# LandSmart® for Vineyards

# Farm Plan

#

Prepared for: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Prepared by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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## Introduction

This LandSmart® Farm Plan template, in conjunction with workshops and one-on-one assistance (as needed), is intended to guide you through the process of inventorying vineyards, roads, and waterways, to document your current conservation practices and help you select additional conservation practices, when needed, to protect water quality and other natural resources. The resulting plan is intended to be a working document to record your decisions and progress. The plan will help you identify locations where photo monitoring should be conducted to document conservation practices. These photos, along with records you keep, can help you evaluate how various conservation practices work within your vineyard and, if needed, they can help you demonstrate to others the steps you have taken to protect and improve natural resources. Lastly, the plan will provide you with an easy to reference summary of conservation practices that you use and that you intend to implement (identified in earlier plan sections).

The LandSmart Farm Plan Template consists of several worksheets that you will complete. The top of each worksheet has information and/or directions, and as you work your way through the worksheet additional instructions may be provided based upon your responses. The questions and follow-up instructions are designed to help you identify which areas of your property could receive the most benefit from implementation of additional conservation practices. The worksheets also include tables to help you document existing and planned practices. You will be able to complete some of the worksheets quite easily. Other worksheets will take more time and will involve some field assessment, perhaps even some assistance from a resource professional (NRCS, RCD, or other professional). The LandSmart for Vineyards Reference Guide, available at LandSmart.org, may assist you in completing the worksheets. The Reference Guide contains chapters that correspond with each of the chapters in this Template.

This farm plan template purposefully covers topics of interest to most vineyard managers and has been developed to be consistent with water quality regulations. You may have additional conservation and land management interests beyond water quality regulations. The LandSmart program may help with those interests as well. If you need assistance to meet agricultural and conservation goals, please do not hesitate to 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 | Napa County RCD: 707-252-4189 |
| NRCS Petaluma Field Office: 707-794-1242 | Sonoma RCD : 707-569-1448 |
|  | Mendocino County RCD: 707-462-3664 |
|  | Gold Ridge RCD: 707-823-5244 |

## Property Description

|  |
| --- |
| Vineyard Facility Location (*See Chapter 2 of the Reference Guide for more information)* |
|  **Vineyard Facility Name** |  |
| **Facility Address** |  |
| **City, State & Zip Code** |  | **County** |  |
| **Assessor’s Parcel Number(s)** |  |
| **Township** |  | **Range** |  |
| **Latitude** |  | **Longitude** |  |
| **Watershed and Sub-watershed** |   |
|  |  |  |  |
| Plan Preparer |  |  |  |
| **Name of Plan Preparer** |  | **Plan Date:**  |  |
| **Preparer’s Affiliation** |  |
| **Plan Sections Prepared:** | 🗆 All 🗆 Some (specify below)List Sections:  |
| **Email** |  | **Phone:**  | **Fax:**  |
|  |  |  |  |
| Owner/Lessee (if different from above) |  |  |
| **Name(s)** |  |
| **Mailing Address** |  |
| **City, State & Zip Code** |  | **Phone (hm)** |  |
| **Email** |   | **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

|  |  |  |
| --- | --- | --- |
| ***Land Use Activity*** | ***Area/Length*** | ***Notes*** |
| Vineyard Blocks and Avenues |  | Acres |  |
| Grazing/Rangeland |  | Acres |  |
| Grape Processing Facilities |  | Acres |  |
| Roads (paved) |  | Feet/ Miles |  |
| Roads (unpaved) |  | Feet/ Miles |  |
| Other paved areas and buildings |  | Acres |  |
| Forest/Woodland/Chaparral |  | Acres |  |
| Open Space/Fallow/Undeveloped |  | Acres |  |
| Reservoir/Pond (footprint) |  | 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 |  | Acres |  |

### Existing Plans, Permits & Certifications

|  |  |  |  |
| --- | --- | --- | --- |
| *Plan Type* | *Plan/ Permit Year*  | *Plan/ Permit Area (ac)* | *Plan/Permit Number(s) and/or Notes (including status, e.g. permit pending/final or certification pending/complete)* |
| 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: |  |  |  |

### Off-site Conditions Outside of Landowner Control

If there are any upslope and/or upstream land uses or conditions within the watershed that are out of your control that may influence your ability to effectively implement conservation practices to control erosion, reduce sediment delivery, or otherwise protect water quality on your property, please describe them below.

Describe as needed:

## Vineyard Facility Map Summary

Maps will be an important part of your LandSmart Plan and will serve as an easy reference for you. Maps should be prepared on a topographic map, an aerial photograph, or a Google Earth image (minimum 1” = 1,000’ or 1:12,000 scales). More than one map may be used to display the information needed to complete your plan. A more detailed map (scale of 1” = 500’ or 1:6,000’ 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 that are identified in your Farm Plan.

