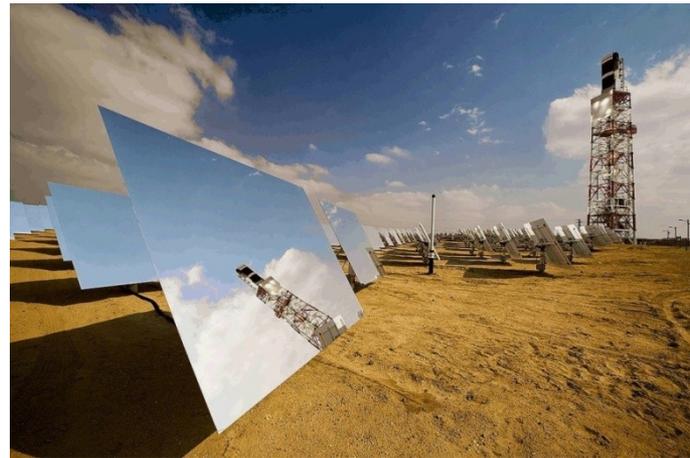


**Ivanpah Solar Electric Generating System  
Right-of-Way Grant Application &  
Application for Certification (07-AFC-5)  
by BrightSource Energy**

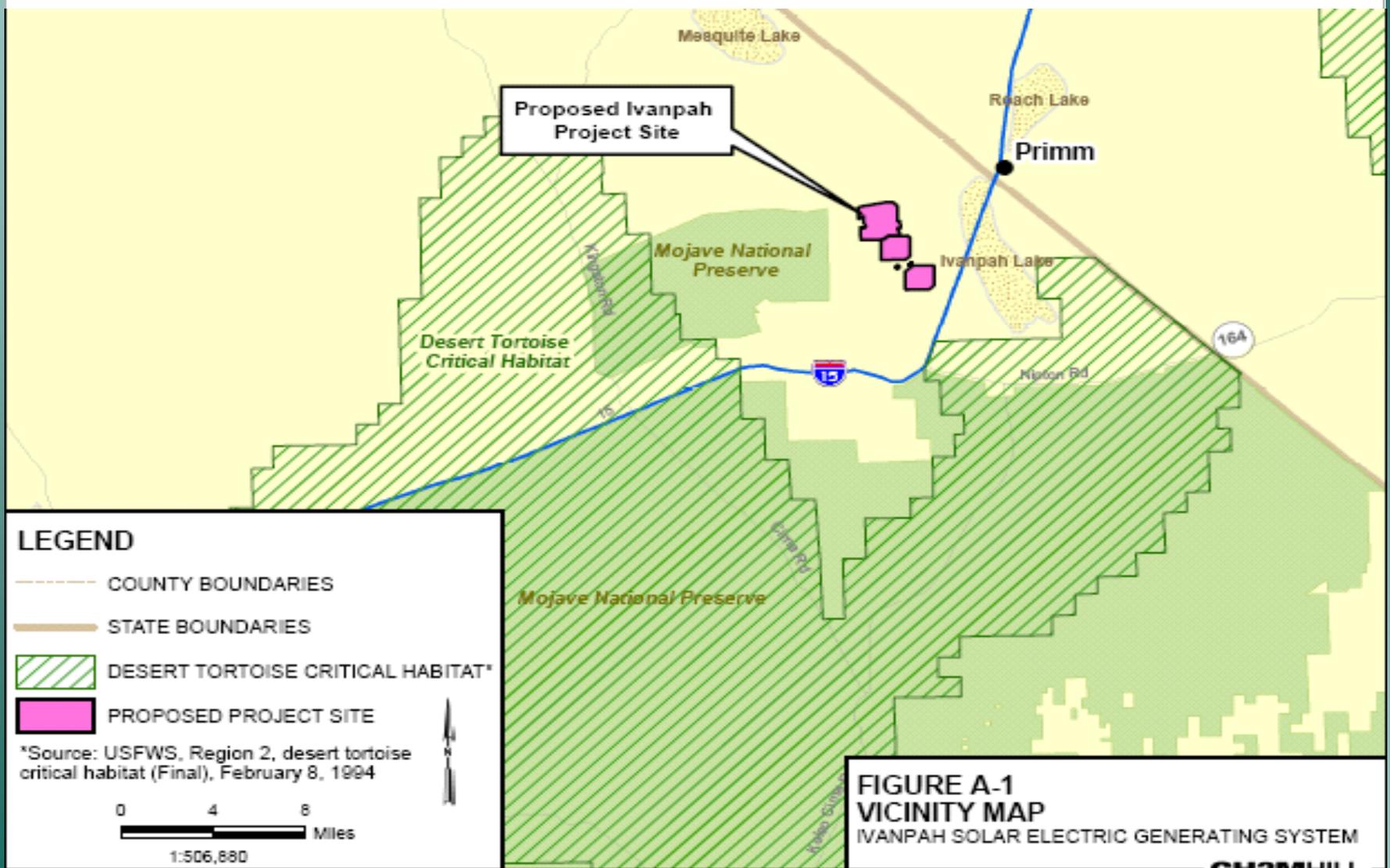
**BLM Renewable Energy Summit  
September 2009**



