

# **Exhibit A-2**

**Quantum Limit Vineyards  
New Vineyard Planting  
Erosion Control Plan Narrative  
10/31/2019**



**Prepared by:**

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# **Quantum Limit Vineyards New Vineyard Planting Erosion Control Plan Narrative**

1. Nature and Purpose of All Land Clearing, Grading or Earthmoving Activity:
  - a. This project proposes the development of approximately 4.1 net acres (4.8 gross acres) of vineyard at 25 Quail Ridge Dr., located in Napa, California. The property is owned by Glenn C. Rice and corresponds to APN 033-140-052 (69.9 acres).
  - b. Activities associated with the completion of this project include tree and brush removal within the proposed development areas, ripping, rock removal, application of soil amendments prior to planting, seeding of cover crop, mulching, installation of straw wattles, trenching for irrigation pipelines, installation of a new surface drainage system, installation of end posts, trellis system and deer fence, and planting of vines.
  - c. No off-site spoils disposal sites are anticipated. Rocks encountered in the development area shall be used for decoration. Any leftover rocks shall be used as road base. All temporary rock, soil and soil amendments shall be stockpiled within the development areas, if needed. No long term stockpiles of rock or soil are anticipated.
  
2. Description of Existing Site Conditions (prior to site disturbance):
  - a. Topographic information was provided by CMP Civil Engineering & Land Surveying from September 2018. The datum is North American Vertical Datum from 1988 (NAVD 88). The elevations in the proposed vineyard areas range from approximately 265 feet to 525 feet above mean sea level. Slopes within the proposed vineyard areas range from 13 to 48 percent.
  - b. According to a biological report by WRA Environmental Consultants prior to site disturbance, the subject parcel contains vegetation that consists mostly of ruderal grassland interspersed with patches of interior live oak woodland and blue oak woodland. A complete list of plants located within the project areas is included in the biological report prepared by WRA Environmental Consultants, and dated September 2019.
  - c. The proposed project shall retain approximately 95% of the tree canopy and 86% of the shrub/brush/grass cover that existed on the property in 2018. The 2018 conditions were used as a baseline due to the fact that the subject parcel was damaged by the 2017 Atlas Fire (Napa County Ordinance No. 1441).
  - d. The project site is located in the Suisun Creek watershed, this is not a municipal watershed, nor is it a water deficient area.
  - e. Initial site visit was conducted by Omar Reveles of Acme Engineering Inc. on May 23, 2019. Followed by other site visits on May 31, 2019 and July 22, 2019. And the last site visit on August 21, 2019.
  
3. Natural and man-made features on site:
  - a. According to the biological report from WRA Environmental Consultants and dated September 2019, an ephemeral stream runs through the subject parcel. A 50 foot minimum setback shall be maintained from the development boundary to the watercourse top of bank. There is also a blue line stream (Suisun Creek) that runs just outside of the western parcel boundary. Setbacks based on existing ground slope shall be maintained from the development boundary to the top of bank of Suisun Creek. These setback shall protect any riparian habitat associated with the previously mentioned watercourses.
  - b. Based on the biological report from WRA Environmental Consultants and dated September 2019, there are no seasonal wetlands or vernal pools associated with the project footprint.