You may already have maps of the property to meet the mapping needs identified below (for example, erosion control plan maps). In this case, you may wish to include (or reference) existing maps in your Farm Plan and alleviate the need to prepare new maps. In other cases, you may generate maps as you work your way through the Farm Plan process and assess the various features on your property.

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

This table provides a summary of suggested features to map for inclusion in your Farm Plan. Please indicate below which features are displayed on your Farm Plan map(s) by checking the box on the left. Maps should be kept with the Farm Plan.

|  |  |  |
| --- | --- | --- |
| **Mark X if mapped** | **Boundaries** | **Notes** |
|  | Property & plan boundaries |  |
|  | Parcel boundaries |  |
|  | Topography *(identify area with slope <5% and areas with slope >30%)* |  |
|  | Existing vineyard block boundaries *(indicate slope and block ID)* |  |
|  | Areas under consideration for new vineyard development or replant |  |
|  | Non-vineyard land uses (grazing, winery, other) |  |
| **Buildings/Facilities – *May* *identify total footprint of buildings in lieu of labeling each*** |
|  | Barns/shops/outbuildings/greenhouses |  |
|  | Agrichemical (pesticide/fertilizer/petroleum) handling site(s)  |  |
|  | Agrichemical (pesticide/fertilizer/petroleum) storage facility(s) |  |
|  | Winery/post-harvest handling/storage facility(s) |  |
|  | Equipment yards and/or staging areas |  |
|  | Other: |  |
| **Vineyard Soils, Erosion Control, Management & Structures – *Give each area/feature a name or number for easy reference.*** |
|  | Soil type(s) with erosion rating(s) (map from http://websoilsurvey.nrcs.usda.gov) |  |
|  | Vineyard drainage system (diversion ditches, storm drains, and underground outlets with inlets and outlets) |  |
|  | Sediment/attenuation/energy dissipation basin(s) |  |
|  | Vineyard Avenue(s) |  |
|  | Erosion features (i.e. gullies, rills, landslides, mudflows, rock falls) |  |
|  | Other: |  |
| **Waterways – *Give each feature a name or number for easy reference.*** |
|  | Ephemeral Stream (those that flow only during and shortly after a storm, also known as Class III streams) |  |
|  | Seasonal/Intermittent Stream (those that flow for part of the year and generally stop flowing in the late spring, also known as Class III streams)  |  |
|  | Year Round Stream (those that generally flow year round also known as Class I or II streams, depending on other factors) |  |
|  | Human-made waterways (ditches, also known as Class IV streams)  |  |
|  | Constructed Swale(s) – shallow trough-like depressions that carry water mainly during storms – no defined channel or bank |  |
|  | Spring(s), Seep(s), and Wet Area(s) |  |
|  | Reservoir/Pond/lake(s) (indicate pipe or open channel spillway location) |  |
|  | Known in-stream structures |  |
|  | Erosion features in waterways (i.e. streambank erosion, channel erosion) |  |
|  | Wells, with notation of their use (agricultural, residential, not in use, other) |  |
|  | Other: |  |
| **Roads - *Identify with a name and indicate if public, private and/or easements.*** |
|  | Surfaced roads (paved, graveled, etc.) |  |
|  | Unsurfaced roads (dirt, vegetated etc. – ***do not include vineyard avenues***)  |  |
|  | Abandoned roads (trails or roads that are not used)  |  |
|  | Waterway crossings (indicate whether freespan bridge, culvert, ford, etc.) |  |
|  | Erosion issues associated with roadside ditches, ditch relief culverts, waterbars, rolling dips, etc. |  |
|  | Erosion features on land associated with roads (i.e. gullies, rills, landslides, mudflows, rock falls) |  |
|  | Other: |  |
| **Photo Monitoring Points *– Sites you have selected for annual photo monitoring. Give each point a number for easy reference.*** |
|  | Photo-points to demonstrate winter readiness  |  |
|  | Photo-points to demonstrate annual maintenance and practice implementation  |  |
|  | Photo-points to demonstrate condition of discharge points |  |
|  | Photo-points to demonstrate condition downstream of discharge points |  |
|  | 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 and/or synthetic nutrients and/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 and/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 of 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.

*See chapter 4 of the Resource Guide for more information on managing agrichemicals, including BMP descriptions, beneficial insects, plans and 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.

