

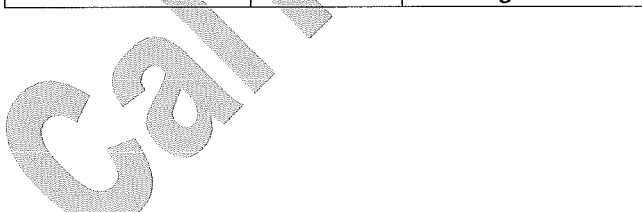
CalTREES THP ITEM #14 - SILVICULTURE

ITEM #14 – SILVICULTURE

- Check the Silvicultural methods or treatments allowed by the Forest Practice Rules to be applied under this THP.
- If more than one method or treatment will be used identify the boundaries on a map per 14 CCR § 1034(x)(2)
- List the approximate acreage for each method identified.

a.	Evenaged	ACRES	
<input type="checkbox"/>	Clearcutting		EVENAGED REGENERATION METHODS (14 CCR § 913.1 [933.1, 953.1]) (All Districts) NOTE: variation by District in (a)(4)(A) and (d)(3) Shelterwood Removal Step
<input type="checkbox"/>	Seed Tree Seed Step		
<input type="checkbox"/>	Seed Tree Removal Step		
<input type="checkbox"/>	Shelterwood Preparatory Step		
<input type="checkbox"/>	Shelterwood Seed Step		
<input type="checkbox"/>	Shelterwood Removal Step		
	Un-evenaged		
<input checked="" type="checkbox"/>	Single Tree Selection	51	
<input checked="" type="checkbox"/>	Group Selection	33	
<input checked="" type="checkbox"/>	Transition	140	
	Intermediate Treatments		INTERMEDIATE TREATMENTS (14 CCR § 913.3 [933.3, 953.3])
<input type="checkbox"/>	Commercial Thinning		
<input type="checkbox"/>	Sanitation Salvage		
	Alternative		ALTERNATIVE PRESCRIPTIONS (ALL DISTRICTS) (14 CCR § 913.6 [933.6, 953.6])
<input type="checkbox"/>	Alternative Prescription		
	Special Prescriptions		SPECIAL PRESCRIPTIONS (14 CCR § 913.4 [933.4, 953.4]) RPF is required to include specific information when Restoration or Oak woodland management is selected. The FPR element forms are provided at the end. Indicate the specific acreage for each type of restoration or oak area on these forms.
<input type="checkbox"/>	Special Treatment Area Prescription		
<input type="checkbox"/>	Rehabilitation of Understocked Area Prescription		
<input type="checkbox"/>	Fuel Break / Defensible Space		
<input type="checkbox"/>	Variable Retention		
<input type="checkbox"/>	Restoration – Aspen, Meadow, & Wet Area		
<input type="checkbox"/>	Ca. Black and Oregon White Oak Woodland Management		
	Non-regeneration		NON REGENERATION HARVESTING
<input type="checkbox"/>	Conversion		
<input type="checkbox"/>	Road Right-of-way		
<input checked="" type="checkbox"/>	No Harvest	.025	

TOTAL ACREAGE:	224	If acreage is different than acreage listed in the legal description provide explanation:
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If Selection, Group Selection, Commercial Thinning, Sanitation Salvage or Alternative methods are selected the post-harvest stocking levels must be stated. If Site class varies then state the post-harvest stocking standard to be met by each applicable Site Class.

NOTE: Location of boundaries of timber-site classes needed for the determination of stocking standards to be applied, down to 20-acres minimum or as specified in district rules shall be mapped per 14 CCR § 1034(x)(12)

b. POST-HARVEST STOCKING TO BE MET AT THE COMPLETION OF OPERATIONS		
Silvicultural Prescription	Site Class (I, II, III, IV, V)	Post-harvest stocking standard
Single Tree Selection	II (Russian River floodplain) III (upslope selection units)	<ul style="list-style-type: none"> For Selection the stocking standard to be met is 14 CCR 913.2(a)(2)(B). This standard shall be met immediately upon completion of timber operations. Not more than 20% of the stocked plots may meet stocking standards utilizing the 300-point count standard with trees that are at least 10 years old. 80% of the stocked plots must meet the Basal Area stocking standards of 14 CCR 913.2 (a)(2)(A): On site II and III lands, at least 75 square feet per acre of basal area shall be retained of Group A species only. Unless the plan submitter demonstrates how the proposed harvest will achieve MSP pursuant to 14 CCR 913.11(a) or (b), the residual stand shall contain sufficient trees to meet at least the basal area, size and phenotypic quality of tree requirements specified under the seed tree method. No Group Openings shall occur in designated stands with SINGLE TREE SELECTION Silviculture.
Group Selection	III	<ul style="list-style-type: none"> For Selection the stocking standard to be met is 14 CCR 913.2(a)(2)(B). This standard shall be met immediately upon completion of timber operations. Not more than 20% of the stocked plots may meet stocking standards utilizing the 300-point count standard with trees that are at least 10 years old. 80% of the stocked plots must meet the Basal Area stocking standards of 14 CCR 913.2 (a)(2)(A): On site II and III lands, at least 75 square feet per acre of basal area shall be retained of Group A species only. An RPF or supervised designee may offset up to 8 plots where those plot centers are initially placed within small group clearings created during the current harvest. Unless substantially damaged by fire, the RPF or supervised designee shall not exclude small group clearings created by previous timber harvesting from the stocking survey. Group openings shall be 0.25-2.5 acres in size. Group openings shall be separated by a logical logging unit and not more than 20% of the Group Selection area shall be covered by Group openings. Unless the plan submitter demonstrates how the proposed harvest will achieve MSP pursuant to 14 CCR 913.11(a) or (b), the residual stand shall contain sufficient trees to meet at least the basal area, size and phenotypic quality of tree requirements specified under the seed tree method.
Transition	III	<ul style="list-style-type: none"> For Transition areas, immediately following the completion of Timber Operations, the minimum basal area standard of 50 square feet per acre of basal area of Group A species shall be met, pursuant to 14 CCR 912.7(b)(2). 14 CCR 913.2(b)(6) (Coast). The post harvested residual stand shall contain at least 15 sq. ft. of basal area per acre of seed trees at least 12 inches DBH or greater for site III timberland. Where present in the pre-harvest stand, disease free, undamaged seed trees 18" DBH or greater shall be retained post-harvest until the stand exceeds the minimum seed tree requirements of 14 CCR 913.1(c)(1)(A). Seed trees shall be full crown, capable of seed production and representative of the best phenotypes available in the preharvest stand. No more than 20 percent of the unit shall be occupied by group clearings (14 CCR 913.2(b)(7)).
STZ-G1 (Unstable Feature G1) *Refer to Geo Report	III	<ul style="list-style-type: none"> The THP shall retain a minimum of 80 ft²/acre total basal area conifer and hardwood combined, when averaged across the entirety of the slide, 50 square feet per acre of basal area of Group A species shall be met, pursuant to 14 CCR 912.7(b)(2). Harvesting shall be excluded from secondary slide N1. Harvesting shall be excluded from the steep slopes above Neeley Road. No Group Openings Shall occur within STZ-G1.
STZ-G3 (Unstable Feature G3) *Refer to Geo Report	III	<ul style="list-style-type: none"> The THP shall retain a minimum of 100 ft²/acre total basal area conifer and hardwood combined, when averaged across the entirety of the slide, at least 75 square feet per acre of basal area shall be retained of Group A species only. Harvesting on this slide shall be excluded within an area extending 75 horizontal feet from Neeley Road. No Group Openings Shall occur within STZ-G3.

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STZ-G12 (Unstable Feature G12) *Refer to Geo Report	III	<ul style="list-style-type: none"> Retain a minimum average of 80 ft²/ac total basal area with the harvest focusing on redwoods in groups. Transition- 50 square feet per acre of basal area of Group A species shall be met, pursuant to 14 CCR 912.7(b)(2). Single Tree Selection - 75 square feet per acre of basal area of Group A species shall be met, pursuant to 14 CCR 913.2 (a)(2)(A).
STZ-G4 and G5 (Unstable Feature G4 and G5) *Refer to Geo Report	II	<ul style="list-style-type: none"> A Special Treatment Zone shall be established extending 50 upslope of the top of the steep road cut of Neely Road. No Group Openings shall occur within STZ-G4 or STZ-G5.
STZ-G10 (Unstable Feature G10) *Refer to Geo Report	III	<ul style="list-style-type: none"> No harvesting of the Active Spray area within G10.
STZ-G11 (Unstable Feature G11) *Refer to Geo Report	III	<ul style="list-style-type: none"> No Harvesting of the Active Spray area within G11.
STZ-G14 (Unstable Feature G14) *Refer to Geo Report	III	<ul style="list-style-type: none"> A Special Treatment Zone shall be established between the switchback segments as mapped in the Geology Report and on the Silviculture Map at the end of Section II. Harvesting within STZ-G14 shall be limited to the one marked 32 inch diameter redwood.
Special Treatment Area for County and State Designated Scenic Corridor HWY 116	II & III	<ul style="list-style-type: none"> The scenic corridor for this highway is mapped (according to the 1988 “Final Report of the Sonoma 116 Scenic Highway Corridor Study”) and can be found on the “County and State Designated Scenic Corridor STA Map” at the end of Section II. The scenic corridor includes most of the THP area (216 acres of the 224 acres THP). The silvicultures proposed above within the plan area are unevenaged methods and will result in minor effects to the aesthetics of the stands that can be visible from the highway. Crown canopy and stocking will be reduced through the proposed harvest methods, however these changes will be difficult to discern post-harvest considering basal area retentions required for Selection, Group Selection and Transition silvicultures. “Special Features” described in the above-mentioned report as contributing to the scenic quality of the scenic corridor include the tall trees along the Russian River. Since the Core Zone of the Russian River is a No Harvest (NH) area, and the remainder of the area adjacent to the river that is proposed for harvest is comprised of 50-80% canopy retention and single- tree selection, it is not expected that these special features will change or impact the scenic corridor post-harvest.

c. EVENAGED REGENERATION SIZE	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will even-aged regeneration step Units be larger than those specified in the rules?</p> <input type="checkbox"/> 20 acres TRACTOR <input type="checkbox"/> 30 acres AERIAL or CABLE <p>If YES is the RPF proposing:</p> <input type="checkbox"/> An increase to even-aged TRACTOR Units to 30 acres because Erosion Hazards Rating is Low and the slopes are less than 30% <input checked="" type="checkbox"/> An increase to any even-aged harvest unit up to 40 acres <p>If YES provide substantial evidence that the THP contains measures to accomplish any one of the subsections per 14 CCR § 913.1 [933.1, 953.1](a)(2)(A) – (E) In SECTION III</p> <p>Operational Instruction to the LTO, needed to meet subsections (A) – (E) above shall be included in SECTION II</p> <p>NOTE: Oversized Units should be designated on the THP map(s) by size.</p>

Operational instructions to the LTO:

d. TIMBER MARKING				
In the table below indicate the area requiring tree marking, the method of marking, who completed the marking and if it was an entire or sample area mark.				
Marking completed in (specify Location(s))	Trees Marked (Harvest / Retained)	Completed By (RPF / Designee)	Area Marked (Entire / Sample area)	RPF Explanation if needed (Optional)

Single Tree Selection (Floodplain Operations)	Harvest	Both	Entire	Harvest trees are marked with blue dot on three sides and stump mark.
Group Selection	Harvest	Both	Entire	Harvest trees marked with blue halo and stump mark.
Transition	Harvest	Both	Entire	Harvest trees marked with blue halo and stump mark.

Desirable residual trees and regeneration of commercial species shall not be damaged or destroyed by operations except where unavoidable due to safety concerns. Residual trees may only be removed for safety reasons. A sample mark of 10% of the area, up to a maximum 20 acres per stand type, shall be done prior to the PHI.

<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the RPF requesting a waiver of required marking?
	If YES, provide directions explaining how the LTO will determine what trees shall be harvested or retained:
	If more than one silvicultural method or group selection is used, provide instructions to the LTO identifying how boundaries of the different methods or groups have been identified:

e. FOREST PRODUCTS TO BE HARVESTED:					
<input checked="" type="checkbox"/>	Saw Logs	<input checked="" type="checkbox"/>	Poles	<input checked="" type="checkbox"/>	Clean Chips
<input checked="" type="checkbox"/>	Peeler Logs	<input checked="" type="checkbox"/>	Split Wood Products	<input checked="" type="checkbox"/>	Firewood
<input checked="" type="checkbox"/>	Fuel Wood	<input checked="" type="checkbox"/>	Fuel chips	<input type="checkbox"/>	Other
<input checked="" type="checkbox"/>	Burl Wood				

f. GROUP B SPECIES MANAGEMENT	
1. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are group B species proposed for management?
2. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are group B or non-indigenous A species to be used to meet stocking standards?
3. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will group B species need to be reduced to maintain relative site occupancy of group A species?
If any answer is YES, list the species, describe treatment, and provide LTO felling and slash treatment guidance. See table below	

TABLE FOR LTO TREATMENT GROUP B SPECIES MANAGEMENT			
Species	Treatment Method	Felling Instruction	Slash Treatment Instructions
Tanoak	Removal by mechanical, chemical, or physical means	N/A	N/A
Pacific Madrone	Removal by mechanical, chemical, or physical means	N/A	N/A

1. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are follow-up treatments expected to maintain relative site occupancy of group A species? <input type="checkbox"/> Manual Treatments - Describe: <input type="checkbox"/> Herbicide Treatments - Describe: <input type="checkbox"/> Both
	If YES who will be responsible?
2. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will a Licensed Pest Control Advisor be involved in the process? If YES explain when an advisor will be needed:

g.	LTO FELLING INSTRUCTIONS PLAN AREA
	<p>Fallers will attempt to fall trees towards skid trails, <u>fall trees away from the residual stand and keep tractor roads away from the residual stand, when and where feasible.</u> Fallers shall also fall trees away from Class I, Class II(s), Class III, Class IV Watercourses, and wet areas.</p> <p>Portions of the project occur within the Russian River Sanitation District spray areas. <u>To ensure that the sprinkler standpipes and the irrigation system within the active spray areas are protected from damage, trees will be felled, when and where feasible, away from the standpipes. The LTO will be responsible for identifying the location of all the sprinkler standpipes and will work in conjunction with the personnel from the Russian River Sanitation District to locate and protect the standpipes from damage as much as possible.</u></p> <p>The LTO shall instruct fallers to be aware of retention trees and sub merchantable stocking intended to be left in a good thrifty condition, and avoid unnecessary damage to snags and if any, and to trees designated for wildlife retention. Retention Trees include trees that were not marked for harvest which exhibit the following characteristics which can be favorable for wildlife habitat:</p> <ol style="list-style-type: none"> 1. <u>Large lateral branches: A branch equal to or greater than 6-in in diameter located just outside of the branch collar.</u> 2. <u>Cavities: Trees with cavities greater than 3-in and 10-ft or more above the ground.</u> 3. <u>Hollow: trees with "goose pen" boles (basal cavities) extending 3-ft or more above ground level and extend at least 6-in vertically inside the cavity from the topmost point of the entrance hole.</u> 4. <u>Evidence of Decay: Extensive decayed wood as evidenced by large and/or extensive fungal fruiting bodies (conk), cavity entrances, and sloughing wood and/or bark.</u> 5. <u>Trees with multiple tops, broken tops, or snag tops, all minimum 12-in dbh, with a minimum 6-in dbh at the break or separation into multiple leaders.</u> 6. <u>Old growth redwood trees and stand-alone Douglas-fir trees with "wolfy" branching structure, including large, spreading limbs and/or a large crown.</u> 7. <u>Redwoods with boles having at least 75% defect, trees with vegetative deformities, high presence of lichens or moss, deeply fissured, cracked bark or loose slabs of flaking bark.</u> 8. <u>Trees with known raptor nests.</u> 9. <u>Stand-alone granary trees having at least 100 small holes on the tree that are either filled with acorns or capable of containing acorns.</u> <p>The LTO shall also instruct fallers to search for active bird/wildlife nests prior to timber falling operations. <u>If an active bird/wildlife nest is discovered, the LTO shall flag the tree to aid in avoidance. The LTO shall contact the Plan Submitter to determine if additional mitigations will be required.</u></p>

h.	REGENERATION
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will artificial regeneration be required to meet stocking standards? Describe: <u>The Transition units shall meet stocking standards of 14 CCR 912.7 (b)(2) immediately upon completion of operations.</u> <u>The Group Selection and Single Tree Selection units shall meet stocking standards of 14 CCR 913.2 (a)(2)(A)(2) and 14 CRR 913.2 (a)(2)(B) immediately upon completion of operations.</u></p>

i.	SITE PREPARATION
Definition of site preparation per 14 CCR § 895.1: Site preparation means "any activity" involving mechanical disturbance of soils or burning of vegetation which is performed during or after completion of timber harvesting and is associated with preparation of any portion of a logging area for artificial or natural regeneration.	
1 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will site preparation be used within the logging area?

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If YES, provide site preparation plan per 14 CCR § 915.4 [935.4, 955.4]

- (a) Whether site preparation will be required to meet stocking: Site preparation will not be required to meet stocking, however, it may be employed to improve efficacy of regeneration activities in areas designated for Single Tree Selection, Group Selection, and Transition silviculture, where ground-based yarding is employed. Heavy equipment used for site preparation shall only operate on slopes less than 30 percent, with no greater than moderate EHR (unless used to construct firelines). Heavy equipment shall not be used for site preparation under saturated soil conditions that may produce sediment in quantities sufficient to cause a visible increase in turbidity of downstream waters in receiving Class I, II, III or IV waters; that violates Water Quality Requirements; or when in cannot operate under its own power due to wet conditions.
- (b) The general methods of site preparation to be used: Mechanical crushing, ripping, and racking will be the methods used. Mechanical site preparation, including brush crushing, ripping, racking and piling, shall conform to 14 CCR 915.1, CCR 915.3, and CCR 916.3. After post-harvest conditions are evaluated, the final decision will be made regarding the appropriate site preparation method(s) to employ on site.
- (c) The types of equipment, if any, to be used for mechanical site preparation and firebreak construction: N/A
- (d) The Methods for protecting any desirable residual trees in accordance with 14 CCR 917.7: Mechanical: site preparation activities will take place in areas with heavy hardwood stocking and understory brush, the LTO will be given site specific instructions not to damage desirable residual trees within those areas prior to treatment.
- (e) Explanations and justifications for any exceptions or alternatives to the standard rules: None are proposed.
- (f) A map identifying the boundaries of site preparation areas, if different from logging area boundaries, and distinguishing areas by type of site preparation activity: Site prep activities may be used where transition is proposed, as indicated on the THP Map(s). Mechanical treatments shall not occur on slopes greater than 30%. Resource Conservation Standards for Minimum Stocking (14 CCR 912.7 (b) (1) and (2)), will not be compromised by this activity.
- (g) The name, address, and telephone number of the person responsible for conduct for site preparation activities shall be provided prior to conducting of site preparation activities: The LTO shall be responsible for the following activities: brush crushing, racking, ripping, fire line construction and piling. The burning shall be the responsibility of the land owner.
- (h) The estimated timing of site preparation operations: Heavy equipment shall not be used for site preparation under saturated soil conditions that may produce sediment in quantities sufficient to cause a visible increase in turbidity of downstream waters in receiving Class I, II, III or IV waters; that violates Water Quality Requirements; or when in cannot operate under its own power due to wet conditions.

2[] Yes [] No

Will site preparation be required to meet stocking?

- General method(s) of site preparation:

Refer to Site Preparation Addendum, Item B above.

- Type of equipment to be used for mechanical site preparation and/or firebreak construction:

Refer to Site Preparation Addendum, Item C above.

- Methods to protect desirable residual trees per 14 CCR § 917.7 [937.7, 957.7]:

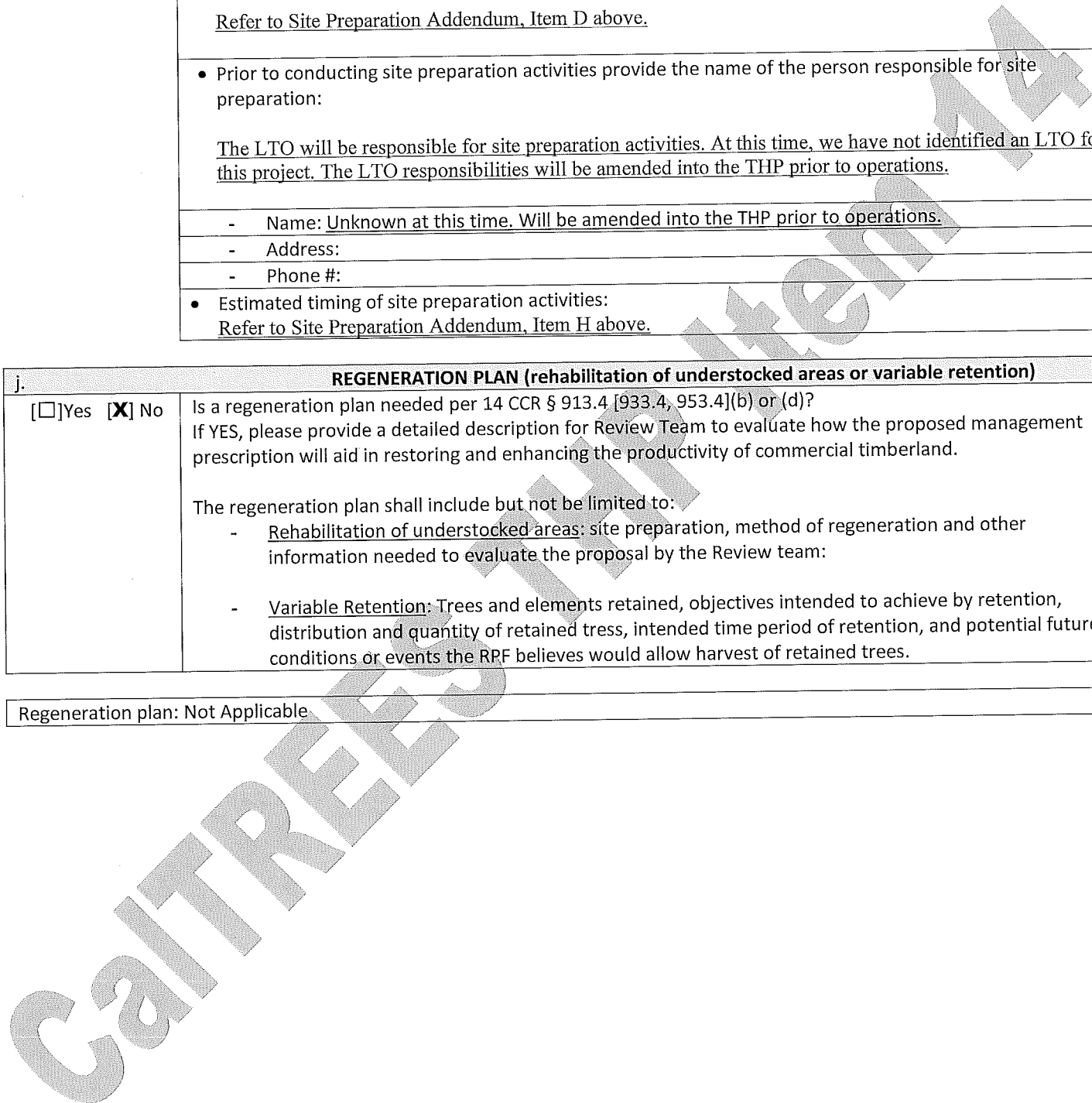
Refer to Site Preparation Addendum, Item F above.

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<p>3. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<ul style="list-style-type: none"> • Are there any exceptions or alternatives proposed to the standard rules? If YES, provide an explanation and justification for the proposed exceptions:
	<ul style="list-style-type: none"> • Provide a map identifying the boundaries of site preparation areas, if different from the logging area boundaries, and distinguish areas by type of site preparation activity. <u>Refer to Site Preparation Addendum, Item D above.</u>
	<ul style="list-style-type: none"> • Prior to conducting site preparation activities provide the name of the person responsible for site preparation: <u>The LTO will be responsible for site preparation activities. At this time, we have not identified an LTO for this project. The LTO responsibilities will be amended into the THP prior to operations.</u>
	<ul style="list-style-type: none"> - Name: <u>Unknown at this time. Will be amended into the THP prior to operations.</u>
	<ul style="list-style-type: none"> - Address:
	<ul style="list-style-type: none"> - Phone #:
	<ul style="list-style-type: none"> • Estimated timing of site preparation activities: <u>Refer to Site Preparation Addendum, Item H above.</u>

<p align="center">j. REGENERATION PLAN (rehabilitation of understocked areas or variable retention)</p>	
<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Is a regeneration plan needed per 14 CCR § 913.4 [933.4, 953.4](b) or (d)? If YES, please provide a detailed description for Review Team to evaluate how the proposed management prescription will aid in restoring and enhancing the productivity of commercial timberland.</p> <p>The regeneration plan shall include but not be limited to:</p> <ul style="list-style-type: none"> - <u>Rehabilitation of understocked areas:</u> site preparation, method of regeneration and other information needed to evaluate the proposal by the Review team: - <u>Variable Retention:</u> Trees and elements retained, objectives intended to achieve by retention, distribution and quantity of retained trees, intended time period of retention, and potential future conditions or events the RPF believes would allow harvest of retained trees.