Tom Hurshman, BLM Project Manager



# Location



## View From Benson Mine/Mojave Preserve



# View From Benson Mine/Mojave Preserve with Project





# Example of Power Tower & Heliostats



# Major Issues

- **Defining the Proposed Action**
  - Evolving site design
- **Stormwater Management on Alluvial Fans**
  - Characterize the Site-Models for storm water flows
  - Control storm water vs. flow through
- **Biological Resource Considerations**
  - Desert Tortoise compensation and mitigation
  - State Rare plant avoidance
- **Visual Resources**
  - Glare = public safety I-15, recreational nuisance
- **Project Timing**



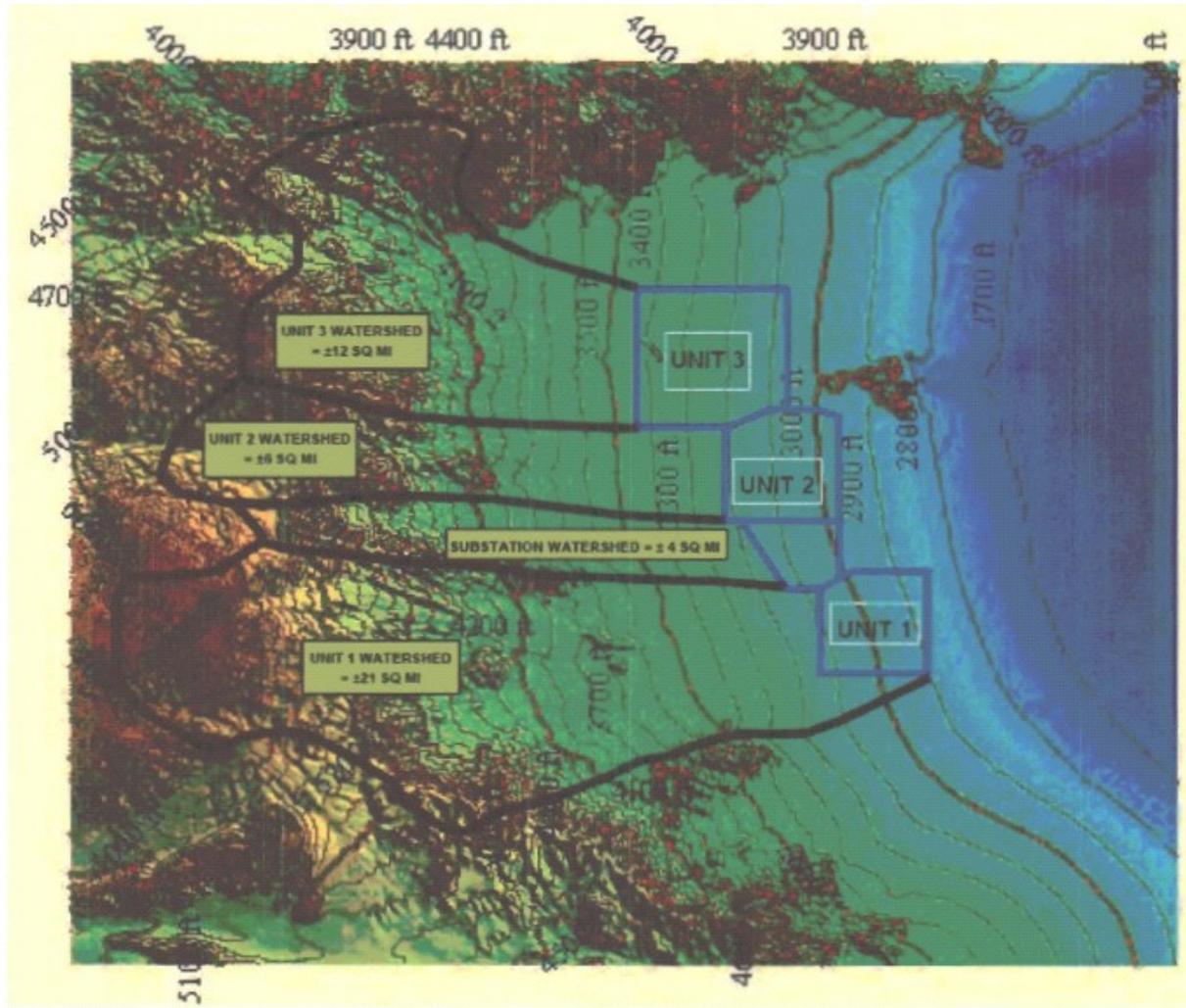
# An Evolving Design & Site Characterization

