

**VEEDER RIDGE LLC  
3665 REDWOOD ROAD**

**EROSION CONTROL PLAN  
REVISED SEPTEMBER 2021**



*THIS PAGE IS INTENTIONALLY LEFT BLANK*

**VEEDER RIDGE LLC  
3665 REDWOOD ROAD**

**EROSION CONTROL PLAN**



**REVISED SEPTEMBER 2021  
ORIGINAL SUBMITTAL MAY 2021**

**PREPARED BY:**

**PPI ENGINEERING  
2800 JEFFERSON STREET  
NAPA, CALIFORNIA 94558  
(707) 253-1806**

## **TABLE OF CONTENTS**

<b><u>ITEM</u></b>	<b><u>PAGE</u></b>
EROSION CONTROL PLAN NARRATIVE	EC-1
STANDARD PROVISIONS	ST-1
SPECIAL PROVISIONS	
Section 1 – Surface Drainage Pipe	SP-1
Section 2 – Standard Drop Inlet	SP-3
Section 3 – Temporary Measures	SP-3
Section 4 – Maintenance	SP-4
APPENDICES	
Appendix A – Photographic Documentation	A-1
Appendix B – USLE Calculations	B-1
Appendix C – Vegetation Retention Calculations	C-1
Figure 1: Vegetation Retention	
Appendix D – Slope Calculations	D-1
Appendix E – Supporting Figures	
Figure 2: Deer Fence	
Figure 3: Road Network	
Figure 4: Irrigation Infrastructure	
DESIGN DRAWINGS	BACK FLAPS



**VEEDER RIDGE LLC  
3665 REDWOOD ROAD**

**EROSION CONTROL PLAN**

**NARRATIVE**

**1. The nature and purpose of the land disturbing activity and the amount of grading involved.**

- a) This ECP addresses the development of approximately 2.7 net acres (3.1 gross acres) of proposed vineyard located at 3665 Redwood Road in western Napa County. Proposed Block 1A (0.6 gross acres) had been developed between 2002 and 2004 without the benefit of an erosion control plan. This vineyard block was removed and the site winterized under an approved Track II Redevelopment ECP (#P20-00233). All proposed development areas are currently fallow pasture. The ranch is located on APN 035-080-027 which consists of approximately 45.5 acres per the Napa County Assessor's Office.
- b) Activities to be accomplished include ripping, rock removal, cultivating the soil to prepare for planting, seeding cover crop, mulching, installing trellis system, laying out the vinerows, and installing erosion control measures.
- c) Ripping shall not exceed 24" per the Engineering Geological Investigation.

**2. General description of existing site conditions, including topography, vegetation and soils.**

- a) The site is located in the Redwood Creek Watershed.
- b) The elevations in the vineyard area range from approximately 624 to 682 feet above mean sea level per topographic mapping. Ground slopes within the project boundary range between 11 and 26 percent. There are small pockets of areas with slope over 30% in the development area which total approximately 0.07 acres, please see Sheet 1 for the locations.
- c) Topographic mapping was provided by PPI Engineering completed August 2020. Supplemental topographic mapping was provided by Napa County.
- d) Existing vegetation consists of fallow pasture. Please see the biological report prepared by WRA dated February 2021.
- e) Approximately 0.29 acre of tree canopy was removed in proposed Block 1A in the past during conversion. In order to calculate compliance with County Code Section 18.108.020(D) (3:1 Tree Preservation), the tree canopy previously removed in Block 1A was delineated based on the Napa County 1993 aerial photo and the tree canopy

currently proposed to be removed was based on the Napa County GIS Vegetation Public Habitat Mapping layer. Although no trees are proposed to be removed by the project, 0.06 acre of tree canopy on the fringes of woodland habitat type will be removed. Together, the project's past and proposed tree canopy removal is 0.35 acre and therefore requires 1.05 acres of tree canopy be preserved to meet the 3:1 ratio; there are 19.27 acres of tree canopy on the property on areas under 50% slope and outside stream setbacks. The project is in compliance with County Code Section 18.108.020(D) and County Code Section 18.108.020(C). Refer to Figure 1 in Appendix C.

- f) There are no structures on the property. Please see the cultural resources report prepared by Flaherty Cultural Resource Services dated November 2020.
- g) The property is currently deer fenced. Please see Figure 2 in Appendix E for the Existing Deer Fence map. No additional deer fence is proposed.
- h) A site visit of the property was performed by Cody Corsetti and Sam Moose of PPI Engineering on Tuesday August 4, 2020 to evaluate the vineyard development area and to collect photographic documentation. Photographs of pre-project conditions can be found in Appendix A.

**3. Natural and man-made features onsite including streams, lakes, reservoirs, roads, drainage, and other areas that may be affected by the proposed activity.**

- a) No natural or man-made features are expected to be adversely affected by this project. Redwood Creek is in the vicinity but will not be affected by the project.
- b) There is an existing network of ranch roads throughout the property. The existing road network is sufficient for access to proposed vineyard blocks. The existing roads shall be maintained and surfaced with crushed rock as needed. Please see Figure 3 in Appendix E for the roads which will be used as primary access to the vineyard blocks.

**4. Location and source of water for irrigation or other uses.**

- a) The location of the reservoir, the proposed water source, is shown on the Vicinity Map.

**5. Soil types/soil series identified in the Soil Conservation Service (SCS) Napa County Soil Survey.**

- a) The USDA – NRCS Web Soil Survey maps the soil within the project boundary as Bressa-Dibble complex with 15 to 30 percent slopes and Felton Gravelly loam with 30 to 50 percent slopes.
- b) Some rock is expected to be generated as a result of this project. Rock may be crushed and used on the existing roads where needed. Rock not used immediately will be stockpiled for future use inside the proposed clearing limits. Stockpiles are expected to

be less than 20 feet in height. Rock staging areas shall be located inside of proposed clearing limits. Temporary rock stockpiles shall also be located inside of proposed clearing limits. No grading activities, ground disturbance or rock storage will occur outside of the proposed clearing limits.

**6. Critical areas, if any, within the development site that have serious erosion potential or problems.**

- a) There are no areas with serious erosion potential or problems.

**7. Erosion calculations**

- a) Universal Soil Loss Equation (USLE) spreadsheets for this project are in Appendix B of this report.
- b) Please see pre-project versus post-project soil loss analysis prepared by PPI Engineering dated March 2021.

**8. Proposed erosion control methods including:**

**a) All drainage systems and facilities, walls, cribbing or other erosion protection devices to be constructed with, or as a part of the proposed work.**

- 1. A variety of existing drainage systems will be utilized for erosion control in this project. Existing drainage pipelines will be used to direct runoff to desired locations. Straw wattles will be installed. Please see Sheet 1 for locations of the above erosion control items. Please see the Detail Sheet and the Special Provisions for details on the erosion control items.
- 2. The final pass with disking equipment shall be performed across slopes to prevent channeling water downhill the first winter after development.
- 3. Straw wattles shall be installed the year of construction in the approximate locations shown on the Site Plan. Additional temporary erosion control measures shall be installed as needed.

**b) Proposed vegetative erosion control measures including location, type and quantity of seed, mulch, fertilizer and irrigation, timing and methods of planting, mulching and maintenance of plant material and slopes until a specified percentage of plant coverage is uniformly established.**

1. Disturbed areas shall be seeded as described below. Straw mulch shall be applied to all disturbed areas at a rate of 3,000 lbs/acre prior to October 15 of the year of construction.
2. A permanent cover crop strategy will be utilized. The permanent cover crop will be generated the first year by seeding with the following mix: Dwarf Barley at 50 lbs/acre, Blando Brome at 8 lbs/acre, Zorro Fescue at 12 lbs/acre, and Crimson Clover at 6 lbs/acre. A pre-approved alternative seed mix may be allowed.

The permanent cover crop will be managed each year such that any areas which have less than the percent vegetative cover specified below will be reseeded and mulched until adequate coverage is achieved. The permanent cover crop shall be mowed only and not disked.