Regeneration plan: Not Applicable



CalTREES THP ITEMS #15-17 – PEST / HARVEST PRACTICES / EROSION HAZARD RATING

ITEM #15 – PESTS

PESTS / FOREST DISEASES																																																					
<p style="text-align: center;">Timber operations shall be conducted so as to minimize the build-up of destructive insect populations or the spread of forest Diseases. 14 CCR 917.9 [937.9, 957.9](a) – (c) (All Districts)</p>																																																					
<p>a. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Is this THP within an area that the Board of Forestry and Fire Protection has declared a Zone of:</p> <p>1. <input checked="" type="checkbox"/> Infestation 2. <input type="checkbox"/> Infection pursuant to PRC §§ 4712 - 4718?</p> <p>If YES, identify feasible measures being taken to mitigate adverse infestation or infection impacts from the timber operation. 917.9 (937.9, 957.9)(a)</p> <p style="text-align: center;">Reference Board of Forestry Technical Rule Addendum Number 3 for RPF considerations.</p>																																																				
<p>Proposed measures:</p> <p><u>Sudden Oak Death</u> The THP area is within the Sudden Oak Death (SOD) Zone of Infestation. SOD is known to exist within and surrounding the plan area. For compliance with CDFA regulations, and for the THP to act as a compliance agreement, THPs located in the SOD Zone of Infestation (ZOI) need to address mitigation measures to avoid movement of host material (ref. also 14CCR 917.9 and 917.10).</p> <p>Recommended Mitigation measures:</p> <p>a) List of regulated counties: Alameda, Contra Costa, Humboldt, Lake, Marin, Mendocino, Monterey, Napa, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, San Francisco, and Trinity.</p> <p>b) There are both “Regulated Host Species” and Associated Species”.</p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: left; padding-bottom: 5px;">Regulated Hosts Scientific Name</th> <th style="text-align: left; padding-bottom: 5px;">Common Name</th> </tr> </thead> <tbody> <tr><td>1. <i>Acer macrophyllum</i></td><td>Bigleaf maple</td></tr> <tr><td>2. <i>Acer pseudoplatanus</i></td><td>Planetree maple</td></tr> <tr><td>3. <i>Adiantum aleuticum</i></td><td>Western maidenhair fern</td></tr> <tr><td>4. <i>Adiantum jordanii</i></td><td>California maidenhair fern</td></tr> <tr><td>5. <i>Aesculus californica</i></td><td>California buckeye</td></tr> <tr><td>6. <i>Aesculus hippocastanum</i></td><td>Horse chestnut</td></tr> <tr><td>7. <i>Arbutus menziesii</i></td><td>Madrone</td></tr> <tr><td>8. <i>Arctostaphylos manzanita</i></td><td>Manzanita</td></tr> <tr><td>9. <i>Calluna vulgaris</i></td><td>Scotch heather</td></tr> <tr><td>10. <i>Camellia spp.</i></td><td>Camellia –all species, hybrids, and cultivars</td></tr> <tr><td>11. <i>Castanea sativa</i></td><td>Sweet chestnut (3)</td></tr> <tr><td>12. <i>Fagus sylvatica</i></td><td>European Beech</td></tr> <tr><td>13. <i>Fraxinus excelsior</i></td><td>European ash</td></tr> <tr><td>14. <i>Griselinia littoralis</i></td><td>Griselinia</td></tr> <tr><td>15. <i>Hamamelis virginiana</i></td><td>Witch hazel</td></tr> <tr><td>16. <i>Heteromeles arbutifolia</i></td><td>Toyon</td></tr> <tr><td>17. <i>Kalmia latifolia</i></td><td>Mountain Laurel - all species, hybrids and cultivars</td></tr> <tr><td>18. <i>Laurus nobilis</i></td><td>Bay laurel</td></tr> <tr><td>19. <i>Lithocarpus densiflorus</i></td><td>Tanoak</td></tr> <tr><td>20. <i>Lonicera hispidula</i></td><td>California honeysuckle</td></tr> <tr><td>21. <i>Maianthemum racemosum</i></td><td>False Solomon’s seal</td></tr> <tr><td>22. <i>Michelia doltsopa</i></td><td>Michelia</td></tr> <tr><td>23. <i>Parrotia persica</i></td><td>Persian Parrotia, iron tree</td></tr> <tr><td>24. <i>Photinia fraseri</i></td><td>Red tip or Fraser’s Photinia</td></tr> <tr><td>25. <i>Pieris formosa</i></td><td>Himalaya pieris</td></tr> </tbody> </table>		Regulated Hosts Scientific Name	Common Name	1. <i>Acer macrophyllum</i>	Bigleaf maple	2. <i>Acer pseudoplatanus</i>	Planetree maple	3. <i>Adiantum aleuticum</i>	Western maidenhair fern	4. <i>Adiantum jordanii</i>	California maidenhair fern	5. <i>Aesculus californica</i>	California buckeye	6. <i>Aesculus hippocastanum</i>	Horse chestnut	7. <i>Arbutus menziesii</i>	Madrone	8. <i>Arctostaphylos manzanita</i>	Manzanita	9. <i>Calluna vulgaris</i>	Scotch heather	10. <i>Camellia spp.</i>	Camellia –all species, hybrids, and cultivars	11. <i>Castanea sativa</i>	Sweet chestnut (3)	12. <i>Fagus sylvatica</i>	European Beech	13. <i>Fraxinus excelsior</i>	European ash	14. <i>Griselinia littoralis</i>	Griselinia	15. <i>Hamamelis virginiana</i>	Witch hazel	16. <i>Heteromeles arbutifolia</i>	Toyon	17. <i>Kalmia latifolia</i>	Mountain Laurel - all species, hybrids and cultivars	18. <i>Laurus nobilis</i>	Bay laurel	19. <i>Lithocarpus densiflorus</i>	Tanoak	20. <i>Lonicera hispidula</i>	California honeysuckle	21. <i>Maianthemum racemosum</i>	False Solomon’s seal	22. <i>Michelia doltsopa</i>	Michelia	23. <i>Parrotia persica</i>	Persian Parrotia, iron tree	24. <i>Photinia fraseri</i>	Red tip or Fraser’s Photinia	25. <i>Pieris formosa</i>	Himalaya pieris
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26. <i>Pieris formosa x japonica</i>	Pieris 'Forest Flame'
27. <i>Pieris floribunda x japonica</i>	Pieris 'Brouwer's Beauty'
28. <i>Pieris japonica</i>	Japanese pieris
29. <i>Pseudotsuga menziesii v. menziesii</i>	Douglas-fir
30. <i>Quercus agrifolia</i>	Coast live oak
31. <i>Quercus cerris</i>	European turkey oak
32. <i>Quercus chrysolepis</i>	Canyon live oak
33. <i>Quercus falcata</i>	Southern red oak (3)
34. <i>Quercus ilex</i>	Holm oak (3)
35. <i>Quercus kelloggii</i>	California black oak
36. <i>Quercus parvula v. shrevei</i>	Shreve oak
37. <i>Rhamnus californica</i>	California coffeeberry
38. <i>Rhamnus purshiana</i>	Cascara
39. <i>Rhododendron spp</i> cultivars	Rhododendron (including azaleas) – all species, hybrids, and
40. <i>Rosa gymnocarpa</i>	Wood rose
41. <i>Salix caprea</i>	Goat willow
42. <i>Sequoia sempervirens</i>	Coast redwood
43. <i>Syringa vulgaris</i>	Lilac (3)
44. <i>Taxus baccata</i>	European yew (3)
45. <i>Trientalis latifolia</i>	Western starflower
46. <i>Umbellularia californica</i>	California bay laurel/Oregon myrtle/pepperwood
47. <i>Vaccinium ovatum</i>	Evergreen huckleberry
48. <i>Viburnum x bodnantense</i>	Bodnant Viburnum (arrowwood)
49. <i>Viburnum plicatum</i>	Doublefile Viburnum
50. <i>Viburnum tinus</i>	Laurustinus

c) Host material permitted for removal:

- Firewood may be harvested from the THP area, so long as such wood is not smaller than four inches in diameter and does not leave the existing Zone of Infestation.
- The only *host material* that may be harvested for commercial purposes are Douglas fir and coast redwood logs, tanoak/madrone logs, and redwood basal burls. They may be harvested and shipped to destinations within the existing Zone of Infestation, subject to the requirements of the Compliance Agreement. If debarked, they may be harvested and shipped to any destination without restriction.

d) Host material shall not be moved outside of the existing Zone of Infestation.

e) This THP shall serve as the Compliance Agreement for removal of commercial host material from the THP area, within the Zone of Infestation. This Compliance Agreement is only valid for 1 year.

f) Should such activities continue during subsequent years, and the host list, zone of infestation/infection, or recommended mitigation measures change, the plan shall be amended with current information and mitigations to meet compliance.

g) Information regarding Compliance:

- (1) The destinations of the host material may include the following locations in northern CA: fuel wood will potentially be transported to local residences in Mendocino or Sonoma Counties, sawlogs may be transported to Scotia, Eureka, Samoa, Arcata, Fortuna, Ukiah, Calpella, Philo, Cloverdale, Weaverville, and Willits. Although the most likely destinations for shipments are listed above, other destinations may be amended into the THP.
- (2) Basal trunk/burl sprouts, small branches (less than 1 inch in diameter), and needles of Douglas-fir/coast redwood are considered host materials. These host materials shall not be removed from the THP area except as provided for above in c.
- (3) Chips or other host material, less than 4 inches in diameter, shall not be removed from the THP area.
- (4) Movement of host material greater than 4 inches in diameter (as described in (c), above) does not require a closed container.
- (5) Host debris (not actual logs - just leaves, twigs, and branches of host species, listed in item (b), above) shall be inspected for, and substantially removed from, equipment/vehicles prior to departure from the plan

CalTREES THP ITEMS #15-17 – PEST / HARVEST PRACTICES / EROSION HAZARD RATING

area. The usual inspection shall consist of walking around each vehicle/piece of heavy equipment, including any load, and visually scanning for the presence of host debris, prior to movement from the THP area. The LTO shall advise all truck drivers that vehicles should be washed at a commercial wash station, or pressure washed with soap at their own facility, prior to working on another property. This is the responsibility of the LTO responsible for hauling operations. The LTO shall inspect and sanitize light duty equipment such as saws, hand tools, and boots before and after leaving the plan area. The LTO shall post informational signs regarding SOD mitigation measures (provided by RPF) at the entrance(s) to the plan area.

h) The RPF responsible for providing professional advice to the licensed timber operator pursuant to 14 CCR 1035.1(e), shall inform the LTO regarding regulations pertaining to SOD, current SOD hosts, extent of the regulated area, and operational requirements pertaining to the Compliance Agreement (this THP), prior to start-up of initial timber operations and throughout active timber operations as necessary regarding plan amendments to such.

b. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are there any other significant insect or forest disease problems within the THP area if outside a declared zone? 1. <input type="checkbox"/> Insect(s) 2. <input type="checkbox"/> Disease(s) 3. <input type="checkbox"/> Pest problems 4. <input type="checkbox"/> Other (provide description of the forest problem) If YES, describe proposed measures to improve the health, vigor, and productivity of the stand(s).
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ITEM #16 – HARVESTING PRACTICES

YARDING SYSTEM AND EQUIPMENT TO BE USED					
	GROUND BASED (Tractor, skidder, Forwarder)		CABLE		OTHER (Special)
<input checked="" type="checkbox"/>	Tractor, including end/long lining	<input type="checkbox"/>	Cable, ground lead	<input type="checkbox"/>	Helicopter
<input checked="" type="checkbox"/>	Rubber tire skidder, forwarder	<input checked="" type="checkbox"/>	Cable, High lead	<input type="checkbox"/>	Animal
<input checked="" type="checkbox"/>	Feller buncher	<input checked="" type="checkbox"/>	Cable, skyline	<input type="checkbox"/>	Other (describe below)
<input checked="" type="checkbox"/>	Shovel yarding				

** All Tractor operations restrictions apply to ground based equipment Reference 14 CCR 914.2 [934.2, 954.2] (All Districts)

ITEM #17 – EROSION HAZARD RATING

EROSION HAZARD RATING (EHR)					
Per 14 CCR 914.6 [934.6, 954.6](c) Waterbreaks Road and/or Trail Gradients Waterbreak Spacing by trail/road gradient					
		10 or less	11-25	26-50	>50
<input type="checkbox"/>	LOW	300	200	150	100
<input checked="" type="checkbox"/>	MODERATE	200	150	100	75
<input checked="" type="checkbox"/>	HIGH	150	100	75	50
<input type="checkbox"/>	EXTREME	100	75	50	50

NOTE:

- If more than one rating is checked, areas must be identified on a THP map down to 20 acres in size.
- COASTAL DISTRICT with a High or extreme EHR(s) must be mapped to 10 acres.
- If ratings checked do not match the EHR Worksheet clarify the discrepancy:

EHR rating discrepancy:

CaITREES THP ITEM #18 – SOIL STABILIZATION

ITEM #18 – SOIL STABILIZATION

ITEM #18	SOIL STABILIZATION / EROSION CONTROL
<p>Per 14 CCR 923.5, 943.5, 963.5 – Erosion Control for Logging Roads and Landings [All Districts] – All logging road and landing surfaces shall be adequately drained, through the use of logging road and landing surface shaping in combination with the installation of drainage structures or facilities and shall be hydrologically disconnected from watercourses and lakes to the extent feasible.</p> <p>Per 14 CCR 914, 934, 954 – Harvesting practice and erosion control [All Districts] – Timber operations shall be conducted to: Meet the goal... to prevent degradation of the quality and beneficial uses of water and maintain site productivity by minimizing soil loss</p> <p>Guidance on methods for hydrologic disconnection may be found in “Board of Forestry Technical Rule Addendum Number 5: Guidance on Hydrologic Disconnection, Road Drainage, Minimization of Diversion Potential, and High Risk Crossings” (1st Edition, revised 10/27/14)</p> <p>14 CCR 923.5, 943.5, 963.5(b), (c), (d), (e), (f), (g), (h), (j), (k), (p) contain standard Forest Practice Operational rules pertaining to the timing and specifics for the installation of erosion control structures for Roads and Landings.</p> <p>14 CCR 914.6, 934.6, 954.6(a) (1-2), (b), (c), (d), (e), (f), (g), additional Coast areas (h), (i) contain standard Forest Practice Operational rules pertaining to the timing and specifics for the installation of erosion control structures for harvesting practices, tractor and cable operations.</p> <p align="center">THE LTO SHALL BE FAMILIAR WITH THESE STANDARD OPERATIONAL REQUIREMENTS, PRIOR TO OPERATIONS.</p>	
<p>a. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Are there any exceptions proposed to the above listed standard operational requirements? If YES, please provide the specific operational instruction to the LTO.</p>
<p><input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input checked="" type="checkbox"/></p> <p><input type="checkbox"/></p>	<p>Methods of stabilization to be used: (check all that apply)</p> <p>STRAW Mulch Depth (inches): <u>2”</u> Percent coverage: <u>90%</u> <u>Rice straw shall be used in upland areas and weed-free straw in riparian areas.</u></p> <p>SLASH Mulch <input checked="" type="checkbox"/> Scattered Depth (inches): <u>4”+</u> Percent coverage: <u>75%</u> <input checked="" type="checkbox"/> Packed Depth (inches): <u>4”+</u> Percent coverage <u>75%</u></p> <p>Grass Seeding <u>LTO Instructions: Application rate will be 25 lbs/acre. Annual (Italian) Ryegrass or other species considered “invasive” by the California Pest Plant Council (see http://www.cal-ipc.org/ip/inventory/) shall not be used.</u></p> <p>Rock Armoring <u>Size: Varies, see Map Point Table and Rock Size Nomograph the 1600 permit.</u> Installation instructions:</p> <p>Replanting LTO instructions if needed</p> <p>Installation of commercial erosion devices <u>Describe commercial devise and provide instructions to the LTO: Jute netting and erosion fences may be utilized on steeper slopes adjacent to watercourses. Chemical soil stabilizers, also known as soil binders or soil palliatives may be applied to manufacturer specifications.</u></p> <p>Other Describe method and provide LTO instructions:</p>

CaITREES THP ITEM #18 – SOIL STABILIZATION

Per 14 CCR 914.9[934.9, 954.9] the RPF may develop on a site-specific basis alternative practices that will achieve environmental protection at least equal to the standards set forth in 914.1-914.8 [934.1-934.8, 954.1-954.8]	
b. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are there any alternative practices to the standard harvesting or erosion control rules proposed? If YES, the information as required per 914.9 [934.9, 954.9] shall be provided in SECTION III. Provide instructions to the LTO in SECTION II.

