
LANDSMART[®] FOR VINEYARDS
FARM PLAN
HUICHICA CREEK SUSTAINABLE DEMONSTRATION
VINEYARD



Prepared for: **NAPA COUNTY RESOURCE CONSERVATION DISTRICT**

Prepared by: Napa County Resource Conservation District

Date Revised: September 2018

Version 4.0
October 2017





January 24, 2017

Huichica Creek Vineyard/Napa County Resource Conservation District
1303 Jefferson Street, Suite 500B
Napa, CA 94559

Re: LandSmart®/Napa Green Land Certification of Huichica Creek Vineyard

Dear Mr. Schembre,

We are pleased to inform you that your property's Farm Plan meets the standards of the LandSmart®/Napa Green Land certification program. This certification follows the Certification Team's December 14, 2016 visit to your property and subsequent revisions to your Plan. Certification is contingent upon conservation practices being implemented per the scheduled dates identified in the Plan section entitled "Tracking Implementation of Your Farm Plan."

LandSmart® Plans are designed to meet the anticipated requirements of upcoming General Waste Discharge Requirements (WDRs) for vineyards in the Napa River and Sonoma Creek watersheds. Should the Performance Standards currently drafted for the WDRs change substantially during the Water Board's adoption process, your plan may need to be modified. We will notify you if modification is needed.

Please contact us if you would like technical or financial assistance to implement planned conservation practices. We will keep you apprised of potential grant/cost share funding opportunities as applicable.

We commend you for your ongoing stewardship efforts.

Sincerely,

Frances Knapczyk
Napa County Resource Conservation District

A handwritten signature in black ink that reads "m. novi".

Michelle Novi
Napa Valley Vintners

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INTRODUCTION

The LandSmart® Farm Plan template has been developed to be consistent with SF Bay Regional Water Quality Control Board Waste Discharge Requirement (WDR), where it applies. The Performance Standards for the WDRs are included throughout the document for easy reference. With additional Sections, this farm plan template may also be used to achieve Napa Green Land (NapaGreen.org) certification or other goals.

The template helps you inventory vineyards, roads, and waterways for impacts on water quality. Use the template to document current conservation practices and select additional practices that may be needed to protect water quality and other natural resources and meet Performance Standards of the WDR. The resulting plan is a working document with opportunities to record your decisions and progress towards meeting goals. The template prompts you to develop a photo monitoring plan with which you can document conservation practices, and progress towards goals. These photos, along with records you keep, help you evaluate the impact of conservation practices in your vineyard and, if needed, demonstrate to others the steps you have taken to protect and improve natural resources. Lastly, the plan includes a summary of conservation practices that you currently use and intend to implement in the future.

In the case where Resource Conservation District staff have developed the plan, any opinions and/or recommendations generated by the RCD are based on observations and property conditions existing at the time of the original field evaluation. RCD staff are unable to report on, or accurately predict, generally unforeseeable events that may impact the property and recommended actions following completion of farm plan, whether occurring naturally or caused by external forces.

LandSmart for Vineyards Reference Guide, available at LandSmart.org, may assist you in completing the worksheets in the Template.

The LandSmart program also provides support with water management, project implementation, education, and other land management needs. If you need assistance to meet agricultural and conservation goals, contact your local Natural Resources Conservation Service (NRCS) or Resource Conservation District (RCD) office.

For more information about LandSmart, RCD, NRCS, and watershed concepts, and a guide to navigating the permit process see Chapter 1 of the Resource Guide (LandSmart.org).

Contact Information

NRCS Napa Field Office: 707-252-4189

NRCS Petaluma Field Office: 707-794-1242

Napa County RCD: 707-252-4189

Sonoma RCD : 707-569-1448

Mendocino County RCD: 707-462-3664

Gold Ridge RCD: 707-823-5244

SUMMARY IMPLEMENTATION TABLE

Background: By tracking changes in land use and implementation of conservation or beneficial management practices (BMPs) on your agricultural operation, any water quality changes that may occur due to implementing practices are documented. Monitoring water quality changes can help to attribute those changes to implementation of practices or to other confounding factors such as regional geology or a source upslope or upstream of the operation.

Use this table to track implementation of actions that you identified in farm plan sections that follow. List additional conservation practices not identified in plan chapters but that are part of your management goals for the property at the end.

Plan Section	Practice	NRCS Practice Standard	Location (show on map if possible)	Date (Implemented and/or Maintained)	Details/Notes (include reference to photos)
Required Practice(s) to achieve WDR Tier 1 Monitoring Status					
Managing Waterways	Increase vineyard setback distance	391	Map 9. Block A and B	TBD	Increase set back to a minimum of 45 ft from top of bank along 850 ft of vineyard creek frontage.
Napa Green Land Certification Improvements					
Pest Management	Enhance IPM plan for Mealybug	595	All Vineyard Blocks	2017 – Implemented	Install Pheromone disruptors. Soil applied ant bait. Promote predatory wasps. Movento when necessary.
Pest Management	Hedgerow and insectary planting *	422	View Map 6	2016 (in progress)	Plant native shrubs and forbs along selected vineyard perimeter locations. Seed flowering insectary cover crops throughout the vineyard.
Nutrient Management	Compost Application *	590	All Blocks	2015 implemented. Lifetime of vineyard	Apply compost at rates between 10-15 tons/acre, every 3-5 years.

Managing Erosion in Vineyard Blocks	Tillage conversion to non-tillage *	329	Block A, B, C, D, E	2016 (in progress)	Blocks E and D have been converted to full no tillage since 2016. Block B has been partially converted to full no till. Block F and G remain no tilled.
Managing Erosion in Vineyard Blocks	Conservation Cover - Decommission non-paved access road	327	Along creek adjacent to orchard and top of bank	Decommissioned Fall 2017 (completed)	De-compact, seed, mulch, and plant perennials in coming years. Establish a new main access road entrance.
Managing Waterways	Creek and Wetland Restoration *	391	Wetland and Huichica Creek riparian zone. View Map 6.	Fall 2016 – 2026	In progress. Remove poison hemlock and blackberry. Work with NRCS for plant selection. Propagated plants from site. View CFP map for locations.
Managing Waterways	Monitor condition of eroding bank and outfall in Huichica Creek.		Map. 4, Map. 8 (Photopoint 15)	Every Winter	Yearly photo monitoring and length of outfall exposure to assess the degree of bank erosion. If bank is actively eroding, a restoration plan will be developed.
Water Use Management	Soil Moisture and Vine Leaf water stress monitoring	449	Various locations throughout the property	As of Spring 2018, 3 moisture probes installed, one Tule Sensor and weekly vine water status monitoring. (completed)	Soil Moisture Probe, Porometer, Pressure Bomb readings. Implement Regulated Deficit Irrigation methods. TerrAvion NDVI imagery. Tule Sensor or ET based scheduling
Water Use Management	Obtain Recycle water rights from Sonoma Valley Sanitation District		All vineyard blocks	Winter 2018 (completed)	Recycle water rights have been allocated for up to 7 acre feet of Summer Recycle water each year from the Sonoma County Water

					Agency – Sonoma Valley County Sanitation District.
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PROPERTY DESCRIPTION

Vineyard Facility Location (*See Chapter 2 of the Reference Guide for more information*)

Vineyard Facility Name	Huichica Creek Sustainable Demonstration Vineyard		
Facility Address	2135 Duhig Rd		
City, State & Zip Code	Napa, CA, 94559	County	Napa
Assessor's Parcel Number(s) ≥5 acres*	047-320-024		
Assessor's Parcel Number(s) < 5 acres			
Watershed and Sub-watershed	Napa River; Sub watershed – Huichica Creek		

* Only parcels with ≥5 acres of vineyard are subject to WDR

Plan Preparer

Name of Plan Preparer	Charles Schembre	Plan Date:	1/3/2017
Preparer's Affiliation	Napa County RCD Staff		
Plan Sections Prepared:	<input checked="" type="checkbox"/> All <input type="checkbox"/> Some (specify below) List Sections:		
Email	charles@naparcd.org	Phone: 707/252-4189	Fax:

Owner/Lessee (if different from above)

Name(s)	Napa County Resource Conservation District		
Mailing Address	1303 Jefferson St, Suite 500B		
City, State & Zip Code	Napa, CA 94559	Phone (hm)	707-252-4189
Email	staff@naparcd.org	Phone (cell)	

Land/Vineyard Manager (if different from above)

Name(s)			
Mailing Address			
City, State & Zip Code		Phone (hm)	
Email		Phone (cell)	

Technical Assistance Advisors (if applicable)

Name(s)			
Mailing Address			
City, State & Zip Code		Phone (hm)	
Email		Phone (cell)	

OPERATIONS AND LAND USE

<i>Land Use Activity</i>	<i>Area/Length</i>		<i>Notes</i>
Vineyard Blocks and Avenues	13.25	Acres	
Grazing/Rangeland		Acres	
Grape Processing Facilities		Acres	
Roads (paved)	830 ft	Feet/ Miles	
Roads (unpaved)		Feet/ Miles	
Other paved areas and buildings		Acres	
Forest/Woodland/Chaparral		Acres	
Open Space/Fallow/Undeveloped	1.4	Acres	Huichica Creek Floodplain
Reservoir/Pond (footprint)	1850 feet	Acres	
Stream/River/Creek/Riparian (delineated as blue-line on USGS topographic maps)		Feet/ Miles	
Stream/River/Creek/Riparian (not delineated as blue-line on USGS topographic maps)		Feet/ Miles	
Drainage Ditch/Canal		Feet/ Miles	
Other Vineyard/Farming Facilities		Acres	
Other Land uses	4.2	Acres	Seasonal Wetland

(OPTIONAL) EXISTING PLANS, PERMITS & CERTIFICATIONS

NOTE: The information in the table below may be helpful in developing your Farm Plan. The information is not required for compliance with WDRs.

<i>Plan Type</i>	<i>Plan/ Permit Year</i>	<i>Plan/ Permit Area (ac)</i>	<i>Plan/Permit Number(s) and/or Notes (including status, e.g. permit pending/final or certification pending/complete)</i>
Napa County Erosion Control Plan			
Sonoma County Erosion Control Plan (VESCO)			
NRCS Conservation Plan			
Fire Management Plan			
Grazing/Rangeland Management Plan			
Grazing Lands Water Quality Plan			
Organic Certification (indicate if in transition)			
Timber Harvest Management Plan			
Napa Green Land/Fish Friendly Farming Certification			
The Code of Sustainable Winegrowing (note if Self-Assessment or Certified)			
Industrial Stormwater Permit for Wineries			
Sustainability in Practice (SIP)			
Engineered pond including water rights (if applicable)			
Permits for stream-related projects: Department of Fish and Wildlife, Corps of Engineers, etc.			
Other:			
Other:			

(OPTIONAL) OFF-SITE CONDITIONS OUTSIDE OF LANDOWNER CONTROL

Upslope and/or upstream land uses or conditions within the watershed that are out of your control and may influence your ability to implement conservation practices to control erosion, reduce sediment delivery, or otherwise protect water quality on your property.

Describe any relevant off-site conditions that impact conditions on your property:

The adjacent property immediately north, across Ramal Rd, drains via an existing culvert into the north end of our property. This functions as flood control for the county road (Ramal Rd). During large storm events significant runoff from the adjacent property discharges into our property, and is attenuated and captured by the wetland. A large portion of our vineyard is generally inundated with flood water during large storm events. The wetland functions as an attenuation basin and most likely mitigates any sediment delivery to Huichica Creek.

VINEYARD FACILITY MAP SUMMARY

Map all items in the table below that exist on the property and indicate in the table when the task is complete and on which map item is mapped. Note, each item does not need a separate map.

Maps should be prepared on a topographic map, aerial photograph, or Google Earth image (minimum 1:6,000 scale). More than one map may be used to display information in your plan. A more detailed map (1:2,400 scale) may be needed to accurately depict stream channels, riparian corridors, or other small scale features. Each map should have a legend and should clearly display the features identified in your Farm Plan.

You may include (or reference) existing maps (e. g. maps affiliated with Erosion Control Plans) or generate new maps in the planning process.

See Chapter 3 of the Reference Guide for further information on map scale, map symbols, and other information that may be helpful. If you need assistance with mapping, NRCS and/or RCD staff is available to assist you.

Mark X if mapped	Items	Map Number
Boundaries		
x	Property, plan and parcel boundaries and parcel identifiers (APN)	
x	Topography. Identify area with slope <5%, 5-30%, >30% and show contour lines (5-to-40 foot or higher resolution intervals).	
x	Existing vineyard block boundaries (<i>indicate slope and block ID and row direction</i>)	
	Areas under consideration for new vineyard development or replant	
x	Non-vineyard land uses (grazing, winery, other)	
Buildings/Facilities – <i>May identify total footprint of buildings in lieu of labeling each</i>		
	Barns/shops/outbuildings/greenhouses	n/a
x	Agrichemical (pesticide/fertilizer/petroleum) handling site(s)	
	Agrichemical (pesticide/fertilizer/petroleum) storage facility(s)	n/a
	Winery/post-harvest handling/storage facility(s)	n/a
	Equipment yards and/or staging areas	n/a
	Other:	
Vineyard: Soils, Erosion Control, Management & Structures – <i>Give each feature/area a name/number for easy reference.</i>		
x	Soil type(s) with erosion rating(s) (map from http://websoilsurvey.nrcs.usda.gov)	
x	Vineyard drainage (diversion ditches, storm drains, underground outlets with inlets and outlets, and subsurface drainage)	

x	Sediment/attenuation/energy dissipation basin(s)	
x	Vineyard Avenue(s)	
x	Erosion features (i.e. gullies, rills, landslides, mudflows, rock falls)	
	Other:	
Waterways – Give each feature a name/number for easy reference.		
x	All channels including Class I, II, and III streams and human made waterways (ditches)	
x	Spring(s), Seep(s), and Wet Area(s)	
	Reservoir/Pond/lake(s) (indicate pipe or open channel spillway location)	n/a
	Streamflow diversion structures	n/a
x	Erosion features in waterways (i.e. streambank erosion, channel erosion)	
x	Wells, with notation of their use (agricultural, residential, not in use, other)	
	Other:	
Roads - Give each road a name and indicate if public, private and/or easements.		
x	All roads and road crossings, with road surface type (paved or unpaved) and crossing type delineated (culvert, bridge, ford, etc.)	
	Erosion features associated with roads (i.e. gullies, rills, landslides, mudflows, rock falls)	n/a
	Other:	
Photo Monitoring Points – Sites you have selected for annual photo monitoring. Give each point a number for easy reference.		
x	Photo-points to demonstrate winter readiness	
x	Photo-points to demonstrate annual maintenance and practice implementation	
x	Photo-points to demonstrate condition of discharge points (i.e. outlets, gullies, etc.)	
x	Photo-points to demonstrate condition downstream of discharge points	
x	Photo-points to track “areas to watch” – e.g. areas with erosion or invasive weeds that you want to track over time	
	Other:	

MANAGING AGRICHEMICALS

Background: Agrichemicals (organic or synthetic; nutrients or pesticides including herbicides and sulfur) that move from the site of application into surface water and other unintended places, can affect water quality by negatively impacting human, animal or non-target organism health. Nutrient sources associated with agricultural production practices may include organic and inorganic fertilizers, biodegraded crop residues, and agricultural wastes (grape pomace and waste directly generated by animals). Wind and water erosion of soil or aerial drift from agrichemical applications may contribute to pesticide movement away from the target area. Agrichemicals may enter surface waters during overland runoff and tile drainage either as water-soluble residuals or adsorbed to sediments. Nutrients from these sources become pollutants when they are transported off-site into nearby streams and lakes or percolate in excessive amounts into groundwater. Nitrates and phosphates in surface water bodies contribute to increases in aquatic plants and algal blooms that deplete dissolved oxygen and impact aquatic organisms.

