Rough Hat Clark County Solar Project Right-of-Way Application

Desert Tortoise Connectivity Habitat Variance Factor Consideration

Factors to Be Considered Documentation – Desert Tortoise

Candela Renewables, LLC submitted a right-of-way application for the Rough Hat Clark County Solar Project (Project). The Project consists of a 400 MW alternating current solar photovoltaic power generating facility with energy storage on approximately 2,400 acres of BLM-managed public land located in the Pahrump Valley southeast of the Town of Pahrump on BLM-managed public land in Clark County, Nevada.

The proposed Project will be reviewed in accordance with the U.S. Department of Energy and U.S. Department of the Interior Final Programmatic Environmental Impact Statement for Solar Energy Development (Solar PEIS) and Record of Decision, as it amended the Las Vegas Resource Management Plan, including the variance process identified within Appendix B of the Record of Decision. As part of the Solar PEIS, the U.S. Fish and Wildlife Service identified certain areas that may be important for desert tortoise connectivity (i.e. priority desert tortoise connectivity habitat), the Record of Decision requires consideration of an additional *Factor to Be Considered* for projects within those areas. The Project is within Priority Two (2) Desert Tortoise Connectivity Habitat as identified by the Solar PEIS (*Figure 1 – Map*) and requires consideration and documentation for the factor as part of the variance process.

The Desert Tortoise variance factor requirements for projects within areas identified as Priority desert tortoise connectivity habitat are included below, along with discussion and evaluation specific for the Project.

A. *Developers that propose utility-scale solar energy projects in variance areas that overlap priority desert tortoise connectivity habitat identified on U.S. Fish and Wildlife Service maps will be required to meet with the BLM and U.S. Fish and Wildlife Service early in the process as part of the previously mentioned preliminary meetings to receive instructions on the appropriate desert tortoise survey protocols and the criteria the BLM and U.S. Fish and Wildlife Service will use to evaluate results of those surveys (see outline below).*

The Project is located in close proximity to the Yellow Pine Solar Project within the Pahrump Valley (*Figure 2 – Map*). As noted in this documentation, the work and coordination completed for the Yellow Pine Solar Project established a framework for consideration of desert tortoise connectivity habitat throughout the Pahrump Valley area. As part of the Yellow Pine Solar Project, desert tortoise connectivity for the area was studied in detail. Appropriate provisions were identified in close coordination and consultation with the U.S. Fish and Wildlife Service to ensure connectivity through the establishment of the Stump Springs Regional Augmentation site and Trout Canyon Translocation site (*Figure 3 – Map*). The Solar PEIS provides that translocation areas are exclusion areas for solar energy development, thus those areas will not be available for solar energy development based on the protections described in the Solar PEIS.

For the Project, the previous and ongoing BLM consultation and coordination with the U.S. Fish and Wildlife Service for the Pahrump Valley area was considered when additional survey needs were identified and communicated. As further detailed below, no additional work was necessary to determine impacts to connectivity from the Project.

B. *Applicants will be required to work with the BLM and U.S. Fish and Wildlife Service to survey an appropriately sized area (which may be three to four times larger than the proposed project area) in an attempt to find a suitable project location or configuration that minimizes impacts on desert tortoises.*

With the development of the Stump Springs Regional Augmentation site and Trout Canyon Translocation site (process described in more detail below), and based on previous surveys and assessments, the location of the Project (at this preliminary stage) sufficiently minimizes impacts on the desert tortoise.

The BLM will assess the appropriate size/configuration of Project through alternatives development in the National Environmental Policy Act process, with careful consideration given to current research and industry practices related to efficient land use (acres/megawatt). Additionally, alternatives development, project design features, and mitigation measures that would be developed will further minimize impacts to desert tortoises.

C. The BLM and U.S. Fish and Wildlife Service will discourage applications in the highest priority areas, given the anticipated high conflict, higher survey costs, and high mitigation requirements.

