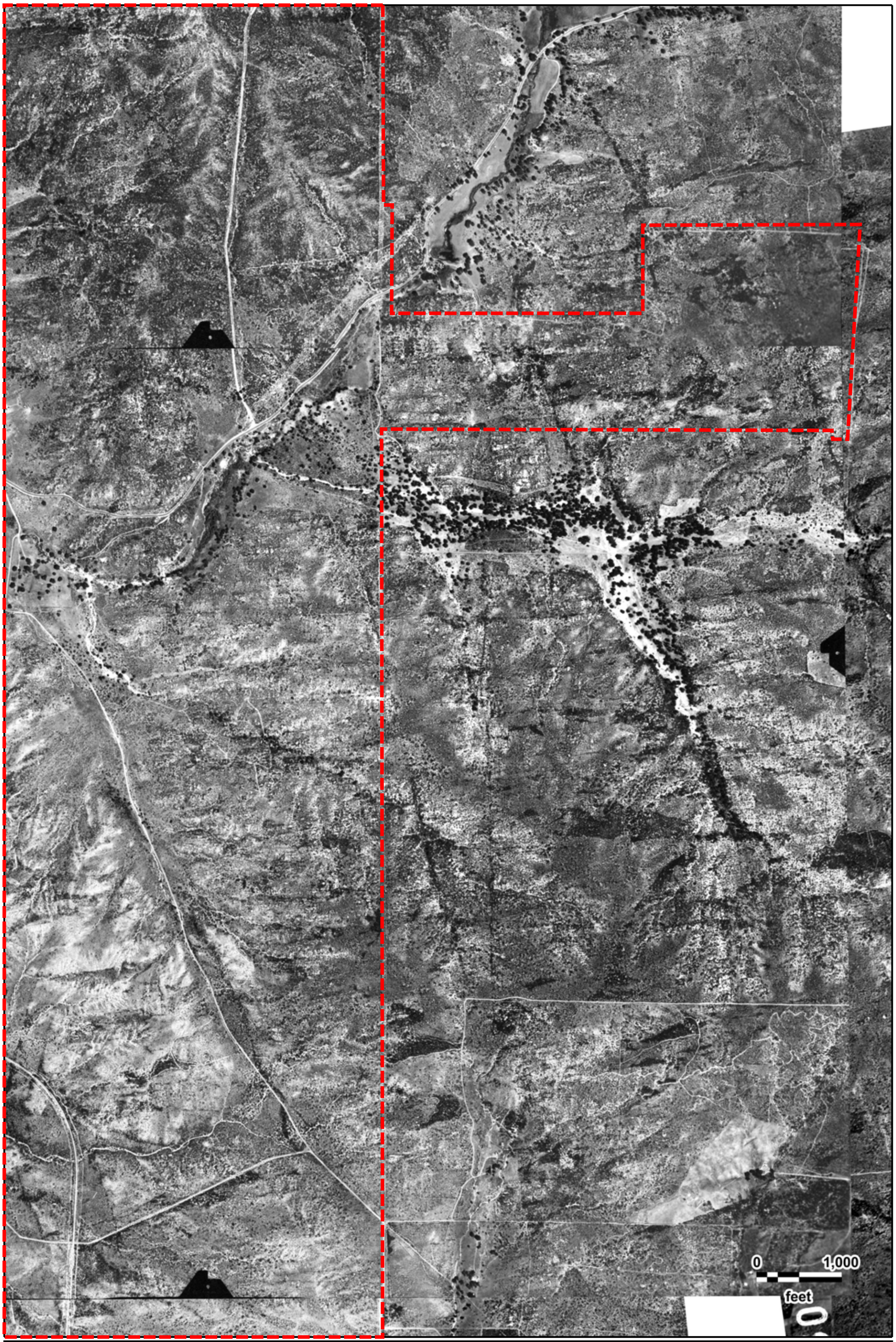

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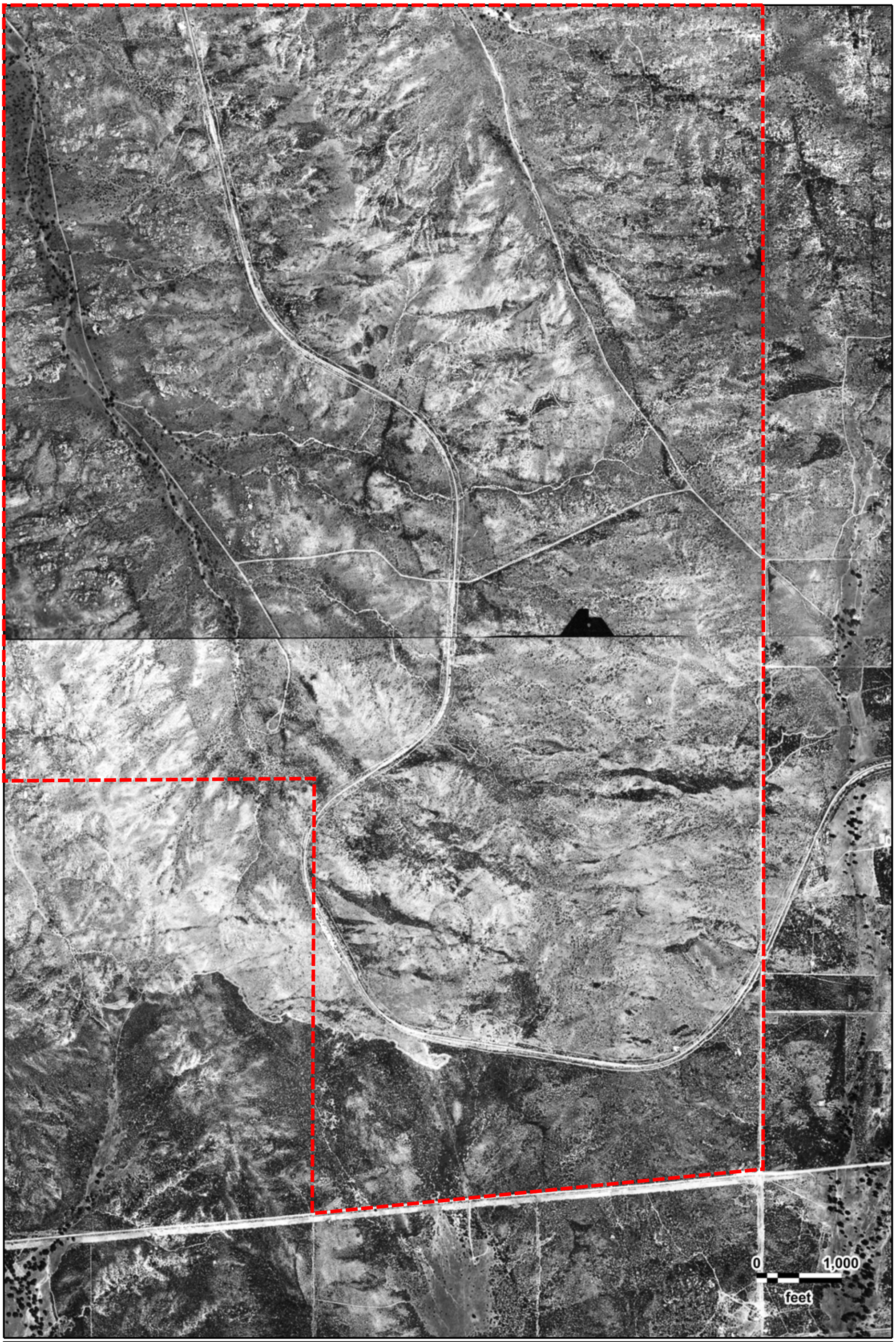

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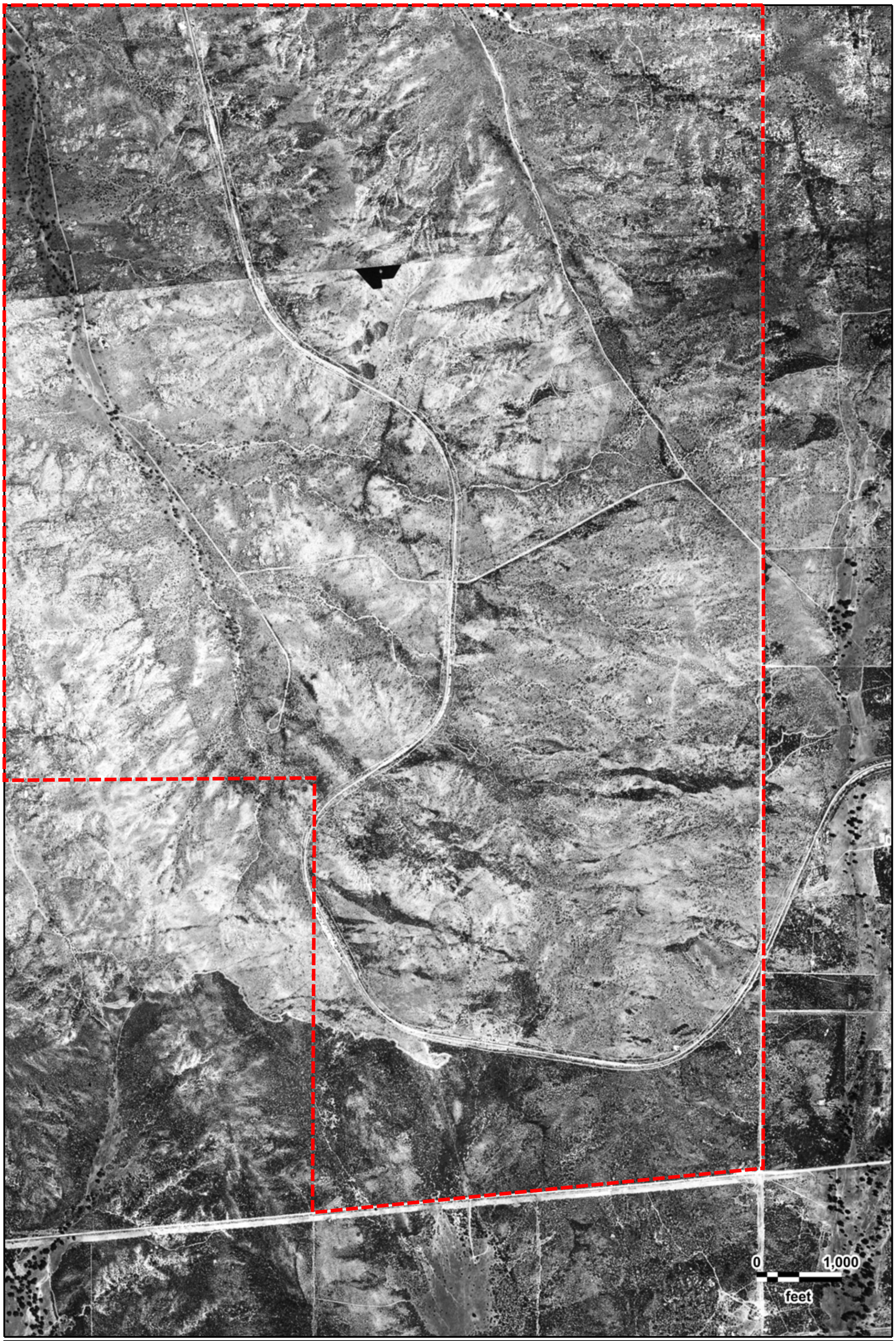

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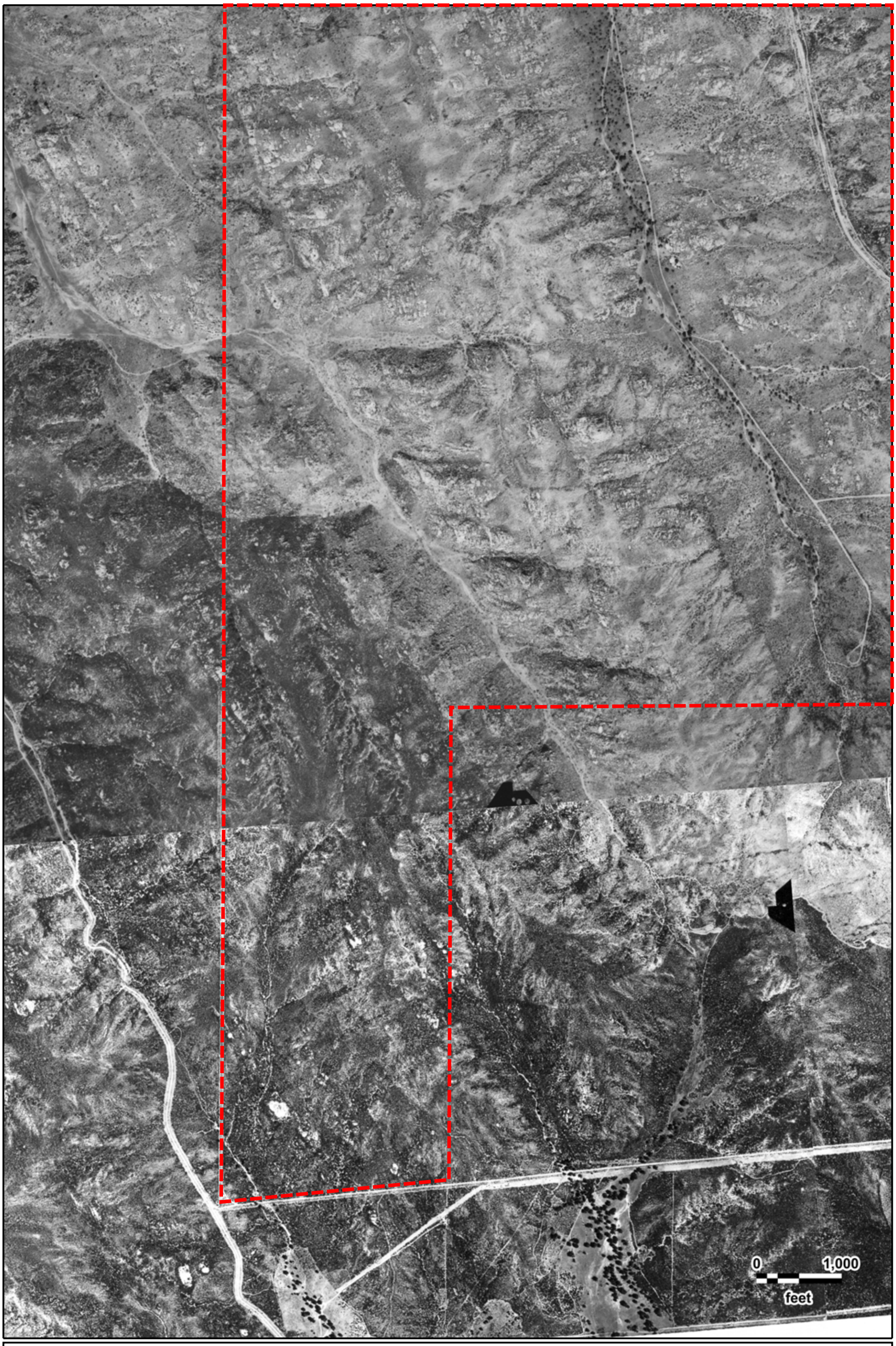

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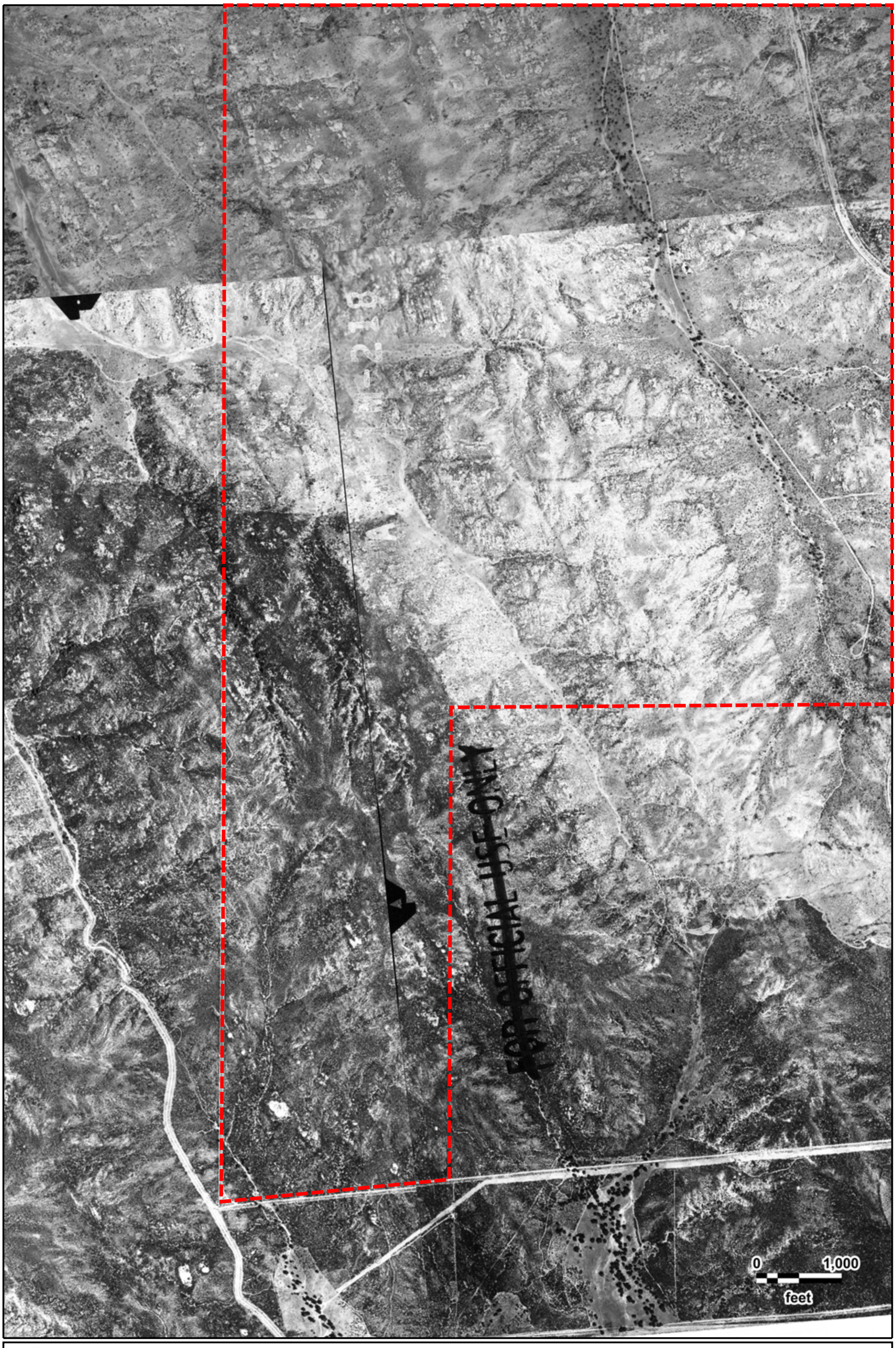

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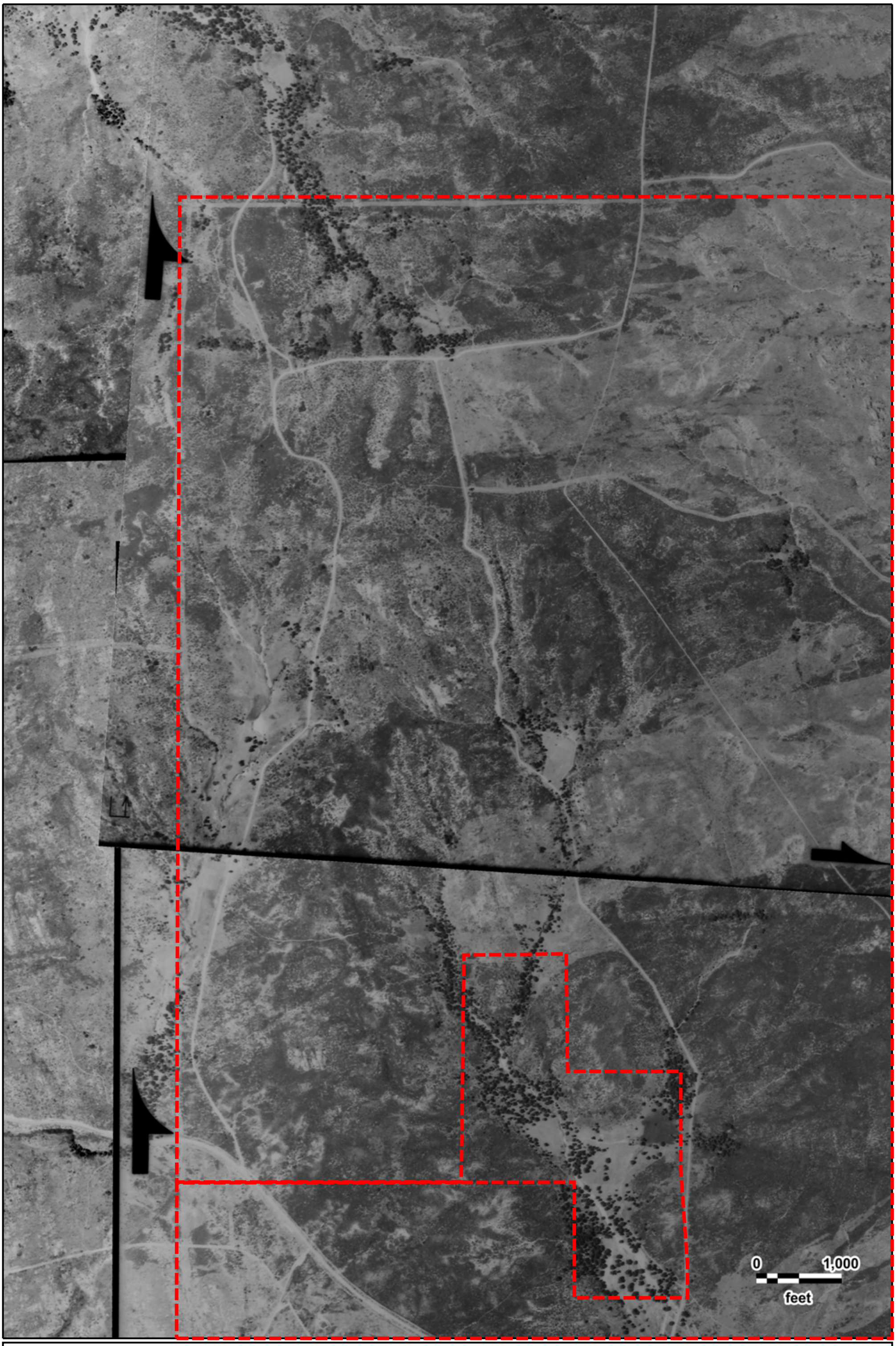

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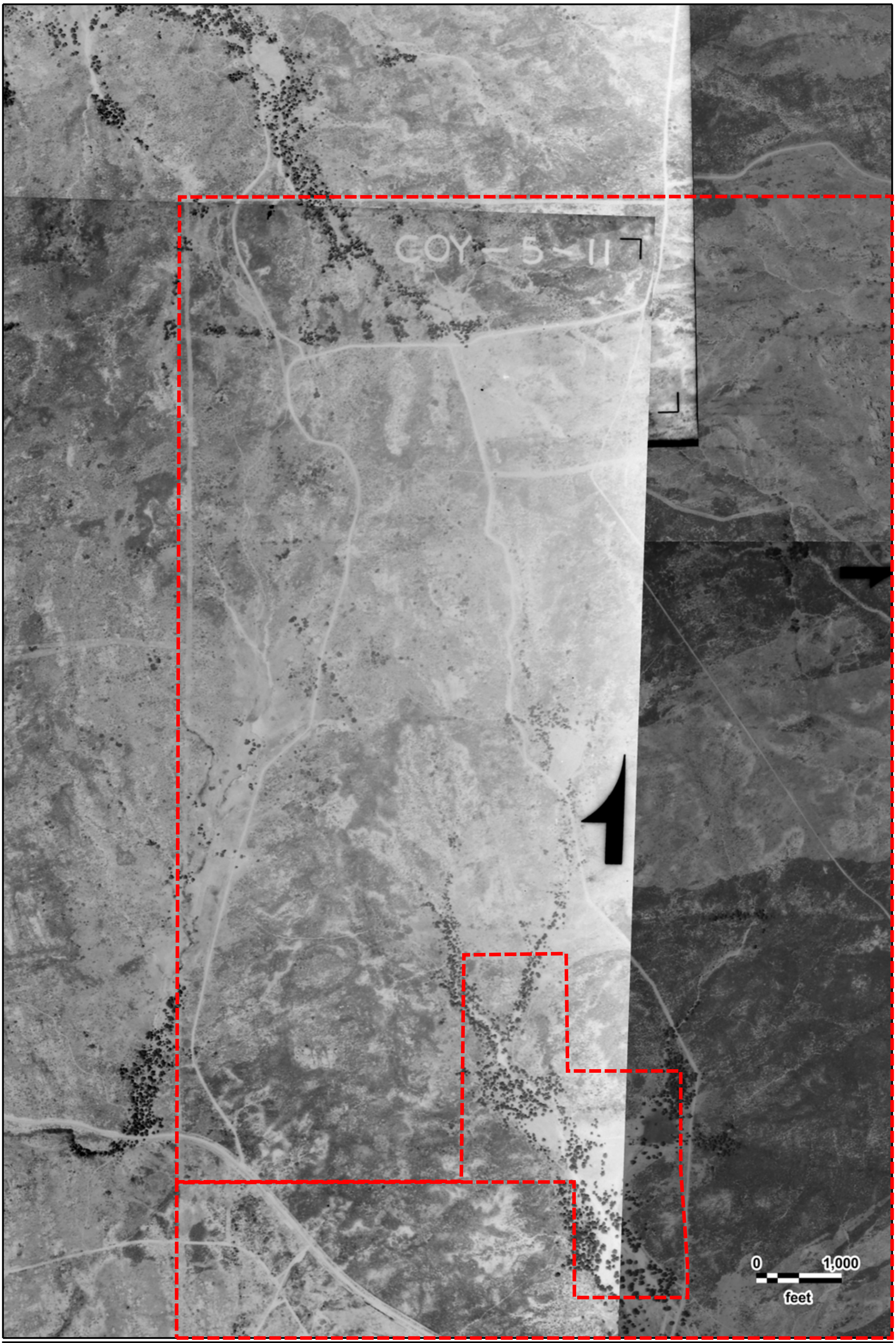

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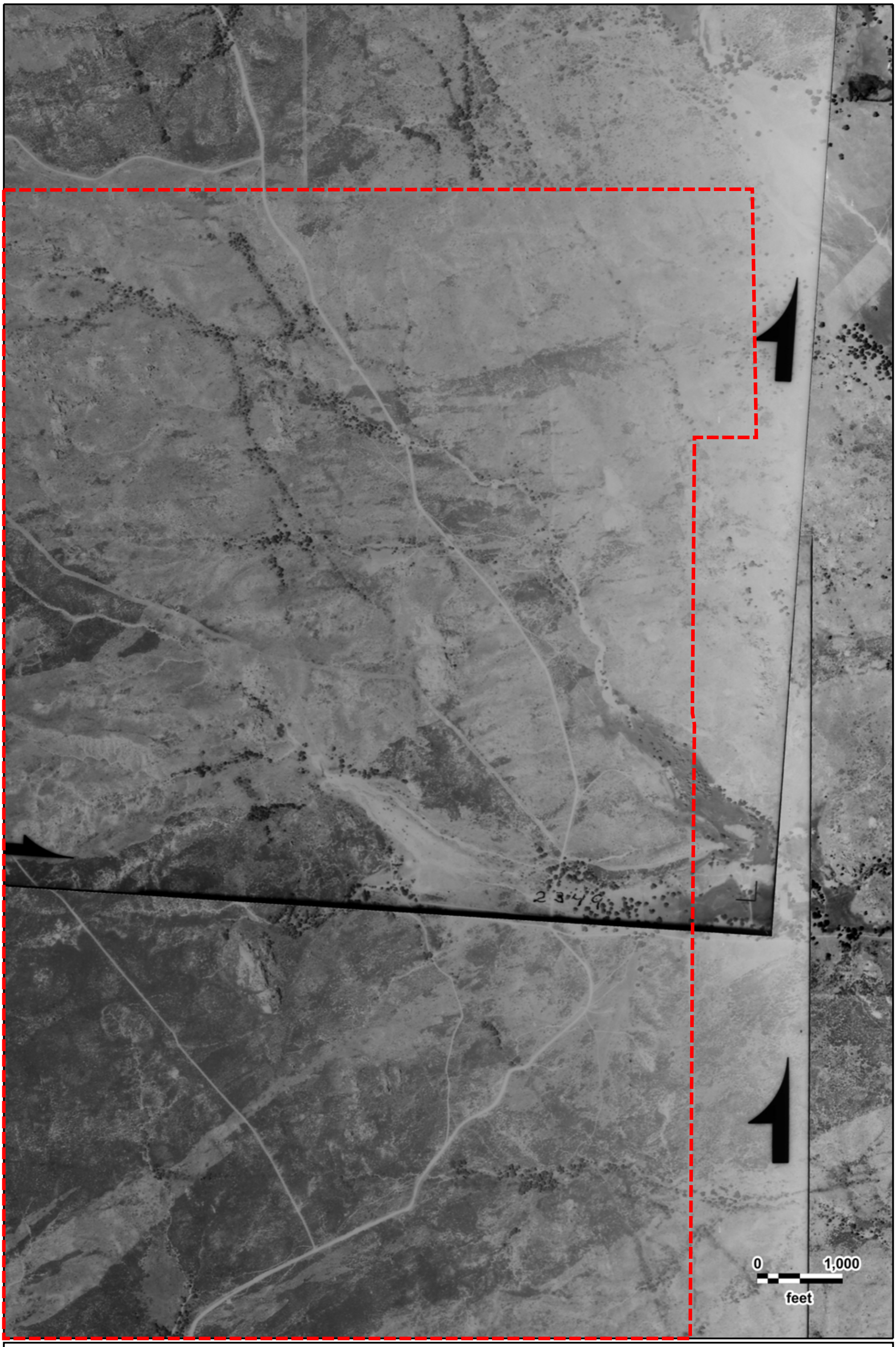

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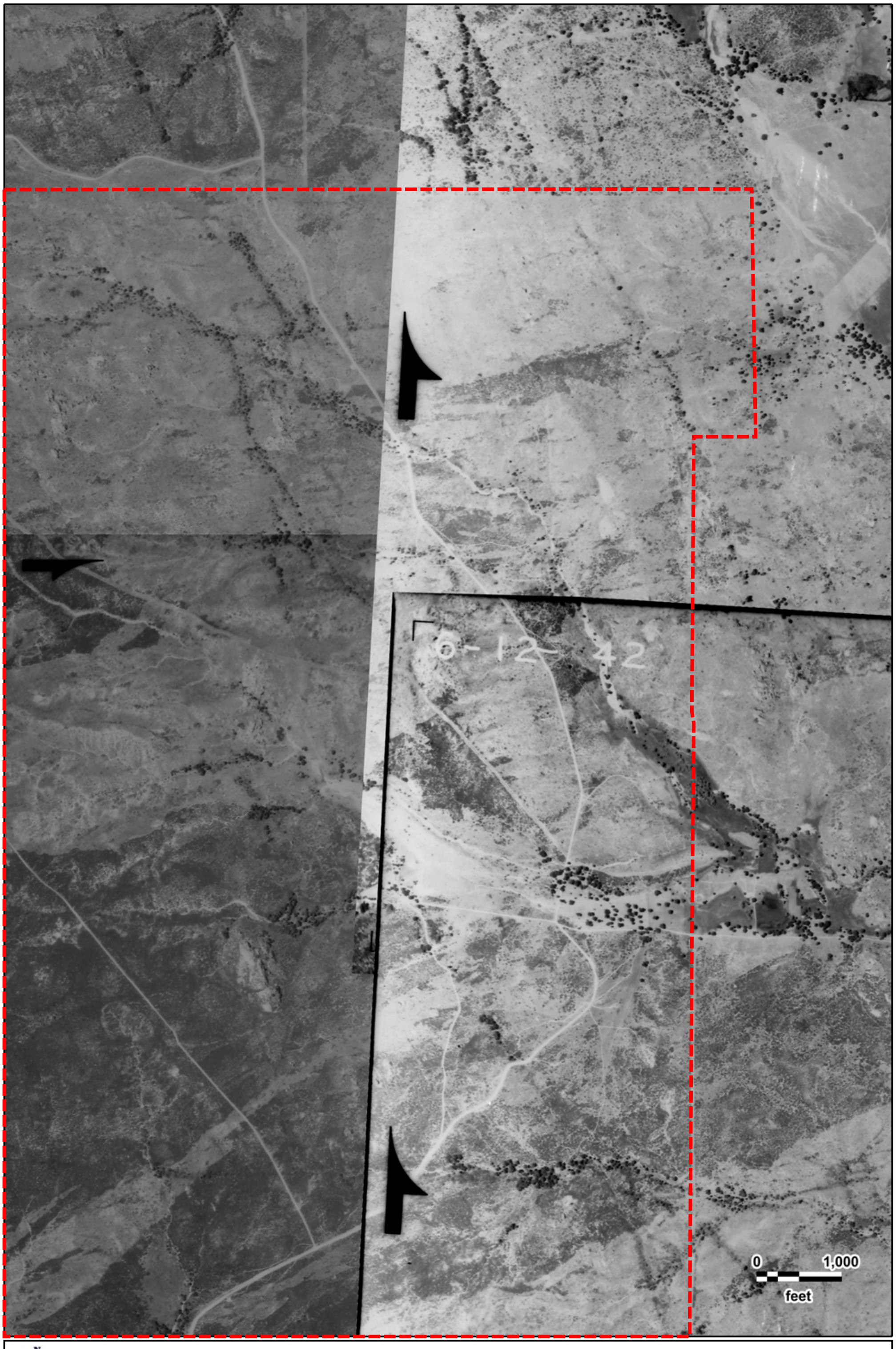

