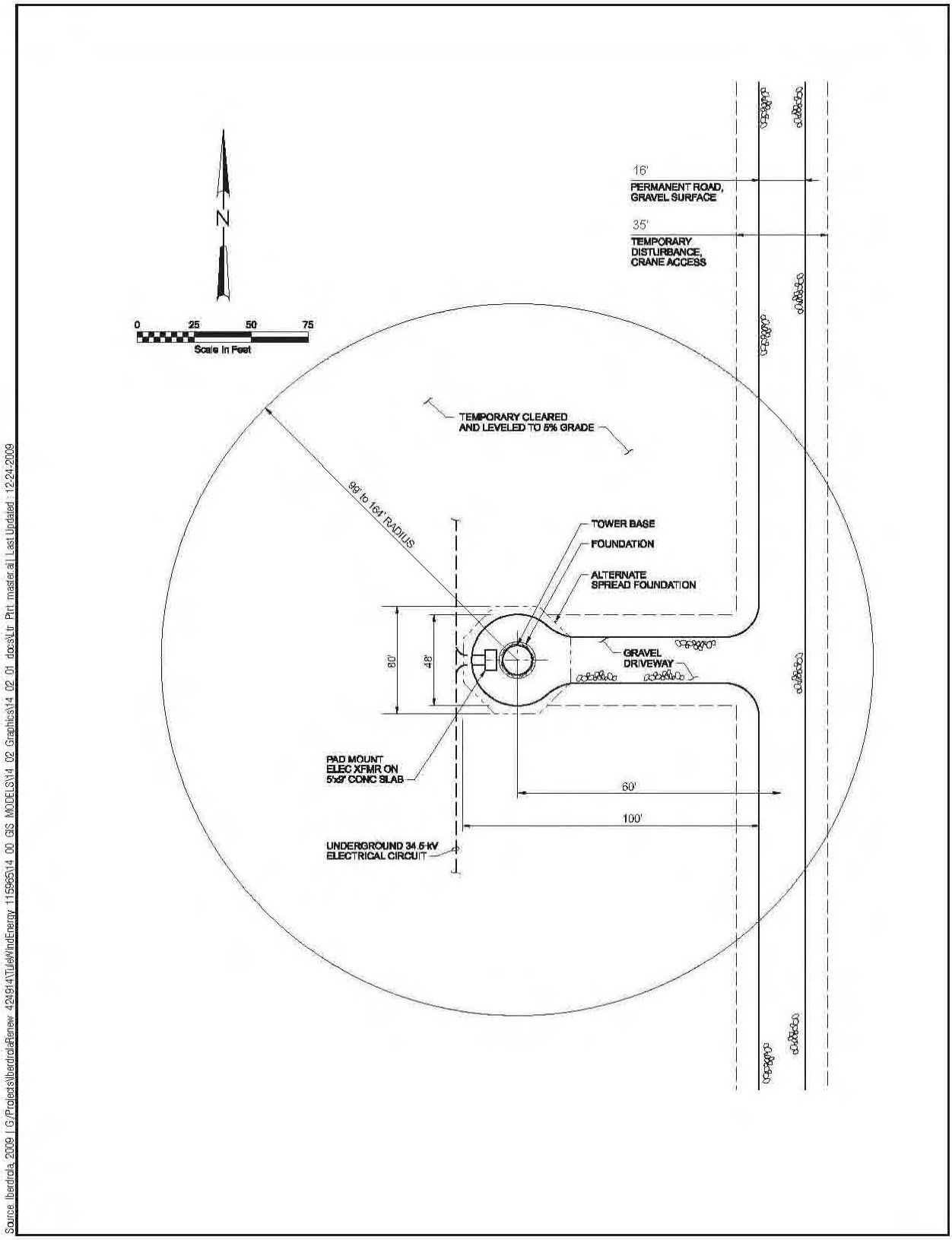
Preliminary Turbine Tower Design **Figure 6**



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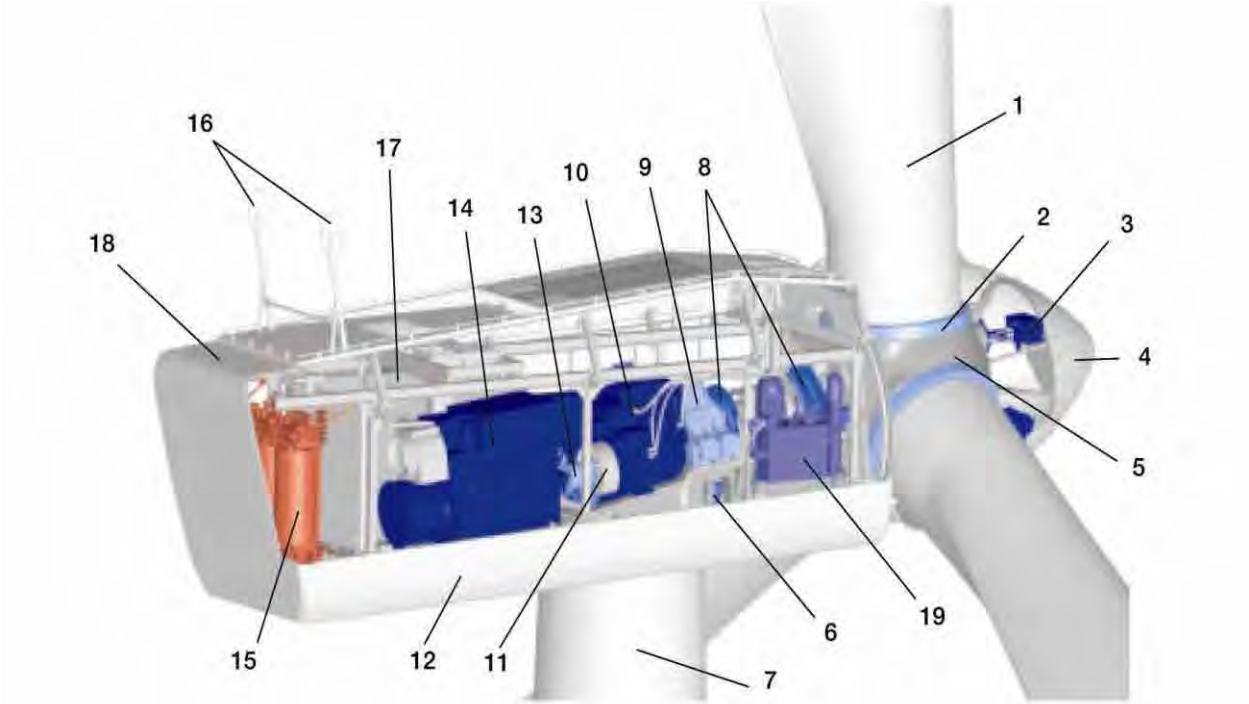
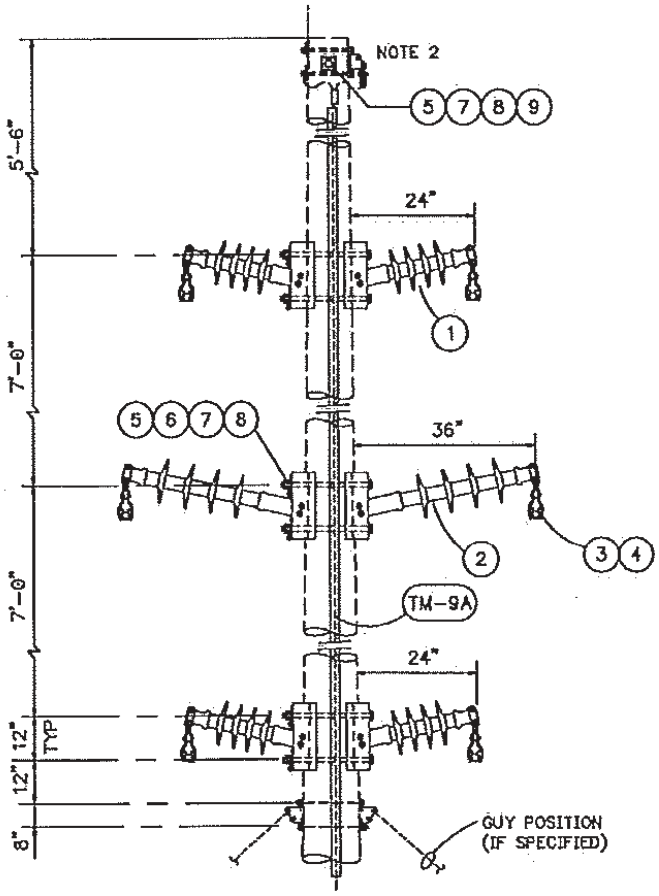
Typical Turbine Site **Figure 7**



1. Blade
2. Blade bearing
3. Hydraulic pitch actuator
4. Hub cover
5. Hub
6. Active yaw control
7. Tower
8. Main bearing house
9. Gear tie rod
10. Gearbox
11. Main disc brake
12. Nacelle support frame
13. Cardan or composite shaft
14. Doubly fed generator
15. Transformer
16. Anemometer and wind vane
17. Top controller
18. Nacelle cover
19. Hydraulic unit

Figure 8

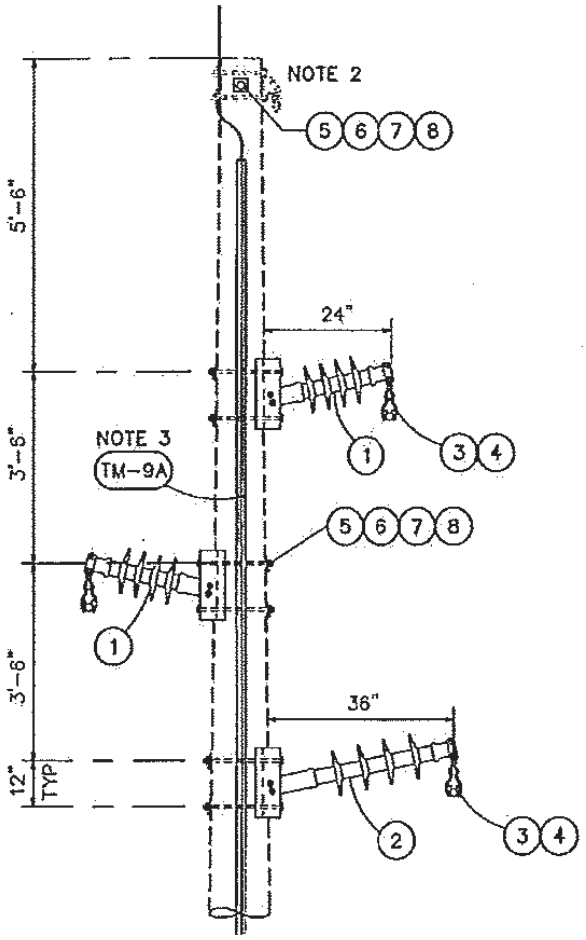


NOTES:

1. DO NOT GROUND INSULATOR BASE HARDWARE.
2. SHIELD WIRE ASSEMBLIES ARE CALLED OUT ON STAKING SHEETS.

ITEM	QTY	MATERIAL
1	4	Insulator, Polymer, Post, Horizontal, 24", 34.5-kV, MACLEAN H291024VX02
2	2	Insulator, Polymer, Post, Horizontal, 36", 34.5-kV, MACLEAN H391036VX01
3	6	Y Clevis-Eye, 25k lbs, PREFORMED YC-5209
4	6	Clamp, suspension, Armor Grip, 1272 AAC "NARCISSUS", PREFORMED AGS-5138
5	7	Bolt, machine, ⅞", by required length
6	6	Washer, round 2"x 1/4", 1³⁄₁₆" dia. hole
7	7	Locknut, ⅞", MF type
8	7	Washer, spring, ⅞"
9	2	Washer, curved, 4" Sq. x ⅜", 1⁵⁄₁₆" Dia. Hole
TM-9A	1	Pole Ground, Ground Rod

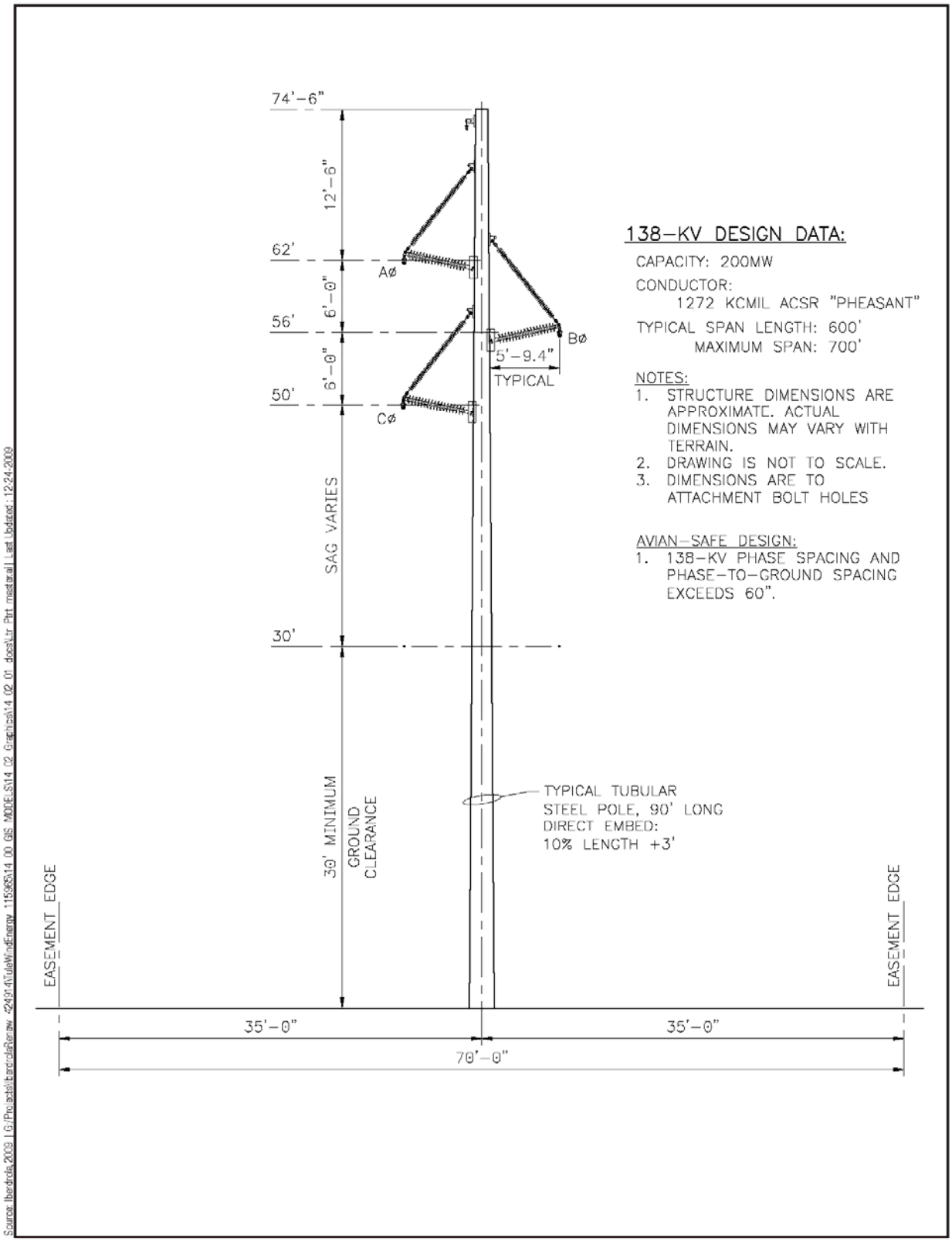
Typical Overhead 34.5 kV Single Circuit Collector Line Figure 9a