Though the proposed Project is located within Priority Two Desert Tortoise Connectivity Habitat, as identified in the Solar PEIS, the area proposed for development is not considered to be a "highest priority area" since the BLM and U.S. Fish and Wildlife Service have identified and implemented actions to maintain connectivity on lands in the vicinity of the proposed project. Further detail about the BLM and U.S. Fish and Wildlife Service actions are described below.

D. The survey and data collection activities outlined below will facilitate the assessment of site-specific data and ground truthing of the information provided in the U.S. Fish and Wildlife Service map to determine whether a site is an acceptable location for utility-scale solar energy development.

- *Tortoise density and distribution surveys. Desert tortoise density and distribution surveys will be conducted consistent with approved survey protocols (http://www.fws.gov/ventura/species_information/protocols_guidelines/index.html) and will be conducted by U.S. Fish and Wildlife Service approved desert tortoise authorized biologists unless the U.S. Fish and Wildlife Service determines authorized biologists are unnecessary (http://www.fws.gov/ ventura/species information/protocols_guidelines/index.html). The spacing and intensity of surveys will be determined in consultation with the BLM and U.S. Fish and Wildlife Service. Two consecutive survey passes of the potential project development area will be required; the orientation of the second survey pass will be determined in consultation with BLM and U.S. Fish and Wildlife Service to determine the best orientation based on factors such as topography and glare. Once a refined project site has been selected within the larger survey area, additional surveys could be recommended to ensure effective avoidance of desert tortoises.*

  Surveys for desert tortoises following U.S. Fish and Wildlife Service approved protocol were completed in 2021 within the proposed Project site. An adult tortoise density was

determined, along with a distribution map of all tortoises and tortoise sign located in the survey area.

No additional tortoise surveys were recommended outside the proposed Project boundary. This was decided based on the Project's close proximity to an already approved solar project (Yellow Pine Solar Project), the additional solar applications in the immediate area, and other anthropogenic impacts in the immediate area, as well some topographic features that reduce the amount of tortoise habitat available surrounding the project boundaries.

- *Habitat quality analyses. Evaluate the presence and condition of native vegetation communities (including herbaceous plants), soils, and so forth in the survey area.*

  The Project area is located within the Mojave Basin and Range Level III Ecoregion and the Creosote Bush-Dominated Basins Level IV Ecoregion (*Bryce et al. 2003*). The Creosote Bush-Dominated Basins ecoregion includes valleys lying between scattered mountain ranges of the Mojave Desert at elevations ranging from 1,800 to 4,500 feet. Elevations are lower, soils are warmer, and evapotranspiration is higher than in the Central Basin and Range to the north. Limestone- and gypsum-influenced soils occur, but overall, precipitation has a greater ecological significance than geology. Creosote bush, white bursage, and galleta grass characterize the plant communities of the ecoregion (*Bryce et al. 2003*).

  Vegetation types within the area include Creosote-White Bursage Desert Scrub, Mixed Desert Scrub, Mixed Salt Desert Scrub, and Playa (*USGS 2021*). The Creosote-White Bursage Scrub typically occurs on alluvial fans, bajadas, upland slopes, and minor washes. Sites are gentle to moderately sloping. Substrates are typically well-drained, sandy soils derived from colluvium or alluvium, and are often calcareous with a caliche hardpan and/or a pavement surface. The vegetation is characterized by an open, xeromorphic shrub layer co-dominated by *Larrea tridentata* (creosote bush) and *Ambrosia dumosa* (white bursage). Cover of either species does not exceed the other by more than twice, and no other species greatly exceeds the cover of both combined. Other desert shrubs and dwarf-shrubs may be present to co-dominant including *Atriplex confertifolia* (shadscale), *Atriplex hymenelytra* (desert holly), *Ephedra nevadensis* (Nevada ephedra), *Ambrosia salsola* (cheesebush), *Krameria erecta* (little-leaved ratany), *Lycium andersonii* (Anderson's wolfberry), *Cylindropuntia ramosissima* (diamond cholla), *Psorothamnus fremontii* (Fremont's indigo bush), and *Salazaria mexicana* (bladder sage) (*Peterson 2008*). Mixed Desert Scrub in this case would be the *Yucca schidigera – Larrea tridentata – Ambrosia dumosa* Shrubland Alliance (*Peterson 2008*). It includes stands of *Yucca schidigera* (Mojave yucca) of three to five percent cover over a co-dominant shrub canopy of creosote bush and white bursage.