Resources: Chapter 4, Resource Guide. Includes details of BMPs, beneficial insects, instructions for building bird and bat houses, practices for treating common diseases/pests.

Purpose: Identify practices, currently in use or intended for implementation, to ensure that agrichemicals (fertilizers, soil nutrients, compost and pesticides) are stored, mixed and applied in a manner consistent with all applicable regulations, including those required by the California Department of Pesticide Regulation (DPR) and the County Agricultural Commissioner, and in a manner that prevents excess agrichemicals from reaching surface and groundwater.

SF Bay Regional Water Quality Control Board General WDRs for Napa River and Sonoma Creek - Performance Standards:

- 1) IPM program (UC Statewide IPM Program 2015) shall be developed and implemented and effective practices implemented to avoid mixing, storing, applying near wells and surface waters or in a way that could contribute to water toxicity.**
- 2) BMPs for nutrient application shall be implemented such that discharges do not contribute to violation of water quality standards**

List Maps and Photos Related to Section: Map 7

AGRICHEMICAL HANDLING AND STORAGE

A1. Agrichemicals are stored properly (per the label) on-site.

- Yes (Indicate on map where agrichemicals are stored)
- No (Implement practice # 2, listed in Table A1 below, consult a professional if needed)
- Agrichemicals are not stored on-site.

DESCRIBE:

A2. Agrichemical mixing, loading, and rinsing are conducted in an area where agrichemicals do not have the potential to runoff into a well or waterway, if spillage occurs.

- Yes (Indicate on map where agrichemicals are mixed, loaded, and rinsed)
- No (Consider practices # 3 through 6, listed in Table A1 below)
- No mixing, loading, or rinsing on-site.

DESCRIBE: View Map. 7 for location of mixing zone.

A3. Agrichemicals handled away from the primary mixing area are mixed, loaded and rinsed away from aquatic habitat and wells.

- Yes (Indicate on map where agrichemicals are mixed, loaded, and rinsed)
- No (Consider practices # 3 through 6, listed in Table A1 below)
- Agrichemicals are not mixed, loaded, and rinsed on-site.
- Not Applicable

DESCRIBE: View Map. 7 for location of mixing zone.

A4. Employees are trained in the safe handling of agrichemicals.

- Yes (Describe how often and source of training)
- No (Consider practices # 3 through 6, listed in Table A1 below)

DESCRIBE: All workers that handle chemicals are employed and trained by a contracted vineyard management company.

Table A1: Conservation Practices for Agrichemical Handling and Storage

The following table provides management practices that are intended to protect water quality. Selection of practices must be done on a site-specific basis. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical or financial assistance. *See Chapter 4 of the Reference Guide for information on these conservation practices.*

<i>Conservation Practice</i>	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Recommended Practice</i>
1. Consult a Professional		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Read agrichemical labels and store them according to directions.		<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Use an impervious containment pad for agrichemical handling	Agrichemical Handling Facility (309)	<input type="checkbox"/>	<input type="checkbox"/>
4. Provide securable agrichemical handling	Agrichemical Handling Facility (309)	<input type="checkbox"/>	<input type="checkbox"/>
5. Move agrichemical handling away from aquatic habitat and wells		<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Train employees on safe agrichemical handling		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>

PEST MANAGEMENT

A5. The facility operates under a current Pesticide Use Permit filed with the County Agricultural Commissioner.

- Yes (List your permit number)
- No (Implement practice # 2 listed in Table A2 below. Consult a professional if needed)
- No pesticides are used at the facility.

Describe as needed: 28-16-2800045 Oak Knoll Farming manages the permit and submits all pesticide use reports. Site Number: 2A-1

A6. UC-IPM guidelines are followed (<http://www.ipm.ucdavis.edu/PMG/selectnewpest.grapes.html>)

- Yes (Briefly describe IPM practices in use)
- Some (Briefly describe IPM practices in use)
- No (Consider practices # 3 through 6, listed in Table A2 below)

Describe as needed: Hand weeding occurs in young vine blocks and in areas where weed pressure is very intense. Mulching under the vine to blanket out weeds. Herbicide application is reduced by operating an under the vine mechanical cultivators. Soft chemicals and timely canopy management are used for mitigating fungicide. Organic products are utilized when effectiveness is very likely. Owl and blue bird boxes are installed for predatory shelter. Hedgerows, riparian restoration, and diverse permanent cover crops have been established for attracting insectary habitat for beneficial insects.

A7. Alternative, non-chemical pest control methods are used when and where practical.

- Yes (Briefly describe your pest control methods)
- No (Consider practices # 10, 11 and 12 in Table A2 below)

Describe as needed: Timely canopy management reduces mildew and other fungal pressure. Permanent cover crop, creek and wetland restoration provide significant beneficial and predacious insect habitat, keeping insect pressure low. Pheromone disruption tags are used to reduce mealybug populations.

A8. Pesticides and herbicides with the least toxicity are utilized whenever possible. Pesticides considered of highest concern are: pedimethalin, pryaclostrobin, trifloxystrobin, oxyfluorfen, cyprodinil, triflumizole, and imidacloprid.

- Yes (List typical pesticides and herbicides used)
- No (Consider practices # 6 in Table A2 below)

Describe as needed: All highest concern chemicals noted above have been eliminated from the RCD spray program. View pesticide products used in WIN-PST report at the end of document. Adjuvants cannot be analyzed in WIN-PST

Additional Requirement: If interested in Napa Green Land Certification, append Pesticide Use Reports provided to County Agricultural Commissioner's Office from past year to document usage.

Using the USDA model Windows – Pesticide Screening Tool (WIN-PST), Napa County RCD will evaluate if there are potential impacts to aquatic or human life by analyzing all pesticide products and existing the IPM and BMP techniques in place.

WIN-PST Results

All minimum mitigation criteria are being met, and there are no identified resource concerns of Huichica Creek Vineyard's pesticide application program. View WIN-PST document in attachments at the end of the plan.

Table A2: Conservation Practices for Pest Management

The following table provides management practices that are intended to protect water quality. Selection of practices must be done on a site-specific basis. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical and/or possible financial assistance. See Chapter 4 of the Reference Guide for information on these conservation practices.

<i>Practice</i>	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Recommended Practice</i>
1. Consult a Professional		<input type="checkbox"/>	<input type="checkbox"/>
2. Apply pesticides under a Pesticide Use Permit		<input type="checkbox"/>	<input type="checkbox"/>
3. UC-IPM: Implement appropriate guidelines for grapes	Integrated Pest Management (595)	<input type="checkbox"/>	<input type="checkbox"/>
4. UC-IPM: Scout for pests	Integrated Pest Management (595)	<input type="checkbox"/>	<input type="checkbox"/>
5. UC-IPM: Maintain pest management records	Integrated Pest Management (595)	<input type="checkbox"/>	<input type="checkbox"/>
6. UC-IPM: Use chemicals that are lowest risk to water quality	Integrated Pest Management (595)	<input type="checkbox"/>	<input type="checkbox"/>
7. Calibrate application equipment (sprayers and injectors) regularly		<input type="checkbox"/>	<input type="checkbox"/>
8. Dispose of containers properly		<input type="checkbox"/>	<input type="checkbox"/>
9. Train employees per OSHA & MSDS		<input type="checkbox"/>	<input type="checkbox"/>
10. Install raptor roosts, owl boxes, and/or bat boxes	Upland Wildlife Habitat Management (645)	<input type="checkbox"/>	<input type="checkbox"/>
11. Replace Pierce’s Disease host trees & shrubs with native plants	Brush Management (314) Riparian Forest Buffer (391)	<input type="checkbox"/>	<input type="checkbox"/>
12. Replace Pierce’s Disease host forbs with native plants	Herbaceous Weed Control (603) Riparian Herbaceous Cover (390)	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>

NUTRIENT SOURCES USED ON THE VINEYARD FACILITY

Check all that apply:

- Synthetic Fertilizer Organic Fertilizer Compost (vegetative)
 Green Manure (nitrogen fixing) Cover Crop
 Animal Manure (Is it composted? Yes No)
 Grape Pomace (Is it composted? Yes No)
 Other - Biochar

LIST MATERIALS USED: Compost and other mineral amendments were applied during the development of the vineyard. Other fertilizers injected through the drip system include Fish Emulsion, Humi-K 0-0-26, Compost Tea's and other microbial products. Mineral amendments such gypsum and biochar may be applied at times.

NUTRIENT AND/OR COMPOST MANAGEMENT

A9. Fertilizer amount and application timing is prescribed based on crop needs, identified by field inspection and/or testing. (Note testing date, if performed).

- Yes (Describe method(s) of inspection and/or testing)
 No (Consider practices # 1 through 7, listed in Table A3 below)

DESCRIBE: Petiole samples are taken once or twice a year, one at bloom and one in verasion. Soil monitoring is conducted in the cover crop middles and under the drip zone every 2-3 years. Nutrient applications are made based on soil analysis and petiole analysis results.

A10. Fertilizer(s) are applied and timed to reduce runoff and leaching.

- Yes (Describe timing of application)
 No (Consider practices # 6 and 7, listed in Table A3 below)

DESCRIBE: Liquid fertilizers are injected though the drip system at 6-12-inch shoot length and or after bloom, if needed. Foliar fertilization of zinc and boron are sprayed at bloom to promote strong pollination, after the rain season. Gypsum is broadcasted in the vine row in fall to correct Na accumulation in the drip zone. Gypsum is highly soluble and is quickly dissolved into the top soil with the lightest of wetting rains, and has a very low chance of being transported off of site.

A11. Fertilizer(s) are applied with calibrated equipment.

- Yes (Describe how often equipment is calibrated)
- No (Consider practice #8, listed in Table A3 below)

DESCRIBE: Fertigation includes measuring the exact quantity of fertilizer required for a given irrigation block, mixing it in solution in a 300 gal tank and injecting. Foliar sprays are measured and mixed in a spray rig, and applied at the desired rate in solution. All soil amendments are broadcast applied and calibrated by the amendment spreader and the speed at which the equipment is driven through the field.

A12. On-site composting takes place on a containment facility that collects any leachate.

- Yes (Identify location of the composting containment facility on a map and describe below)
- No (Consider practice # 9, listed in Table A3 below)
- No on-site composting

DESCRIBE

A13. Compost is monitored to reach temperatures necessary to eliminate pathogens (131°F for a minimum of 3 days enclosed or 15 days if windrowed).

- Yes
- No (Consider practice # 10, listed in Table A3 below)
- No on-site composting

DESCRIBE

Table A3: Conservation Practices for Nutrient Sources and Application Rates & Timing

The following table provides an assortment of management practices that are intended to protect water quality. Selection of practices must be done on a site-specific basis. NRCS Practice Titles are provided for your reference; contact your local NRCS or RCD field office for technical or possible financial assistance. See Chapter 4 of the Reference Guide for information on these conservation practices.

<i>Practices</i>	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Recommended Practice</i>
1. Consult a Professional		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Perform visual or infrared crop assessment	Nutrient Management (590)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Take petiole and/or leaf samples to assess plant nutrient content	Nutrient Management (590)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Collect soil samples to assess available levels of soil nutrients	Nutrient Management (590)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Time fertilizer application to meet crop requirements	Nutrient Management (590)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Time fertilizer application to reduce runoff and leaching	Nutrient Management (590)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Apply nutrients through fertigation (directly to root zone)	Nutrient Management (590)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Calibrate application equipment (fertigation, spreaders) regularly	Nutrient Management (590)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Provide a containment facility or area for composting	Composting Facility (317)	<input type="checkbox"/>	<input type="checkbox"/>
10. Monitor compost and ensure that required conditions are met		<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>

MANAGING EROSION IN VINEYARD BLOCKS AND AVENUES

Background: When soil erodes and excessive amounts of sediment enters waterways, water quality is impacted. In areas with ground disturbance, erosion rates can be relatively high and, hence, contribute significant amounts of sediment to water bodies. The risk of soil erosion increases according to slope, soil type, and precipitation rates and timing. Vineyards on slopes over 5% must pay particular attention to erosion control practices.

Practices to reduce the risk of erosion generally aim to **slow** the rate of water running off of the land, **spread** water across the land, and allow for water to **sink** or percolate into the soil (i.e., Slow It, Spread It, Sink It). When possible, safely dispersing water across the land is preferable to concentrating it into a lined waterway or pipeline.

References: Chapter 5, Reference Guide. Includes details about soil erosion and sedimentation, soil quality, and BMPs to manage erosion.

Purpose: Identify current and planned practices to protect soil from erosion (slow and spread storm runoff), attenuate significant storm runoff flows, promote on-site water infiltration (sinking storm runoff), prevent excessive rates of sediment delivery to receiving waters, and reduce the impacts of storm runoff from the vineyard floor.

SF Bay Regional Water Quality Control Board General WDRs for Napa River and Sonoma Creek - Performance Standards:

- 1) In the farm area, soil loss rate is less than or equal to tolerable soil loss rate (t). The tolerable soil loss rate is as defined by the USDA Soil Conservation Service (1994).
- 2) For existing hillslope vineyards, runoff shall not contribute to downstream increases in bed and/or bank erosion. Hillslope vineyard is defined by grapes planted on an average slope > 5%.
- 3) For new hillslope vineyards, peak storm runoff in 2, 10, 50, 100-year rainfall events (24 hour) shall not be great than pre development. Runoff shall not contribute to downstream increases in bed and bank erosion. Hillslope vineyard is defined by grapes planted on an average slope > 5%.

List Maps and Photos Related to Section:

PREVENTING EROSION AND FLOW CONCENTRATION IN VINEYARD BLOCKS AND AVENUES

V1. Vineyard blocks are covered by a fully implemented County-Approved Erosion Control Plan (ECP).

- All Blocks (List all active ECPs)
- Some Blocks (List all active ECPs and use appropriate ECP practices in all blocks, including those not covered by an ECP)
- No Blocks (If slopes are over 5% or if there is erosion, consider practice # 1, listed in Table V1 below)
- NA, a County ECP is not required.

ECP File #(s):	Approval Date(s):
----------------	-------------------

Describe as needed:

V2. Mulch and/or vegetative cover is maintained in vineyard blocks (between vine rows) during rainy months. *Recommended photo monitoring point.*

- All Blocks (Describe your current practice(s))
- Some Blocks (Describe your current practice(s). Consider a combination of practices # 2 through 12, listed in Table V1 below)
- No Blocks (Consider a combination of practices # 2 through 12, listed in Table V1 below)

Describe as needed: Vineyard avenues are grassed and vegetated all year. Bare areas are mulched with straw when needed. Tillage vineyard middles are seeded with a green manure cover crop which generally produces thick ground coverage. Vegetation under the vine regrows to cover about 50% of the strip managed for weeds. Overall vineyard ground cover is 90% by mid-January.

V3. Vegetative cover is allowed to grow under the vine row during raining months. *Recommended photo monitoring point.*

- Yes (Describe your current practice(s))
- No (Consider practices # 5 through 8 listed in Table V1 below)

Describe as needed: Vegetation regrows under the vine row, however, the first herbicide application occurs during the late rainy season, while the vines are still dormant. The rainy season in our region will persist into May, and applying herbicides later than early March is typically too late to achieve successful weed management. The die off of the vegetation under the vine generally persists through the rainy season and has dead plant residues, acting as a mulch ground cover.