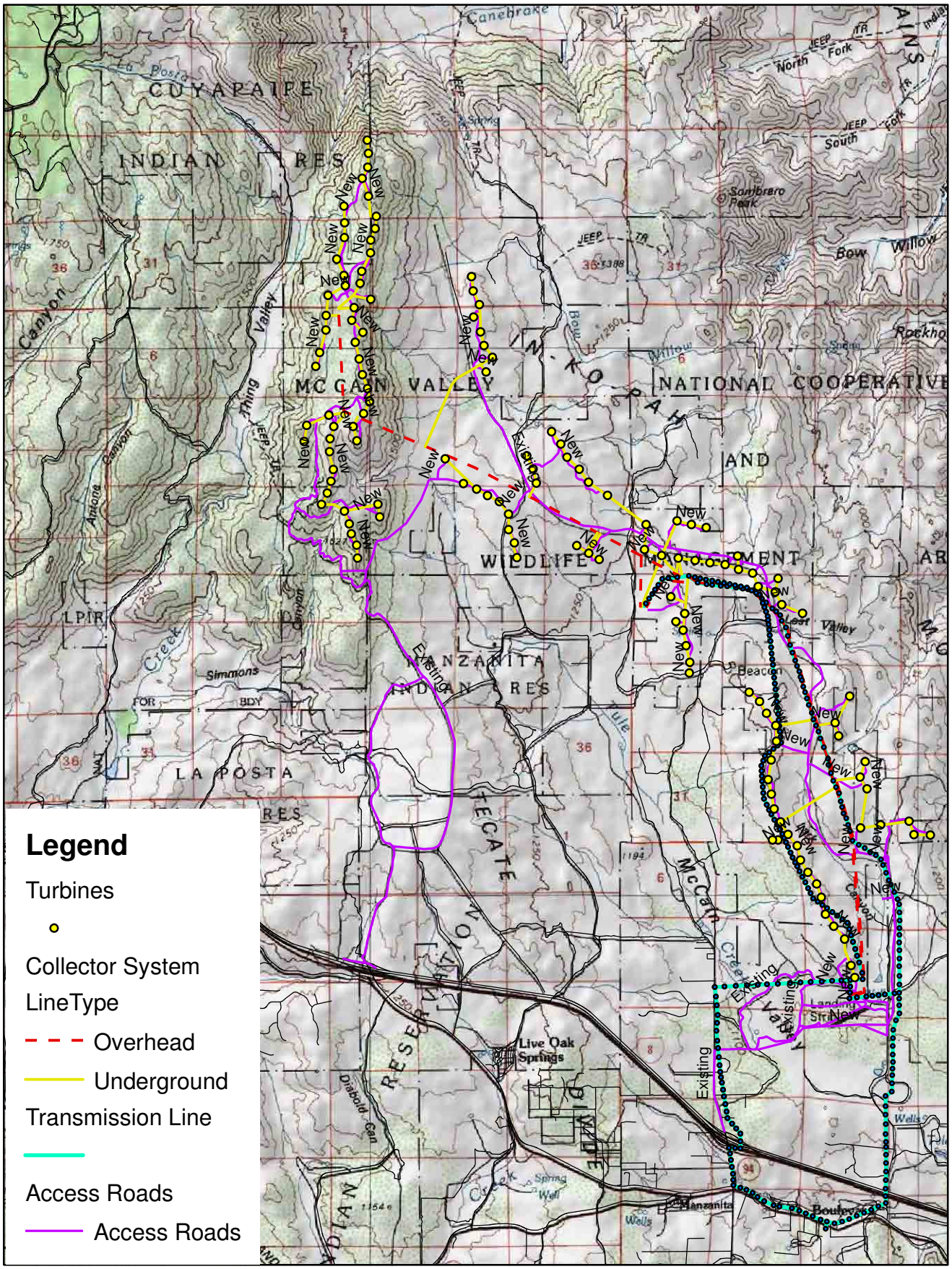
NOTES:
1. DO NOT GROUND INSULATOR BASE HARDWARE.
2. SHIELD WIRE ASSEMBLIES ARE CALLED OUT SEPARATELY ON STAKING SHEETS.
3. SPECIAL MOLDING REQUIRED FOR RAPTOR-SAFE DESIGN.

ITEM	QTY	MATERIAL
1	2	Insulator, polymer, post, horizontal, 24", 34.5-kV, 2½" rod, MACLEAN H291024VX02 OR LAPP CL2-024-218-29-A
2	1	Insulator, polymer, post, horizontal, 36", 34.5-kV, 3" rod, MACLEAN H391036VX01
3	3	Y Clevis-Eye, 25k lbs, PREFORMED YC-5209
4	3	Clamp, suspension, Cushion-Grip, 1272 AAC "NARCISSUS", PREFORMED CGS-1115
5	7	Bolt, machine, ⅞", by required length
6	8	Washer, curved, 4" sq.x ¼", 15/16" dia. hole
7	7	Locknut, ⅞", MF type
8	7	Washer, spring, ⅞"
TM-9A	1	Pole Ground, Ground Rod

Typical Overhead 34.5 kV Double Circuit Collector Line **Figure 9b**

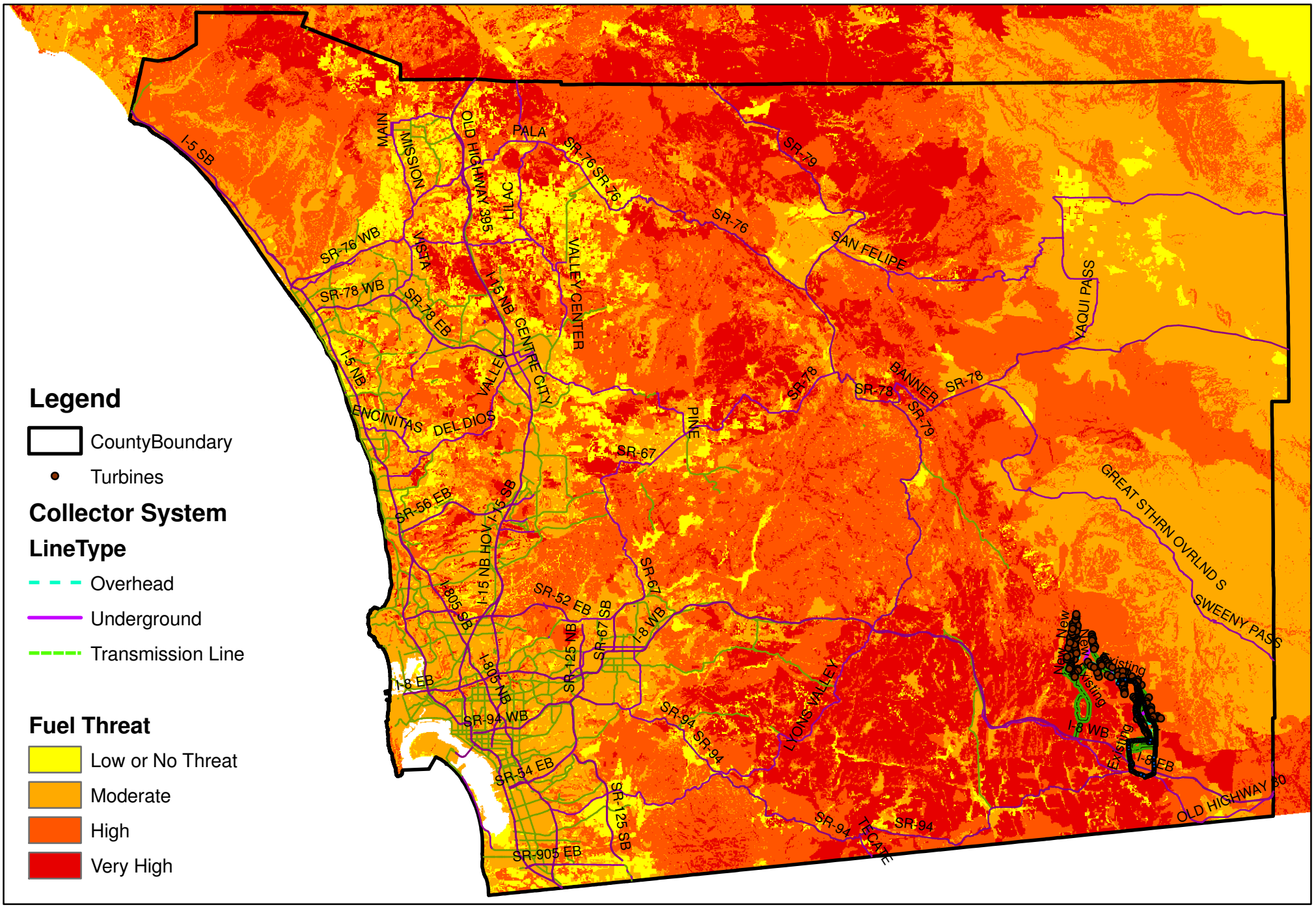


Typical 138kV Steel Tangent Pole **Figure 10**



Source: USGS 7.5' Quad: Cameron Corners, Live Oak Springs, Mount Laguna, Sombrero Peak

Figure 11
Topographic Map



Source: http://frap.cdf.ca.gov

Figure 12
San Diego County
Fire Hazard Severity Map

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Miles

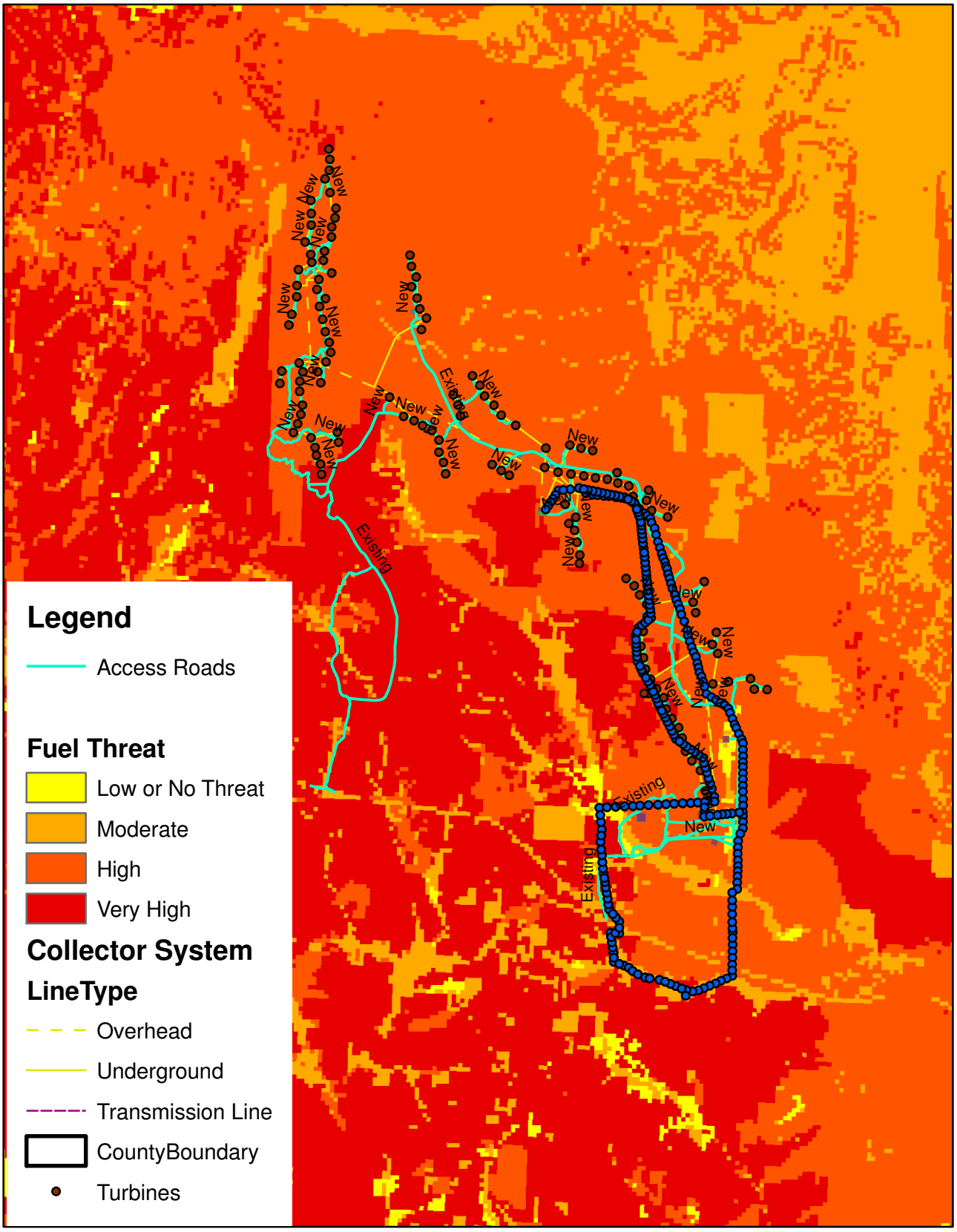

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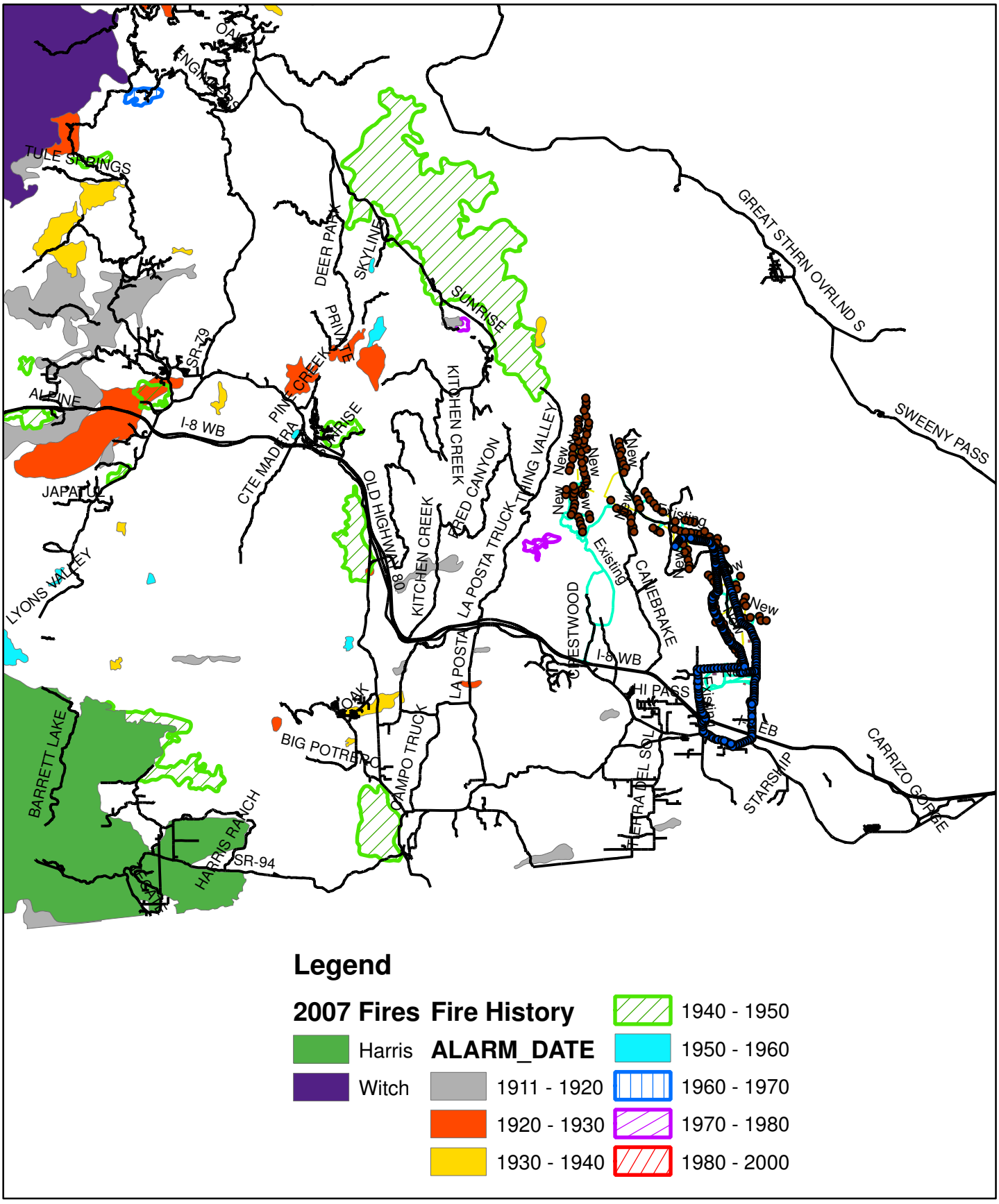
Figure 13
Fire Threat Map



Source: http://frap.cdf.ca.gov

Figure 14
Fire History Map

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Figure 15
County Roadway Improvements