  The Mixed Salt Desert Scrub includes the *Atriplex polycarpa* Scrubland Alliance (*Peterson 2008*). The most favorable habitat for this alliance is flat to gentle slopes with fine soils that are often carbonate-rich. *Atriplex polycarpa* (allscale) and three additional species of saltbush are co- dominant: *Atriplex canescens* (fourwing saltbush), shadscale, and desert holly. Creosote bush and white bursage are also present. The canopy is mostly less than three meters in height and can range from continuous to open with a sparse herbaceous layer. The Playa habitat type is typically sparsely vegetated with shrubs such

as allscale and white bursage, with occasional large patches of *Eriogonum* (wild buckwheat) species.

- *Tortoise connectivity studies. The methodologies for connectivity studies must be approved by the BLM and U.S. Fish and Wildlife Service and peer reviewed by an accredited scientist prior to data collection. A first study should demonstrate that the linkage area and adjacent Tortoise Conservation Areas (TCAs) contain suitable tortoise habitat of sufficient size to support desert tortoise populations. If sufficient habitat is present, a second study should demonstrate that demographic and genetic connections can be maintained once the proposed project is developed. This should include evaluating existing barriers to connectivity and opportunities for tortoise to-tortoise interactions at a local and regional scale and the availability of "live-in habitat."*

  Development of additional tortoise connectivity studies was not required for the proposed Project. As discussed above, previously completed tortoise connectivity modeling and the establishment of tortoise augmentation and translocation areas adjacent to the proposed project boundary provide the necessary connectivity information for that decision to be made. This previous information and modeling data includes:

  - Connectivity of Mojave Desert Tortoise Populations (*U.S. Fish and Wildlife Service Desert Tortoise Recovery Office 2012*)
  - A Range-wide Model of Contemporary, Omnidirectional Connectivity for the Threatened Mojave Desert Tortoise (*Gray et. al. 2019*)
  - Solar PEIS designation of Priority 1 and 2 connectivity habitats
  - U.S. Geological Survey model of tortoise habitat
  - Creation of the Sump Springs Desert Tortoise Regional Augmentation Area
  - Creation of the Trout Canyon Desert Tortoise Translocation Area

  BLM and the U.S. Fish and Wildlife Service are currently implementing projects to increase and maintain both genetic and demographic connectivity in adjacent habitat within the Pahrump Valley area. These include:

  - The installation of nine miles of desert tortoise fence along Tecopa Springs Road;
  - Modifications to culverts between the Stump Springs Regional Augmentation site and the Trout Canyon Translocation site under State Route 160; and
  - Future weed treatments to reduce non-native grasses.

  Additionally, during the National Environmental Policy Act process for the Yellow Pine Solar Project, a "modified fence" management alternative aimed at minimizing impacts to the desert tortoise was considered and eliminated from further analysis after it was determined that it yielded similar effects as the Proposed Action and no distinct advantages to the tortoise. That alternative included alteration of the fencing to allow for Mojave Desert tortoise reestablishment after construction is complete and during solar field operation. It ultimately was eliminated from detailed analysis because it yielded similar effects to the Proposed Action and no distinct advantage to the tortoise due to factors that included - solar development being considered on surrounding lands, and

project area bordered by State Route 160 and Tecopa Springs Road (*Yellow Pine Solar Project FEIS Appendix G pp. 5-6*).