V4. Under-the-vine spray widths are minimized to cover a maximum of 20-25% of the total vineyard ground surface (ex. With 8ft spacing, no more than 2ft spray width). *Recommended photo monitoring point.*

- Yes (Describe your current practice(s))
- No (Consider practices # 5 through 8 listed in Table V1 below)
- Not Applicable (no herbicides applied)

Describe as needed: Herbicides are not sprayed every year, and not to all blocks. When they are applied, the width is generally 20-24 inches, covering no more than 25% of the total ground cover.

V5. Mulch and/or vegetative cover is maintained on unsurfaced vineyard avenues during rainy months. *Recommended photo monitoring point.*

- All avenues (Describe your current practice(s))
- Some avenues (Describe current practice(s). Consider practices # 4, 9 – 14 listed in Table V1 below)
- No avenues (Consider practices # 4, 9 through 14, listed in Table V1 below)

Describe as needed: All vineyard avenues are grassed and revegetate every winter after wetting rains. If there are substantial bare areas, seed and straw are applied.

V6. There are no signs of rills or gullies in the vineyard.

- Yes
- No (Describe any problem areas and consider practices in Table V1)

Describe as needed:

V7. Vineyard blocks and avenues are inspected before and after major storm events and problem areas are treated.

- All Blocks (Describe any frequently recurring problem areas)
- Some Blocks (Describe any frequently recurring problem areas. Implement practice # 17 and consider all practices listed in Table V1 below)
- No Blocks (Implement practice # 17 and consider all practices listed in Table V1 below)

Describe as needed:

V8. Emergency erosion control materials are readily available.

- Yes (Describe where they are located)
- No (Practice # 18, listed in Table V1 below is suggested)

Describe as needed: There are not facilities on the site to store erosion control materials, and there are no full time staff at the site every day to catch an issue and immediately install material.

V9. Field staff are trained in proper use of erosion control materials.

- Yes (Describe training program)
- No (Practice #19, listed in Table V1 below is suggested)

Describe as needed: All field workers are contracted out by a vineyard management company, and are trained by their employer.

Soil Loss Tolerance – Universal Soil Loss Equation

Soil loss modeling was conducted in the steepest area of the vineyard acreage.

Soil type	Soil Loss Tolerance (T) (tons/acre)	Modeled soil loss rate (A) (tons/acre)
145 Haire Loam	4	0.56
<i>Model was performed with the following variables:</i>		
<i>Variable</i>	<i>Value selected</i>	<i>Notes</i>
<i>Rainfall Factor (R)</i>	35	<i>Atlas 14 – 2yr, 6 hr rainfall event = 1.40 inches</i>
<i>Erosivity Factor (K)</i>	0.32	
<i>Slope length (feet)</i>	240	
<i>Slope</i>	8.3%	<i>5% slope was used to model as conservative scenario. All vineyard blocks have slope less than 5%.</i>
<i>Slope Length Factor (LS)</i>	2.04	
<i>Cover Value (C)</i>	0.038	<i>70% cover, non-tilled and tillage on every other row. C value has been interpolated.</i>
<i>Row Orientation (P)</i>	0.7	<i>Cross slope orientation with half rows tilled and half non-tilled. Value has been interpolated.</i>

Table V1: Conservation Practices to Reduce Soil Erosion and Runoff Concentration on the Vineyard

The following table provides an assortment of management practices that are intended to protect water quality. Selection of practices must be done on a site-specific basis. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical or financial assistance. *See Chapter 5 of the Reference Guide for information on these conservation practices.*

<i>Practices</i>	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Recommended Practice</i>
1. Consult a Professional		<input type="checkbox"/>	<input type="checkbox"/>
2. Plant a non-tilled, permanent vegetative cover crop to minimize soil disturbance	Conservation Cover (327)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Till every other middle (alternate row cultivation) and ensure that disturbed soil is protected during the rainy season. Avoid tilling in the avenue.	Cover Crop (340)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Plant an annually seeded and/or disked cover crop (generally not appropriate for vineyards on slopes >5%)	Cover Crop (340)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Mow (or string-trim) under the vinerows	Conservation Cover (327)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Spot-spray under vinerows using post-emergent product – protect disturbed soils during rainy season		<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Apply post-emergent spray in late spring – protect disturbed soils during rainy season		<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Mulch under vinerows and/or in middles (between vinerows) to protect disturbed soils	Mulching (484)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Install temporary straw or coir fiber structures to protect vulnerable areas	Stormwater Runoff Control (570)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Plant/maintain a vegetative buffer along the block perimeter	Field Border (386) Conservation Cover (327) Filter Strip (393)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Plant/maintain a vegetative buffer to filter runoff	Filter Strip (393) Vegetated Barrier (601)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Plant/maintain a vegetative swale to filter runoff	Grassed Waterway (412)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13. Apply seed and straw mulch to avenues in the fall		<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. Install and/or maintain waterbars in the avenues in the fall to disperse runoff		<input type="checkbox"/>	<input type="checkbox"/>
15. Conduct pre- and post-storm maintenance and monitoring; address erosion concerns as necessary		<input checked="" type="checkbox"/>	<input type="checkbox"/>
16. Keep emergency erosion control materials readily available		<input type="checkbox"/>	<input type="checkbox"/>
17. Provide erosion control trainings for field staff		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>

MANAGING CONCENTRATED STORM RUNOFF AND SEDIMENT DELIVERY FROM HILLSLOPE VINEYARD BLOCKS

V10. Runoff within the vineyard is primarily dispersed as sheet flow. No drainage system (diversion ditch(s), drop inlets, tile drains, etc.) exists within the vineyard block(s).

- Yes, all blocks. Skip to question V12 (Describe any modeling that was done, and dispersal/infiltration methods)
- Yes, some blocks (Describe which blocks, modeling, and dispersal/infiltration methods. Consider practices # 1 through 7 and #11, listed in Table V2 below for areas with drainage systems)
- No (Consider practices # 1 through 7 and #11, listed in Table V2 below)

Describe as needed: Storm drainage is collected on a shared ditch between Domain Chandon and HCV, and is conveyed in a 3 ft storm drainage pipe through block A and B and is outletted into Huichica Creek. Storm drainage is collected and conveyed off of the neighbor’s (Frank Cabral) property through block C and is outletted into the seasonal wetland.

V11. Runoff in vineyard blocks is collected into a drainage system that has been modeled to not increase peak flows. Recommended photo monitoring point to show condition of outlet(s).

- Yes, all blocks (Describe modeling used, map drainage features, or reference your ECP)
- Yes, in some blocks (Describe modeling used, map drainage features, or reference your ECP and Consider practices # 2 through 9 and # 11 through 13, listed in Table V2 below for un-modeled blocks)
- No (Consider practices # 2 through 9 and # 11, listed in Table V2 below)

Describe as needed: Upon replant the RCD will reevaluate the impact on hydrology, and will consider alternative design that may eliminate the necessity of storm drainage pipe.

V12. Runoff from the vineyard blocks is collected into a drainage system. Concentrated flow is conveyed in a way that is not causing erosion. Recommended photo monitoring point to show stability of areas below outlet(s).

- Yes, all blocks (Map drainage features or reference your ECP)
- Yes, in some blocks (Map drainage features or reference your ECP)
- No (Consider practices # 2 through 9 and # 11 through 13, listed in Table V2 below)

Describe as needed:

Table V2: Conservation Practices to Slow and Remove Sediment from Concentrated Runoff From the Vineyard

The following table provides an assortment of management practices that are intended to protect water quality. Selection of practices must be done on a site-specific basis. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical or financial assistance. *See Chapter 5 of the Reference Guide for information on these conservation practices.*

<i>Practices</i>	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Recommended Practice</i>
1. Consult a Professional		<input type="checkbox"/>	<input type="checkbox"/>
2. Plant a vegetative buffer or swale to filter runoff	Filter Strip (393) Grassed Waterway (412) Vegetated Barrier (601)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Install a basin to collect sediment and/or attenuate flows	Sediment Basin (350)	<input type="checkbox"/>	<input type="checkbox"/>
4. Install a level rock bench or tee spreader to disperse concentrated runoff	Underground Outlet (620)	<input type="checkbox"/>	<input type="checkbox"/>
5. Install a diversion ditch – look for opportunities to disperse concentrated flows and ensure that outlet is protected	Lined waterway or outlet (468)	<input type="checkbox"/>	<input type="checkbox"/>
6. Line an eroding swale or diversion ditch – look for opportunities to disperse concentrated flows and ensure that outlet is protected	Lined waterway or outlet (468)	<input type="checkbox"/>	<input type="checkbox"/>
7. Install a piped storm drain - – look for opportunities to disperse concentrated flows and ensure that outlet is protected	Underground outlet (620)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Install an energy dissipater at pipe/waterway outlet – look for opportunities to disperse concentrated runoff prior to outlet	Lined waterway or outlet (468)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Install temporary straw or coir structures	Stormwater Runoff Control (570)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Install a rock weir spillway from a sediment basin – look for opportunities to disperse concentrated flow	Structure for Water Control (587)	<input type="checkbox"/>	<input type="checkbox"/>
11. Set back vineyard upon replant and seed bare areas	Critical Area Planting (342) Conservation Cover (327)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Install a mid-slope runoff conveyance ditch with a protected outlet	Diversion (362)	<input type="checkbox"/>	<input type="checkbox"/>
13. Install drop inlet pipe (storm drain) to convey runoff to a protected or safe outlet location	Underground Outlet (620)	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>

MANAGING NATURAL WATERWAYS, DITCHES, AND SPILLWAYS

Background: Waterways, channels, streams, swales, and ditches act as a conduit from upstream to downstream areas and they are sensitive to land use activities and practices. Healthy riparian zones and/or adequate space between land use activities and waterways may provide a number of environmental benefits and may protect streambanks from erosion. Riparian areas also buffer waterways from the effects of potential nutrient, pesticide, pathogen and sediment runoff.

Reference: Chapter 6, Reference Guide

Purpose: Describe the condition of natural stream channels, riparian areas, and human-made waterways (ditches and pond/basin spillways) on the property including the rate of bed and/or bank erosion, channel incision, head-cutting, and the condition of human-made structures in the channel. Describe the conservation practices being implemented to protect waterways from water quality degradation.

SF Bay Regional Water Quality Control Board General WDRs for Napa River and Sonoma Creek - Performance Standards:

No Performance Standards

To be eligible for Tier 1 Status, stream habitats shall be fully protected along unconfined alluvial reaches.

List Maps and Photos Related to Section: Map 1, 4, 8

MANAGING EROSION AND WATER QUALITY IN NATURAL WATERWAYS

W1. Mark the type(s) of waterways on the property that are on or adjacent to the vineyard facility (mark all that are present):

- Natural (Complete questions W2 and W3 through W6. Complete Table W1.)
- Ditches (Complete Questions W2 and W7. Complete Table W2.)
- Spillways (Complete Questions W2 and W8 through W11. Complete Table W3.)
- No Waterways (You do not have to complete this section of the LandSmart Plan.)

W2. List any waterways on the property that regularly or sometimes flow out of their banks and flood causing erosion and/or other problems.

List waterways that regularly overflow or note “not applicable”: **Huichica Creek**

List waterways that sometimes overflow or note “not applicable”:

W3. Vineyard blocks are set back from waterways by the minimum distance required by County regulations (or greater).

- Yes
- Some blocks (Consider practice #9, listed in Table W1 below)
- No (Consider practice #9, listed in Table W1 below)

Describe as needed: Setbacks will be increased to meet the Regional Water Board standards for Tier 1 monitoring status. This set back will be approximately 45 feet from top of bank. This will bring the vineyard setbacks into compliance with current County setback distances of 35 feet.

W4. Are there ‘unconfined alluvial channel reaches’ on the vineyard property? Unconfined alluvial channels reaches are where the valley width is greater than four-times the bankfull channel width. Examples include a) almost the entire length of the Napa River and Sonoma Creek; and b) also along their tributaries where they exit canyons to traverse alluvial fans or valleys.

- Yes. Continue to questions W5 and W6.
- No. Skip to W8.

Describe as needed:

W5. Is the property implementing active and/or passive restoration measures through participation in a reach-based habitat enhancement project that enhances width and complexity of riparian habitat?

- Yes
- No

Describe as needed:

W6. Is the property implementing active and/or passive restoration measures through Farm Plan implementation? Yes No**Describe as needed:****W7. On average, all vineyard avenues, roads, and rows are set back from unconfined alluvial channels ≥ 1.5 times the bankfull width (setbacks are measured from top of bank)?** Yes (Describe set back ranges below) Some blocks (Consider practice #9, listed in Table W1 below) No (Consider practice #9, listed in Table W1 below)**Describe as needed:** Setbacks will be increased to meet the Regional Water Board standards for Tier 1 ranking. This set back will be approximately 45 feet from top of bank. Approximately 850 ft of vineyard length, and 0.5 vineyard acres (including vineyard avenue) will be removed at a stage of replanting or before. View Map # 8**W8. All agricultural supplies (heaters, trellis parts, irrigation supplies, machinery, etc.) are stored outside of the required waterway setback during winter months.** Yes No (Consider practice #10, listed in Table W1 below)**Describe as needed:**

W5. Complete this data form for all moderately confined and unconfined waterways on or adjacent to the Vineyard facility. If major streams have widely varying characteristics, break the stream out into reaches with consistent characteristics. Make additional copies if all waterways do not fit on one form.