Block with 75% vegetative cover: 1A

Block with 80% vegetative cover: 3

3. The owner has the option of using a Dwarf Barley cover crop in the first three years that the block is planted to aid with vineyard establishment. If this option is used, seed shall be applied at a rate of 120 lbs/acre if broadcast or at a rate of 60 lbs/acre if drilled. The cover crop within the vineyard may be disked each spring after April 1 for the first three years. An alternative cover crop seed mix may be used upon prior approval. Each year the owner chooses to disk, the area shall be straw mulched at a rate of 3,000 lbs/acre and straw wattles shall be installed prior to October 15. The permanent seed mix will be seeded prior to October 15 of the fourth (or earlier) year.
4. No pre-emergent herbicides will be used for weed management. Contact or systemic herbicides may be applied in spring (no earlier than February 15 to ensure adequate vegetative cover in the spray strips for the remainder of the rainy season). The width of the spray strip shall be no wider than 1.5' in order to achieve 75% vegetative cover in Block 1A. The width of the spray strip shall be no wider than 1' in order to achieve 80% vegetative cover in Block 3.
5. Fertilizer shall be applied as necessary by vineyard management personnel for both the vineyard and to ensure specified percent vegetative cover crop is achieved. Site-specific soil analysis should be performed.
6. The vineyard avenues shall be mowed only and shall not be disked. Unless otherwise noted, all avenues shall conform to the natural grade. Vineyard avenues shall be seeded and mulched prior to October 15 of the year of construction and in subsequent years in bare or disturbed areas. The cover crop will be managed each year such that any avenues which have less than the percent vegetative cover

specified below will be reseeded and mulched until adequate coverage is achieved. Seeding and mulching is not required on avenues and roads properly surfaced with gravel.

Block with 75% vegetative cover: 1A

Block with 80% vegetative cover: 3

7. The proposed vine by row spacing is expected to be 4' by 8', however in areas where cross-slope exceeds 15% the owner shall increase the row spacing as needed to ensure there is adequate room for equipment. Width of tillage equipment shall be no more than 75% of row width to allow for bench formation and to minimize erosion.
8. The owner has the freedom to further subdivide vineyard blocks within the footprint of the proposed vineyard for irrigation and viticulture purposes. The proposed vinerow directions shall not be altered without an approved modification from Napa County.
9. All existing storm drainage pipelines serving the vineyard areas shall be inspected using closed-circuit video pipeline inspection equipment. Any damaged, plugged, or otherwise compromised areas shall be repaired or replaced as directed by the engineer. Existing storm drain pipeline outlets shall also be located, inspected, and repaired as directed by the Engineer.
10. Irrigation pipelines shall be located within existing roadways, vineyards and vineyard avenues, and/or within proposed clearing limits. Regardless of pipeline location, pipeline trenches located on ground slopes greater than 15% shall be backfilled using imported or select native granular material to a depth of 6 inches above the pipelines such that voids do not form below haunches of pipe. Backfill shall be wheel rolled or otherwise compacted to reduce settlement. Final grading over trenches shall be mounded and water-barred such that water is directed away from trenches.
11. As stated in the Napa County Protocol for Re-Planting/Renewal of Approved Non-Tilled Vineyard Cover Crops dated March 23, 2004, when it becomes necessary, either by routine or emergency, to re-establish or renew vineyard cover crop the following measures should be followed:
  - Seek professional consultation, including soil nutrient analysis, to determine the reasons for the original cover crop's failure. Adjust soil fertility, irrigation and seed selection accordingly.
  - When tillage is necessary, alternate rows should be tilled, seeded, and straw-mulched to effectively accomplish the re-establishment/renewal process over a two-year period.
  - Tillage and re-seeding should be conducted in the following manner:
    - In year 1, till to prepare seed bed and sow desired cover crop in every other row ("the evens"), leaving the alternate rows ("the odds") untilled and mowed only.

- Mulch all tilled rows having an up and down hill (perpendicular to contour) row direction with 3,000 lbs/acre of loose straw, or approved equivalent, after seeding.
- Tilled rows with cross-slope (parallel to contour) row direction and slope gradients less than 15% may not require straw mulch.
- In year 2, till to prepare seed bed and sow desired cover crop in “odd” rows.
- In year 2, leave “even” rows untilled and mowed only.
- Mulch rows tilled in year 2 as specified above.
- Put all re-establishment measures in place by October 15
- In year 3, return all rows to non-tilled culture.

**9. Stormwater stabilization measures, if the development of the site will result in increased peak rates of runoff that may cause flooding or channel degradation downstream.**

- a) No significant increase in quantity or rate of runoff is expected as a result of this project.
- b) Please see hydrology report prepared by consultant March 2021.

**10. An implementation schedule showing the following:**

**a) The proposed clearing, grading, and/or construction schedule.**

DATE	DESCRIPTION
April 1:	Commence clearing and tillage operations.
October 1:	All tillage and erosion control completed. This shall include complete construction of all structural measures required in these blocks which could include drop inlets, surface drainage pipelines, etc.
October 15:	All winterization complete, including seeding, straw mulching, and straw wattle installation.

**b) The proposed schedule for winterizing the site (generally by October 15 of each year the permit is in effect.)**

The site shall be winterized and all necessary erosion control measures described in the Erosion Control Plan shall be installed by October 15.

- c) **The proposed schedule of installation of all interim erosion and sediment control measures, including the stage of completion of such devices at the end of the grading season (generally October 15) of each year the permit will be in effect.**

See Item 10a).

- d) **The schedule for installation of permanent erosion and sediment control devices where required.**

See Item 10a).

**11. The estimated cost of implementation of the erosion and sediment control measures.**

Typical costs for installing erosion control measures as described in this plan range from \$500 to \$1,000 per acre.

**VEEDER RIDGE LLC  
3665 REDWOOD ROAD**

**EROSION CONTROL PLAN**

**STANDARD PROVISIONS**

**SECTION 1 - SCOPE OF WORK**

These specifications cover the construction of the erosion control measures for approximately 2.7 acres of vineyard to be developed by Veeder Ridge LLC.

The drawing numbered 12012501A, Sheets 1 and 2, and these Specifications describe in detail the construction of the complete erosion control system. Requests for further information or clarification of the work to be done can be made to Jim Bushey or Matt Bueno at the Napa office of PPI Engineering, phone (707) 253-1806.

All costs for the complete construction of the erosion control system must be included in the bid items, since no other payment will be made outside of the bid items. This includes all costs for moving onto and off of the job site, all equipment, tools, materials, labor, fuel, taxes, and incidentals for furnishing and installing the erosion control system.

Surveying adequate for construction will be provided by the Owner, at the Owner's expense. The Contractor will be responsible for preserving construction survey stakes and markers for the duration of their intended use. Any restaking costs or additional survey work requested by the Contractor shall be deducted from the final payment to the Contractor. The Owner does not guarantee that the project being bid will be awarded. The Owner also reserves the right to change the quantities of actual work performed as needed with payment made according to the new quantities at the unit price bid.

**SECTION 2 - AUTHORITY OF OWNER AND ENGINEER**

The property is owned by Veeder Ridge LLC. Veeder Ridge LLC or the appointed representative shall have the final say in the event of a dispute with the Contractor.

The Owner shall appoint PPI Engineering as the Engineer to perform periodic review of the work. PPI Engineering shall report any unsatisfactory work to the Owner. The Contractor shall be responsible for any engineering fees or repair costs associated with bringing the unsatisfactory work into compliance with the Plans and Specifications.



### **SECTION 3 - CHANGES IN WORK**

Materials and the manner of performance of the work performed in this contract shall be according to the Plans and Specifications. Modifications to the Plans or Specifications shall be agreed upon in writing by the Contractor, Owner, and Engineer before the work in question is performed. Materials and construction methods shall be as specified on the Plans and Specifications. The burden of proof that a given material or method constitutes an equivalent to the one specified will rest with the Contractor.

### **SECTION 4 - UTILITIES**

At least two working days prior to beginning any excavation on the project, the Contractor shall contact Underground Service Alert (USA) at 1-800-642-2444 and request field location of all existing utilities.

Certain facilities at the site are existing. The Contractor shall be careful to avoid damaging existing facilities and shall notify the Owner immediately if any damage does occur. The cost of repairing any damage shall be the sole responsibility of the Contractor.

### **SECTION 5 - PROSECUTION OF THE WORK**

Unless otherwise provided, the contract time shall commence upon issuance of a Notice to Proceed by the Owner. The work shall start within ten days thereafter and be diligently prosecuted to completion within the time specified in the Contractor's bid. If weather conditions prevent completion of the project within the specified amount of time, the Owner may extend the completion date of the project.

### **SECTION 6 - RESPONSIBILITIES OF THE CONTRACTOR**

The Contractor agrees that in accordance with generally accepted construction practices, Contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the project, including the safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours. Contractor further agrees to defend, indemnify and hold design professional harmless from any and all liability, real or alleged, in connection with the performance of the work on this project, excepting liability arising from the sole negligence of design professional.

The Contractor shall be responsible for controlling dust and mud generated from construction activities. The Contractor shall not allow dust or mud to obstruct vehicular traffic on County roads or State Highways. The Contractor shall be responsible for cleaning all vehicles prior to leaving the site as required by the California Highway Patrol. The Contractor, at their own expense, shall provide adequate dust control and prevention of mud tracking on roads, and take other preventative measures as directed by the Owner.