- *Corridor width evaluation. Using the site-specific data collected, including desert tortoise density and distribution (from protocol surveys), habitat quality analysis, and the desert tortoise connectivity evaluation, an applicant should identify corridors that will adequately maintain the connectivity around the proposed project. Such corridors must be approved by the BLM and U.S. Fish and Wildlife Service.*

  The connectivity corridor evaluation was done as part of the efforts described above for the Yellow Pine Solar Project and is relevant for the Project.

- *Survey for areas suitable for tortoise translocation, if applicable.*

  No additional surveys are required as a suitable existing translocation site has already been identified, Stump Springs Regional Augmentation site. This site has already been surveyed and tortoises from the proposed project would be translocated there, if the project is approved.

E. *In evaluating information provided by an applicant, the BLM and U.S. Fish and Wildlife Service will consider cumulative effects and landscape-level information consistent with desert tortoise recovery goals and objectives and best available science to determine if a project will result in acceptable impacts on desert tortoises. The applicant must provide documentation to the satisfaction of the BLM and U.S. Fish and Wildlife Service of the following, unless a project is otherwise determined by the BLM and U.S. Fish and Wildlife Service to have acceptable impacts on desert tortoises:*

- *The project can be sited and constructed to allow for adequate connectivity corridors as determined by the BLM and U.S. Fish and Wildlife Service that ensure that the project does not isolate or fragment tortoise habitat and populations;*

  The Stump Springs Regional Augmentation site, Trout Canyon Translocation site, and the western bajada of the Spring Mountains provides a functioning corridor width that maintains tortoise connectivity in Nevada both north and east of the proposed Project. After review of site-specific data, including those listed above, BLM and U.S. Fish and Wildlife Service have found the identified connectivity corridor adequate to maintain connectivity at both local and regional scales (*Figure 3 - Map*).

- *The proposed site contains low tortoise densities consistent with the best available information for the subject geographic area, including data on local desert tortoise densities, when available, and data from the long-term USFWS range wide monitoring of the Mojave Population of the desert tortoise (http://www.fws.gov/nevada/desert_tortoise/dt_reports.html).*

  The project site was found to not contain low densities of desert tortoises. Protocol surveys completed for the project site found the density of desert tortoises to be moderate. The framework for maintaining desert tortoise connectivity in the region and the strategy for mitigating impacts from the project focuses efforts to increase tortoise populations and connectivity away from the urban-wildlife interface of Pahrump, through the Stump Springs Regional Augmentation Site and Trout Canyon Translocation site. Therefore, tortoise density on the project site was found by U.S. Fish and Wildlife

Service and BLM not to be a determinate factor in the variance conclusion for the Project.

- *The project will result in minimal translocation of adult and sub-adult tortoise to acceptable locations (>160 mm Midline Carapace Length) as determined by the BLM and U.S. Fish and Wildlife Service;*

  The Project would not result in minimal translocation of adult and subadult tortoises to the established translocation site. Project would result in moderate translocations of adults to acceptable locations in the Stump Springs Regional Augmentation Site within acceptable density targets. Given that the framework for maintaining desert tortoise connectivity in the region and the strategy for mitigating impacts from the project focuses efforts to increase tortoise populations and connectivity away from the urban-wildlife interface of Pahrump, through the Stump Springs Regional Augmentation Site and Trout Canyon Translocation site, the level of translocation was found by U.S. Fish and Wildlife Service and BLM not to be a determining factor in the variance conclusion for the project.

- *Any necessary mitigation will improve conditions within the connectivity area, and if these options do not exist, necessary mitigation will be applied toward the nearest tortoise conservation area (e.g., an Area of Critical Environmental Concern for which tortoise had been identified in the Relevant and Important Criteria or critical habitat);* ***and***

  BLM has formed a regional mitigation team with the Nevada Department of Wildlife (NDOW), U.S. Fish and Wildlife Service, U.S. Geologic Survey, and Desert Tortoise Recovery Office working on the development of both on-site and off-site mitigation projects. These projects will include looking at improvements in translocation process, survivability, landscape connectivity, invasive weeds and habitat improvement, research, and working towards an increasing population within the connectivity network to ensure increased tortoise to tortoise interactions at both the local and regional scale.