Waterway ID As labeled on Map. Break into reaches as needed.	Active Channel* Width (ft)	Bank Height (ft)	Slope of Banks	Channel Type	Flow Regime (during average rain season)	Channel Condition	Waterway Bottom Check <u>two</u> boxes that are most appropriate	In-Stream Structures Known to Obstruct Fish Passage? Yes/No, note location
Huichica Creek – Upper 900 ft	<input type="checkbox"/> 0-10 <input checked="" type="checkbox"/> 11-25 <input type="checkbox"/> 26-50 <input type="checkbox"/> 51+	<input type="checkbox"/> 0-2 <input checked="" type="checkbox"/> 3-6 <input type="checkbox"/> 7-10 <input type="checkbox"/> 11+	<input type="checkbox"/> Steep (1:1) <input checked="" type="checkbox"/> Moderate (2:1) <input checked="" type="checkbox"/> Gentle (3:1 or less)	<input checked="" type="checkbox"/> Unconfined <input type="checkbox"/> Moderately Confined <input type="checkbox"/> Confined	<input type="checkbox"/> Year-round <input checked="" type="checkbox"/> Seasonally <input type="checkbox"/> During & shortly after storms	<input checked="" type="checkbox"/> Stable <input type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input checked="" type="checkbox"/> Silt and Clay <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Gravel (pea to tennis ball) <input type="checkbox"/> Cobble (tennis to basketball) <input type="checkbox"/> Boulder (> than a basketball) <input type="checkbox"/> Bedrock	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A. No fish bearing streams on property.
Huichica Creek – lower 900 ft (Tidally Influenced)	<input type="checkbox"/> 0-10 <input checked="" type="checkbox"/> 11-25 <input type="checkbox"/> 26-50 <input type="checkbox"/> 51+	<input type="checkbox"/> 0-2 <input checked="" type="checkbox"/> 3-6 <input type="checkbox"/> 7-10 <input type="checkbox"/> 11+	<input checked="" type="checkbox"/> Steep (1:1) <input checked="" type="checkbox"/> Moderate (2:1) <input type="checkbox"/> Gentle (3:1 or less)	<input checked="" type="checkbox"/> Unconfined <input type="checkbox"/> Moderately Confined <input type="checkbox"/> Confined	<input checked="" type="checkbox"/> Year-round <input checked="" type="checkbox"/> Seasonally <input type="checkbox"/> During & shortly after storms	<input checked="" type="checkbox"/> Stable <input checked="" type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input checked="" type="checkbox"/> Silt and Clay <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Gravel <input type="checkbox"/> Cobble <input type="checkbox"/> Boulder <input type="checkbox"/> Bedrock	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A. No fish bearing streams on property.
	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 26-50 <input type="checkbox"/> 51+	<input type="checkbox"/> 0-2 <input type="checkbox"/> 3-6 <input type="checkbox"/> 7-10 <input type="checkbox"/> 11+	<input type="checkbox"/> Steep (1:1) <input type="checkbox"/> Moderate (2:1) <input type="checkbox"/> Gentle (3:1 or less)	<input type="checkbox"/> Unconfined <input type="checkbox"/> Moderately Confined <input type="checkbox"/> Confined	<input type="checkbox"/> Year-round <input type="checkbox"/> Seasonally <input type="checkbox"/> During & shortly after storms	<input type="checkbox"/> Stable <input type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input type="checkbox"/> Silt and Clay <input type="checkbox"/> Sand <input type="checkbox"/> Gravel <input type="checkbox"/> Cobble <input type="checkbox"/> Boulder <input type="checkbox"/> Bedrock	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A. No fish bearing streams on property.
	*Active Channel = width of streambed, containing sediments that are regularly mobilized		If banks are steep, consider practices # 1, 5, 6 and 9 listed in Table W1 below		*When water is present throughout the year	If channel condition is not stable, consider practices # 1 through 6 and 9 listed in Table W1 below	Silt on the waterway bottom may indicate erosion nearby or upstream.	If yes, consider practice # 7 in Table W1 below <i>See Chapter 6 of the Reference Guide for information on fish passage</i>

W5. (Continued) Complete this data form for each natural waterway. If you broke streams out into reaches above, use the same reaches here

Waterway ID As labeled on Map break major streams into reaches as above.	Riparian Corridor Width (ft)	Riparian Vegetation	Riparian Shade Over Waterway	Variety of Native Vegetation? Mix of grasses, forbs, shrubs and trees?	Non-native/ Invasive Plants Indicate percentage of vegetative cover that is non-native. Seek assistance as needed.	In-stream Habitat Check the boxes that seem to apply most.	Creek Channel Features Check the boxes that seem to apply most.
Huichica Creek – Upper 900 ft	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 26-50 <input checked="" type="checkbox"/> 50+	<input type="checkbox"/> Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Dense <input type="checkbox"/> Overgrown	<input type="checkbox"/> Not shaded/ sparsely shaded <input type="checkbox"/> Partially shaded <input checked="" type="checkbox"/> Mostly shaded	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> 0-25% <input type="checkbox"/> 25-50% <input type="checkbox"/> 50-75% <input type="checkbox"/> 75-100%	<input type="checkbox"/> Large wood <input type="checkbox"/> Boulders <input checked="" type="checkbox"/> Overhanging roots/banks <input type="checkbox"/> None of the above <input type="checkbox"/> N/A. No fish bearing streams on property.	<input type="checkbox"/> Deep pools (>5') <input checked="" type="checkbox"/> Shallow pools (< 5') <input type="checkbox"/> Gravel Bars <input checked="" type="checkbox"/> Riffles (shallow gravel areas where water moves fast) <input type="checkbox"/> Bends <input checked="" type="checkbox"/> Straight
Huichica Creek – lower 900 ft (Tidally Influenced)	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input checked="" type="checkbox"/> 26-50 <input type="checkbox"/> 50+	<input type="checkbox"/> Minimal <input checked="" type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Dense <input type="checkbox"/> Overgrown	<input checked="" type="checkbox"/> Not shaded/ sparsely shaded <input type="checkbox"/> Partially shaded <input type="checkbox"/> Mostly shaded	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> 0-25% <input type="checkbox"/> 25-50% <input checked="" type="checkbox"/> 50-75% <input type="checkbox"/> 75-100%	<input type="checkbox"/> Large wood <input type="checkbox"/> Boulders <input type="checkbox"/> Overhanging roots/banks <input checked="" type="checkbox"/> None of the above <input type="checkbox"/> N/A. No fish bearing streams on property.	<input type="checkbox"/> Deep pools (>5') <input type="checkbox"/> Shallow pools (< 5') <input type="checkbox"/> Gravel Bars <input checked="" type="checkbox"/> Riffles <input checked="" type="checkbox"/> Bends <input checked="" type="checkbox"/> Straight
	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 26-50 <input type="checkbox"/> 50+	<input type="checkbox"/> Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Dense <input type="checkbox"/> Overgrown	<input type="checkbox"/> Not shaded/ sparsely shaded <input type="checkbox"/> Partially shaded <input type="checkbox"/> Mostly shaded	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> 0-25% <input type="checkbox"/> 25-50% <input type="checkbox"/> 50-75% <input type="checkbox"/> 75-100%	<input type="checkbox"/> Large wood <input type="checkbox"/> Boulders <input type="checkbox"/> Overhanging roots/banks <input type="checkbox"/> None of the above <input type="checkbox"/> N/A. No fish bearing streams on property.	<input type="checkbox"/> Deep pools (>5') <input type="checkbox"/> Shallow pools (< 5') <input type="checkbox"/> Gravel Bars <input type="checkbox"/> Riffles <input type="checkbox"/> Bends <input type="checkbox"/> Straight
	If width is less than county required setback, consider practices # 3, 4 and 9 in Table W1 below	If minimal or sparse, consider practices # 3 and 4 in table W1.If overgrown, consider practice # 2 in Table W1.	If riparian shade is sparse or not present, consider practice #3 in Table W1.	If no, consider practices # 3 and 4 in Table W1 below	If non-native plant cover >50%, or if non-natives are a management concern, consider practice # 2 in table W1 below	If low or none, consider practices # 1 and 8 in Table W1 below. See Chapter 6 of the Reference Guide for information on in-stream habitat	See Chapter 6 of the Reference Guide for information on channel features

Bank Erosion:

Map and note location and dimensions of any significant erosion features and indicate whether erosion is already being treated/managed. If erosion at site is not being addressed, consider practices #1 through 6 and 9 listed in Table W1.

Erosion has been addressed for the last 26 years. The stretch of Huichica Creek that runs through the property was degraded and bare, with little to no vegetation on the banks. The RCD has restored the riparian vegetation through multiple restoration projects. At this current time, the stream banks appear stabilized in the upper 900 feet of the creek.

The lower 900-foot section has some bank erosion that appears to be active – this is most apparent along the west bank, where an outfall pipe enters the creek.

Waterway Enhancement:

To the extent possible, please map and note location(s) of non-native plant species. Please also map and note possible fish migration barriers and or areas of the creek or its upper banks that you believe could be enhanced for fish and wildlife species.

Other Notes: Riparian and wetland enhancement projects have been proposed as part of the HCV Carbon Farm Plan. In addition, the riparian corridor continues to expand every year, through volunteer regrowth, and vineyard setback upon replanting.

The RCD plans to set portions of block A and B back from the lower stretch of Huichica Creek during phases of redevelopment. Setback distance will be consistent with State Water Board requirements to achieve Tier 1 monitoring status for the WDR Vineyard General Permit.

Table W1: Conservation Practices to Reduce Erosion in Natural Waterways

The following table provides an assortment of management practices that are intended to protect water quality. Selection of practices must be done on a site-specific basis. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical or possible financial assistance. *See Chapter 6 of the Reference Guide for information on these conservation practices.*

	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Recommended Practice</i>
1. Consult a Professional		<input type="checkbox"/>	<input type="checkbox"/>
2. Remove invasive riparian plants and establish native riparian cover (permit may be required)	Restoration & Mgmt. Declining Habitats (643) Weed Control (315) Brush Management (314)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3. Establish native riparian trees and shrubs	Riparian Forest Buffer (391)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Establish native riparian grasses and forbs	Riparian Herbaceous Cover (390)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Promote natural restoration (let the bank erode and as it becomes stable encourage native vegetation recruitment)		<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Stabilize and protect streambanks through layback, bioengineering, and/or rock installation (permits likely required)	Streambank & Shoreline Protection (580)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Modify instream structures to improve fish passage (permits required)	Stream Habitat Improvement & Mgmt. (395)	<input type="checkbox"/>	<input type="checkbox"/>
8. Install in-stream structures to enhance habitat (permits required)	Stream Habitat Improvement & Mgmt. (395)	<input type="checkbox"/>	<input type="checkbox"/>
9. Provide more space to the stream by setting back structures, roads, vines, and other agricultural activities	Riparian Forest Buffer (391)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
10. Establish a supply yard away from the waterway		<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>

MANAGING EROSION AND WATER QUALITY IN DITCHES

W6. Complete this inventory for ditches. If the ditch has widely varying characteristics, break it out into reaches with consistent characteristics. Make additional copies if all ditches do not fit on one form.

Ditch ID (As labeled on Map)	Ditch			Adjacent Buffer	
	Width at top of bank (ft)	Ditch Condition	Vegetative Cover on Ditch Banks and Bottom	Vegetation Buffer Width (ft) From top of bank	Vegetation Condition Minimal, Sparse, Moderate, Full Cover
West side of property (ditch is technically not on RCD property)	<input checked="" type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input checked="" type="checkbox"/> Stable <input type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Full Cover	<input checked="" type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Full Cover
	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> Stable <input type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover
	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> Stable <input type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover
	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> Stable <input type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover
	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> Stable <input type="checkbox"/> Eroding <input type="checkbox"/> Widening <input type="checkbox"/> Deepening <input type="checkbox"/> Building up	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover	<input type="checkbox"/> 0-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 25+	<input type="checkbox"/> None/Minimal <input type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Full Cover
		If ditch condition is not stable, consider practices #1 through 6 listed in table W2 below.	If vegetative cover is minimal or sparse, consider practices #2 and 6 listed in Table W2 below.	If vegetation is not present, or if width is narrower than the ditch itself, consider practice #3 listed in table W2 below.	If vegetation is minimal or sparse, consider practice #2 listed in table W2 below.

Notes:

Table W2: Conservation Practices to Reduce Erosion and Manage Stability and Conveyance in Ditches

The following table provides an assortment of management practices that are intended to protect water quality. Selection of practices must be done on a site-specific basis. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical or possible financial assistance. *See Chapter 6 of the Reference Guide for information on these conservation practices.*

	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Recommended Practice</i>
1. Consult a Professional		<input type="checkbox"/>	<input type="checkbox"/>
2. Establish native grasses and forbs	Conservation Cover (327) Critical Area Planting (342)	<input type="checkbox"/>	<input type="checkbox"/>
3. Provide more space to the ditch by setting back vines		<input type="checkbox"/>	<input type="checkbox"/>
4. Line an eroding swale or diversion ditch – seek opportunities to disperse water and ensure that outlet is protected and well maintained	Lined Waterway or Outlet (468)	<input type="checkbox"/>	<input type="checkbox"/>
5. Install rock check structures to dissipate hydraulic energy	Structure for Water Control (587)	<input type="checkbox"/>	<input type="checkbox"/>
6. Plant a vegetative filter waterway	Grassed Waterway (412)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>

MANAGING EROSION FROM ON-FARM POND/BASIN SPILLWAYS

W8. Open channel spillways are stable (not eroding) and/or properly armored to prevent erosion.

- Yes (Briefly describe condition of spillway and how spillway is managed)
- No (Consider practices # 1 through 5, listed in Table W3 below)
- Not applicable, no open spillways

Describe as needed:

W9. Piped and open channel spillways from on-farm ponds are adequately sized to handle expected pond overflow volume.

- Yes (Describe sizing and condition of piped spillway and outlet)
- Some spillways (Consider practices # 3, 6 and 7, listed in Table W3 below)
- No spillways (Consider practices # 3, 6 and 7, listed in Table W3 below)

Describe as needed:

W10. The alignments of spillway outlets, both piped and open channel, are in line with the downstream waterway (i.e., flow from the spillway enters the waterway in-line with flow of the waterway).

- Yes
- Some spillways (Consider practice # 8, listed in Table W3 below)
- No spillways (Consider practice # 8, listed in Table W3 below)
- Not Applicable

Describe as needed:

W11. Spillways, pipe and open channel, from on-farm ponds have energy dissipaters prior to re-entering the downstream waterway.

- Yes (Describe energy dissipater and its condition)
- Some spillways (Consider practices # 5 through 7, listed in Table W3 below)
- No spillways (Consider practices # 5 through 7, listed in Table W3 below)
- Not Applicable

Describe as needed:

Table W3: Conservation Practices to Reduce Erosion and Manage Stability and Conveyance in On-farm Pond/Basin Spillways

The following table provides an assortment of management practices that are intended to protect water quality. Selection of practices must be done on a site-specific basis. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical or possible financial assistance. *See Chapter 6 of the Reference Guide for information on these conservation practices.*

<i>Practices</i>	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Recommended Practice</i>
1. Consult a Professional		<input type="checkbox"/>	<input type="checkbox"/>
2. Install a rock weir to control and slow in-channel flow	Grade Stabilization Structure (410)	<input type="checkbox"/>	<input type="checkbox"/>
3. Widen/enlarge the spillway	Pond (378)	<input type="checkbox"/>	<input type="checkbox"/>
4. Stabilize the open channel spillway	Pond (378)	<input type="checkbox"/>	<input type="checkbox"/>
5. Plant a vegetative filter waterway	Grassed Waterway (412)	<input type="checkbox"/>	<input type="checkbox"/>
6. Install a rock lined plunge basin	Structure for Water Control (587)	<input type="checkbox"/>	<input type="checkbox"/>
7. Install an energy dissipater at the spillway outlet to reduce streambank erosion	Streambank and Shoreline Protection (580)	<input type="checkbox"/>	<input type="checkbox"/>
8. Realign the existing spillway with the downstream waterway	Pond (378)	<input type="checkbox"/>	<input type="checkbox"/>
Other:		<input type="checkbox"/>	<input type="checkbox"/>

ROADS AND CROSSINGS ON HILLSLOPE VINEYARDS

Background: Roads that drain toward waterways can be major contributors of sediment. Roads must be safe to travel while having a minimal effect on waterways in the watershed. Practices to address erosion from roads aim to reduce the concentration of flow from roads, slowing the rate of water running off the land and discharging accumulated waters more frequently to areas away from waterways.

Reference: Chapter 7, Reference Guide

Purpose: To identify practices, currently in use and intended for implementation, to slow, spread and sink runoff from roads, particularly unpaved roads. Identify priority road reaches that may discharge directly to waterways so that no more than 25% of roads on parcels with hillslope vineyards are connected.