TECHNICAL APPENDICES

APPENDIX A

Biology Resources Maps

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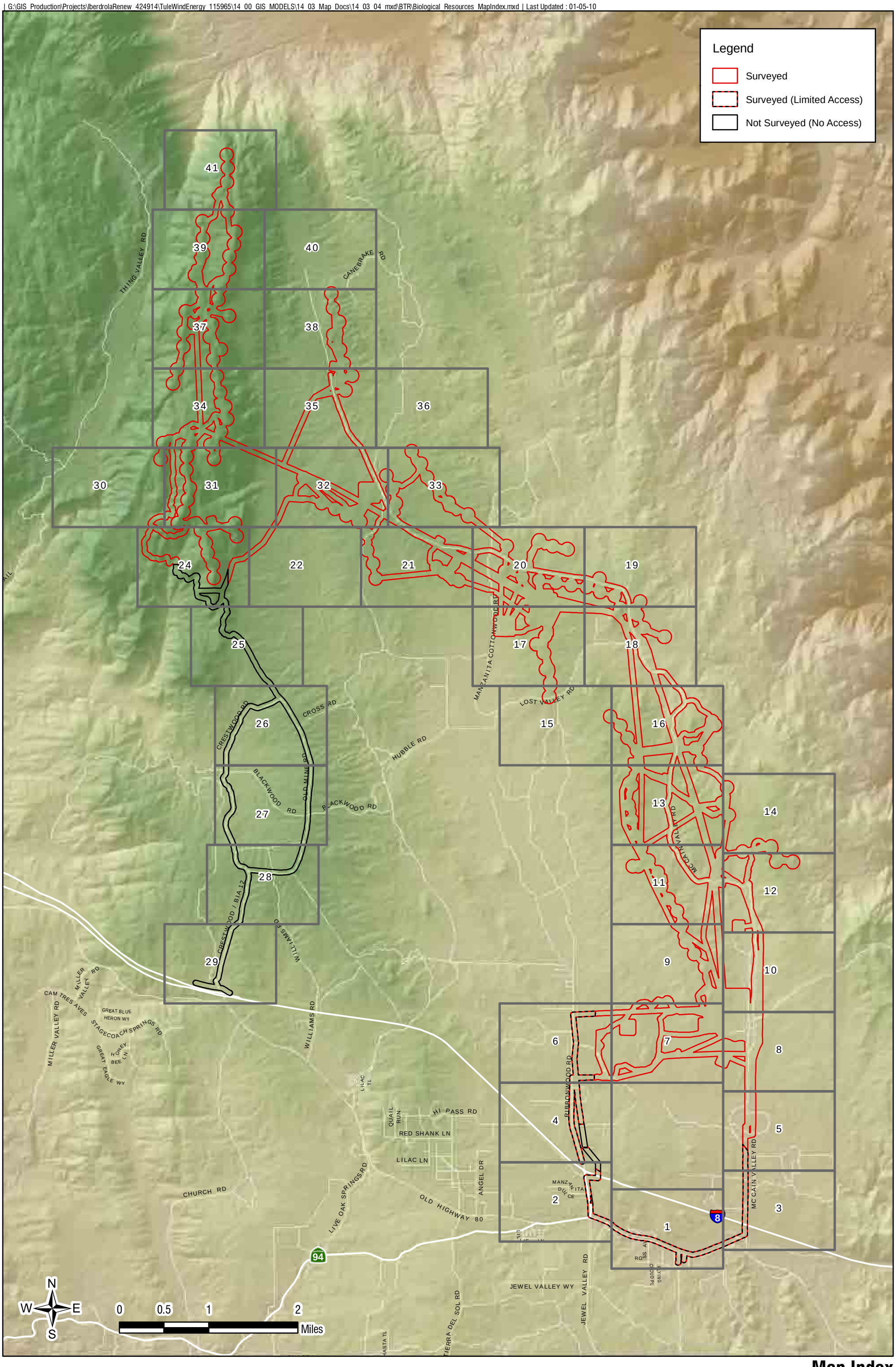

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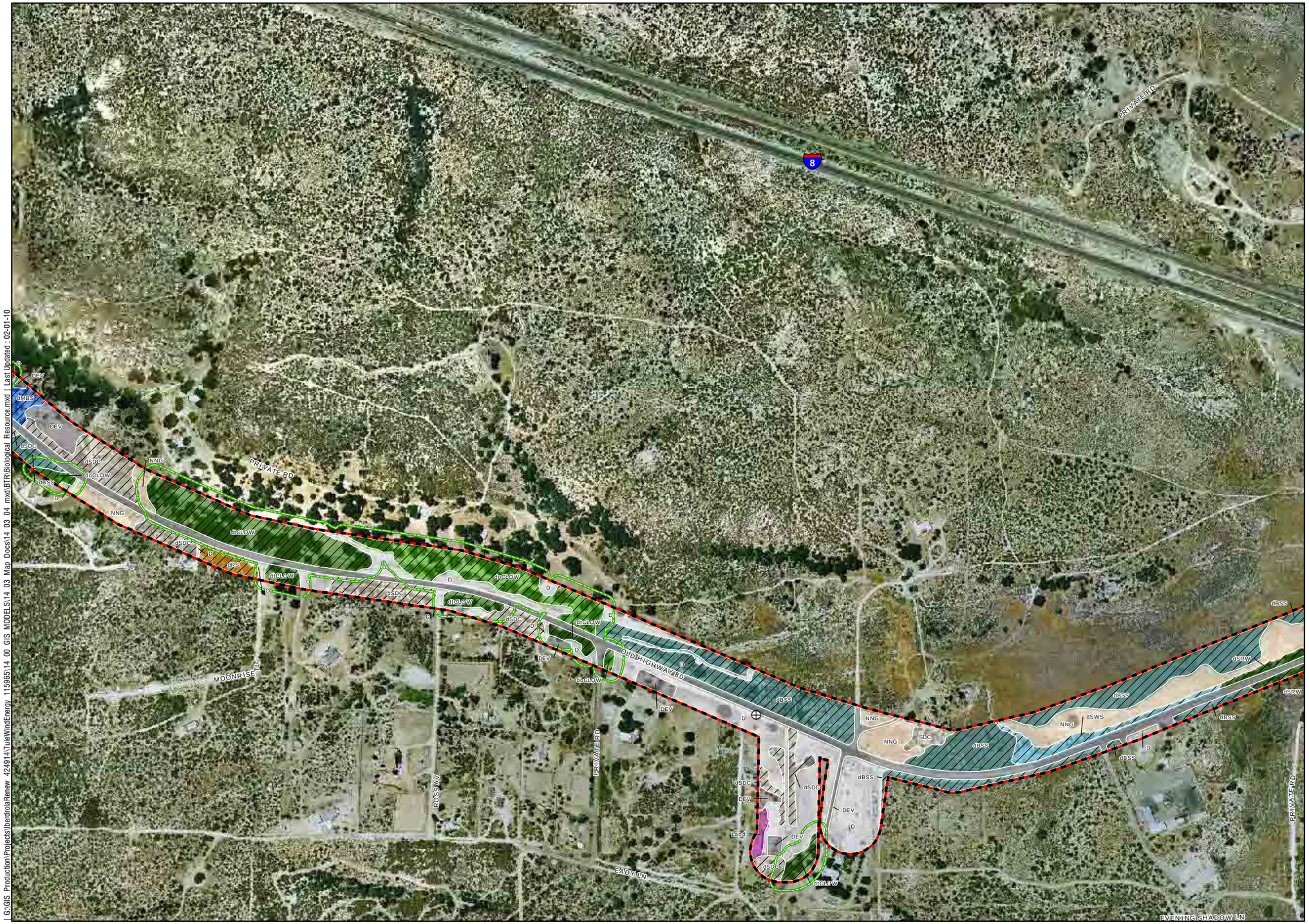
Map Index

FIGURE 1

Iberdrola | Tule Wind Project | EIR



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- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Surveyed
- Surveyed (Limited Access)
- Not Surveyed (No Access)
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Jan 2010)

- SWS — Southern Willow Scrub (63320)
- BSS — Big Sagebrush Scrub (35210)
- CC — Chamise Chaparral (37200)
- CLOW — Dense Coast Live Oak Woodland (71162)
- DEV — Developed (12000)
- DH — Disturbed Habitat 11300)
- AG — Field Pasture / Agriculture (18310)
- Land — Landscaped (12000)
- MBS — Montane Buckwheat Scrub (37K00)
- MFS — MuleFat Scrub (63310)
- NNG — Non-Native Grassland (42200)
- NMC — Northen Mixed Chaparral (37130)
- OLOW — Open Coast Live Oak Woodland (71161)
- RS — Redshank Chaparral (37300)
- SOC — Scrub Oak Chaparral (37900)
- SDC — Semi Desert Chaparral (37400)
- SNSC — Southern North Slope Chaparral (37E00)
- SRW — Southern Riparian Woodland (62500)
- UC — Un-Vegetated Channel (64200)
- USMC — Upper Sonoran Manzanita Chaparral (37B00)
- USSS — Upper Sonoran Subshrub Scrub (39000)
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Feet

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Biological Resources (Index Map 1)

Figure 2

Iberdrola | Tule Wind Project | BTR

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Jan 2010)
- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
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- Raptor Nest (Great Horned Owl)
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Rare Plant (April 2010 to June 2010)
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- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 2)

Figure 3

Iberdrola | Tule Wind Project | BTR

- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Surveyed
- Surveyed (Limited Access)
- Not Surveyed (No Access)
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- D Disturbed
- F Fuel Break
- b Burned

Vegetation Community (Nov 2009 to Jan 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- CLoW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- Lscp Landscaped (12000)
- MBS Montane Buckwheat Scrub (37K00)
- MFS MuleFat Scrub (63310)
- NNG Non-Native Grassland (42200)
- NMC Northen Mixed Chaparral (37130)
- oCLOW Open Coast Live Oak Woodland (71161)
- RS Redshank Chaparral (37300)
- SOC Scrub Oak Chaparral (37900)
- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 3)

Figure 4

Iberdrola | Tule Wind Project | BTR

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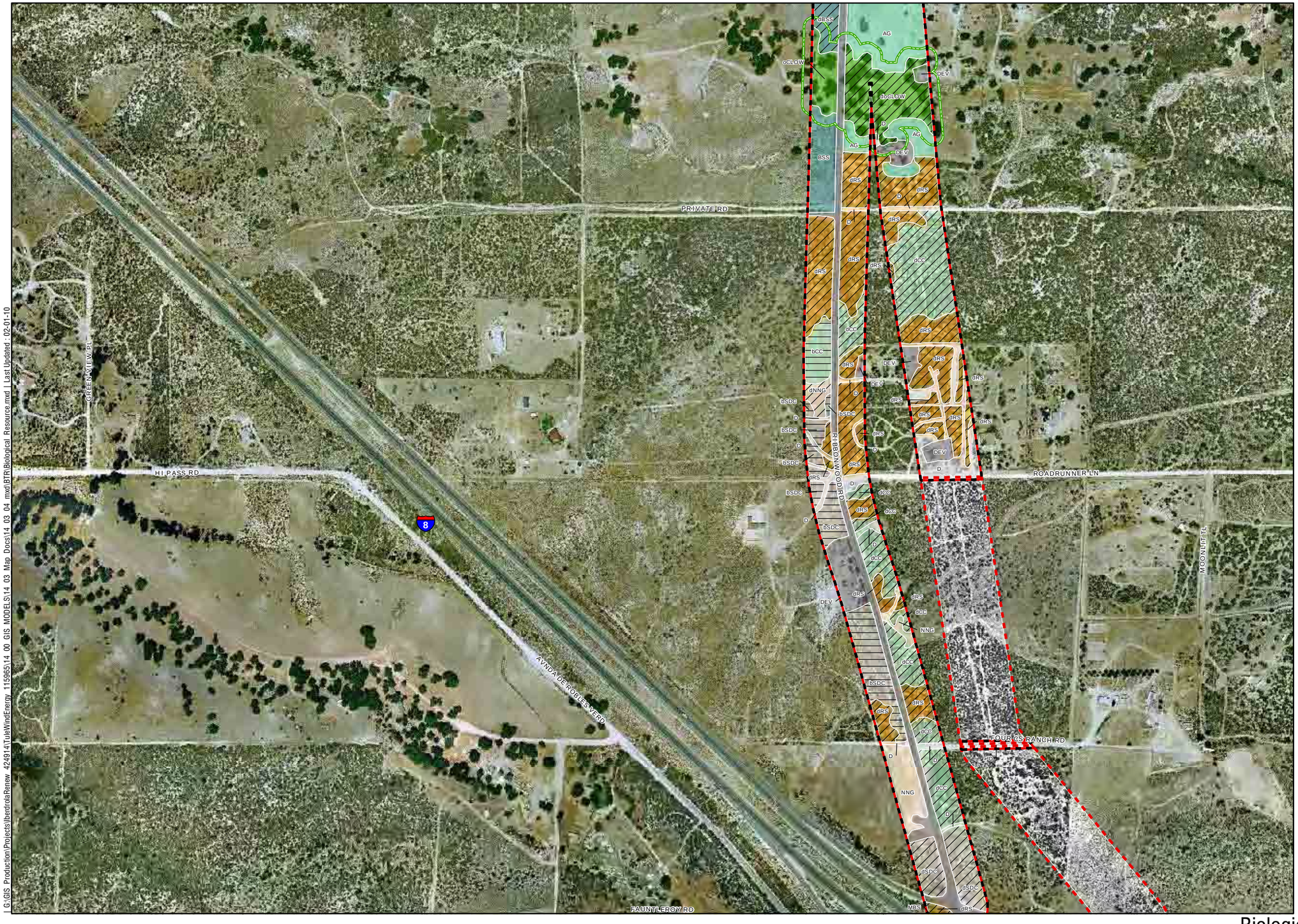

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
d Disturbed
Fuel Break
b Burned

Vegetation Community (Nov 2009 to Jan 2010)
- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- CLOW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- Land Landscaped (12000)
- MBS Montane Buckwheat Scrub (37K00)
- MFS MuleFat Scrub (63310)
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- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 4)

Figure 5

Iberdrola | Tule Wind Project | BTR

HDR
ONE COMPANY | *Many Solutions*℠

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier

d Disturbed
f Fuel Break
b Burned

Vegetation Community (Nov 2009 to Jan 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- DcLoW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- Lscp Landscaped (12000)
- MBS Montane Buckwheat Scrub (37K00)
- MFS MuleFat Scrub (63310)
- NNG Non-Native Grassland (42200)
- NMC Northen Mixed Chaparral (37130)
- OcLoW Open Coast Live Oak Woodland (71161)
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- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)

- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 5)

Figure 6

Iberdrola | Tule Wind Project | BTR

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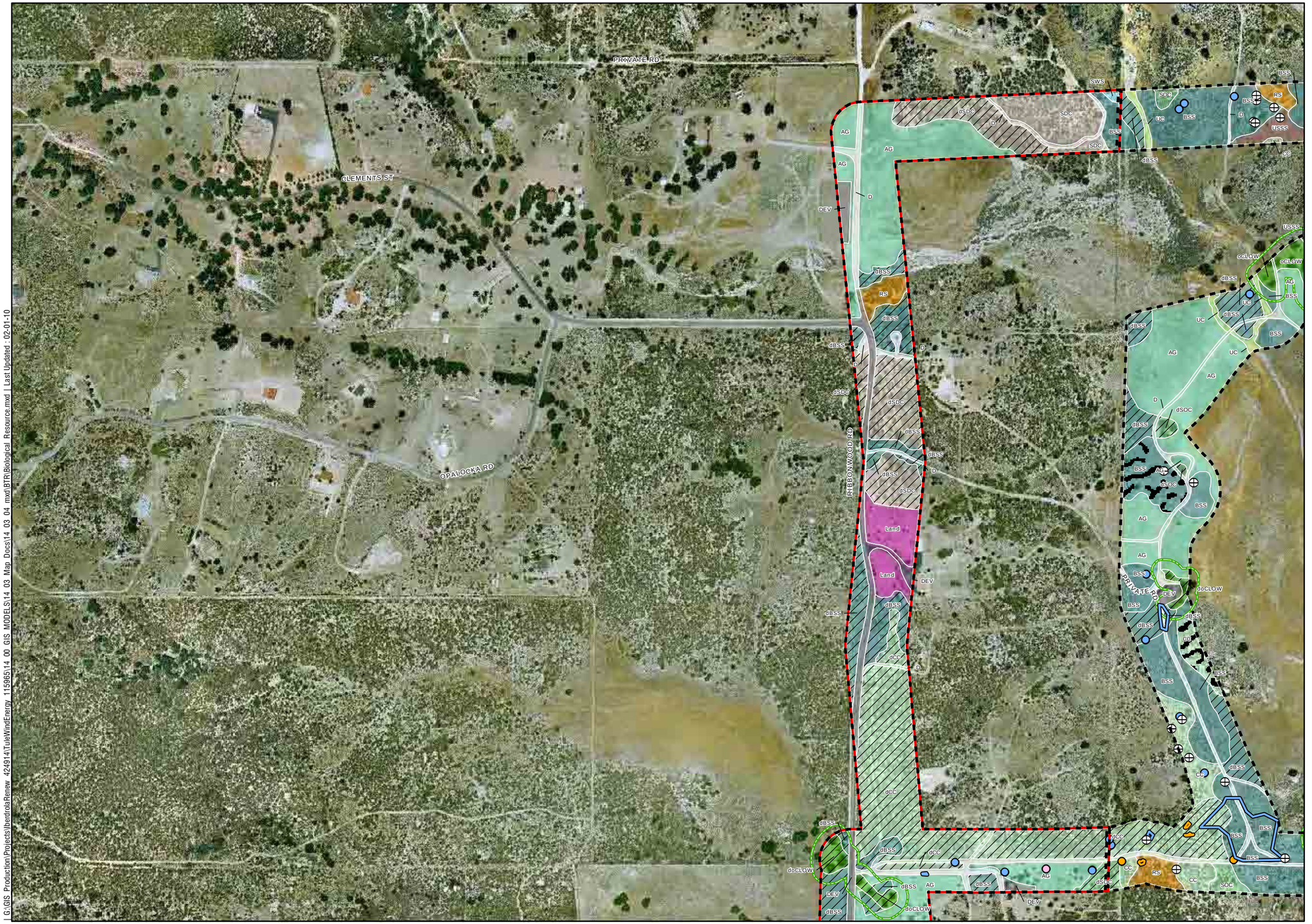