- *A plan is in place to effectively monitor desert tortoise impacts, including verification that desert tortoise connectivity corridors are functional. The required Endangered Species Act consultation will further define this monitoring plan.*

  A 30-year monitoring plan for the Stump Springs Regional Augmentation site and the Trout Canyon Translocation site was approved prior to tortoises being translocated from the Yellow Pine Solar Project last year. An augmentation plan was recently revised and updated for the current fiscal year. Both sites are located within a linkage corridor that provides connectivity between California and Nevada. Monitoring plan goals and objectives include increasing adult tortoise density, reducing the abundance of non-native plants, mitigating adult tortoise mortality from predation, improving connectivity east of Tecopa Springs Road and north of SR-160, and reducing any subsequent major threats to population viability that may be identified during the 30-year monitoring term.

<u>Discussion of Collaboration with U.S. Fish and Wildlife Service</u>

The BLM and U.S. Fish and Wildlife Service engage in ongoing collaboration to review potential effects on desert tortoise connectivity habitat from renewable energy projects. Extensive coordination was conducted for the Yellow Pine Solar Project, resulting in the

identification of the Trout Canyon Translocation site and Stump Springs Regional Augmentation site, and the development of an associated long-term monitoring plan. Additional ongoing collaboration between BLM and U.S. Fish and Wildlife Service continues on related efforts, including a translocation plan update and formation of the regional mitigation project team (with other state and federal agencies).

The two agencies have closely coordinated for this variance review for the Project, including U.S. Fish and Wildlife Service review and input for finalizing this document.

Recommended Conclusion

Based on the discussion and evaluation detailed above for the Desert Tortoise Variance Factor, the BLM in coordination with U.S. Fish and Wildlife Service has concluded, as required for the variance process and at this preliminary phase of application review, that the Project would result in acceptable impacts on the desert tortoise. If the Project receives a favorable variance determination, potential project impacts to desert tortoises would be further evaluated in accordance with the provisions of Section 7 of the Endangered Species Act and the National Environmental Policy Act. Note that the current conclusion being made as part of the review for the variance process is preliminary, and in no way diminishes or preempts agency discretion and responsibility for making future determinations in accordance with Section 7 of the Endangered Species Act or the National Environmental Policy Act.

Figure 1

BLM Southern Nevada District Office

- Rough Hat Clark (proposed)
- USFWS Desert Tortoise Priority 1 Connectivity Habitat
- USFWS Desert Tortoise Priority 2 Connectivity Habitat
- State Highways
- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- Department of Energy
- Fish and Wildlife Service
- Forest Service
- National Park Service
- Nevada State
- Local Government
- Private

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Lat Long Grid - UTM Zone 11, NAD 1983
Degrees Minutes Seconds