- c. There is an existing reservoir on the subject parcel. The spillway of this reservoir drains into a portion of the proposed development area.
    - d. Access to the subject parcel is achieved through Quail Ridge Dr. off of Wooden Valley Cross Road. There is an existing network of paved, gravel and dirt roads which provide access to all of the existing structures and to the proposed vineyard areas. Structures on the subject parcel include a primary and secondary residence (currently under construction), as well as access roads to these structures.
    - e. The nearest blue line stream is Suisun Creek, it is approximately 180' west of the project site.
4. There are four existing wells on the subject parcel, three of these wells provide water to the two residences, landscaping, livestock and existing vineyard. The fourth well is not yet plumbed into the existing infrastructure. The existing wells shall be the water source for the proposed vineyard. Based on a water availability analysis prepared by Acme Engineering Inc., the total irrigation water required is 1.64 acre-feet per year for the proposed vineyard, and 13.2 acre-feet per year for all water uses on the property (this includes domestic, livestock, landscaping and vineyard irrigation).
5. Soil types, boundaries and erosion factors were obtained from Web Soil Survey (<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>). The soil types present on the project sites are Bressa-Dibble Complex.
  - a. The Bressa-Dibble Complex has a K-factor (soil erodibility) of 0.43. and a T-factor (natural soil loss) of 3 tons per acre.
6. There are no critical areas for erosion within the project site. Implementation of additional erosion control measures will only enhance the stability of the site.
7. Soil loss was calculated using the Universal Soil Loss Equation (USLE). USLE calculations show that a 75% minimum ground cover combined with no tillage is adequate to maintain an acceptable soil loss. During the vineyard establishment period all rows will be tilled. In order to prevent excess soil loss during the establishment period, straw rolls will be installed on contour at blocks W, X1 and X2. USLE calculation show that a 75% minimum ground cover with all row tillage and the use of straw rolls is adequate to maintain an acceptable soil loss during the vineyard establishment period.
8. Proposed Erosion and Sediment Control Methods:
  - a. There are no functioning drainage structures installed at the project site. There is an existing drainage mainline at blocks V and X2, it is our understanding that this drainage mainline has been capped and abandoned. Based on soil loss calculations and a hydrology analysis prepared by Acme Engineering Inc. development of the proposed vineyard blocks will also require installation of certain surface drainage structures. These surface drainage structures consist of cross slope diversion, water bars, drop inlets, drainage mainlines and rock aprons. The purpose of the drop inlets, drainage mainline, cross slope diversions and water bars is to direct runoff away from proposed vineyard areas and towards stabilized discharge locations. Rock aprons shall be installed at all pipe and cross slope diversion outfalls to disperse water and prevent concentrated flow from forming and creating gullies. Water bars shall be installed at locations shown on site plans along vineyard avenues. The final pass with ripping and disking implements shall be done parallel to contours to the maximum extent practicable to prevent channeling of water downhill during the first winter after development.
  - b. Proposed Vegetative Erosion Control Measures and Sediment Control Measures
    - i. Temporary erosion control measures shall consist of the following:
      1. All row middles will be tilled for the first year and cover crop shall be established and maintained with a 75% minimum ground cover.
      2. Temporary cover crop mix shall be used the first year & shall be installed as follows:
        - a. Roto-till row middles to a 4" depth within 8" of the vines.

- b. Broadcast the following seed mix:
      - i. Annual Ryegrass                      27 pounds per acre
      - ii. Barley                                      135 pounds per acre
    - c. Cover newly seeded soil with rice straw at a rate of 3,000 pounds per acre prior to October 15. Alternate seed mixes may be used upon approval of the project engineer.
  - ii. Straw wattles shall only be required after earth disturbance and up to the first year after vineyard development at the locations shown on site plan. After the first year, straw wattles shall be installed in proposed vineyard and vineyard avenues if needed.
  - iii. Permanent erosion control measures shall consist of the following:
    - 1. Natural vegetation exists downslope of all blocks and is to be utilized in a permanent fashion as a no-touch buffer. No-touch buffers shall have a minimum width (adjacent to watercourses) as specified on the erosion control plan sheet. No-touch buffers shall consist of healthy existing native vegetation.
    - 2. Beginning on the second year and for the remaining life of the vineyard, no tilling shall occur and cover crop shall be maintained with a 75% minimum ground cover.
    - 3. Permanent cover crop mix shall be used the second year and on, and shall be installed as follows:
      - a. Broadcast the following seed mix:
        - i. Zorro Annual Fescue                      10 pounds per acre
        - ii. Blando Brome                              12 pounds per acre
        - iii. Rose Clover                                17 pounds per acre
        - iv. Berber Orchardgrass                      22 pounds per acre
        - v. Covar Sheep Fescue                      17 pounds per acre
      - b. Cover newly seeded soil with rice straw at a rate of 3,000 pounds per acre prior to October 15<sup>th</sup> of each year in the development area until the required cover crop factor is attained and maintained and the site is stable. Alternate seed mixes may be used upon approval of the project engineer.
    - 4. Fertilizer shall be applied as necessary by vineyard management personnel for both the vineyard and to achieve the specified vegetative ground cover percentage. A site specific soil analysis should be performed. Fertilizer shall be incorporated into the cover crop seeding process at the time of seeding.
    - 5. The proposed vineyard spacing and row direction shall be as follows:
      - a. Block V: 4' x 3' (row x vine), hand farmed on existing benches with vine row direction oriented along the length of the existing benches.
      - b. Block W: 6.5' x 4.5' (row x vine), tractor farmed with vine row direction oriented up/down hill.
      - c. Blocks X1 & X2: 6' x 5' (row x vine), tractor farmed with vine row direction oriented up/down hill.
      - d. Block X3: 1 row on each edge of the access bench between the existing vineyard and proposed vineyard block X1. Row spacing varies with bench width and vine spacing shall be 3'. This block shall be hand farmed.
      - e. Block Y: 5' x 4.5' (row x vine), hand farmed with vine row direction oriented cross sloped.
    - 6. The owner may subdivide the proposed vineyard blocks further based on viticultural and or irrigation practices.