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
- d Disturbed
- f Fuel Break
- b Burned

Vegetation Community (Nov 2009 to Jan 2010)
- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- CLcLoW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
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- MFS MuleFat Scrub (63310)
- NNG Non-Native Grassland (42200)
- NMC Northen Mixed Chaparral (37130)
- OcLoW Open Coast Live Oak Woodland (71161)
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- SOC Scrub Oak Chaparral (37900)
- SDC Semi Desert Chaparral (37400)
- SNSc Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)

- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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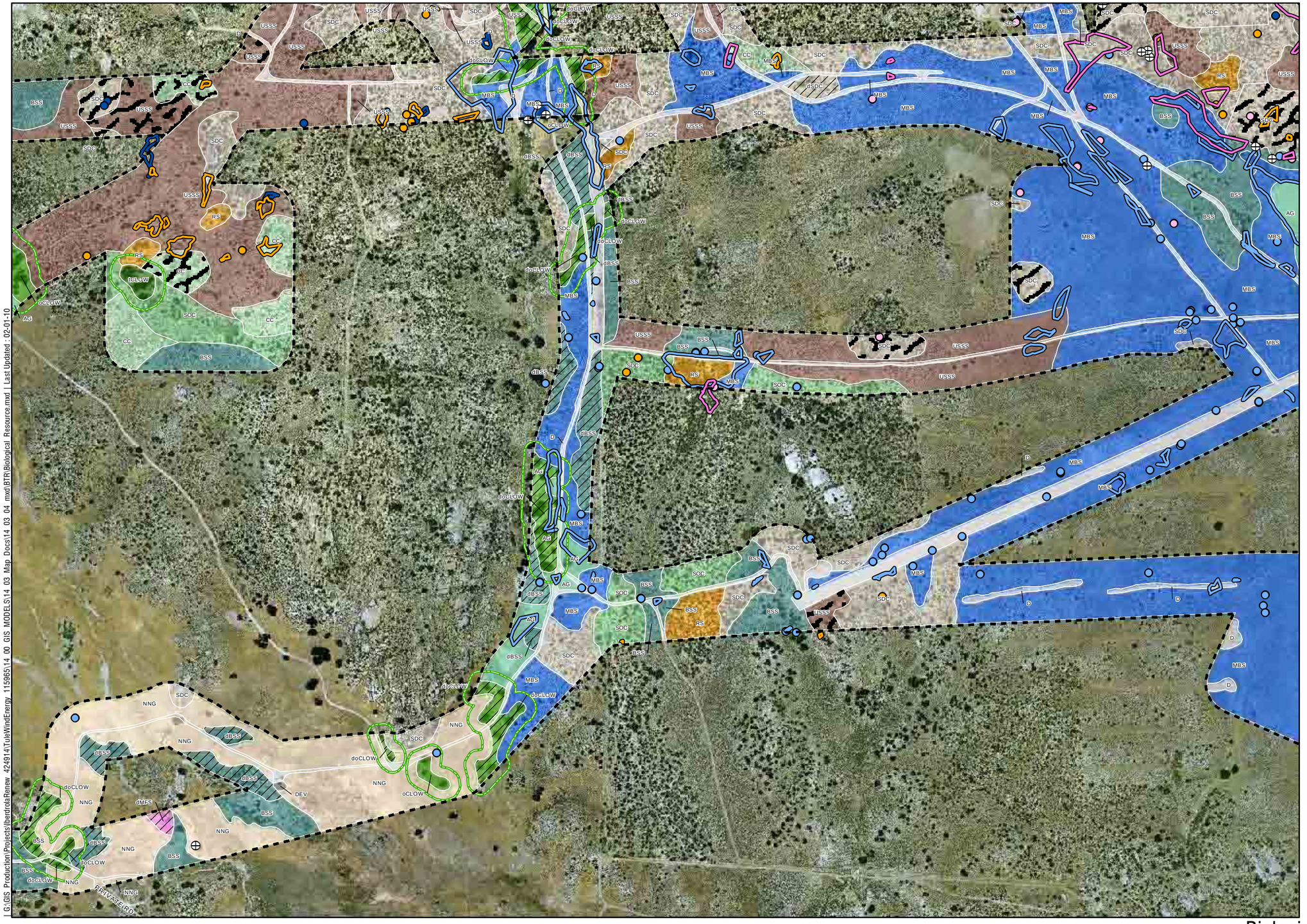
Biological Resources (Index Map 6)

Figure 7

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*℠



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- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Surveyed
- Surveyed (Limited Access)
- Not Surveyed (No Access)
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Jan 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- dcLOW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- Landscaped (12000)
- MBS Montane Buckwheat Scrub (37K00)
- MFS MuleFat Scrub (63310)
- NNG Non-Native Grassland (42200)
- NMC Northen Mixed Chaparral (37130)
- ocLOW Open Coast Live Oak Woodland (71161)
- RS Redshank Chaparral (37300)
- SOC Scrub Oak Chaparral (37900)
- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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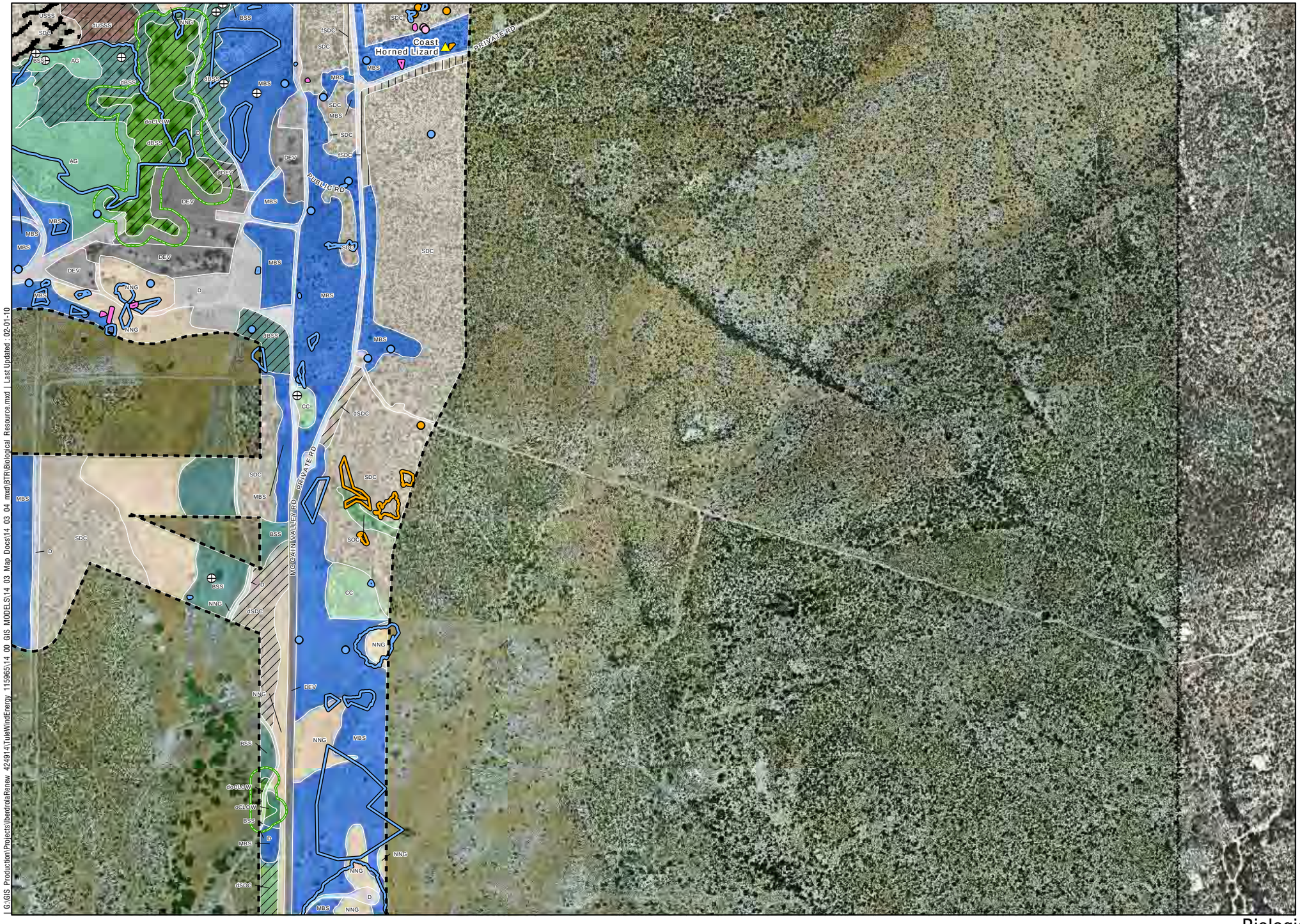
Biological Resources (Index Map 7)

Figure 8

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*™



- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Surveyed
- Surveyed (Limited Access)
- Not Surveyed (No Access)
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- d Disturbed
- f Fuel Break
- b Burned

Vegetation Community (Nov 2009 to Jan 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- DbcLCW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- Land Landscaped (12000)
- MBS Montane Buckwheat Scrub (37K00)
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- RS Redshank Chaparral (37300)
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- SDC Semi Desert Chaparral (37400)
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- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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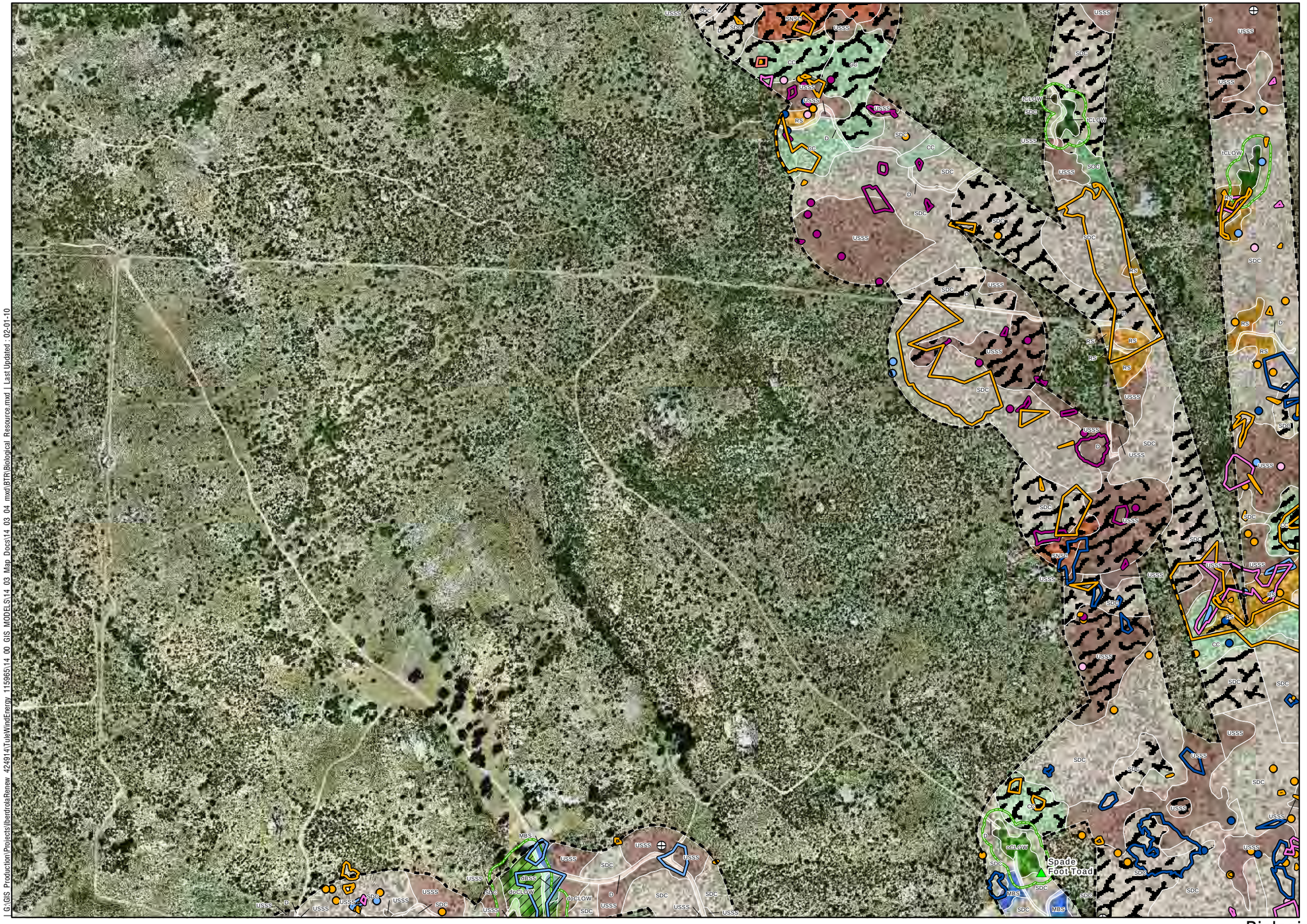
HDR ONE COMPANY | *Many Solutions*℠

Biological Resources (Index Map 8)

Figure 9

Iberdrola | Tule Wind Project | BTR



Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Jan 2010)
- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- DcLoW Dense Coast Live Oak Woodland (71162)
- DeV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- Lscp Landscaped (12000)
- MBS Montane Buckwheat Scrub (37K00)
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- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
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- Deinandra floribunda
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- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 9)

Figure 10

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*™

- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Surveyed
- Surveyed (Limited Access)
- Not Surveyed (No Access)
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- d Disturbed
- f Fuel Break
- b Burned

Vegetation Community (Nov 2009 to Jan 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- CLOW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- Lscp Landscaped (12000)
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- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
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- Deinandra floribunda
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- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 10)

Figure 11

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*℠

- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Surveyed
- Surveyed (Limited Access)
- Not Surveyed (No Access)
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- d Disturbed
- Fuel Break
- b Burned

Vegetation Community (Nov 2009 to Jan 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- DLcLoW Dense Coast Live Oak Woodland (71162)
- DeV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- Lscp Landscaped (12000)
- MBS Montane Buckwheat Scrub (37K00)
- MFS MuleFat Scrub (63310)
- NNG Non-Native Grassland (42200)
- NMC Northen Mixed Chaparral (37130)
- OcLoW Open Coast Live Oak Woodland (71161)
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- SRW Southern Riparian Woodland (62500)
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- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
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- Geraea viscida
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- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 11)

Figure 12

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*℠

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier

- d Disturbed
- f Fuel Break
- b Burned

Vegetation Community (Nov 2009 to Jan 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
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- CLoW Dense Coast Live Oak Woodland (71162)
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- oCLoW Open Coast Live Oak Woodland (71161)
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- SRW Southern Riparian Woodland (62500)
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- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)

Coast Horned Lizard
Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 12)

Figure 13

Iberdrola | Tule Wind Project | BTR

HDR
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Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Jan 2010)
- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- DCLOW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- Lscp Landscaped (12000)
- MBS Montane Buckwheat Scrub (37K00)
- MFS MuleFat Scrub (63310)
- NNG Non-Native Grassland (42200)
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- OCLOW Open Coast Live Oak Woodland (71161)
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- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 13)