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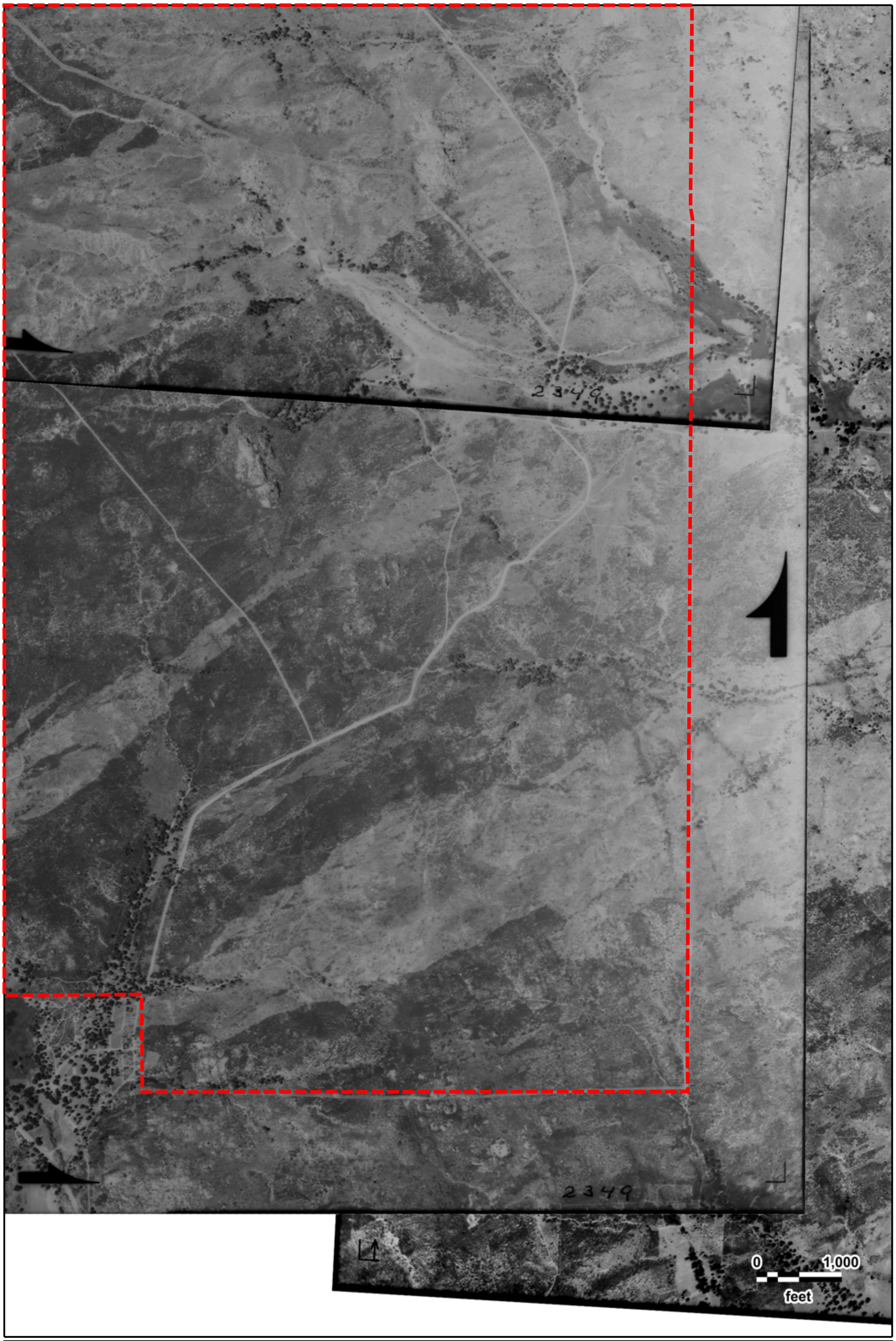

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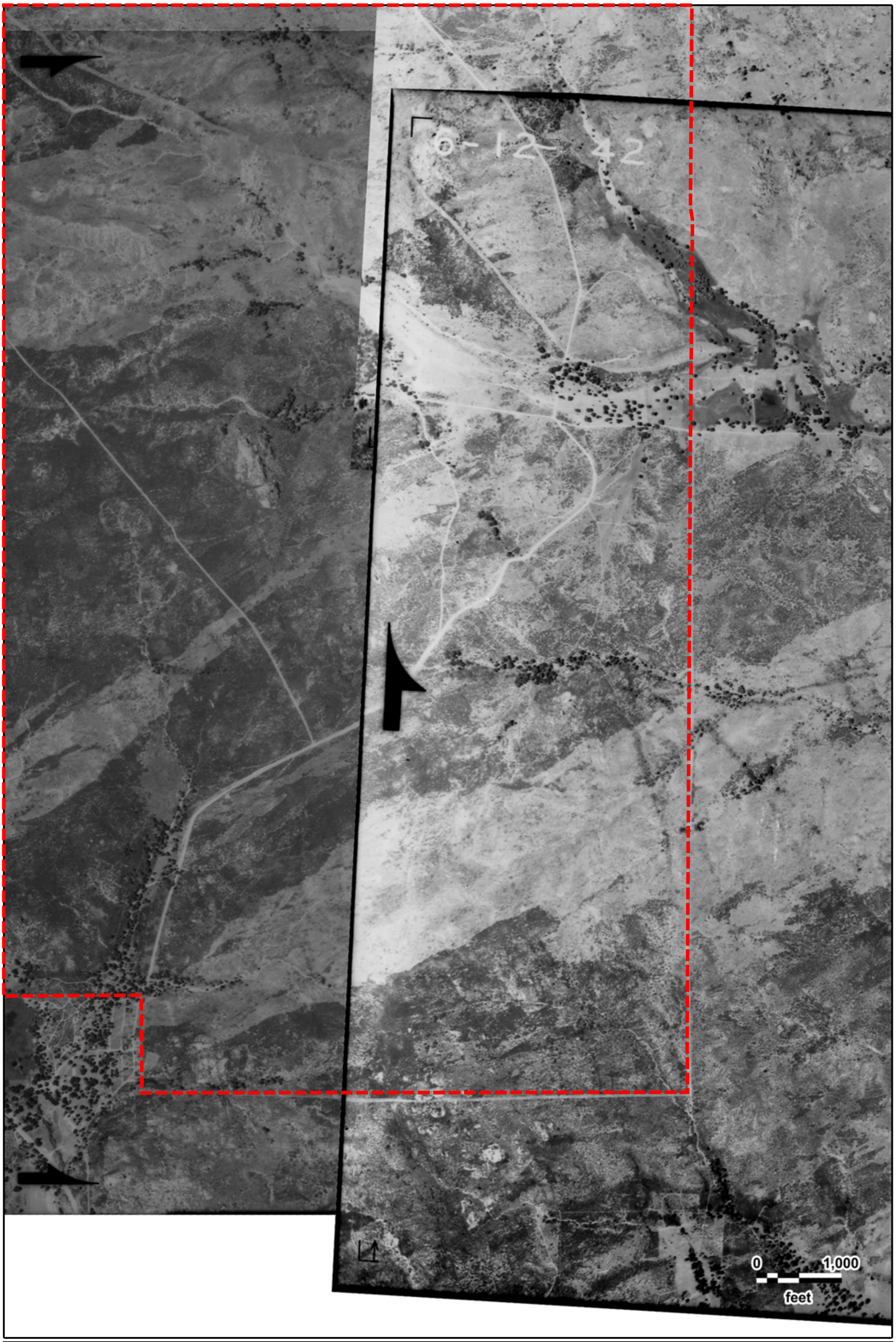

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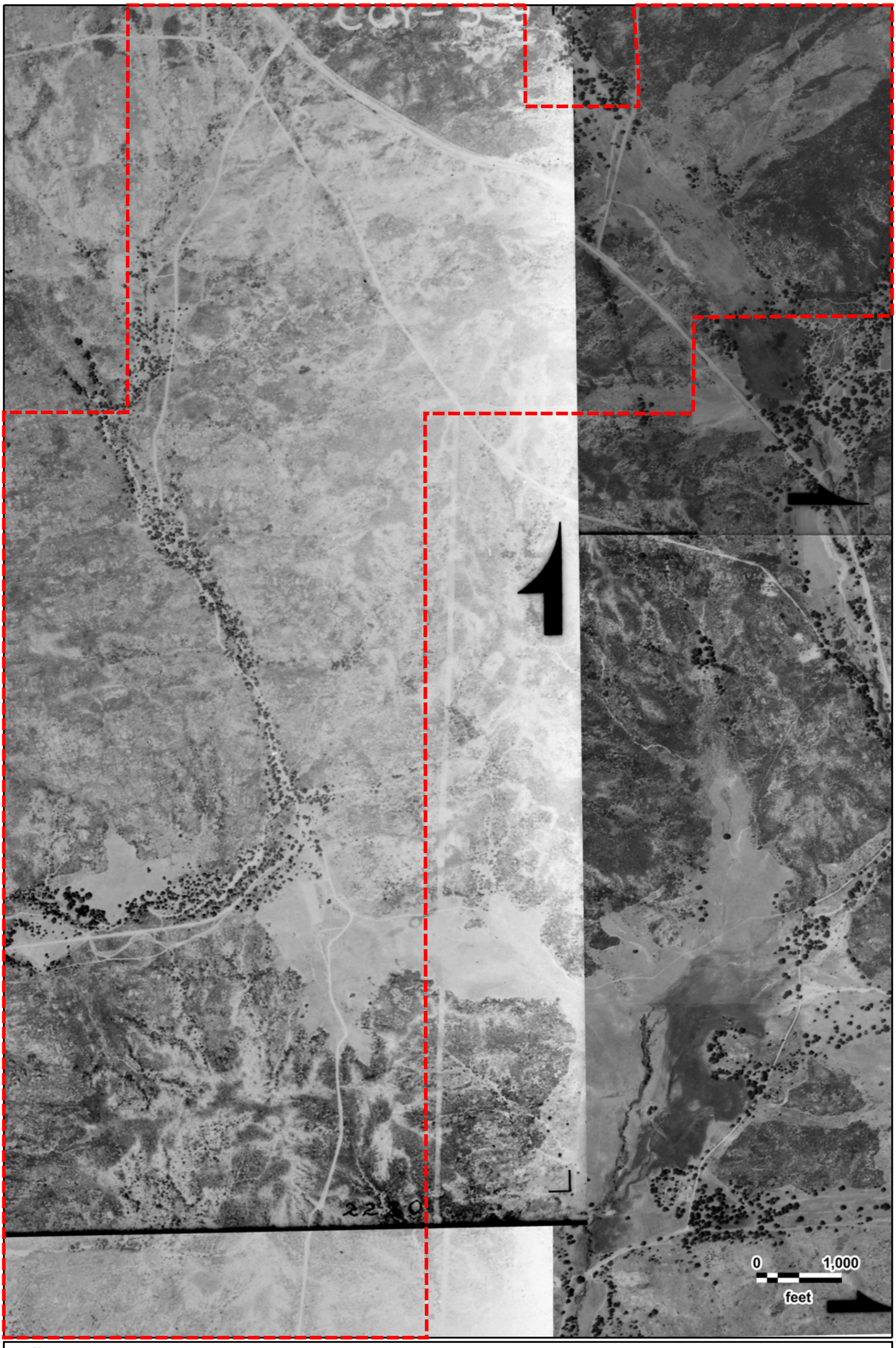

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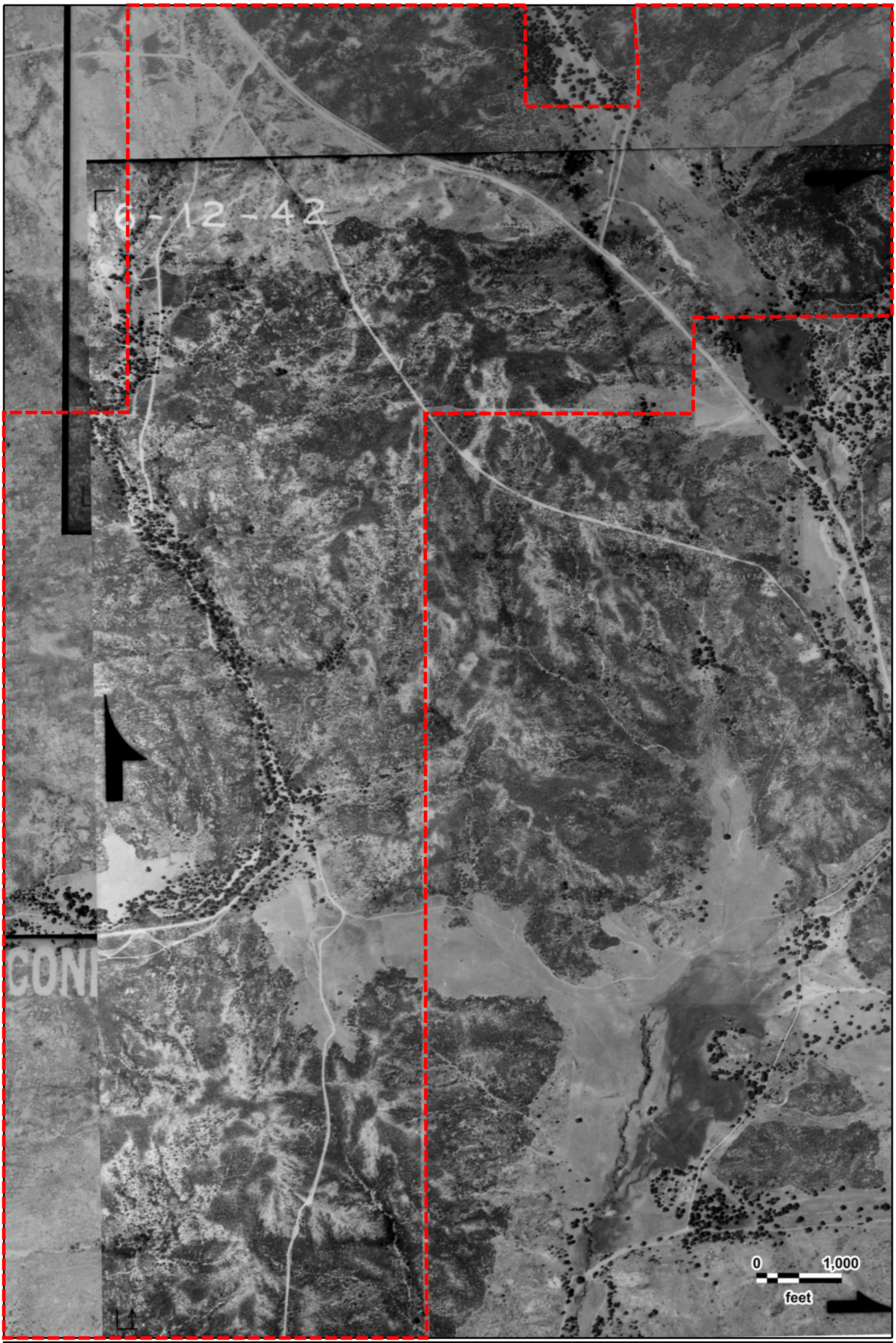

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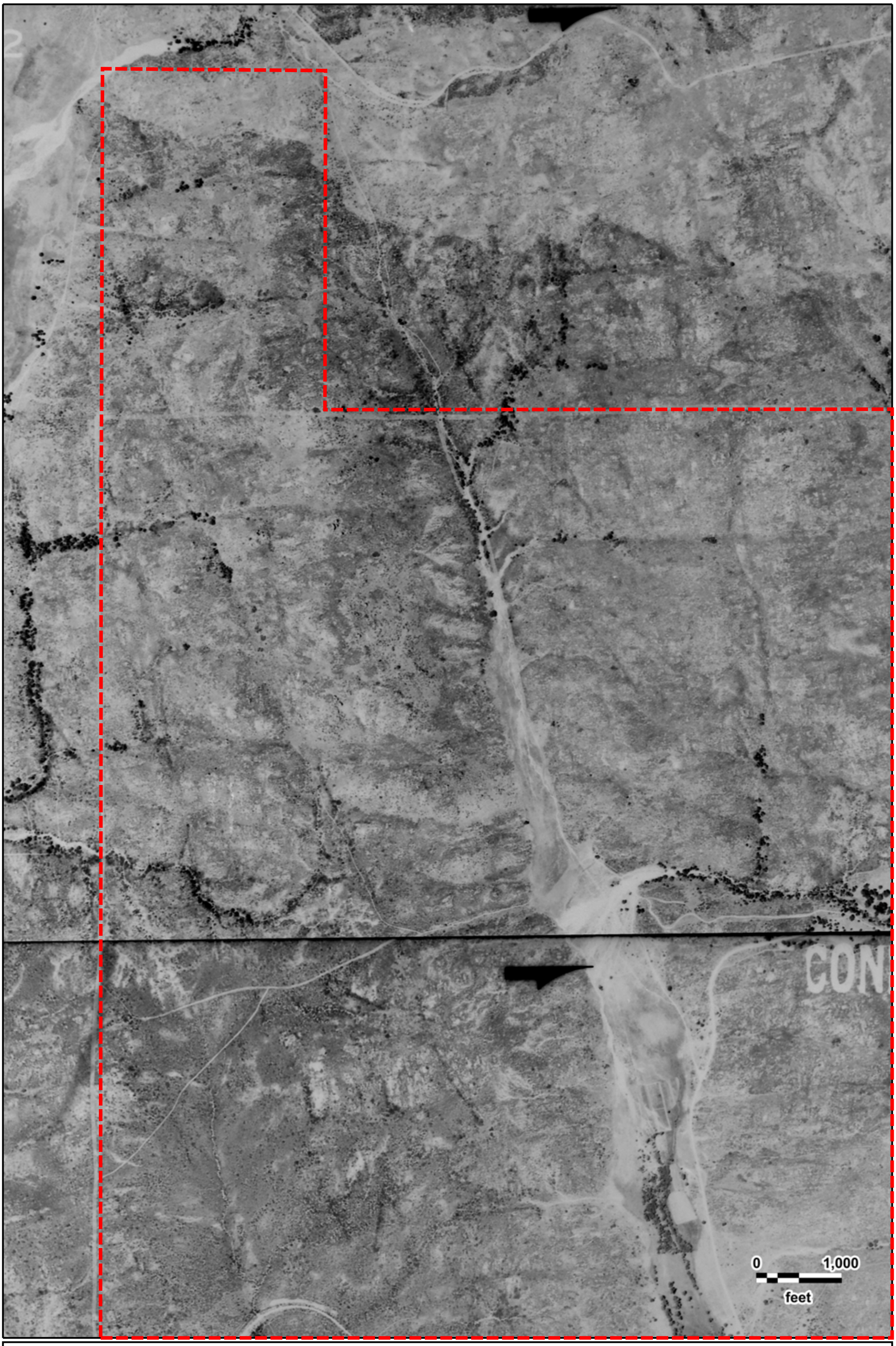

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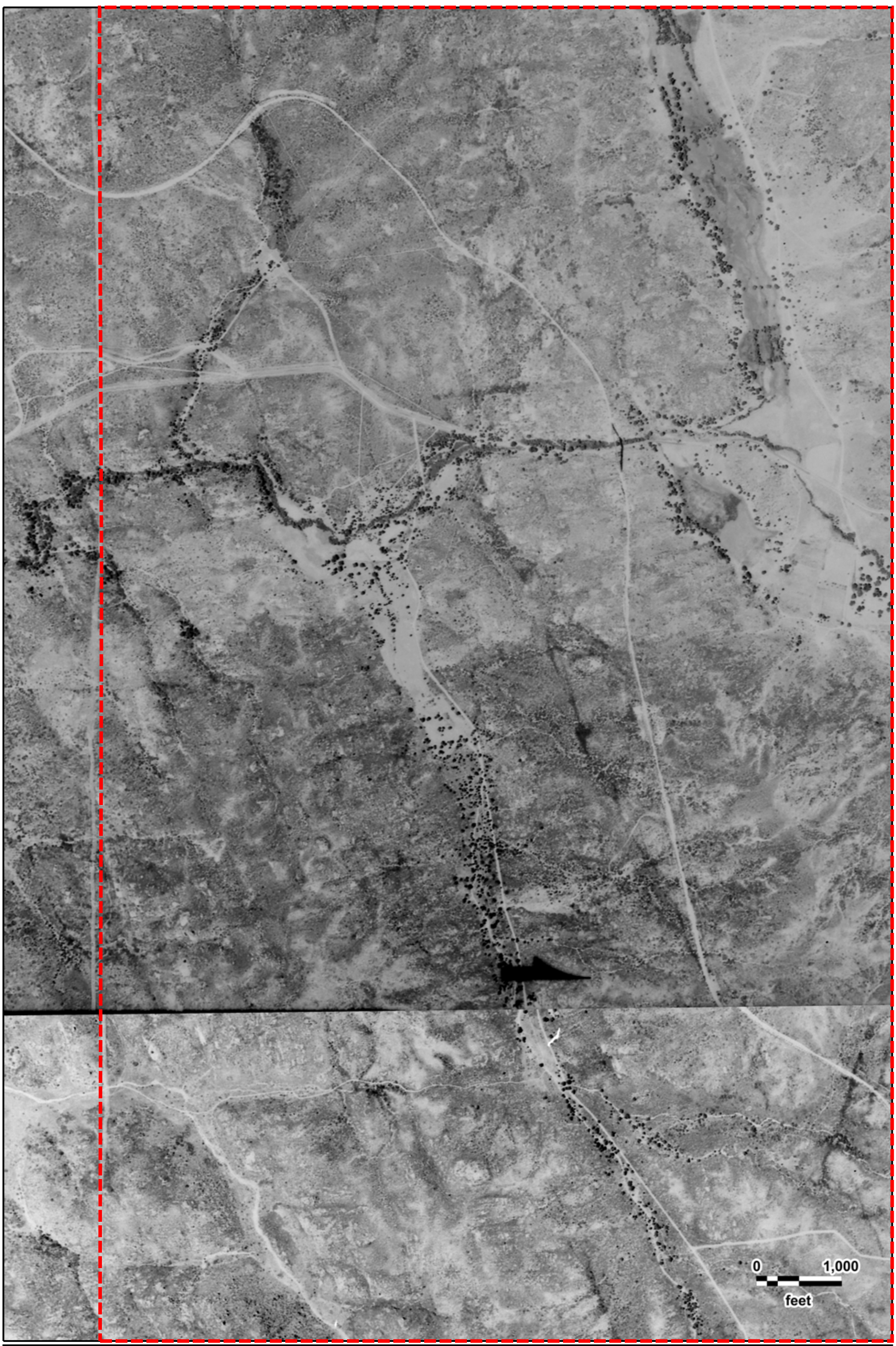

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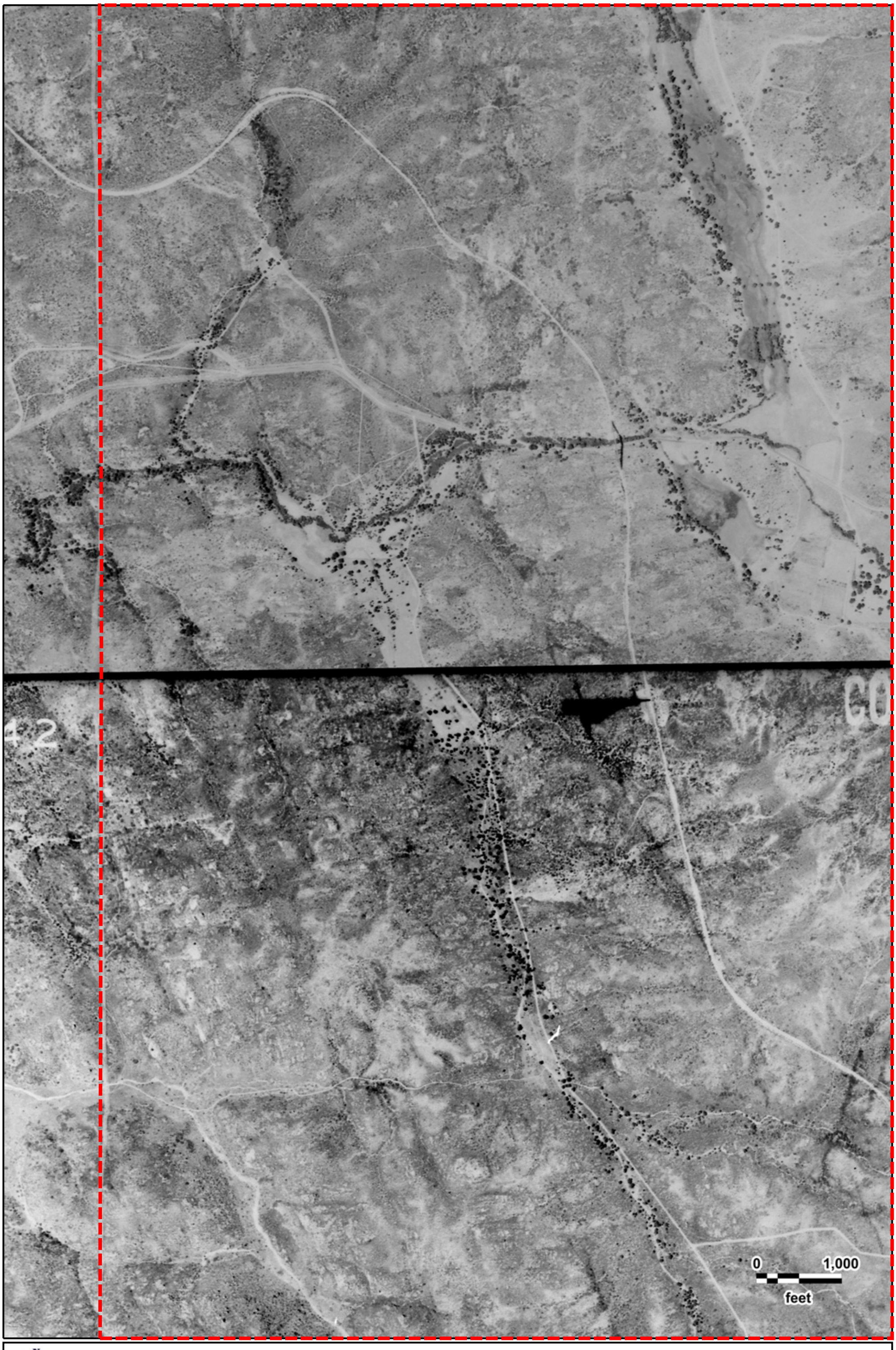

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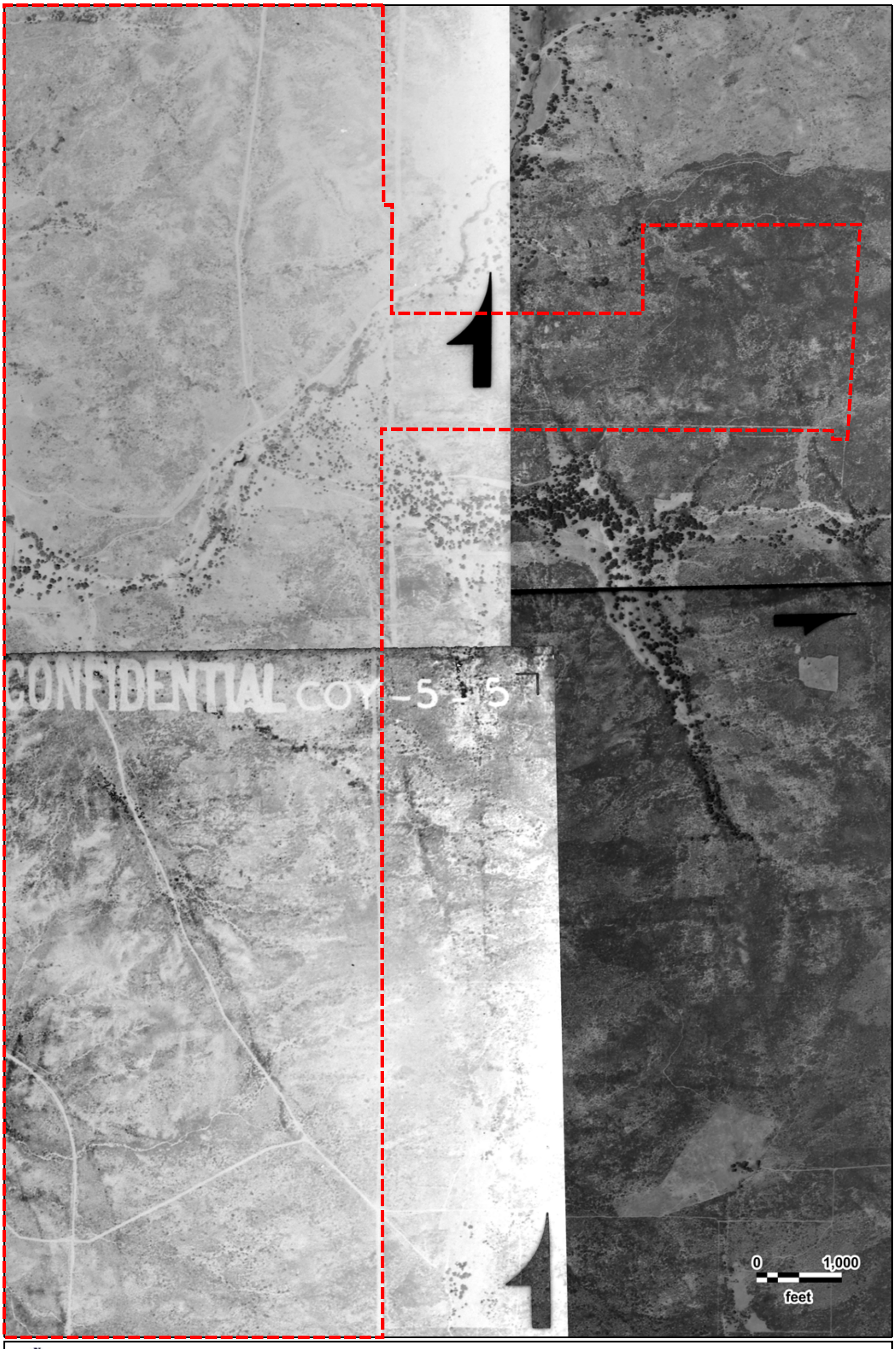