Prepared By: SNDO E&I Staff on 1/4/2022

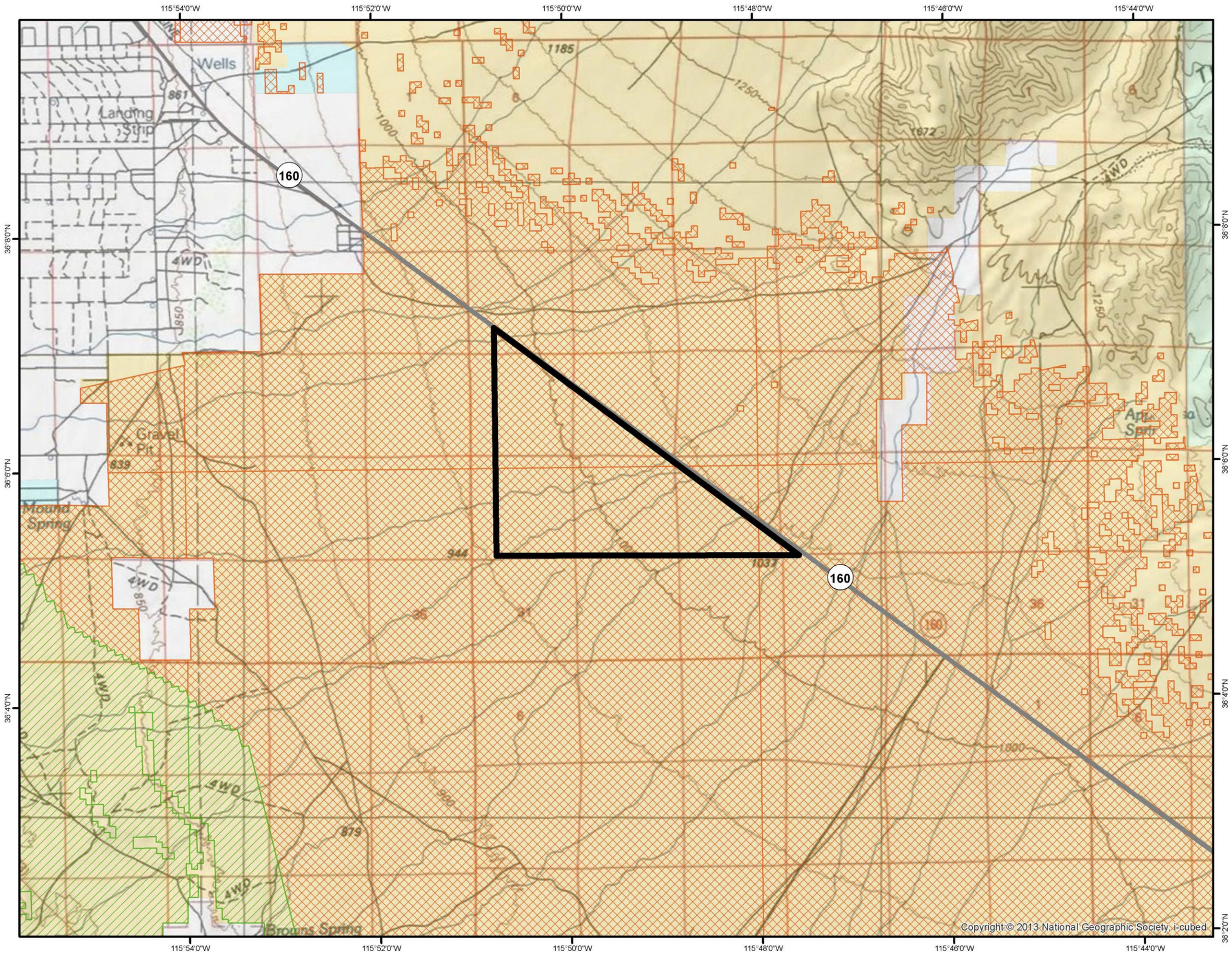

Figure 2

BLM Southern Nevada District Office

- Rough Hat Clark (proposed)
- Yellow Pine Solar Project (Authorized)
- State Highways
- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- Department of Energy
- Fish and Wildlife Service
- Forest Service
- National Park Service
- Nevada State
- Local Government
- Private

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Lat Long Grid - UTM Zone 11, NAD 1983
Degrees Minutes Seconds