- iv. No pre-emergent herbicides will be strip sprayed in the vine rows for weed control. Contact or systemic herbicides may be applied. The maximum width of the spray strip shall 18 inches in order to achieve 75% minimum vegetative cover (based on 6' row spacing) in the proposed tractor farmed vineyard blocks. Spot spraying of herbicides in hand farmed vineyard blocks is allowed as long as a 75% minimum vegetative cover is attained and maintained.
    - c. Vineyard avenues shall not be disked, only mowed. Vineyard avenues shall be seeded and mulched prior to October 15 of the development year, and in bare or disturbed areas of the following years. Avenues that don't meet the minimum required vegetative cover percent shall be reseeded and mulched until the specified cover is attained. Seeding and mulching is not required on properly surfaced gravel roads and avenues. No off-site spoils disposal sites are anticipated. Rocks encountered in the development area shall be used for decoration. Any leftover rocks shall be used as road base. All temporary rock, soil and soil amendments shall be stockpiled within the development areas, if needed. No long term stockpiles of rock or soil are anticipated.
- 9. Storm Water Stabilization Measures:
  - a. The intention is to maintain the existing sheet flow and shallow concentrated flow characteristics to the maximum extent practicable; however, soil loss calculations show that excessive run lengths at specific locations need to be broken up in order to maintain soil loss values at an acceptable level. This is achieved by installing cross slope diversions at the locations specified on the erosion control plan sheet. These cross slope diversions shall break up the run lengths and divert surface runoff to more stabilized outfall locations.
  - b. At Block X2 there appears to be a shallow concentrated flow path that originates at the reservoir spillway location and runs through the proposed vineyard area. In order to prevent possible scouring at the future vineyard site, this project proposes that runoff above Block X2 be intercepted with a drop inlet and piped across Block X2 with a drainage mainline. Additional drop inlets shall be installed along the mainline to collect water from proposed cross slope diversions and water bars inside the development area. This will eliminate a potential source of erosive cutting within the vineyard. The runoff captured by the proposed drop inlets shall be directed away from the proposed vineyard and discharged at a more stabilized outfall location.
  - c. A hydrological study was performed using TR55. The results of this study show that the proposed development will not cause an increase in peak runoff for a 2 year – 24 hour storm, nor will there be an increase in peak runoff for a 100 year – 24 hour storm. Because of these results no increased channel degradation is anticipated due to the proposed vineyard development.
- 10. Wildlife Exclusion Fencing:
  - a. Deer fencing shall be at least 6 feet tall, include exit gates at the corners, and be comprised of no smaller than 6-inch by 6-inch squares, such that small animals can move freely through the area and deer do not become trapped within the fencing.
- 11. Implementation Schedule:
  - a. Land Preparation: This portion of the development will consist of clearing, ripping, rock removal, application of soil amendments, maintenance and installation of the proposed drainage structures, installation of end posts, trellis system and deer fence. This will require heavy machinery and large trucks. Approximately 8 workers shall be required for land preparation tasks. These tasks shall be carried out from April to October 2020.
  - b. Installation of Vineyard and Erosion Control Measures: This portion of the development will consist of installation of avenues. It shall also include vineyard staking, vineyard planting, irrigation system installation, planting of cover crop and straw mulching. This will require small machinery and foot traffic. Approximately 25