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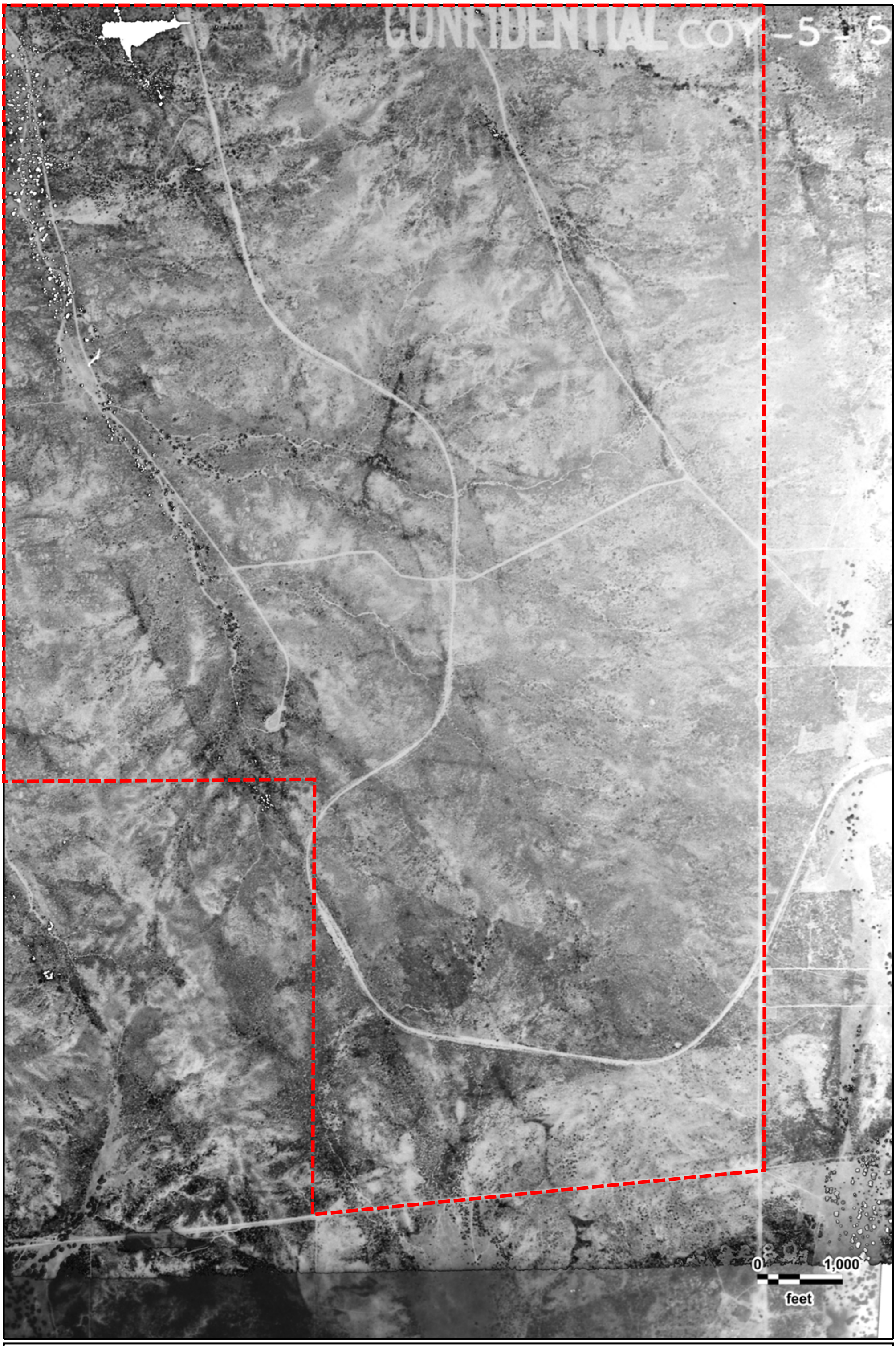

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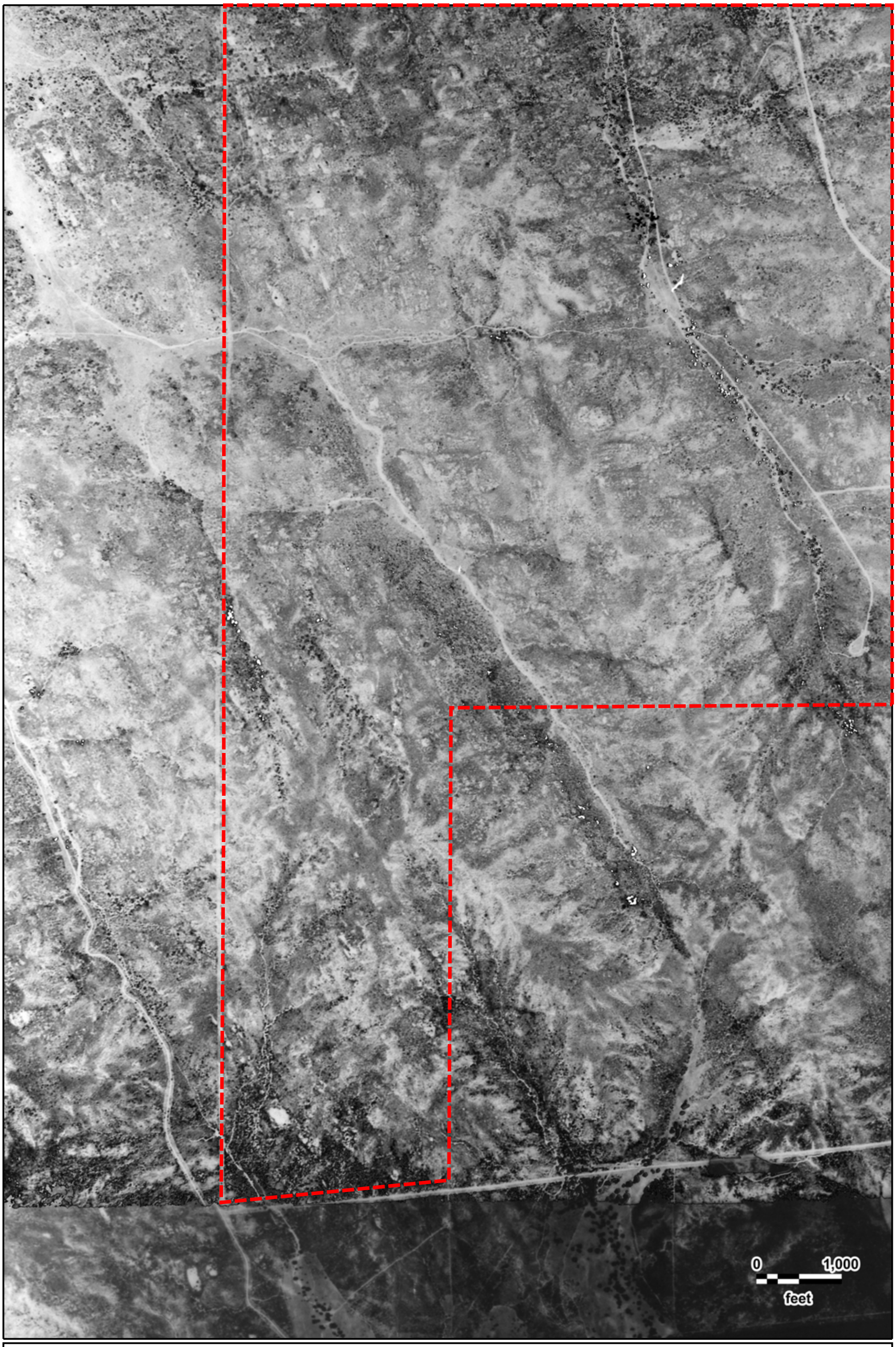

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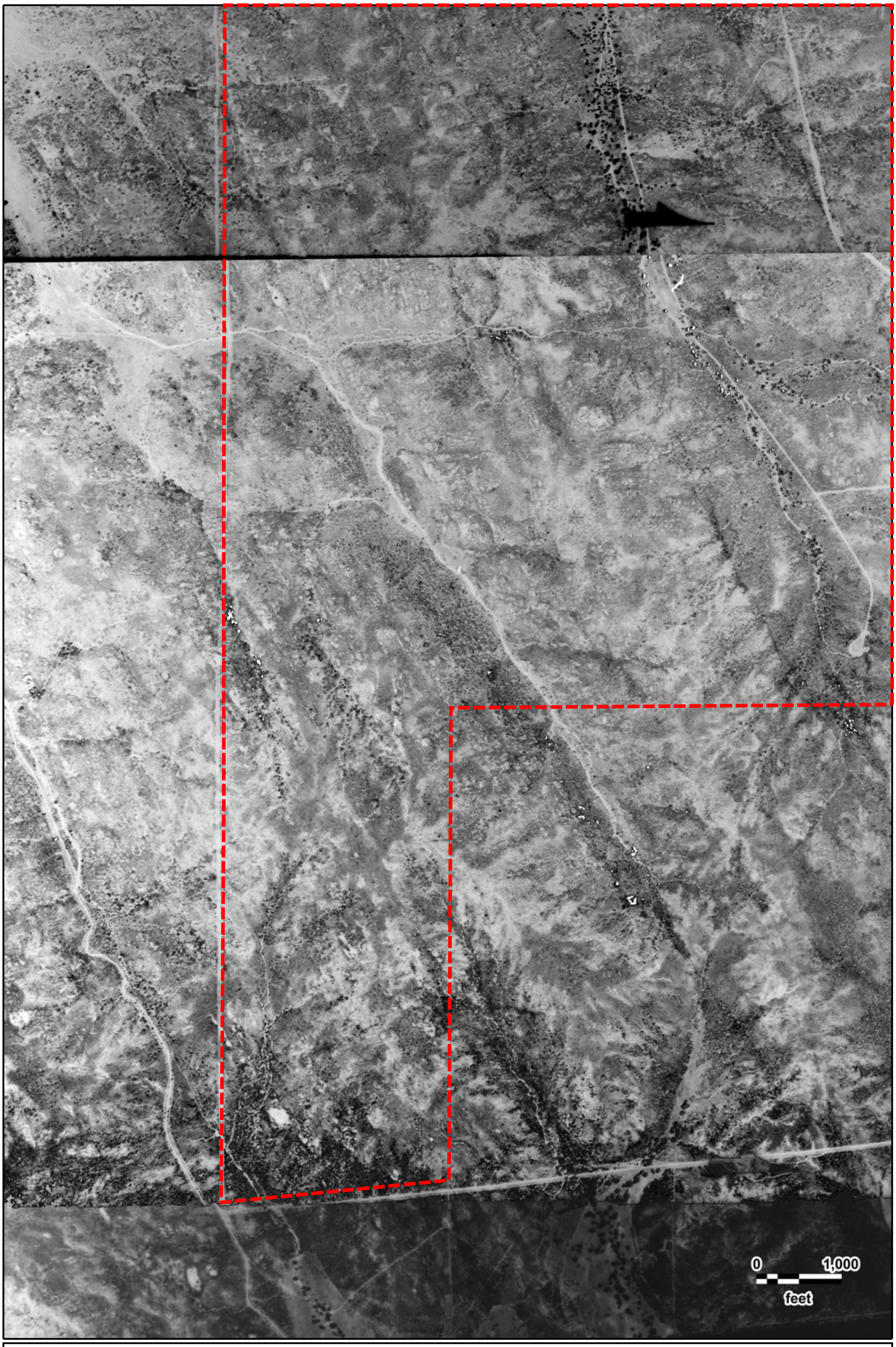

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ATTACHMENT C

Letter from EPA to Bureau of Indian Affairs regarding Draft Supplemental Environmental Impact Statement, May 12, 2010

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

May 12, 2010

Dale Risling
Acting Regional Director
Pacific Regional Office
Bureau of Indian Affairs
2800 Cottage Way
Sacramento, CA 95825

Subject: Draft Supplemental Environmental Impact Statement (DSEIS), Campo Regional Landfill Project, Campo Indian Reservation, San Diego County, California (CEQ # 20100045)

Dear Mr. Risling:

The U.S. Environmental Protection Agency (EPA) has reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act. Our detailed comments are enclosed.

In 2006, EPA accepted the Bureau of Indian Affairs (BIA)'s request to serve as a cooperating agency for the proposed project. We appreciate the opportunity for early involvement. In our role as cooperating agency, EPA reviewed and commented on preliminary draft versions of the Supplemental EIS (PDSEIS) in both 2007 and 2009. We appreciate BIA's responsiveness to many of our comments.

Based on our review of the DSEIS, we have rated the document as Environmental Concerns – Insufficient Information (EC-2) (see enclosed "Summary of Rating Definitions"). While the proposed project has improved since 2007, additional protective measures should be included to fully protect the environment. Specifically, because the proposed project site overlies a Sole Source Aquifer as designated under the Safe Drinking Water Act, the proposal should ensure that all practicable and feasible measures are incorporated to protect groundwater resources.

EPA had rated the 1992 DEIS as Environmental Objections - Insufficient Information (EO-2) based on concerns regarding compliance with federal groundwater monitoring and corrective action requirements. Information available at that time indicated that compliance with these requirements could prove difficult or infeasible in the project's geological setting of fractured bedrock. Additional field studies have been conducted and more is now known about the project site hydrogeology. In addition, improvements were made to the proposed water quality detection monitoring program. We have additional recommendations for improving this

monitoring program, which is important for the protection of groundwater resources, including a request to commit to additional groundwater monitoring wells.

The proposed project now includes an alternative liner system and alternative final cover, which will require EPA approval through a Site Specific Flexibility Request[1] (SSFR), along with approval for construction in a seismic zone. While EPA has not formally received the SSFR applications, draft SSFRs are included in the Appendix of the DSEIS. Therefore, our comments reflect our initial review of these draft SSFRs but should not be interpreted as constituting any decisions regarding SSFR approval or disapproval. Once EPA receives the SSFR's, we will conduct a thorough review to determine whether the proposed alternative design components meet the requirements in 40 CFR Part 258 and are sufficiently protective of the Sole Source Aquifer. For the alternative liner SSFR, the liner design must ensure that the concentrations of constituents listed in the regulations will not be exceeded in the uppermost aquifer at the relevant point of compliance. Our review will consider the hydrogeologic characteristics of the facility and surrounding land, and the current and future importance of groundwater as a water supply.

EPA had previously recommended[2] that an evaluation of a double composite liner, where one liner is 2-feet of low-permeable clay, be included in the DSEIS. We recommend this evaluation be added to the FSEIS, consistent with 40 CFR 1502.14.

The DSEIS references a "much needed waste disposal capacity" in San Diego County but does not update the detailed discussion of this need that was included in the 1992 EIS. Increased diversion through recycling in the County would affect demand for waste disposal. Waste disposal demand may also determine the economic feasibility of the project, which is important for the long-term management of the landfill and the implementation of mitigation measures. An update of this discussion should be included in the Final SEIS. We also request additional information regarding final cover, erosion control measures, project water supply, the property value protection agreement and implementation of mitigation measures, seismic impacts, and the project's GHG emissions, among other issues.

EPA appreciates the opportunity to review this DSEIS. When the Final SEIS is released for public review, please send one copy to the address above (mail code: CED-2). If you have any questions, please contact me at (415) 972-3843 or have your staff contact Karen Vitulano, the lead reviewer for this project, at (415) 947-4178 or vitulano.karen@epa.gov.

Sincerely,
/s/

Enrique Manzanilla, Director
Communities and Ecosystems Division

Enclosure: Summary of EPA Rating Definitions
EPA's Detailed Comments

[1] A separate public comment period is associated with this process.
[2] See comments from April 11, 2007

cc: Monique LaChappa, Chairwoman, Campo Band of Kumeyaay Indians
Lisa Gover, Director, Campo Environmental Protection Agency

Landfill Design

Site Specific Flexibility Requests

Federal regulations (40 CFR Part 258) allow landfill owners and operators to request flexibility in the municipal solid waste landfill (MSWLF) criteria, including the allowance of alternative liner designs. The flexibility provided in the MSWLF criteria allows for the consideration of site-specific conditions in designing and operating a MSWLF while ensuring protection of human health and the environment. Seeking such flexibility is not uncommon in the industry.

Alternative liner designs must meet criteria set out in the regulations and be approved by the appropriate regulatory entity. In most cases, the appropriate regulatory entity is a state agency whose landfill permit program incorporates federal landfill requirements. However, since the State of California does not have regulatory authority over MSWLFs in Indian Country, EPA would determine whether an alternative meets the regulatory criteria. EPA makes this determination by reviewing a Site Specific Flexibility Request (SSFR) submitted by the landfill developer.

The proposed Campo Landfill project includes a liner system that is an alternative to the prescriptive liner requirements of 40 CFR Part 258.40(a)(2). The prescriptive liner required in the federal regulations is a single composite liner consisting of two components; an upper flexible membrane liner (geomembrane) component[3], and a lower component that must consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 10^{-07} cm/sec. The geomembrane component must be installed in direct contact with the compacted soil component. The proposed Campo liner is a double liner system where the upper (primary) liner is a single composite liner, in which the 2-foot compacted soil layer is replaced by a geosynthetic clay layer (GCL) sandwiched between two geomembranes, and the lower (secondary) liner consists of a single geomembrane overlaid by a geocomposite drainage layer (Figure 2.1-5).

Therefore, the main difference between the proposed liner system and the prescriptive liner requirements of 40 CFR Part 258.40(a)(2) is that the proposed liner system substitutes an approximately ¼ inch thick GCL as an alternative to the 2-foot thick low-permeable, compacted bentonite clay soil component of the single composite liner requirement and adds an additional layer of high density polyethylene plastic beneath the primary liner.

Protecting groundwater resources is especially important at the Campo landfill site since the aquifer has been designated a Sole Source Aquifer under Section 1424(e) of the Safe Drinking Water Act. EPA previously commented, during our review of preliminary drafts of the SEIS in 2007 and 2009, that it is our belief that a double composite liner of the configuration proposed for the Gregory Canyon Landfill in San Diego County would be most protective of groundwater resources. For the Gregory Canyon Landfill, which is also located over fractured bedrock, the State of California required that at least one of the low permeability liner components be comprised of the 2-foot thick low- permeable, compacted bentonite clay soil.

[3] Geomembrane components consisting of high density polyethylene (HDPE) must be at least 60-mil thick

Once the SSFR's are formally submitted to EPA, we will evaluate whether or not the proposed liner meets the requirements in the federal landfill regulations found in 40 CFR Part 258. EPA's review will be based on the criteria in 40 CFR 258.40: the design must ensure that the concentrations of constituents listed in the regulations will not be exceeded in the uppermost aquifer at the relevant point of compliance. This includes consideration of the hydrogeologic characteristics of the facility and surrounding land. EPA will announce its draft decision on the SFFRs in a separate process and will hold public meetings and establish a public comment period pursuant to EPA's draft Guidance entitled *Site-Specific Flexibility Requests for Municipal Solid Waste Landfills in Indian Country,* August 1997 (EPA530-R-97-016).

Liner System Comparison

The DSEIS provides a discussion of the proposed alternative liner as compared to the prescriptive liner of 40 CFR Part 258, however this discussion is limited to a comparison of results of the Hydrologic Evaluation of Landfill Performance (HELP) model (p. 2-15). HELP modeling results show that the proposed liner could provide more protection than the prescriptive single composite liner required by the federal regulations. However, the evaluation does not include discussion of other factors, such as shear-strength when hydrated, cation exchange vulnerability, and the risk of construction damage related to overall thinness of the GCL/Geomembrane liner system. Appendix D (p. 1-10) does identify the advantages and disadvantages of GCLs; however, this information should be discussed and evaluated in the body of the SEIS with statements as to how these relate to environmental impacts.

> *Recommendation:* Expand the discussion of the comparison of the proposed alternative liner with the prescriptive liner from 40 CFR Part 258 to include factors in addition to the modeling results, such as a comparative assessment of hydraulic, physical/mechanical, and construction criteria[4]. A discussion of the advantages and disadvantages, including a discussion of costs to benefits, would be appropriate. EPA had previously recommended[5] that an evaluation of a double composite liner, where one liner is 2-feet of low-permeable clay, be included in the DSEIS. We recommend this evaluation be added to the FSEIS, consistent with 40 CFR 1502.14.

Quality Assurance/Quality Control Program

EPA previously commented on the importance of a Quality Assurance/Quality Control program to ensure the GCL liner is installed properly, which is vital to its proper functioning. The Hydrologic Evaluation of Landfill Performance (HELP) program modeling performed for the project also necessitates a rigorous Construction Quality Assurance program since the modeling results depend on the number and size of flaws in the geosynthetic products.

The DSEIS includes development and implementation of a Construction Quality Assurance (CQA) program as part of the final construction documents that would be submitted to Campo Environmental Protection Agency (CEPA) for review and approval prior to the liner construction

[4] One reference for this comparison is Koerner, R., and Daniel, D., "A Suggested Methodology for Assessing the Technical Equivalency of GCLs to CCLs," Proceedings Geokunststoff-Ton-Dichtungen, GTD, H. Zanzinger (Ed.), Nurnberg, Germany, 1994, pp. 61-83

[5] See comments from April 11, 2007

(p. 2-27), consistent with EPA's previous recommendation. Leak detection via electrical leak location surveys in installed geomembranes is also proposed. EPA strongly supports electrical leak location surveys as they would help provide for good quality control of the geomembranes.

> *Recommendation:* The CQA program should be provided to EPA for review as part of the final liner and cover SSFRs submittals.

Protecting the Primary Liner System

The DSEIS states that the liner/cover prevents direct infiltration of precipitation to the groundwater below, resulting in denied recharge, which is considered a beneficial impact because it would increase the distance between the groundwater and the landfill liner (p. 4.2-7). This adds a measure of protection for the groundwater supply and for the landfill liner system (p. 4.2-6). We agree that increasing the distance between the liner and groundwater is a protective measure. The project proposal includes the use of groundwater interceptor trenches which could be effective in keeping at least 5 feet of unsaturated soil between groundwater and the liner. However, we are aware of trenches that have not performed as intended. Therefore, having redundant approaches to liner protection from groundwater contact would offer greater liner protection.

The DSEIS identifies the potentially significant threat to water quality from groundwater mounding, where infiltration of groundwater beneath the recharge basins could raise a mound on the water table to the base of refuse and the bottom liner (p. 4.2-7). The secondary geomembrane liner offers protection to the primary liner should this occur. However, decreasing the likelihood of this occurring would offer greater liner protection.

> *Recommendation:* Consider exploring the feasibility of additional methods of liner protection from groundwater contact/mounding in the FSEIS. Identify whether all options to increase the distance between groundwater and the landfill liner have been explored. Evaluate locating the recharge basins further downstream from the landfill perimeter to offer added protection from groundwater mounding beneath the recharge basins along the downgradient perimeter of the landfill footprint.
>
> Because groundwater trenches can fail, the project should include a requirement for monitoring the performance of the intercept trenches to verify the continual successful operation in the collection and removal of groundwater. We also recommend that contingencies be included for potential maintenance or repair of the intercept trenches or interceptor pumps. Additionally, we recommend contingencies be included for powering of the groundwater interception pumps in the event of a power outage.

Erosion Control

The analysis in the DSEIS has not demonstrated that significant erosion will not occur. The calculation of soil loss in Appendix D-1 uses a C factor value of 0.05 in the Revised Universal Soil Loss Equation (RUSLE), which it indicates is typically associated with the presence of 65% grass cover (App D-1, App. 2B, p. 2). However, this C factor may be low and may not reflect the semi-arid climate of the site and expected vegetative cover. The project's Revegetation and Adaptive Management Plan requires a minimum of 50% coverage by the fourth growing season

(p. 4.4-18). If coverage were 50% with a well established grass root structure, the C value would be approximately 0.07[6] (40% higher than the assumed value of 0.05). This would increase the soil loss estimate by 40%. The final results of the calculation are very sensitive to the C factor. Given this, it is possible the soil loss for the 3:1 slopes might exceed 2 tons/acre/year, which would be considered excessive.

> *Recommendation:* Correct or justify the use of the C factor of 0.05 in the FSEIS. EPA recommends additional erosion control measures. For example, a soil-gravel admixture would help reduce potential erosion on the side slopes. Additionally, use of a soil-gravel admixture in the top six to eight inches of cover soil throughout the site would help reduce loss of the topsoil to wind and water erosion.

Final Cover Drainage Layer Design

The proposed final cover soil appears to be placed directly on a geosynthetic drainage layer, which overlays a textured Linear Low Density Polyethylene (LLDPE) 60-mil geomembrane (Section 2.1.3.1 and Figure 2.1-9). There should be a filter geotextile installed to separate the cover soil layer from the underlying geosynthetic drainage layer, similar to the filter geotextile that is proposed to separate the operations soil layer from the underlying primary leachate collection and removal system. Without a filter geotextile to minimize the migration of fine soil particles into the drainage layer, the permeability and performance of the geosynthetic drainage layer will be reduced.

> *Recommendation:* We recommend a filter geotextile be included in the final cover design to separate the cover soil layer from the underlying geosynthetic drainage layer to ensure that fine soil particles do not clog the geodrain layer's internal drainage channels.

Soil Quality and Final Cover

The suitability of on-site soil for use in the final cover should be further discussed. Because the soil to be used will come from subsurface soils, it is likely that it will not have adequate nutrients that are required for establishing vegetation. Subsurface soil can also have layers of soil with significant salts such as caliches or calcium carbonate layers, and salts adversely affect vegetation's ability to uptake water and thus should be limited in the cover soil. The DSEIS states that measures will be provided for topsoil salvage and replacement, but more discussion is needed to demonstrate that this is practicable, including where and how the topsoil will be stored, and how subsoil might be used or amended if insufficient topsoil is available.

> *Recommendation:* The FSEIS should discuss the practicability and logistics associated with topsoil salvage and use in the final cover. For the SSFR, testing and analysis should be provided to demonstrate that the hydraulic properties are consistent with the values used in the HELP modeling and that this soil is adequate to maintain a quality rooting medium for native vegetation upon closure. This analysis is required to provide the justification for using native subsurface soil for cover. Additionally, the SSFR should include the particle size distribution for the soils to ensure it is not excessively rocky, especially for soils placed adjacent to geosynthetics where rocky soil can damage these

[6] Estimated from USDA 1978, Table 10, Predicting Rainfall Erosion Losses, A Guide to Conservation Planning

membranes. The FSEIS should also address the soils needed for seeding of temporary slopes to establish vegetative cover for erosion control.

Financial Assurance

The DSEIS identifies the landfill closure requirements, including the development of a closure plan under 40 CFR 258.60 and Campo Tribal Regulations (CTR) (p. 2-33 - 2-34). The federal regulations at 40 CFR Part 258 Subpart G (Sections 258.70-75) require financial assurance for closure, post-closure care and, if necessary, corrective action[7]. The DSEIS does not discuss the requirement to meet financial assurance or provide any information regarding compliance with these requirements.

Recommendation: The FSEIS should include financial assurance information in the FSEIS, including how the project proponent intends to comply with these requirements. Since closure and post-closure monitoring and maintenance could be viewed as mitigation as defined under NEPA (40 CFR 1508.20d)[8], this information could be included in the discussion of mitigation measures. The FSEIS should explain how the closure and post-closure monitoring and maintenance will be implemented, including funding commitments, responsible parties and enforcement mechanisms (see also comment below on mitigation measures). The FSEIS should include a clear commitment to comply with the financial assurance requirements of 40 CFR Part 258 and the Campo Tribal Regulations.

Seismic Impact Zone SSFR

The DSEIS and the Seismic Impact Zone SSFR should consider additional earthquakes in its discussions. On April 4, 2010, there was a 7.2 magnitude earthquake in Baja California. Additionally, the applicability of the 7.8 magnitude earthquake along the Laguna Salada Fault in 1892 should be considered and discussed.

The DSEIS and the Seismic SSFR discuss and summarize calculated static factors of safety in the slope stability analysis; however, they do not discuss or summarize the calculated seismic factors of safety. Instead, the permanent seismic deformation (of less than one inch) was summarized in the text and SSFR Tables 3-6 and 3-7. From Appendix 3.1 of Appendix D-1, (Slope Stability Calculations) it appears the calculated seismic slope stability factors of safety are approximately 1.0. EPA is unlikely to approve a seismic impact zone SSFR if seismic factors of safety are less than 1.0.

Recommendations: The FSEIS and the Seismic SSFR should consider additional earthquakes, as identified above, and discuss and summarize the calculated seismic factors of safety for refuse slope stability and final cover slope stability, in addition to the permanent seismic deformation. Additionally, for refuse slope stability, include a column in the Seismic SSFR Tables 3-6 and 3-7 showing calculated seismic factors of safety.

[7] It appears the Campo Tribal Regulations also address financial assurance

[8] 40 CFR 1508.20d: (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

Leachate Generation Rate and Pond Sizing
Clarification is needed regarding leachate pond sizing assumptions. The leachate generation calculations shown in Appendix C-1 appear to only include leachate generated from areas without final cover. In other words, the total leachate volume (gal) for each year equals only that which would be generated from that year's area without final cover[9].

It appears a value of zero is being used for areas with final cover. Leachate generation will decrease following final closure, but it would not be zero for the first year. Estimates based on Bonaparte et al. (2002), as cited in Appendix D-1, p. 1-9, appear reasonable. Bonaparte et al. suggest that landfills closed with geomembrane cover systems reduce leachate generation to approximately 10 percent of the operational leachate generation rate within 4 years, and within 9 years, the leachate generation rate is negligible.

> *Recommendation*: Review the leachate generation calculations shown in Appendix C-1 and, if necessary, resize the leachate storage ponds. Identify the unit "sy" in these tables.
>
> Additionally, clarify the assumptions regarding rainfall conditions used in the calculations and indicate whether they consider the wide variation in annual rainfall which can occur at the site (Figure 3.2-1). It is not clear if a worst case rainfall event was utilized for the HELP modeling for the DSEIS (p. 4.2-17). We continue to recommend that a discussion of contingency plans for the storage or disposal of leachate be addressed in the FSEIS, including procedures to address leachate management in the event of excessive rainfall/flooding or when rainfall exceeds what can be effectively applied or evaporated during the rainy season.

Water Resources

Water Quality Detection Monitoring Program
In our 1992 comments on the FEIS, EPA expressed concern regarding the feasibility of monitoring groundwater in fractured bedrock systems. Additional field studies have been conducted and more is now known about hydrogeology at the proposed project site. However, EPA believes the following recommendations are important for the protection of groundwater and should be incorporated into the monitoring program. EPA will evaluate the monitoring program in conjunction with its formal review of the liner SSFR and may recommend additional wells as appropriate.

Groundwater Monitoring Well Construction/Placement. The groundwater monitoring plan (Appendix C-3) includes limited deep groundwater sampling (i.e., greater than 100 feet below ground surface), based on a vertical upward gradient from the deep zone to the shallow zone. Pumping from the future water supply wells could change the vertical gradient. To ensure that assumptions about the vertical gradient are correct, the groundwater monitoring plan should include paired shallow/deep wells. For example, Appendix C-3, Figure 2 indicates that new deep well P1-50 will be paired with existing shallow well P1-26, which should provide useful data on the vertical groundwater gradient. Other wells are not similarly paired.

[9] For example in 2011 (252,800 square yards (sy) without final cover/4820 sy per acre) x 82,700 gal/ac = 4,319,537 gal.

Recommendation: Project proponents should pair the other two new deep wells (P1-48 and P1-49) with either new or existing shallow wells to provide a more robust data set on the vertical gradient. The current plan pairs the P1-48 and P1-49 wells with shallow wells P1-8 and P1-11, which are scheduled for decommissioning.

Groundwater Monitoring of Future Phases. The DSEIS includes a vague description regarding monitoring wells for landfill phases, stating only that the adequacy of the well spacing and placement shall be evaluated throughout the landfill construction process (p. 4.2-31). EPA believes that the proposed groundwater monitoring program for Phases 1 and 2 is generally adequate; however, the program as presented is insufficient to monitor additional phases as they are constructed further south. Additionally, proposed phases 18 and 19 (SEIS Figure 2.1-7) encroach on the ridgeline at the eastern boundary of the proposed landfill. The proximity of phases 18, 19, and other near-ridgeline phases (including Phase 3) to the groundwater divide under the ridgeline may suggest the need for additional groundwater monitoring wells on the ridgeline, and, if needed, on the east side of the ridge.

Recommendation: The FSEIS and Record of Decision should include a firm commitment for additional groundwater monitoring as new phases are constructed. Appendix C-3 and elsewhere should indicate that the proposed groundwater monitoring program for the initial phases will serve as a template for an expanded groundwater monitoring program as future phases (Phases 4 through 19) are built out, and that the horizontal and vertical well spacing, sampling and analytical frequency, monitoring parameters, and other details included for Phases 1 through 3 of the project will extend to future phases. Additionally, as new landfill phases are built out toward the ridgeline, additional groundwater monitoring wells may be needed on the crest and, possibly, east of the ridgeline. The FSEIS and ROD should commit to including additional monitoring wells on the crest and east side of the ridge to evaluate possible changes to the groundwater once near ridgeline phases are being filled.