The Contractor shall be responsible for following all safety laws that may be applicable. Of particular concern are the trench safety regulations issued by CAL-OSHA. The Contractor alone shall be responsible for the safety of their equipment and methods and for any damage or injury which may result from their failure, improper construction, maintenance, or operation.

The Contractor shall be responsible for installing necessary sediment retention measures to keep sediment from leaving the site if construction activities continue beyond October 1.

The Contractor shall keep the work site clean and free of rubbish and debris throughout the project. Materials and equipment shall be removed from the site as soon as they are no longer necessary or the project is completed.

The Contractor shall also be responsible for ensuring that all permits which are necessary for construction have been obtained and that copies of these permits are maintained onsite at all times.

The Contractor shall, at their own expense, furnish all necessary light, power, pumps, and water necessary for the work.

## **SECTION 7 - MEASUREMENT AND PAYMENT**

Payment shall be made at the unit prices bid according to the actual quantities installed. Measurement of the final quantities shall be the responsibility of the Owner's Engineer.

The Engineer shall periodically observe the project during construction and upon completion of the project any unfinished or unacceptable work observed will be brought to the Contractor's attention verbally and in writing. Final payment will be made upon satisfactory completion of all work items required by these Plans and Specifications.

## **SECTION 8 - GUARANTEE**

In addition to the guarantees from suppliers, the Contractor shall guarantee the work he performs for a period of two years. Any repairs needed to the system within two years of completion due to faulty workmanship or materials shall be promptly repaired at no expense to the Owner. Any costs incurred by the Owner and/or Engineer within two years of completion due to rubbish or debris placed in a trench or other excavation shall be paid by the Contractor.

Unless otherwise provided in writing, payment by the Owner to the Contractor for installation of this system shall constitute acceptance of all provisions in this document by the Contractor.

**VEEDER RIDGE LLC  
3665 REDWOOD ROAD**

**EROSION CONTROL PLAN**

**SPECIAL PROVISIONS**

**SECTION 1 - SURFACE DRAINAGE PIPE**

**1.1 GENERAL:**

Surface drainage pipelines shall be installed to collect surface runoff at low points throughout the project area and transport it to a protected outlet, as shown in Detail 2, Sheet 2.

**1.2 MATERIALS:**

Surface drainage pipelines shall be constructed of solid corrugated polyethylene pipe (CPP) as shown on the Plans. Corrugated plastic pipe for use as surface drainage pipelines shall meet the standards of ASTM F667 and AASHTO M294, as applicable. Bent or damaged pipe shall not be used in the drainage system and shall be removed from the job site.

Pipe connections shall be made with fittings manufactured by the same manufacturer who made the pipe. All connections shall be securely fastened and the resulting connection shall not have gaps greater than 1/8 inch wide.

Gravel envelope bedding material may be volcanic rock or other granular material as approved by the Engineer. It shall be free of organic matter, clay, or other material which could prevent it from flowing uniformly around the pipe. One hundred percent of the material must pass the 1-1/2" clear square openings. Ninety to one hundred percent must pass through the 3/4" clear square openings. No more than 3% may pass the #200 U.S. Standard Sieve.

Gravel envelope bedding material may be volcanic rock. It shall be free of organic matter, clay, or other material, which could decrease its hydraulic conductivity with time. One hundred percent of the material must pass the 1-1/2" clear square openings. Ninety to one hundred percent must pass through the 3/4" clear square openings. At least 50% must pass through the 3/8" clear square openings. No more than 15% may pass the #20 U.S. Standard Sieve. At least 8% must pass the #60 U.S. Standard Sieve. No more than 3% may pass the #200 U.S. Standard Sieve.

Gravel envelope material may also be a blend of clean hard sand and gravel. It shall be free of organic matter, clay, or other material that would decrease its hydraulic conductivity with time. The material shall be well graded. The coefficient of uniformity ( $D_{60}/D_{10}$ ) must be greater than 4, and the coefficient of curvature ( $(D_{30}^2)/(D_{10} \times D_{60})$ ) must be between 1 and 3. One hundred percent must pass the 1/2" clear square openings. No more than 5% may pass the #100 U.S. Standard Sieve. An example of this material would be 80% 3/8 crushed rock and 20% washed concrete sand.

Alternative bedding material may be approved by the Engineer. A sample and sieve analysis of the proposed material must be submitted to the Engineer at least 2 days prior to delivering material to

the job site. It will be the responsibility of the Contractor to remove and dispose of all envelope material not used on the project.

### 1.3 INSTALLATION:

The Contractor may use a trencher, or drainage plow with vertical soil displacement or backhoe/excavator for the excavation and placement of the surface drainage pipe as dictated by soil conditions. The operator shall be skillful in laying the tubing. Grade control may be established by visual control with grade stakes set no more than 100 feet apart or by laser control with grade stakes set no more than 200 feet apart.

Construction staking shall be provided by the Owner's Engineer. The slope, alignment, and depth of placement of the tubing shall be as shown on the Plans and as staked in the field. A minimum cover of 4.0 feet must be provided, unless otherwise staked in the field by Engineer.

A gradual variation of no more than 0.10 foot from grade will be allowed where slopes are 2% or less. Where slopes are greater than 2%, a gradual variation of no more than 0.20 foot from grade will be allowed. No reverse grade will be allowed. A gradual variation of no more than 1 foot from design alignment is allowed.

Stretching of the tubing should be avoided during installation. No more than 10% stretch will be allowed.

Cobbles and rocks may be present on the project site. The Contractor shall take necessary actions to work around the cobbles and rocks at their own expense.

### 1.4 BEDDING AND BACKFILL:

Surface drainage piping shall be backfilled with approved gravel envelope material to a depth of at least 3 inches above the pipe. The trench bottom shall be continuous, firm, relatively smooth, and free of rocks or other objects larger than 1 inch. Pipe may be placed directly on the bottom of the trench. Care shall be taken to ensure that bedding material completely surrounds the pipe.

Surface drainage piping shall be backfilled with approved gravel envelope material. The trench bottom shall be continuous, firm, relatively smooth, and free of rocks or other objects larger than 1 inch. Bedding shall be provided around the pipe and shall be compacted to 90% in the haunching area.

Rocks or clods shall not be allowed to fall upon or otherwise strike the pipe during any phase of construction. No rocks larger than 6" may be placed within 12" of the pipe. Final backfill shall be placed and spread in approximately uniform layers to fill the trench completely. Rolling equipment or heavy tampers shall not be used to consolidate backfill.

Where pipe is installed under all-weather roads, backfill shall be Class II Aggregate Base compacted to 90% per ASTM D1557. Road surface shall be regraded or paved as necessary to match original conditions.

## **SECTION 2 – STANDARD DROP INLET**

### **2.1 GENERAL:**

Existing standard drop inlets shall be repaired or replaced as needed in the location shown on the plans and according to Detail 3, Sheet 2. If upon inspection, the Engineer determines that replacement of the drop inlet is required, the drop inlet shall be replaced in accordance with the provisions outlined in Subsections 2.2 and 2.3 below.

### **2.2 MATERIALS:**

Drop inlet risers shall be galvanized, 14-gauge corrugated metal pipe (CMP) or dual wall corrugated polyethylene pipe (DW) of the diameter shown on the Plans and/or Specifications.

Grates shall be Agri Drain Bar Guard or equal.

Concrete for the bottom of the inlet shall be Portland Cement concrete, 2,000 psi minimum compressive strength.

### **2.3 INSTALLATION:**

Standard Drop inlets shall be constructed as shown on the detail sheet and as staked in the field by the Engineer. Connector pipes shall be mortared in place to form a watertight seal. Grates shall be bolted or locked to drop inlet riser. Backfill around the inlet shall be compacted to 90% such that excessive settlement does not occur.

## **SECTION 3 - TEMPORARY MEASURES**

### **3.1 GENERAL:**

Temporary erosion control measures shall be constructed by the Owner. These measures can include water bars, straw wattles, straw mulching, straw bale dikes, and other practices as needed. The measures shall be constructed in conformance with the detail drawings and maintained in a functional condition throughout the rainy season.

## **SECTION 4 - MAINTENANCE**

### **4.1 GENERAL:**

The erosion control measures described in these specifications and shown on the plans and details require regular maintenance in order to function as intended. Vineyard management personnel shall assure that the erosion control measures are monitored throughout the rainy season each year and necessary repairs and/or maintenance are performed immediately. Maintenance operations shall include, but not be limited to the following activities.

### **4.2 DROP INLETS:**

Drop inlets are designed with trash racks at the ground surface. Debris shall be removed from trash racks after each storm event or as necessary to assure a clear flow path for water entering the drop inlet and for an unobstructed flow of water out of the overflow structure. Damaged trash racks shall be repaired immediately in order to assure that unacceptable quantities of debris do not enter the storm drainage piping system.