| Document          | Date            | Area (acres) | # of Heliostats | Other Features of Applicant's Proposed Project  |
|-------------------|-----------------|--------------|-----------------|---|
| AFC               | 10-31-07        | 3,400        | 272,000         | <u>single</u> -hung, 7 m <sup>2</sup> mirrors, no supporting info. for project design, BLM contracted for technical support |
| Site Optimization | 5-9-08          | <u>3,700</u> | <u>214,000</u>  | <u>double</u> -hung, 7 m <sup>2</sup> mirrors (+50 to 60% increase in mirror area)  |
| Data Response     | 6-10-08         | <u>4,065</u> | 214,000         | large detention ponds, significant grading, inadequate data   |
| Data Response     | 3-09 to Present | 4,065        | 214,000         | LID, limited grading, mowed vegetation, pass-thru stormwater  |

- Soil will be compacted
- Vegetation will change (due to disturbance & shading)
- Evaluation of off site impact potential

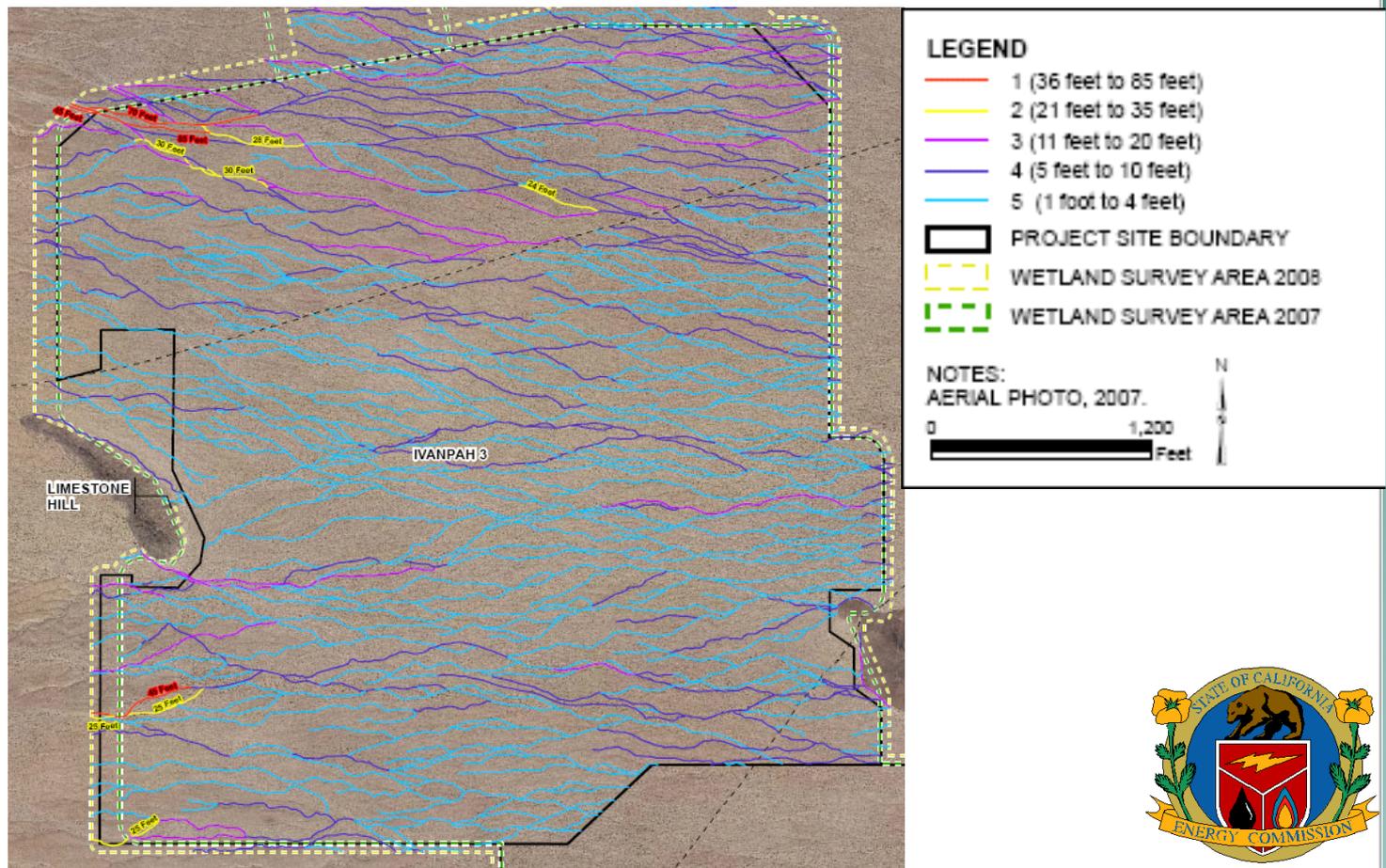


# Stormwater Management on Alluvial Fans



## Locations & Categories of Existing Ephemeral Streams

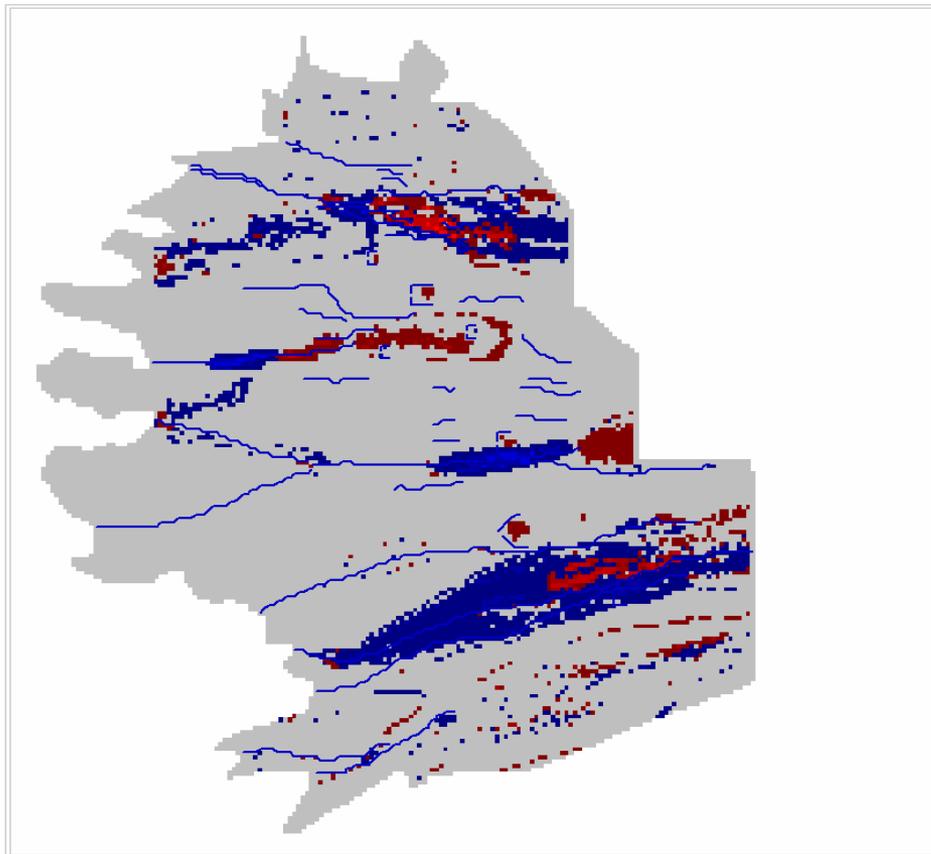
1. ISEGS 1, 2 and 3 would intercept approximately 2,000 ephemeral streams
2. Streams convey stormwater from Clark Mountains and site to Ivanpah Dry Lake , maintain sediment transport, minimize vegetation removal
3. Stream alignments change on alluvial fans