SF Bay Regional Water Quality Control Board General WDRs for Napa River and Sonoma Creek - Performance Standards:

- 1) For existing unpaved roads on parcels with hillslope vineyards, culvert inlets have low plug potential. Hillslope vineyard is defined by grapes planted on an average slope > 5%.
- 2) For existing unpaved roads on parcels with hillslope vineyards, critical dips are installed at culverted crossings with diversion potential
- 3) For existing unpaved roads on parcels with hillslope vineyards, 25% or less than total unpaved road length is hydrologically connected
- 4) For new roads on parcels with hillslope vineyards, all unpaved and paved roads shall be storm-proofed

List Maps and Photos Related to Section: Map 5 – Roads, Avenues, and Storm Drainage

MANAGING EROSION FROM ROADS

R1. Roads on the vineyard property cross waterways.

- Yes. Please map the locations. For unpaved roads, complete the Road Data Form for each crossing. Make additional copies of the data form as needed. Consider practices in Table R1 & R2, as appropriate.
- No. You are done with this section. As stated in the 'Vineyard Facility Map Summary' section, all roads on property still need to be mapped and their surface type (paved or unpaved) identified.

R2. For all road lengths that potentially drain to a crossing, have treatments been implemented to ensure that drainage does not directly enter the waterway? (This question relates to achieving Performance Standard 3, as described in the introduction to this section.)

- Yes
- No (Consider practices 1 – 8 in Table R2)

Describe and list percentage or connected roads: No hillside vineyards

R3. Along unpaved roads, culverted stream crossings have low plug potential (i.e. adequate culvert size, installed at stream grade, and/or trash rack installed)?

- All culverted stream crossings
- Some culverted stream crossings (Consider practices 3 & 4 in Table R1)
- None (Consider practices 3 & 4 in Table R1)

Describe:

R4. Along unpaved roads, all culverted stream crossings have low diversion potential (i.e. water prevented from diverting from natural channel/flow direction, if culvert is plugged or overtopped)?

- All culverted stream crossings
- Some culverted stream crossings (Consider practices 5 & 6 in Table R1)
- None (Consider practices 5 & 6 in Table R1)

Describe:

The following question is not required by the Water Board but may be helpful in assessing your road system:

R5. All roads on the property are necessary and utilized.

- Yes
- No (Consider practice #14 in Table R1 and practice #6 &7 in Table R2)

Table R1: Treatment Options to Reduce Erosion and Manage Stability at Stream Crossings

The following table provides an assortment of management practices that are intended to protect water quality. Selection of practices must be done on a site-specific basis. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical or possible financial assistance. See chapter 7 of the reference guide for information on these conservation practices.

<i>Practices (at stream crossing)</i>	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Recommended Practice</i>
The following practices may need to be implemented to meet WDR compliance.			
1. No treatment at site	--	<input type="checkbox"/>	--
2. Consult a Professional		<input type="checkbox"/>	<input type="checkbox"/>
3. Remove screen from culvert inlet*	Access Road (560)	<input type="checkbox"/>	<input type="checkbox"/>
4. Install trash rack (See typical drawing 3)	Access Road (560)	<input type="checkbox"/>	<input type="checkbox"/>
5. Construct critical dip (See typical drawing 1c)	Access Road (560)	<input type="checkbox"/>	<input type="checkbox"/>
6. Install critical culvert	Access Road (560)	<input type="checkbox"/>	<input type="checkbox"/>
The following practices are additional treatments to improve road drainage, reduce road maintenance, and protect water quality.			
7. Armor fill face (See typical drawing 1b, 4)	Lined Waterway or Outlet (468) and Rock Riprap (907)	<input type="checkbox"/>	<input type="checkbox"/>
8. Armor below outlet of culvert (See typical drawing 1b)	Lined Waterway or Outlet (468) and Rock Riprap (907)	<input type="checkbox"/>	<input type="checkbox"/>
9. Repair culvert	Access Road (560)	<input type="checkbox"/>	<input type="checkbox"/>
10. Install or replace culvert (See typical drawing 2, 4)	Access Road (560)	<input type="checkbox"/>	<input type="checkbox"/>
11. Construct armored-fill crossing** (See typical drawings 5a, 5b, 6, 7)	Stream Crossing (578)	<input type="checkbox"/>	<input type="checkbox"/>
12. Install bridge**	Stream Crossing (578)	<input type="checkbox"/>	<input type="checkbox"/>
13. Construct ford crossing** (See typical drawing 5a)	Stream Crossing (578)	<input type="checkbox"/>	<input type="checkbox"/>
14. Excavate soil to decommission crossing**	Road Closure (654) or Earthfill (903)	<input type="checkbox"/>	<input type="checkbox"/>
15. Other		<input type="checkbox"/>	<input type="checkbox"/>

*Only if no elbow exists along culvert length.

**If the culverted stream crossing were converted to any one of these structures then that Practice would suffice the 'plug potential' and 'diversion potential' requirements stated in the WDR.

Table R2: Treatment Options to Reduce Erosion from Road Surfaces

The following table provides an assortment of management practices that are intended to protect water quality. Selection of practices must be done on a site-specific basis. NRCS Practice Titles are provided for your reference and you may contact your local NRCS or RCD field office for technical or possible financial assistance. *See chapter 7 of the reference guide for information on these conservation practices.*

<i>Practices</i> <i>(along road lengths draining to sites identified in far right column)</i>	<i>NRCS Practice Title</i>	<i>Current Practice</i>	<i>Recommended Practice</i> <i>(Note Site ID#)</i>
The following practices may need to be implemented to meet WDR compliance.			
1. No treatment at site	--	--	
2. Consult a Professional		<input type="checkbox"/>	<input type="checkbox"/>
3. Install/Replace ditch relief culvert – ensure that outlet is located in a stable location <i>(See typical drawing 8)</i>	Access Road (560)	<input type="checkbox"/>	<input type="checkbox"/>
4. Construct rolling dips <i>(See typical drawings 10, 11, 19a-c.)</i> OR	Access Road (560)	<input type="checkbox"/>	<input type="checkbox"/>
5. Construct water bars <i>(See typical drawing 20)</i>		<input type="checkbox"/>	<input type="checkbox"/>
6. Construct cross road drains <i>(See typical drawing 17)</i>	Road Closure (654)	<input type="checkbox"/>	<input type="checkbox"/>
7. De-compact road surface <i>(See typical drawing 17)</i>	Road Closure (654)	<input type="checkbox"/>	<input type="checkbox"/>
8. Pave road <i>(no typical drawing available, NRCS EQIP does not fund paving).</i>		<input type="checkbox"/>	<input type="checkbox"/>
The following practices are additional treatments to improve road drainage, reduce road maintenance, and protect water quality.			
9. Outslope road & remove ditch <i>(See typical drawings 9a-c)</i>	Access Road (560)	<input type="checkbox"/>	<input type="checkbox"/>
10. Outslope road & retain ditch – ensure that outlet is located in a stable location <i>(See typical drawings 9a-c)</i>	Access Road (560)	<input type="checkbox"/>	<input type="checkbox"/>
11. Inslope road – ensure that ditch outlets to a stable location <i>(See typical drawings 9a-c)</i>	Access Road (560)	<input type="checkbox"/>	<input type="checkbox"/>
12. Crown road <i>(See typical drawings 9a-c)</i>	Access Road (560)	<input type="checkbox"/>	<input type="checkbox"/>
13. Cut/clean roadside ditch	Access Road (560)	<input type="checkbox"/>	<input type="checkbox"/>
14. Rock armor roadside ditch	Access Road (560)	<input type="checkbox"/>	<input type="checkbox"/>
16. Other: Decommission Road		<input checked="" type="checkbox"/>	<input type="checkbox"/>

ADDITIONAL GOALS, INTERESTS OR CONCERNS

Please describe any other natural resource-related goals, interests or concerns identified during the planning process but not otherwise noted in this plan.

Describe as needed:

The seasonal wetland drains to Huichica Creek via a culvert on a non-paved road. The culvert is approximately 15 feet from the top of bank of the creek and this area commonly floods in winter. The culvert is sized appropriately to drain the wetland and does not have diversion potential.

APPENDIX 1: PHOTOGRAPHS

View photo monitoring points at the end of this document with map attachments.

PHOTO MONITORING

Select monitoring sites to show 1) winter readiness, 2) annual maintenance and practice implementation, 3) condition of outfall (discharge) points and associated receiving waters, and 4) other areas of interest (e.g., areas of erosion, invasive vegetation, etc.). Map and number monitoring locations. Use this table to document visual monitoring/inspection and record notes and any actions needed/taken. Take photos annually during winter and keep photos with Farm Plan; photos should be available for reference.

Label on Map	Description and Purpose	Date (m/d/y)	Photo Taken ? Y or N	Condition (performing properly, needs maintenance, needs consultation)	Actions taken
1	Ground cover condition of vegetated avenue	1/2015	Y	Good	
2	Ground cover condition of vegetated avenue	1/2015	Y	Good	
3	Ground cover condition of vegetated avenue	1/2015	Y	Good	
4	Ground cover condition of vegetated avenue	1/2015	Y	Good	
5	Ground cover condition and productivity of plow down cover crop in Block B	1/2015	Y	Seed late in fall 2014. Dry winter conditions 2014/2015 promoted a poor cover crop growth. Growth in 2016 is adequate.	
6	Ground cover condition and productivity of permanent and tillage cover crops in Block B.	1/2015	Y	Good.	
7	Ground cover condition of vegetated avenue	1/2015	Y	Good	

8	Permanent no-till ground cover condition, Block F.	12/2016	Y	Good	
9	Permanent no-till ground cover condition, Block G	1/2015	Y	Good	
10	Drop Inlet condition. Westside boundary of block A	1/2015	Y	Good	
11	Drop Inlet condition. Westside boundary of block C	1/2015	Y	Good	
12	Outlet of culvert into wetland.	1/2015	Y	Good	
13	Wetland culvert and weir outlet to Huichica Creek.	1/2015	Y	Good	
14	Lunker	9/2016	Y	Good	
15	Bank instability and outletting culvert	9/2016	Y	Bank condition is actively eroding.	Monitor the degree of instability.
16	Road condition before decommission project	9/2016	Y	Road is compacted. Main access road will get relocated off of the creek.	Road will be decommissioned in Fall 2017.
17	Wetland enhancement	1/2017		Planting occurring 1/2017	Plant oaks, buckeyes, sedge, rushes

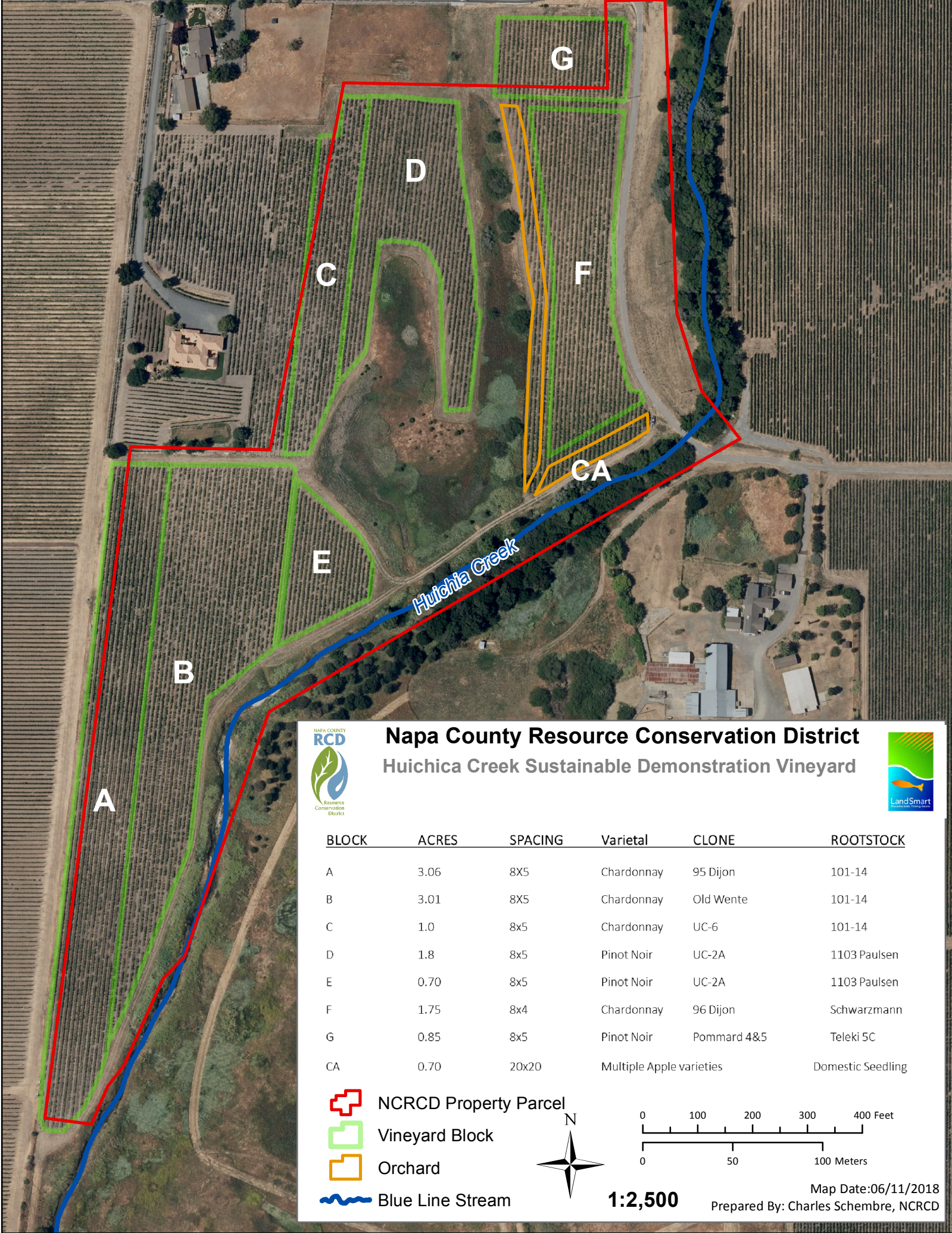
APPENDIX 2: MAPS

Map Number

1. Vineyard Block Map
2. Watershed Basin Map
3. Soil Map; 3b Soil Loss Tolerance
4. Creek Characteristics and Erosional Features Map
5. Roads, Avenues, and Storm Drainage Map
6. Carbon Farm Plan Map
7. Irrigation Map
8. Photo Point Monitoring Map
9. Vineyard Stream Set Back Map

APPENDIX 3: REFERENCE DOCUMENTS

Windows Pesticide Screening Tool (WIN-PST)



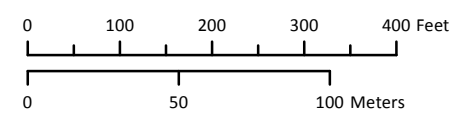
Napa County Resource Conservation District

Huichia Creek Sustainable Demonstration Vineyard



BLOCK	ACRES	SPACING	Varietal	CLONE	ROOTSTOCK
A	3.06	8x5	Chardonnay	95 Dijon	101-14
B	3.01	8x5	Chardonnay	Old Wente	101-14
C	1.0	8x5	Chardonnay	UC-6	101-14
D	1.8	8x5	Pinot Noir	UC-2A	1103 Paulsen
E	0.70	8x5	Pinot Noir	UC-2A	1103 Paulsen
F	1.75	8x4	Chardonnay	96 Dijon	Schwarzmann
G	0.85	8x5	Pinot Noir	Pommard 4&5	Teleki 5C
CA	0.70	20x20	Multiple Apple varieties		Domestic Seeding