### **4.3 STRAW WATTLES:**

Straw wattles shall be monitored and repaired as needed to ensure water does not run under the wattle or between adjacent wattles. Should excessive erosion cause the wattle to fill with sediment, this material shall be removed to a protected location and the source of the sediment located and protected as needed.

## **APPENDIX A**

### **PHOTOGRAPHIC DOCUMENTATION**





**Photo 1**

8/4/2020



**Photo 2**

8/4/2020



## **APPENDIX B**

### **USLE CALCULATIONS**

PPI Engineering

Napa County  
Maximum Length of Slope  
for a soil loss of 5 tons per acre

NAME: Veeder Ridge LLC

DATE: 10/8/20

Cover Type: Permanent Cover Crop

Soil Unit No. (100-182)--- 113

Soil Name Bressa-Dibble

-K= 0.43

-R= 65

-T= 3

Percent Cover		65% Up & Down Hill	70% Up & Down Hill	75% Up & Down Hill	80% Up & Down Hill	85% Up & Down Hill	90% Up & Down Hill
		C= 0.058 P= 1.0	C= 0.046 P= 1.0	C= 0.034 P= 1.0	C= 0.022 P= 1.0	C= 0.015 P= 1.0	C= 0.010 P= 1.0
P E R C E N T S L O P E	2	902,230	1,953,819	5,351,559	22,838,476	81,866,201	316,282,317
	4	16,543	29,532	62,877	186,695	486,365	1,340,264
	6	2,109	3,353	6,138	14,660	31,535	70,954
	8	971	1,544	2,826	6,751	14,522	32,674
	10	518	824	1,508	3,602	7,747	17,431
	12	314	499	913	2,180	4,688	10,549
	14	206	327	598	1,429	3,075	6,918
	16	143	227	416	994	2,139	4,813
	18	104	166	303	724	1,558	3,505
	20	79	125	229	547	1,176	2,646
	22	61	97	178	425	914	2,057
	24	49	77	142	339	729	1,640
	26	40	63	115	276	593	1,334
	28	33	52	96	228	491	1,105
	30	28	44	80	192	413	930
	32	24	37	69	164	352	793
	34	20	32	59	141	304	684
	36	18	28	52	123	265	597
	38	16	25	46	109	234	526
	40	14	22	40	97	208	468
	42	12	20	36	87	186	419
	44	11	18	33	78	168	378
	46	10	16	30	71	153	343
	48	9	15	27	65	139	314
	50	9	14	25	60	128	288

NOTES:

C=Cover and Management Factor

P=Practice Factor

PPI Engineering

Napa County  
Maximum Length of Slope  
for a soil loss of 5 tons per acre

NAME: Veeder Ridge LLC

DATE: 10/8/20

Cover Type: Permanent Cover Crop

Soil Unit No. (100-182)--- 136

Soil Name Felton

-K= 0.15

-R= 65

-T= 3

Percent Cover		65% Up & Down Hill	70% Up & Down Hill	75% Up & Down Hill	80% Up & Down Hill	85% Up & Down Hill	90% Up & Down Hill
		C= 0.058 P= 1.0	C= 0.046 P= 1.0	C= 0.034 P= 1.0	C= 0.022 P= 1.0	C= 0.015 P= 1.0	C= 0.010 P= 1.0
	2	30,193,024	65,384,300	179,089,211	764,286,604	2,739,641,685	10,584,346,333
	4	230,178	410,903	874,855	2,597,626	6,767,141	18,648,048
	6	17,333	27,556	50,440	120,472	259,149	583,086
	8	7,982	12,689	23,227	55,476	119,335	268,504
	10	4,258	6,770	12,392	29,596	63,665	143,246
	12	2,577	4,097	7,499	17,911	38,528	86,689
P	14	1,690	2,687	4,918	11,746	25,267	56,850
E	16	1,176	1,869	3,422	8,172	17,580	39,554
R	18	856	1,361	2,492	5,951	12,801	28,802
C	20	646	1,028	1,881	4,493	9,664	21,745
E	22	503	799	1,463	3,493	7,515	16,908
N	24	401	637	1,166	2,784	5,988	13,474
T	26	326	518	948	2,265	4,872	10,963
S	28	270	429	786	1,876	4,036	9,081
	30	227	361	661	1,578	3,395	7,639
L	32	194	308	564	1,346	2,895	6,515
O	34	167	266	486	1,162	2,499	5,623
P	36	146	232	424	1,014	2,181	4,907
E	38	129	204	374	893	1,921	4,323
	40	114	182	332	794	1,708	3,842
	42	102	163	298	711	1,530	3,442
	44	92	147	269	642	1,381	3,106
	46	84	133	244	583	1,254	2,822
	48	77	122	223	533	1,146	2,579
	50	70	112	205	490	1,054	2,371

NOTES:

C=Cover and Management Factor

P=Practice Factor

## **APPENDIX C**

### **VEGETATION RETENTION CALCULATIONS**

**VEEDER RIDGE LLC  
3665 REDWOOD ROAD**

**3:1 Tree Preservation Calculations**

	APN 035-080-027
Proposed Clearing Limits (acres)	3.1
Trees Existing in 2016 (acres) <sup>1</sup>	19.30
Trees Currently Proposed to be Removed (acres)	0.06
Tree Canopy Previously Removed (acres) <sup>2</sup>	0.29
Acreage Required for 3:1 Tree Preservation	1.05
Trees Currently Available for Preservation on Less than 50% Slopes Outside Setbacks on Parcel (acres)	19.27
Tree Canopy Preserved (percent)	98%
Acreage Available to Meet 3:1 Tree Preservation?	Yes

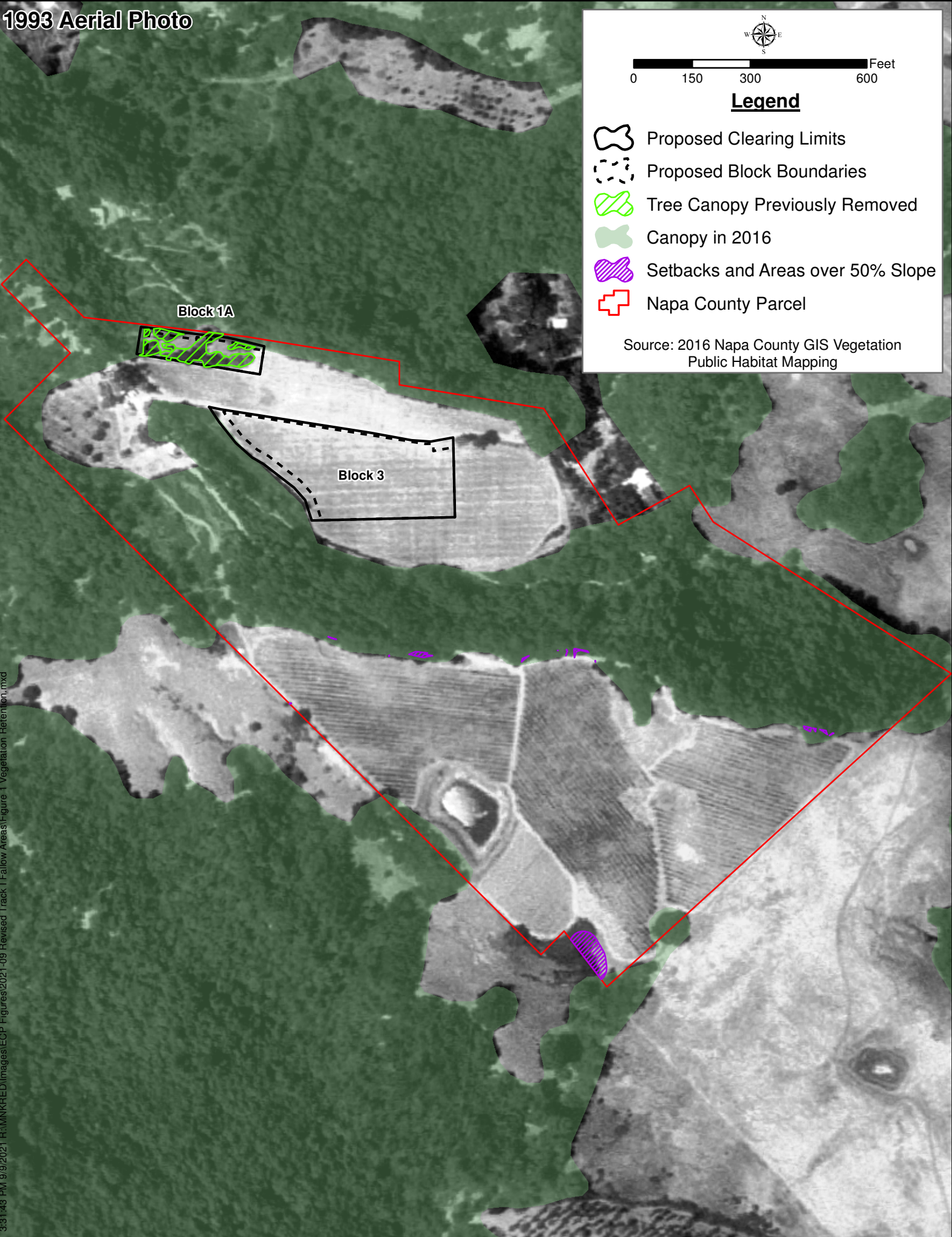
Notes:

1. Source: County Shapefile
2. 'Tree Canopy Previously Removed' was calculated from 1993 Napa County Aerial Photo.

Some rounding may occur



1993 Aerial Photo



2018 Aerial Photo



3/31/43 PM 9/9/2021 R:\MNRKRED\Images\ECF Figures\2021-09 Revised Track 1 Fallow Areas\Figure 1 Vegetation Retention.mxd



## **APPENDIX D**

### **SLOPE CALCULATIONS**

**VEEDER RIDGE LLC  
3665 REDWOOD ROAD**

**Average Slope Of Proposed Vineyard Blocks**

<b>Block</b>	<b>Gross Acres</b>	<b>Net Acres</b>	<b>Slope #1</b>	<b>Slope #2</b>	<b>Average slope</b>
1A	0.6	0.5	23%	26%	25%
3	2.5	2.2	11%	13%	12%
<b>Total</b>	<b>3.1</b>	<b>2.7</b>			<b>19%</b>



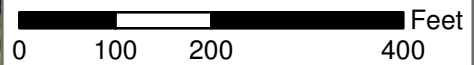
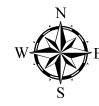
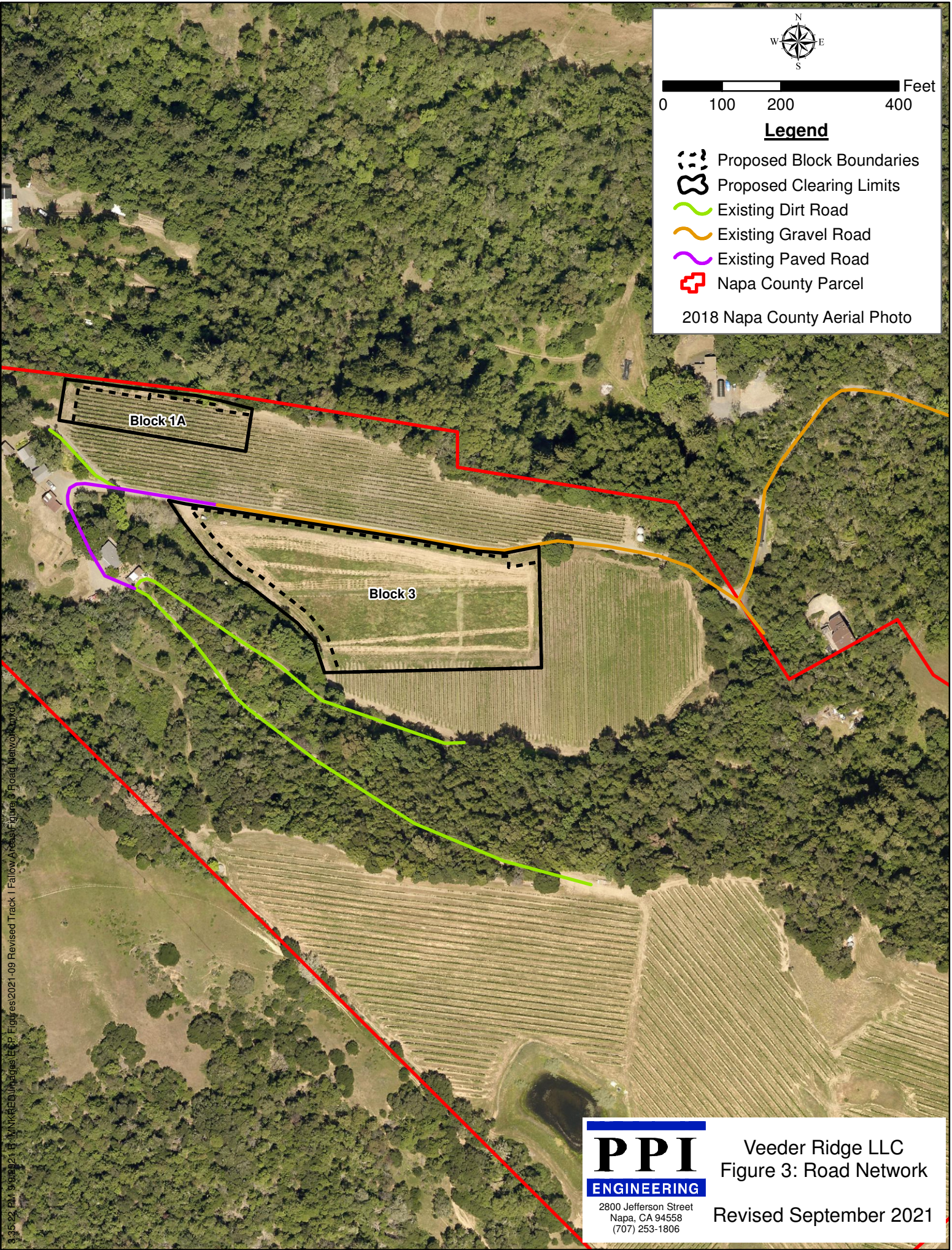
## **APPENDIX E**

### **SUPPORTING FIGURES**









**Legend**

- Proposed Block Boundaries
- Proposed Clearing Limits
- Existing Dirt Road
- Existing Gravel Road
- Existing Paved Road
- Napa County Parcel

2018 Napa County Aerial Photo

Block 1A

Block 3



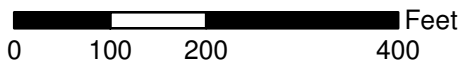
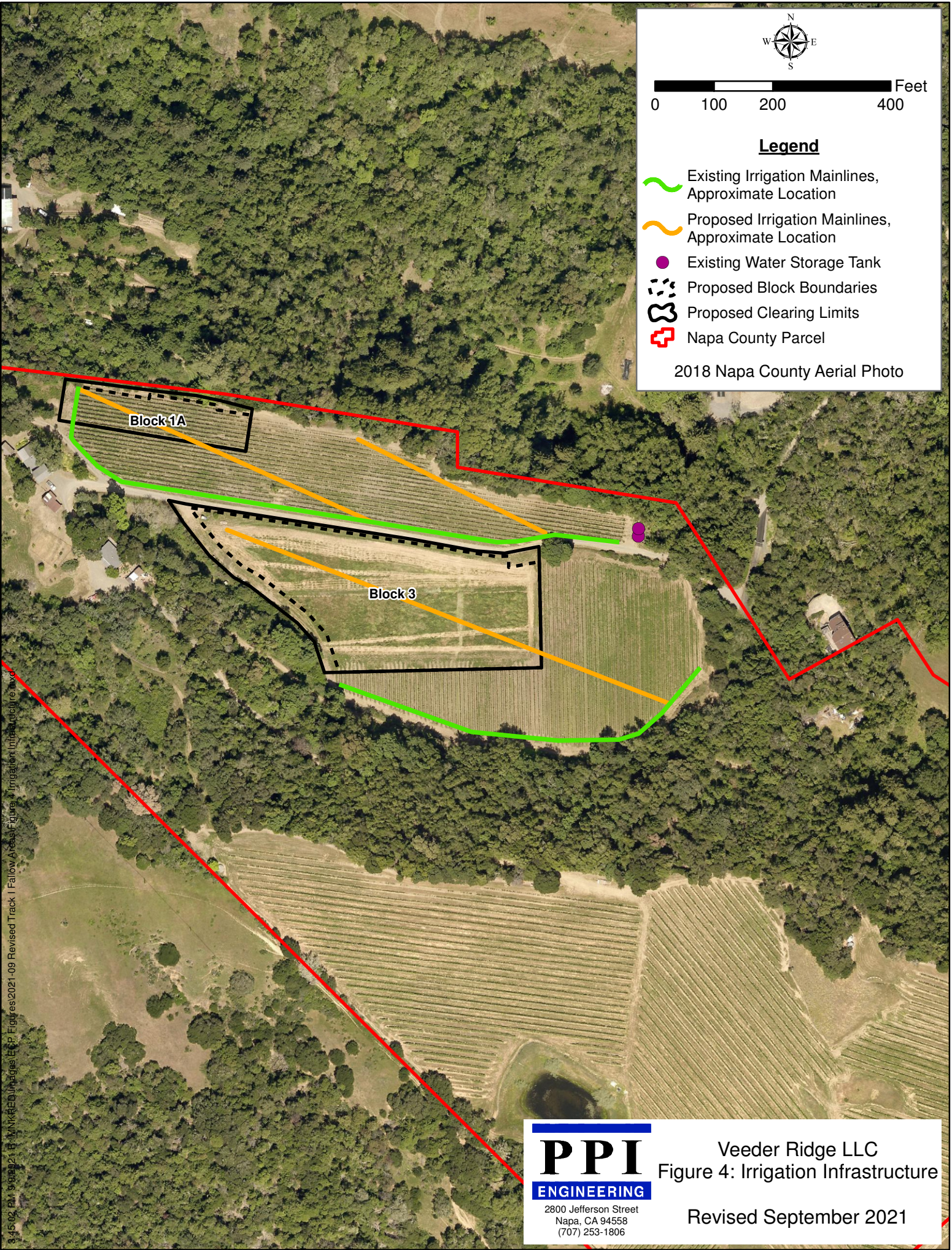
2800 Jefferson Street  
Napa, CA 94558  
(707) 253-1806