Figure 14

Iberdrola | Tule Wind Project | BTR

- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Surveyed
- Surveyed (Limited Access)
- Not Surveyed (No Access)
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- d Disturbed
- f Fuel Break
- b Burned

Vegetation Community (Nov 2009 to Jan 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- DCLOW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- Lscp Landscaped (12000)
- MBS Montane Buckwheat Scrub (37K00)
- MFS MuleFat Scrub (63310)
- NNG Non-Native Grassland (42200)
- NMC Northen Mixed Chaparral (37130)
- OCLOW Open Coast Live Oak Woodland (71161)
- RS Redshank Chaparral (37300)
- SOC Scrub Oak Chaparral (37900)
- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
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- USSS Upper Sonoran Subshrub Scrub (39000)
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
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- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 14)

Figure 15

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*℠

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
Disturbed
Fuel Break
Burned

Vegetation Community (Nov 2009 to Jan 2010)
SWS Southern Willow Scrub (63320)
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Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
Astragalus douglasii var. perstrictus
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Geraea viscida
Heuchera brevistaminea
Hulsea californica
Linanthus bellus
Lupinus excubitus var. medius
Mimulus aridus
Mimulus palmeri
Streptanthus campestris

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Biological Resources (Index Map 15)

Figure 16

Iberdrola | Tule Wind Project | BTR

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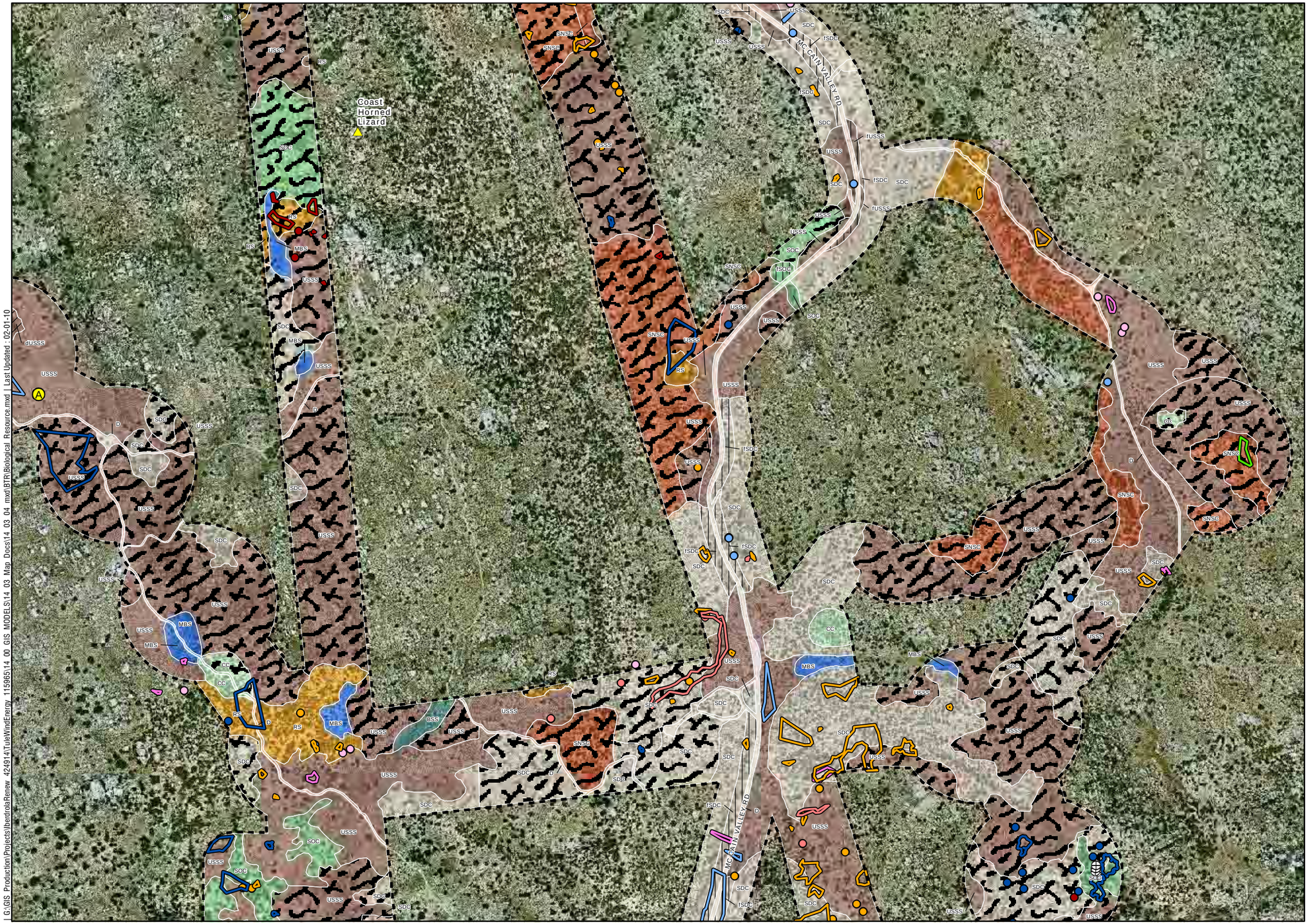

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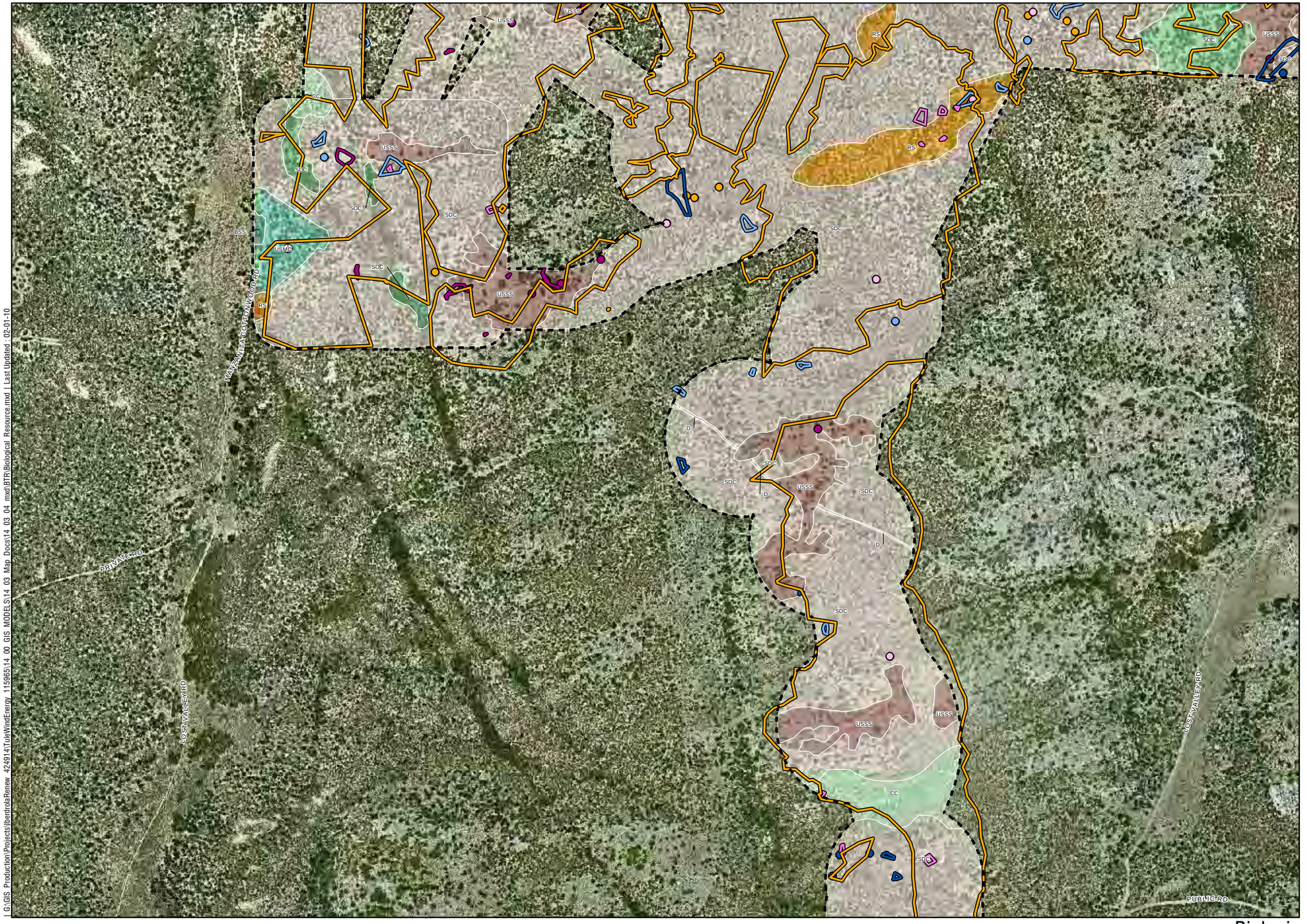
Biological Resources (Index Map 16)

Figure 17

Iberdrola | Tule Wind Project | BTR



Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Jan 2010)
- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- DcLoW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- Lsmd Landscaped (12000)
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- MFS MuleFat Scrub (63310)
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- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
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- USSS Upper Sonoran Subshrub Scrub (39000)
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 17)

Figure 18

Iberdrola | Tule Wind Project | BTR

HDR
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Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
Disturbed
Fuel Break
Burned

Vegetation Community (Nov 2009 to Jan 2010)
SWS Southern Willow Scrub (63320)
BSS Big Sagebrush Scrub (35210)
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Lscp Landscaped (12000)
MBS Montane Buckwheat Scrub (37K00)
MFS MuleFat Scrub (63310)
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USMC Upper Sonoran Manzanita Chaparral (37B00)
USSS Upper Sonoran Subshrub Scrub (39000)

Coast Horned Lizard
Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
Astragalus douglasii var. perstrictus
Caulanthus simulans
Deinandra floribunda
Delphinium parishii ssp. subglobosum
Geraea viscida
Heuchera brevistaminea
Hulsea californica
Linanthus bellus
Lupinus excubitus var. medius
Mimulus aridus
Mimulus palmeri
Streptanthus campestris

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Biological Resources (Index Map 18)

Figure 19

Iberdrola | Tule Wind Project | BTR

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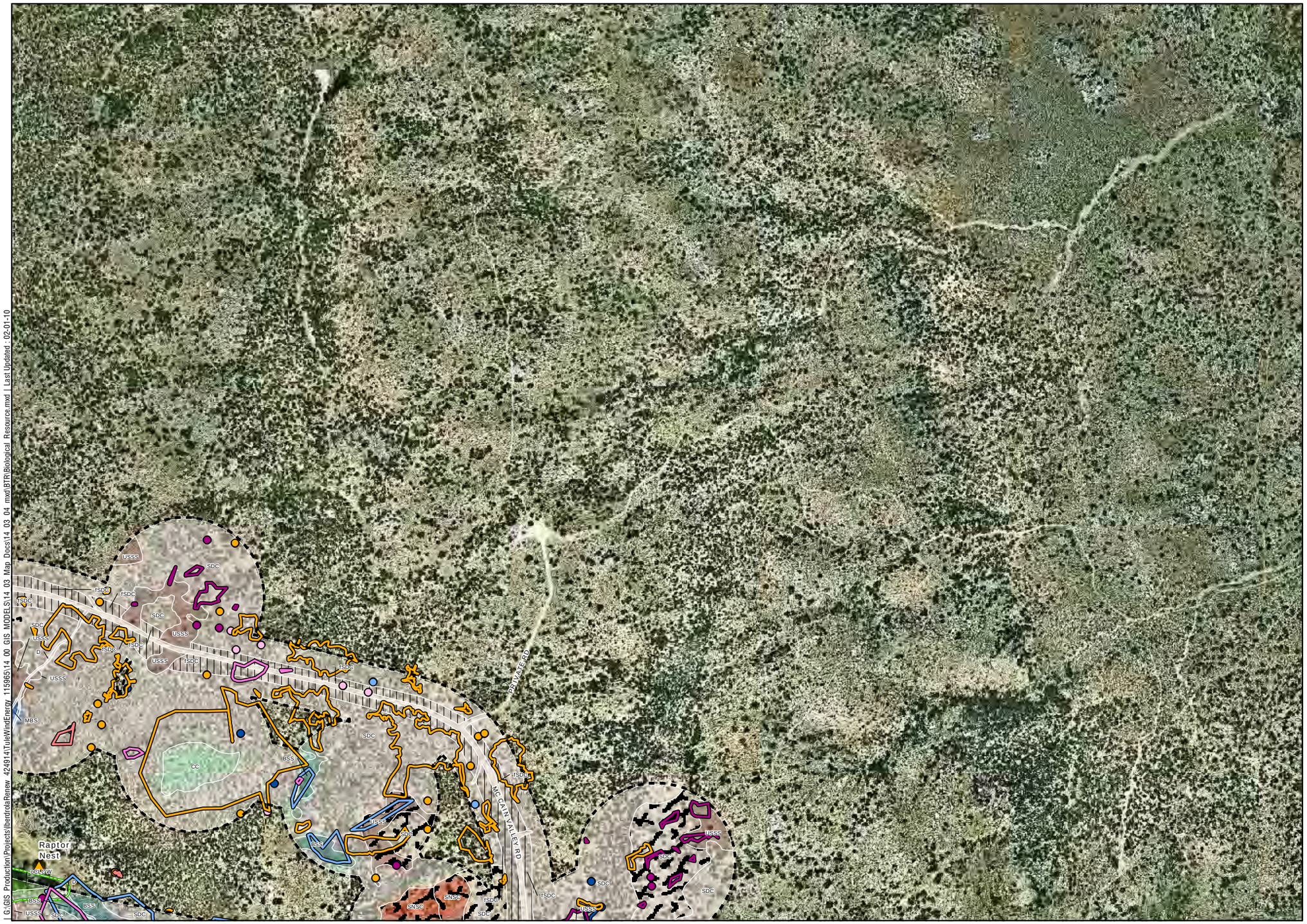

- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Surveyed
- Surveyed (Limited Access)
- Not Surveyed (No Access)
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Jan 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
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- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 19)

Figure 20

Iberdrola | Tule Wind Project | BTR

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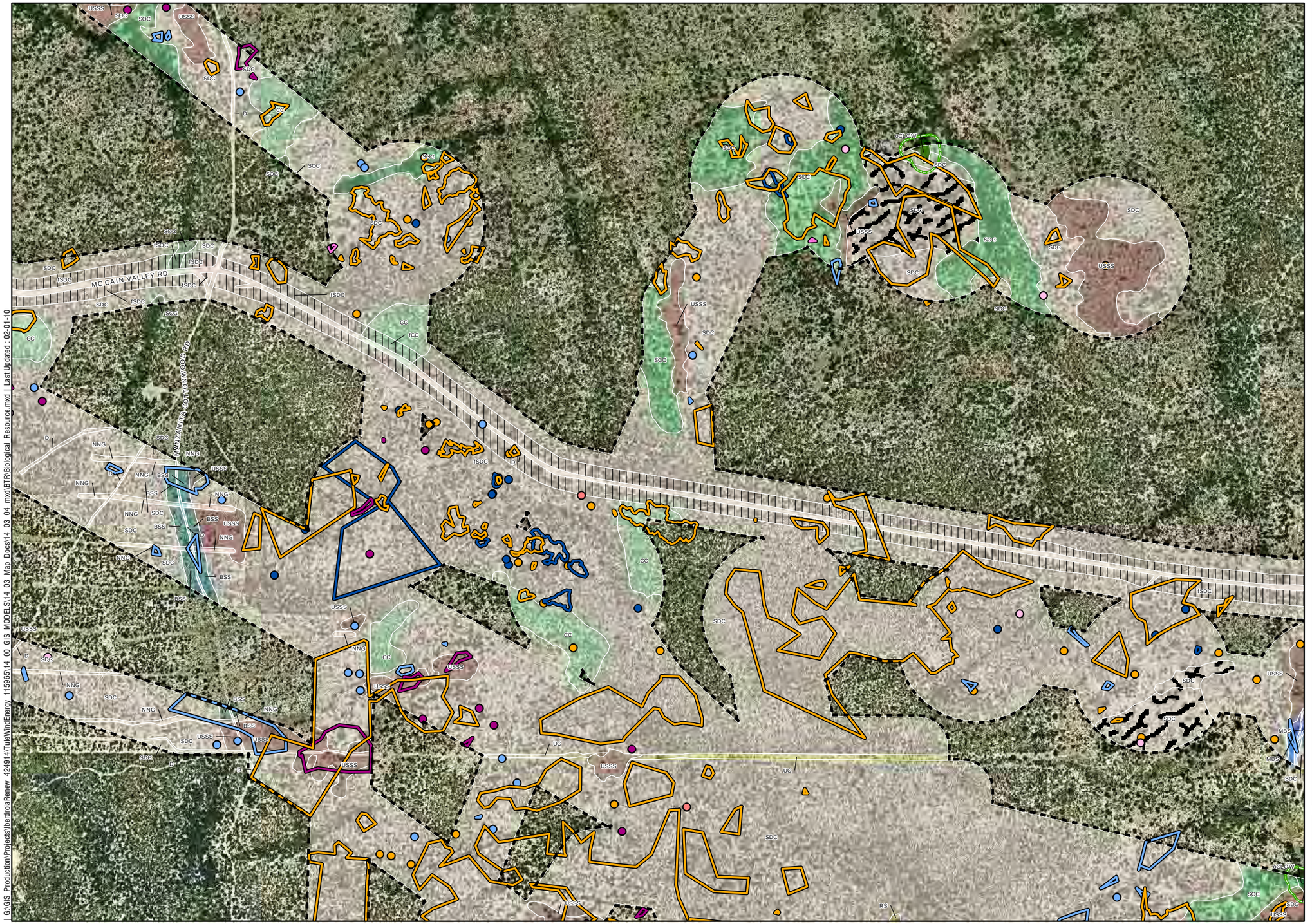

