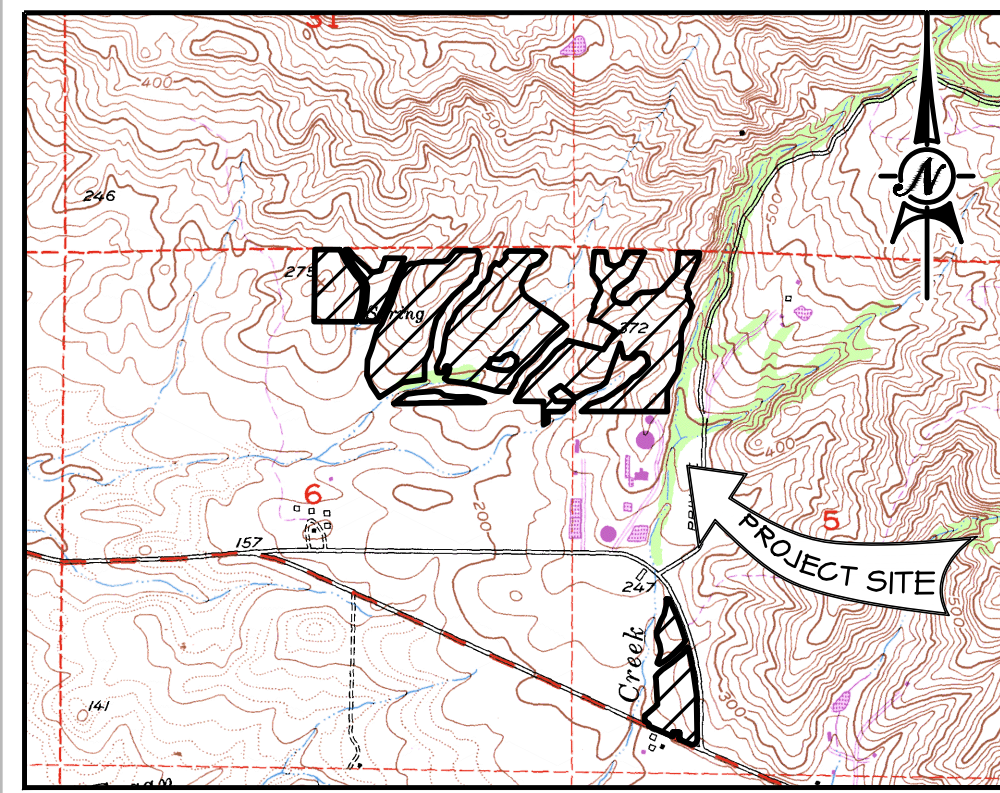


LAIRD FAMILY VINEYARDS JAMIESON VINEYARD EROSION CONTROL PLAN FOR NEW VINEYARD DEVELOPMENT



PORTION OF CORDELIA 7.5 MIN. QUAD MAP

Vicinity Map

1" = ±2000'

Narrative

This project consists of the development of approximately 100.7 gross acres (±82.3 net acres) of new vineyard within APNs 057-140-016, 15, 14, 13 & 02, five parcels that total 300.35 acres located at 200 Kirkland Ranch Rd., American Canyon. Gross acreage includes 2 new low water crossings and placement of rock in an existing crossing. The parcels consist of grazed pasture land with dirt access drives, ±125 acres of existing vineyard, ±9 acres of tree canopy along Fagan Creek, water storage reservoirs, a residence and a winery. Existing access is from Kirkland Ranch Rd. Existing ground slopes within the project area range from 2% to 31%, with slopes over 30% being confined to small pockets within Block 20F (total of ±0.20 acre). The vineyards will run generally up and down the slope and vines will be planted in a 7'x4' grid. Cultivation practices are described below under Permanent Erosion Control Measures. A new drip irrigation system will be installed and Napa Sanitation reclaimed water will serve as the water source. Water use on the new vineyard is expected to be ±31.4 acre-feet per annum (afa).

The USGS Cordelia 7.5 minute Quad Map shows three blue line streams running through the project area, and there is one county definition stream appurtenant to the project. Setbacks have been provided in accordance with the Napa County Conservation Regulations. Additionally, there are four drainages which have been identified as possible Waters of the U.S., and 25' setbacks have been provided on both sides of each of those drainages. Setbacks shall be flagged in the field and reviewed and approved by Napa County prior to any development in those areas. The existing stream crossing between Blocks 18B & 20A will be reshaped and rocked in accordance with Detail 5, Sheet 3 (low water crossing), and new low water crossings shall be constructed across the drainages between Blocks 16A & 17 and Blocks 21 & 22, as shown on the plan. Irrigation piping shall be located within the low water crossings, except that irrigation piping to Blocks 21 & 22, shall span Fagan creek as shown on the plan. The existing crossing between Blocks 17 & 18A shall be reconstructed in accordance with Section A, Sheet 4. The majority of the project area drains toward Sheehy Creek, and a small portion drains toward Fagan Creek. The project lies within the Sheehy Creek and Fagan Creek subwatersheds.