Veeder Ridge LLC  
Figure 3: Road Network

Revised September 2021

3.35.22 PM 9/9/21 B:\MNR\RED\Images\ESP Figures\2021-09 Revised Track 1 Fallow Areas\Figure 3 Road Network.mxd





**Legend**

- Existing Irrigation Mainlines, Approximate Location
- Proposed Irrigation Mainlines, Approximate Location
- Existing Water Storage Tank
- Proposed Block Boundaries
- Proposed Clearing Limits
- Napa County Parcel

2018 Napa County Aerial Photo

Block 1A

Block 3



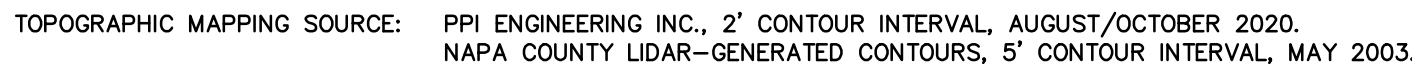
2800 Jefferson Street  
Napa, CA 94558  
(707) 253-1806

Veeder Ridge LLC  
Figure 4: Irrigation Infrastructure

Revised September 2021

3:45:02 PM 9/9/2021 B:\MNR\RED\Images\ESP Figures\2021-09 Revised Track 1 Fallow Areas\Figure 4 Irrigation Infrastructure.mxd





- USDA SOIL CLASSIFICATIONS:

- 113 BRESSA-DIBBLE COMPLEX, 15-30% SLOPES
- 136 FELTON GRAVELLY LOAM, 30-50% SLOPES



USGS NAPA & SONOMA QUADRANGLES  
TOWNSHIP 6 N., RANGE 5 W.  
SCALE: 1" = ±2000'

NOTES:

1. OWNER: VEEDER RIDGE LLC  
SITE ADDRESS: 3665 REDWOOD ROAD  
APN: 035-080-027  
TOWNSHIP 6 N., RANGE 5 W.  
SCALE: 1" = ±2000'
2. ACCESS TO PROJECT IS FROM REDWOOD ROAD. THE SITE IS GATED AND LOCKED. ADMITTANCE IS AVAILABLE UPON REQUEST.
3. EXISTING VEGETATION CONSISTS OF FALLOW PASTURE.
4. DISTURBED AREAS SHALL BE SEED AS DESCRIBED BELOW. STRAW MULCH SHALL BE APPLIED TO ALL DISTURBED AREAS AT A RATE OF 3,000 LBS/ACRE PRIOR TO OCTOBER 15 OF THE YEAR OF CONSTRUCTION.

5. PERMANENT COVER CROP (NO-TILL):  
A PERMANENT COVER CROP STRATEGY WILL BE UTILIZED. THE PERMANENT COVER CROP WILL BE GENERATED THE FIRST YEAR BY SEEDING WITH THE FOLLOWING MIX:

VARIETY	RATE (LBS/ACRE)
DWARF BARLEY	50
BLANDO BROME	8
ZORRO FESCUE	12
CRIMSON CLOVER	6

A PRE-APPROVED ALTERNATIVE SEED MIX MAY BE ALLOWED.

THE PERMANENT COVER CROP WILL BE MANAGED EACH YEAR SUCH THAT ANY AREAS WHICH HAVE LESS THAN THE PERCENT VEGETATIVE COVER SPECIFIED BELOW WILL BE RESEEDED AND MULCHED UNTIL ADEQUATE COVERAGE IS ACHIEVED. THE PERMANENT COVER CROP SHALL BE MOWED ONLY AND NOT DISKED.

BLOCK WITH 75% VEGETATIVE COVER: 1A  
BLOCK WITH 80% VEGETATIVE COVER: 3

3. THE OWNER HAS THE OPTION OF USING A DWARF BARLEY COVER CROP IN THE FIRST THREE YEARS THAT THE BLOCK IS PLANTED TO AID WITH VINEYARD ESTABLISHMENT. THIS OPTION IS USED, SEED SHALL BE APPLIED AT A RATE OF 120 LBS/ACRE IF BROADCAST OR AT A RATE OF 60 LBS/ACRE IF DRILLED. THE COVER CROP WITHIN THE VINEYARD MAY BE DISKED EACH SPRING AFTER APRIL 1 FOR THE FIRST THREE YEARS. AN ALTERNATIVE COVER CROP SEED MIX MAY BE USED UPON PRIOR APPROVAL. EACH YEAR THE OWNER CHOOSES TO DISK, THE AREA SHALL BE STRAW MULCHED AT A RATE OF 3,000 LBS/ACRE AND STRAW WATTELS SHALL BE INSTALLED PRIOR TO OCTOBER 15. THE PERMANENT SEED MIX WILL BE SEED PRIOR TO OCTOBER 15 OF THE FOURTH (OR EARLIER) YEAR.
7. NO PRE-EMERGENT HERBICIDES WILL BE USED FOR WEED MANAGEMENT. CONTACT OR SYSTEMIC HERBICIDES MAY BE APPLIED IN SPRING (NO EARLIER THAN FEBRUARY 15TH TO ENSURE ADEQUATE VEGETATIVE COVER IN THE SPRAY STRIPS FOR THE REMAINDER OF THE RAINY SEASON). THE WIDTH OF THE SPRAY STRIP SHALL BE NO WIDER THAN 1.5' IN ORDER TO ACHIEVE 75% VEGETATIVE COVER IN BLOCK 1A. THE WIDTH OF THE SPRAY STRIP SHALL BE NO WIDER THAN 1 FOOT IN ORDER TO ACHIEVE 80% VEGETATIVE COVER IN BLOCK 3.
8. FERTILIZER SHALL BE APPLIED AS NECESSARY BY VINEYARD MANAGEMENT PERSONNEL FOR BOTH THE VINEYARD AND TO ENSURE SPECIFIED PERCENT VEGETATIVE COVER CROP IS ACHIEVED. SITE-SPECIFIC SOIL ANALYSIS SHOULD BE PERFORMED.
9. THE VINEYARD AVENUES SHALL BE MOWED ONLY AND SHALL NOT BE DISKED. UNLESS OTHERWISE NOTED, ALL AVENUES SHALL CONFORM TO THE NATURAL GRADE. VINEYARD AVENUES SHALL BE SEEDED AND MULCHED PRIOR TO OCTOBER 15 OF THE YEAR OF CONSTRUCTION AND IN SUBSEQUENT YEARS IN BARE OR DISTURBED AREAS. THE COVER CROP WILL BE MANAGED EACH YEAR SUCH THAT ANY AVENUES WHICH HAVE LESS THAN THE PERCENT VEGETATIVE COVER SPECIFIED BELOW WILL BE RESEEDED AND MULCHED UNTIL ADEQUATE COVERAGE IS ACHIEVED. SEEDING AND MULCHING IS NOT REQUIRED ON AVENUES AND ROADS PROPERLY SURFACED WITH GRAVEL.