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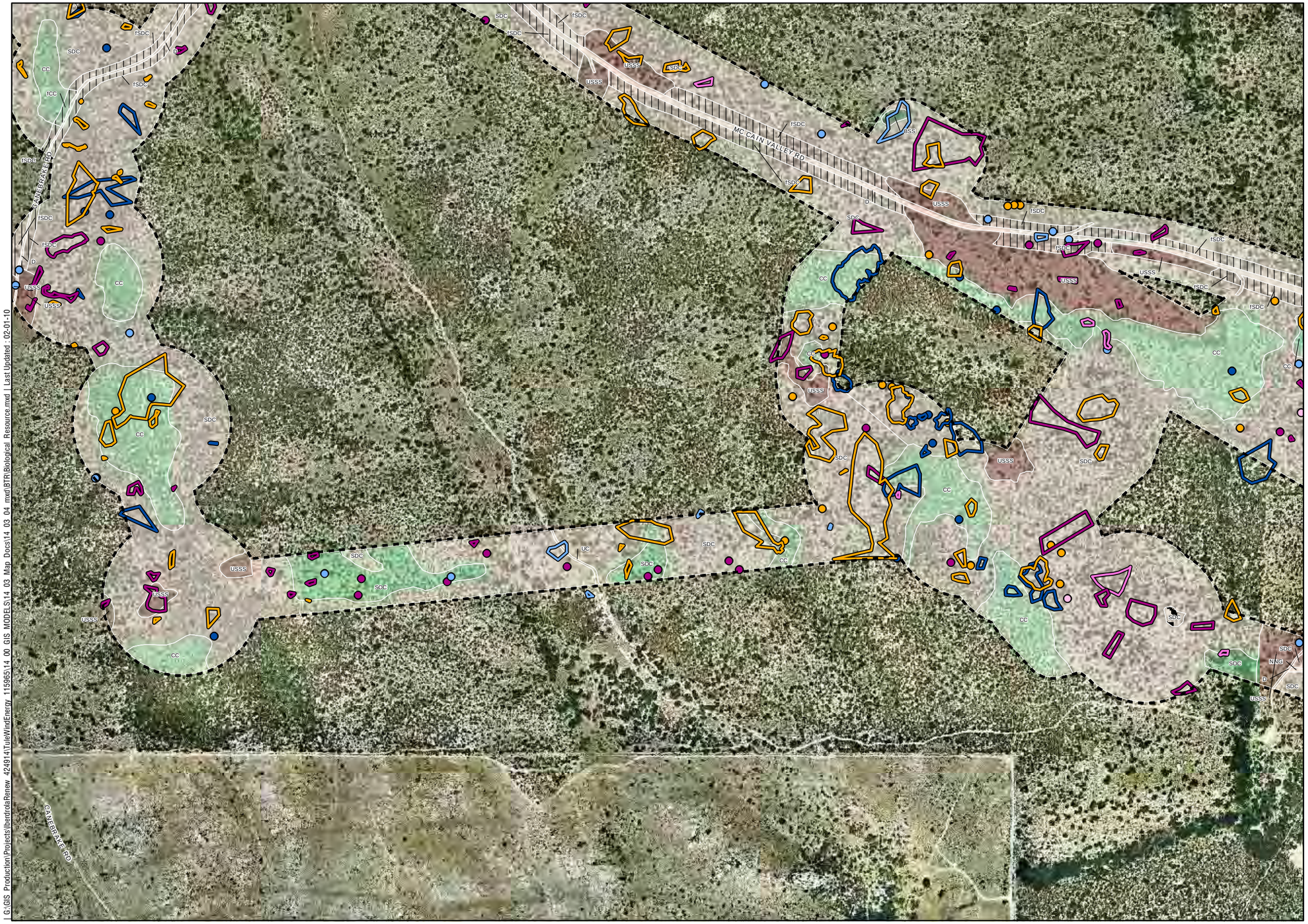
Biological Resources (Index Map 20)

Figure 21

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*℠



Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Jan 2010)
- SWS — Southern Willow Scrub (63320)
- BSS — Big Sagebrush Scrub (35210)
- CC — Chamise Chaparral (37200)
- DLoW — Dense Coast Live Oak Woodland (71162)
- DeV — Developed (12000)
- DH — Disturbed Habitat 11300)
- AG — Field Pasture / Agriculture (18310)
- Land — Landscaped (12000)
- MBS — Montane Buckwheat Scrub (37K00)
- MFS — MuleFat Scrub (63310)
- NNG — Non-Native Grassland (42200)
- NMC — Northen Mixed Chaparral (37130)
- OLoW — Open Coast Live Oak Woodland (71161)
- RS — Redshank Chaparral (37300)
- SOC — Scrub Oak Chaparral (37900)
- SDC — Semi Desert Chaparral (37400)
- SNSc — Southern North Slope Chaparral (37E00)
- SRW — Southern Riparian Woodland (62500)
- UC — Un-Vegetated Channel (64200)
- USMC — Upper Sonoran Manzanita Chaparral (37B00)
- USSS — Upper Sonoran Subshrub Scrub (39000)
- Coast Horned Lizard
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- Raptor Nest (Great Horned Owl)
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- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
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- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 21)

Figure 22

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*℠

- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Surveyed
- Surveyed (Limited Access)
- Not Surveyed (No Access)
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- Disturbed
- Fuel Break
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Vegetation Community (Nov 2009 to Jan 2010)

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Rare Plant (April 2010 to June 2010)

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- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 22)

Figure 23

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*™

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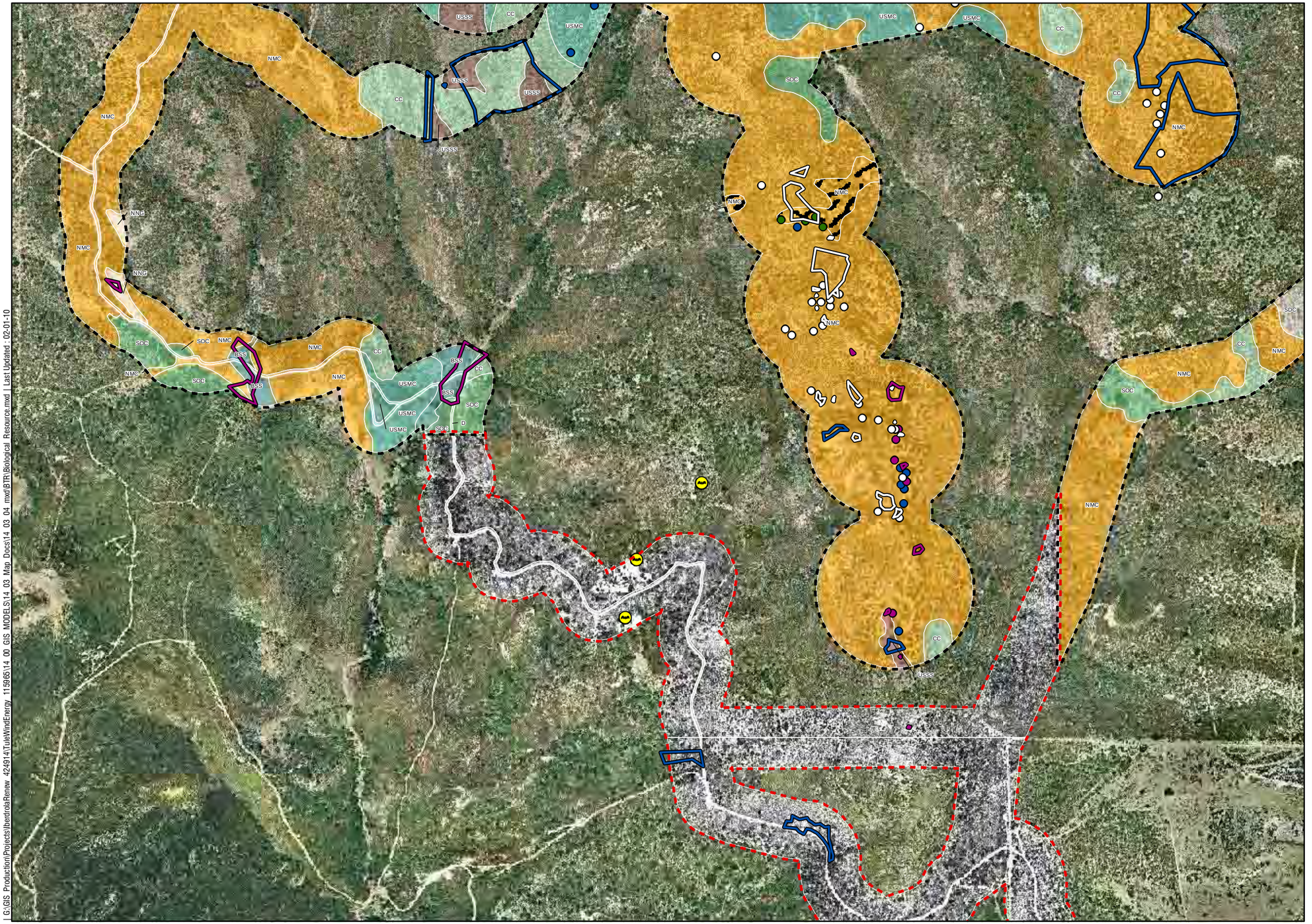

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
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Vegetation Community (Nov 2009 to Jan 2010)
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Rare Plant (April 2010 to June 2010)
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- Linanthus bellus
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- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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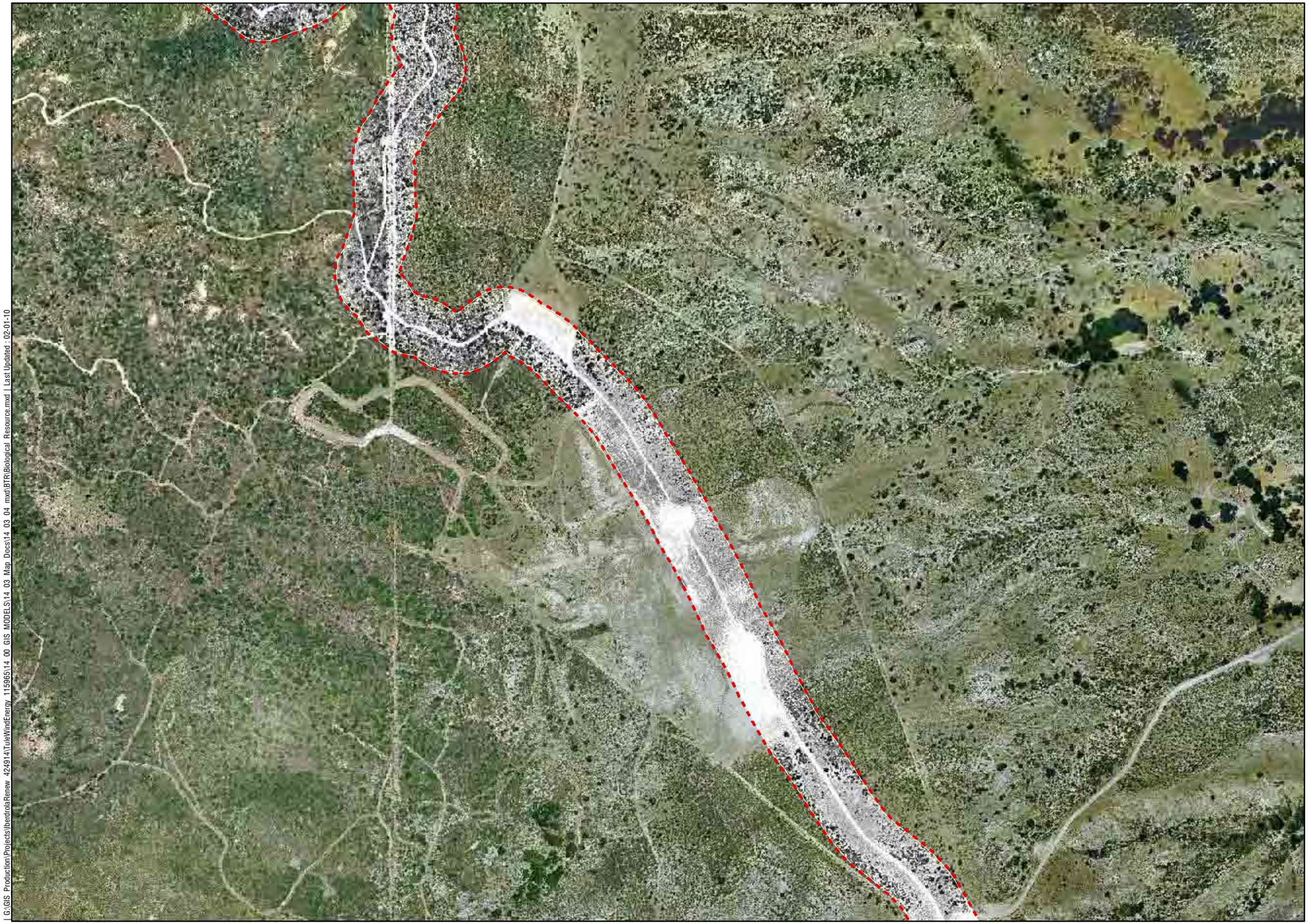
Biological Resources (Index Map 24)

Figure 25

Iberdrola | Tule Wind Project | BTR



- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Surveyed
- Surveyed (Limited Access)
- Not Surveyed (No Access)
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Jan 2010)

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- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
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- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

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- Heuchera brevistaminea
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- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 25)