Water Supply

The project includes development of a well field to supply water for the landfill for routine dust control, consumptive office use, irrigation of nursery plants and revegetation areas, and construction uses such as dust control and soil compaction (p. 2-6). The assessment of water availability in the DSEIS is based on "porous media equivalent" analysis and may not be representative of subsurface conditions at the proposed landfill site. Numerical modeling results are one line of evidence to support a water resource evaluation, but the limited site-specific hydraulic test data do not indicate that sufficient water is available to meet project demands. Available aquifer test data (Appendix C-4) showed the following results for wells tested:

- Well P1-14 test: Well P1-14 sustained a flow rate of 10.7 gpm over a 94 hour test, but the water level in nearby shallow wells "dropped gradually and did not reach steady state during 94 hours of pumping."
- Well ATA-PW-1 test: Well ATA-PW-1 sustained an apparent flow rate of 3.4 gpm, but the water level dropped below the pump intake after 16 hours. Pumping of the ATA-PW-

1 well resulted in continuous drawdown in well ATB-PZ-1, which did not reach steady state after 70 hours of pumping.

The DSEIS identifies the existing wells at the Campo sand quarry and the Campo Tribal Center as potential water sources, such that, in the event that insufficient water is available from the proposed well field, water shall be pumped from one or both of these wells to supplement water from the proposed well field, and withdrawals from the well field shall be curtailed sufficiently to eliminate any adverse effects on other groundwater users (p. ES-37). The DEIS does not discuss impacts from such a pipeline.

> *Recommendation:* Because of the limited site-specific hydraulic test data, we recommend the project proponents construct and rigorously test a sufficient number of water supply wells within the 300-acre wellfield to ensure that sufficient water is available to meet the short- and long-term demands of the proposed landfill. This is important since it bears on environmental impacts as well as fire protection. This information would also provide an indication of the likelihood that this alternative water source would be needed, which involves constructing a 2+ mile water pipeline along existing and proposed roads from the quarry and/or tribal center (p. ES-37). A discussion of impacts from this pipeline should be included in the FSEIS.

Property Value Protection Agreement

The DSEIS notes that the current applicant has not offered a property value protection agreement for the proposed project but the DSEIS contains a recommended mitigation measure that requires the project operator to provide water to any domestic user whose source is compromised by project water withdrawals or unanticipated discharges of pollutants for the duration of the compromised condition of the water supply (p. ES-14). The measure states that in the event that groundwater pumping substantially depletes groundwater supplies such that the production rate of pre-existing nearby wells drops to a level which would not support existing land uses, or planned uses for which permits have been granted, alternate sources of supply, including piping in water from the quarry or tribal center (p. 4.2-29), shall be developed or withdrawals from the well field shall be curtailed until groundwater levels recover (p. 4.2-28).

> *Recommendation:* EPA supports the inclusion of the property value protection agreement as appropriate mitigation. More details should be provided for this measure including whether it is being committed to as part of the proposal, the details regarding when and how it would be triggered, and what the mechanism of implementation would be. The DSEIS references the water supply mitigation measures from the 1992 FEIS including twice annual monitoring in off-site wells (p. 4.2-28) but these measures do not appear to be integrated into the new recommended mitigation measure. For example, the 1992 FEIS measures include development of new wells, and the DSEIS states that these mitigation measures from the FEIS would be applicable to the potential groundwater impacts as described in Section 4.2.3.2, however this section discusses groundwater infiltration basins and groundwater interception trenches. We recommend that this mitigation measure be more clearly defined. Additionally, since potential impacts from the proposed project could affect off-reservation resources and mitigation measures would involve coordination with non-tribal individuals (i.e. domestic well sampling

program, etc.), it is important to set up a mechanism of accountability for these mitigation commitments. Third party mechanisms are one such possibility. For example, tribal casino projects have proposed contracting with a third party to oversee their well impact compensation program[10].

Remedial Action

Groundwater Remediation Plan. On page 4.2-31, the DSEIS refers to the groundwater remediation plan mitigation measures in the FSEIS, but does not indicate whether these measures still apply to the proposed project[11].

Recommendation: Clarify in the FSEIS whether the actions identified in the FSEIS, p. 4-25 are still applicable to the current project. If so, include reference to it in Table ES-4-4.

Leaks from Primary Liner system. The DSEIS identifies the remedial action that would take place should the primary liner system leak such that leachate from the landfill is observed and confirmed in the collection sumps near the landfill periphery. These actions could include the application of an internal liner layer within the landfill over the area in which leakage occurred to prevent additional infiltration, redirection of landfill activities to another portion of the phase; and/or possible early closure of a phase (p. 2-8).

Recommendation: EPA recommends that the potential remedial actions that would take place, should the primary liner leak, also include excavation of the waste material and repair of the liner, if warranted.

Leaks in Secondary Liner system. While the DSEIS identifies the remedial action that would take place should the primary liner leak, there is no discussion of remedial action that would take place should the secondary liner system leak such that groundwater from a rising water table is observed and confirmed in the collection sumps for the secondary drainage layer.

Recommendation: If significant groundwater inflow is detected, remedial action should include, but would not necessarily be limited to, assessment and determination of the groundwater source, maintenance of nearby groundwater intercept trenches, installation of additional groundwater intercept trenches, installation of groundwater extraction wells, and/or excavation of the waste material and repair of the liner, if warranted.

Use of Certified Laboratories

The sample analysis discussion of Appendix C-3, Appendix A, Section 3.5, indicates that analysis of groundwater samples will be conducted by a laboratory certified by the California Department of Health Services or a laboratory approved by Campo EPA (CEPA). To ensure that the laboratory is competent to perform the necessary analyses, BIA and the Tribe should ensure that the laboratory is accredited under the auspices of the National Environmental Laboratory

[10] See North Fork Casino Final EIS, November 2008, p. 5-8; Graton Rancheria Casino and Hotel FEIS, p. 5-11

[11] The DSEIS generally indicates in Table ES-4-4 whether the FEIS mitigation measures still apply to the project, but no reference to this plan is identified there.

Accreditation Program (NELAP). NELAP-accredited laboratories have demonstrated capability to analyze environmental samples using approved methods.

> *Recommendation:* EPA recommends that the proposed project commit to utilizing a laboratory accredited by a NELAP recognized accreditation body for the analysis of groundwater samples collected as part of compliance and leak detection monitoring. The FSEIS should identify this commitment.

Additional Groundwater Monitoring Recommendations

- The monitoring well construction summary (Table 2) in Appendix C-3 includes water level data from 1995. This table should be updated to include current (2010) water levels. Many of the existing wells were installed approximately 15 years ago and should be evaluated to determine integrity, accessibility, and suitability for groundwater monitoring at the proposed landfill. Wells that are irreparably damaged should be properly decommissioned and replaced.
- The proposed monitoring well network (Figure 2) in Appendix C-3 should clarify that the number of new wells is based on an average 200-foot spacing, but that actual well locations will be determined in the field based on site-specific conditions, with a preference for placing new wells in fracture zones. Thus, the actual well spacing may be greater or lesser than 200 feet, although the number of new wells (i.e., ten upper zone, three lower zone) would be as discussed.
- The SOPs included in Attachment 1 of Appendix A (Appendix C-3) are generally consistent with current practices in environmental monitoring, but should be tailored to the proposed Campo Landfill project. Although the SOPs included in Appendix C-3 are initially useful for the proposed Campo Landfill site, project-specific SOPs should be developed after the monitoring network is established to ensure that field activities are consistent through time.
- The planned well screens described for well construction in Appendix C-3 range from 10 to 30 feet in length; project proponents should evaluate historical water level changes to ensure that shorter-screened wells do not become unusable (i.e. dry) during drought years.
- Acetone is correctly listed with several other volatile and semi-volatile organic compounds as a common sampling or laboratory-related contaminant (App C-3, Section 5), but the interpretation of acetone in groundwater warrants additional consideration. Acetone is a product of organic material biodegradation and may be an indicator of landfill contamination. Acetone and other "laboratory contaminants" that are found consistently in specific wells, or at increasing concentrations through time, may be indicative of a landfill release. Acetone and other common laboratory contaminants are typically found at low concentrations, random with respect to wells, and frequently (though not always) found in associated field, trip, or method blanks.

Stormwater and Surface Waters

Potential Impacts to Campo Creek

The DSEIS does not fully evaluate impacts to Campo Creek. According to the DSEIS, runoff would be directed away from active landfill operations to recharge basins, with overflow drains discharging to Campo Creek (p. 4.2-4). Water from groundwater interception trenches would also be pumped to these basins. No sizing information is provided for these basins to provide an estimate of frequency of discharges. Additionally, the DSEIS does not describe the types of operations that will be located outside the containment area for the 100-year, 24-hour storm, including the location of the vehicle and other maintenance facilities[12] (p. 2-22). The DSEIS states that either CEPA or USEPA will determine the constituents, locations, and frequency to be monitored for surface water runoff (p. 2-19). Note, however, that minimum monitoring requirements are prescribed in EPA's Multi-Sector General Permit (MSGP) for discharges of industrial stormwater, including stormwater from landfill activities. This should be clarified in the FSEIS. In addition, the DSEIS does not update the beneficial uses of Campo Creek from the related discussion in the FEIS[13]. These beneficial uses can be found in the San Diego Regional Water Quality Control Board's Basin Plan which is available at: http://www.waterboards.ca.gov/sandiego. Finally, the FEIS states that these downgradient recharge areas would all be in existing natural drainages (p. 4-11). The DSEIS does not indicate whether this is still applicable to the proposed project.

> *Recommendation:* In the FSEIS, provide information discussed above, including basin sizing and estimates of discharge frequency, the types of operations outside the containment area where runoff would originate, pollutants which may be in the discharges, and the potential effects on the downstream receiving waters from the discharges. Beneficial uses of the downstream receiving waters should be considered in this discussion.

Construction Phase Stormwater Discharges

The DSEIS (section 2.1.4) indicates the proposed project would include a start-up phase in which infrastructure would be constructed and the landfill would be prepared to accept waste (p. 2-22). During this initial phase of a landfill operation, stormwater discharges are permitted under EPA's construction general stormwater permit, rather than the MSGP; see EPA 833-F-93-002B, available at: http://cfpub.epa.gov/npdes/stormwater/cgp.cfm. The DSEIS does not identify this permit requirement nor specifically address the potential effects of these start-up construction phase stormwater discharges on downstream receiving waters.

> *Recommendation:* The FSEIS should note the requirement for a construction general stormwater permit, and evaluate the potential effects on downstream waterbodies from stormwater discharges during the initial construction phase.

[12] It does indicate that the vehicle maintenance facility would comply with best management practices pursuant to a stormwater multi-sector general permit (MSGP).

[13] The FEIS stated that given the intermittent nature of the flow, potential beneficial uses of Campo Creek are difficult to characterize

Air Quality

Permits and Permitting Authority

The discussion of air quality standards and regulations indicates that the Campo Band has established the Campo Environmental Protection Agency (CEPA) to "issue permits and oversee the implementation and compliance of environmental standards and regulations…" (p. 3.3-3). EPA has not delegated the authority to issue air permits to CEPA. Thus, EPA retains the authority to issue the pre-construction air permit (if applicable) and the Title V operating (40 CFR Part 71) permit. The DSEIS does not mention that the project will require a Part 71 permit from EPA after a year of commencing operation.

> *Recommendation:* The FSEIS should clarify that EPA retains the authority to issue air permits in association with this project and that the Tribe must submit a Part 71 permit application to EPA within twelve months of commencing operation.

Greenhouse Gas Emissions / Potential Applicability of the PSD/GHG Tailoring Rule

We appreciate the discussion on Greenhouse Gases in Section 4.3.7 but believe this discussion can be improved by providing a quantified estimate of the project's GHG emissions and discussing possible measures to mitigate these impacts. In addition, the DSEIS should identify that the project would be required to report under the Mandatory Reporting of Greenhouse Gases Rule.

We note that EPA has proposed a Prevention of Significant Deterioration (PSD)/ Greenhouse Gas (GHG) Tailoring Rule, which may affect this project. Under this proposed rule, if adopted, new facilities emitting over 25,000 tons of greenhouse gases a year would be considered subject to the PSD requirements and therefore required to demonstrate that the best available control technology is used to minimize GHG emissions.[14] However, more recent developments suggest that the applicability threshold may be set at 75,000 tons per year, rather than 25,000, for calendar years 2011 and 2012 (based on Administrator Jackson's testimony before a Senate subcommittee on March 3, 2010).[15] While these considerations are part of the administrative rulemaking process, it is important to note that more details are expected in the final rule that has yet to be signed and finalized. Thus, if construction of the landfill commences after the GHG Tailoring Rule becomes final, the proposed project may be subject to PSD requirements as a result of its projected GHG emissions[16], regardless of EPA's 2005 non-applicability determination (letter from EPA to Preston Gates & Ellis LLP dated January 19, 2005.)

> *Recommendation:* In the FSEIS, EPA recommends including an estimate of the proposed project's GHG emissions and indicating whether the project would be required to report under the Mandatory Reporting of Greenhouse Gases Rule. We also recommend that possible measures to mitigate these impacts be identified.

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[14] For more information, see R. Bravender's article "EPA to revise GHG permitting limits, will focus on larger sources" in *Environment & Energy News PM*, March 3, 2010. http://www.eenews.net/eenewspm/2010/03/03/1/

[15] See S. Cook's article "Jackson Says Climate Rules Initially to Apply To Sources With Emissions Over 75,000 Tons" in *BNA Daily Environment Report*, March 4, 2010. http://ehscenter.bna.com/pic2/ehs.nsf/id/BNAP-838QP8?OpenDocument

[16] See letter from EPA Administrator Lisa Jackson to the Honorable Jay D. Rockefeller IV dated February 22, 2010 at http://epa.gov/oar/pdfs/LPJ_letter.pdf

A landfill gas (LFG) energy recovery system would be the most effective mitigation measure. By using LFG to produce energy, the project would significantly reduce methane emissions and avoid the need to generate energy from fossil fuels, thus reducing emissions of carbon dioxide, sulfur dioxide, nitrogen oxides, and other pollutants from fossil fuel combustion. The DSEIS states that, depending on economic conditions, such a project would most likely be developed in four to eight years after beginning waste filing operations (p. 2-20). We encourage the project proponents to plan for a LFG energy project as a subsequent project, and include any landfill design alternations that would maximize landfill gas recovery efficiency. EPA's Landfill Methane Outreach Program (LMOP) website[17] includes tools that may be of assistance in this mitigation discussion, including the LFG Energy Benefits calculator, and a LFG Energy cost model. The FSEIS could also identify how a LFG Energy project could reduce odor impacts.

In the event that EPA finalizes the GHG Tailoring Rule, the Tribe will need to submit a new PSD applicability analyses to EPA which discusses GHG emissions from the project, before construction is commenced. If it is determined that a PSD permit would be required before the FSEIS is released, the FSEIS should discuss the process and timing for securing permits and how this may affect the construction time line.

Additional Air-related comments

- The DSEIS indicates that the landfill will receive 138 daily truck trips (round-trip) or 276 individual truck trips per day (p.2-31, p. 4.5-1). The public hearing presentation indicates that 164 haul trips per day will occur. The FSEIS should clarify this information and update any impact analyses that depend on this data, including the air quality analyses.
- The DSEIS concludes that the landfill would not be expected to cause or create odor problems in the surrounding community, provided that it adheres to best management practices (BMPs) with respect to odor control (p. 4.3-18). The owner/operator should consider, as a mitigation measure, providing a complaint mechanism for the public to contact Campo EPA to report odor impacts.
- The DSEIS (p. 3.3-5) refers to the California Ambient Air Quality Standards (CAAQS) as being applicable to the project. While this is clarified in Chapter 4, where it states that California standards are not applicable but are used for the impact assessment, the statement in Chapter 3 should be revised.
- The Air Quality discussion (Section 3.3.2.1) implies the Campo Indian Reservation is in a nonattainment area for the 8-hour ozone standard since it uses the San Diego Air Basin in its assessment. However, the portion of the San Diego Air Basin excludes two reservation areas, Campo Areas #1 and #2, from the nonattainment designation. Thus, the Campo Indian reservation would be considered in attainment for all criteria pollutants. This is not to say that the use of the San Diego Air Basin in the assessment is unreasonable, however.
- Mitigation measures for construction and landfill operation equipment includes the purchase of new equipment, maintenance of equipment, and turning off idling equipment

[17] http://www.epa.gov/lmop/index.html

when not operated for longer than five minutes (p. 4.3-30). If practicable, the project should utilize new, clean equipment meeting the most stringent of applicable federal[18] standards. In general, the project should commit to the best available emissions control technology. Tier 4 engines should be used for landfill construction equipment to the maximum extent feasible[19]. Lacking availability of non-road construction equipment that meets Tier 4 engine standards, the Tribe and project proponents should ensure that best available emissions control technologies are used on all equipment. We also recommend EPA-registered particulate traps and other appropriate controls where suitable to reduce emissions of diesel particulate matter and other pollutants at the site. We recommend commitments to these measures be included in the project description and/or mitigation measures.

Truck Bypass Route

EPA had commented previously regarding the location of the truck bypass route. The Campo Education Center, including outdoor recreation areas, is within 60 feet of the proposed bypass route (Figure 2.1-3) and passes between the back of the school and the baseball field. EPA previously recommended relocating the truck bypass further away from the Campo Education Center. Instead, a health risk analysis was performed for the Campo Education Center concluding that the impact of the haul truck traffic is slightly greater than one in one million, but because this was based on 70 years of continuous exposure, which is deemed rare for this non-residential location, no significant air quality impacts are anticipated (p. 4.3-26). While we agree with this significance level, we continue to recommend all possible avoidance and minimization of diesel particulate matter exposure. The DSEIS identifies the purchase of new trucks for the hauling of waste as a mitigation measure (p. 4.3-7, p. 4.3-30). It is not clear if the applicant would be hauling all or most of the waste disposed in the landfill, therefore the feasibility of this mitigation measure in not revealed.

EPA also previously commented on pedestrian safety concerns from the truck bypass route located close to the Campo Education Center. The DSEIS states that the bypass route would be fenced with a 3' high chain-link fence on both sides of the road and that a crosswalk will be installed (p. 4.11-5). The applicant shall maintain these crosswalk markings and signage for the life of the project.

Recommendation: EPA recommends that the commitment to the purchase of new trucks for the hauling of waste be included in the FSEIS and ROD. Clarify the amount of control that the project proponent has for implementing this measure. In general, the project should prioritize diesel exhaust mitigation measures, including alternative fuels (e.g. LNG) and cleaner engines (post-2007) for all trucks accessing the Campo landfill. The project proponent and the Tribe should work with waste haulers to ensure that these mitigation measures are implemented to the greatest extent feasible.

[18] EPA's website for nonroad mobile sources is http://www.epa.gov/nonroad/.

[19] Diesel engines < 25 hp rated power started phasing in Tier 4 Model Years in 2008. Larger Tier 4 diesel engines will be phased in depending on the rated power (e.g., 25 hp - <75 hp: 2013; 75 hp - < 175 hp: 2012-2013; 175 hp - < 750 hp: 2011 - 2013; and > 750 hp 2011- 2015).

Additional mitigation could include identifying and relocating the air intake for the Campo Education Center away from the bypass route, if applicable. The greatest avoidance would likely come from shifting the truck bypass road location further from the Education Center, and we continue to recommend this be explored.

Recent studies suggest that roadside vegetation may help reduce near-road exposures to traffic-generated pollutants[20]. The Tribe and project proponents should consider exploring the addition of roadside vegetation between the bypass route and the Campo Education Center. Should this mitigation be pursued, we recommend working with a biologist to select the most appropriate vegetation species. EPA is available to provide more information on the benefits and limitations of this potential mitigation measure.

Regarding public safety, consideration may also want to be given to including in-pavement flashing warning lights in the crosswalks, especially if foot traffic is expected to cross during dusk and dawn hours. These systems have lights embedded in the pavement on both sides of the crosswalk and oriented to face oncoming traffic and are activated when a pedestrian wants to cross.

Demand for Solid Waste Disposal Capacity

The DSEIS references the "much needed waste disposal capacity" in San Diego County (p. ES-28), however, no update is provided to the discussion of waste disposal demand in the 1992 FEIS in Section 1.5 (p. 1-13 through 1-14). We understand that the purpose and need for the project is tribal economic development; however, waste disposal demand determines the economic feasibility of the project, which is important for the long-term management of the landfill and the implementation of mitigation measures.

Recommendation: Update the waste disposal demand discussion in the FSEIS, particularly waste demand in San Diego County.

Mitigation Measures

Mitigation measures are identified for the project in Table ES-4-4. Because the DSEIS concludes that some mitigation measures will reduce impacts to less than significant, additional information should be provided regarding their implementation. The Tribe has primary regulatory jurisdiction over the proposed action; therefore, it would be helpful to disclose in the FSEIS how the Tribe will ensure compliance with the mitigation measures identified. Additionally, the project Record of Decision (ROD) must have a clear identification of the mitigation measures adopted as part of the project. The ROD must state "whether all practicable means to avoid or minimize the environmental harm from the alternative selected have been adopted, and if not, why they were not" (40 CFR 1505.2 (c)). The CEQ Regulations also state that mitigation established in the EIS and committed to as part of the decision shall be implemented (40 CFR 1505.3).

[20] Bowker, G.E.; Baldauf, R.W.; Isakov, V.; Khlystov, A.; Petersen, W. Modeling the Effects of Sound Barriers and Vegetation on the Transport and Dispersion of Air Pollutants from Roadways; *Atmos. Environ.* 2007, *41*, 8128-8139., also Fujii, E.; Lawton, J.; Cahill, T.A.; Barnes, D.E.; Hayes, C.; Spada, N.; McPherson, G. *Removal Rates of Particulate Matter onto Vegetation as a Function of Particle Size*; Final Report to the Breathe California of Sacramento Emigrant Trails Health Effects Task Force (HETF) and Sacramento Metropolitan AQMD, 2008.

Recommendation: Provide additional information in the FSEIS regarding implementation of mitigation measures, and include binding commitments where possible. For mitigation measures that the DSEIS determines will reduce impacts to less than significant, we recommend including:

- A description of each mitigation measure adopted.
- The party responsible for implementing each mitigation measure.
- A schedule for the implementation of each mitigation measure.
- The agency or entity responsible for monitoring mitigation measure implementation.
- Criteria for assessing whether each measure has been implemented and effectiveness monitoring
- Enforcement mechanisms

Additionally, since some mitigation measures would involve coordination with non-tribal individuals (i.e. domestic well sampling program, etc.), the FSEIS should identify the mechanism of accountability for these mitigation commitments. Third party mechanisms are one such possibility.

Cumulative Impacts

The DSEIS does not include a cumulative impact assessment for the Quino checkerspot butterfly. The document does recognize the Quino's decline, including the loss of more than 75% of its historic range, and the reductions in populations by more than 95% range-wide (p. 3.4-8). These are key factors that should be discussed in an assessment of cumulative impacts under NEPA. We are aware that portions of the U.S. Mexico border fence have affected Quino habitat, and a discussion of impacts from other past, present, and reasonably foreseeable future actions is required. The Biological Opinion may also include some additional information that could be included in this discussion, although we understand that cumulative effects as defined under the Section 7 consultation regulations are not as comprehensive as defined under NEPA.

Recommendation: In the FSEIS, discuss cumulative effects of past, present, and reasonably foreseeable future actions on the Quino checkerspot butterfly.

Living Resources

Since the release of the DSEIS, the Fish and Wildlife Service has completed their Biological Opinion (BO) (dated 3/12/2010) and has concluded that, with the implementation of the conservation measures, the project will not threaten the continued existence of the Quino checkerspot butterfly.

Recommendation: Update the FSEIS to include avoidance and minimization measures. The FSEIS should include the BO as an Appendix[21] and reflect the formal consultation and final BO and its conclusions and Incidental Take Statement. We also recommend the

[21] The BO Terms and Condition # 1.1 requires all terms and conditions and Conservation Measures in the BO to be incorporated as mandatory requirements in all documents pertinent to implementing project-related activities that affect the Quino checkerspot butterfly ("Quino")

project commit to the conservation recommendation regarding annual surveys within the temporary restricted area within the buffer area adjacent to Phase 19. The following are additional suggestions for updating the DSEIS:

- p. ES-19, lines 13-17 (refer also to USFWS' conclusion and BO);
- p. ES-32-33, Impacts and Mitigation Measures and Table ES-1(include or reference BO Conservation Measures and Reasonable and Prudent Measures);
- p. ES-46, Table ES. 4-4: Rare, Threatened and Endangered Wildlife (include reference to final BO)
- p. 3.4-7, lines 4-5 (formal consultation was also completed and final BO was issued);
- p. 3.4-9, line 19 (BO also includes additional information about Quino);
- p. 4.4-5 Conservation Measures (also include the BO's Incidental Take Statement Reasonable and Prudent Measures)
- p. 4.4-5, line 31 (identify the BO as the Final March 12, 2010 BO);
- p. 4.4-8, line 2 (Insert the following sentence at the end of this line to be consistent with the BO: "The Service will be notified of the relocation in writing (via letter, email, or fax) within 24 hours following the relocation.").
- p. 4.4-11, lines 33-34 (include reference to final BO);
- p. 4.4-13, lines 23-24 (include the final BO as an appendix);
- p. 4.4-14 Table 4.4-1 (include references to BO and its requirements);
- p. 4.4-21, lines16-17 (identify BO as final March 12, 2010 BO);
- p. 5-1, Table 5-2 (include reference to BO under Living Resources discussion of impacts);
- p. 6-1, lines 37-38 (revise to reflect that formal consultation was completed and final BO was issued);
- p. 6-2, lines 1-6 (include reference to BO and implementation of BO's Conservation Measures and Reasonable and Prudent Measures).

Cooperative Agreement between CEPA and Cal/EPA

The DSEIS indicates that the Cooperative agreement with the State of California is "still in force" (p. 3.1-3) but does not provide any status updates for the agreement. The agreement was signed in 1992 and certain elements require updating, at a minimum, the project description in Appendix A and possibly CEPA's Process Agent per Section IX (3). We understand from the State that contact has not yet been initiated.

Recommendation: In the FSEIS, confirm that the Tribe intends to update and abide by the cooperative agreement. We recommend the Tribe contact the State Water Resources Control Board and other appropriate agencies within Cal/EPA as soon as possible to initiate the update process.

Socioeconomic Impacts

The DSEIS does not provide an update on the assessment of impacts to property values and concludes that it is likely that landowner perceptions of property values near the proposed project would suffer but future property values near the project site cannot be predicted with confidence (p. 4.6-4). The DSEIS also concludes that there will be significant noise and visual impacts from the project.

Recommendation: BIA should consider reviewing more recent studies that have looked at the impact of municipal solid waste landfills on property values and provide an update to this impact discussion.

Noise Impacts

The proposed project will result in unavoidable and significant noise impacts for adjacent properties east of the reservation boundary and for several tribal residences and the Campo Education Center off Church Road (p. ES-26). The DSEIS states that sound attenuation walls *should* (italics added) be placed between the haul road and residences where noise levels would exceed acceptable levels provided occupants of the residences in question agree to their installation. In the case of the Campo Education Center and other buildings in the vicinity of the Tribal Center, it states that sound attenuating windows and other noise dampening materials *should* be applied to the areas of the buildings exposed to truck traffic noise. The mitigation for the school is important to prevent acoustical barriers to learning, especially since young children are more susceptible than adults to the effects of background noise on spoken communication[22].

Recommendation: The FSEIS should identify whether this mitigation will in fact occur, who would be responsible for implementing it, and how the measures would be funded. Mitigation for the Campo Education Center should attempt to approach the acoustics standard of the American National Standards Institute (ANSI), and could also include adding insulation, sealing gaps or leaks in windows and doors, installing baffles in vents, and improving the exterior roofing, consistent with radon safety.

Visual Impacts

The DSEIS concludes that significant visual impacts will occur along the eastern edge of the proposed landfill (p. 4.9-2). While revegetation of the eastern berm is included in the RAMP, and this area will receive deeper-rooted species since it is not underlain by the liner system, it is not clear if revegetation of the berm will occur as soon as possible so plant growth can occur early and offer some mitigation for visual impacts. If this was not planned, we recommend it be considered, if feasible.

Minor and Editorial Comments

- On page 2-28 it states that landfill operational activities are anticipated to occur 8-hours per day, 6 days per week but also indicates that workers would be required every day, 7 days a week over the life of the landfill (p. 2-31). Construction of new landfill cells would be 8 hours/day, 5 days per week (p. 4.2-11). Clarification of these hours would be helpful to the reader.
- For clarity, suggest revising the PDF of Appendix C-1 so that the graphed data does not appear on top of the table data.

[22] ANSI S12.60-2002 American National Standard, *Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools*

- The section numbering is missing on page 2-11 for the Primary Liner System, the Leachate Collection and Recovery System (LCRS) Layers and on page 2-13 for the Operations Layer and the Liner Installation sections.
- On page 1-5, we suggest the following wording changes in Table 1.2 regarding EPA:

  "Works with other federal agencies to implement RCRA ~~conformity requirements~~ and regulations promulgated pursuant to RCRA. ~~Reviews and submits recommendations for compliance with landfill design standards~~.The Proposed Action would ~~require conformance~~ be required to comply with 40 CFR ~~Part 241 (Guidelines for Land Disposal of Solid Wastes) and~~ Part 258 (Criteria for Municipal Solid Waste Landfills). For Municipal Solid Waste Landfills in Indian Country, U.S. EPA makes Site-Specific Flexibility determinations. Works with other federal agencies to implement Clean Air Act (CAA) and Clean Water Act (CWA) ~~conformity~~ requirements."

  On p. 1-6, line 23-24, we suggest changing sentence as follows: ~~The U.S. EPA has review through permitting processes and regulatory jurisdiction through citizen suites~~ For Municipal Solid Waste Landfills in Indian Country, U.S. EPA makes Site-Specific Flexibility determinations.
- p. 4.2-6, top of page should read section 4.4.5.2 not 4.4.6.2 for non-wetland Waters of the U.S.

APPENDIX M-2

Torrey Wind Project Phase 1 ESA

Phase I Environmental Site Assessment
Torrey Wind Project
San Diego County, California
PDS 2018-MUP-18-014

Prepared for:

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SEPTEMBER 2018

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Printed on 30% post-consumer recycled material.

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ACRONYMS AND ABBREVIATIONS

Acronym	Definition
ASTM	American Society for Testing and Materials
CFR	Code of Federal Regulations
DTSC	Department of Toxic Substances Control
ESA	Environmental Site Assessment
PCB	polychlorinated biphenyl
Project	Torrey Wind Project
REC	recognized environmental condition
UST	underground storage tank

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1 EXECUTIVE SUMMARY

A Phase I Environmental Site Assessment (ESA) was conducted for the Torrey Wind Project (Project), which is located north of the intersection of Interstate 8 and State Route 94, approximately 10 miles north of the U.S./Mexico international border in San Diego County, California (Project site). The Assessor's Parcel Numbers for the Project site are as follows: 529-050-01, 529-060-01, 529-090-02, 529-100-01, 529-100-02, 529-100-03, 529-120-01, 529-120-03, 529-130-01, 611-010-01, 611-010-02, 611-010-03, and 611-020-01. The Project site is approximately 2,041 acres (Figure 1, Project Location).

The findings of this investigation are based on a review of historical source information, a search of regulatory agency databases within specified distances of the Project site, review of available local agency records, interviews, and a site reconnaissance.

Information gathered for this report indicated the following:

- Much of the Project site appears to have remained vacant, undeveloped land since 1939. The southwestern portion of the Project site may have been used as agricultural land (for ranching) in the past, although the dates of this potential land use are unknown. A feature labeled "Airway Beacon" was depicted on the northern portion of the Project site on historical topographic maps from 1959–1997. The southern portion of the Project site may have been used for residential purposes starting as early as 1939. The Project site is not currently being used as a residence.
- Five groundwater wells were observed on the Project site. Two of the wells each had an associated pump motor and an aboveground storage tank. The motors associated with water wells were observed to be in disrepair. The smaller of the two motors was sitting directly on the ground and the vegetation around it appeared to be stressed. Petroleum odors were observed in the vicinity of both aboveground storage tanks.
- Debris was observed in several locations on the Project site. Notably, metal debris, including metal sheets, an old stove, and an abandoned pipe, were observed on the northern portion of the Project site; metal wire, tires, glass, and other debris were observed near a camping area; and empty cattle feed and water containers were observed near a cattle yard.
- Signage related to an electrical transmission line that crosses the property indicated that herbicides were in use on the Project site.
- Adjacent and nearby land uses are power generation using wind turbines, residential uses, and undeveloped land.