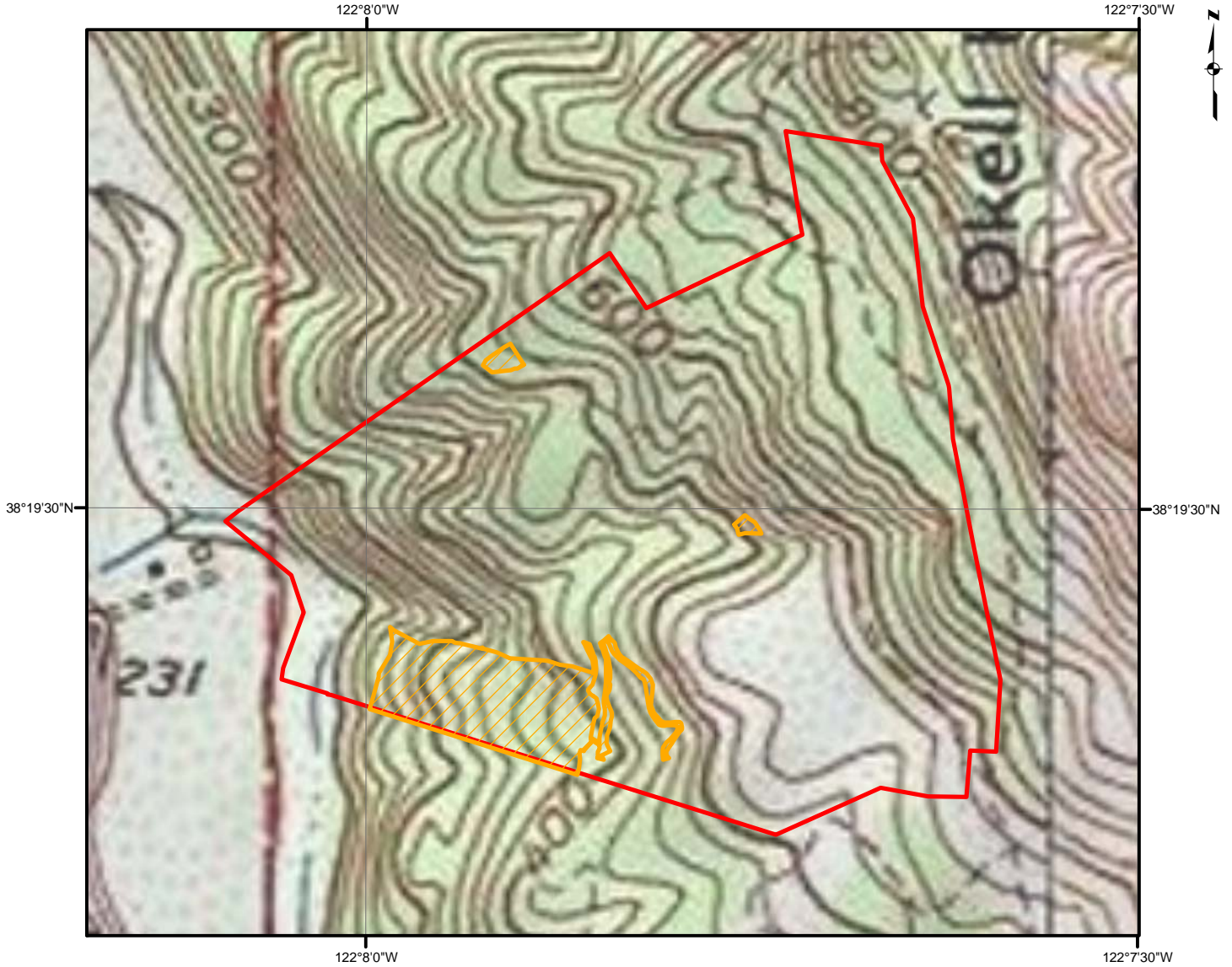
workers will be required for vineyard and erosion control measure installation. These tasks shall be carried out between April and October 2020.