CaITREES THP ITEM #18 – SOIL STABILIZATION

All WATERSHEDS Logging roads / Landings	N/A	Description of Treatments	Timing
c. 923.5[943.5, 963.5](f): treatments to prevent significant discharge where features cannot be hydrologically disconnected.	N/A	<p style="text-align: center;">Protection Measures</p> <p>Primary mechanisms for decreasing hydrologic connectivity are: (1) installation of a “disconnecting” drainage facility or structure close to the watercourse crossing; (2) increasing the frequency of ditch drain (relief) culvert spacing for roads with inside ditches; (3) converting crowned or insloped roads with inside ditches to outsloped roads with rolling dips; (4) removing or breaching outside berms on crowned or outsloped roads to facilitate effective drainage; (5) applying treatments to dissipate energy, disperse flows, and minimize erosion at road drainage outlets not connected to watercourses; (6) avoiding concentration of flows onto unstable areas. In particular, the distance between a watercourse crossing and the first upslope adequately functioning and sized road drainage facility or structure is of high importance because this distance has a large influence on the volume of water and sediment delivered to a watercourse.</p>	<p>Prior to a significant rain event that may cause overland flow. Prior to the Extended Wet Weather Period, October 15th and/or defined Winter Period, November 15th. See also Winter Period Operating Plan Item 23 below for operations in the EWWP.</p>
d. 923.5[943.5, 963.5](l) & (m): treatments for sidecast or fill; cuts and fills associated w/ approaches to watercourse crossings; bare areas w/in WLPZ.	N/A	<p>Soil stabilization measures Treatment of the traveled surface of logging roads within the WLPZ may be by one or more of the following methods:</p> <ul style="list-style-type: none"> • Rocking, chip sealing, paving. • Compacting and draining with water breaks. • Compacting and draining with outsloping and rolling dips. • Insloping with ditch drain. • Crowning with ditch drains. • Mulching outer half of drainage facilities. <p>Treatment for soil stabilization as discussed in this item shall be with straw mulch or other appropriate material (logging slash, brush, etc.). To ensure the protection of beneficial uses of water and riparian function, mulch shall be applied to a minimum depth of two inches for adequate rainfall dissipation. The Plan Submitter shall be responsible for supplying all stabilization materials and the LTO shall be responsible for application. The areas of application are described below.</p> <p>Material and Methods preferences</p> <ul style="list-style-type: none"> • On tractor roads, including crossing locations, the preferred mulch is slash and brush walked into the trails (See “Specifications for use of ‘Slash Packing’ ” given below). 	<p>See “c.” above.</p>

CAITRES THP ITEM #18 – SOIL STABILIZATION

	<ul style="list-style-type: none"> • On logging road fill slopes the preferred mulch is placed slash. • On logging road surfaces or disturbed running areas at logging road watercourse crossings where near term future use IS expected the preferred mulch is straw. • On logging road surfaces or disturbed running areas at logging road watercourse crossings where near term future use is NOT expected the preferred mulch is slash. <p>Specifications for use of 'Slash Packing' Where 'slash packing' is used as a method of treatment it shall conform to the following specifications:</p> <ul style="list-style-type: none"> • Out-slope or waterbar the landing, logging road, or tractor road so that flow is not concentrated. • The slash should be small enough diameter so that it can be crushed and embedded into the soil by track-walking over it with a piece of tracked equipment, generally 3 inches or less in diameter. • Place slash on disturbed areas by hand or with equipment so that at least 90% of the ground surface is covered with slash. • Slash shall not be placed more than 1 foot thick to ensure that it may be effectively crushed and embedded by the tracked equipment. • After slash is placed, a piece of tracked equipment shall walk over the slash repeatedly until at least two thirds of the pieces of slash are touching the ground, and that most of the length of any individual piece of slash is in contact with the ground. 	
<p>e. 923.5[943.5,963.5](n): When the natural ability of ground cover in WLPZ is inadequate to filter sediment.</p>	<p>See (d.) above and (i.) below where applicable</p>	<p>See "c." above.</p>
<p>f. 923.5[943.5,963.5](o): Exceptions to soil stabilization treatment timing.</p>	<p>N/A</p>	
<p>Watercourse crossings on logging roads</p>		
<p>g. 923.9[943.9,963.9] (t)(1)-(3): Bare soil on fills, sidecast, timing of treatment.</p>	<p>See (d.) above and (i.) below where applicable</p>	<p>See "c." above.</p>

CaITREES THP ITEM #18 – SOIL STABILIZATION

<p>Forest Practice Rules (FPR) require Specific Erosion Control / Soil Stabilization measures to be addressed within the proposed THP addressing WLPZ & Protected ELZ & EEZs within a Non ASP and exempt ASP watersheds. Please address the following table and the specific rule. If not applicable, so state.</p>			
<p>Non ASP & Exempt ASP watersheds WLPZ & Protected ELZ & EEZ</p>	<p>N/A</p>	<p>Description of Treatments</p>	<p>Timing</p>
<p>h. 916.7[936.7,956.7] Stabilization measures for WLPZ of CI & C II.</p>	<p>N/A</p>	<p>Protection Measures</p>	
<p>Forest Practice Rules (FPR) require Specific Erosion Control / Soil Stabilization measures to be addressed within the proposed THP addressing WLPZ & Protected ELZ & EEZ, Roads and Landings and Watercourse Crossings, within an ASP Watershed or Immediately upstream of an ASP Watershed. Please address the following table and the specific rule. If not applicable, so state.</p>			
<p>ASP WATERSHEDS Logging roads / Landings</p>	<p>N/A</p>	<p>Description of Treatments</p> <p align="center">Protection Measures</p>	<p>Timing</p>
<p>i. 916.9[936.9,956.9](n)(4)-(7): WLPZ, & protected ELZ & EEZs.</p>		<p>Within the WLPZ, and within any ELZ or EEZ designated for watercourse or lake protection, treatments to stabilize soils, minimize soil erosion, and prevent significant sediment discharge shall be described in the plan as follows:</p> <p>(1) Soil stabilization is required for the following areas:</p> <p>(A) Areas exceeding 100 contiguous square feet where timber operations have exposed bare soil.</p> <p>(B) Approaches to tractor road watercourse crossings between the drainage facilities closest to the crossing.</p> <p>(C) Any other area of disturbed soil that threatens to discharge sediment into waters in amounts that would result in a significant sediment discharge.</p> <p>(2) Soil stabilization treatment measures may include, but need not be limited to, removal, armoring with rip-rap, replanting, mulching, seeding, installing commercial erosion control devices to manufacturer's specifications, or chemical soil stabilizers.</p> <p>(3) Where straw or slash mulch is used, the minimum straw coverage shall be 90 percent, and any treated area that has been reused or has less than 90 percent surface cover shall be treated again by the end of timber operations.</p> <p>(4) Where slash mulch is packed into the ground surface through the use of a tractor or equivalent piece of heavy equipment the minimum slash coverage shall be 75 percent.</p> <p>(5) For areas disturbed from May 1 to October 15, treatment shall be completed prior to the start of any rain that causes overland flow across or along the disturbed surface that could deliver sediment into a watercourse or lake in quantities deleterious to the beneficial uses of water.</p>	<p>See "c." above.</p>

CaITRES THP ITEM #18 – SOIL STABILIZATION

	<p>(6) For areas disturbed from October 15 to May 1, treatment shall be completed prior to any day for which a chance of rain of 30 percent or greater is forecast by the National Weather Service or within 10 days, whichever is earlier.</p> <p>(7) Where the natural ability of ground cover is inadequate to protect beneficial uses of water by minimizing soil erosion or by filtering sediment, the plan shall specify protection measures to retain and improve the natural ability of the ground cover to filter sediment and minimize soil erosion.</p> <p>(8) Preferred Management Practices in the Inner Zone A and B of Flood Prone Areas (FPA): The running surface of skid trails and slopes less than 10% and the running surface of roads (except at crossings as outlined elsewhere) will not be treated with straw or slash. Trails will be slash packed near landings only. See Section III item 27(j) for an explanation. Operations shall be conducted only in dry soil conditions. Avoid disturbance of vegetation not intended for harvest that could increase the likelihood of erosion. Roads will be watered concurrent with operations in order to keep dust production to a minimum.</p>	
<p>j. 923.5[943.5,963.5](q)(3): as it pertains to roads, landings, etc.</p>	<p>See (c.), (d.) and (i.) above</p>	<p>See "c." above.</p>
<p>k. 923.9[943.9,963.9](t)(4): as it pertains to watercourse crossings.</p>	<p>See (c.), (d.) and (i.) above</p>	<p>See "c." above.</p>

CaITREES THP ITEMS #19-21 – GROUND BASED EQUIPMENT

ITEM #19 – 21: GROUND BASED EQUIPMENT

GROUND BASED EQUIPMENT	
a. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Per 14 CCR 895.1 a layout is a prepared bed in which a tree is felled, generally constructed by a tractor or other ground based equipment.</p> <p>Are tractor or skidder constructed layouts to be constructed?</p> <p>If YES, specify the location (consider mapping) and the extent of use. NOTE: winter operations and soil stabilization measures apply to tractor or skidder constructed layouts.</p>
<p>Per 14 CCR 914.3 [943.3, 954.3](e) Tractors shall not be used in areas designated for cable yarding except:</p> <ul style="list-style-type: none"> • To pull trees away from streams • To yard logs in areas where deflection is low • Where swing yarding is advantageous • To construct firebreaks and/or layouts • To provide tail-holds <p>Such exception(s) shall be explained and justified in the THP, and require Director's approved</p>	
b. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Will ground based equipment be used within area(s) designated for cable yarding: (CHECK all that apply)</p> <p><input checked="" type="checkbox"/> Pulling trees away from watercourses</p> <p><input checked="" type="checkbox"/> Yarding logs from areas with low deflection</p> <p><input type="checkbox"/> Swing yarding</p> <p><input type="checkbox"/> Construct fire breaks</p> <p><input type="checkbox"/> Construct layouts</p> <p><input type="checkbox"/> Providing tail-holds</p> <p><input type="checkbox"/> Other Describe:</p>
<p>If YES, specify the location (consider mapping) and provide LTO instructions</p> <p>Item 21(b): Tractors may be used on existing skid trails, in good condition within cable areas, to swing long corners, blind leads, and in areas of poor deflection. Tractors may also be used for guyline anchors. Tractors used in these areas will be limited to <50% when EHR is high and <65% where EHR is low and moderate. Any tractor operations in areas on >50% slope, shall be limited to existing skid trails that do not require reconstruction or ridge-top areas that require no cut/fill construction. The RPF must approve all instances, prior to use, in which tractors may be used as described above.</p>	
c. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Are any exceptions proposed for ground based operations within cable areas outside of the exceptions listed above?</p> <p>If YES, provide the required explanation and justification in SECTION III of the THP and provide operations instructions for the LTO in SECTION II below.</p>

Per 14 CCR § 914.9 [934.9, 954.9](a) Alternatives to Standard Rules:

(a) Alternative practices may be developed by the RPF on a site-specific basis provided the following conditions are complied with and the alternative practices will achieve environmental protection at least equal to that which would result from using measures stated in 14 CCR §§ 914.1-914.8, 934.1-934.8, 954.1-954.8.

- (1) Environmental impacts with potential for significant adverse effects on the beneficial uses of water, on the residual timber, and on the soil productivity are identified and measures proposed to mitigate such impacts are included in an approved THP. The THP shall also contain a clear statement as to why alternative harvesting and erosion control measures are needed.
- (2) The alternative practice(s) must be explained in sufficient detail and standards provided in the THP so that they can be adequately evaluated and enforced by the Director and implemented by the licensed timber operator.
- (3) On a THP in which alternatives covering harvesting and erosion control measures have been incorporated, the timber operator shall agree to the alternative specifications by signing and filing with the Director a copy of the plan, the amended plan or a facsimile thereof, prior to beginning or continuing operations on the portion of the plan to which the alternatives apply.

(b) The Director shall not accept for inclusion in a THP alternative harvesting and erosion control measures proposed under this section which do

CalTREES THP ITEMS #19-21 – GROUND BASED EQUIPMENT

not meet the standard of subsection (a) of this section. In the event that there is more than one written negative position showing that the alternative practice(s) does (do) not meet the standard of subsection (a) received from among the agencies listed in 14 CCR 1037.3 and the Department which participated in the review of the plan including on-the-ground inspection, the Director shall reject the proposed alternative.

(c) Alternative practices stated in an approved THP shall have the same force and authority as those practices required by the standard rule.

d. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Is the RPF proposing any Alternative Practices to the standard rule on a site-specific basis?</p> <p>If "YES" provide clear instruction to the LTO in Section II advising LTO how the Alternative is to be implemented to maintain equal protection of the standard rule. In Section III explain how the alternative practice proposed achieves environmental protection at least equal to that what which would result from using measures stated in 14 CCR §§ 914.1-914.8 ,934.1-934.8, 954.1-954.8.</p>
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LTO Instructions:

14 CCR 914.2 [934.2, 954.2](a-k) Identifies the Forest Practice Rule requirements for the use of ground based equipment within the harvesting area.