- It is unlikely that adjacent or nearby properties have impacted the environmental conditions at the Project site.
- Asbestos and/or lead may be present in the uninhabitable structures observed on the Project site, given that they were constructed prior to 1959.

Dudek performed this Phase I ESA of the Project site in conformance with the scope and limitations of American Society for Testing and Materials (ASTM) Practice E 1527-13. Any exceptions to, or deletions from, this practice are described in Section 13, Limitations, of this report. This assessment revealed no evidence of RECs in connection with the Project site. Dudek did identify environmental concerns, for which recommendations are stated below. However, if the Project is not going to disturb the areas where environmental concerns were identified, these recommendations are not the responsibility of the lessee, Torrey Wind LLC.

- The groundwater well pumps, motors, and tanks should be properly decommissioned and disposed of in accordance with applicable local, state, and federal guidelines and/or regulations. If impacted or stained soil is observed during disposal, additional investigation or sampling may be necessary.
- Soil sampling for herbicides should be conducted in the vicinity of signage that indicates that herbicides are in use and in other areas of the Project site if herbicides are used beyond the signage areas.
- Groundwater wells on the Project site that are not in use and remain open should be properly abandoned in accordance with applicable local, state, and federal guidelines and/or regulations.
- Solid debris and waste chemicals that are located on the Project site should be properly characterized and disposed of in accordance with applicable local, state, and federal guidelines and/or regulations.

2 INTRODUCTION

This Phase I ESA was performed according to the guidelines stipulated in the ASTM Standard E1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. This Phase I ESA was conducted to assist with environmental due diligence for construction of a renewable energy facility.

2.1 Assessment Procedure and Scope of Investigation

Phase I ESAs assist in identifying past and present land use, including identification of possible releases or disposal of manufacturing or other wastes if such information is contained within regulatory reports or files, and/or is currently visible on site. The assessment reviews local, county, state, and U.S. Environmental Protection Agency lists of known or potentially hazardous waste sites, landfills, and sites currently under investigation for environmental violations that may be of concern to a site.

The scope of this environmental investigation consisted of a reconnaissance of the Project site; a search of regulatory agency records; review of available historical aerial photographs, topographic maps, and City Directory listings; interview of a representative of the property owner; and preparation of this Phase I ESA report detailing the findings of the investigation.

These activities were conducted to identify RECs. The term "recognized environmental condition" means the presence or likely presence of any hazardous substances or petroleum products under conditions that indicate an existing release, a past release, or a material threat of a release into the ground, groundwater, or surface water.

The term "controlled recognized environmental condition" (controlled REC) is an environmental condition that would have been considered a REC in the past, but that has been remediated and received risk-based closure by a regulatory agency (i.e., no further action letter) where residual contamination remains in place. In addition, "controlled REC" is used if the property is subject to a control or use restriction (i.e., property use restrictions, activity and use limitations, institutional controls, or engineering controls) due to residual on-site contamination.

The term "historical recognized environmental condition" (historical REC) is an environmental condition that would have been considered a REC in the past, but that has been remediated and received unrestricted residential use closure by the regulatory agency. Therefore, no controls or use restrictions have been applied to the property.

The term "recognized environmental condition" is not intended to include *de minimus* conditions. *De minimus* conditions are conditions that generally do not present a material risk of harm to public

health or the environment, and would not be the subject of an enforcement action if brought to the attention of governmental agencies.

2.2 Qualifications of Environmental Professionals

This Phase I ESA was prepared by Claire Kouba, environmental engineer; Nicole Tucker, hydrogeologist; and Glenna McMahon, environmental engineer. Qualifications for Ms. Kouba, Ms. Tucker, and Ms. McMahon are presented in Appendix A, Qualifications of Environmental Professionals.

I declare that, to the best of my professional knowledge and belief, I meet the definition of environmental professional as defined in Section 312.10 of 40 Code of Federal Regulations (CFR) 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Project site. I have developed and performed all appropriate inquires in conformance with the standards and practices set forth in 40 CFR Part 312.

3 SITE LOCATION

The Project site consists of approximately 2,041 acres of land located north of the intersection of Interstate 8 and State Route 94, approximately 10 miles north of the U.S./Mexico international border in San Diego County, California (Figure 1).

The Project site is composed of Assessor's Parcel Numbers 529-050-01, 529-060-01, 529-090-02, 529-100-01, 529-100-02, 529-100-03, 529-120-01, 529-120-03, 529-130-01, 611-010-01, 611-010-02, 611-010-03, and 611-020-01.

The Project site is currently vacant, and it is bordered by vacant land. Some nearby areas to the northwest, north, and northeast have been developed with wind turbines, and a low-density residential area is located to the southeast. In general, the Jacumba Mountains are located to the east, the Manzanita Reservation is to the west, the In-Ko-Pah Mountains are to the north, and Interstate 8 is to the south of the Project site.

Prior to acquisition of the property, the Project site has been historically used for recreational vehicle activity, including motocross, all-terrain vehicle (ATVs) use, and other recreational off-highway sporting use. Existing on-site motor sport trails traverse various portions of the Project site. Such motorized sporting activities continue to take place on site.

Additionally, the BLM-managed McCain Valley Recreation Management Zone (RMZ) is located directly north and east of the Project site. Off-Highway Vehicle (OHV) use is considered a primary activity in the McCain Valley RMZ as identified in the Eastern San Diego County Resource Management Plan, and the Lark Canyon OHV Staging Area is located approximately 1 mile east of the Project site on McCain Valley Road (BLM 2008).

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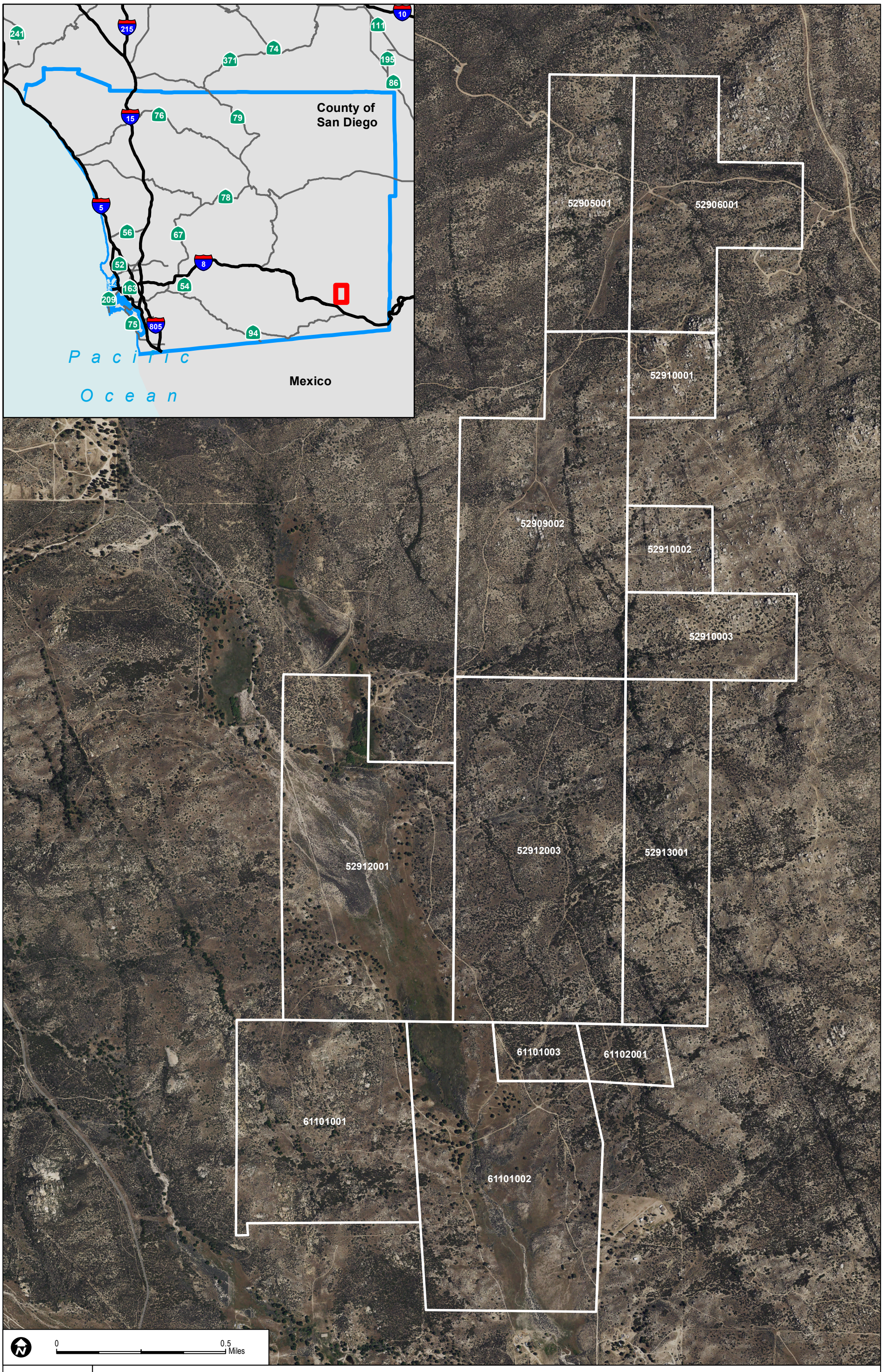

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SOURCE: NAIP 2016

FIGURE 1

Project Location

June 2018

Torrey Wind Phase I ESA

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4 ENVIRONMENTAL SETTING

General topographic information for the Project site and surrounding area was obtained from a review of topographic maps (Appendix B, Historical Topographic Maps) and from a site visit. Topography of the Project site is gradually sloping from northeast to southwest. The elevation of the Project site ranges from approximately 4,100 (in the northeast) to 3,650 (in the south) feet above mean sea level.

No subsurface geologic investigations were performed as part of this Phase I ESA. According to the U.S. Department of Agriculture National Cooperative Soil Survey, the Project site is mapped as underlain by coarse sandy loam, rocky and loamy coarse sand, and loamy alluvial land (Appendix C, Physical Setting Maps).

Three water wells on the Project site were found during a records search, and five additional wells were located within 0.5 miles of the Project site boundary (Appendix D, Water Well Report). Five water wells were observed on the Project site during site reconnaissance. Two of the wells are abandoned with no cap. One well in the northeastern portion of the Project site is a monitoring well with a locked cover. The remaining two wells are on the former ranchland to the west, and each is associated with a non-operational pump and motor, and an aboveground storage tank (see Section 6).

The California Division of Oil, Gas, and Geothermal Resources' online database, which has information for all known oil and gas wells in the state, was reviewed for wells on and near the Project site. According to this database, no oil, gas, or geothermal production wells are located within 6 miles of the Project site (Appendix E, Oil and Gas Report).

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5 INTERVIEWS

5.1 Site Representative Interview

Eugene Gabrych, owner of the Project site, and James Hoxie, occupant of the Project site, completed Property Background Information Questionnaires for the Project site (Appendix F, Interviews).

Mr. Gabrych and Mr. Hoxie stated that the Project site is vacant, open land. A portion of the Project site is used for grazing part of the year. There are no industrial uses of the Project site or adjacent sites. There is no chemical storage or dumping on the Project site. The interviewees stated that they did not know whether underground or aboveground tanks exist, or had existed previously, on the Project site, nor if the Project site was served by a private well or a non-public water source. The interviewees stated that they did not know if transformers or capacitors that may contain polychlorinated biphenyls (PCBs) were present on the Project site, nor if pesticides, herbicides, or insecticides had been applied on the Project site.

5.2 User-Provided Information

In accordance with ASTM Standard E 1527-13, to qualify for one of the Landowner Liability Protections offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001, the user must provide answers to the questions below (if the information is available) to the environmental professional. James Hoxie of Torrey Wind, LLC responded to the user questions. Answers are included below.

1. Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state, or local law?

   Answer: No

2. Are you aware of any activity and land use limitations, such as engineering controls, land use restrictions, or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state, or local law?

   Answer: No

3. As the user of this ESA, do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?

Answer: No

4. Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

   Answer: Yes

5. Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as user,

   a) do you know the past uses of the property?

      Answer: No

   b) do you know of specific chemicals that are present or once were present at the property?

      Answer: No

   c) do you know of spills or other chemical releases that have taken place at the property?

      Answer: No

   d) do you know of any environmental cleanups that have taken place at the property?

      Answer: No

6. As the user of this ESA, based on your knowledge and experience related to the property, are there any obvious indicators that point to the presence or likely presence of contamination at the property?

   Answer: No

5.3 Local Agency Records

5.3.1 San Diego Department of Toxic Substance Control

Dudek contacted the Department of Toxic Substance Control (DTSC) to obtain information about spills, tanks, or chemical use that may have impacted the environmental conditions on the Project site. DTSC responded that no such records exist pertaining to the Project site (Appendix G, Regulatory Agency Records).

5.3.2 San Diego Regional Water Quality Control Board

Dudek contacted the San Diego Regional Water Quality Control Board to obtain records of spills, tanks, or other releases that may have impacted the environmental conditions on the Project site. The Regional Water Quality Control Board responded that it does not have any records for the Project site (Appendix G).

5.3.3 County of San Diego Department of Agriculture, Weights, and Measures

Dudek contacted the County of San Diego Department of Agriculture, Weights, and Measures to obtain records related to any pesticides that may have been used on the Project site. The Department Agriculture, Weights, and Measures responded that it has no records pertaining to the Project site (Appendix G).

5.3.4 County of San Diego Department of Environmental Health

Dudek contacted the County of San Diego Department of Environmental Health to obtain records related to any hazardous materials, monitoring wells, or contaminated property investigations that may be associated with the Project site. The Department of Environmental Health responded that no records were found pertaining to the Project site (Appendix G).

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6 SITE RECONNAISSANCE

A site reconnaissance of the Project site was conducted on May 29, 2018, by Nicole Tucker of Dudek. The site reconnaissance consisted of driving through the majority of the Project site, walking some of the perimeter and around an area of observed human use, stopping to record observations, and taking photographs. Photographs are presented in Appendix H, Site Photographs. Locations of key observations are shown in Figure 2, Site Map.

Land cover on the Project site is primarily arid shrubland with some rocky outcroppings. Ranchland appeared to be the dominant land use on the lowland western portion of the Project site, and the eastern section was mostly undeveloped, natural landscape. The ranchland appeared not to be in use. Numerous dirt bike trails were observed throughout the Project site. A large transmission line was observed crossing the northern portion of the Project site running northeast to southwest (Figure 2). One partially standing building and one possible collapsed structure was present on the southeastern portion of the Project site, and one collapsed structure was observed on the northeastern portion of the Project site (Figure 2).

On the ranchland in the southwestern portion of the Project site, the following features were observed: two developed wells, no longer in use; a cattle yard; an area of solid debris that appeared to be a collapsed structure; and one house structure with a collapsed roof and abandoned well. In the northern portion of the Project site, the following features were observed: one collapsed structure and a monitoring well, an abandoned well with a cistern, metal debris, an old stove, and an abandoned pipe (Figure 2).

Wind turbines were observed on the adjacent properties to the east and north of the Project site. The adjacent properties to the southeast are rural residences. The rest of the adjacent land appears vacant and undeveloped.

6.1 Limitations

Some areas of the Project site are remote and not accessible by vehicle. Based on aerials and observations from high points on site, no development was present in these areas.

6.2 Summary of Observations

Wetlands and Natural Waterways

A dry stream bed was observed along the western portion of the Project site. The lowland area in the southwestern portion of the Project site appears to have groundwater-dependent vegetation, but at the time of the site visit, the soil was dry.

Surface Water Discharge

No storm drains or other surface water infrastructure was observed on the Project site. The surface area of the Project site is unpaved, and it is likely that precipitation infiltrates into the ground or flows into the floodplain and dry stream beds and flows south–southwest.

Distressed Vegetation

Around the area of one of the well pump motors, the vegetation appeared stressed (Photograph 22).

Indications of Solid Debris Storage

A few tires were observed around the Project site, potentially from recreational off-road vehicles. In two areas, more prevalent trash was observed (Figure 2). One area was near an abandoned well on the northern part of the Project site (Photograph 33). Scattered around the area, close to the dirt roads, were metal sheets, canisters, and parts of drums. A stove and large pipe were found more than 500 feet south of the area. The other area was close to the cattle yard (Photograph 36) in the southeastern portion of the Project site. Abandoned cattle feed and water containers were observed (Photograph 37). Debris was observed near the banks of the stream bed, including canisters, parts of drums, metal wire, tires, and glass (Photographs 38 and 39).

Chemical Storage or Use

Two 5-gallon fuel containers were observed at an apparent camping location 110 feet north of the cattle yard (Photographs 41 and 42; Figure 2). One blue drum, approximately 8 to 15 gallons, with a faded label was observed in the dry stream bed 400 feet east of the cattle yard (Photograph 40).

Signage related to the transmission line that crosses the property indicated that herbicides were in use on the Project site (Photo 35).

Unnaturally Colored Water

No unnaturally discolored pools or flowing water were observed on the Project site.

Groundwater Wells, Cisterns, Cesspools, and Septic Tanks

Five wells were observed on the Project site (Figure 2). One was an observation well with a locked cap located on top of a hill near the collapsed structure on the northern portion of the Project site (Photograph 26). Two were abandoned wells with no covers: one in the north-central section (Photograph 30) and one in the southwest section of the Project site near the house with a collapsed

roof (Photograph 44). Two wells were located on the ranchland on the western part of the Project site (Photographs 22 and 25). Both had pumps and motors that are no longer operable.

Close to one of the abandoned wells was a cistern-like structure with debris inside of it (Photograph 31).

Drains, Sumps, Ponds, Pits, and Lagoons

No drains, sumps, ponds, pits, or lagoons were observed on the Project site.

Transformers and Evidence of Polychlorinated Biphenyls

Transmission lines cross the northern portion of the Project site. No transformers or visual indications of staining were observed (Photograph 35).

Two motors associated with water wells were observed to be in disrepair. No dates were discernible on the labels. The smaller of the two was sitting directly on the ground and the vegetation around it appeared stressed (Photograph 22).

Abnormal Odor

Petroleum odors were present near the open ports of the two aboveground storage tanks (Figure 2).

Soil Disturbances

Soil disturbances were observed near the smaller of the two wells with motors (Photograph 20; Figure 2). They appeared to be caused by animals.

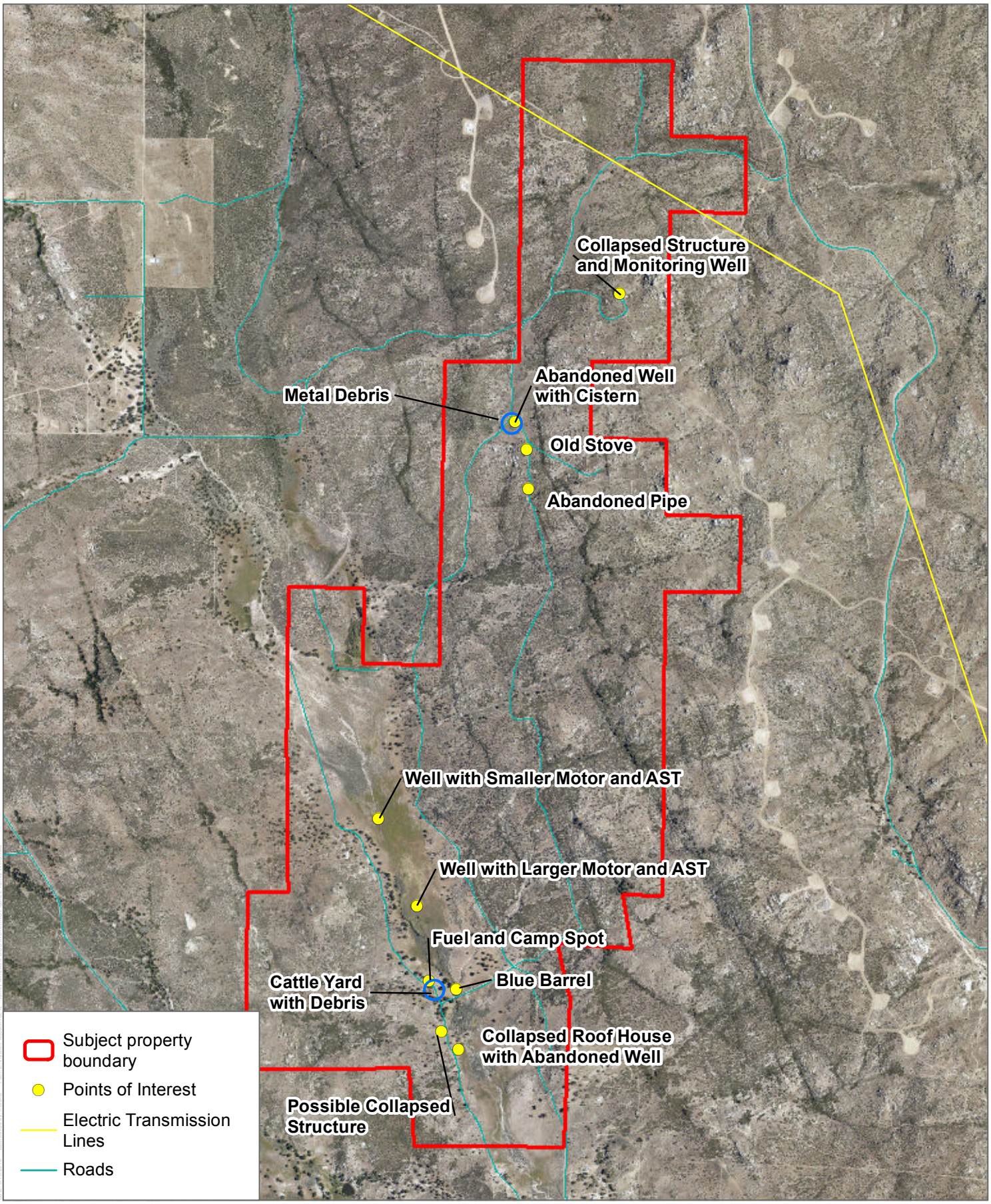
Storage Tanks

Two aboveground storage tanks were observed on the Project site (Figure 2). Both storage tanks were associated with groundwater well pumps. One was a rusted 2,000-gallon tank (Photograph 20) with open ports at the top. Liquid was observed in the tank, and the tank appeared to be approximately one-third full. Petroleum odors were observed near the tank. The second tank was larger, potentially 3,000 to 4,000 gallons (Photograph 23), but the exact volume could not be confirmed because the label had rusted over and was located on top of the tank. The ports at the top were open and petroleum odors were observed near the ports.

No signs of underground storage tanks were observed.

Pipelines

One rusted and disconnected pipe, approximately 9 inches in diameter, was found south of the north-central abandoned well (Photograph 34). Disconnected piping, which appeared to be aluminum and was approximately 1 inch in diameter, was found near the observation well (Photograph 27).



SOURCE: ArcGIS Image Service

DUDEK

0 0.2 0.4 Miles

FIGURE 2

Site Map

Torrey Winds Phase I ESA

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7 REVIEW OF HISTORICAL AERIAL PHOTOGRAPHS

Dudek reviewed historical aerial photographs from GeoSearch for the years 1943, 1953, 1955, 1968, 1975, 1984, 1994, 1996, 2005, 2009, 2010, 2012, 2014, and 2016 (Appendix I, Historical Aerial Photographs).

The photographs indicate that the Project site has been vacant land since 1943. The aerial photographs are described in Table 1.

Table 1
Summary of Historical Aerial Photographs

Date	Description
1943	The Project site appears to be vacant land. The topography appears to be characterized by gullies and a large alluvial wash crossing the southwestern portion of the Project site. The area surrounding the Project site appears to be vacant land. A dark shape in the middle of the Project site appears to be a clip or marker used to align adjacent aerial photographs.
1953	The Project site and surrounding area appear to be vacant land. Lighter-colored lines, which appear to be unimproved roads, are visible on the Project site and in the area surrounding the Project site. Two apparent roads cross the southwestern portion of the Project site parallel to the large alluvial wash, and one crosses northern half of the Project site. Dark shapes on and near the Project site appear to be clips or markers used to align adjacent aerial photographs. The remaining portions of the Project site and surrounding areas appear to be similar to the 1943 aerial photograph.
1955	The Project site and surrounding areas appear to be similar to the 1953 aerial photograph.
1968	The Project site and surrounding areas appear to be similar to the 1955 aerial photograph, although the photo quality is very poor.
1975	More light-colored lines, which appear to be unimproved roads, are visible to the south of the Project site than in the 1955 aerial photograph. A larger light-colored line, which appears to be a larger road, is visible northeast of the Project site. The remaining portions of the Project site and surrounding areas appear to be similar to the 1955 aerial photograph.
1984	More light-colored lines, which appear to be unimproved roads, are visible on the Project site than in the 1975 aerial photograph. Small areas of land south of the Project site appear to have been converted to agriculture. The remaining portions of the Project site and surrounding areas appear to be similar to the 1975 aerial photograph.
1994	Several small structures are located south and east of the southern portion of the Project site. The remaining portions of the Project site and surrounding areas appear to be similar to the 1984 aerial photograph.
1996	The Project site and surrounding areas appear to be similar to the 1994 aerial photograph.
2005	Additional buildings are visible south and east of the southern portion of the Project site. The remaining portions of the Project site and surrounding areas appear to be similar to the 1996 aerial photograph.
2009	The Project site and surrounding areas appear to be similar to the 2005 aerial photograph.
2010	The Project site and surrounding areas appear to be similar to the 2009 aerial photograph.
2012	The Project site and surrounding areas appear to be similar to the 2010 aerial photograph.
2014	The Project site and surrounding areas appear to be similar to the 2012 aerial photograph.
2016	The Project site and surrounding areas appear to be similar to the 2014 aerial photograph.

Source: Appendix I

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8 REVIEW OF HISTORICAL TOPOGRAPHIC MAPS

Dudek reviewed historical topographic maps from 1939, 1942, 1959, 1960, 1975 (photorevised from 1959 image), 1997, and 2012 (Appendix B). The topographic maps are a historical source that can be used to document prior use of the Project site and surrounding area.

The topographic maps are described in Table 2.

Table 2
Summary of Historical Topographic Maps

Date	Map Name(s)	Scale	Description
Northern Portion of Project Site			
1942	Cuyapaipe	1:62,500	The northern section of the Project site appears to be vacant land. The Manzanita Indian Reservation and several buildings are depicted to the west of the Project site. No buildings are depicted on the Project site. An unimproved road crosses the northern portion of the Project site. The In-Ko-Pah Mountains are depicted to the north of the Project site.
1960	Mount Laguna	1:62,500	The northern section of the Project site and surrounding areas appear similar to the 1942 Cuyapaipe topographic map. The unimproved road crossing the northern portion of the Project site, visible in the 1942 Cuyapaipe topographic map, is now labeled Lost Valley Road. A feature labeled "Airway Beacon" is identified in the northeastern portion of the Project site. An unnamed spring is depicted near the western boundary of the Project site. The Anza-Borrego Desert State Park is labeled to the north of the Project site.
1959	Live Oak Springs, Sombrero Peak	1:24,000	The northern portion of the Project site appears similar to the 1960 Mount Laguna topographic map.
1959 (photorevised 1975)	Live Oak Springs, Sombrero Peak	1:24,000	The northern portion of the Project site and surrounding area appear similar to the 1959 Live Oak Springs, Sombrero Peak topographic maps. A dry lake/pond is now depicted east of the Project site. The large road east of the Project site is now labeled as McCain Valley Road.
1997	Live Oak Springs, Sombrero Peak	1:24,000	The northern portion of the Project site and surrounding area appear similar to the 1959 (photorevised 1975) Live Oak Springs, Sombrero Peak topographic maps.
2012	Live Oak Springs, Sombrero Peak	1:24,000	No buildings are depicted on the northern portion of the Project site or in the surrounding area. Roads are labeled on the Project site and in surrounding areas.

Table 2
Summary of Historical Topographic Maps

Date	Map Name(s)	Scale	Description
Southern Portion of Project Site			
1939	Campo	1:62,500	The southern portion of the Project site appears to be vacant land. Much of the Project site falls within a land feature identified as McCain Valley. Tule Creek runs northwest to southeast through the southwestern portion of the Project site. A marsh area is depicted on the Project site along the course of Tule Creek. An unimproved road crosses the southwestern portion of the Project site, approximately parallel to and south of Tule Creek. Two buildings are indicated on the Project site: one near the southern end and one near the top of the map (near the middle of the Project site). The Manzanita and Campo Indian Reservations are depicted to the west and south of the Project site. Several buildings, accessible via unimproved roads, are depicted south of the Project site. Three small collections of buildings, labeled Live Oak Springs, Manzanita, and Boulevard, are located south of the Project site, along Interstate 8.
1942	Campo	1:62,500	The southern portion of the Project site and surrounding areas appear similar to 1939 Campo topographic map.
1959	Campo	1:62,500	Parts of the southern portion of the Project site are now depicted as shrubland. A second unimproved road now traverses the Project site, running generally north/south. Only one building is depicted on the Project site, near the southern boundary. A windmill is depicted west of the marsh area along Tule Creek. Additional roads and an airstrip are depicted southeast of the Project site. More buildings are now depicted in the communities of Live Oak Springs, Manzanita, and Boulevard.
1959	Live Oak Springs, Sombrero Peak	1:24,000	The southern portion of the Project site and surrounding area appear similar to the 1959 Campo topographic map.
1959 (photorevised 1975)	Live Oak Springs, Sombrero Peak	1:24,000	The southern portion of the Project site and surrounding area appear similar to the 1959 Campo topographic map. A dry lake/pond is now depicted east of the Project site.
1997	Live Oak Springs, Sombrero Peak	1:24,000	The southern portion of the Project site and surrounding area appear similar to the 1959 (photorevised 1975) Live Oak Springs and Sombrero Peak topographic maps.
2012	Live Oak Springs, Sombrero Peak	1:24,000	No buildings are depicted on the southern portion of the Project site or in the surrounding area, and the windmill is no longer depicted. The course of Tule Creek through the southwestern portion of the Project site runs dry in a location where a marsh was depicted in the 1997 Live Oak Springs and Sombrero Peak topographic maps. Roads are labeled on the Project site and in surrounding areas.

9 SITE HISTORY

Based on a review of the historical aerial photographs, agency records, and the site representative interview, much of the Project site appears to have remained vacant, undeveloped land since 1939. The southwestern portion of the Project site may have been used as agricultural land (for ranching) in the past, although the dates of this potential land use are unknown. Signage associated with a transmission line crossing the northern portion of the Project site indicate that herbicides were used on the Project site. A structure, presumed to be a residence potentially associated with ranching activity, was depicted in historical topographic maps on the southern portion of the Project site starting in 1939.

Two structures were identified during the site reconnaissance, both of which are currently in disrepair and uninhabitable. One structure is located in proximity to, and may be associated with, a feature labeled "Airway Beacon" on historical topographic maps from 1959–1997. The other structure appears to have been a residence. Adjacent and nearby land uses are power generation using wind turbines, residential uses, and undeveloped land.

Historical Sanborn fire insurance rate maps were not requested from GeoSearch. Sanborn maps provide information regarding historical uses of a site and surrounding properties. Sanborn maps typically exist only for cities with populations of 2,000 or more; the coverage is dependent on the location of the subject site within the city limits. The Project site is not located within a town; therefore, City Directory records were not requested.

Vapor encroachment can be ruled out for the Project site and adjoining properties, since no cases were located on or surrounding the Project site.

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10 PUBLIC AGENCY RECORDS SEARCH REVIEW

The regulatory database search gives a listing of sites within up to a 1-mile-radius of a property ("target property" is the term used by GeoSearch) that are known to be chemical handlers, hazardous waste generators, or polluters. Information in these listings includes the location of the site relative to the property, sources of pollution, and the status of the site. The search performed for this Phase I ESA was conducted in June 2018 by GeoSearch. The database search report is included as Appendix J, Records Search Report.

The Project site was not listed in the regulatory databases searched by GeoSearch.

The following sections list the databases that were searched and search distances from the Project site.

10.1 U.S. Environmental Protection Agency Federal Sources

The regulatory databases listed in Table 3 were included in this search.