- c. Vineyard Maintenance: This portion of the development will consist of annual vineyard farming practices, annual harvesting and it also includes any necessary adjustments of permanent erosion control practices. This will mostly require ATV and foot traffic; however, if repairs are required larger machinery may also be necessary. The exception to this is during harvest when large trucks and/or trailers are expected to be on site to transport the grapes. The number of workers will vary from 1 during erosion control measure inspections to several during harvest or pruning. These tasks shall begin in September 2020. Winterization tasks shall be completed by October 15 of each year.
12. Cost of Erosion Control Measures:
    - a. Estimated cost of erosion control and sediment control measures (in addition to those previously installed) is approximately \$2,600.00 per acre.
  13. Directions to the site:
    - a. In order to reach the project site; from Napa, take Silverado Trail north for approximately 12 miles. Turn right onto CA-121 N. Stay on CA-121 N for approximately 7 miles. Turn right onto Wooden Valley Rd. Stay on Wooden Valley Rd. for approximately 6 miles. Turn left onto Wooden Valley Cross Rd. Stay on Wooden Valley Cross Rd for approximately  $\frac{1}{4}$  of a mile. Turn right onto Quail Ridge Dr. Stay on Quail Ridge Dr. for approximately  $\frac{3}{4}$  of a mile. 25 Quail Ridge Dr. will be on the right hand side. To schedule a site visit please contact Omar Reveles of Acme Engineering Inc. at (707) 253-2263.
  14. Other projects associated with this property:
    - a. There are no other projects associated with the subject parcel at this time.