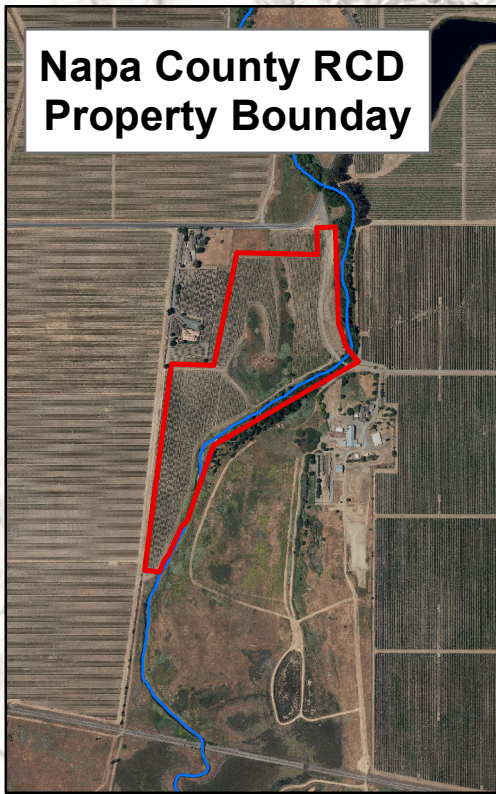
- NCRCD Property Parcel
- Vineyard Block
- Orchard
- Blue Line Stream



1:2,500

Map Date: 06/11/2018
Prepared By: Charles Schembre, NCRCD

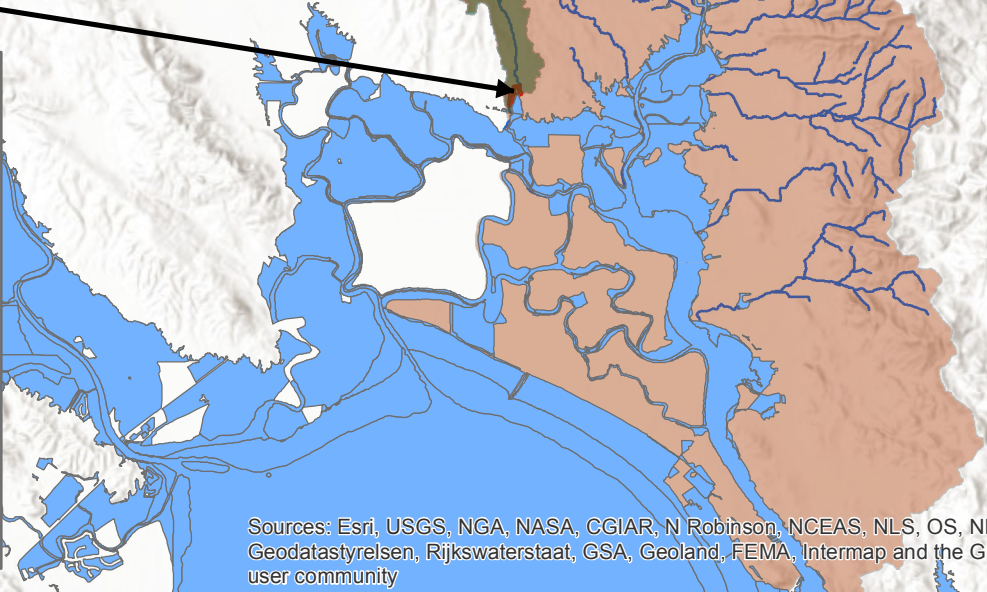
NCRCD Huichica Creek Sustainable Demonstration Vineyard Watershed Basin Map



Legend:

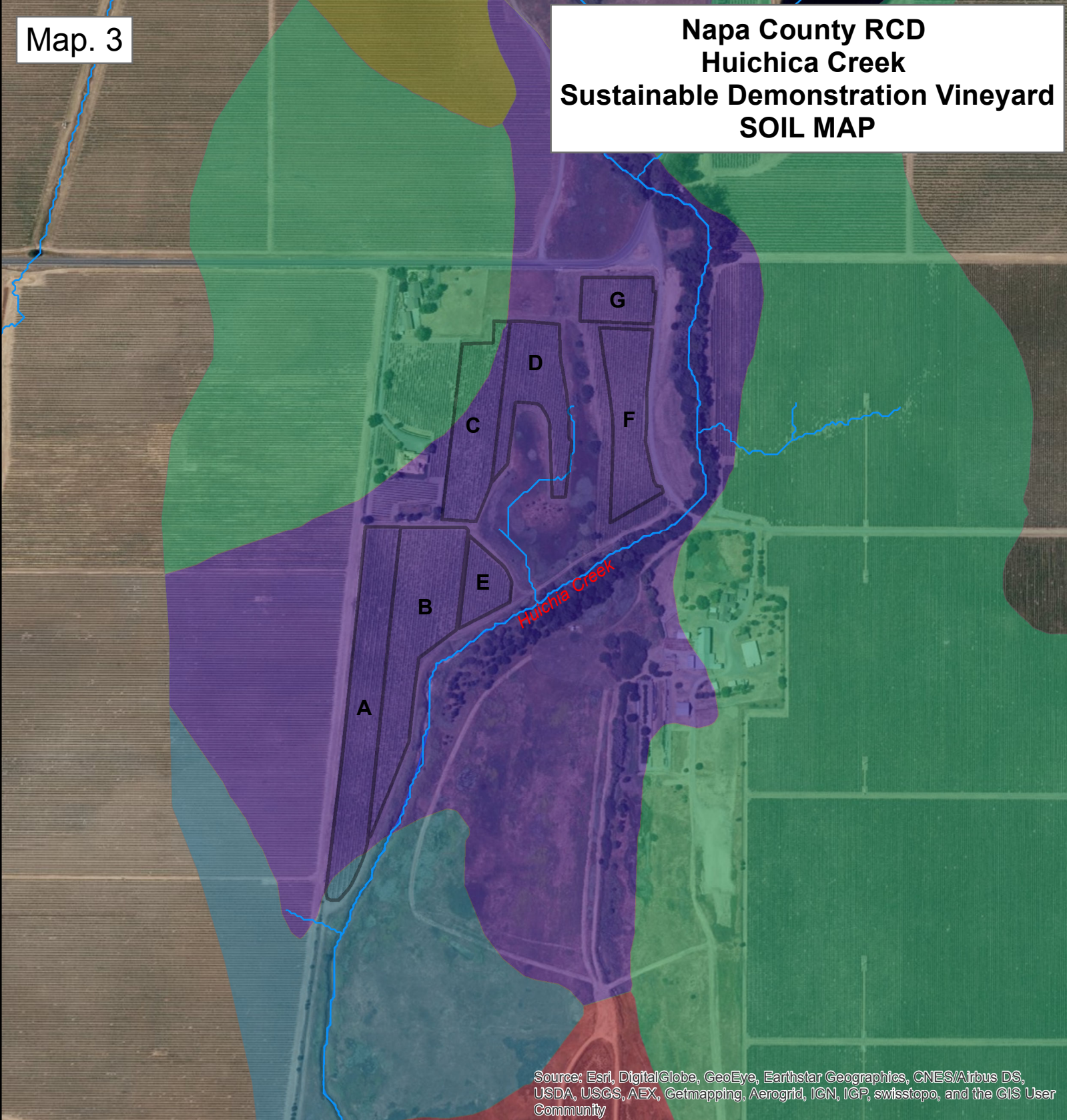
- San Pablo Bay
- Napa River Watershed
- Huichica Creek Watershed
- Parcel Boundary
- napa_streams

Scale: 0 2 4 8 Miles





Sources: Esri, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community







Napa County RCD Huichica Creek Sustainable Demonstration Vineyard SOIL MAP

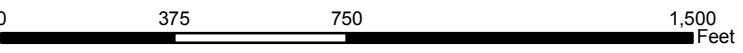
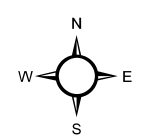


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



 Huichica Creek
 Block Boundary

- ### Soil Series
-  CLEAR LAKE CLAY, DRAINED
 -  CORTINA VERY GRAVELLY LOAM, 0 TO 5 PERCENT SLOPES
 -  DIABLO CLAY, 9 TO 15 PERCENT SLOPES
 -  HAIRE LOAM, 0 TO 2 PERCENT SLOPES
 -  HAIRE LOAM, 2 TO 9 PERCENT SLOPES
 -  REYES SILTY CLAY LOAM

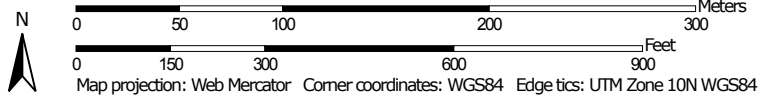


T Factor—Napa County, California
(HCV Soil Loss Tolerance)



Soil Map may not be valid at this scale.

Map Scale: 1:3,660 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

T Factor

Map unit symbol	Map unit name	Rating (tons per acre per year)	Acres in AOI	Percent of AOI
124	Cortina very gravelly loam, 0 to 5 percent slopes, moist, MLRA 14	3	0.3	1.3%
145	Haire loam, 0 to 2 percent slopes	4	21.7	97.9%
146	Haire loam, 2 to 9 percent slopes	4	0.0	0.2%
HbCsn	Haire gravelly loam, 0 to 9 percent slopes	4	0.1	0.6%
Totals for Area of Interest			22.2	100.0%

Description

The T factor is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Rating Options

Units of Measure: tons per acre per year

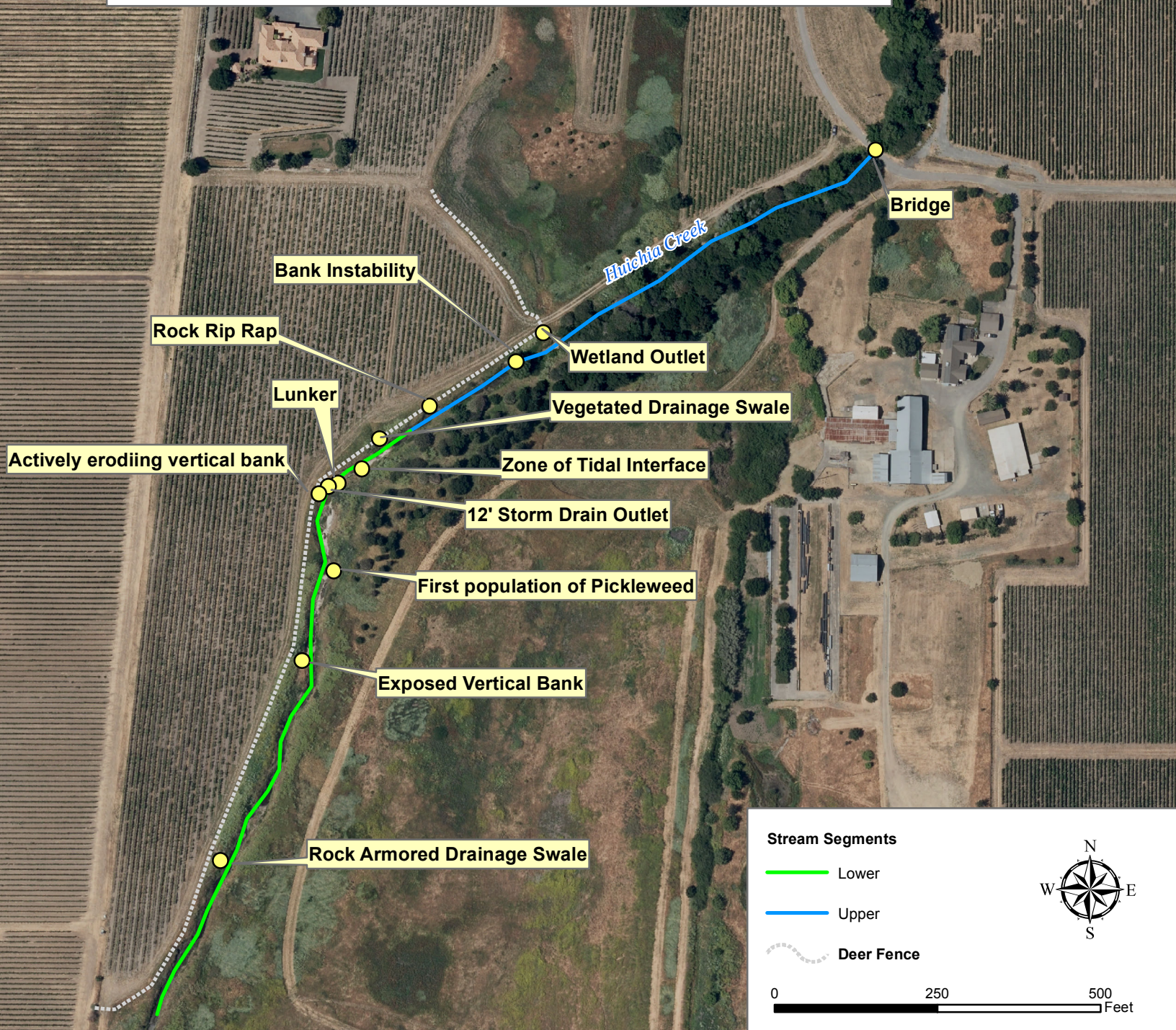
Aggregation Method: Dominant Condition

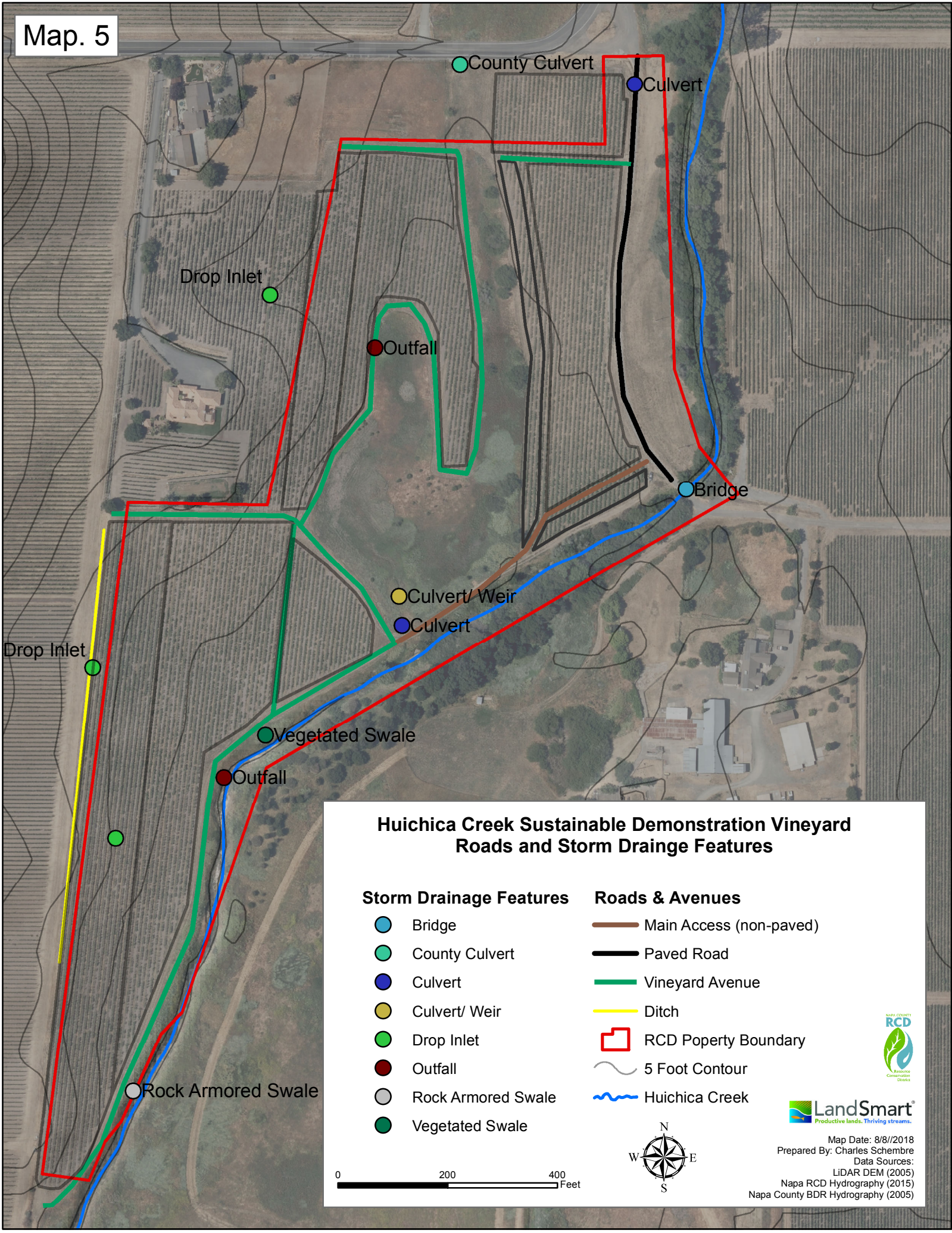
Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