### 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 as needed:

**A2. Agrichemical mixing, loading, and rinsing are conducted in an area where agrichemicals are contained.**

☐ 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 as needed:

**A3. Agrichemicals not handled on a containment facility 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.

Describe as needed:

Adjfkasjkl;j

**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 as needed:

Adjfkasjkl;j

**Table A1: Conservation Practices for Agrichemical Handling and Storage**

The following table provides an assortment of management practices that are intended to protect water quality. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. 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.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Conservation Practice* | *NRCS Practice Title* | *Current Practice* | *Planned Implementation Date / Status* | *Location / Notes* |
| 1. Consult a Professional |  | ☐ |  |  |
| 2. Read agrichemical labels and store them according to directions. |  | ☐ |  |  |
| 3. Use an impervious containment pad for agrichemical handling | Agrichemical Handling Facility (309) | ☐ |  |  |
| 4. Provide securable agrichemical handling | Agrichemical Handling Facility (309) | ☐ |  |  |
| 5. Move agrichemical handling away from aquatic habitat and wells |  | ☐ |  |  |
| 6. Train employees on safe agrichemical handling |  | ☐ |  |  |
| Other: |  | ☐ |  |  |

### 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:

**A6. UC-IPM guidelines are followed (**[**http://www.ipm.ucdavis.edu/PMG/selectnewpest.grapes.html**](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:

**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:

**A8. Pesticides and herbicides with the least toxicity are utilized whenever possible.**

☐ Yes (List typical pesticides and herbicides used)

☐ No (Consider practices # 6 in Table A2 below)

List / Describe as needed:

**Table A2: Conservation Practices for Pest Management**

The following table provides an assortment of management practices that are intended to protect water quality. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. 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.*

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

### 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

List:

### 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 as needed:

**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 as needed:

**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 as needed:

**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)

☐ No (Consider practice # 9, listed in Table A3 below)

☐ No on-site composting

Describe as needed:

**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 as needed:

**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. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. 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.*

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

## Managing Erosion in Vineyard Blocks and Avenues

**Background:** When soil erodes and excessive amounts of sediment are allowed to enter waterways, water quality is impacted. In areas with ground disturbance, erosion rates can be relatively high and, hence, major contributors of sediment to water bodies. The risk of soil erosion increases based on factors of slope, soil type, and precipitation rates and timing. Vineyard operations 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). Where there are opportunities to safely disperse water across the land rather than concentrate it into a lined waterway or pipeline, please consider doing so.

*See Chapter 5 of the Reference Guide for further information on soil erosion and sedimentation, soil quality, and BMPs to manage erosion.*

**Purpose:** Identify practices currently in use and that are intended for implementation, 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.

### 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.**

☐ 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:

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

☐ Yes (Describe your current practice(s))

☐ No (Consider practices # 5 through 8 listed in Table V1 below)

Describe as needed:

**V4. Under-the-vine spray widths are minimized (generally no greater than 16 inches).**

☐ Yes (Describe your current practice(s))

☐ No (Consider practices # 5 through 8 listed in Table V1 below)

Describe as needed:

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

☐ All avenues (Describe your current practice(s))

☐ Some avenues (Describe your current practice(s). Consider practices # 4, 9 through 14 listed in Table V1 below)

☐ No avenues (Consider practices # 4, 9 through 14, listed in Table V1 below)

Describe as needed:

**V6. 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:

**V7. Emergency erosion control materials are readily available and field staff are trained in their proper use.**

☐ Yes (Describe where they are located)

☐ No (Practices # 18 and 19, listed in Table V1 below are suggested)

Describe as needed:

**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. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. 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 5 of the Reference Guide for information on these conservation practices.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Practices* | *NRCS Practice Title* | *Current Practice* | *Planned Implementation Date / Status* | *Location / Notes* |
| 1. Consult a Professional |  | ☐ |  |  |
| 2. Plant a non-tilled, permanent vegetative cover crop to minimize soil disturbance | Conservation Cover (327) | ☐ |  |  |
| 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) | ☐ |  |  |
| 4. Plant an annually seeded and/or disked cover crop (generally not appropriate for vineyards on slopes >5%) | Cover Crop (340) | ☐ |  |  |
| 5. Mow (or string-trim) under the vinerows | Conservation Cover (327) | ☐ |  |  |
| 6. Spot-spray under vinerows using post-emergent product – protect disturbed soils during rainy season |  | ☐ |  |  |
| 7. Apply post-emergent spray in late spring – protect disturbed soils during rainy season |  | ☐ |  |  |
| 8. Mulch under vinerows and/or in middles (between vinerows) to protect disturbed soils | Mulching (484) | ☐ |  |  |
| 9. Install temporary straw or coir fiber structures to protect vulnerable areas | Stormwater Runoff Control (570) | ☐ |  |  |
| 10. Plant/maintain a vegetative buffer along the block perimeter | Field Border (386)Conservation Cover (327)Filter Strip (393) | ☐ |  |  |
| 11. Plant/maintain a vegetative buffer to filter runoff | Filter Strip (393)Vegetated Barrier (601) | ☐ |  |  |
| 12. Plant/maintain a vegetative swale to filter runoff | Grassed Waterway (412) | ☐ |  |  |
| 13. Apply seed and straw mulch to avenues in the fall |  | ☐ |  |  |
| 14. Install and/or maintain waterbars in the avenues in the fall to disperse runoff |  | ☐ |  |  |
| 15. Install a mid-slope runoff conveyance ditch with a protected outlet | Diversion (362) | ☐ |  |  |
| 16. Install drop inlet pipe (storm drain) to convey runoff to a protected or safe outlet location | Underground Outlet (620) | ☐ |  |  |
| 17. Conduct pre- and post-storm maintenance and monitoring; address erosion concerns as necessary |  | ☐ |  |  |
| 18. Keep emergency erosion control materials readily available |  | ☐ |  |  |
| 19. Provide erosion control trainings for field staff |  | ☐ |  |  |
| Other: |  | ☐ |  |  |