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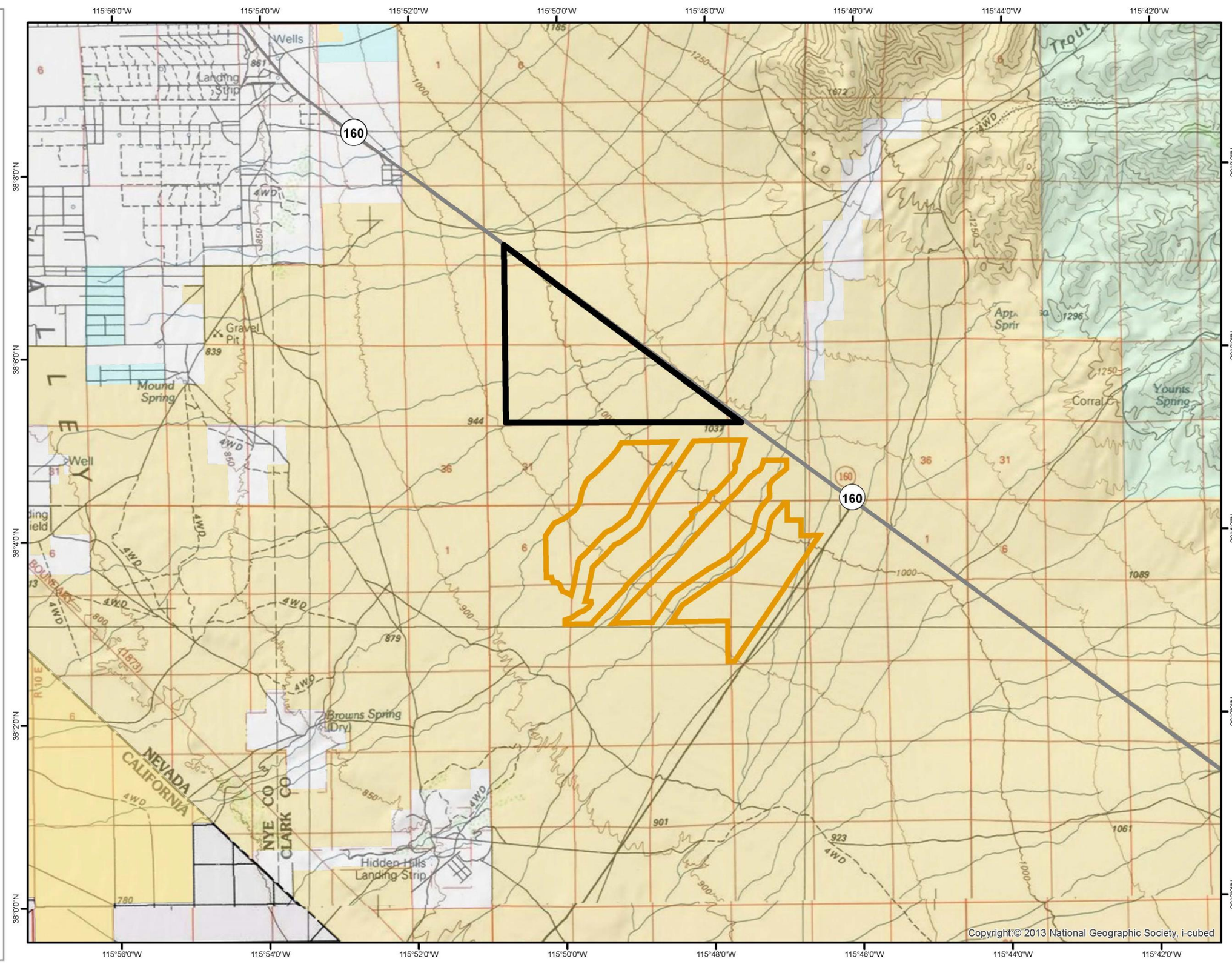

Figure 3

BLM Southern Nevada District Office

- Rough Hat Clark (proposed)
- Trout Canyon Translocation Area
- Stump Springs Regional Augmentation Site
- State Highways
- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- Department of Energy
- Fish and Wildlife Service
- Forest Service
- National Park Service
- Nevada State
- Local Government
- Private

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Miles

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Lat Long Grid - UTM Zone 11, NAD 1983
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