Table 3
Federal Regulatory Databases

Acronym	Database	Search Distance	Project Site Listed?	Number of Sites Listed
NPL	National Priorities List (including proposed NPL sites)	1 mile	No	0
Proposed NPL	Proposed National Priority List Sites	1 mile	No	0
Delisted NPL	National Priority List Deletions	1 mile	No	0
NPL LIENS	Federal Superfund Liens	Target Property	No	0
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)	0.5 miles	No	0
CERCLIS NFRAP	CERCLIS No Further Remedial Action Planned	0.5 miles	No	0
CORRACTS	Resource Conservation and Recovery Act (RCRA) Corrective Action	1 mile	No	0
RCRA TSDF	RCRA – Transportation, Storage, and Disposal	0.5 miles	No	0
RCRA GEN	RCRA registered small or large generators of hazardous waste	0.25 miles	No	0
ERNS	Emergency Response Notification System of Spills	Target Property	No	0
HMIRS	Hazardous Materials Information Reporting System	Target Property	No	0
US ENG CONTROLS	Sites with Engineering Controls	0.5 miles	No	0
US INST CONTROLS	Sites with Institutional Controls	0.5 miles	No	0
DOD	Department of Defense Sites	1 mile	No	0
FUDS	Formerly Used Defense Sites	1 mile	No	0
US BROWNFIELDS	A Listing of Brownfields Sites	0.5 miles	No	0

Table 3
Federal Regulatory Databases

Acronym	Database	Search Distance	Project Site Listed?	Number of Sites Listed
CONSENT	Superfund (CERCLA) Consent Decrees	1 mile	No	0
ROD	Record of Decision	1 mile	No	0
UMTRA	Uranium Mill Tailings Sites	0.5 miles	No	0
ODI	Open Dump Inventory	0.5 miles	No	0
TRIS	Toxic Release Inventory Database	Target Property	No	0
TSCA	Toxic Substance Control Act	Target Property	No	0
FTTS	Federal Insecticide, Fungicide, and Rodenticide Act/TSCA Tracking System	Target Property	No	0
SSTS	Section 7 Tracking Systems	Target Property	No	0
ICIS	Integrated Compliance Information System	Target Property	No	0
US CDL	Clandestine Drug Lab Locations	Target Property	No	0
LUCIS	Land Use Control Information System for former Navy base realignment and closure properties	0.5 miles	No	0
RADINFO	Radiation Information Database	Target Property	No	0
PADS	PCB [polychlorinated biphenyl] Activity Database System	Target Property	No	0
MLTS	Material Licensing Tracking System	Target Property	No	0
MINES	Mines Master Index File	0.25 miles	No	0
FINDS	Facility Index System/Facility Identification Initiative Program Summary Report	Target Property	No	0
RAATS	RCRA Administrative Action Tracking System	Target Property	No	0
LIENS2	CERCLA Lien Information	Target Property	No	0
DOT OPS	Department of Transportation, Office of Pipeline Safety Incident and Accident database	Target Property	No	0
US HIST CDL	National Clandestine Laboratory Register	Target Property	No	0
RCRA-NonGen	RCRA – Non Generators	0.25 miles	No	0
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing	Target Property	No	0
FEDERAL FACILITY	Federal Facility Site Information Listing	1 mile	No	0
COAL ASH DOE	Steam-Electric Plan Operation Data	Target Property	No	0
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List	0.5 miles	No	0
PCB TRANSFORMER	PCB Transformer Registration Database	Target Property	No	0
Additional Environmental Records		Varies	No	0

Source: Appendix J

The Project site was not listed in the federal regulatory databases searched by GeoSearch. State regulatory agency databases are discussed in Section 10.2, State Searches.

No additional sites were listed in the federal regulatory databases searched by GeoSearch.

10.2 State Sources

The regulatory databases listed in Table 4 were consulted in this search.

Table 4
State Regulatory Databases

Acronym	Database	Search Distance	Project Site Listed?	Number of Sites Listed
Hist Cal-Sites	Calsites Database	1.0 mile	No	0
CA Bond Exp. Plan	Bond Expenditure Plan	1.0 mile	No	0
SCH	Proposed and Existing School Sites Being Evaluated By DTSC	0.25 miles	No	0
Toxic Pits	Toxic Pits Cleanup Facilities	1.0 mile	No	0
WMUDS/SWAT	Waste Management Unit Database/Solid Waste Assessment Test	0.5 miles	No	0
CORTESE	State Index of Properties with Hazardous Waste	0.5 miles	No	0
SWRCY	Recycling Facilities in California	0.5 miles	No	0
LUST	Leaking Underground Storage Tank [UST]	0.5 miles	No	0
CA FID UST	Facility Inventory Database	0.25 miles	No	0
SLIC	Statewide SLIC Cases	0.5 miles	No	0
UST	Registered Underground Storage Tanks, Including Tanks On Indian Land and Historic USTs	0.25 miles	No	0
HIST UST	Historic Underground Storage Tank	0.25 miles	No	0
AST	Registered Aboveground Storage Tanks	0.25 miles	No	0
SWEEPS UST	UST listing maintained by Regional Water Quality Control Board in the 1980s	0.25 miles	No	0
CHMIRS	California Hazardous Waste Material Incident Report System	Target Property	No	0
Notify 65	Proposition 65	1.0 mile	No	0
DEED	Department of Health Services – Land Use and Air Assessment	0.5 miles	No	0
VCP	Voluntary Cleanup Program Properties	0.5 miles	No	0
DRYCLEANERS	Dry Cleaner Facilities	0.25 miles	No	0
WIP	Well Investigation Program Case List	0.25 miles	No	0
CDL	Clandestine Drug Labs	Target Property	No	0
LIENS	Environmental Liens in California where DTSC is the lien holder	Target Property	No	0

Table 4
State Regulatory Databases

Acronym	Database	Search Distance	Project Site Listed?	Number of Sites Listed
RESPONSE	State Response Sites	1.0 mile	No	0
HAZNET	Hazardous Waste Information System	Target Property	No	0
EMI	Emissions Inventory Data	Target Property	No	0
ENVIROSTOR	EnviroStor Database	1.0 mile	No	0
INDIAN RESERV	Indian Reservations	1.0 mile	No	**2**
INDIAN LUST	Leaking Underground Storage Tanks on Indian Land	0.5 miles	No	0
INDIAN UST	Underground Storage Tanks on Indian Land	0.25 miles	No	0
INDIAN ODI	Report on the Status of Open Dumps on Indian Lands	0.5 miles	No	0
INDIAN VCP	Voluntary Cleanup Priority Listing	0.5 miles	No	0
SWF/LF	Solid Waste Information System	0.5 miles	No	0
DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations	0.5 miles	No	0
HIST CORTESE	Hazardous Waste and Substances Site List	0.5 miles	No	0
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing	0.5 miles	No	0
FEMA UST	Underground Storage Tank Listing	0.25 miles	No	0
HAULERS	Registered Waste Tire Haulers Listing	Target Property	No	0
NPDES	NPDES Permit Listing	Target Property	No	0
WDS	Waste Discharge System	Target Property	No	0
PROC	Certified Processors Database	0.5 miles	No	0
MWMP	Medical Waste Management Program Listing	0.25 miles	No	0
HWT	Registered Hazardous Waste Transporters Database	0.25 miles	No	0
FINANCIAL ASSURANCE	Financial Assurance Information Listing	Target Property	No	0
HWP	Envirostor Permitted Facilities Listing	1.0 mile	No	0
LDS	Land Disposal Sites Listing	Target Property	No	0
MCS	Military Cleanup Sites Listing	Target Property	No	0
Additional Environmental Records		Varies	No	2

Source: Appendix J

The Project site was not listed in any of the state or local regulatory database records.

Two neighboring sites were listed in one of the state or local regulatory database records: INDIAN RESERV. The Department of Interior and Bureau of Indian Affairs maintain this database that includes American Indian Reservations, off-reservation trust lands, public domain allotments, Alaska Native Regional Corporations, and Recognized State Reservations.

The Campo and Manzanita Indian Reservations are located within 1/8 of a mile and 1 mile of the Project site, respectively. These listings are not indicative of a release or any environmental impacts to the Project site.

10.3 Unmapped Sites

Unmapped sites are flagged by GeoSearch but not mapped due to insufficient address information. They are usually included in the database search report because they are in the same zip code as the search property. There were no unmapped sites listed in the GeoSearch report for the Project site.

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11 POTENTIAL HAZARDS AND ENVIRONMENTAL CONCERNS

Information regarding the following potential sources of hazards and hazardous material releases from the interview, site reconnaissance, and review of regulatory agency records is provided in the following paragraphs.

Agricultural Use

Based on the site reconnaissance, the southwestern portion of the Project site may have been used as agricultural land (specifically for ranching) in the past, although the dates of this potential land use are unknown. Signage associated with a transmission line crossing the northern portion of the Project site indicate that herbicides were used at the Project site.

Off-Site Sources

Based on the review of regulatory agency records, it is unlikely that off-site sources have impacted the environmental conditions of the Project site.

Residential Use

Based on a review of historical topographic maps, the southern portion of the Project site may have been used for residential purposes starting as early as 1939. The Project site is not currently being used as a residence.

PCB Items

Transmission lines cross the northern portion of the Project site. No transformers or visual indications of staining were observed (Photograph 35).

Two motors associated with water wells were observed to be in disrepair. No dates were discernible on the labels. The smaller of the two was sitting directly on the ground and the vegetation around it appeared stressed (Photograph 22).

Fill Material

No fill material was observed on the Project site.

Debris

A few tires were observed around the Project site, potentially from recreational off-road vehicles. In two areas, more prevalent trash was observed (Figure 2). One area was near an abandoned well on the northern part of the Project site (Photograph 33). Scattered around the area, close to the dirt roads, were metal sheets, canisters, and parts of drums. A stove and large pipe were found more than 500 feet south of the area.

The other area was close to the cattle yard (Photograph 36) in the southeastern portion of the Project site. Abandoned cattle feed and water containers were observed (Photograph 37). Debris was observed near the banks of the stream bed, including canisters, parts of drums, metal wire, tires, and glass (Photographs 38 and 39).

Tanks

Two aboveground storage tanks were observed on the Project site (Figure 2). Both storage tanks were associated with groundwater well pumps. One was a rusted 2,000-gallon tank (Photograph 20) with open ports at the top. Liquid was observed in the tank, and the tank appeared to be approximately one-third full. Petroleum odors were observed near the tank. The second tank was a larger tank, potentially 3,000 to 4,000 gallons (Photograph 23), but the exact volume could not be confirmed because the label had rusted over and was located on top of the tank. The ports at the top were open, and petroleum odors were observed near the ports.

No signs of underground storage tanks were observed.

Asbestos and Lead

Asbestos and/or lead may be present on the Project site, due to the existing buildings being constructed prior to 1959.

Radon

According to the U.S. Environmental Protection Agency Radon Zones Map, San Diego County falls within Zone 3 (EPA 2018). Radon Zone 3 corresponds with a low potential for indoor radon (<2 picocuries per liter [pCi/L]).

Previous Uses

Based on a review of the historical aerial photographs, agency records, and the site representative interview, much of the Project site appears to have remained vacant, undeveloped land since 1939. The southwestern portion of the Project site may have been used as agricultural land (specifically for ranching) in the past, although the dates of this potential land use are unknown. A structure, presumed to be a residence potentially associated with ranching activity, was depicted in historical topographic maps on the southern portion of the Project site starting in 1939. A feature labeled "Airway Beacon" was depicted on the northern portion of the Project site on historical topographic maps from 1959–1997.

12 FINDINGS AND RECOMMENDATIONS

Information gathered for this report indicated the following:

- Based on a review of the historical aerial photographs, agency records, and the site representative interview, much of the Project site appears to have remained vacant, undeveloped land since 1939. The southwestern portion of the Project site may have been used as agricultural land (specifically for ranching) in the past, although the dates of this potential land use are unknown. A feature labeled "Airway Beacon" was depicted on the northern portion of the Project site on historical topographic maps from 1959–1997. The southern portion of the Project site may have been used for residential purposes starting as early as 1939. The Project site is not currently being used as a residence.
- Five groundwater wells were observed on the Project site. Two of the wells each had an associated pump motor and an aboveground storage tank. The motors associated with water wells were observed to be in disrepair. The smaller of the two motors was sitting directly on the ground and the vegetation around it appeared stressed. Petroleum odors were observed in the vicinity of both aboveground storage tanks.
- Debris was observed in several locations on the Project site. Notably, metal debris, including an old stove and an abandoned pipe, were observed on the northern portion of the Project site; metal wire, tires, glass, and other debris were observed near a camping area; and empty cattle feed and water containers were observed near a cattle yard.
- Signage related to an electrical transmission line that crosses the Project site indicated that herbicides were in use on the Project site.
- Adjacent and nearby land uses are power generation using wind turbines, residential uses, and undeveloped land.
- It is unlikely that adjacent or nearby properties have impacted the environmental conditions at the Project site.
- Asbestos and/or lead may be present in the uninhabitable structures observed on the Project site, given that they were constructed prior to 1959.

This assessment revealed no evidence of RECs in connection with the Project site. Dudek did identify environmental concerns, for which recommendations are stated below. However, if the Project is not going to disturb the areas where environmental concerns were identified, these recommendations are not the responsibility of the lessee, Torrey Wind LLC.

- The groundwater well pumps, motors, and tanks should be properly decommissioned and disposed of in accordance with applicable local, state, and federal guidelines and/or

regulations. If impacted or stained soil is observed during disposal, additional investigation or sampling may be necessary.

- Soil sampling for herbicides should be conducted in the vicinity of signage that indicates that herbicides are in use and in other areas of the Project site if herbicides are used beyond the signage areas.
- Groundwater wells on the Project site that are not in use and remain open should be properly abandoned in accordance with applicable local, state, and federal guidelines and/or regulations.
- Solid debris and waste chemicals that are located on the Project site should be properly characterized and disposed of in accordance with applicable local, state, and federal guidelines and/or regulations.

Dudek has performed a Phase I ESA of the Project site in conformance with the scope and limitations of ASTM Practice E 1527-13. Any exceptions to, or deletions from, this practice are described in Section 13, Limitations, of this report.

13 LIMITATIONS

The following data gap, which does not appear to be significant, was identified for this Phase I ESA:

- Some areas of the Project site are remote and not accessible by vehicle, and were not inspected during the site reconnaissance.

The findings and conclusions presented in this report are professional opinions based solely on the indicated data described in this report, visual observations of the Project site and vicinity, and staff interpretation of the available historical information and documents reviewed. Dudek makes no warranty as to the accuracy of statements made by others or the accuracy of information included in documentation reviewed in connection with this report. This report is not intended to be a definitive investigation of potential contamination at the Project site, and the recommendations do not necessarily include all conditions that may be present. Because the scope of the investigation was limited, it is possible that currently unrecognized conditions or contamination might exist at the Project site.

No warranties, guarantees, or representations, expressed or implied, are made by Dudek, except that this report was prepared in accordance with current generally accepted practices and standards consistent with the level of care and skill exercised under similar circumstances by other professionals performing the same or similar services. The conclusions are intended exclusively for the purposes outlined herein, and may not be suitable to satisfy the needs of other users. Thus, any use or reuse of this document is at the sole risk of said user. No parties other than the user of this Phase I ESA, as identified in Section 2, Introduction, of this Phase I ESA, should rely on this report without prior written consent of Dudek.

In accordance with ASTM Standard E 1527-13, this Phase I ESA is valid for 180 days. After 180 days, this report, or the information presented in this report, must be updated in accordance with the ASTM Standard.

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14 REFERENCE

BLM (Bureau of Land Management). 2008. *El Centro Field Office, Eastern San Diego County Resource Management Plan and Record of Decision*. October 2008. https://eplanning.blm.gov/epl-front-office/projects/lup/71564/95316/115275/Eastern_San_Diego_County_RMP_ROD.pdf.

EPA (U.S. Environmental Protection Agency). 2018. "EPA Radon Zones." Accessed June 19, 2018. https://www.epa.gov/radon/find-information-about-local-radon-zones-and-state-contact-information.

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APPENDIX A

Qualifications of Environmental Professionals

APPENDIX A
Qualifications of Environmental Professionals

Environmental Professional	Professional License	Degree(s)	Years' Experience	Task Performed
Glenna McMahon	Professional Engineer, State of California	B.S., Civil Engineering, University of Vermont	17	Report Preparation/Review, QA/QC
Claire Kouba	Professional Engineer, State of California	B.S., Civil and Environmental Engineering, Stanford University M.S., Geological and Environmental Sciences, Stanford University	5	Site Reconnaissance, Report Preparation
Nicole Tucker	-	B.S., Physics, Shippensburg University M.S., Geoscience, Florida International University	1	Report Preparation

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APPENDIX B

Historical Topographic Maps

GeoSearch
On time. On target. In touch.™

Historical Topographic Maps

Target Property:

Torrey Wind Project
McCain Valley Rd
Boulevard, San Diego, California 91905

Prepared For:

Dudek

Order #: 109659
Job #: 241534
Project #:
Date: 6/8/2018

Target Property Summary

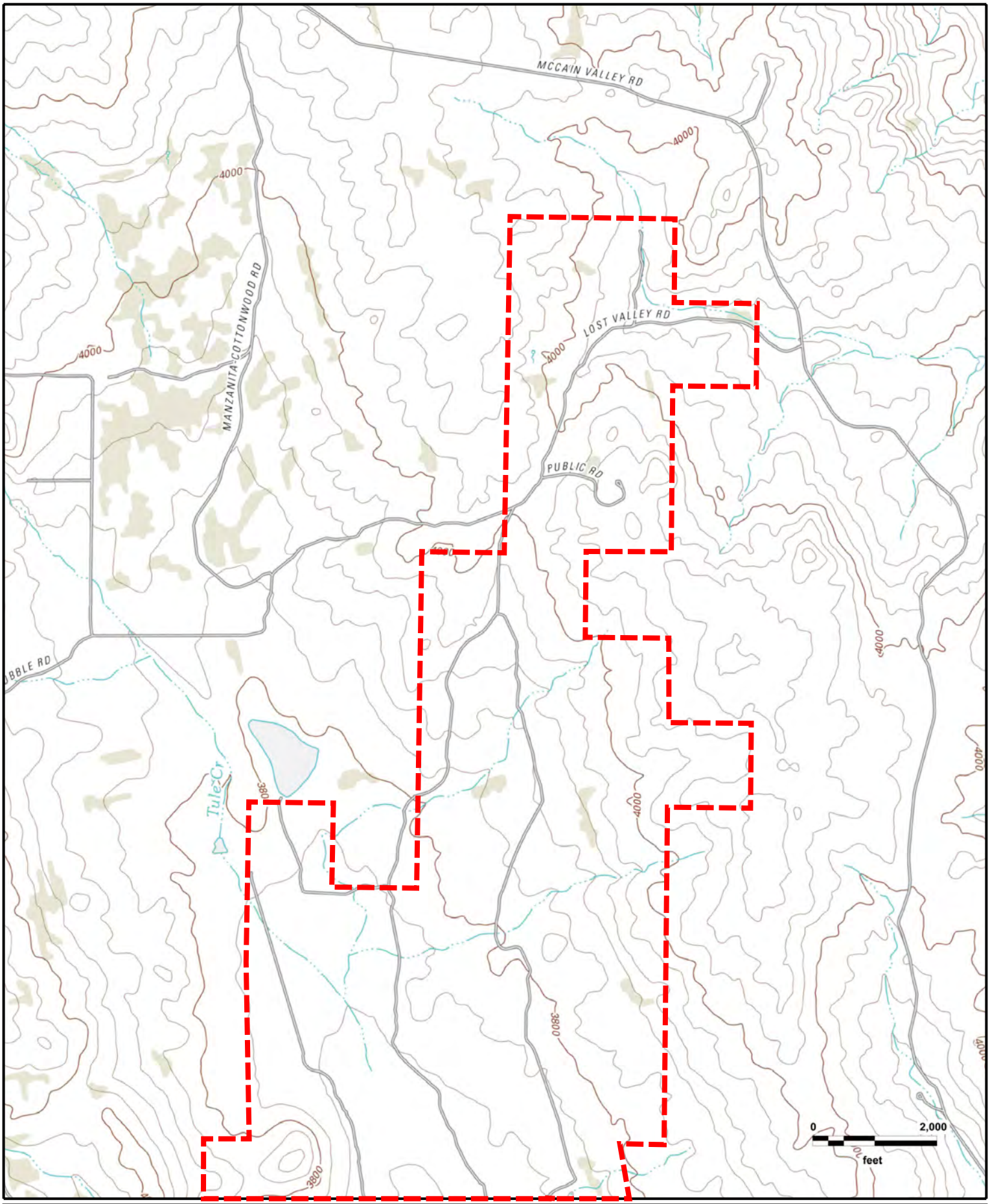
Torrey Wind Project
McCain Valley Rd
Boulevard, San Diego, California 91905

USGS Quadrangle: ***Sombrero Peak, Live Oak Springs***
Target Property Geometry: ***Area***

Target Property Longitude(s)/Latitude(s):
(-116.287160000, 32.767047000), (-116.295718000, 32.767150000), (-116.296023000, 32.752343000), (-116.300300000, 32.752396000), (-116.300571000, 32.737577000), (-116.304971000, 32.737627000), (-116.304884000, 32.741320000), (-116.309273000, 32.741371000), (-116.309419000, 32.734323000), (-116.309258000, 32.726536000), (-116.311620000, 32.726537000), (-116.311648000, 32.718227000), (-116.311659000, 32.717294000), (-116.311051000, 32.717305000), (-116.311100000, 32.717825000), (-116.302308000, 32.717856000), (-116.302028000, 32.714118000), (-116.293393000, 32.714023000), (-116.293045000, 32.721270000), (-116.293734000, 32.723922000), (-116.289486000, 32.723696000), (-116.290025000, 32.726319000), (-116.287731000, 32.726281000), (-116.287549000, 32.741142000), (-116.283243000, 32.741101000), (-116.283203000, 32.744833000), (-116.287476000, 32.744867000), (-116.287484000, 32.748586000), (-116.291816000, 32.748623000), (-116.291772000, 32.752405000), (-116.287356000, 32.752390000), (-116.287274000, 32.759695000), (-116.282944000, 32.759655000), (-116.282897000, 32.763322000), (-116.287201000, 32.763367000)

Topographic Map Summary

Date	Quadrangle	Scale
2012	Live Oak Springs, CA (2012) Sombrero Peak, CA (2012)	1" = 2000'
2012	Live Oak Springs, CA (2012) Sombrero Peak, CA (2012)	1" = 2000'
1997	Live Oak Springs, CA (1997) Sombrero Peak, CA (1997)	1" = 2000'
1997	Live Oak Springs, CA (1997) Sombrero Peak, CA (1997)	1" = 2000'
1959 PHOTOREVISED 1975	Live Oak Springs, CA (1975) Sombrero Peak, CA (1975)	1" = 2000'
1959 PHOTOREVISED 1975	Live Oak Springs, CA (1975) Sombrero Peak, CA (1975)	1" = 2000'
1959	Live Oak Springs, CA (1959) Sombrero Peak, CA (1959)	1" = 2000'
1959	Live Oak Springs, CA (1959) Sombrero Peak, CA (1959)	1" = 2000'
1959	Campo, CA	1" = 5208'
1942	Campo, CA	1" = 5208'
1939	Campo, CA	1" = 5208'
1960	Mount Laguna, CA	1" = 5208'
1942	Cuyapaipe, CA	1" = 5208'



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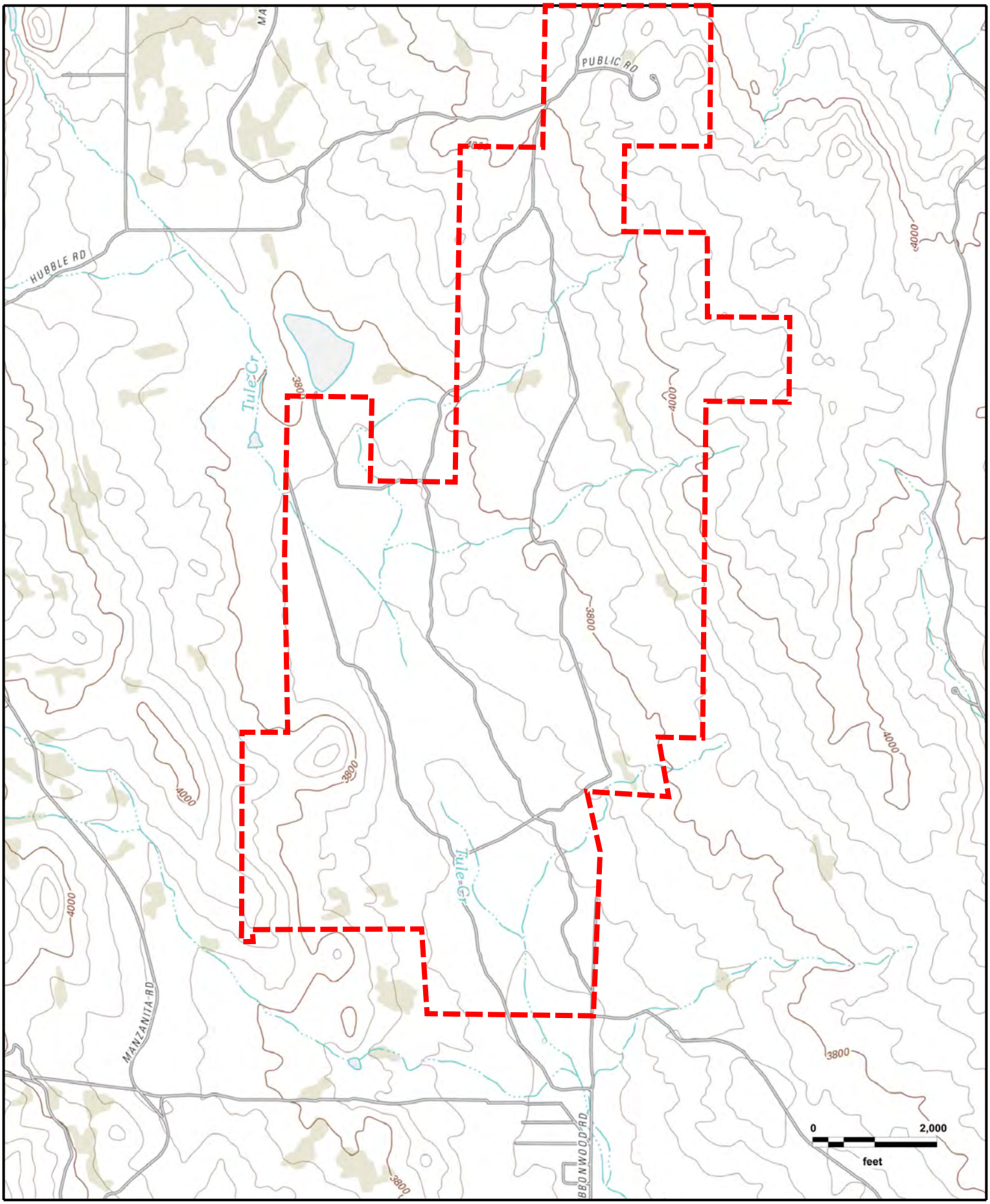
Torrey Wind Project
Live Oak Springs, CA (2012), Sombrero Peak, CA (2012)

GeoSearch

JOB #: 241534 - 06/08/2018



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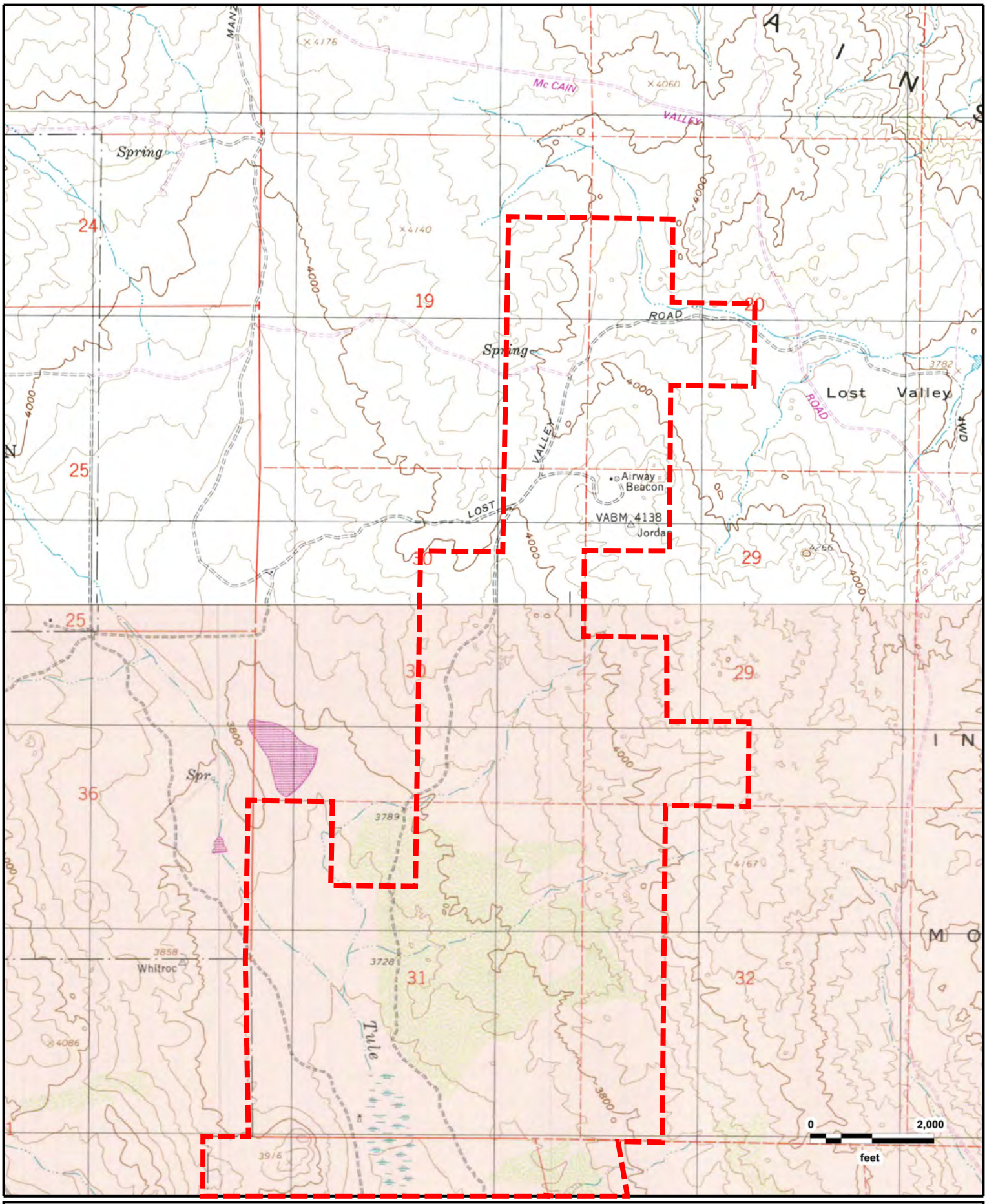
Torrey Wind Project
Live Oak Springs, CA (2012), Sombrero Peak, CA (2012)