### Managing Concentrated Storm Runoff and Sediment Delivery From Vineyard Blocks

**V8. Rainfall runoff from the vineyard is dispersed and/or infiltrated in the vineyard and does not run off as concentrated flow.** *(Note, this will not generally be the case as it is nearly impossible to contain all runoff. If you are on flat ground, consider how you get water out of your vineyard in the spring. If in doubt, mark “No” and complete the section.)*

☐ Yes (Describe dispersal/infiltration methods below and skip the remainder of this section)

☐ No (Consider practices # 1 through 7 and #11, listed in Table V2 below)

Describe as needed:

**V9. Concentrated flow is conveyed in a way that prevents erosion and flow acceleration.**

☐ Yes (Describe practices to prevent flow acceleration. Identify locations on a map, where feasible)

☐ In Some Places (Describe practices to prevent flow acceleration. Identify locations on a map, where feasible. Consider practices # 2 through 9 and # 11, listed in Table V2 below)

☐ No (Consider practices # 2 through 9 and # 11, listed in Table V2 below)

Describe as needed:

**V10. Concentrated flows that are conveyed into a basin or pond are released slowly and outlet to a stable location.**

☐ Yes (Identify basin or pond that captures flows, describe how it managed to release flows, and identify outlet / discharge point)

☐ No (Consider practices # 6 through 10, listed in Table V2 below)

☐ Not Applicable

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. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. 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 5 of the Reference Guide for information on these conservation practices.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Practices* | *NRCS Practice Title* | *Current Practice* | *Planned Implementation Date / Status* | *Location / Notes* |
| 1.Consult a Professional |  | ☐ |  |  |
| 2. Plant a vegetative buffer or swale to filter runoff | Filter Strip (393) Grassed Waterway (412)Vegetated Barrier (601) | ☐ |  |  |
| 3. Install a basin to collect sediment and/or attenuate flows | Sediment Basin (350) | ☐ |  |  |
| 4. Install a level rock bench or tee spreader to disperse concentrated runoff | Underground Outlet (620) | ☐ |  |  |
| 5. Install a diversion ditch – look for opportunities to disperse concentrated flows and ensure that outlet is protected | Lined waterway or outlet (468) | ☐ |  |  |
| 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) | ☐ |  |  |
| 7. Install a piped storm drain - – look for opportunities to disperse concentrated flows and ensure that outlet is protected | Underground outlet (620) | ☐ |  |  |
| 8. Install an energy dissipater at pipe/waterway outlet – look for opportunities to disperse concentrated runoff prior to outlet | Lined waterway or outlet (468) | ☐ |  |  |
| 9. Install temporary straw or coir structures | Stormwater Runoff Control (570) | ☐ |  |  |
| 10. Install a rock weir spillway from a sediment basin – look for opportunities to disperse concentrated flow | Structure for Water Control (587) | ☐ |  |  |
| 11. Set back vineyard upon replant and seed bare areas | Critical Area Planting (342)Conservation Cover (327) | ☐ |  |  |
| Other: |  | ☐ |  |  |

## 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.

*See Chapter 6 of the Reference Guide for further information on waterways and riparian areas.*

**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.

**W1.Please 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. Waterways on the property regularly flow out of their banks and flood causing erosion and/or other problems.**

☐ Yes (Identify problematic locations. Consider Practice #1, listed in table W1 below)

☐ No

Describe as needed:

### Managing Erosion and Water Quality in Natural Waterways

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

☐ 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:

**W4. 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 natural 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 Name**As labeled on Map. Break into reaches as needed. | **Active channel\* width (ft)** | **Bank Height****(ft)** | **Flow Persistence\***(during average rain season) | **Channel Condition** | **Slope of Banks** | **Material on Waterway Bottom**Check two boxes that are most appropriate | **Riparian Corridor Width (ft)** | **Riparian Vegetation**  | **Riparian Shade Over Waterway** |
|   | ☐ 0-10☐ 11-25☐ 26-50☐ 51+ | ☐ 0-2☐ 3-6☐ 7-10☐ 11+ | ☐ Year-round☐ Seasonally☐ During & shortly after storms | ☐ Stable☐ Eroding☐ Widening☐ Deepening☐ Building up | ☐ Steep (1:1)☐ Moderate (2:1)☐ Gentle (3:1 or less) | ☐ Silt and Clay☐ Sand☐ Gravel (pea to tennis ball)☐ Cobble (tennis to basketball)☐ Boulder (> than a basketball)☐ Bedrock | ☐ 0-10☐ 11-25☐ 26-50☐ 50+ | ☐ Minimal☐ Sparse☐ Moderate☐ Dense☐ Overgrown | ☐ Not shaded/ sparsely shaded☐ Partially shaded☐ Mostly shaded |
|  | ☐ 0-10☐ 11-25☐ 26-50☐ 51+ | ☐ 0-2☐ 3-6☐ 7-10☐ 11+ | ☐ Year-round☐ Seasonally☐ During & shortly after storms | ☐ Stable☐ Eroding☐ Widening☐ Deepening☐ Building up | ☐ Steep (1:1)☐ Moderate (2:1)☐ Gentle (3:1 or less) | ☐ Silt and Clay☐ Sand☐ Gravel ☐ Cobble ☐ Boulder ☐ Bedrock | ☐ 0-10☐ 11-25☐ 26-50☐ 50+ | ☐ Minimal☐ Sparse☐ Moderate☐ Dense☐ Overgrown | ☐ Not shaded/ sparsely shaded☐ Partially shaded☐ Mostly shaded |
|  | ☐ 0-10☐ 11-25☐ 26-50☐ 51+ | ☐ 0-2☐ 3-6☐ 7-10☐ 11+ | ☐ Year-round☐ Seasonally☐ During & shortly after storms | ☐ Stable☐ Eroding☐ Widening☐ Deepening☐ Building up | ☐ Steep (1:1)☐ Moderate (2:1)☐ Gentle (3:1 or less) | ☐ Silt and Clay☐ Sand☐ Gravel ☐ Cobble ☐ Boulder ☐ Bedrock | ☐ 0-10☐ 11-25☐ 26-50☐ 50+ | ☐ Minimal☐ Sparse☐ Moderate☐ Dense☐ Overgrown | ☐ Not shaded/ sparsely shaded☐ Partially shaded☐ Mostly shaded |
|   | \*Active channel is mostly sand/ gravel, has few rooted plants, sees flow in most storms. |  | \*Flow or presence of water in pools | **If channel condition is not stable, consider practices # 1 through 6 and 9 listed in Table W1 below** | **If banks are very steep, consider practices # 1, 5, 6 and 9 listed in Table W1 below** | **Silt on the waterway bottom may indicate erosion nearby or upstream.**  | **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.** |

|  |
| --- |
| **Bank Erosion:**Please 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. |

|  |
| --- |
| **Other Notes:**  |

**W6. Complete this data form for each natural waterway where there is landowner interest in and opportunity to enhance native vegetation, fish and wildlife habitat. If you broke streams out into reaches above, use the same reaches here. *(This table is a requirement for Level II LandSmart Certification.)***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Waterway Name**As labeled on Map. Please break major streams into reaches as above. | **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. | **Structures Within Waterway Known to Cause Obstruction to Fish Passage?**Yes/No, note location | **Creek Channel Features**Check the boxes that seem to apply most. | **In-stream Habitat Structure**Check the boxes that seem to apply most. |
|   | ☐ Yes☐ No | ☐ 0-25%☐ 25-50%☐ 50-75%☐ 75-100% | ☐ Yes☐ No | ☐ Deep pools (>5’)☐ Shallow pools (< 5’)☐ Gravel Bars☐ Riffles (shallow gravel areas where water moves fast)☐ Bends☐ Straight | ☐ Large wood☐ Boulders☐ Overhanging roots/banks☐ None of the above |
|   | ☐ Yes☐ No | ☐ 0-25%☐ 25-50%☐ 50-75%☐ 75-100% | ☐ Yes☐ No | ☐ Deep pools (>5’)☐ Shallow pools (< 5’)☐ Gravel Bars☐ Riffles☐ Bends☐ Straight | ☐ Large wood☐ Boulders☐ Overhanging roots/banks☐ None of the above |
|   | ☐ Yes☐ No | ☐ 0-25%☐ 25-50%☐ 50-75%☐ 75-100% | ☐ Yes☐ No | ☐ Deep pools (>5’)☐ Shallow pools (< 5’)☐ Gravel Bars☐ Riffles☐ Bends☐ Straight | ☐ Large wood☐ Boulders☐ Overhanging roots/banks☐ None of the above |
|   | **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 yes, consider practice # 7 in Table W1 below*See Chapter 6 of the Reference Guide for information on fish passage*** | ***See Chapter 6 of the Reference Guide for information on channel features*** | **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*** |