Figure 26

Iberdrola | Tule Wind Project | BTR

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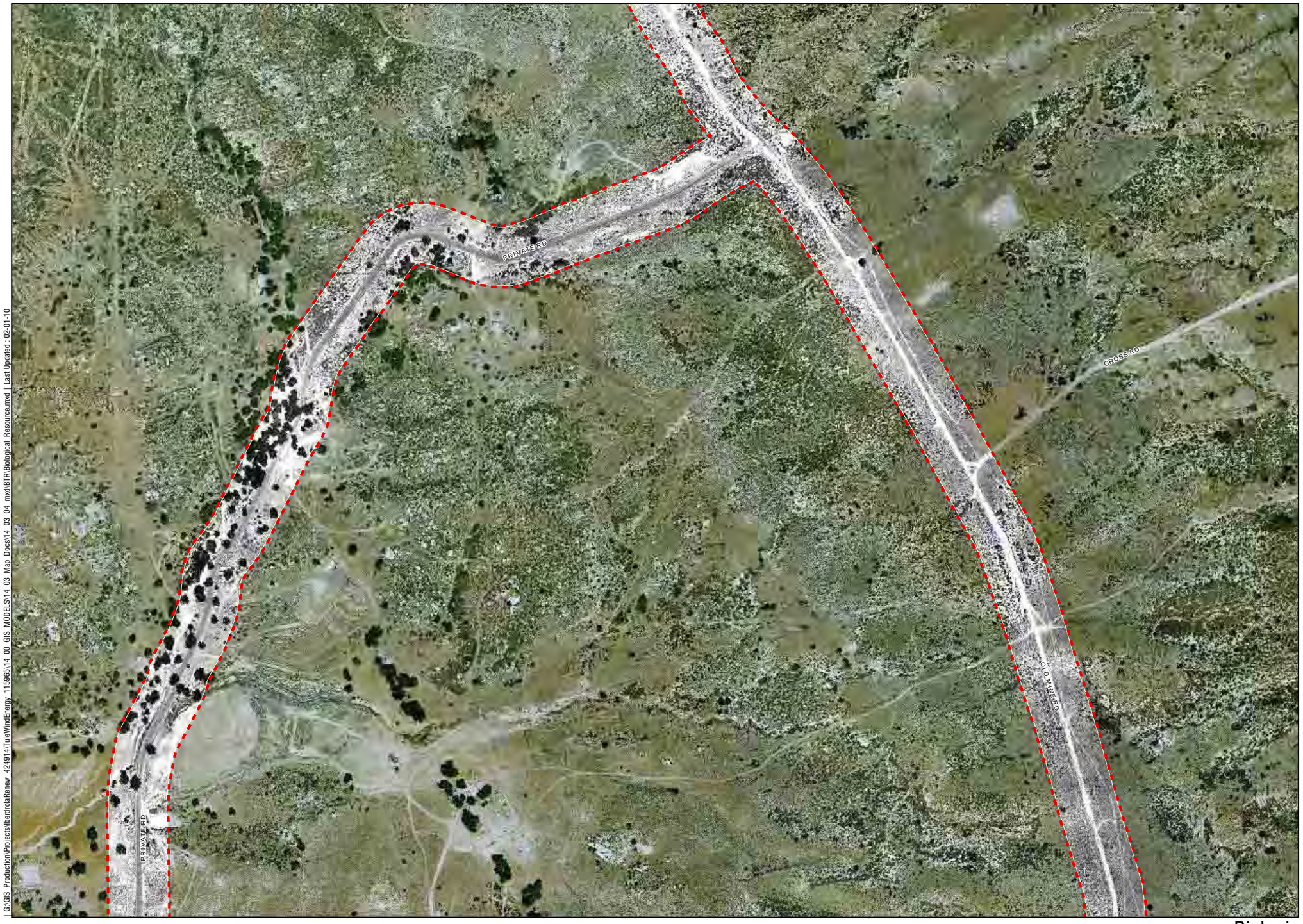

- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Surveyed
- Surveyed (Limited Access)
- Not Surveyed (No Access)
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- d Disturbed
- f Fuel Break
- b Burned

Vegetation Community (Nov 2009 to Jan 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- DLcLOW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
- Land Landscaped (12000)
- MBS Montane Buckwheat Scrub (37K00)
- MFS MuleFat Scrub (63310)
- NNG Non-Native Grassland (42200)
- NMC Northen Mixed Chaparral (37130)
- OcLOW Open Coast Live Oak Woodland (71161)
- RS Redshank Chaparral (37300)
- SOC Scrub Oak Chaparral (37900)
- SDC Semi Desert Chaparral (37400)
- SNSC Southern North Slope Chaparral (37E00)
- SRW Southern Riparian Woodland (62500)
- UC Un-Vegetated Channel (64200)
- USMC Upper Sonoran Manzanita Chaparral (37B00)
- USSS Upper Sonoran Subshrub Scrub (39000)
- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 26)

Figure 27

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*™

- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Surveyed
- Surveyed (Limited Access)
- Not Surveyed (No Access)
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- d Disturbed
- f Fuel Break
- b Burned

Vegetation Community (Nov 2009 to Jan 2010)

- SWS Southern Willow Scrub (63320)
- BSS Big Sagebrush Scrub (35210)
- CC Chamise Chaparral (37200)
- CLoW Dense Coast Live Oak Woodland (71162)
- DEV Developed (12000)
- DH Disturbed Habitat 11300)
- AG Field Pasture / Agriculture (18310)
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- MBS Montane Buckwheat Scrub (37K00)
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- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 27)

Figure 28

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*℠

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
Disturbed
Fuel Break
Burned

Vegetation Community (Nov 2009 to Jan 2010)
SWS Southern Willow Scrub (63320)
BSS Big Sagebrush Scrub (35210)
CC Chamise Chaparral (37200)
CLoLW Dense Coast Live Oak Woodland (71162)
DEV Developed (12000)
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AG Field Pasture / Agriculture (18310)
Land Landscaped (12000)
MBS Montane Buckwheat Scrub (37K00)
MFS MuleFat Scrub (63310)
NNG Non-Native Grassland (42200)
NMC Northen Mixed Chaparral (37130)
OCLOW Open Coast Live Oak Woodland (71161)
RS Redshank Chaparral (37300)
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SDC Semi Desert Chaparral (37400)
SNSC Southern North Slope Chaparral (37E00)
SRW Southern Riparian Woodland (62500)
UC Un-Vegetated Channel (64200)
USMC Upper Sonoran Manzanita Chaparral (37B00)
USSS Upper Sonoran Subshrub Scrub (39000)
Coast Horned Lizard
Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
Astragalus douglasii var. perstrictus
Caulanthus simulans
Deinandra floribunda
Delphinium parishii ssp. subglobosum
Geraea viscida
Heuchera brevistaminea
Hulsea californica
Linanthus bellus
Lupinus excubitus var. medius
Mimulus aridus
Mimulus palmeri
Streptanthus campestris

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HDR ONE COMPANY | *Many Solutions*℠

Biological Resources (Index Map 28)

Figure 29

Iberdrola | Tule Wind Project | BTR

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
Disturbed
Fuel Break
Burned

Vegetation Community (Nov 2009 to Jan 2010)
- SWS Southern Willow Scrub (63320)
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- USSS Upper Sonoran Subshrub Scrub (39000)

Coast Horned Lizard
Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 29)

Figure 30

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*℠

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
Disturbed
Fuel Break
Burned

Vegetation Community (Nov 2009 to Jan 2010)
- SWS Southern Willow Scrub (63320)
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Coast Horned Lizard
Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
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- Geraea viscida
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- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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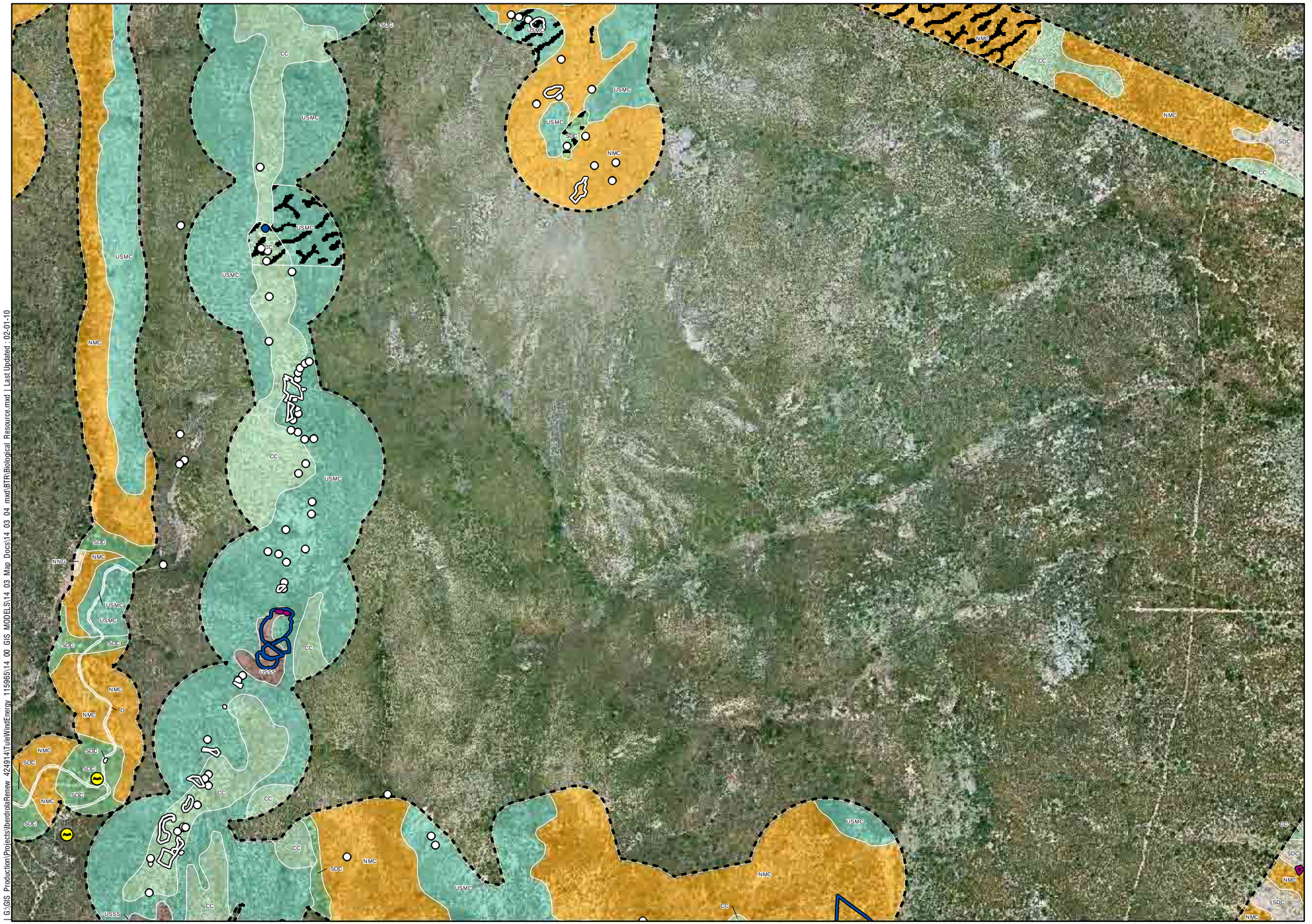
Biological Resources (Index Map 30)

Figure 31

Iberdrola | Tule Wind Project | BTR



Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
Disturbed
Fuel Break
Burned

Vegetation Community (Nov 2009 to Jan 2010)
- SWS Southern Willow Scrub (63320)
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Coast Horned Lizard
Coast Patch-nose Snake
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Raptor Nest (Great Horned Owl)
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Spade Foot Toad
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Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
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- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
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- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 31)

Figure 32

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*℠

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Jan 2010)
- SWS Southern Willow Scrub (63320)
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- SRW Southern Riparian Woodland (62500)
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- USMC Upper Sonoran Manzanita Chaparral (37B00)
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Coast Horned Lizard
Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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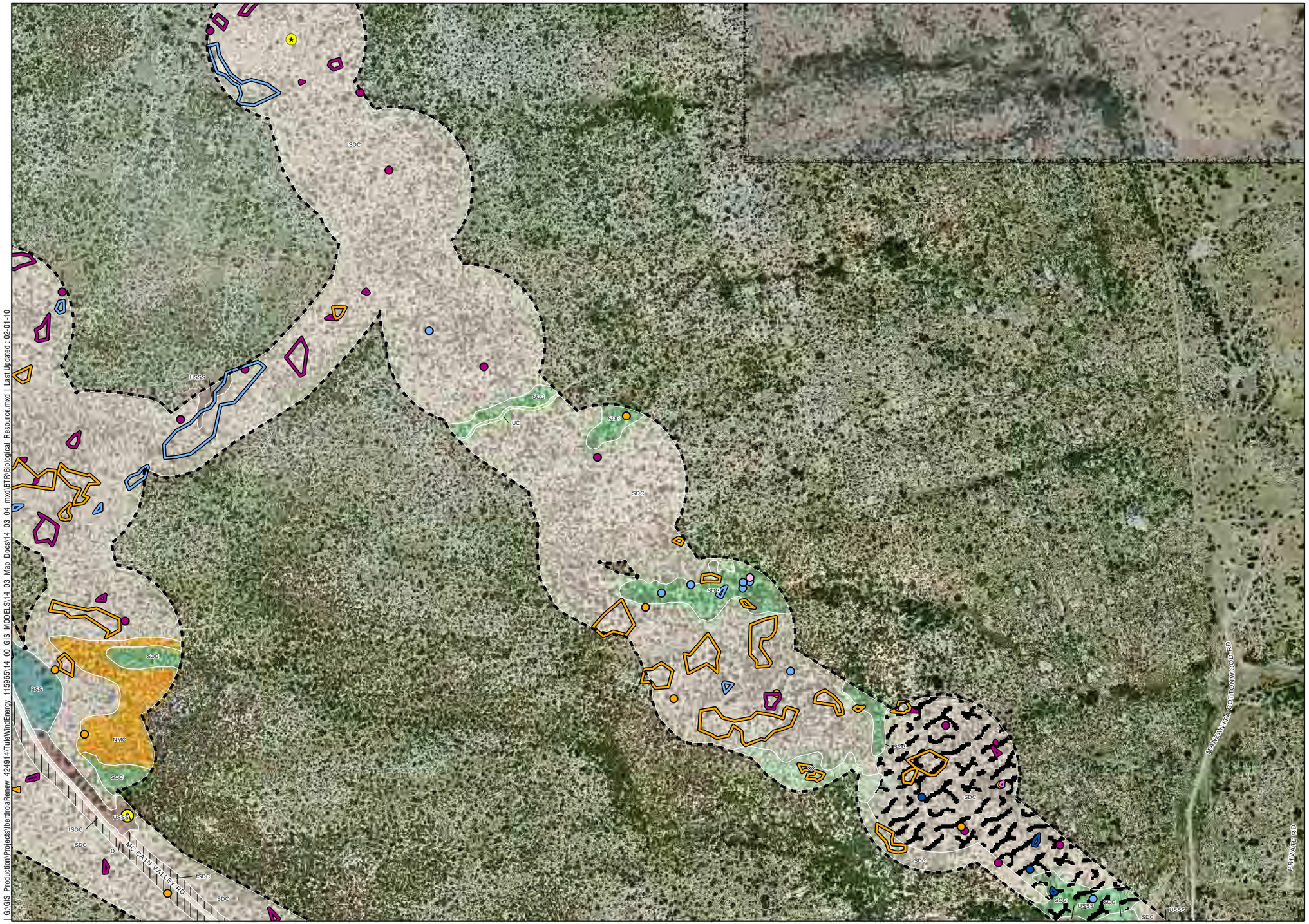
Biological Resources (Index Map 32)

Figure 33

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*℠



- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Surveyed
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- Rock Coverage >20%
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Vegetation Modifier

- d — Disturbed
- f — Fuel Break
- b — Burned

Vegetation Community (Nov 2009 to Jan 2010)

- SWS — Southern Willow Scrub (63320)
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- Coast Horned Lizard
- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

- Astragalus douglasii var. perstrictus
- Caulanthus simulans
- Deinandra floribunda
- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 33)

Figure 34

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*℠

- Individual Oak
- AnaBat Survey Location
- Potential Bat Colony Roost
- Surveyed
- Surveyed (Limited Access)
- Not Surveyed (No Access)
- Rock Coverage >20%
- Oak Root Protection Zone

Vegetation Modifier

- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Jan 2010)

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- Raptor Nest (Great Horned Owl)
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- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)

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- Delphinium parishii ssp. subglobosum
- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 34)

Figure 35

Iberdrola | Tule Wind Project | BTR

HDR
ONE COMPANY | *Many Solutions*℠

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
- Disturbed
- Fuel Break
- Burned

Vegetation Community (Nov 2009 to Jan 2010)
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- Coast Patch-nose Snake
- Raptor Nest
- Raptor Nest (Great Horned Owl)
- Rosy Boa
- Spade Foot Toad
- Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
- Astragalus douglasii var. perstrictus
- Caulanthus simulans
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- Geraea viscida
- Heuchera brevistaminea
- Hulsea californica
- Linanthus bellus
- Lupinus excubitus var. medius
- Mimulus aridus
- Mimulus palmeri
- Streptanthus campestris

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Biological Resources (Index Map 35)

Figure 36

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*℠

Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
Disturbed
Fuel Break
Burned

Vegetation Community (Nov 2009 to Jan 2010)
SWS Southern Willow Scrub (63320)
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Coast Horned Lizard
Coast Patch-nose Snake
Raptor Nest
Raptor Nest (Great Horned Owl)
Rosy Boa
Spade Foot Toad
Quino Checkerspot Butterfly Sighting

Rare Plant (April 2010 to June 2010)
Astragalus douglasii var. perstrictus
Caulanthus simulans
Deinandra floribunda
Delphinium parishii ssp. subglobosum
Geraea viscida
Heuchera brevistaminea
Hulsea californica
Linanthus bellus
Lupinus excubitus var. medius
Mimulus aridus
Mimulus palmeri
Streptanthus campestris