GeoSearch

JOB #: 241534 - 06/08/2018



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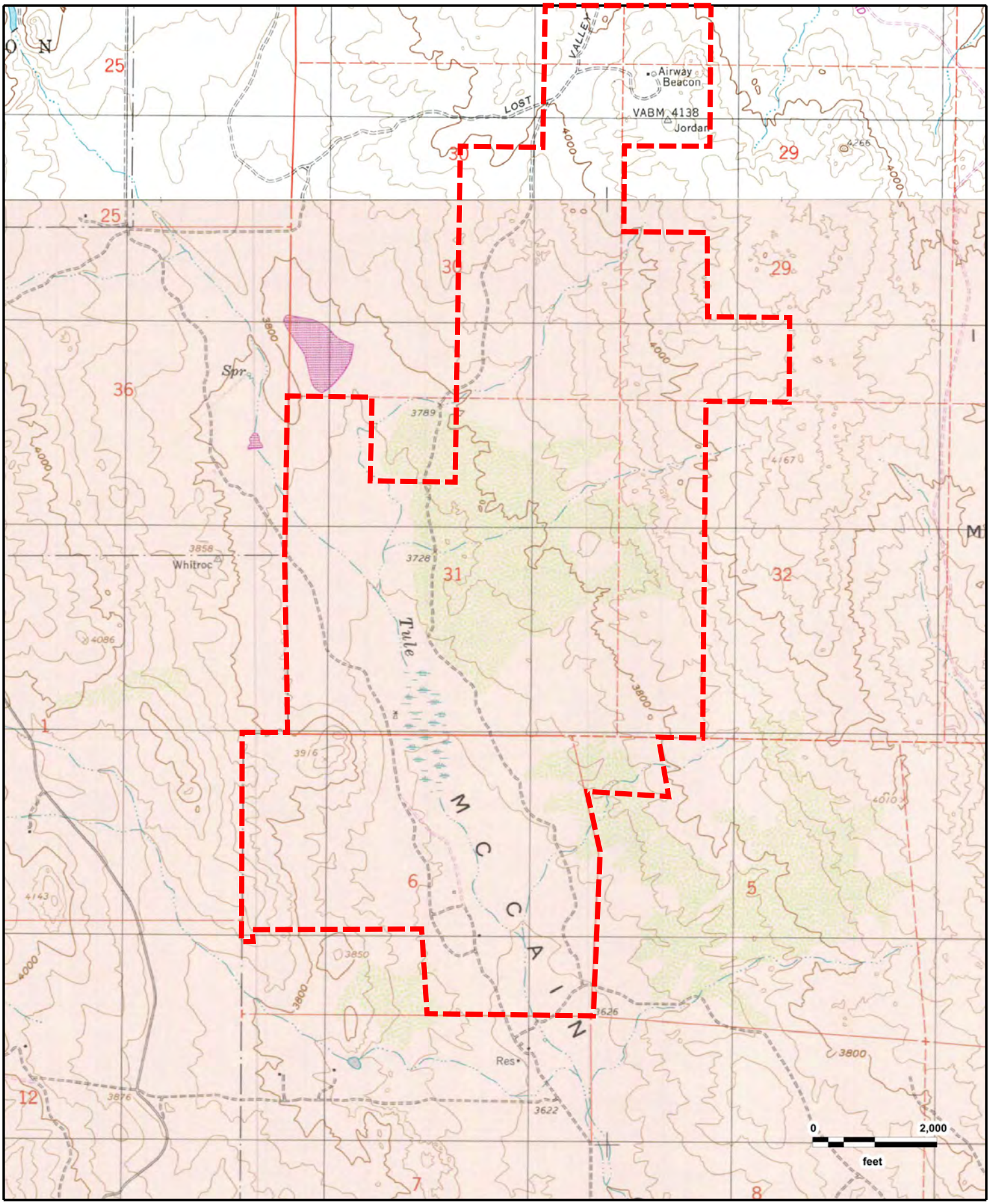
Torrey Wind Project
Live Oak Springs, CA (1997), Sombrero Peak, CA (1997)

GeoSearch

JOB #: 241534 - 06/08/2018



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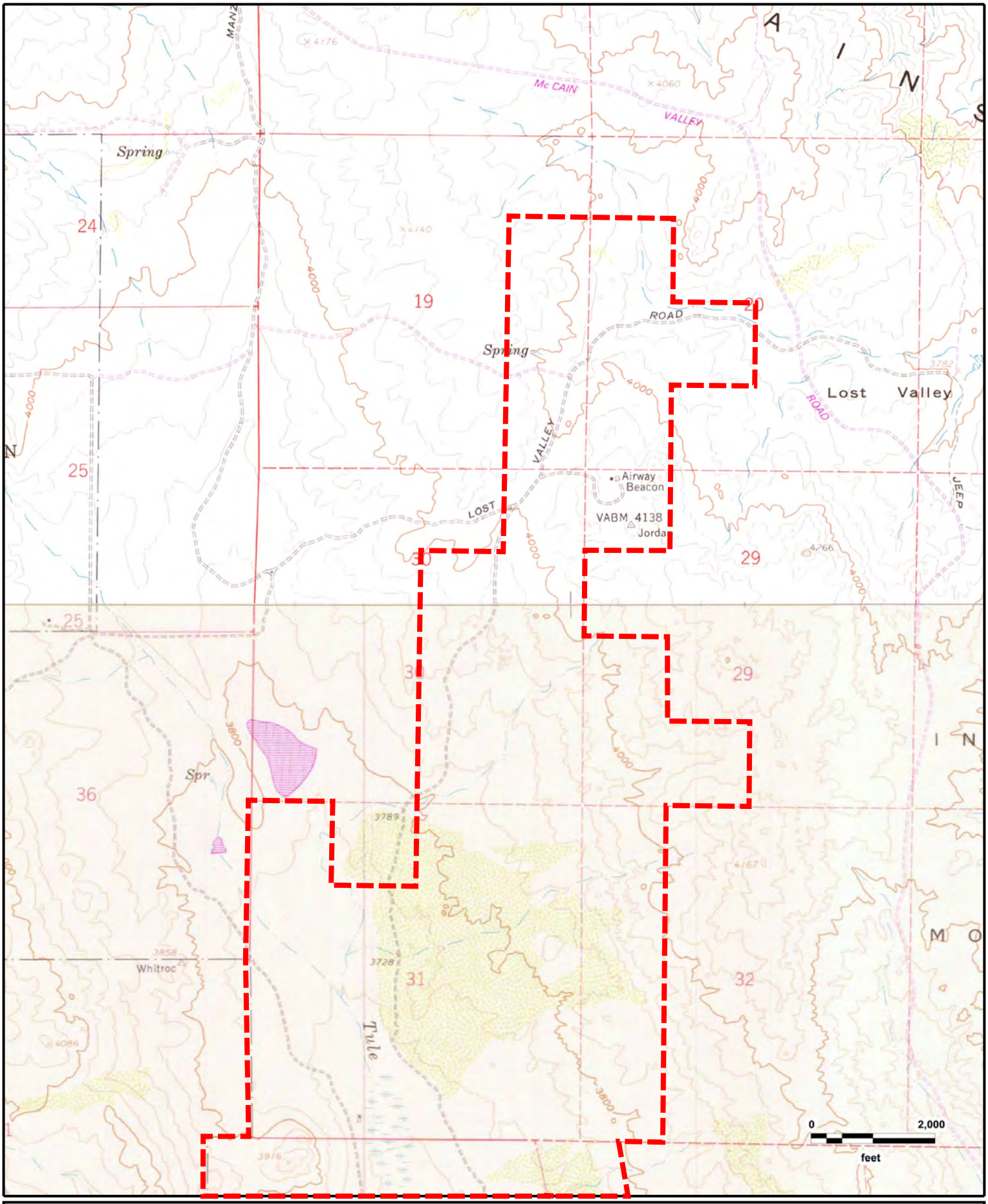
Torrey Wind Project
Live Oak Springs, CA (1997), Sombrero Peak, CA (1997)

GeoSearch

JOB #: 241534 - 06/08/2018

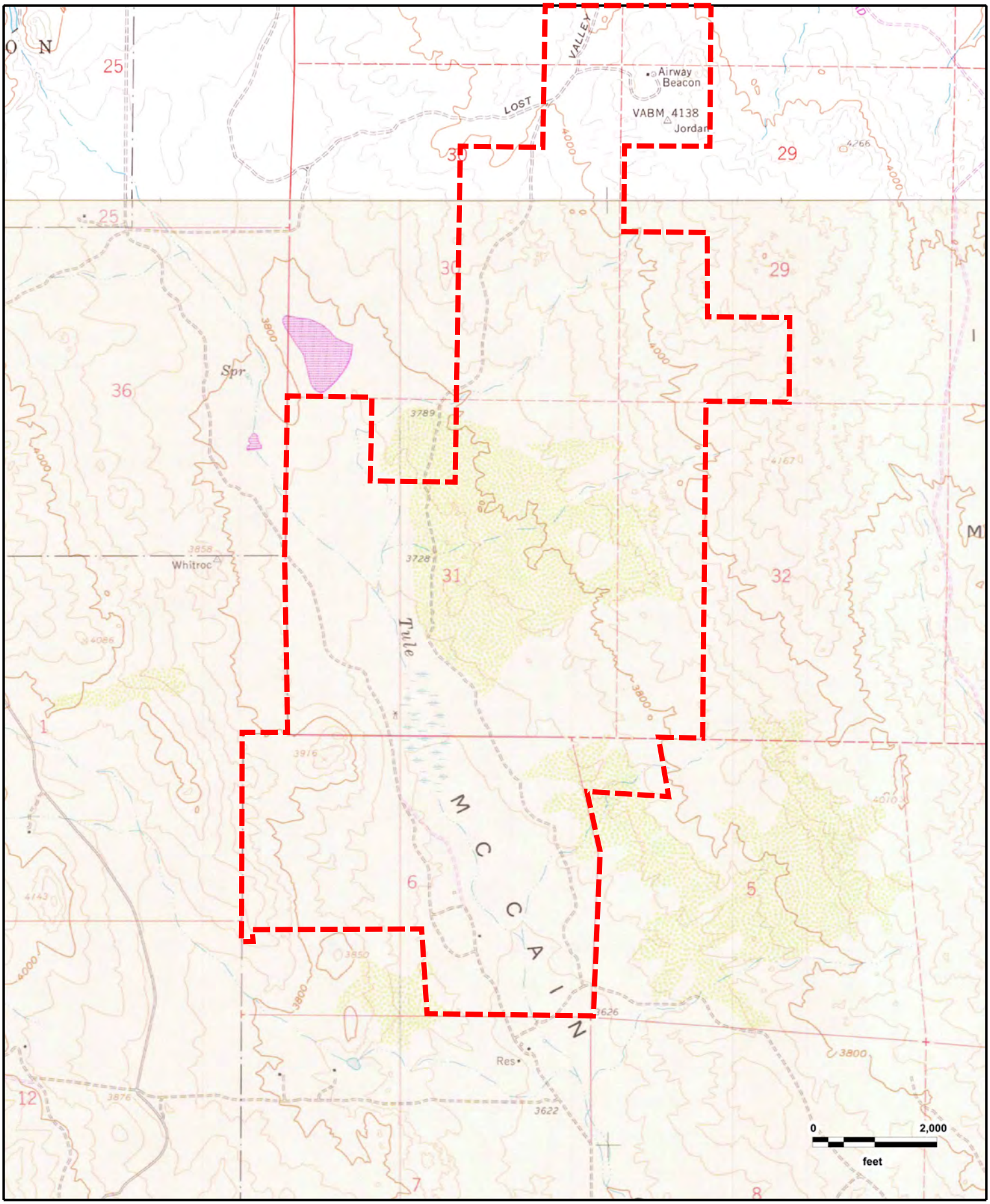


N
W E
S

Torrey Wind Project
Live Oak Springs, CA (1975), Sombrero Peak, CA (1975)

GeoSearch

JOB #: 241534 - 06/08/2018



N
W E
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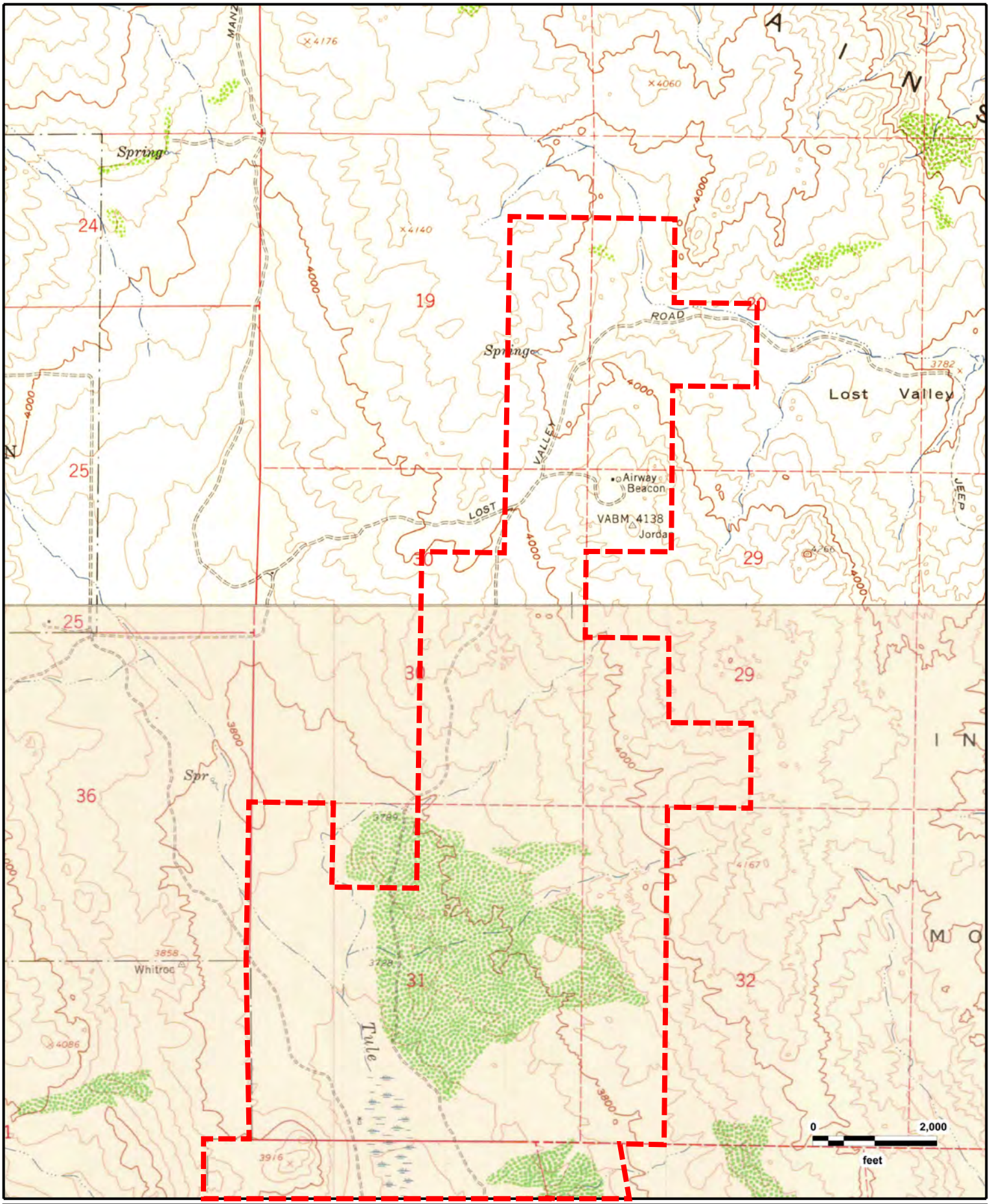
Torrey Wind Project
Live Oak Springs, CA (1975), Sombrero Peak, CA (1975)

GeoSearch

JOB #: 241534 - 06/08/2018



N
W E
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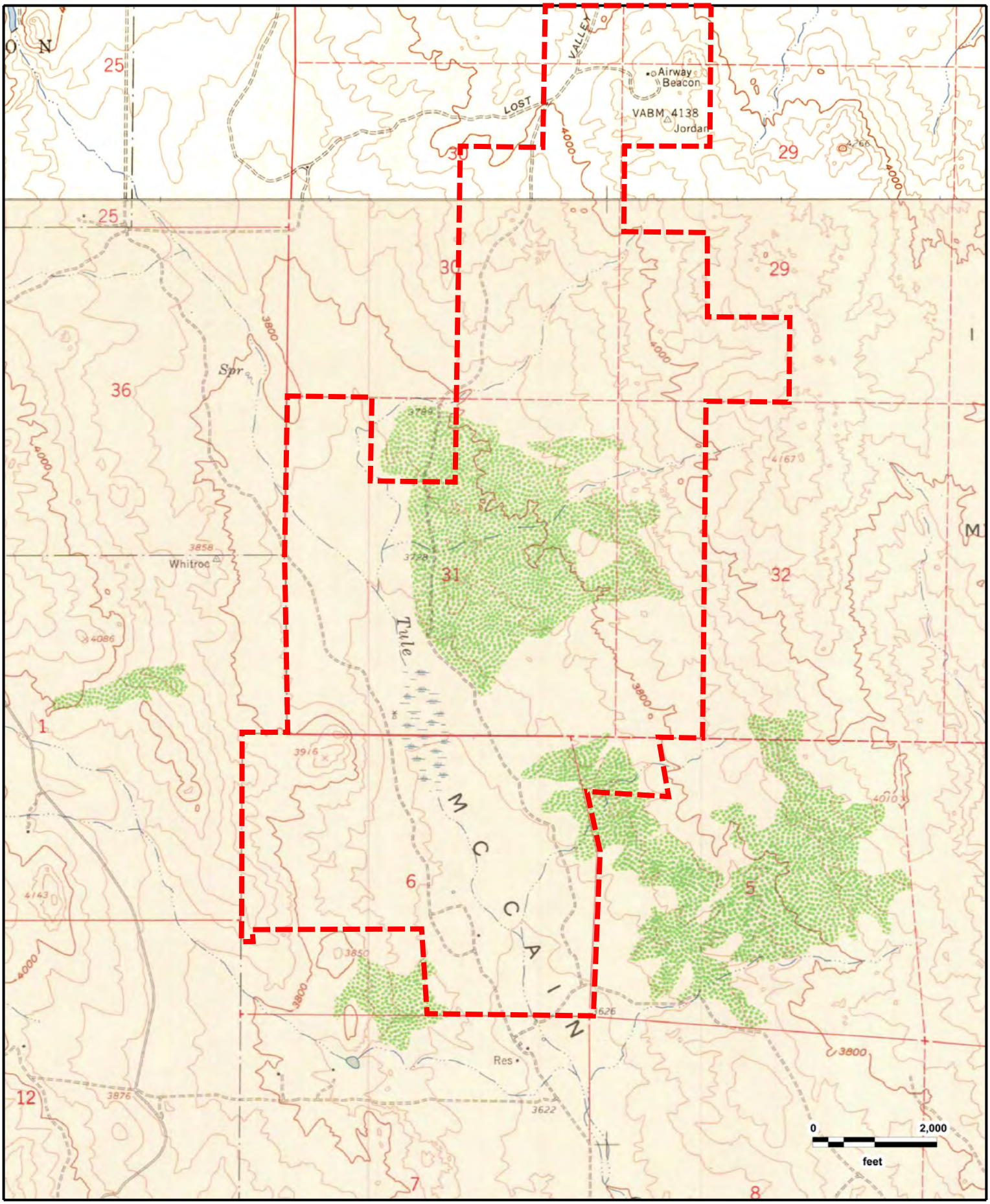
Torrey Wind Project
Live Oak Springs, CA (1959), Sombrero Peak, CA (1959)

GeoSearch

JOB #: 241534 - 06/08/2018



N
W E
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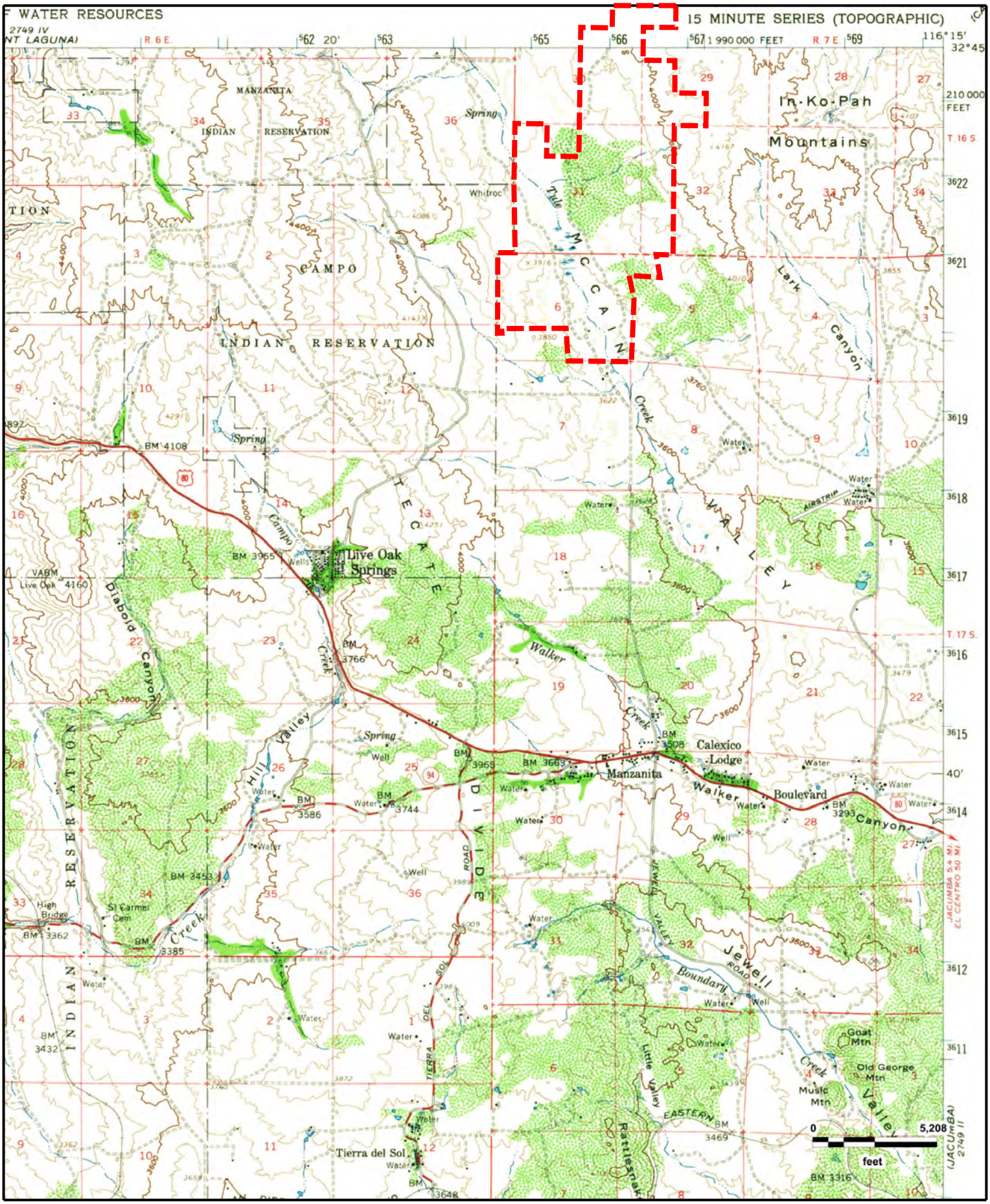
Torrey Wind Project
Live Oak Springs, CA (1959), Sombrero Peak, CA (1959)

GeoSearch

JOB #: 241534 - 06/08/2018



N
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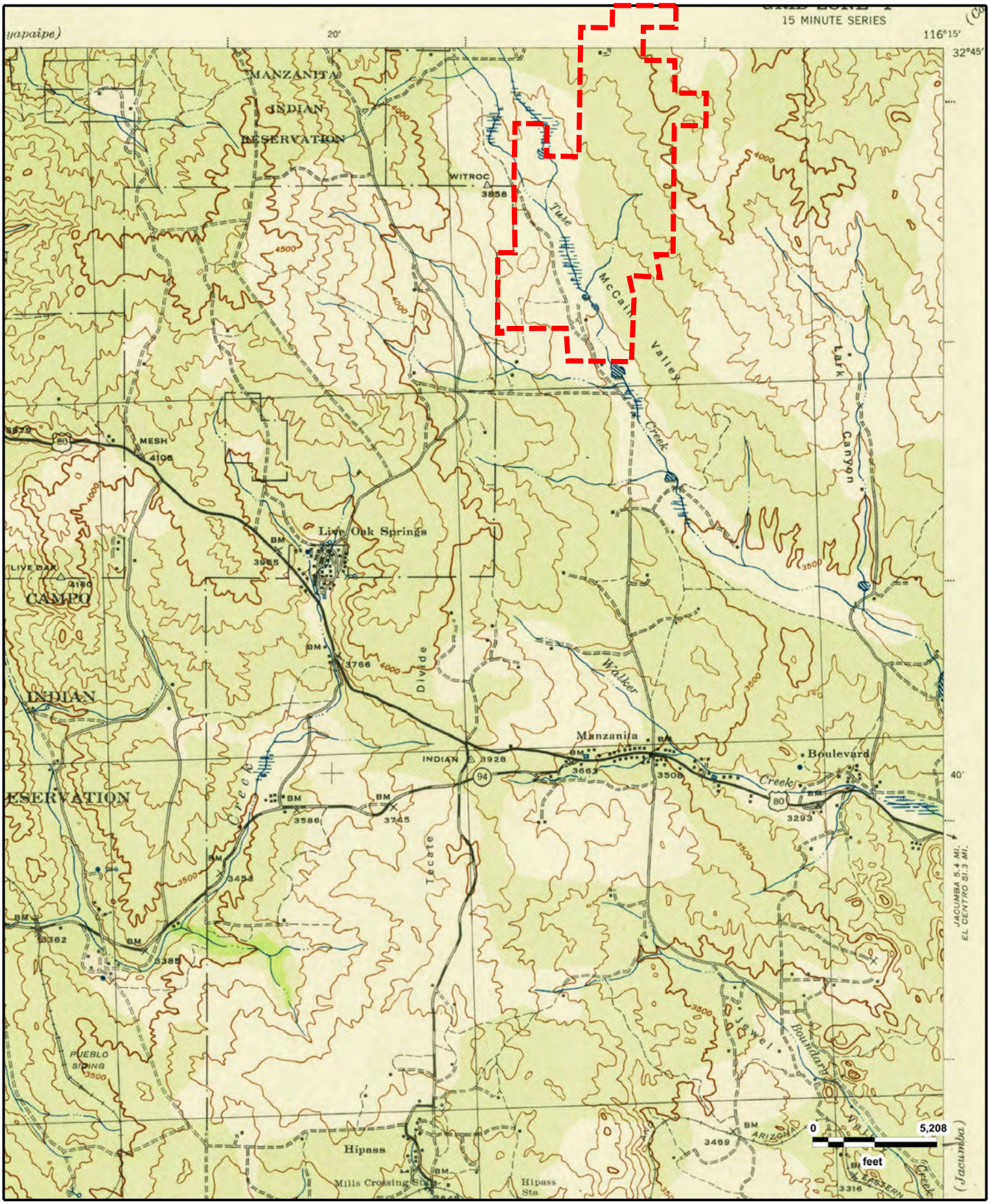
Torrey Wind Project
Campo, CA (1959)

GeoSearch

JOB #: 241534 - 06/08/2018

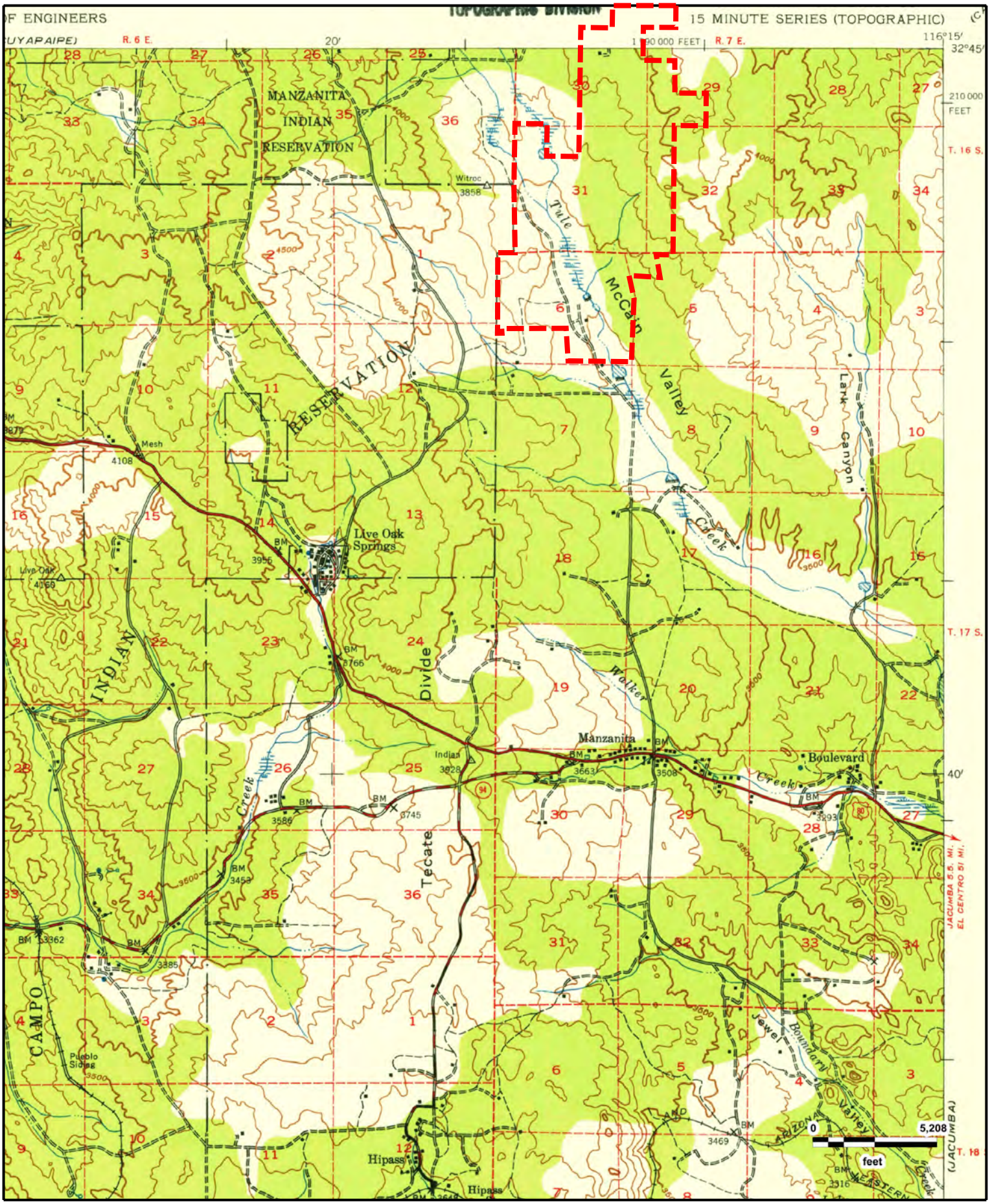


N
W E
S

Torrey Wind Project
Campo, CA (1942)

GeoSearch

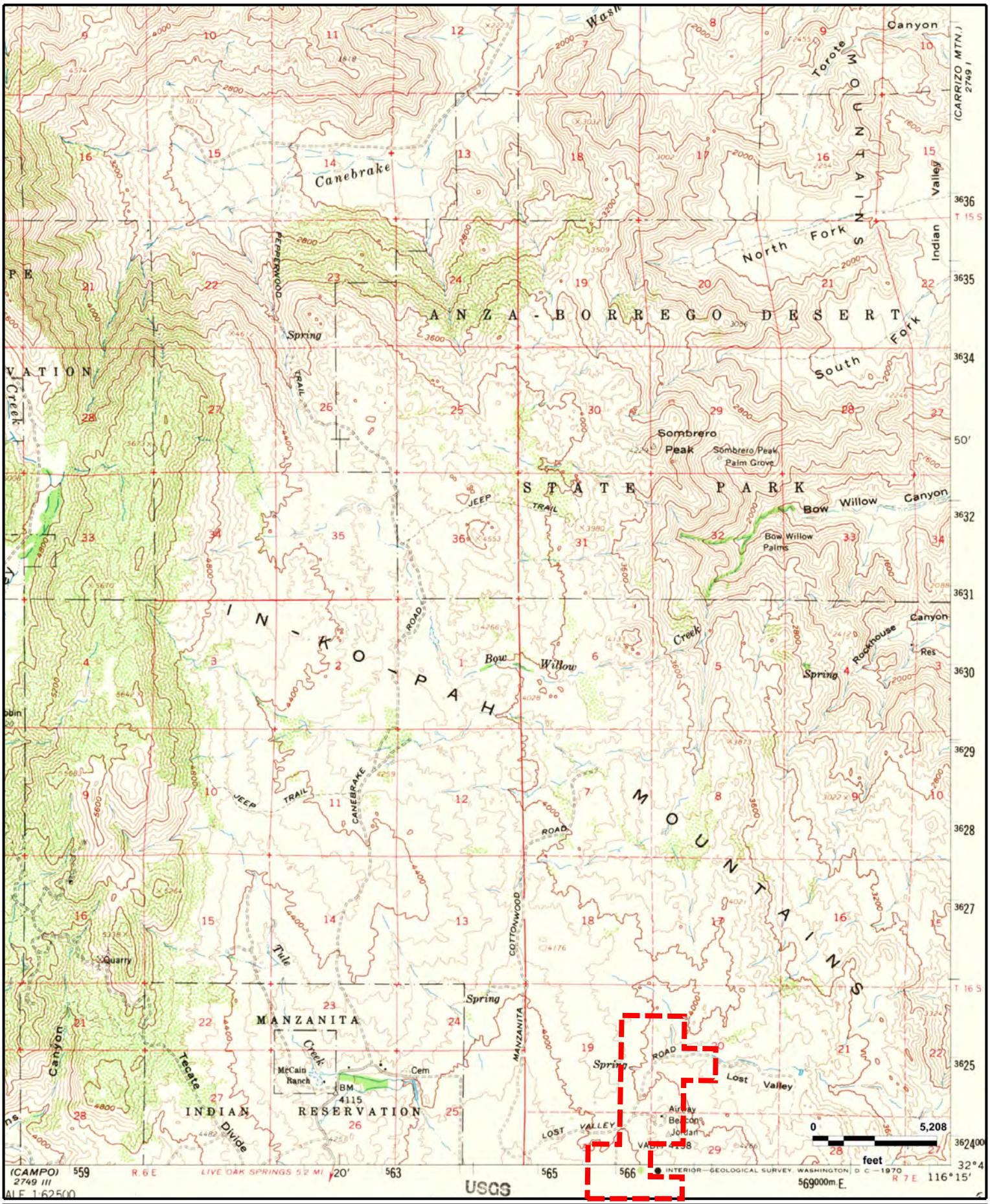
JOB #: 241534 - 06/08/2018



Torrey Wind Project
Campo, CA (1939)