- (b) Tractor, or other heavy equipment equipped with a blade, SHALL NOT operate on skid roads or slopes that are so steep as to require the blade to be used for breaking.
- (c) Tractor roads SHALL be limited in number and width to the minimum necessary for removal of logs.
 - When less damage to the resources specified in 14 CCR 914[934, 945] will result, existing tractor roads shall be used instead of constructing new tractor roads.
 - [NORTHERN only] RPF may propose exceptions for silvicultural reasons when explained and justified within the plan.
- (e) Slash and debris from timber operations SHALL not be bunched adjacent to residual trees required for silvicultural or wildlife purposes, or placed in a location where they could discharge into a Class I or II watercourse, or Lake.
- (g) where tractor roads are constructed only those roads shall be used for the skidding of logs to landings
- (h) Desirable residual trees and seedlings will not be damaged or destroyed by tractor operations.
- (i) where water breaks cannot effectively disperse surface runoff, other erosion controls shall be installed as needed.
- Slope restriction are identified in subsection (d), (f) [Coastal, Northern], (j) [Southern]

The LTO shall be aware of these rule requirements prior to operations

e. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will new tractor roads be constructed?
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f. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will tractor road use be limited to existing tractor roads?
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ASP NOTE: per 14 CCR 916.9 (k)(1) – Year-around tractor road limitations, Tractor roads shall not be used when operations may result in significant sediment discharge and (m) Tractor Road Drainage Facility Installation - All tractor roads shall have drainage and/or drainage collection and storage facilities installed as soon as practical following yarding and prior to either (1) the start of any rain which causes overland flow across or along the disturbed surface within a WLPZ or within any ELZ or EEZ designated for watercourse or lake protection, or (2) any day with a National Weather Service forecast of a chance of rain of 30 percent or more, a flash flood warning, or a flash flood watch.

Will ground based equipment be used on:

g. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Unstable areas? (only allowed if unavoidable)</p> <p>If YES, the RPF SHALL develop specific measures to minimize the effect of operations on slope stability. Provide the required justification and explanation in SECTION III and operational instructions to the LTO in SECTION II.</p> <p><u>Item 21 (g): There are areas within the THP in which tractor operations are proposed on unstable areas. These areas have been evaluated by a Certified Engineering Geologist. The Focused Engineering Geologic Review of a Proposed Timber Harvest Plan: Silver Estates, can be found in Section V of this THP. Tractor Operations in designated unstable areas shall be confined to existing skid trails in good condition that would require minimal surface blading to re-open and re-use. Water bars within these unstable features shall be installed to Extreme EHR rating standards.</u></p>
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CalTREES THP ITEMS #19-21 – GROUND BASED EQUIPMENT

<p>h. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Slopes steeper than 65% if YES, provide site specific instructions to the LTO in SECTION II and provide the required explanation and justification in SECTION III.</p> <p><u>Item 21(h): There are areas within the THP in which tractor operations are proposed on skid trails where slopes are over 65%. The EHR in these areas is Moderate. The skid trails in these areas are identified as “Tractor Exception Trails” on the “Yarding Methods” maps at the end of Section II. Skid trails proposed for use are flagged with yellow “skid trail” flagging, are existing trails, and are in stable condition. No new skid trails may be constructed in these areas. Skid trails blocked off with skid trail flagging shall not be used by the timber operator. Cable yarding operations are not feasible in these areas due to poor deflection, blind leads, and lack of access points for safe operation of cable yarding machines. The trails that exist in these areas are not extensive and provide the only access to certain areas of the THP that would otherwise be inaccessible. Refer to Section III for further explanation and justification.</u></p>
<p>i. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Slopes steeper than 50% where the erosion hazard rating (EHR) is HIGH or EXTREME. if YES, provide site specific instructions to the LTO in SECTION II and provide the required explanation and justification in SECTION III.</p>
<p>j. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input checked="" type="checkbox"/></p>	<p>Slopes between 50% and 65% with a MODERATE EHR at: (percentage based on average slope on sample areas of 20 acres)</p> <p>Existing tractor roads that do not require reconstruction.</p> <p>[NORTHERN and SOUTHERN only] New tractor roads that have been flagged by an RPF or supervised designee prior to use.</p> <p>[COASTAL only] New tractor roads at a location that has been shown on the THP map, flagged by an RPF or supervised designee prior to the pre-harvest inspection, or prior to the start of timber operations if a PHI was not required.</p> <p>if YES, provide site specific instructions to the LTO in SECTION II.</p> <p><u>Item 21(j): There are areas within the THP in which tractor operations are proposed on skid trails where slopes are between 50% - 65%. The EHR in these areas is Moderate. The skid trails in these areas are identified as “Tractor Exception Trails” on the “Yarding Methods” maps at the end of Section II. Skid trails proposed for use are flagged with yellow “skid trail” flagging, are existing trails, and are in stable condition. No new skid trails may be constructed in these areas. Skid trails blocked off with skid trail flagging shall not be used by the timber operator. Cable yarding operations are not feasible in these areas due to poor deflection, blind leads, and lack of access points for safe operation of cable yarding machines. The trails that exist in these areas are not extensive and provide the only access to certain areas of the THP that would otherwise be inaccessible. Refer to Section III for further explanation and justification.</u></p>
<p>k. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Slopes over 50% which lead without flattening to sufficiently dissipate water flow and trap sediment before it reaches a watercourse or lake? if YES, provide site specific instructions to the LTO in SECTION II and provide the required explanation and justification in SECTION III.</p>
<p>NOTE:</p> <ul style="list-style-type: none"> - Per 14 CCR 1034(x)(15) all exceptions must be located on a map. - If any question above is answered YES then tractor road locations must be flagged on the ground prior to the PHI or the start of timber operations if a PHI is not required. 	

CalTREES THP ITEM #23 – WINTER OPERATIONS

ITEM # 23 – WINTER OPERATIONS

Per 14 CCR 895.1:

- **“Winter period”** means the period between November 15 and April 1, Except under special County Rules per 14 CCR:
 - 925.1 (Santa Clara)
 - 926.18 (Santa Cruz)
 - 927.1 (Marin)
 - 965.5 (Monterey)

- **“Extended wet weather period”** means the period from October 15 to May 1.

- **Tractor roads (except as otherwise provided in the rules):**
 - All waterbreaks shall be installed no later than the beginning of the winter period of the current year of timber operations.
 - Installation of drainage facilities and structures is required from October 15 to November 15 and April 1 to May 1 on all constructed skid trails and tractor roads prior to sunset if the National Weather Service forecast is a “chance” (30% or more) of rain within the next 24 hours per 14 CCR 914.6[934.6, 954.6](a).

- **Logging roads and landings used for timber operations shall have adequate drainage:**
 - Upon completion of use for the year or by October 15, whichever is earlier.
 - An exception is that drainage facilities and drainage structures do not need to be constructed on logging roads and landings in use during the extended wet weather period provided that all such drainage facilities and drainage structures are installed prior to the start of rain that generates overland flow. 923.5[943.5, 963.5](j).

- When the term **“WPOP”** (Winter Period Operating Plan) is used below, all the requirements per 14 CCR 914.7[934.7, 954.7] (b) must be addressed.

ITEM #23		WINTER OPERATIONS	
If timber operations are proposed within the winter period the RPF may propose to operate under a:			
<ul style="list-style-type: none"> • Winter Period Operating Plan (WPOP) per 14 CCR 914.7, 934.7, 954.7(b) • In-lieu winter operating plan per 14 CCR 914.7 [934.7, 954.7](c) 			
a. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will timber operations occur during the winter period?		
WINTER PERIOD OPERATING PLAN (WPOP)			
A Winter Period Operating Plan (WPOP) is required when winter operations will occur under the following conditions:			
<ul style="list-style-type: none"> • Site preparation • Road and landing construction • Temporary logging road watercourse crossings will not be removed • At tractor watercourse crossings • Temporary logging roads or landings • Roads to be abandoned or deactivated • Operations are proposed in an ASP watershed or immediately upstream 			
b. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will mechanical site preparation be conducted during the winter period? If YES, then a WPOP is required per 14 CCR 914.7 [934.7, 954.7](b)		
c. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will roads be constructed during the winter period? If YES, a WPOP is required per 14 CCR 914.7 [934.7, 954.7] addressing logging road and landing construction and reconstruction per 14 CCR 923.4 [943.4, 963.4](l). Provide operational instructions to the LTO in SECTION II		
d. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will landings be constructed during the winter period? If YES, a WPOP is required per 14 CCR 914.7 [934.7, 954.7] addressing logging road and landing construction and reconstruction per 14 CCR 923.4 [943.4, 963.4](l). Provide operational instructions to the LTO in SECTION II		

CalTREES THP ITEM #23 – WINTER OPERATIONS

e. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will temporary logging road watercourse crossings be left in place during the winter period? If YES, a WPOP is required per 14 CCR 923.9 [943.9, 963.9](r). Provide specific measures to be taken during operations by the LTO in SECTION II
f. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will tractor watercourse crossings be used during the winter period? If YES, a WPOP is required per 14 CCR 914.8 [934.8, 954.8](d). Provide operational instructions and stabilization measures in SECTION II. If an exception is proposed provide an explanation and justification in SECTION III.
g. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will temporary logging roads be used during the winter period? If YES, a WPOP is required per 14 CCR 923.6 [943.6, 963.6](f) and 923.8 [943.8, 963.8](d). Provide specific measures to be taken during operations for the LTO in SECTION II.
h. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will temporary landings be used during the winter period? If YES, a WPOP is required per 14 CCR 923.6 [943.6, 963.6](f) and 923.8 [943.8, 963.8](d). Provide specific measures to be taken during operations for the LTO in SECTION II.
i. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will logging roads to be abandoned or deactivated, be open (not blocked) during the winter period? If YES, a WPOP is required per 14 CCR 923.6 [943.6, 963.6](f) and 923.8 [943.8, 963.8](d). Provide specific measures to be taken during operations for the LTO in SECTION II.
ASP WATERSHEDS OR IMMEDIATELY UPSTREAM	
	Extended Wet Weather Period:
j. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are timber operations proposed during the extended wet weather period – October to May 1? If YES, then a WPOP is required per 14 CCR 916.9 [936.9, 963.9](l) and (l)(1)
k. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will <u>logging roads construction or reconstruction</u> occur within the extended wet weather period? If YES, provide specific measures to be taken during operations per 14 CCR 923.6 [943.6, 963.6] (h)(6) and 923.4 [943.4, 963.4](s)(2) In SECTION II
l. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will <u>logging road use</u> occur within the extended wet weather period? If YES, provide specific measures to be taken during operations per 14 CCR 923.6 [943.6, 963.6] (h)(6) and 923.4 [943.4, 963.4](s)(2) In SECTION II <u>Logging road use is proposed during the extended wet weather period. Please see Winter Operating Plan below. No logging road construction is proposed during the extended wet weather period.</u>
m. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will <u>landing construction or reconstruction</u> occur within the extended wet weather period? If YES, provide specific measures to be taken during operations per 14 CCR 923.6 [943.6, 963.6] (h)(6) and 923.4 [943.4, 963.4](s)(2) In SECTION II
n. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will <u>landing use</u> occur within the extended wet weather period? If YES, provide specific measures to be taken during operations per 14 CCR 923.6 [943.6, 963.6] (h)(6) and 923.4 [943.4, 963.4](s)(2) In SECTION II <u>Landing use is proposed during the extended wet weather period. Please see Winter Operating Plan below. No landing construction is proposed during the extended wet weather period.</u>
o. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will any watercourse crossing drainage structures be <u>CONSTRUCTED</u> during the extended wet weather period? If YES, provide specific measures to be taken during operations per 14 CCR 923.9 [943.9, 963.9](s) In SECTION II

CaITREES THP ITEM #23 – WINTER OPERATIONS

p. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will any watercourse crossing drainage structures be <u>RECONSTRUCTED</u> during the extended wet weather period? If YES, provide specific measures to be taken during operations per 14 CCR 923.9 [943.9, 963.9](s) In SECTION II
q. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If any of the questions above are answered YES then WPOP is required: RPF chooses to prepare a WPOP per 14 CCR 914.7 [934.7, 954.7](b)(1-12)

IF A WINTER OPERATING PLAN (WPOP) IS NOT BEING PROPOSED THEN THIS PAGE MAY BE REMOVED

ITEM FF

WINTER PERIOD OPERATING PLAN (WPOP)	
Per 14 CCR 914.7 [934.7, 954.7](b) the WPOP shall include the specific measures to be taken during the winter period to avoid or substantially lessen erosion, soil movement into watercourses and soil compaction from timber operations. The winter period operating plan shall address the following subjects:	
1) Erosion Hazard Rating:	<u>The Erosion Hazard Rating for the plan area is Moderate, and High.</u>
2) Mechanical Site preparation methods:	<u>Mechanical Site Preparation is not proposed during the Winter Period.</u>
3) Yarding system: <i>(Constructed skid trails and tractor road watercourse crossings)</i>	<u>Tractor and Cable</u>
4) Operating Period:	<p>a) <u>Timber falling may be conducted during the winter period. The felling of trees that have a chance of accidentally entering a Class I or II watercourse shall be deferred until such time as when equipment is available on-site to remove such trees from the watercourse.</u></p> <p>b) <u>Cable harvesting: No limitations specific to winter operations except road and landing use.</u></p> <p>c) <u>Ground based yarding: Ground based yarding shall be done only during dry rainless periods and shall not be conducted on saturated soils conditions that may produce significant sediment discharge. Significant Sediment Discharge (14 CCR 895.1) means soil erosion that is currently, or may be in the future, discharged to watercourses or lakes in quantities that violate Water Quality Requirements or result in significant individual or cumulative adverse impacts to the beneficial uses of water. Ground based operations that produce a Significant Sediment Discharge which causes a visible increase in turbidity to receiving Class I, II, III or IV waters is prohibited. Saturated soil conditions (14 CCR 895.1) means: "soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur. Indicators of saturated soil conditions may include, but are not limited to: (1) areas of ponded water, (2) pumping of fines from the soil or road surfacing material during timber operations, (3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts, (4) spinning or churning of wheels or tracks that produces a wet slurry, or (5) inadequate traction without blading wet soil or surfacing materials." Use of tractor roads and watercourse crossings within any WLPZ/ELZ is prohibited during the winter period.</u></p> <p><u>Indicators of saturated soil conditions:</u></p> <p><u>In yarding, this condition may be evidenced by:</u></p> <p>i) <u>reduced traction by equipment indicated by spinning or churning of wheels or tracks in excess of normal performance,</u></p> <p>ii) <u>inadequate traction without blading wet soil,</u></p>