BLOCK WITH 75% VEGETATIVE COVER: 1A

BLOCK WITH 80% VEGETATIVE COVER: 3
10. THE PROPOSED VINE BY ROW SPACING IS EXPECTED TO BE 4' BY 8', HOWEVER IN AREAS WHERE CROSS-SLOPE EXCEEDS 15% THE OWNER SHALL INCREASE THE ROW SPACING AS NEEDED TO ENSURE THERE IS ADEQUATE ROW FOR EQUIPMENT. WIDTH OF TILLAGE EQUIPMENT SHALL BE NO MORE THAN 75% OF ROW WIDTH TO ALLOW FOR BENCH FORMATION AND TO MINIMIZE EROSION.
11. THE OWNER HAS THE FREEDOM TO FURTHER SUBDIVIDE VINEYARD BLOCKS WITHIN THE FOOTPRINT OF THE PROPOSED VINEYARD FOR IRRIGATION AND VITICULTURE PURPOSES. THE PROPOSED VINEYARD DIRECTIONS SHALL NOT BE ALTERED WITHOUT AN APPROVED MODIFICATION FROM NAPA COUNTY.
12. ALL EXISTING STORM DRAINAGE PIPELINES SERVING THE VINEYARD AREAS SHALL BE INSPECTED USING CLOSED-CIRCUIT VIDEO PIPELINE INSPECTION EQUIPMENT. ANY DAMAGED, PLUGGED, OR OTHERWISE COMPROMISED AREAS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER. EXISTING STORM DRAIN PIPELINE OUTLETS SHALL ALSO BE LOCATED, INSPECTED AND REPAIRED AS DIRECTED BY THE ENGINEER.
13. THE LOCATION OF THE EXISTING RESERVOIR, THE PROPOSED WATER SOURCE, IS SHOWN ON THE VICINITY MAP.
14. THE PROJECT IS CURRENTLY DEER FENCED. NO ADDITIONAL DEER FENCE IS NEEDED FOR THE PROPOSED VINEYARD. SEE APPENDIX E FOR THE EXISTING DEER FENCE MAP. REQUESTS FOR FURTHER INFORMATION, CLARIFICATION OF WORK TO BE DONE, OR INSPECTION INFORMATION CAN BE MADE TO JIM BUSHEY OR MATT BUENO AT PPI ENGINEERING IN NAPA, (707) 253-1806.
16. PROPERTY LINES AS SHOWN ARE APPROXIMATE. OWNER SHALL BE RESPONSIBLE FOR SURVEYING PROPERTY LINE(S) AS NECESSARY PRIOR TO ANY SITE DISTURBANCE.
17. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS.
18. AT LEAST 48 HOURS PRIOR TO EXCAVATING, THE CONTRACTOR SHALL CALL UNDERGROUND SERVICES ALERT (U.S.A.) AT 1-800-642-2444 IN ORDER TO LOCATE EXISTING UTILITIES. IT IS THE OWNER'S RESPONSIBILITY TO LOCATE ANY ADDITIONAL UNDERGROUND UTILITIES THAT MAY HAVE NOT BEEN INSTALLED "IN-HOUSE" OR BY PRIVATE CONTRACTORS AND THEREFORE MAY NOT BE LOCATED THROUGH UNDERGROUND SERVICE ALERT.
19. IT IS THE OWNER'S RESPONSIBILITY TO INSTALL ALL STRUCTURAL MEASURES AS SHOWN ON THE SITE PLAN AND DETAILS AND AS DESCRIBED IN THE SPECIFICATIONS WITHIN THE TIME FRAMES SPECIFIED FOR THIS PROJECT. ANY DEVIATION FROM THESE PLANS MUST BE REVIEWED AND APPROVED BY NAPA COUNTY PLANNING, BUILDING AND ENVIRONMENTAL SERVICES DEPARTMENT. IT IS THE OWNER'S RESPONSIBILITY TO INITIATE THIS MODIFICATION PROCESS. PPI ENGINEERING MUST BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF ANY CONSTRUCTION IN ORDER TO SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE OWNER/MANAGER AND CONTRACTOR(S). FOR ONGOING MULTI-YEAR PROJECTS PPI ENGINEERING MUST BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF RESUMING CONSTRUCTION EACH YEAR.



VEEDER RIDGE LLC  
3665 REDWOOD ROAD

## TRACK 1 EROSION CONTROL PLAN

# SITE PLAN

DESIGN ENGINEER:

J. BUSHEY, S. MOOSE

SCALE:

AS SHOWN

DRAWN BY:

SM

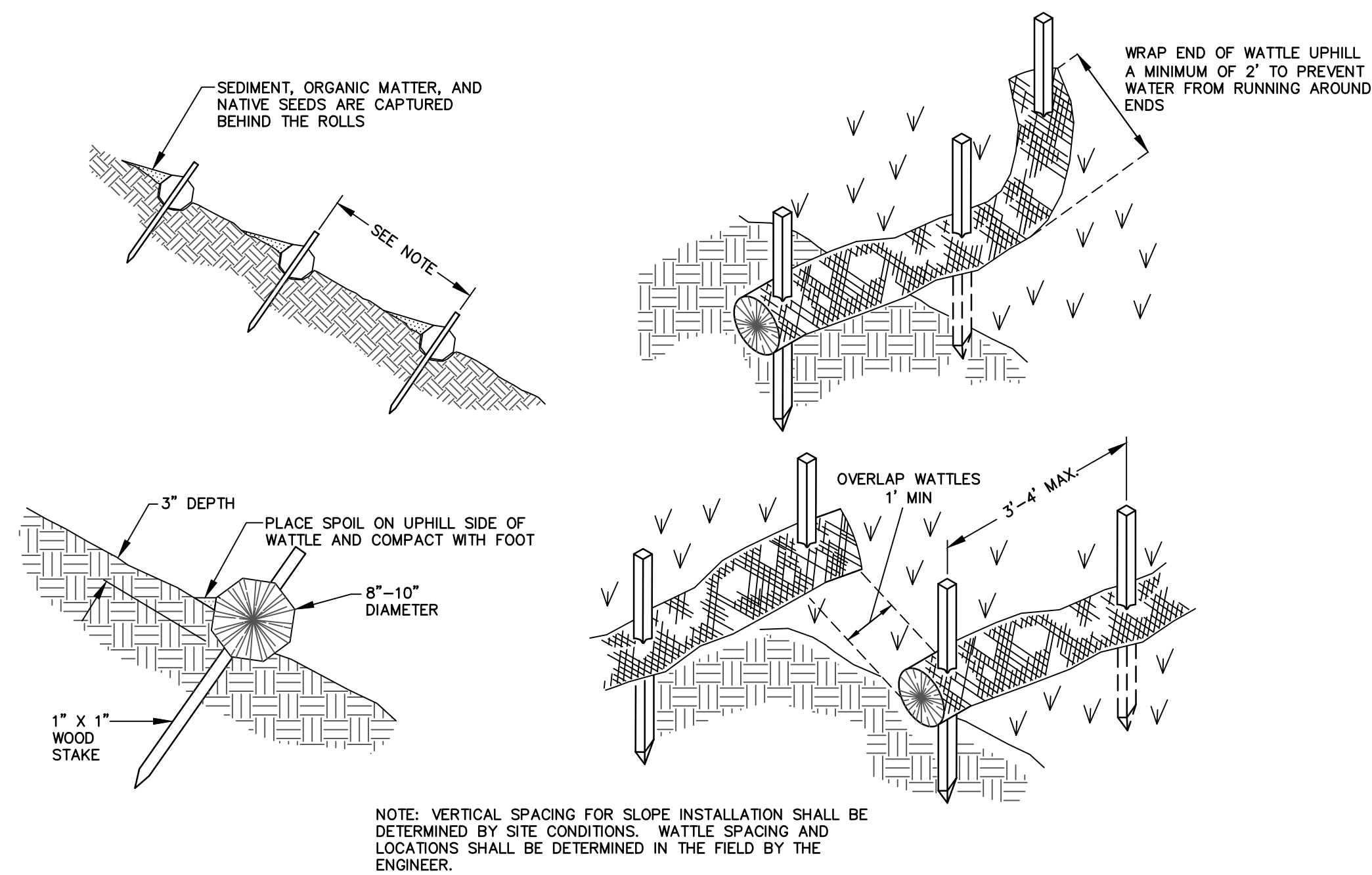
DATE:

5-6-21

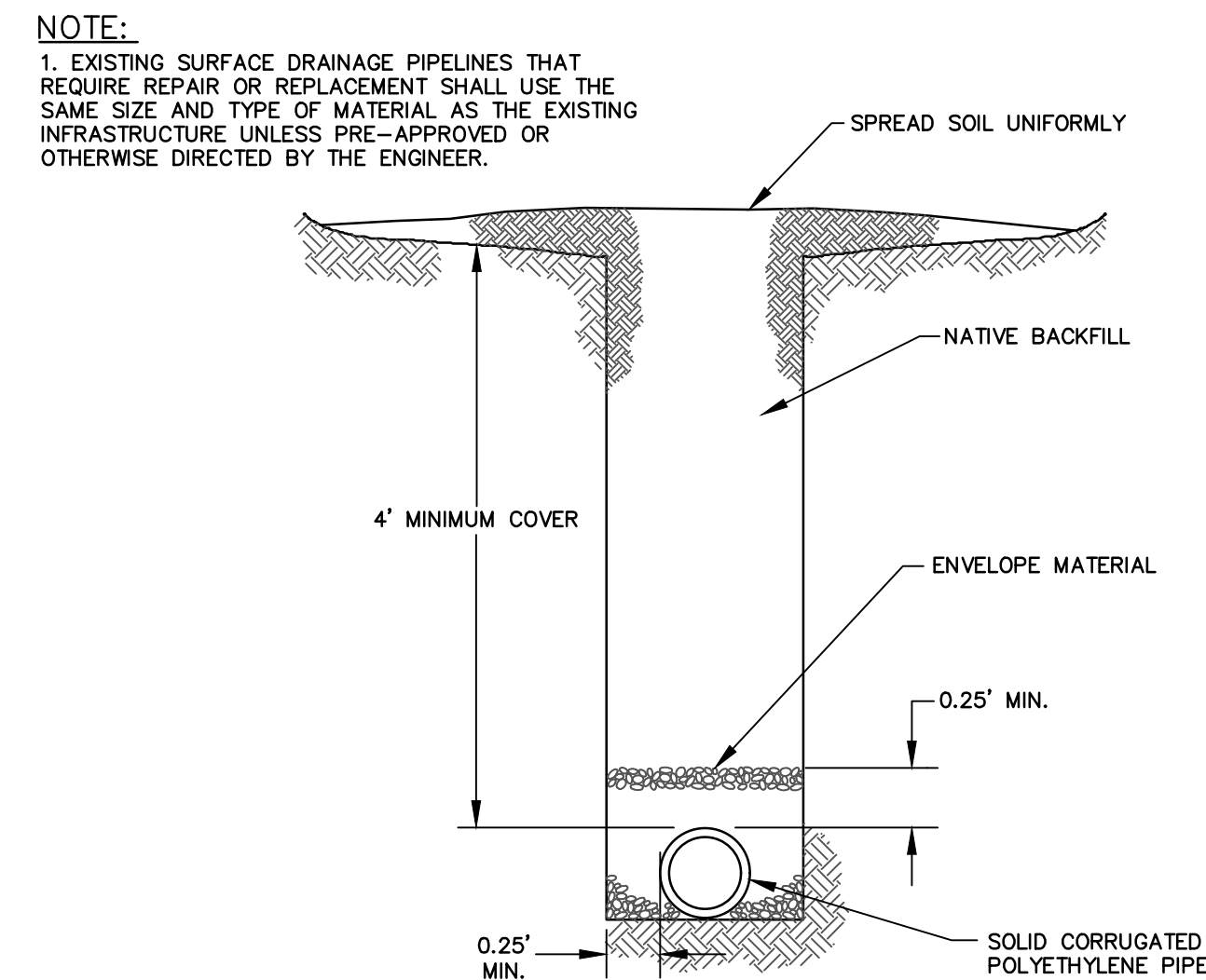
SHEET: 1

OF: 2



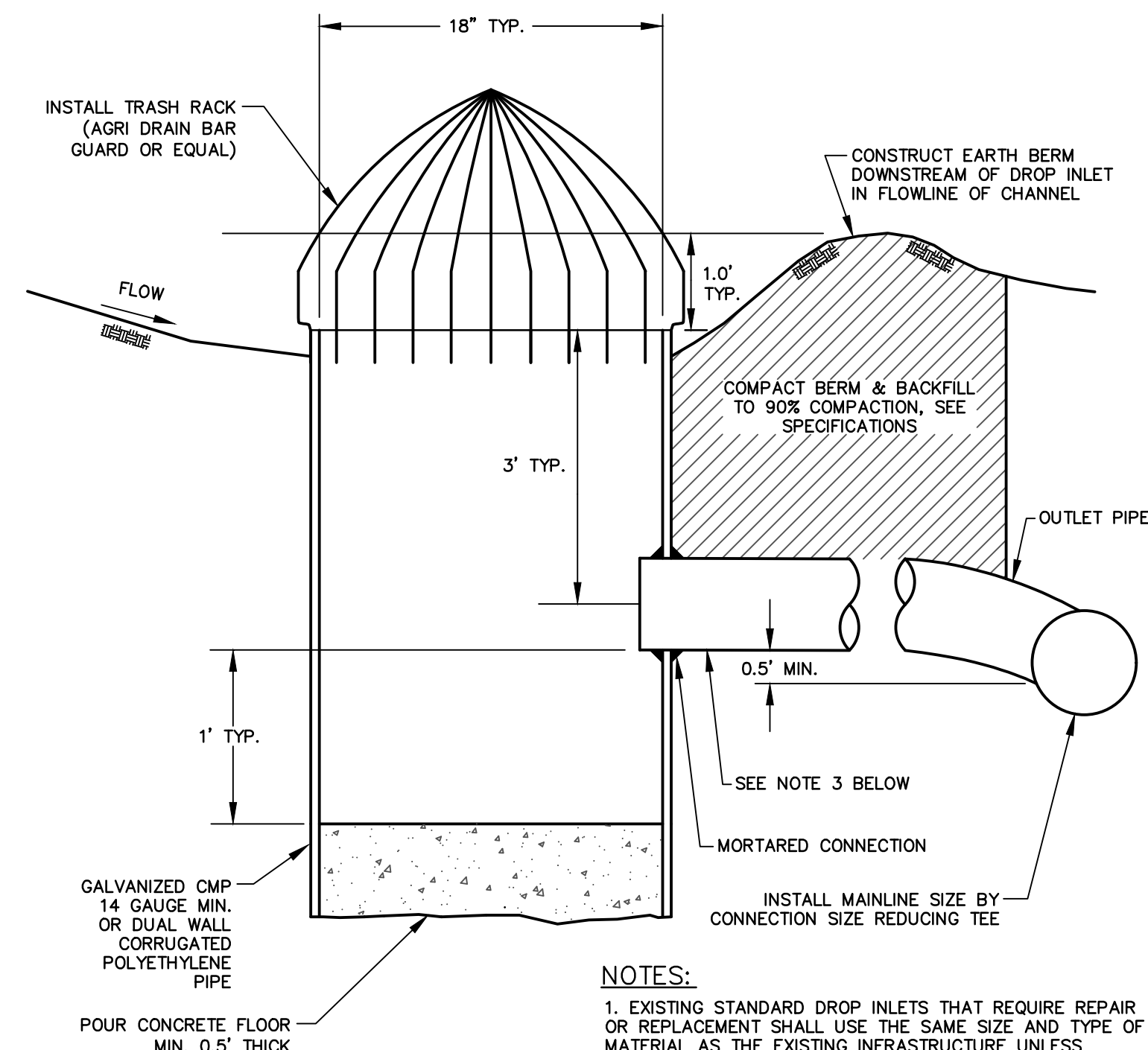


1  
2 STRAW WATTLE INSTALLATION  
N.T.S.



NOTE:  
1. EXISTING SURFACE DRAINAGE PIPELINES THAT REQUIRE REPAIR OR REPLACEMENT SHALL USE THE SAME SIZE AND TYPE OF MATERIAL AS THE EXISTING INFRASTRUCTURE UNLESS PRE-APPROVED OR OTHERWISE DIRECTED BY THE ENGINEER.

2  
2 SURFACE DRAINAGE PIPE  
N.T.S.



NOTES:  
1. EXISTING STANDARD DROP INLETS THAT REQUIRE REPAIR OR REPLACEMENT SHALL USE THE SAME SIZE AND TYPE OF MATERIAL AS THE EXISTING INFRASTRUCTURE UNLESS PRE-APPROVED OR OTHERWISE DIRECTED BY THE ENGINEER.  
2. LOCATE DROP INLET IN VINEROW IF INLET IS LOCATED WITHIN THE VINEROW. CONSTRUCT BERM TO DIRECT WATER TO DROP INLET.  
3. NO ADDITIONAL CONNECTOR PIPE SHALL BE REQUIRED WHERE THE INLET IS LOCATED AT UPPER END OF ALL MAINLINES. MAINLINE SIZES AS SPECIFIED SHALL CONNECT DIRECTLY TO DROP INLET.

3  
2 STANDARD DROP INLET  
N.T.S.



VEEDER RIDGE LLC 3665 REDWOOD ROAD			
TRACK 1 EROSION CONTROL PLAN DETAILS			
DESIGN ENGINEER: J. BUSHEY, S. MOOSE			
JOB NO: 12012501	SCALE: AS SHOWN	DRAWN BY: SM	DATE: 5-6-21
DWG. NO: 12012501A			SHEET: 2 OF: 2