## Stormwater Management – Local Scour Potential

1. Modeling data essential to analyze off site impacts
2. Modeling calculations revealed potential heliostat losses
3. Mitigation = avoid highest risk areas, strengthen heliostat supports



Difference (ft or fps)

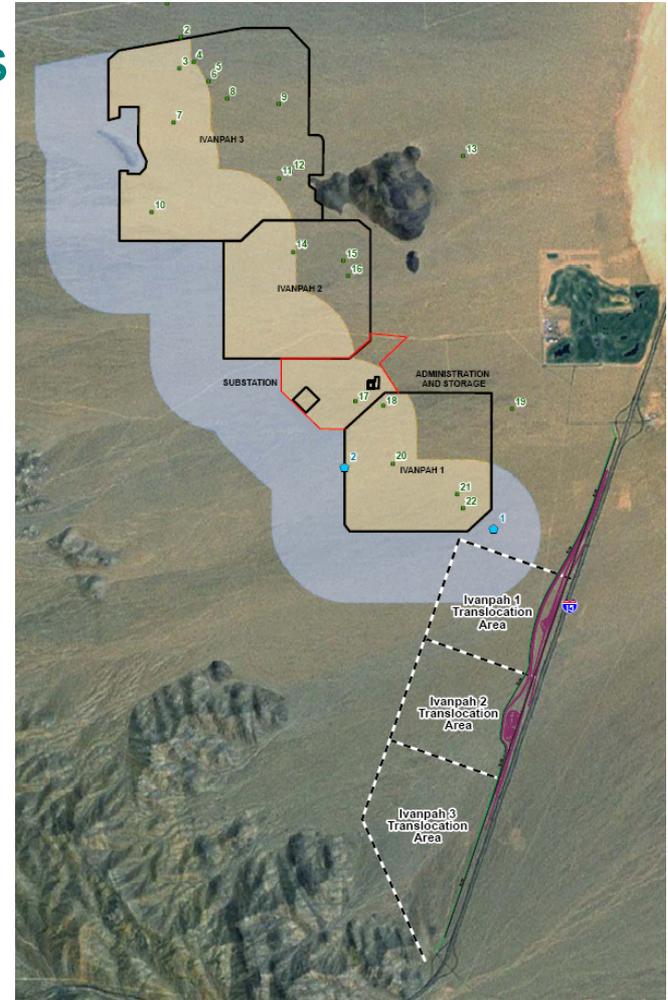
Diff Legend

|                    |   |
|--------------------|---|
| 1.5 < DIFF < 2.0   | ■ |
| 1.0 < DIFF < 1.5   | ■ |
| 0.5 < DIFF < 1.0   | ■ |
| 0.02 < DIFF < 0.5  | ■ |
| -.02 < DIFF < 0.02 | ■ |
| -0.5 < DIFF < -.02 | ■ |
| -1.0 < DIFF < -0.5 | ■ |
| -1.5 < DIFF < -1.0 | ■ |



# Biological Resource Considerations

- Desert Tortoise Mitigation
- State Listed Rare plant mitigation
- Restoration/ Revegetation Plan requirements



# Biological Resource Considerations

## Desert Tortoise Habitat Compensation

Federal 1:1; State 3:1; Count Federal as 1/3 of State's;

- Land acquisition options limited
- Valuation of \$/acre
  - Historical BLM compensation not satisfactory to State
  - State endowment management fees significantly higher than BLM fees
- Opportunities for habitat enhancements
  - Habitat enhancement projects need to be evaluated in NEPA
  - Need to reach consensus on projects