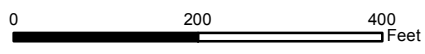
Huichica Creek Sustainable Demonstration Vineyard Creek Characteristics and Erosional Features





**Huichica Creek Sustainable Demonstration Vineyard
Roads and Storm Drainage Features**

- | Storm Drainage Features | Roads & Avenues |
|-------------------------|-------------------------|
| Bridge | Main Access (non-paved) |
| County Culvert | Paved Road |
| Culvert | Vineyard Avenue |
| Culvert/ Weir | Ditch |
| Drop Inlet | RCD Property Boundary |
| Outfall | 5 Foot Contour |
| Rock Armored Swale | Huichica Creek |
| Vegetated Swale | |







Map Date: 8/8//2018
 Prepared By: Charles Schembre
 Data Sources:
 LIDAR DEM (2005)
 Napa RCD Hydrography (2015)
 Napa County BDR Hydrography (2005)

Napa County RCD - Carbon Farm Plan

Huichica Creek Sustainable Demonstration Vineyard

Current Practices

-  Blocks A-E: Alternate Row Till
-  Block F & G - No Till
-  5 Foot Contour
-  Huichica Creek

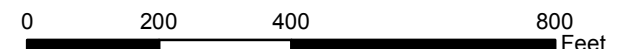
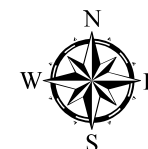
Planned Conservation Practices

Compost Application in all vineyard blocks

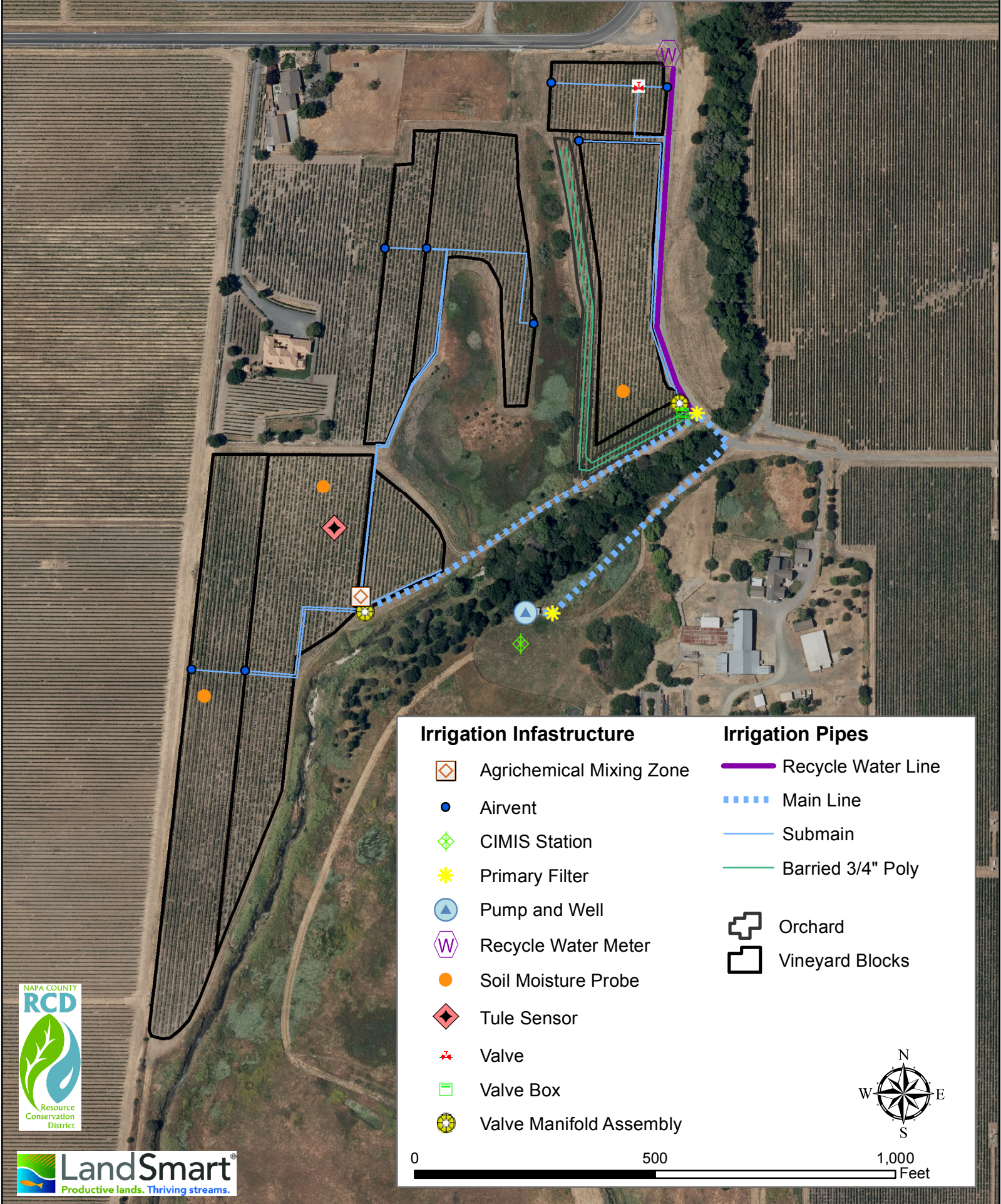
-  327, Conservation Cover
-  380, Tree and Shrub Planting
-  390, Riparian Restoration
-  422, Hedgerow
-  657, Wetland Restoration
-  Alternate-Row Tillage to No-Till
-  Multistory Cropping

Carbon Farm Practices (NRCS Practice)












1. Riparian Restoration (390)
2. Hedgerow Planting (422)
3. Conventional Tillage to No Tillage (329)
4. Compost Application Mulching (484)
5. Cover Crop Establishment (340)
6. Multistory Cropping (379)
7. Windbreak Establishment (380)
8. Wetland Restoration (657)









Huichica Creek Sustainable Demonstration Vineyard Irrigation Map

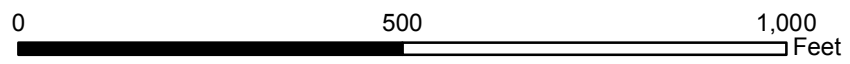


Irrigation Infrastructure

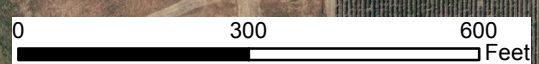
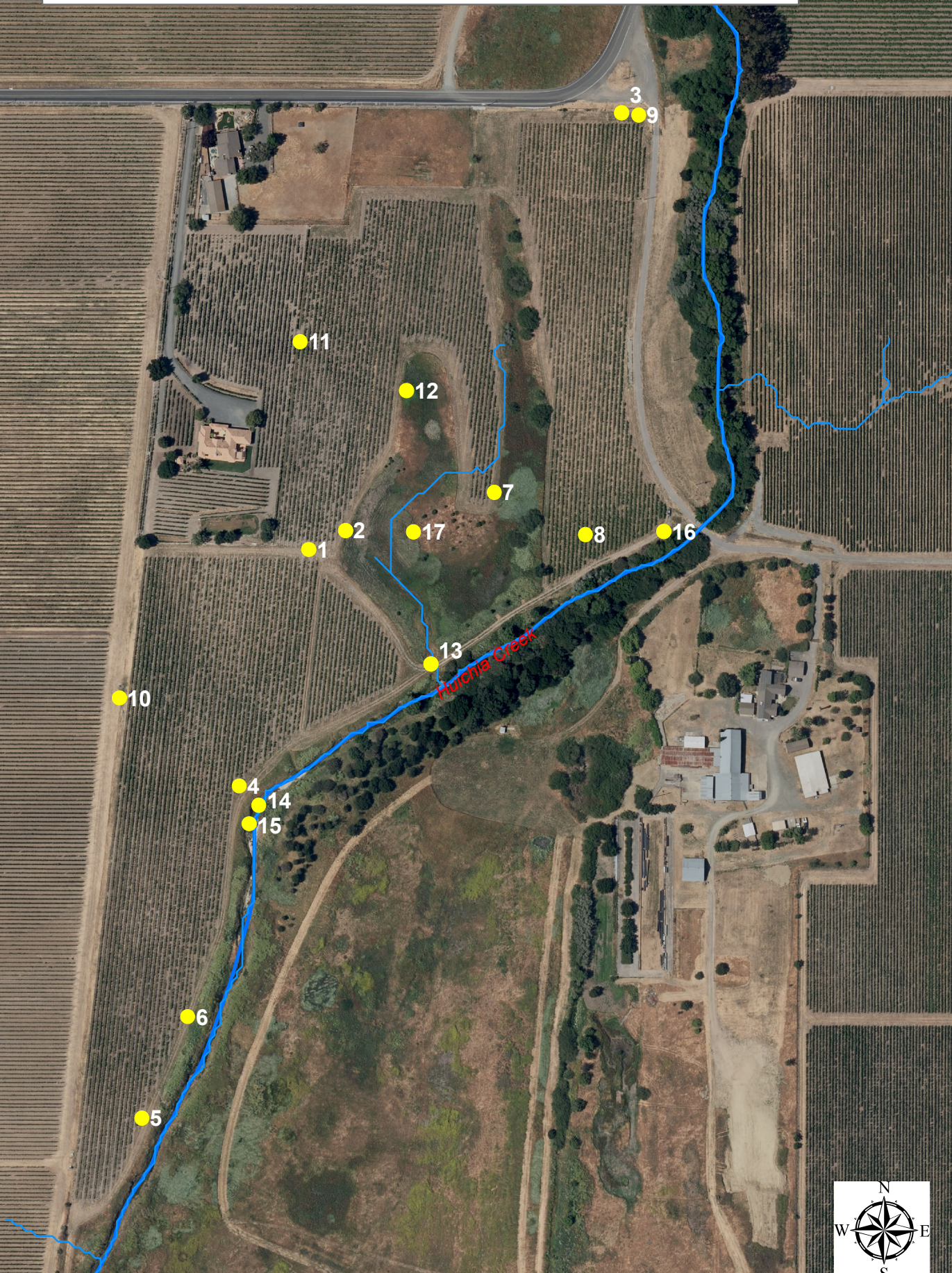
-  Agricultural Mixing Zone
-  Airvent
-  CIMIS Station
-  Primary Filter
-  Pump and Well
-  Recycle Water Meter
-  Soil Moisture Probe
-  Tulle Sensor
-  Valve
-  Valve Box
-  Valve Manifold Assembly

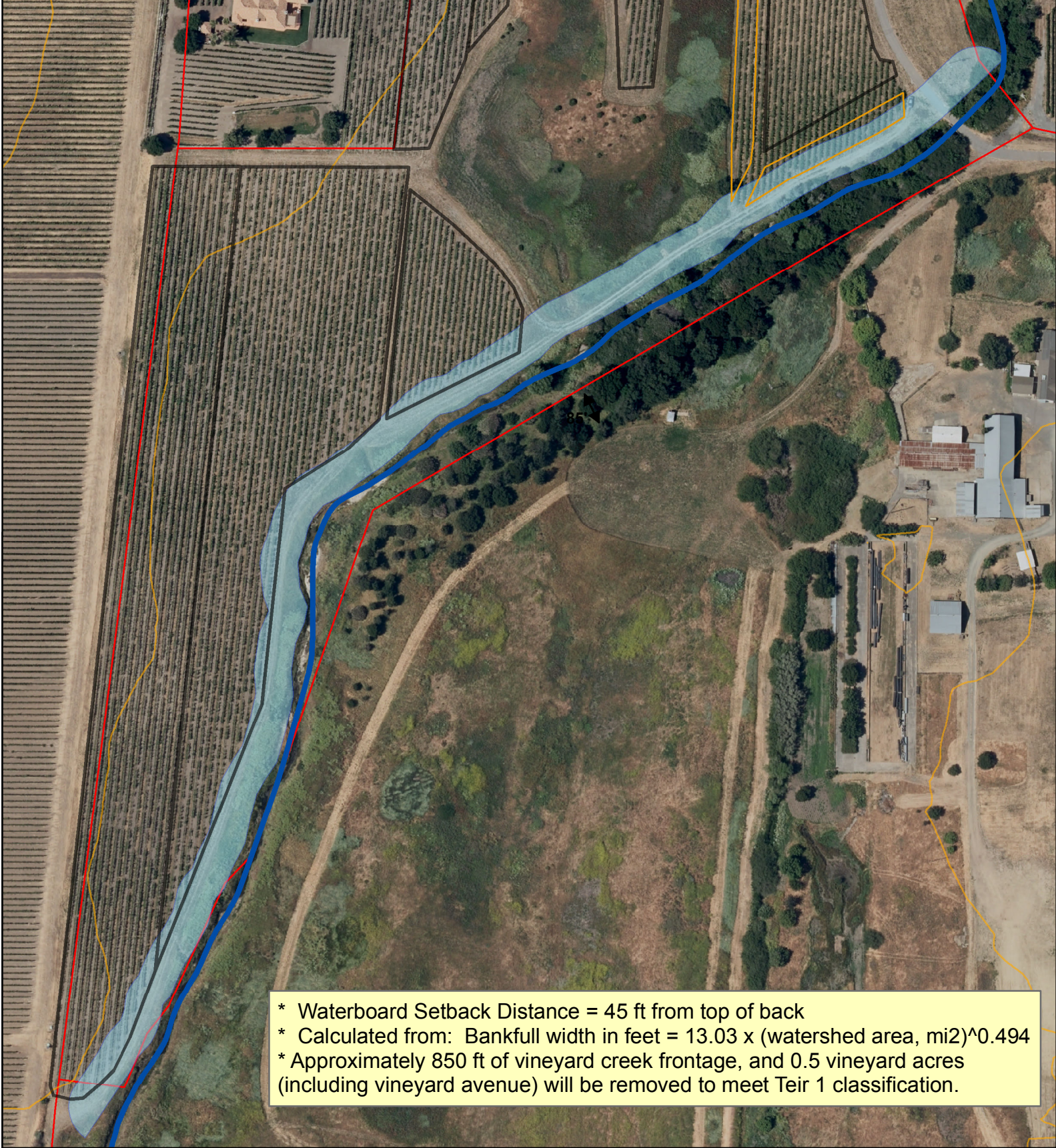
Irrigation Pipes

-  Recycle Water Line
-  Main Line
-  Submain
-  Barried 3/4" Poly
-  Orchard
-  Vineyard Blocks



Huichica Creek Sustainable Demonstration Vineyard PHOTO POINTS









* Waterboard Setback Distance = 45 ft from top of bank
 * Calculated from: Bankfull width in feet = $13.03 \times (\text{watershed area, mi}^2)^{0.494}$
 * Approximately 850 ft of vineyard creek frontage, and 0.5 vineyard acres (including vineyard avenue) will be removed to meet Teir 1 classification.