# Quantum Limits Vineyard



25 Quail Ridge Drive  
Napa, California  
APN: 033-140-052

USGS 7.5 Minute Quadrangle "Mount George", T6N R2W



1 Inch = 500 Feet

## Legend

-  Development Area (4.8 Acres)
-  033-140-052 Approximate Parcel Boundary

# Quantum Limits Vineyard

25 Quail Ridge Drive  
Napa, California  
APN: 033-140-052

USGS 7.5 Minute Quadrangle "Mount George", T6N R2W

122°8'0"W

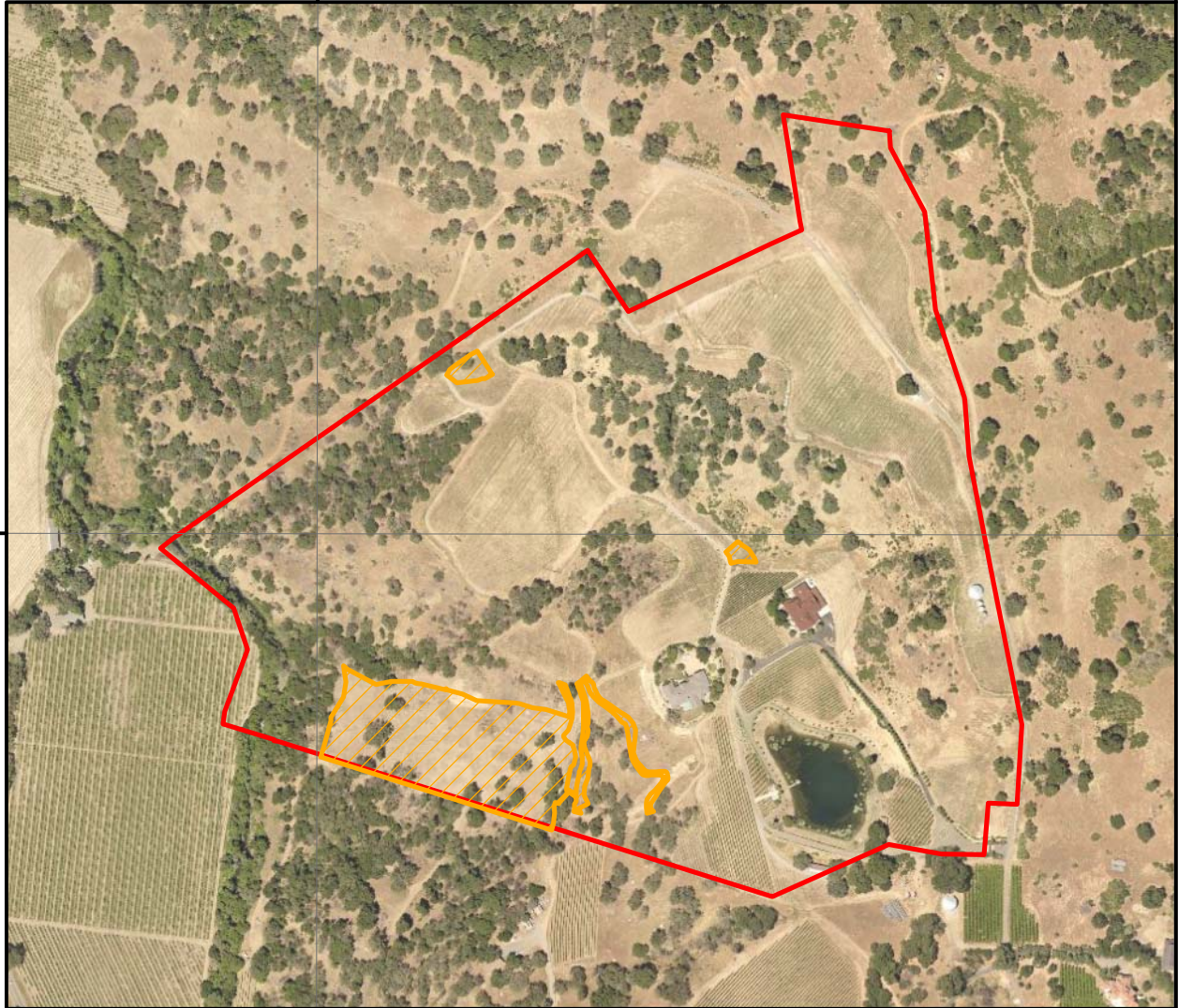
122°7'30"W

38°19'30"N

38°19'30"N

122°8'0"W

122°7'30"W



1 Inch = 500 Feet

## Legend



Development Area (4.8 Acres)



033-140-052 Approximate Parcel Boundary





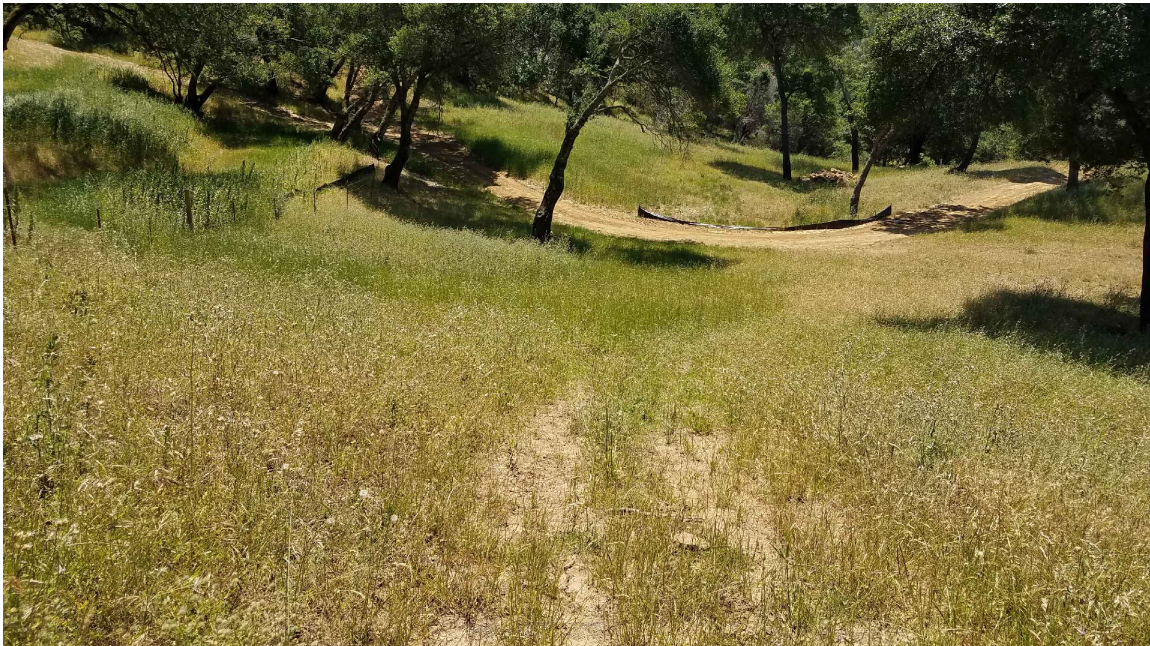
**Photodocumentation Location 1**  
May 31, 2019



**Photodocumentation Location 2**  
May 31, 2019



**Photodocumentation Location 3**  
May 31, 2019



**Photodocumentation Location 4**  
May 31, 2019



**Photodocumentation Location 5**  
May 31, 2019



**Photodocumentation Location 6**  
May 31, 2019



**Photodocumentation Location 7**

May 23, 2019