|  |
| --- |
| **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.  |

|  |
| --- |
| **Notes:**  |

**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. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. 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 6 of the Reference Guide for information on these conservation practices.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *NRCS Practice Title* | *Current Practice* | *Planned Implementation Date / Status* | *Location / Notes* |
| 1. Consult a Professional |  | ☐ |  |  |
| 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) | ☐ |  |  |
| 3. Establish native riparian trees and shrubs | Riparian Forest Buffer (391) | ☐ |  |  |
| 4. Establish native riparian grasses and forbs | Riparian Herbaceous Cover (390) | ☐ |  |  |
| 5. Promote natural restoration (let the bank erode and as it becomes stable encourage native vegetation recruitment) |  | ☐ |  |  |
| 6. Stabilize and protect streambanks through layback, bioengineering, and/or rock installation (permits likely required) | Streambank & Shoreline Protection (580) | ☐ |  |  |
| 7.Modify instream structures to improve fish passage (permits required) | Stream Habitat Improvement & Mgmt. (395) | ☐ |  |  |
| 8. Install in-stream structures to enhance habitat (permits required) | Stream Habitat Improvement & Mgmt. (395) | ☐ |  |  |
| 9. Provide more space to the stream by setting back structures, roads, vines, and other agricultural activities |  | ☐ |  |  |
| 10. Establish a supply yard away from the waterway |  | ☐ |  |  |
| Other: |  | ☐ |  |  |

### Managing Erosion and Water Quality in Ditches

**W7. 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** | **Adjacent Buffer** |
| **Ditch ID** (As labeled on Map) | **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 |
|  | ☐ 0-10☐ 11-25☐ 25+ | ☐ Stable☐ Eroding☐ Widening☐ Deepening☐ Building up | ☐ None/Minimal☐ Sparse☐ Moderate☐ Full Cover | ☐ 0-10☐ 11-25☐ 25+ | ☐ None/Minimal☐ Sparse☐ Moderate☐ Full Cover |
|  | ☐ 0-10☐ 11-25☐ 25+ | ☐ Stable☐ Eroding☐ Widening☐ Deepening☐ Building up | ☐ None/Minimal☐ Sparse☐ Moderate☐ Full Cover | ☐ 0-10☐ 11-25☐ 25+ | ☐ None/Minimal☐ Sparse☐ Moderate☐ Full Cover |
|  | ☐ 0-10☐ 11-25☐ 25+ | ☐ Stable☐ Eroding☐ Widening☐ Deepening☐ Building up | ☐ None/Minimal☐ Sparse☐ Moderate☐ Full Cover | ☐ 0-10☐ 11-25☐ 25+ | ☐ None/Minimal☐ Sparse☐ Moderate☐ Full Cover |
|  | ☐ 0-10☐ 11-25☐ 25+ | ☐ Stable☐ Eroding☐ Widening☐ Deepening☐ Building up | ☐ None/Minimal☐ Sparse☐ Moderate☐ Full Cover | ☐ 0-10☐ 11-25☐ 25+ | ☐ None/Minimal☐ Sparse☐ Moderate☐ Full Cover |
|  | ☐ 0-10☐ 11-25☐ 25+ | ☐ Stable☐ Eroding☐ Widening☐ Deepening☐ Building up | ☐ None/Minimal☐ Sparse☐ Moderate☐ Full Cover | ☐ 0-10☐ 11-25☐ 25+ | ☐ None/Minimal☐ Sparse☐ Moderate☐ 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. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. 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 6 of the Reference Guide for information on these conservation practices.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *NRCS Practice Title* | *Current Practice* | *Planned Implementation Date / Status* | *Location / Notes* |
| 1. Consult a Professional |  | ☐ |  |  |
| 2. Establish native grasses and forbs | Conservation Cover (327)Critical Area Planting (342) | ☐ |  |  |
| 3. Provide more space to the ditch by setting back vines |  | ☐ |  |  |
| 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) | ☐ |  |  |
| 5. Install rock check structures to dissipate hydraulic energy | Structure for Water Control (587) | ☐ |  |  |
| 6. Plant a vegetative filter waterway | Grassed Waterway (412) | ☐ |  |  |
| Other: |  | ☐ |  |  |

### 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. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis and an assortment of practices to protect water quality and to suit your circumstance should be selected. 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 6 of the Reference Guide for information on these conservation practices.*

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

## Roads and Crossings

**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.

*See Chapter 7 of the Reference Guide for further information on roads and crossings.*

**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 are connected.

**R1. Roads on the property are included in an implemented County-approved Erosion Control Plan.**

☐ All roads

☐ Some roads

☐ No roads

Describe as needed:

**R2. Roads on the vineyard property cross waterways.**

☐ Yes (Please complete the Road Stream Crossing Data Form that follows for each crossing. Make additional copies of the data form as needed. Consider practices in Table R1 below, as appropriate.)