Soils within the block boundaries have been classified in the USDA Soil Conservation Service's Napa County Soil Survey, as Clear Lake clay, drained, and Fagan clay loam.

No Special Status Species will be impacted by this project, as concluded in the Biological Resource Survey prepared by Kjeldsen Biological Consultants.

No Cultural Resources will be impacted by this project, as concluded in the Historical Resources Study prepared by Origer & Associates (October 10, 2016). Recommendations for preservation of sites outside the project area shall be followed.

No Slope Instability is evident within the project limits, as concluded in the Engineering Geological Evaluation prepared by Gilpin Geosciences. Recommended setbacks from offsite areas of instability have been provided. Landslide deposits adjacent to the project site, and setbacks along Fagan Creek shall be flagged in the field by the geologist and approved by Napa County prior to construction.

Vegetation Removal consists of disking pasture grasses.

Ground preparation includes ripping to a maximum depth of 36" and tilling. Rock generated during land preparation is expected to be minimal and may be used for road surfacing, landscaping and erosion control features.

Existing Cattle Fence along upper limit of the vineyard area will be replaced with 4' wire mesh fence. Approximately 1' along the bottom of the fence will be bent outward and stapled to the ground to prevent pigs from burrowing underneath. The mesh openings shall be a minimum of 6"x6". Other areas of existing cattle fence may be replaced with "pig fence" as needed, and new pig fence will be installed along eastern boundary of the new vineyard as shown on the plan.

Temporary Erosion Control Measures consist of the installation of fiber rolls and the application of straw mulch where seeding occurs. The installation of all fiber rolls shall be completed in accordance with the appropriate detail along the contours at locations shown on the plan, prior to the rainy season at the end of years P-1 and P. They shall be left in place through the winter after planting after which they may be removed. A straw mulch cover shall be applied over all open and/or disturbed and seeded areas at the rate specified in the seeding requirements.

Permanent Erosion Control Measures consist of the following:

- Clean and repair existing drainage features as needed.
- Rock lined ditches, rocked stream crossings, and rock stabilization at low points in the vineyard avenues shall be constructed of locally gathered fieldstone, or class light (see Project Notes, this sheet, and Special Note-RSP, Sheet 3), in accordance with the appropriate details. Some locations of rock stabilization are shown on the plan. Others may be discovered during construction. Rock structures shall remain in place as permanent features.
- Construction of water bars where shown on the plan in accordance with the appropriate detail.
- A winter cover crop shall be planted within the new vineyard areas in year P-1. At the end of the growing season in year P, a permanent cover crop shall be planted within the new vineyard blocks (refer to cultivation chart under Project Notes). The cover crop may be mowed and spot sprayed around the base of each vine using springtime applications of post-emergent contact sprays. Weeds within the vineyard blocks may also be spot sprayed, if desired. No strip spraying shall occur and NO PREEMERGENT SPRAYS SHALL BE USED. As a normal cultural practice no disking, ripping or other tillage shall occur within the vineyard once the permanent cover crop has been established. Areas outside the vineyard blocks, including avenues and turnspaces, shall not be disked or sprayed at any time. Using this method a minimum ground cover of 80% will be obtained each winter. From time to time (every three or four years), it may be necessary to disk the cover crop to open up the ground or to re-establish proper ground cover. Should this be necessary, notification shall be provided to Napa County and Napa County RCD, and the work shall proceed as prescribed in Napa County Conservation, Development and Planning Department guidelines, dated April 8, 2004, entitled "Protocol for Replanting/Renewal of Approved Non-Tilled Vineyard Cover Crops".

5) Implementation and adherence to the Annual Winterization program presented in the Project Notes.

Costs: The total cost of all erosion control measures is estimated to be \$1500-2000/acre including equipment, materials, and labor.

The project site was visited by the plan preparer in May, 2017 to inspect the site, and will be visited during and after development to check for proper implementation of erosion control measures.

APN & Owner:
057-140-016 Red Hen Properties
057-140-015 5135 Solano Ave.
057-140-014 Napa, CA 94558
057-140-013

057-140-002 State of California

Site Address: 200 Kirkland Ranch Rd., American Canyon

Contact: Ken Laird @ 257-3910 Drew L. Aspegren, P. E. @ 963-4927
Laird Family Vineyards Napa Valley Vineyard Engineering, Inc.
5055 Solano Ave. 176 Main St., Suite B
Napa, CA 94558 St. Helena, CA 94574

Mapping: Napa County GIS Database (2002)

Implementation Schedule: Work may begin during the first growing season after project approval and may be completed over several years. Preplant and planting year operations may be conducted over two growing seasons or they may be conducted during the same year. The work will be scheduled as follows:

Year P-1	Clearing, rock and root removal, stacking vegetation for burning or other disposal, disking, installing permanent erosion control measures prior to vineyard layout, staking and installation of drip system, installing temporary erosion control measures. Winterization, consisting of seeding and mulching, shall be completed by October 15.
April 1 thru Oct 15	

Rainy Season	Maintain erosion control measures, burning as allowed by government agencies.
Oct 16 thru March 31	

Year P	Complete unfinished pre-plant operations, plant vineyard and begin cultural practices (refer to cultivation chart below). Maintain all erosion control features.
Apr 1 thru Oct 15	

Cover Cropping and Cultivation Practices

Year	Cultivation during growing season	Cover Crop, planted at end of growing season
Pre-plant (P-1)	rip and disk	winter cover crop
Planting (P)	full till	permanent cover crop
P+1 Forward	no till, spot spray	permanent cover crop

All ground disturbing activities shall be completed by October 15 of each year, and all erosion control measures shall be in place by October 15.