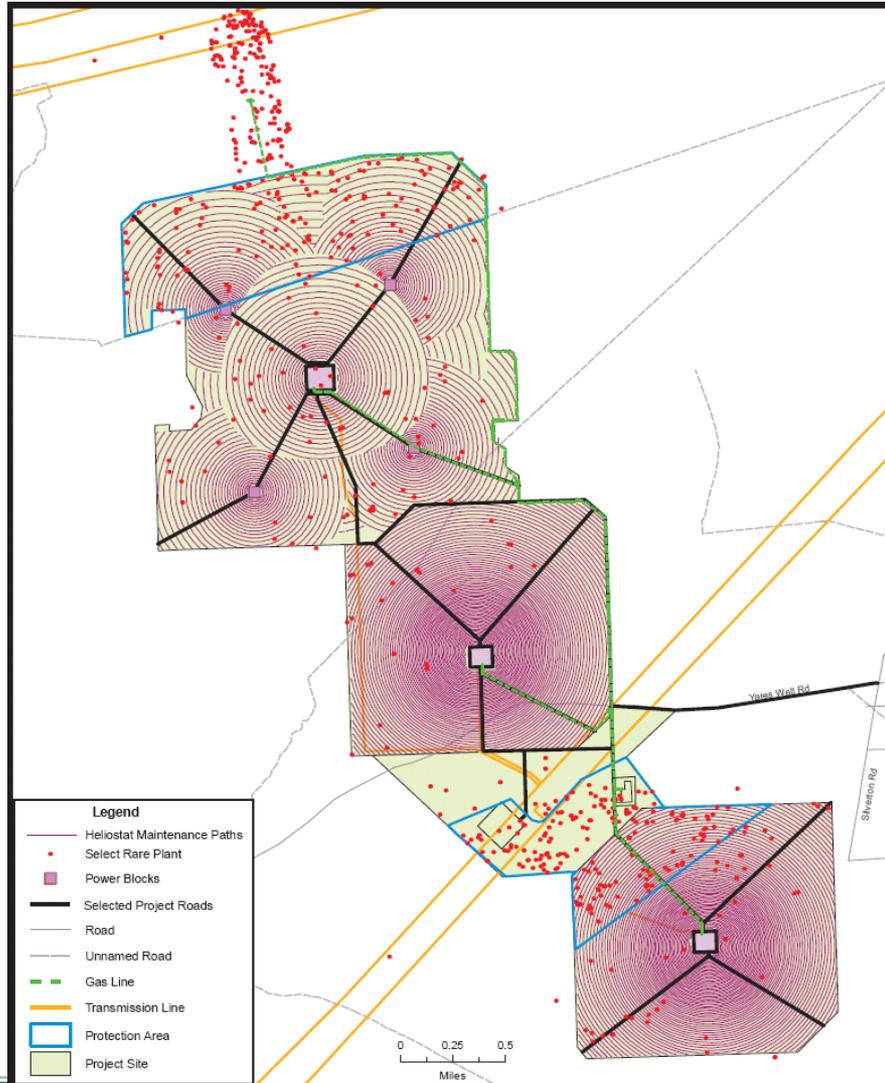
# Biological Resource Considerations

## Avoidance of Disturbance to CNPS-listed Rare Plants

- 5 species of rare plants are considered sensitive under CEQA;
- Analyzing mitigation measures to reduce or minimize disturbance in the more dense population areas;
- CEQA Rare plants do not have BLM sensitive status;



# Mitigation – Proposed Project with Modifications Protection Areas to Reduce Impacts to Rare Plants



# Visual Resources

- **No VRM classes in RMP for the CDCA**
- **Completed VRI mapping for Ivanpah Valley to use in analysis**
- **Glare from reflective materials on power tower**
  - **Public safety concerns to passing motorists on I-15**
  - **Nuisance to Recreational users on Ivanpah dry lake**



## Lessons Regarding Timing

- BLM initiated NOI while lacking adequate project data. Do not initiate NEPA without a firm proposed action;
- Applicant's familiar with CEC process are struggling with level of project details required by BLM for joint process;
  - ISEGS was 15 months into the process before filing stormwater plans that consider characteristics of the alluvial fan
- Reach agreement on key design assumptions (stormwater modeling, visual observation points, soil testing) before plans are submitted for review. Agree on level of detail needed for your analysis;
- Updated Developer Guidelines (CEC/BLM joint projects) would be helpful to define the plan of development requirements and agency consultation requirements before appl filing (should focus on Soil and Water, Biological, Cultural Resources, and Visual)



## Lessons Regarding Timing

- State of CA biological mitigation requirements are likely more stringent than federal requirements. Early discussions and agreement on strategy essential
- Document preparation completed by the CEC, not by third party contractors. Agency has less control of EIS preparation working with CEC