CalTREES THP ITEM #23 – WINTER OPERATIONS

	<p>iii) <u>soil displacement in amounts that cause visible increase in turbidity of downstream waters in a receiving Class I, II, III, or IV waters, or in amounts sufficient to cause a turbidity increase in drainage facilities that discharge into Class I, II, III, or IV waters, or</u></p> <p>iv) <u>creation of ruts greater than would be normal following a light rainfall.</u></p> <p><u>On logging roads and landing surfaces, this condition may be evidenced by:</u></p> <p>i) <u>reduced traction by equipment as indicated by spinning or churning of wheels or tracks in excess of normal performance,</u></p> <p>ii) <u>inadequate traction without blading wet soil,</u></p> <p>iii) <u>soil displacement in amounts that cause visible increase in turbidity of the downstream waters in receiving Class I, II, III, or IV waters, or in amounts sufficient to cause a turbidity increase in drainage facilities that discharge into Class I, II, III, or IV waters, or</u></p> <p>iv) <u>pumping of road surface materials by traffic, or</u></p> <p>v) <u>creation of ruts greater than would be created by traffic following normal road watering, which transports surface material to a drainage facility that discharges directly into a watercourse.</u></p> <p>vi) <u>soils or road and landing surfaces that are hard frozen are excluded from this definition.</u></p> <p>d) <u>Road and landings use: Use of logging roads and landings shall not take place at any location where saturated soil conditions exist, where a stable logging road or landing operating surface does not exist, or when visibly turbid water from the road or landing surface, or inside ditch may reach a watercourse or lake. Logging roads and landings shall not be used during any time of the year when operations may result in significant sediment discharge to watercourse, except in emergencies to protect the road, to reduce erosion, to protect water quality, or in response to public safety needs {14 CCR 923.6(b)}.</u></p> <p>e) <u>Road construction and reconstruction (defined in 14 CCR 895.1) will not occur during the winter period. This also includes the construction or reconstruction of watercourse crossings.</u></p> <p>f) <u>Road upgrades (upgrading seasonal roads to permanent roads) may be conducted during the winter period when soils are not "saturated". Saturated soil conditions (14 CCR 895.1) means: "soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur. Indicators of saturated soil conditions may include, but are not limited to: (1) areas of ponded water, (2) pumping of fines from the soil or road surfacing material during timber operations, (3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts, (4) spinning or churning of wheels or tracks that produces a wet slurry, or (5) inadequate traction without blading wet soil or surfacing materials."</u></p> <p>g) <u>Road maintenance (grading) may occur during the winter period as long as the road system is dry. A dry road is one in which moisture is less than or equal to that found during normal watering (dust abatement) treatments or light rainfall. Further, equipment is not rutting a road surface or pumping fines causing a visible increase in turbidity in any drainage facility which drains directly to Class I, II or III waters.</u></p>
<p>5) Erosion Control facilities timing:</p>	<p><u>During the winter period, erosion control structures shall be installed on all tractor roads prior to the end of the day if the US Weather Service forecast is a "chance" (30% or more) of rain before the next day, and prior to a weekend or other shut down periods (14 CCR 914.7 (c) (2). Additionally, to ensure compliance with (14 CCR 914.7 (c) (2), the amount of tractor roads open at any given time during the winter period, will be limited to the amount that can be winterized in a single day. Ungraded permanent roads will have drainage facilities and structures installed prior to the winter period at intervals along the road no greater than the guidelines in Table 19 (<i>Handbook for Forest and Ranch Roads</i>, Weaver and Hagans, Rev 2015) and frequent enough to disperse road surface run off</u></p>

CaITREES THP ITEM #23 – WINTER OPERATIONS

	so as to avoid gully formation and minimize erosion of the road surface, erosion of the inside ditches, and erosion at the outfalls of drainage facilities and structures.
6) Consideration of form of precipitation: (rain or snow)	Precipitation is expected to occur in the form of rain and light fog.
7) Ground conditions: (soil moisture conditions, frozen)	Ground based yarding and road use shall cease when soils are saturated as defined in Item 4(c) and (d), Operating Period, above.
8) Silvicultural system ground cover:	Silviculture is Single Tree Selection, Group Selection, and Transition. All harvest areas of the plan are expected to retain a vegetative cover in the form of overstory/understory vegetation, slash, and associated logging debris.
9) Operations within the WLPZ:	Operations within the WLPZ/ELZ during the winter period will be limited to: a) <u>The felling of trees. Trees shall be felled away from watercourses, in such a manner to facilitate the removal of logs from the WLPZ/ELZ with minimized disturbance to vegetation and ground cover.</u> b) <u>Long lining of logs</u> c) <u>Cable Yarding.</u> d) <u>Road Maintenance as defined in Item 4 (g) above.</u>
10) Equipment limitations:	See Section II, Item 23, 4(b-g), 7, and 9 (b-d) above.
11) Known Unstable Areas:	No operations allowed on active unstable areas.
12) Logging roads and landings:	See Item 4(d) above.

Information Resources: There are requirements for the LTO to monitor rainfall amounts during the FOP, WOP, SOP, and LSOP. Hourly rainfall data can be accessed via the internet for Guerneville area is : <https://forecast.weather.gov/MapClick.php?lat=38.502&lon=-122.9974#.XpXzZ8hKhaQ>

IN-LIEU WINTER PERIOD OPERATION PLAN	
r. <input type="checkbox"/>	RPF chooses the in-lieu winter operating plan option as allowed per 14 CCR 914.7 [934.7, 954.7](c)(1-3) Specify the procedures listed in subsections (1) and (2), and list the site specific measures for operations in the WLPZ and unstable areas as required by subsection (3).
s. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will the in-lieu winter operating plan include operations within WLPZ(s) or unstable area(s) during the winter period? If YES, provide site specific measures per 14 CCR 914 [934, 954] to protect the beneficial uses of water in SECTION II as instructions to the LTO.
Hauling and heavy equipment use roads and landings	
t. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will <u>ROADS</u> be used for log hauling and heavy equipment use during the winter period where there will not be a stable operating surface or surfaced with rock to a depth and quantity sufficient to maintain a stable operating surface? If YES, the required explanation and justification should be provided in SECTION III per 14 CCR 923.6 [943.6, 963.6](g) and 914.7[934.7,954.7].
u. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will <u>LANDINGS</u> be used for log hauling and heavy equipment use during the winter period where there will not be a stable operating surface or surfaced with rock to a depth and quantity sufficient to maintain a stable operating surface? If YES, the required explanation and justification should be provided in SECTION III per 14 CCR 923.6 [943.6, 963.6](g) and 914.7[934.7,954.7].

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Hauling and heavy equipment use on hydrologically disconnected or saturated soils.	
v. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will <u>ROADS</u> be used for log hauling and heavy equipment use during the winter period on roads that are NOT hydrologically disconnected and exhibit saturated soil conditions? If YES, provide a required explanation and justification in SECTION III. per 14 CCR 923.6 [943.6, 963.6](g) and 914.7[934.7,954.7].
w. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will <u>LANDINGS</u> be used for log hauling and heavy equipment use during the winter period on roads that are NOT hydrologically disconnected and exhibit saturated soil conditions? If YES, provide a required explanation and justification in SECTION III. per 14 CCR 923.6 [943.6, 963.6](g) and 914.7[934.7,954.7].
Watercourse crossing removal	
x. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will any logging road watercourse crossing proposed for removal and/or stabilization be left in place during the winter period? If YES, provide operational instructions to the LTO addressing the specifics of the applicable CDFW 1600 agreement, Lake and Streambed alteration agreement or otherwise specify in the plan. Per 14 CCR 923.9[943.9, 963.9](p)(4) In SECTION II

CalTREES THP ITEM #24 & 25- ROADS AND LANDINGS

<p>g. 1. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 2. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>3. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 4. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Will any road(s) be deactivated? Will any road(s) be abandoned? Road classification: Approximate length Feet: <input type="checkbox"/> Permanent _____ <input type="checkbox"/> Seasonal _____ <input type="checkbox"/> Temporary _____</p> <p>Will any watercourse crossing(s) be deactivated? Will any watercourse crossing(s) be abandoned? If YES, describe specific measures to prevent significant sediment discharge. per 14 CCR 923.8 [943.8, 963.8] et seq. and 923.9 [943.9, 963.9](e) and (p)</p> <p>If Logging road(s) are to be abandoned provide the blockage design Per 14 CCR 923.8 [943.8, 963.8](d)</p>
<p>h. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Is there any exception to flagging or otherwise identifying the location of any road(s) to be constructed? If YES, address per 14 CCR 923.3 [943.3, 963.3](c)</p>

ROAD RECONSTRUCTION	
<p>i. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Will any roads be RECONSTRUCTED? PROVIDE: The classification and approximate length of each of the following logging road segment categories: 1034(o) Road classification: Approximate length Feet: <input checked="" type="checkbox"/> Permanent <u>90</u> <input type="checkbox"/> Seasonal _____ <input type="checkbox"/> Temporary _____</p>
<p>j. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Will new road reconstruction be wider than single lane with turnouts? If YES, address pursuant to 14 CCR 923 [943, 963](c) & 923.2 [943.2, 963.2](d)(1)</p>
<p>k. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Will any logging roads be reconstructed within? <input type="checkbox"/> Class I Watercourse or Lake <input type="checkbox"/> Class II Watercourse or Lake <input type="checkbox"/> Class III Watercourse or Lake <input type="checkbox"/> Class IV Watercourse or Lake <input type="checkbox"/> A Watercourse and Lake Zone (WLPZ) <input type="checkbox"/> Other (Examples; marshes, wet meadows, wet areas) If "OTHER" is selected describe the type of feature referenced below.</p> <p>NOTE: Exceptions are permitted per 14 CCR 923.1 [943.1, 963.1](b)(1) – (3) at: - Existing logging road crossing(s) - Logging road watercourse crossing(s) to be constructed that are approved as part of a Fish and Game Code process (F&GC 1600 et seq.) - Logging road watercourse crossings of class III watercourses that are dry at the time of use. If YES, address per 14 CCR 923 [943, 963](c)</p>
<p>l. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Will any reconstructed road be located across 100 feet or more lineal distance on? <input type="checkbox"/> slopes over 65% <input type="checkbox"/> Slopes over 50% which are within 100 feet of the boundary of a WLPZ that drains toward the zoned watercourse or lake. If YES, address per 14 CCR 923.2 [943.2, 963.2](a)(7) and 923.4 [943.4, 963.4](n)</p>
<p>m. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Is there any exception to flagging or otherwise identifying the location of any road(s) to be reconstructed?</p>

CalTREES THP ITEM #24 & 25- ROADS AND LANDINGS

If YES, address per 14 CCR 923.3 [943.3, 963.3](c)	
LANDING CONSTRUCTION	
n. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will any Landing(s) be CONSTRUCTED?</p>
o. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will any landing(s) be constructed within?</p> <p><input type="checkbox"/> 150 feet of a Class I Watercourse and Lake Transition Line (WLTL)</p> <p><input type="checkbox"/> 100 feet of a class II WLTL on slopes greater than 30%</p> <p><input type="checkbox"/> Class I Watercourse or Lake</p> <p><input type="checkbox"/> Class II Watercourse or Lake</p> <p><input type="checkbox"/> Class III Watercourse or Lake</p> <p><input type="checkbox"/> Class IV Watercourse or Lake</p> <p><input type="checkbox"/> A Watercourse and Lake Protection Zone (WLPZ)</p> <p><input type="checkbox"/> Other (Examples; marshes, wet meadows, wet areas)</p> <p>If "OTHER" is selected describe the type of feature referenced below.</p> <p>NOTE: Exceptions are permitted per 14 CCR 923.1 [943.1, 963.1](b)(1) – (3) at:</p> <ul style="list-style-type: none"> - Existing crossing(s) - Logging road watercourse crossing(s) to be constructed that are approved as part of a Fish and Game Code process (F&GC 1600 et seq.) - Logging road watercourse crossings of class III watercourses that are dry at the time of use. <p align="center">If YES, address per 14 CCR 923 [943, 963](c)</p>
p. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will any landing(s) exceed one half acre in size?</p> <p>NOTE: per 14 CCR 1034(x)(5)(D) if any landing exceeds ¼ acre in size or requires substantial excavation, the location shall be mapped.</p> <p align="center">If YES, address per 14 CCR 923 [943, 963](c) and 923.2 [943.2, 963.2](e)(2)</p>
q. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will any Landing(s) be located on?</p> <p><input type="checkbox"/> Unstable areas</p> <p><input type="checkbox"/> Connected headwall swales (14 CCR 895.1 "Connected Headwall Swale")</p> <p><input type="checkbox"/> Both</p> <p align="center">If YES, address pursuant to 14 CCR 923.1 [943.1, 963.1](d)</p>
r. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will any landing construction be located across 100 feet or more lineal distance on?</p> <p><input type="checkbox"/> Slopes over 65%</p> <p><input type="checkbox"/> Slopes over 50% which are within 100 feet of the boundary of a WLPZ that drains toward the zoned watercourse or lake.</p> <p align="center">If YES, address per 14 CCR 923.2 [943.2, 963.2](a)(7) and 923.4 [943.4, 963.4](n)</p>
s. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will any Landing(s) be deactivated?</p> <p>Will any Landing(s) be abandoned?</p> <p align="center">If YES, describe specific measures to prevent significant sediment discharge. per 14 CCR 923.8 [943.8, 963.8] et seq. and 923.9 [943.9, 963.9](e) and (p)</p>

LANDING RECONSTRUCTION	
t. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will any Landing(s) be RECONSTRUCTED?</p>
u. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will any logging roads be reconstructed within?</p> <p><input type="checkbox"/> Class I Watercourse or Lake</p> <p><input type="checkbox"/> Class II Watercourse or Lake</p>

CalTREES THP ITEM #24 & 25– ROADS AND LANDINGS

	<input type="checkbox"/> Class III Watercourse or Lake <input type="checkbox"/> Class IV Watercourse or Lake <input type="checkbox"/> A Watercourse and Lake Protection Zone (WLPZ) <input type="checkbox"/> Other (Examples; marshes, wet meadows, wet areas) If "OTHER" is selected describe the type of feature referenced below. NOTE: Exceptions are permitted per 14 CCR 923.1 [943.1, 963.1](b)(1) – (3) at: - Existing logging roads crossing(s) - Logging road watercourse crossing(s) to be constructed that are approved as part of a Fish and Game Code process (F&GC 1600 et seq.) - Logging road watercourse crossings of class III watercourses that are dry at the time of use. <p align="center">If YES, address per 14 CCR 923 [943, 963](c)</p>
u.1. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will any landing reconstruction be located across 100 feet or more lineal distance on? <input type="checkbox"/> Slopes over 65% <input type="checkbox"/> Slopes over 50% which are within 100 feet of the boundary of a WLPZ that drains toward the zoned watercourse or lake. <p align="center">If YES, address per 14 CCR 923.2 [943.2, 963.2](a)(7) and 923.4 [943.4, 963.4](n)</p>

SIGNIFICANT EROSION SITE(S)	
w. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are there any significant erosion sites? <input type="checkbox"/> Existing <input type="checkbox"/> Potential <input checked="" type="checkbox"/> Both Associated within the logging area at? <input checked="" type="checkbox"/> Logging road(s) <input type="checkbox"/> Landing(s) <input checked="" type="checkbox"/> Watercourse crossing(s) in the logging area? Per 14 CCR 923.1 [943.1, 963.1](e)(1) – (5). Also see 923.9 [943.9, 963.9](a) <p align="center">If YES, for each significant existing or potential erosion site, provide the following:</p> <ul style="list-style-type: none"> ➤ Describe current condition of the site. ➤ Identify which sites can be feasibly treated, and which sites cannot. ➤ Specify mitigations for those sites that can be feasibly treated. ➤ Indicate logical order of treatment for those which have feasible treatments NOTE: Consider providing a MAP POINT TABLE which identifies the erosion site by mapped referenced identifier consistent with mapped locations.