GeoSearch

JOB #: 241534 - 06/08/2018



N
W E
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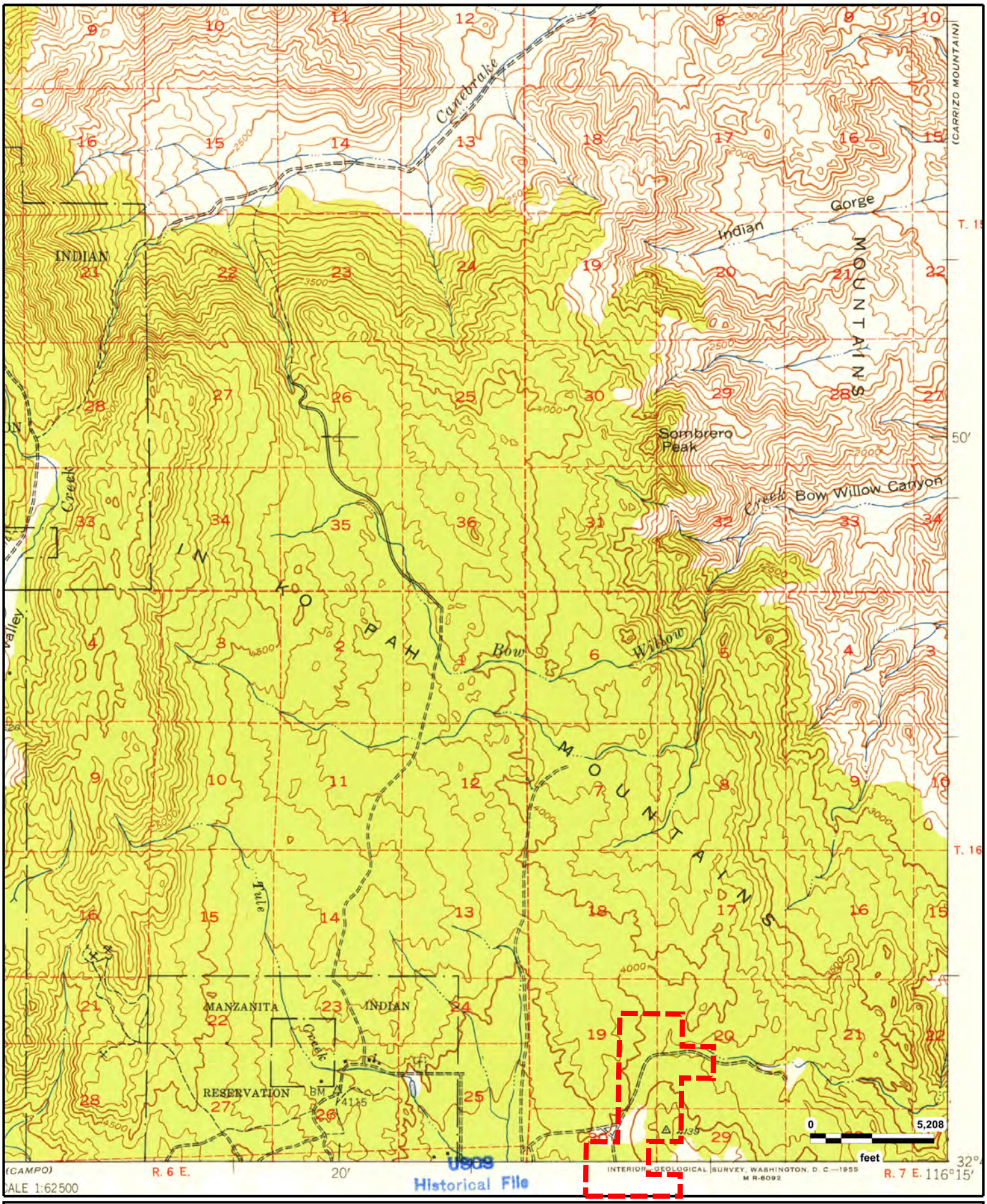
Torrey Wind Project
Mount Laguna, CA (1960)

GeoSearch

JOB #: 241534 - 06/08/2018



N
W E
S

Torrey Wind Project
Cuyapaipe, CA (1942)

GeoSearch

JOB #: 241534 - 06/08/2018

APPENDIX C

Physical Setting Maps

GeoSearch
On time. On target. In touch.™

GeoPlus Physical Setting Maps

Satellite view

Target Property:

Torrey Wind Project
McCain Valley Rd
Boulevard, San Diego County, California 91905

Prepared For:

Dudek

Order #: 109659
Job #: 241539
Date: 06/07/2018

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Target Property Summary

Target Property Information

Torrey Wind Project
McCain Valley Rd
Boulevard, California 91905

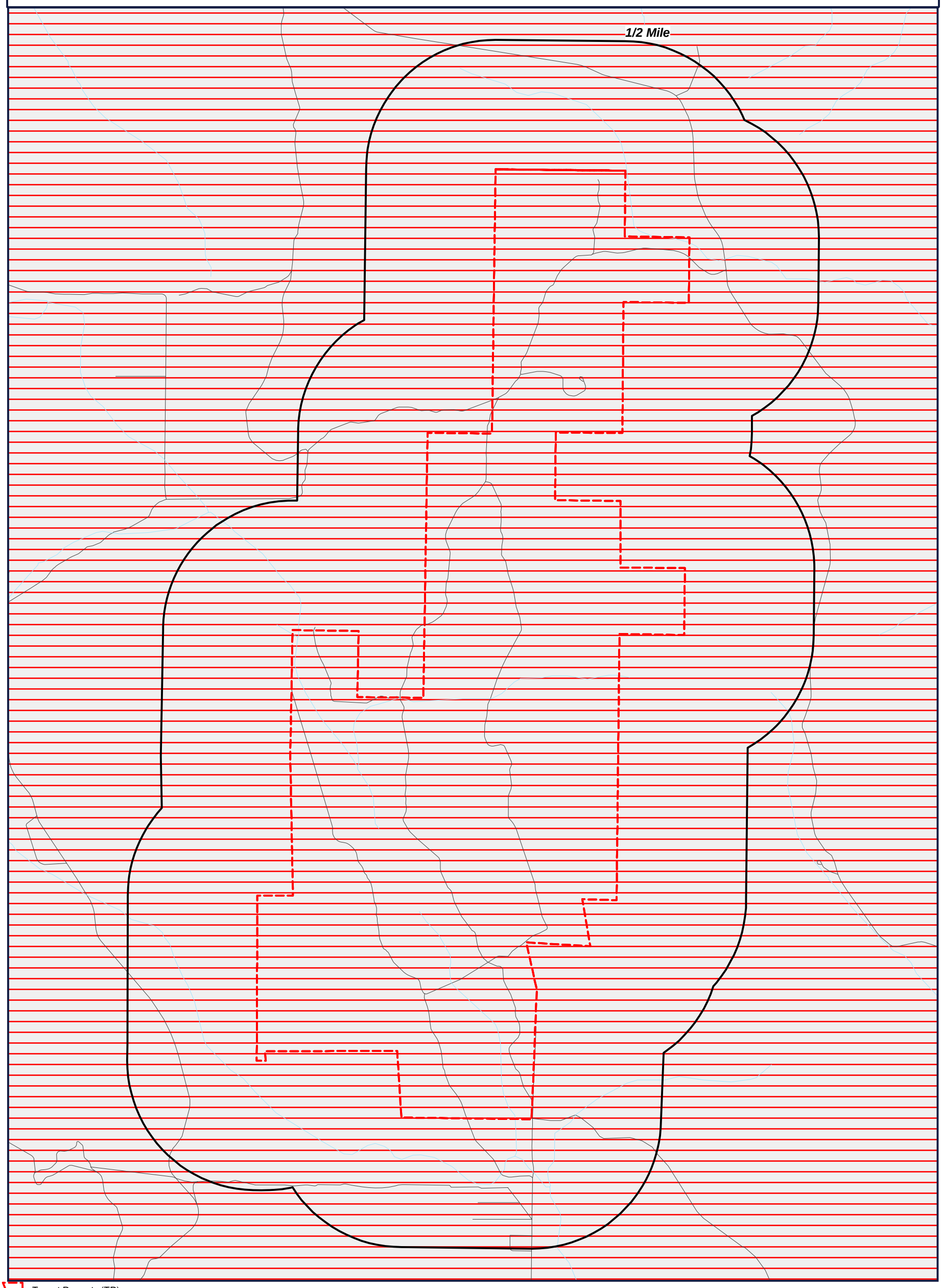
Coordinates
Area

USGS Quadrangle
Sombrero Peak, CA
Live Oak Springs, CA

Geographic Coverage Information

County/Parish: San Diego (CA)
ZipCode(s):
Boulevard CA: 91905

FEMA MAP



Target Property (TP)

ZONE A
ZONE AE
ZONE AH
ZONE A0
ZONE AR
ZONE V
ZONE VE
ZONE D
ZONE X
AREA NOT INCLUDED
OPEN WATER
NDA - DIGITAL DATA NOT AVAILABLE

Letter of map revision date: 05/18/2018
Latest study effective date: 04/04/2018
Panel #: 06065C3350G

Torrey Wind Project
McCain Valley Rd
Boulevard, California
91905

N
W E
S

0' 1000' 2000' 3000'
SCALE: 1" = 2000'

GeoSearch www.geo-search.com - phone: 866-396-0042 - fax: 512-472-9967

JOB #: 241539 - 6/7/2018

FEMA Report

FEMA - Federal Emergency Management Agency

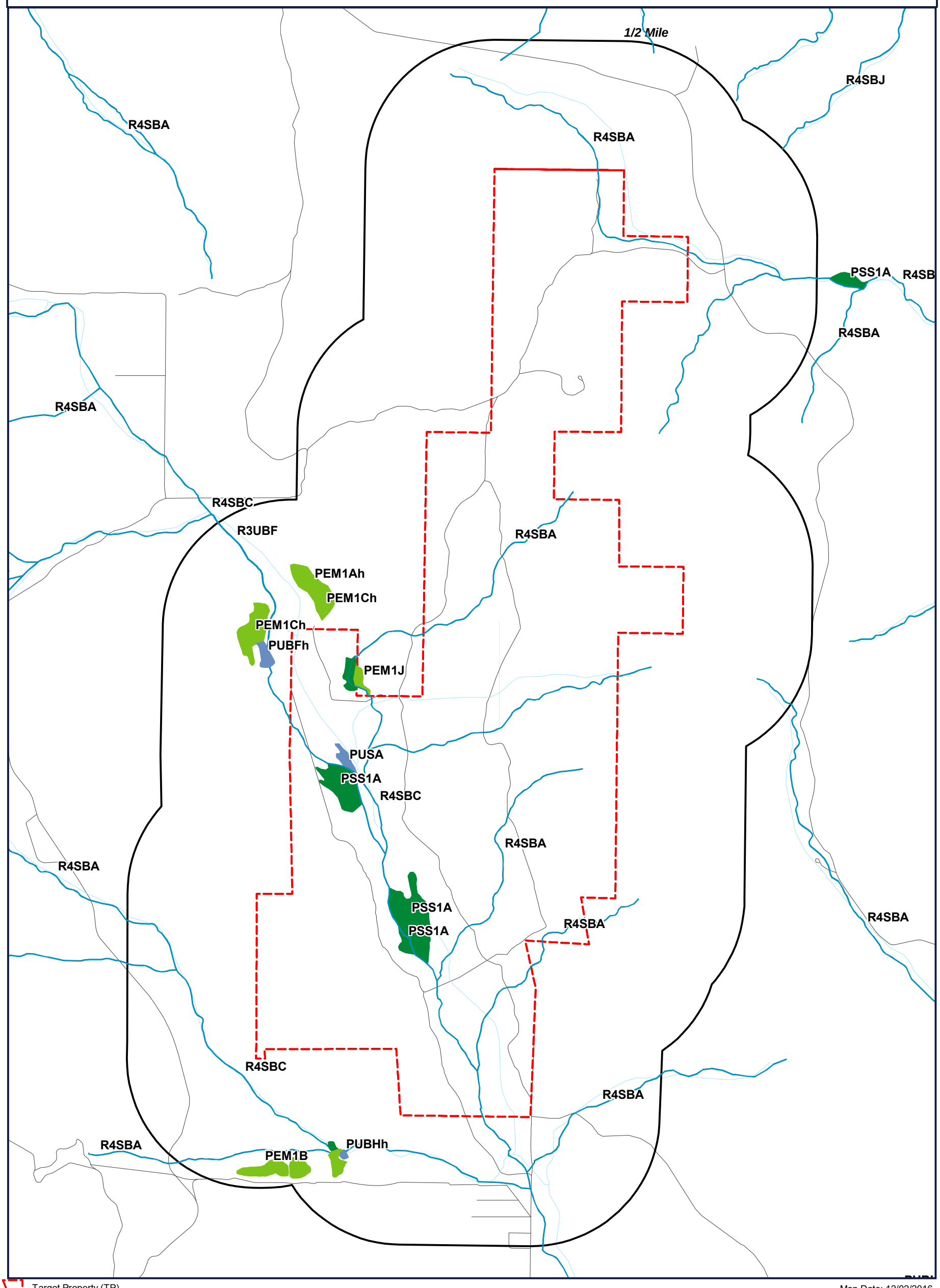
The National Flood Hazard Layer (NFHL) data used in this report is derived from the Federal Emergency Management Agency. The NFHL dataset is a compilation of effective Flood Insurance Rate Map (FIRM) databases (a collection of the digital data that are used in GIS systems for creating new Flood Insurance Rate Maps) and Letters of Map Change (Letters of Map Amendment and Letters of Map Revision only) that create a seamless GIS data layer for United States and its territories. The NFHL is updated as new study or LOMC data becomes effective. Note: Currently, not all areas have modernized FIRM database data available. As a result, users may need to refer to the effective Flood Insurance Rate Map for effective flood hazard information. This data was provided by the Federal Emergency Management Agency's Map Service Center in November of 2013.

FEMA Flood Zone Definitions within Search Radius

D	Zone D

Unstudied areas where flood hazards are undetermined, but flooding is possible.

NWI MAP



Target Property (TP)

ESTUARINE AND MARINE DEEPWATER	
ESTUARINE AND MARINE WETLAND	LAKE
FRESHWATER EMERGENT WETLAND	OTHER
FRESHWATER FORESTED/ SHRUB WETLAND	RIVERINE
FRESHWATER POND	NDA - DIGITAL DATA NOT AVAILABLE

Torrey Wind Project
McCain Valley Rd
Boulevard, California
91905

Map Date: 12/02/2016

N
W E
S

0' 1000' 2000' 3000'
SCALE: 1" = 2000'

GeoSearch www.geo-search.com - phone: 866-396-0042 - fax: 512-472-9967

JOB #: 241539 - 6/7/2018

NWI Report

NWI - National Wetlands Inventory

The US NWI digital data bundle is a set of records of wetlands location and classification as defined by the U.S. Fish & Wildlife Service. This dataset is one of a series available in 7.5 minute by 7.5 minute blocks containing ground planimetric coordinates of wetlands point, line, and area features and wetlands attributes. When completed, the series will provide coverage for all of the contiguous United States, Hawaii, Alaska, and U.S. protectorates in the Pacific and Caribbean. The digital data as well as the hardcopy maps that were used as the source for the digital data are produced and distributed by the U.S. Fish & Wildlife Service's National Wetlands Inventory project. Currently, this data is only available in select counties throughout the United States.

NWI Definitions within Search Radius

PEM1Ah

SYSTEM: **PALUSTRINE**
CLASS: **EMERGENT**
SUBCLASS: **BROAD-LEAVED DECIDUOUS**
WATER REGIME: **TEMPORARILY FLOODED**
SPECIAL MODIFIER: **DIKED/IMPOUNDED**

PEM1B

SYSTEM: **PALUSTRINE**
CLASS: **EMERGENT**
SUBCLASS: **BROAD-LEAVED DECIDUOUS**
WATER REGIME: **SATURATED**

PEM1Ch

SYSTEM: **PALUSTRINE**
CLASS: **EMERGENT**
SUBCLASS: **BROAD-LEAVED DECIDUOUS**
WATER REGIME: **SEASONALLY FLOODED**
SPECIAL MODIFIER: **DIKED/IMPOUNDED**

PEM1J

SYSTEM: **PALUSTRINE**
CLASS: **EMERGENT**
SUBCLASS: **BROAD-LEAVED DECIDUOUS**
WATER REGIME: **INTERMITTENLY FLOODED**

PSS1A

SYSTEM: **PALUSTRINE**
CLASS: **SCRUB-SHRUB**
SUBCLASS: **BROAD-LEAVED DECIDUOUS**
WATER REGIME: **TEMPORARILY FLOODED**

PSS1Ch

SYSTEM: **PALUSTRINE**
CLASS: **SCRUB-SHRUB**
SUBCLASS: **BROAD-LEAVED DECIDUOUS**

WATER REGIME: **SEASONALLY FLOODED**

SPECIAL MODIFIER: **DIKED/IMPOUNDED**

PSS1J

SYSTEM: **PALUSTRINE**

CLASS: **SCRUB-SHRUB**

SUBCLASS: **BROAD-LEAVED DECIDUOUS**

WATER REGIME: **INTERMITTENLY FLOODED**

PUBFh

SYSTEM: **PALUSTRINE**

CLASS: **UNCONSOLIDATED BOTTOM**

SPECIAL MODIFIER: **DIKED/IMPOUNDED**

PUBHh

SYSTEM: **PALUSTRINE**

CLASS: **UNCONSOLIDATED BOTTOM**

SPECIAL MODIFIER: **DIKED/IMPOUNDED**

PUSA

SYSTEM: **PALUSTRINE**

CLASS: **UNCONSOLIDATED SHORE**

R3UBF

SYSTEM: **RIVERINE**

SUBSYSTEM: **UPPER PERENNIAL**

CLASS: **UNCONSOLIDATED BOTTOM**

WATER REGIME: **SEMIPERMANENTLY FLOODED**

R4SBA

SYSTEM: **RIVERINE**

SUBSYSTEM: **INTERMITTENT**

CLASS: **STREAMBED**

WATER REGIME: **TEMPORARILY FLOODED**

R4SBC

SYSTEM: **RIVERINE**

SUBSYSTEM: **INTERMITTENT**

CLASS: **STREAMBED**

WATER REGIME: **SEASONALLY FLOODED**

R4SBJ

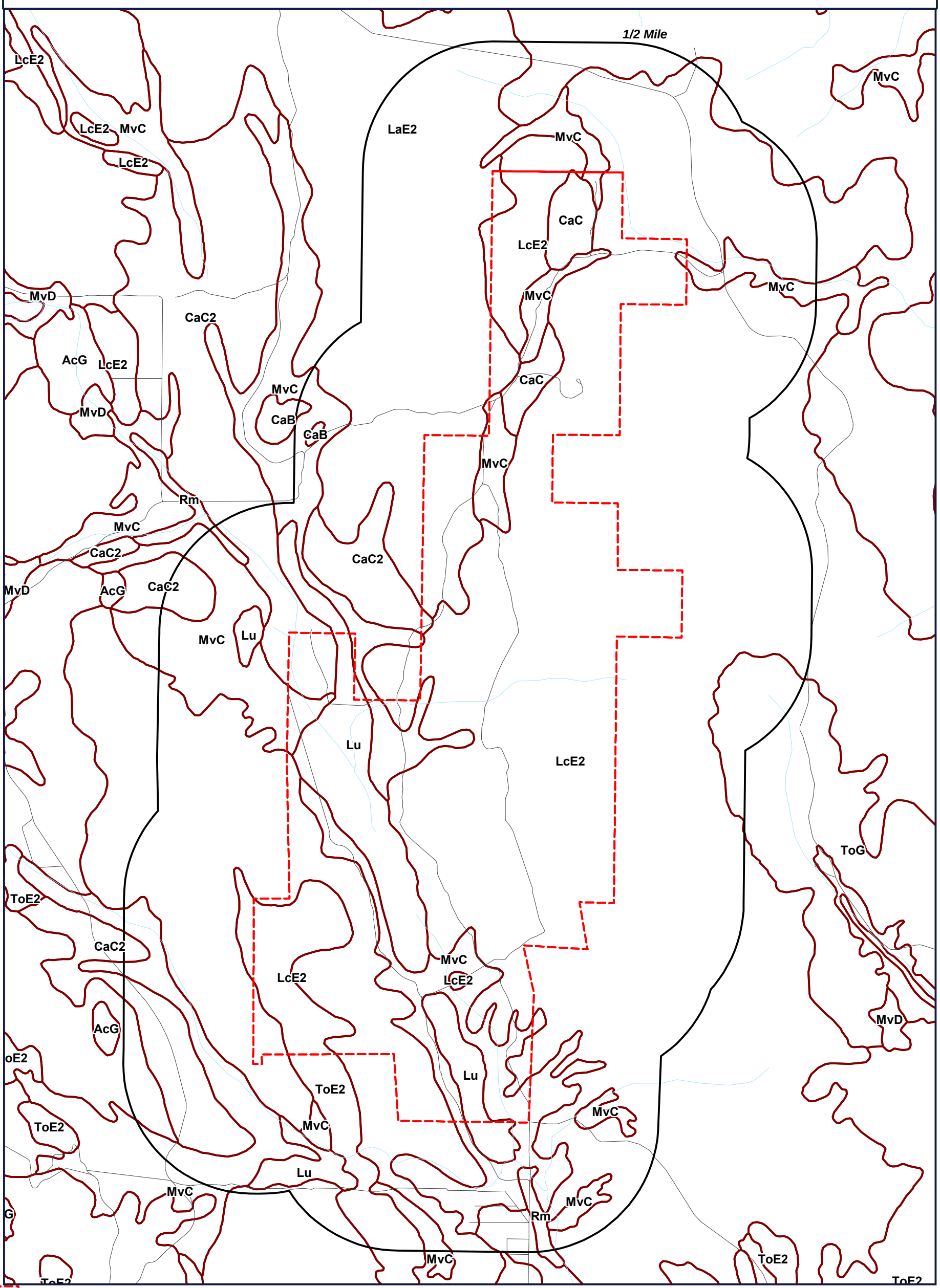
SYSTEM: **RIVERINE**

SUBSYSTEM: **INTERMITTENT**

CLASS: **STREAMBED**

WATER REGIME: **INTERMITTENLY FLOODED**

SOIL SURVEY MAP



Target Property (TP)

SOIL BOUNDARY

NOTCOM - DIGITAL DATA NOT AVAILABLE/NOT COMPLETE

Torrey Wind Project
McCain Valley Rd
Boulevard, California
91905

N
W E
S

0' 1000' 2000' 3000'

SCALE: 1" = 2000'

GeoSearch *www.geo-search.com - phone: 866-396-0042 - fax: 512-472-9967*

JOB #: 241539 - 6/7/2018

SOIL Report

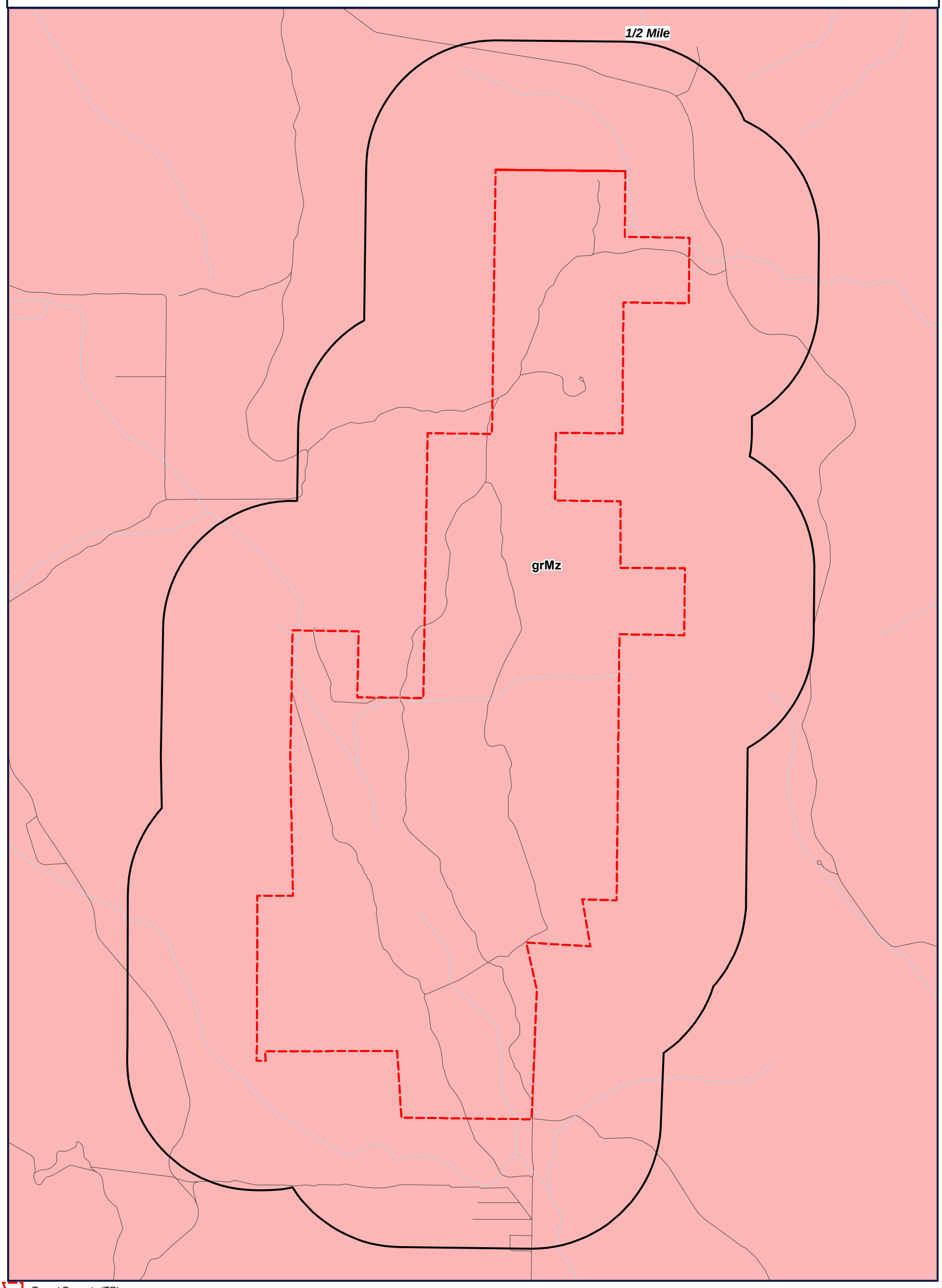
Soil Surveys

The soil data used in this report is obtained from the Natural Resources Conservation Service (NRCS). The NRCS is the primary federal agency that works with private landowners to help them conserve, maintain and improve their natural resources. The soil survey contains information that can be applied in managing farms and ranches; in selecting sites for roads, ponds, buildings and other structures; and in determining the suitability of tracts of land for farming, industry and recreation. This data is available in select counties throughout the United States.

SOIL Code Definitions within Search Radius

CaB	CALPINE COARSE SANDY LOAM, 2 TO 5 PERCENT SLOPES
CaC	CALPINE COARSE SANDY LOAM, 5 TO 9 PERCENT SLOPES
CaC2	CALPINE COARSE SANDY LOAM, 5 TO 9 PERCENT SLOPES, ERODED
LaE2	LA POSTA LOAMY COARSE SAND, 5 TO 30 PERCENT SLOPES, ERO DED
LcE2	LA POSTA ROCKY LOAMY COARSE SAND, 5 TO 30 PERCENT SLOPE S, ERODED
Lu	LOAMY ALLUVIAL LAND
MvC	MOTTSVILLE LOAMY COARSE SAND, 2 TO 9 PERCENT SLOPES
Rm	RIVERWASH
ToE2	TOLLHOUSE ROCKY COARSE SANDY LOAM, 5 TO 30 PERCENT SLOP ES, ERODED
ToG	TOLLHOUSE ROCKY COARSE SANDY LOAM, 30 TO 65 PERCENT SLO PES

GEOLOGY MAP



Target Property (TP)

Torrey Wind Project
McCain Valley Rd
Boulevard, California
91905

N
W E
S

0' 1000' 2000' 3000'
SCALE: 1" = 2000'

GeoSearch www.geo-search.com - phone: 866-396-0042 - fax: 512-472-9967

JOB #: 241539 - 6/7/2018

GEOLOGY Report

US GEOLOGY

THE GEOLOGY DATA USED IN THIS REPORT ORIGINATES FROM THE USGS. THE FIRST STAGE IN DEVELOPING STATE DATABASES FOR THE CONTERMINOUS UNITED STATES WAS TO ACQUIRE DIGITAL VERSIONS OF ALL EXISTING STATE GEOLOGIC MAPS. ALTHOUGH A SIGNIFICANT NUMBER OF DIGITAL STATE MAPS ALREADY EXISTED, A NUMBER OF STATES LACKED THEM. FOR THESE STATES NEW DIGITAL COMPILATIONS WERE PREPARED IN COOPERATION WITH STATE GEOLOGIC SURVEYS OR BY THE NSA (NATIONAL SURVEYS AND ANALYSIS) PROJECT. THESE NEW DIGITAL STATE GEOLOGIC MAPS AND DATABASES WERE CREATED BY DIGITIZING ALREADY EXISTING PRINTED MAPS, OR, IN A FEW CASES, BY MERGING EXISTING LARGER SCALE DIGITAL MAPS.

GEOLOGY Definitions within Search Radius

GEOLOGY SYMBOL: **grMz**
UNIT NAME: **Mesozoic granitic rocks , unit 2 (Peninsular Ranges)**
UNIT AGE: **Middle Jurassic to Late Cretaceous**
UNIT DESCRIPTION:
Mesozoic granite, quartz monzonite, granodiorite, and quartz diorite
ADDITIONAL UNIT INFORMATION:
Peninsular Ranges. Primarily tonalite, granodiorite, and minor quartz monzonite and granite. Emplacement ages mostly 80 to 105 Ma in eastern part of area and 105 to 140 Ma in western part; minor Jurassic rocks in central part
ROCKTYPE/S: **tonalite; quartz diorite; granodiorite; quartz monzonite; granite; gneiss; schist; pegmatite**

APPENDIX D

Water Well Report

GeoSearch

On time. On target. In touch.™

GeoPlus Water Well Report

Satellite view

Target Property:

Torrey Wind Project
McCain Valley Rd
Boulevard, San Diego County, California 91905

Prepared For:

Dudek

Order #: 109659
Job #: 241536
Date: 06/07/2018

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Target Property Summary

Target Property Information

Torrey Wind Project
McCain Valley Rd
Boulevard, California 91905

Coordinates
Area

USGS Quadrangle
Sombrero Peak, CA
Live Oak Springs, CA

Geographic Coverage Information

County/Parish: San Diego (CA)
ZipCode(s):
Boulevard CA: 91905

Database Radius Summary

FEDERAL LISTING

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
NWIS	0.5000	3	0	2	2	NS	NS	7
SUB-TOTAL		3	0	2	2	0	0	7