Seeding Requirements: All exposed or disturbed soils shall be seeded. Seed and fertilizer shall be applied hydraulically or broadcast at the rates specified below:

Laird mix @ 100 lbs/ac	Annual Calif. brome 30%
	Perennial Calif. brome 20%
	Blue wild rye 15%
	3 weeks fescue 15%
	Calif. poppy 10%
	Blue lupine 10%

Fertilizer: Ammonium phosphate sulfate (16-20-0) 200-240 lbs/ac

An alternate seed mix and/or fertilizer may be used after review and approval by Napa County RCD.

Straw Mulch shall be spread over all disturbed and seeded areas. The mulch shall be spread mechanically or by hand at the rate of 2 tons/acre. As an alternate to mulch, the seeded areas may be irrigated through germination until the onset of winter rains.

Fiber Rolls shall be installed at the locations shown on the plan in accordance with the appropriate detail. Fiber Rolls shall be maintained through the winter after planting, after which they may be removed.

Water Bars shall be constructed where shown on the Plan. Water bars shall remain as permanent structures and shall be reshaped as necessary prior to each rainy season.

Rock Stabilization and Rock Lined Ditches shall be constructed of locally gathered fieldstone, or class light as defined in Caltrans Standard Specifications, Sec. 72-2.02. A non-woven filter fabric (Mirafit 140N, or equal) shall be placed between all RSP and earthen material.

Maintenance: A winter cover crop shall be seeded and mulched prior to October 15 during year P-1 (refer to the cultivation chart). At the end of the growing season in year P, a permanent cover crop shall be planted within the vineyard block (refer to Permanent Erosion Control Measures in the Narrative). The cover crop may be mowed in the spring after the seed has fully matured (hard dough stage) to ensure annual grass species regeneration for the following year. Minimum mowing height of 4" shall be maintained for establishing annual and perennial grasses. As a normal cultural practice, no tillage shall take place after the vineyard has been planted, and spraying shall occur as provided in the Narrative under Permanent Erosion Control Measures. A minimum ground cover of 80% will be obtained each winter. The owner shall be responsible for reseeding and maintenance in order to reach the desired degree of cover.

Annual Winterization: After harvest and prior to first rains, but no later than October 15 each year, the following winterization shall be completed:

- The condition of the cover crop shall be evaluated, including those areas outside the vineyard, and the suitability and effectiveness of the seed mix shall be evaluated. Weak areas shall be reseeded as necessary; if addition of soil amendments is indicated, they shall be incorporated and those areas shall be seeded and mulched.
- All roads and avenues/turnspaces which are not rocked or paved shall be seeded as needed and mulched, and shall remain undisturbed throughout the rainy season.
- All ditches, and other drainage and erosion control features shall be inspected and repaired as necessary.
- All other existing erosion control and drainage features shall be inspected and cleaned, or repaired as necessary.

All erosion control measures and drainage features shall be inspected after each storm event, and repairs shall be promptly performed.

SHEET INDEX

- TITLE SHEET
- PLAN-BLOCKS 15 THRU 19
- PLAN-BLOCK 20 THRU 22
- DETAILS

Legend

	BLOCK BOUNDARY
	AVENUE/TURNSPACE
	VINEYARD BOUNDARY (APPROX.)
	DETAIL 1, SHEET 3
	DIRT ACCESS DRIVE (EXISTING)
	EXISTING
	FENCE (EXISTING CYCLONE)
	FENCE (EXISTING PIG OR CATTLE)
	FIBER ROLL
	FLOWLINE OF DIVERSION DITCHES
	FLOWLINE OF EXISTING DRAINAGE
	IRRIGATION MAINLINE (proposed)
	LANDSLIDE DEPOSIT (per geological evaluation)
	PLANNING, BUILDING AND ENVIRONMENTAL SERVICES (Napa County)
	POTENTIAL WATERS OF THE UNITED STATES
	MINIMUM SETBACK
	PIG FENCE (PROPOSED)
	PROPERTY LINE
	ROCK SLOPE PROTECTION
	SOIL CONSERVATION SERVICE
	SCS SOIL MAPPING UNIT
	SCS SOIL TYPE BOUNDARY
	TOP OF BANK (APPROX.)
	WATER BAR

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R.C.E. 31418

July 10, 2017

DATE

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