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Biological Resources (Index Map 36)

Figure 37

Iberdrola | Tule Wind Project | BTR

HDR
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Individual Oak
AnaBat Survey Location
Potential Bat Colony Roost
Surveyed
Surveyed (Limited Access)
Not Surveyed (No Access)
Rock Coverage >20%
Oak Root Protection Zone

Vegetation Modifier
Disturbed
Fuel Break
Burned

Vegetation Community (Nov 2009 to Jan 2010)
SWS Southern Willow Scrub (63320)
BSS Big Sagebrush Scrub (35210)
CC Chamise Chaparral (37200)
CLOW Dense Coast Live Oak Woodland (71162)
DEV Developed (12000)
DH Disturbed Habitat 11300)
AG Field Pasture / Agriculture (18310)
Land Landscaped (12000)
MBS Montane Buckwheat Scrub (37K00)
MFS MuleFat Scrub (63310)
NNG Non-Native Grassland (42200)
NMC Northen Mixed Chaparral (37130)
OCLOW Open Coast Live Oak Woodland (71161)
RS Redshank Chaparral (37300)
SOC Scrub Oak Chaparral (37900)
SDC Semi Desert Chaparral (37400)
SNSC Southern North Slope Chaparral (37E00)
SRW Southern Riparian Woodland (62500)
UC Un-Vegetated Channel (64200)
USMC Upper Sonoran Manzanita Chaparral (37B00)
USSS Upper Sonoran Subshrub Scrub (39000)
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Biological Resources (Index Map 37)

Figure 38

Iberdrola | Tule Wind Project | BTR

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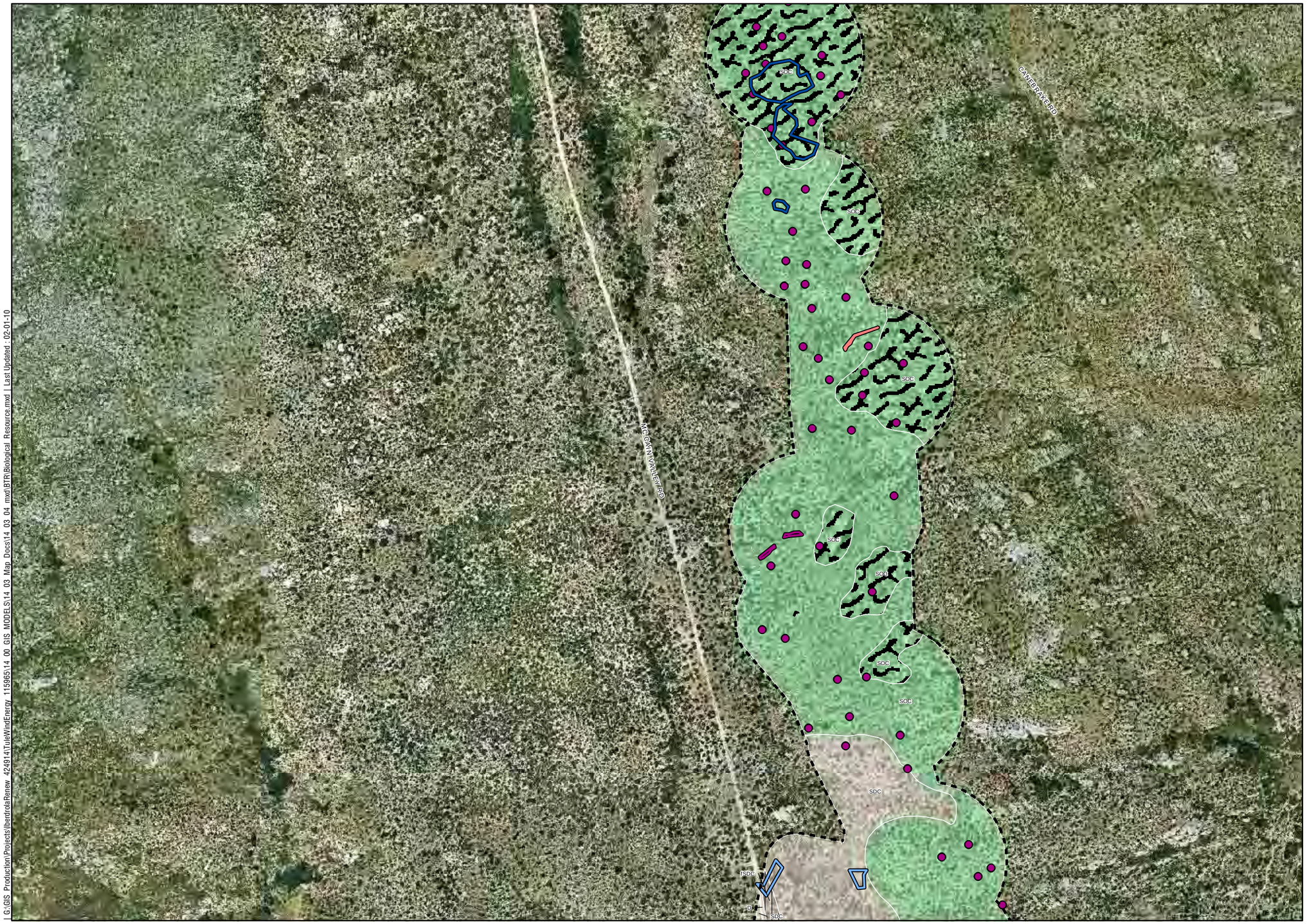

Individual Oak
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Surveyed (Limited Access)
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Vegetation Modifier
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Fuel Break
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Vegetation Community (Nov 2009 to Jan 2010)
- SWS — Southern Willow Scrub (63320)
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- DCLoW — Dense Coast Live Oak Woodland (71162)
- DEV — Developed (12000)
- DH — Disturbed Habitat 11300)
- AG — Field Pasture / Agriculture (18310)
- Lscp — Landscaped (12000)
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Biological Resources (Index Map 38)

Figure 39

Iberdrola | Tule Wind Project | BTR

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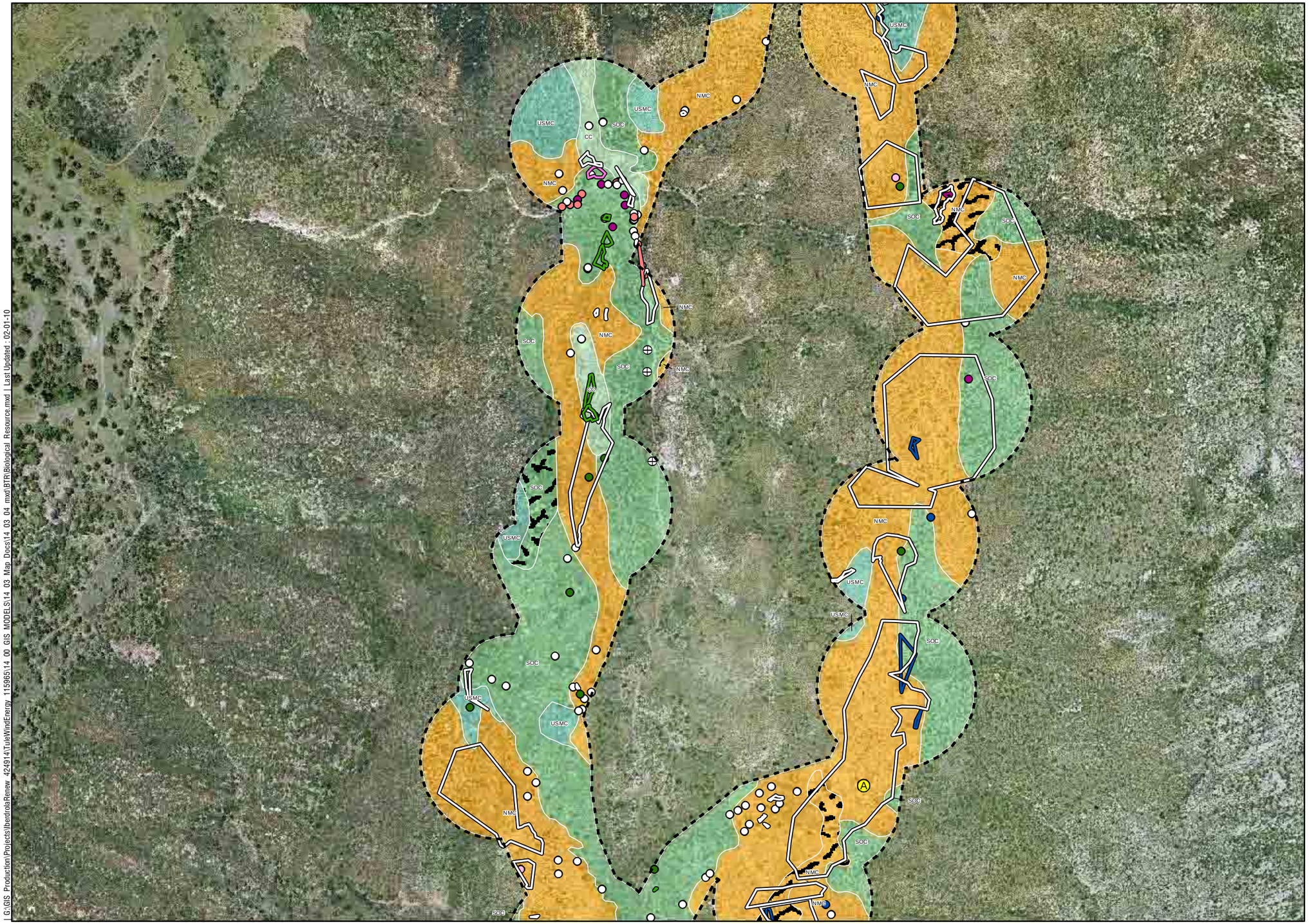

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Biological Resources (Index Map 39)

Figure 40

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*℠

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Biological Resources (Index Map 40)

Figure 41

Iberdrola | Tule Wind Project | BTR

HDR ONE COMPANY | *Many Solutions*℠

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Biological Resources (Index Map 41)

Figure 42

Iberdrola | Tule Wind Project | BTR

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APPENDIX B

Estimate of Water Availability **Memorandum,**
Geo-Logic Associates
September 7, 2010

Geo-Logic
ASSOCIATES
Geologists, Hydrogeologists and Engineers

MEMORANDUM

TO: Patrick O'Neill, HDR

FROM: Sarah J. Battelle, Geo-Logic Associates

DATE: September 7, 2010

SUBJECT: **ESTIMATE OF AVAILABLE GROUNDWATER**
TULE WIND PROJECT
EAST SAN DIEGO COUNTY, CALIFORNIA

At your request, this memorandum presents a summary of the water needs identified for the Tule Wind Project construction and the availability of local water, both on site and from adjacent water providers. The data presented herein is based on a site reconnaissance and inquiries made of water suppliers. Construction water supply requirements are provided from discussions with Iberdrola Renewables (IBR), the project proponent.

The project will include the construction of up to 134 wind turbines and associated roads, transmission lines and support facilities. Based on information provided by IBR, the following water requirements have been estimated for the project construction (all work is anticipated to be performed over five-day work weeks):

1. Road Construction – Up to 120,000 gallons per work day will be required over a 72-day construction period. With continuous water storage, 24-hours per day, seven days per week, it is estimated that well production of 59.5 gallons per minute (gpm) will be required to support this work.
2. Turbine Foundation Concrete Mixing – Depending on the turbine, each foundation will require 7,500 to 15,000 gallons of water per foundation. Assuming that two foundations are constructed each day in accordance with the 72-day work schedule; up to 30,000 gallons of water per day would be required. The maximum continuous pumping rate (24-hours per day, seven days per week), required to support concrete mixing for three turbine foundations per day is equivalent to 14.8 gpm.
3. Dust Control – During construction, 50,000 to 100,000 gallons per working day will be required for dust control on project roads. The maximum continuous pumping rate required for dust control would be 49.6 gpm for an estimated nine-month construction period.

As indicated above, it is anticipated that the water supply source will be available 24 hours per day, seven days per week. The contractors on the project will provide temporary water storage to ensure that there is adequate water supply available for required project water needs.

IBR has indicated that there will be some overlap of water uses as the project progresses. The initial road construction alone will be conducted until there is sufficient access to begin turbine foundation construction. At that time, with the combination of road construction, turbine foundation concrete mixing and dust control, the estimated peak water use will be approximately 250,000 gallons per day, requiring continuous pumping of 124 gpm (24-hours per day, seven days per week). This peak water demand will drop quickly after the initial road building activity is completed. Once road construction is complete, the peak water demand level is estimated to be about 130,000 gallons of water per day (equivalent to a 65 gpm pumping rate with pumping 24-hours per day, seven days per week). Once the subsequent 72-day turbine foundation work is complete, water demand will be reduced further to a maximum of 100,000 gallons of water per day (50 gpm of continuous pumping 24-hours per day, seven days per week) for the remainder of the nine month construction period requiring water. Subsequent site work is not expected to require additional groundwater supply. Further, when the Tule Wind Project turbines become operational, only a limited quantity of water will be required, estimated at 2,500 gallons per day to supply the operations and maintenance building services and support staff.

Based on the conservative peak water use requirements of 250,000 gallons per day (associated with road construction, concrete mixing and dust control activities), an estimated continuous supply of water (24-hours per day, seven days per week) will be required from wells pumping at a cumulative continuous rate of 124 gpm. Although there are several wells on the project site, two wells on the project site have been identified as readily available for project use:

1. One well is located on Rough Acres Ranch approximately one to two miles north of Interstate 8 between Ribbonwood Road and McCain Valley Road. Drilled in 2009, data provided on the well log for this well indicates that the estimated well yield is 60 gpm. A 72-hour constant rate aquifer pumping test was performed at this well at 50 gpm utilizing the existing pump. Based on the current preliminary test data, there was very little response from pumping in the adjacent observation well, about 30 feet from the pumping well, and therefore it is reasonable to assume that sustained pumping at 50 gpm, at a minimum can be achieved from this well. Further, with a higher volume pump it may be possible to pump at greater volumes without significant impacts to other adjacent groundwater users;
2. One well is located on the Ewiiaapaayp Reservation, about 7 miles north of Interstate 8 on La Posta Road. A 72-hour constant rate aquifer pumping test was conducted at this well at 80 gpm. Based on the preliminary test results it is reasonable to assume that sustained pumping at 80 gpm is feasible at this well location.

Therefore, based on the preliminary data from two recent pumping tests with a combined total pumping rate of 130 gpm, it is likely that the necessary water supply requirements for the project (124 gpm of continuous pumping, seven days a week) can be met from these two wells.

There are four potential additional water supply sources available for the project. The State Correctional Facility is located about one half mile north of Interstate 8 off of McCain Road. This correctional facility maintains two wells with estimated production of 45 and 65 gpm. The Live Oak Springs Resort located south of Interstate 8 on Old Highway 80 about ¾-mile northwest of the intersection with Highway 94 may provide a source of water supply. This resort (and water company) operates a well that pumps about 40,000 gallons per day (25 to 30 gpm) and maintains a 100,000 gallon pond, and two large tanks with an additional 50,000 gallons of storage capacity. They have committed to providing 40,000 for immediate use and up to 80,000 gallons per day with additional storage tanks (pers. comm., September 8, 2010); equivalent to 28 to 55 gpm. The Jacumba Community Service District (CSD) also has indicated that their well produces 200 gpm and they will commit up to 40,000 gallons per day to the project (pers. comm., September 8, 2010); equivalent to about 28 gpm. Will serve letters from the Live Oak Springs Resort and Jacumba CSD are attached. Finally, the City of El Centro has indicated that they are willing to sell wastewater plant effluent to the project for use during the construction phase.

In summary, as outlined above, the available on-site groundwater can provide the required project water requirements through continuous pumping at a rate of 124 gpm. Current pumping test results indicate at least 130 gpm can be achieved from the two tested wells, and potential greater volumes with a higher volume pump at the Rough Acres Ranch test well. However, with off-site water from the State Correctional Facility, Live Oak Springs Resort, and Jacumba CSD for purchase, an additional 80,000 to 120,000 gallons of water per day, or approximately 55 to 83 gpm of water could be available to support the project water supply needs; ample water for the nine-month construction period. With these additional off-site sources, the combined on-site and off-site water could be equivalent to an estimated 213 gpm could be made available in support of the project. In addition, wastewater plant effluent may be available from the City of El Centro for purchase. It is concluded that there is ample water available from on- and off-site sources to support the project water supply needs.

If you have any questions, please call me at (858) 451-1136.