Map & Point #	Site, Description, Watercourse Class,	Potential Sediment Discharge (cy), Priority*	1600	Description and Recommendations
		Hydro Calc	Geo Report	

1	CSDS (Controllable Sediment Discharge Site) Class II(s) Crossing	65, Low	Yes	<p>This is a 24-inch diameter x 100+/- foot long rusted and undersized CMP located on a Class II watercourse and extending across both the main access road to the property and Neely Road.</p> <p>This culvert is in poor condition with multiple problems. First, the inlet to the culvert is partly plugged with debris (trash and sediment) with an oversteepened fill embankment. The culvert has apparently plugged in the past with streamflow overtopping the inlet and diverted roughly 50 feet down the access road where it eroded a shallow 6 inch to 12-inch-deep gully in the roadbed before discharging into the inside ditch of Neeley Road.</p> <p>The outlet of the culvert is located below Neeley Road. Inspection of the culvert outfall reveals the culvert bottom has rusted out with soil piping along the culvert bottom starting to occur. Due to the rocky nature of the substrate the rate of subsurface soil piping will likely be low.</p> <p>The existing culvert will ultimately need to be replaced with a larger diameter pipe. However, because about half of the pipe crosses a public road with underground utilities on County lands, any repair of this site will need to be done in cooperation and support from Sonoma County public works. The RPF has contacted the County about this culvert and they replied that they do not have immediate plans to replace this culvert. Because there would be little benefit to replacement only the upstream half of the pipe located on the subject property, the THP proposes to limit repairs to improving culvert inlet conditions by pulling back perched fill and installing a trash rack to keep debris from the inlet additionally the road bed shall be rocked to minimize erosion of the roadbed when the culvert overtops.</p> <p>The following are short term culvert improvements that should be undertaken until such time the County decides to replace the culvert. These measures will improve crossing conditions but will not prevent failure.</p> <p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> • Clean the culvert inlet and pull back perched fill to a 1.5:1 slope. • Rock armor the inlet using 18-inch diameter rock placed two layers thick. Rock shall extend the full distance to the road surface. • Rock shall be placed to form a flared inlet with angled wing-walls at approximately 45 degrees. • Install a heavy-duty inclined metal grade trash rack upstream of the culvert that extends the entire width of the channel. • Inslope the access road to drain to Neeley Road. Rock the road prism using ~6-inch diameter angular placed 12 inches thick and capped by a thin layer of rock aggregate to give the road a smooth-running surface.
		Yes	Yes	

Map & Point #	Site, Description, Watercourse Class,	Potential Sediment Discharge (cy), Priority*	1600	Description and Recommendations
		Hydro Calc	Geo Report	

				<ul style="list-style-type: none"> • Inform County Public Works about the observed condition of the culvert and the temporary measures that are being implemented to partially stabilize the portion of the culvert on the subject property. • Water bar upslope of crossing shall be maintained once operations are complete. • Follow the requirements of the 1600 Agreement. • Exposed soils shall be stabilized as per Item #18 Soil Stabilization Measures.
2	CSDS, Class III Crossing	2, Low	Yes	<p>A Class III watercourse crosses an existing permanent road via Rocked Ford. The dip of the rocked ford is shallow, and water appears to overtop the ford during periods of high flow. (Q₁₀₀=9.2 cfs)</p> <ul style="list-style-type: none"> • Enhance the dip in the Rocked Ford to ensure water does not over top the Ford during rain events. • Add additional minimum 16" D₅₀ rock to the Rocked Ford outlet to dissipate energy and prevent erosion. • Exposed soils shall be stabilized as per Item #18 Soil Stabilization Measures.
		Yes	No	
3	CSDS, Class III Crossing	4, Low	Yes	<p>A Class III watercourse crosses an existing permanent road via Rocked Ford. The watercourse drains to the road surfaces and flows down the road for approximately 50' before draining off the road. (Q₁₀₀= 4.6 cfs)</p> <ul style="list-style-type: none"> • An 18" Culvert shall be installed to re-establish the watercourse in the natural channel flagged with three glo-orange flags in the field. • Exposed soils shall be stabilized as per Item #18 Soil Stabilization Measures.
		Yes	No	
4	CSDS, Class III Crossing	3, Low	Yes	<p>A Class III watercourse crosses an existing permanent road via rocked ford. The road surface is showing signs of rill erosion through the ford. (Q₁₀₀=15.4 cfs)</p> <ul style="list-style-type: none"> • Enhance the dip in the Rocked Ford. • Add additional road rock if necessary to create a smooth operating surface. • Exposed soils shall be stabilized as per Item #18 Soil Stabilization Measures.
		Yes	No	
5	CSDS, Class III Crossing	3, Low	Yes	<p>A Class III watercourse crosses an existing permanent road via rocked ford. The outlet of the rocked ford is showing signs of erosion. (Q₁₀₀=9.2 cfs)</p> <ul style="list-style-type: none"> • Add additional minimum 16" D₅₀ rock to the Rocked Ford outlet to dissipate energy and prevent erosion. • Exposed soils shall be stabilized as per Item #18 Soil Stabilization Measures.
		Yes	No	
6	CSDS, Class III Crossing	6, Low	Yes	<p>A Class III watercourse crosses an existing permanent road with no drainage facility in place. There is a bank seep with an inside ditch upslope of the crossing for approximately 50</p>
		Yes	No	

Map & Point #	Site, Description, Watercourse Class,	Potential Sediment Discharge (cy), Priority*	1600	Description and Recommendations
		Hydro Calc	Geo Report	

				<p>feet. (Q₁₀₀=10.8 cfs)</p> <ul style="list-style-type: none"> • Install Rocked Ford with 17" D₅₀ rock. • Install Rocked Ford as per Diagram 4. • Re-establish inside ditch upslope of crossing for approximately 50 feet per diagram C6. • Exposed soils shall be stabilized as per Item #18 Soil Stabilization Measures.
7	CSDS, Head of Class III	1, Low	Yes	<p>An existing permanent road crosses above the head of a Class III watercourse. There is a small amount of erosion visible in the road surface for approximately 40 feet upslope of the crossing. (Q₁₀₀=6.2 cfs)</p> <ul style="list-style-type: none"> • Install rock armored rolling dip with rock armored outfall with 14" D₅₀ rock. • Exposed soils shall be stabilized as per Item #18 Soil Stabilization Measures.
		No	No	
8	CSDS, Class III Crossing	5, Low	Yes	<p>A Class III watercourse crosses an existing permanent road via rocked ford. The rocked ford appears to overtop during high flows allowing water to run down the road surface to the water bar below the crossing. This is causing erosion on the road surface and at the water bar outlet. (Q₁₀₀=4.6 cfs)</p> <ul style="list-style-type: none"> • Install an 18" Culvert to watercourse grade. • Exposed soils shall be stabilized as per Item #18 Soil Stabilization Measures.
		Yes	No	
9	Ditch Relief Culvert	N/A, N/A	No	<p>18" Ditch relief culvert with downspout on existing permanent road. Culvert is functional but the downspout is full of sediment.</p> <ul style="list-style-type: none"> • Leave culvert in place and remove sediment from the downspout.
		No	No	
10	CSDS, Class III Watercourse	3, Low	Yes	<p>A Class III watercourse crosses an existing permanent road with no drainage facility in place. (Q₁₀₀=4.6 cfs)</p> <ul style="list-style-type: none"> • Install an 18" culvert to watercourse grade. • Install critical dip with rock armored outfall using 14" D₅₀ rock approximately 30 feet downgrade of crossing. • Exposed soils shall be stabilized as per Item #18 Soil Stabilization Measures.
		Yes	No	
11	Ditch Relief Culvert	N/A, N/A	No	<p>An 18" Ditch Relief Culvert on existing permanent road. Culvert outlet is ½ way blocked by sediment.</p> <ul style="list-style-type: none"> • Keep culvert in place and remove sediment from outlet improving the culvert flow capacity.
		No	No	
12	Ditch Relief	N/A, N/A	No	Existing stretch of permanent road with an inside ditch that

Map & Point #	Site, Description, Watercourse Class,	Potential Sediment Discharge (cy), Priority*	1600	Description and Recommendations
		Hydro Calc	Geo Report	

	Culvert	No	No	drains into a Class III watercourse. <ul style="list-style-type: none"> Install an 18" ditch relief culvert.
13	CSDS, Class III Watercourse	9, Moderate	Yes	A Class III watercourse crosses an existing permanent road via an 18" CMP. The culvert draining the Class III watercourse is completely buried and non-functional. There is also an 18" CMP installed above the non-functional culvert draining both the inside ditch and the watercourse. This culvert is functional; however, it is not installed to watercourse grade, and is hydrologically connected to the road. (Q ₁₀₀ =4.6 cfs) <ul style="list-style-type: none"> Remove both the 18" and the 24" culvert. Install a 24" culvert to watercourse grade. Re-establish the channel upstream of the newly installed culvert to ensure all flows stay within the channel. The re-established channel shall be 3' wide and 2' deep. This will re-establish the channel to the outlet of culvert at crossing #10. Install a critical dip with rock armored outfall using 14" D₅₀ rock approximately 30 feet downgrade of the crossing. Exposed soils shall be stabilized as per Item #18 Soil Stabilization Measures.
		Yes	No	
15	Ditch Relief Culvert	N/A, N/A	No	12" Ditch relief culvert on existing permanent road. The ditch relief culvert is rusted through on the inlet and outlet and is undersized. <ul style="list-style-type: none"> Remove the 12" culvert. Install an 18" Ditch Relief Culvert.
		No	No	
16	Ditch Relief Culvert	N/A, N/A	No	An 18" Ditch Relief Culvert on existing permanent road. The culvert is functional, but the inlet is partially buried with sediment. <ul style="list-style-type: none"> Leave culvert in place and remove sediment from the culvert inlet.
		No	No	
17	Ditch Relief Culvert	N/A, N/A	No	A 12" Ditch Relief Culvert on existing permanent road. The culvert outlet is shot-gunned out approximately 3.5 feet. The culvert is undersized and appears to be crushed or blocked in the middle of the road and is non-functional. <ul style="list-style-type: none"> Remove the 12" culvert. Install an 18" Ditch Relief Culvert.
		No	No	
19	Bank Seep and Head of Class III Watercourse	N/A, N/A	No	A bank seep and the head of a Class III Watercourse on an existing permanent road. The bank seep is being drained via a rocked rolling dip. The dip is functional and working properly. <ul style="list-style-type: none"> Maintain Rocked Rolling Dip.
		No	No	

Map & Point #	Site, Description, Watercourse Class,	Potential Sediment Discharge (cy), Priority*	1600	Description and Recommendations
		Hydro Calc	Geo Report	

20	Bank Seep	N/A, N/A	No	<p>A bank seep on an existing permanent road. The bank seep is being drained via a rocked rolling dip. The dip is functional and working properly.</p> <ul style="list-style-type: none"> Maintain Rocked Rolling Dip.
		No	No	
21	Head of Class III Watercourse	N/A, N/A	No	<p>The head of a Class III watercourse begins on an existing permanent road. The head of the watercourse begins at a rocked rolling dip. The dip is functional and working properly.</p> <ul style="list-style-type: none"> Maintain Rocked Rolling Dip.
		No	No	
22	Ditch Relief Culvert	N/A, N/A	No	<p>At this site about 100 feet of the outer edge of the main haul road that extends up from Mays Canyon Road had apparently failed in the early 1980's and the road reconstructed at a relatively narrow 12 foot width. The slide is currently defined by steep 5 to 8 foot high escarpment that extends to the outer edge of the roadway with the interior of the slide appearing old and vegetated with brush and small trees.</p> <p>The failure is located where the road switch backed up across very steep 75% gradient slopes on a partial bench with fill side casted on the steep slopes below the road as was the standard of practice for early road construction. The resulting cut is greater than 20 feet high exposing fractured Franciscan sandstone and colluvium. The cut is inclined at slightly steeper than 1:1. Fill was likely side casted at depth exceeding 5 feet, though much of this material has since failed.</p> <p>Huyette (2002) reports the failure apparently occurred in the early 1980's and was previously address reviewed by Armstrong (1982) for THP 1-82-389. Huyette further reports that the debris slide was likely caused by poor road drainage as a low spot in the road focuses runoff into the slide area, and recommended that the section of roadway above the slide be arched to drain runoff to either side of the failed area, a road berm removed, and the road drained by outsloping and rolling dips. If this was implemented, conditions over the years have changed and the road does no longer matches this description.</p> <p>We find that the steep escarpment that extends to the outer edge of the roadway is potentially unstable and could present a hazard to vehicles using the road if the outer edge of the road were to fail. For improved saftey we recommend that the road travel way be offset 4 feet from the current edge of the escarpment, which is equal to a 1:1 slope project from the base of the escarpment. The road would need to be widened to a 12 foot width by excavating into the hillside on a full bench and end hauling spoils to a stable location. Cutting into the bank could increase the risk of cutbank instability leading to an increased level of road maintenance. Because debris would be retained on the road surface we do not believe this work would lead to a significant increase in the potential for sediment</p>
		No	Yes	