☐ No

**R3. Road surfaces, fills, and cutbanks on the property appear to be stable (i.e., they do not show signs of excessive erosion such as riling, cut-bank failures, slumping)**

☐ Yes

☐ No (Consider practices listed in Table R2 below for unstable areas)

**R4. All roads on the property are necessary and utilized.**

☐ Yes

☐ No (Consider practice #14, listed in Table R2 below)

### Data Form R1. Road Stream Crossing Data Form

Complete this data form for each place that roads cross a waterway. *The instructions and definitions in the Resource Manual may be helpful.* Make a copy of the form for each crossing. As applicable consider treatment options provided and complete Conservation Practice Tables R1 and R2.

|  |
| --- |
| **ROAD STREAM CROSSING DATA FORM** (2015) |
| **GENERAL** | Site #: | Road ID/Name: | Date: | Site located up-stream of pond/reservoir (Y,N):☐ Yes ☐ No |
| Are fill slopes or adjacent stream banks actively eroding (Y, N): ☐ Yes ☐ No (If yes see treatment option 3, 13, 14, 15 in Table R1) |

|  |  |  |  |
| --- | --- | --- | --- |
| **STREAM CROSSING TYPE** **(Circle one)** | Bridge, Bottomless Arch, or Box.(If yes, skip down to ‘Road Drainage’ section) | Culvert (round or oval)(If yes, go to ‘Culverted crossing info’ section) | Wet Crossing (Ford, Armored Fill, Fill, or Pulled crossing)(If yes, go to ‘Wet crossing’ section) |
| **Culverted** **Crossing** **info** | Is rust/silt line at inlet of culvert greater than half the diameter of the culvert (Y, N): ☐ Yes ☐ No (If yes, see treatment options 4, 5, 8 in Table R1).  | Is Inlet of culvert greater than 20% crushed or plugged (Y, N):☐ Yes ☐ No(If yes, see treatment options 3, 7, 8 in Table R1). |
| Is culvert bottom rusted or separated (Y, N): ☐ Yes ☐ No(If yes, see treatment options 4, 5, 7, 8 in Table R1). | Does the Culverted stream crossing have diversion potential (Y, N): ☐ Yes ☐ No(If yes see treatment options 9, 10 in Table R1) |
| **Wet crossing info** | Is crossing dipped wide enough to keep flows within natural stream channel (Y, N):☐ Yes ☐ No(If no see treatment option 3 in Table R1) | At Armored Fill crossing, is armor adequate enough to prevent fill material from eroding (Y, N):☐ Yes ☐ No(If no see treatment option 14 in Table R1) |
| Does crossing look to be actively eroding (Y, N): ☐ Yes ☐ No(If yes see treatment options 3, 14 in Table R1) |

|  |  |  |  |
| --- | --- | --- | --- |
| **ROAD DRAINAGE TO STREAM CROSSING** | **Left** road/Avenue length(s) draining down to site (ft): (If greater than 150ft see treatments options in Table R2) | Road Surface (paved, rocked, native): | Avg. width (ft): |
| **Right** road/avenue length(s) draining down to site (ft):(If greater than 150ft see treatments options in Table R2) | Road Surface (paved, rocked, native): | Avg. width (ft): |