Huichica Creek Vineyard

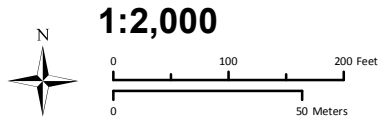
Regional Water Quality Board

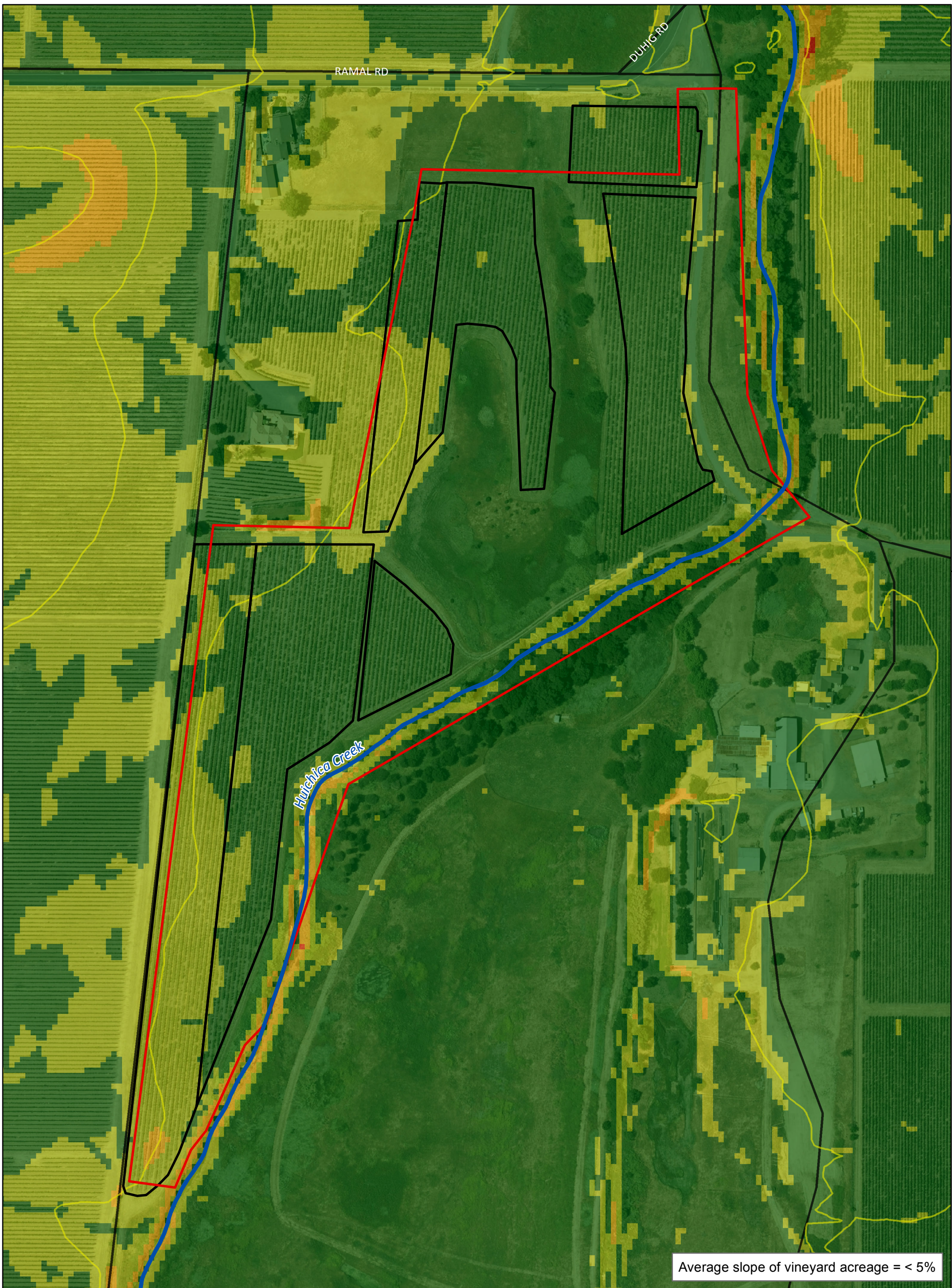
Teir 1 Stream Setback Requirements

-  Vineyard Blocks +Avenues
-  Apple Orchard
-  Huichica Creek
-  Estimated Stream Setback Zone



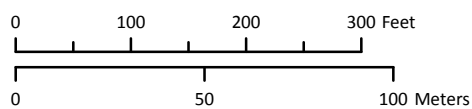
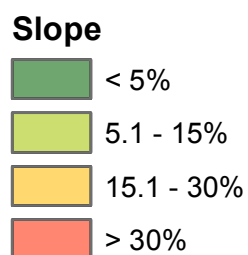
Maps prepared for informational purposes only. Image depicts publicly available data and needs to be considered with on-the-ground conditions and more accurate site-specific data that may exist. No liability is assumed for the accuracy of the information or data displayed.





Huichica Creek Vineyard Slope Map

Maps prepared for informational purposes only. Image depicts publicly available data and needs to be considered with on-the-ground conditions and more accurate site-specific data that may exist. No liability is assumed for the accuracy of the information or data displayed.



- Napa RCD Property Boundary
- Vineyard Block
- ~ Huichica Creek

1:2,000



NAPA COUNTY
RCD
Resource
Conservation
District



LandSmart



NRCS

Map Date: 06/11/2018
Prepared By: Charles Schembre, NCRCD



Pest Management Considerations in Conservation Planning Worksheet

Version 2.2

June, 2013

Client: Napa RCD	Tract:	Field No.:	
Planner: Charles Schembre	Date: 8/2/18	Acres: 13.25	
Consultant:	Crop: Wine Grapes		

Pesticide-Related Resource Concerns (from cons. plan):

Pesticides leaching to groundwater: <input type="checkbox"/> Humans/Fish <input checked="" type="checkbox"/>	Crop Rotation: None
Pesticides in runoff water: <input checked="" type="checkbox"/> Humans/Fish <input checked="" type="checkbox"/>	Landuse: <input checked="" type="checkbox"/> Cropland <input type="checkbox"/> Hayland <input type="checkbox"/> Rangeland <input type="checkbox"/> Forestland <input type="checkbox"/> Other
Pesticide-laden sediment: <input type="checkbox"/>	

Purposes (from the 595 practice standard):

<input checked="" type="checkbox"/>	Prevent or mitigate off-site pesticide risks to water quality from leaching, solution runoff and adsorbed runoff losses.
<input checked="" type="checkbox"/>	Prevent or mitigate off-site pesticide risks to soil, water, air, plants, animals and humans from drift and volatilization losses.
<input checked="" type="checkbox"/>	Prevent or mitigate on-site pesticide risks to pollinators and other beneficial species through direct contact.
<input type="checkbox"/>	Prevent or mitigate cultural, mechanical and biological pest suppression risks to soil, water, air, plants, animals & humans.

Existing or Planned Conservation Practices in or around the field:		Existing/ Planned
Conservation Practice(s)	Description(s)	
Cover Crop (340) for weed suppression that is mulch tilled or no-tilled into for the next	Typically a fast-growing, densely-planted, deep-rooted grass cover crop (e.g. sudan grass) used to capture residual nutrients after a crop and improve soil quality. Must have at least 4000 lbs/Ac of biomass at the time of kill. Increases infiltration, reduces erosion and builds soil OM. See 340 Jobsheet for more information.	Existing
Conservation Cover (327)	Establishing and maintaining permanent vegetative cover. Increases infiltration, reduces soil erosion, and builds soil organic matter in perennial cropping systems such as orchards, vineyards, berries and nursery stock. See 327 Jobsheet for more information.	Existing
Residue and Tillage Management, No-till/Strip-Till/Direct Seed (329)	Managing the amount, orientation and distribution of crop and other plant residue on the soil surface year round while limiting soil-disturbing activities to only those necessary to place nutrients, condition residue and plant crops. These systems typically reduce runoff loss more effectively than 346 or "conventional tillage" systems. Assumes at least 60% ground cover at the time of application.	Existing
Riparian Forest Buffer (391)	An area of predominantly trees and/or shrubs located adjacent to and up-gradient from watercourses or water bodies. Typically increases infiltration and uptake of subsurface water, traps sediment and reduces pesticide drift. This assumes 30 foot minimum width. See 391 Jobsheet for more information.	Existing
		Existing

Describe any waters of concern (river, irrigation ditch, stream, pond, etc.): **Municipal Reservoir**

Send to Impl. Req.	Soil Map Unit	Soil Name	Target Pest Name(s)	Product Name	Active Ingredient (a.i.)	WIN-PST Hazard Ratings						Area	Ap. Method	Rate	Pesticide-Specific Resource Concern	Existing IPM Techniques	Mitigation Index Score							
						Leaching (ILP)		Solution Runoff (ISRP)		Adsorbed Runoff (IARP)							Broadcast	Foliar	Standard	Leaching	Solution Runoff	Adsorbed Runoff	Drift and Volatilization	Pollinator - Direct Contact
						Human	V	Human	V	Fish	V													
<input type="checkbox"/>	145	Haire	Mealbug	CHECKMATE VMB-F	Lavandulyl senecioate	Human	V	Human	V	Fish	V	Fish	V	Broadcast	Foliar	Standard	<input type="checkbox"/> Volatilization <input type="checkbox"/> Pollinators-Direct Contact <input type="checkbox"/> Drift	Monitoring and Economic Pest Thresholds: Pesticide with Long Residual Toxicity	30	45	50	20	3	
<input type="checkbox"/>	145	Haire	Mildew	ELEVATE 50 WDG FUNGICIDE	Fenhexamid	Human	V	Human	V	Fish	L	Fish	V	Broadcast	Foliar	Standard	<input type="checkbox"/> Volatilization <input type="checkbox"/> Pollinators-Direct Contact <input type="checkbox"/> Drift		30	45	50	20	0	
<input type="checkbox"/>	145	Haire	Mildew	LIFELINE HERBICIDE	Glufosinate-ammonium	Human	V	Human	V	Fish	V	Fish	V	Spot	Foliar	Standard	<input type="checkbox"/> Volatilization <input type="checkbox"/> Pollinators-Direct Contact		30	45	50	20	0	

Send to Impl.	Req.	Soil Map Unit	Soil Name	Target Pest Name(s)	Product Name	Active Ingredient (a.i.)	WIN-PST Hazard Ratings						Area	Ap. Method	Rate	Pesticide-Specific Resource Concern	Existing IPM Techniques	Mitigation Index Score				
							Leaching (ILP)		Solution Runoff (ISRP)		Adsorbed Runoff (IARP)							Leaching	Solution Runoff	Adsorbed Runoff	Drift and Volatilization	Pollinator - Direct Contact
<input type="checkbox"/>		145	Haire	Mildew	LUNA EXPERIENCE	Fluopyram	Human	V	Human	I			Broadcast	Foliar	Standard	<input type="checkbox"/> Drift <input type="checkbox"/> Volatilization <input type="checkbox"/> Pollinators-Direct Contact <input type="checkbox"/> Drift		30	45		20	0
<input checked="" type="checkbox"/>		145	Haire	Mealbug	LUNA EXPERIENCE	Fluopyram	Human	V	Human	I			Broadcast	Foliar	Standard	<input type="checkbox"/> Volatilization <input type="checkbox"/> Pollinators-Direct Contact <input type="checkbox"/> Drift	Monitoring and Economic Pest Thresholds: Pesticide with Long Residual Toxicity	30	45		20	3
<input type="checkbox"/>		145	Haire	Mildew and Botrytis	LUNA EXPERIENCE	Tebuconazole	Human	V	Human	I			Broadcast	Foliar	Standard	<input type="checkbox"/> Volatilization <input type="checkbox"/> Pollinators-Direct Contact <input type="checkbox"/> Drift		30	45		20	0
<input type="checkbox"/>		145	Haire	Mealybug	LUNA EXPERIENCE	Tebuconazole	Human	V	Human	I			Broadcast	Foliar	Standard	<input type="checkbox"/> Volatilization <input type="checkbox"/> Pollinators-Direct Contact <input type="checkbox"/> Drift		30	45	50	20	
<input checked="" type="checkbox"/>		145	Haire	mildew	METTLE 125 ME	Tetraconazole	Human	V	Human	I			Broadcast	Foliar	Standard	<input type="checkbox"/> Volatilization <input type="checkbox"/> Pollinators-Direct Contact <input type="checkbox"/> Drift		30	45		20	0
<input type="checkbox"/>		145	Haire	mildew	MOVENTO	Spirotetramat	Human	V	Human	V			Broadcast	Foliar	Standard	<input type="checkbox"/> Volatilization <input type="checkbox"/> Pollinators-Direct Contact <input type="checkbox"/> Drift		30	45		20	0
<input type="checkbox"/>		145	Haire	mildew	SERENADE BIOFUNGICID E WETTABLE POWDER	Bacillus subtilis strain QST 713	Human	V	Human	V			Broadcast	Foliar	Standard	<input type="checkbox"/> Volatilization <input type="checkbox"/> Pollinators-Direct Contact <input type="checkbox"/> Drift		30	45		20	0
<input type="checkbox"/>		145	Haire	mealybug	SULFUR DF	Sulfur	Human	?	Human	?			Broadcast	Foliar	Standard	<input type="checkbox"/> Volatilization <input type="checkbox"/> Pollinators-Direct Contact <input type="checkbox"/> Drift	Monitoring and Economic Pest Thresholds: Pesticide with Long Residual Toxicity	30	45		20	3
<input checked="" type="checkbox"/>				Mildew and Botrytis			Human		Human							<input type="checkbox"/> Volatilization <input type="checkbox"/> Pollinators-Direct Contact <input type="checkbox"/> Drift		30	45		20	0
Notes:															Mitigation Index Legend							
															Meaning			Shading				

Send to Impl. Req.	Soil Map Unit	Soil Name	Target Pest Name(s)	Product Name	Active Ingredient (a.i.)	WIN-PST Hazard Ratings			Area	Ap. Method	Rate	Pesticide-Specific Resource Concern	Existing IPM Techniques	Mitigation Index Score				
						Leaching (ILP)	Solution Runoff (ISRP)	Adsorbed Runoff (IARP)						Leaching	Solution Runoff	Adsorbed Runoff	Drift and Volatilization	Pollinator - Direct Contact
													Not an identified resource concern/pesticide loss pathway combination.					
													Resource concern/pesticide loss pathway combination exists and minimum mitigation criteria HAS been satisfied.					
													Resource concern/pesticide loss pathway combination exists and minimum mitigation criteria has NOT been satisfied.					
Summary of EXISTING IPM techniques currently implemented (from above)																		
IPM Techniques				Description								Applies to these Pesticides						