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| **COMMENT ON STREAM CROSING AND ASSOCIATED ROAD LENGTH(S):** |

**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. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. 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 7 of the reference guide for information on these conservation practices.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Practices**(at stream crossing)* | *NRCS Practice Title* | *Current Practice* | *Planned Implementation Date / Status* | *Location / Site# / Notes* |
| 1. No treatment at site | -- |  | -- |  |
| 2. Consult a Professional |  | ☐ |  |  |
| 3. Excavate soil | Earthfill (903) | ☐ |  |  |
| 4. Install bridge | Stream Crossing (578) | ☐ |  |  |
| 5. Construct Armored-fill crossing *(See typical drawings 5a, 5b, 6, 7)* | Stream Crossing (578) | ☐ |  |  |
| 6. Construct a Ford crossing *(See typical drawing 5a)* | Stream Crossing (578) | ☐ |  |  |
| 7. Repair culvert | Access Road (560) | ☐ |  |  |
| 8. Install or replace culvert *(See typical drawing 2, 4)* | Access Road (560) | ☐ |  |  |
| 9. Construct critical dip*(See typical drawing 1c)* | Access Road (560) | ☐ |  |  |
| 10. Install critical culvert | Access Road (560) | ☐ |  |  |
| 11. Remove screen from culvert inlet | Access Road (560) | ☐ |  |  |
| 12. Install trash rack (SB, GP, I-B)*(See typical drawing 3)* | Access Road (560) | ☐ |  |  |
| 13. Armor fill face*(See typical drawing 1b, 4)* | Lined Waterway or Outlet (468) and Rock Riprap (907) | ☐ |  |  |
| 14. Armor below outlet*(See typical drawing 1b)* | Lined Waterway or Outlet (468) and Rock Riprap (907) | ☐ |  |  |
| 15. Other |  | ☐ |  |  |

**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. Implementation of all practices is not necessary or required. Selection of practices must be done on a site-specific basis. An assortment of practices to protect water quality and to suit your circumstance should be selected. 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 7 of the reference guide for information on these conservation practices.*

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| --- | --- | --- | --- | --- |
| *Practices**(along road lengths)* | *NRCS Practice Title* | *Current Practice* | *Planned Implementation Date / Status* | *Location / Site# / Notes* |
| 1. No treatment at site | -- |  | -- |  |
| 2.Consult a Professional |  | ☐ |  |  |
| 3. Construct rolling dips *(See typical drawings 10, 11, 19a-c.)* | Access Road (560) | ☐ |  |  |
| 4. Install Speed bumps on paved road  | Access Road (560) | ☐ |  |  |
| 5. Outslope road & remove ditch*(See typical drawings 9a-c)* | Access Road (560) | ☐ |  |  |
| 6. Outslope road & retain ditch – ensure that outlet is located in a stable location*(See typical drawings 9a-c)* | Access Road (560) | ☐ |  |  |
| 7. Inslope road – ensure that ditch outlets to a stable location*(See typical drawings 9a-c)*  | Access Road (560) | ☐ |  |  |
| 8. Crown road*(See typical drawings 9a-c)* | Access Road (560) | ☐ |  |  |
| 9. Install/Replace ditch relief culvert – ensure that outlet is located in a stable location *(See typical drawing 8)* | Access Road (560) | ☐ |  |  |
| 10. Cut/clean ditch | Diversion (362) and Access Road (560) | ☐ |  |  |
| 11. Rock armor ditch – ensure that ditch outlets to a stable location | Lined Waterway or Outlet (468) | ☐ |  |  |
| 12. Construct Water bars*(See typical drawing 20*) | Access Road (560) | ☐ |  |  |
| 13. Construct cross road drains*(See typical drawing 17)* | Access Road (560) | ☐ |  |  |
| 14. De-compact road surface*(See typical drawing 17)* | Road Closure and Treatment (654) | ☐ |  |  |
| 15. Other |  | ☐ |  |  |

## Photo Monitoring

**Purpose**: To document your visual monitoring and site inspections and record your monitoring notes and any actions needed and taken. Monitoring sites should be selected to 1) demonstrate winter readiness, 2) demonstrate annual maintenance and practice implementation, 3) demonstrate condition of outfall (discharge) points and associated receiving waters, and 5) track other areas of interest that you want to watch (e.g., areas of erosion, areas of invasive vegetation, etc.) Monitoring is conducted to document that sediment control practices outlined in the LandSmart™ Plan are implemented, that the practices are effective, and that they are properly maintained. Monitoring locations should be mapped and numbered. To the extent feasible, photos should be kept with the Farm Plan. In any case, photos should be readily available for reference.

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| **Label on Map** | **Purpose**Winter readiness; annual maintenance; practice implementation; outfall and receiving water point; other | **Date** (m/d/y) | **Photo Taken?** Y or N | **Condition** (performing properly, needs maintenance, needs consultation) | **Actions taken** |
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## 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:

## Tracking implementation of your Farm Plan

**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 attribute those changes to implementation of practices or to other confounding influences such as regional geology or a source upslope or upstream of the operation.

Use this table to track implementation of the actions that you identified in the previous sections. You can also use this table to list additional conservation practices not identified in previous chapters that are part of your management goals for the property. You may make additional copies of this page as needed to adequately document all practices that are planned or have already been implemented.

| **Practice** | **Applicable NRCS Practice Standard** | **Location** (show on map if possible) | **Date** (Implemented and/or Maintained) | **Details/Notes** (include reference to photos) |
| --- | --- | --- | --- | --- |
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## Resources and Fact Sheets

## Maps

## Facility Documents

## Photo Plates