Map & Point #	Site, Description, Watercourse Class,	Potential Sediment Discharge (cy), Priority*	1600	Description and Recommendations
		Hydro Calc	Geo Report	

				<p>delivery to a watercourse.</p> <p>There is also a 12"x 20' ditch relief culvert that is partially plugged. The inlet to this culvert should be cleaned and one or two more rolling dips installed on the upslope portion of roadway to minimize the amount of road runoff.</p> <p>RECOMENDATIONS:</p> <ul style="list-style-type: none"> For improved road safety the active travel way of the road should be offset a minimum of 4 feet from the top edge of the escarpment. This is equal to a 1:1-line projected from the base of the scarp Clear the inlet to the ditch relief culvert and shape the road to drain to the culvert inlet. Install at least one and preferably two permanent rolling dips upslope of the road between the ditch relief culvert and saddle. A special Treatment Zone (STZ-G14) shall be established within the area between the switchback segments of road to a single 32-inch redwood. Please refer to Diagram #3.
23	CSDS, Class III Watercourse	4, Low	No	<p>A Class III Watercourse crosses an existing permanent road via an 18" CMP with downspout. The culvert inlet is slightly crushed, and the downspout has become disconnected.</p> <ul style="list-style-type: none"> Leave culvert in place. Open the culvert inlet to improve flow capacity. Remove culvert downspout from channel. Exposed soils shall be stabilized as per Item #18 Soil Stabilization Measures.
		No	No	
24	CSDS Class II(s) Watercourse	6, Low	Yes	<p>A Class II Watercourse crosses an existing permanent road via a 24" CMP. The culvert is functional but is undersized. ($Q_{100}=37.0$ cfs)</p> <ul style="list-style-type: none"> Remove culvert. Install a 48" culvert to watercourse grade. Install a sediment trap in the inside ditch approximately 30 feet upgrade of the crossing. Install a critical dip approximately 120 feet down grade of the crossing at the flagged location. Follow requirements of 1600 Agreement. Exposed soils shall be stabilized as per Item #18 Soil Stabilization Measures.
		Yes	No	
D	Unstable Feature	N/A, N/A	No	<p>This is a 20-foot wide fill failure located along the existing ridge top road. Peterson (2002) reports the slide appeared to involve the upper 2 to 3 feet of road fill and the underlying native soils. He estimated the slide to be several years old in 2002, which means it may have been initiated in the 1998 storms. Presently the site appears relatively stable without signs of recent displacements.</p> <p>Recently a short segment of road cut has failed depositing about 20 cy of material onto the roadway.</p>
		No	Yes	
			Geo Map Point G16	

Map & Point #	Site, Description, Watercourse Class,	Potential Sediment Discharge (cy), Priority*	1600	Description and Recommendations
		Hydro Calc	Geo Report	

				<u>RECOMMENDATIONS</u> <ul style="list-style-type: none"> • Reopen the road by grading through the cutbank failure and feathering the material out to either side. • Install waterbars to either side of the old fill failure to prevent water from discharging onto the slide.
E	CSDS, Unstable Feature	35, High	No	<p>About 75 feet of the outer edge of an existing permanent access road failed in 2019 as a shallow debris slide with the failure extending 7 feet back into the old road prism, narrowing the road to less than 7 feet in width. This road is a main access route and emergency access route to the property and has provided a secondary access route to RRCSD spray fields. The THP proposes to reopen the road past this slide for timber operations.</p> <p>The failure occurred where the road was constructed across 85% gradient slopes at a 14-foot width on cut and fill. The age of the road is unknown but based on review of orthophotos, appears to have been constructed sometime between 1971 and 1983. The native hillside above the road appear smooth without signs of instability.</p> <p>Initial road construction resulted in a steep cut that exposes relatively competent fractured Franciscan sandstone bedrock capped by a 2 to 3 feet of loose gravely sand (colluvium and weathered bedrock). The cut into bedrock is inclined at roughly a 0.6H:1V to 0.75H:1V slope with the relatively weaker overlying colluvial soils having failed back to a gentler 1:1 slope. No seeps or springs were observed and outside of failure of the colluvial mantle, which may have occurred during road construction. No large scale cutbank failures are evident. Slopes above the road cut, although steep, do not show signs of local instability.</p> <p>The initial road fill is estimated to have been about 7 to 9 feet thick and inclined at roughly a 1:1 or steeper slope. The exact depth of fill is unknown and cannot be precisely determined without additional subsurface exploration data. Based on field observations we believe that the initial fill was probably simply side casted without the benefit of a keyway or benching to support the fill embankment. All of this fill was sidecast onto slopes greater than 80% and was therefore prone to instability.</p> <p>The 2019 failure is approximately 75 feet wide, 40+ feet long and about 4 to 8 feet thick incorporating the majority of road fill and much of the underlying colluvial mantle. The resulting side scarp is about 4 feet and near vertical. Sandstone bedrock is exposed locally within the slide scar. Some of the failed slide debris is suspended on the slope.</p> <p>Failure is attributed to thick fill side casted onto steep slopes. There is also evidence that road runoff being discharged into the failure area which could have been a contributing factor. We did not observe any seeps or springs within the slide area which could have been a contributing factor in the failure. Adjacent portions of road fill appear to have failed in the past,</p>
		No	Yes Geo Map Point G17	

Map & Point #	Site, Description, Watercourse Class,	Potential Sediment Discharge (cy), Priority*	1600	Description and Recommendations
		Hydro Calc	Geo Report	

				<p>though these failures are undocumented in the aerial photo record and are not reported in any of the earlier engineering geologic reports that we reviewed.</p> <p>There are two alternatives that could be employed to reopen the road past this site including 1) widening the road into the hillside on a full bench and 2) Reconstructing the outer edge of the road on a retaining wall.</p> <p>Alternative 1: Temporarily widen the road into bank In this alternative the road would be reopened at a 10 foot width by widening the road about 7 additional feet into the bedrock hillside. Construction would be on a full bench and offsetting the outer edge of the road a minimum of 4 feet from the edge of the oversteepened slide scarp. The resulting cut shall be laid back to a 0.5H:1V slope or flatter. At the conclusion of harvest, operations the cut would be inspected, and the lower 6 feet of the road cut be partially buttressed with stacked concrete blocks as needed.</p> <p>Widening the road into the bank will remove some of the toe support to the hillside increasing the potential for cutbank instability. The principal geotechnical concern is whether the proposed road work would significant increase the potential for a large scale failure that could overtop the roadway permanently damaging the road and resulting in sediment delivery to the Class II watercourse. There are no buildings or roads immediately downslope of the site and therefore the potential risk to public safety is low.</p> <p>We qualitatively evaluated cutbank stability through a review of earth materials exposed in the existing cuts and through a comparison of stability of nearby cuts of similar height, configuration and geology. The proposed road repairs would occur in an area that although steep appears relatively stable, underlain by relatively competent Franciscan sandstone bedrock at a shallow depth. The steep slope above the road appears smooth with relatively uniform topography with little evidence of past instability. Our review of nearby cuts made into similar earth materials, found many cuts equal or exceeding what is proposed at this site.</p> <p>Widening the road into the bank to gain a 10-foot-wide roadbed will result in a roughly 18 to 20 foot high cut. Based on our field review and relying on the performance of nearby cuts in the area, the most likely scenario is for continued shallow raveling and small scale failures of the new cut, depositing debris onto the roadway and requiring standard maintenance to remove the failed debris. The potential for a large failure that could permanently block the road and/or result in significant sediment delivery to a watercourse appears unlikely and is comparable to many other cuts in the area. The geologic hazard associated with cutbank instability can be mitigated by retaining the cut, however such retaining structures can be expensive.</p>
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Map & Point #	Site, Description, Watercourse Class,	Potential Sediment Discharge (cy), Priority*	1600	Description and Recommendations
		Hydro Calc	Geo Report	

				<p>Alternative 2: Reconstruct outer edge of road on a retaining wall</p> <p>In this alternative approximately 80 feet of outer edge of the road could be reconstructed and supported by a new approximately 10 to 15-foot-high engineered retaining wall. There are several retaining wall designs that could be employed, including a soldier pin wall, gravity wall, and reinforced earth wall. Each of these have their pros and cons. The transition zones at the ends of the wall may be difficult to implement due to the potentially unstable undocumented fill that borders the slide area. The advantage of the retaining wall over widening the road into the bank that would provide a high level of stability; greater than what existed prior to the 2019 failure. The disadvantage, which is significant, is such a repair would need to be engineered and would be cost prohibitive.</p> <p>Preferred alternative</p> <p>The preferred alternative for seasonal timber management is to widen the road into the bank at a minimum width. Following operations, the stability of the cut would be evaluated and partially buttressed if adverse geologic conditions are encountered.</p> <p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> Widen 80 feet of the road to a maximum 10-foot width to accommodate the largest equipment to be used in harvesting operations. <ul style="list-style-type: none"> Offset the road about 4 feet from the top edge of the scarp. This corresponds to a 1:1 slope project from the base of the steep portions of the scarp. Widen the road to 10-foot width by cutting into the bedrock hillside about 7 feet and end hauling spoils to a stable location identified by the RPF. Lay cutbank back to a 0.5:1 slope. We estimate approximately 80 to 100 cy of grading will be required. Upgrade road drainage by installing waterbars or rolling dips at standard spacing per forest practice rules. The landowner does not propose winter use, however if winter use by other than the landowner is expected, the dips should be slightly oversized and rocked. At the conclusion of timber operations the stability of the resulting cutslope should be qualitatively reviewed by a licensed engineering geologist or geotechnical engineer so that additional recommendations can be provided if unanticipated geologic conditions are encountered. If adverse geologic conditions are encountered it will likely be necessary to buttress the new cut with rock rip rap or concrete blocks (preferred).
L1	N/A, WLPZ Landing	N/A, N/A No	No No	<p>Existing WLPZ Landing that extends into Flood Prone Zone WLPZ of a Class I watercourse (Russian River). The landing is on the outside edge of the flood prone zone and located approximately 640 feet from the watercourse transition line.</p> <ul style="list-style-type: none"> Exposed soil shall be treated as per Item 18 Soil

Map & Point #	Site, Description, Watercourse Class,	Potential Sediment Discharge (cy), Priority*	1600	Description and Recommendations
		Hydro Calc	Geo Report	

Stabilization Measures.				
L2	N/A, WLPZ Landing	N/A, N/A	No	A large opening adjacent to an existing permanent road will be used as a WLPZ Landing. The landing is located within the Flood Prone Zone WLPZ of a Class I watercourse (Russian River). The landing is located approximately 625 feet from the watercourse transition line. <ul style="list-style-type: none"> Exposed soil shall be treated as per Item 18 Soil Stabilization Measures.
		No	No	
L3	N/A, WLPZ Landing	N/A, N/A	No	Existing WLPZ Landing located within the Flood Prone Zone WLPZ of a Class I watercourse (Russian River). The landing is located approximately 900 feet from the watercourse transition line. <ul style="list-style-type: none"> Exposed soil shall be treated as per Item 18 Soil Stabilization Measures.
		No	No	
L4	N/A, WLPZ Landing	N/A, N/A	No	Existing rocked WLPZ Landing located partially within the Flood Prone Zone WLPZ of a Class I watercourse (Mays Canyon) and partially within a Class II watercourse (tributary to Mays Canyon). The landing is located approximately 150 feet from the watercourse transition line. <ul style="list-style-type: none"> Exposed soil shall be treated as per Item 18 Soil Stabilization Measures.
		No	No	

***High Immediacy Sites: Must be completed within one year of plan approval.**
Moderate Immediacy Sites: Must be completed within the first full year of operation.
Low Immediacy Sites: Must be completed during the life of the plan.

No significant existing and potential erosion sites that do not have feasible measures were identified for treatment within the plan area (14 CCR 923.1(e)(4)).

Please refer to the Roads and Features Map for location of these sites.

Prior to upgrading any road segment from seasonal to permanent, within or appurtenant to the plan, the Plan Submitter shall notify the director, through a minor deviation to the THP, which roads will change in classification. This amendment will ensure compliance with 14 CCR 1034(X)(4)(A).

Any amendments filed for shared crossings under a different THP, will also be amended into this THP.

CalTREES THP ITEM #24 & 25— ROADS AND LANDINGS

ITEM #25

NOTE: If any item listed above is checked "YES" Provide:

- **Operations Instructions to the LTO**, in accordance with the respective rule requirement(s) in **SECTION II** of the THP.
- Any required **explanation and justification** should be included in **SECTION III**

Operation instructions to the LTO:

For ditch relief culverts (crossdrains):

- Ditch relief culverts shall have a skew of 35% or greater.
- Ditch relief culverts shall have a gradient of 10% or 2% greater than the ditch it drains.
- Ditch is blocked after ditch relief culvert installation to prevent water continuing on down ditch line.

For watercourse culverts:

- Install critical dip.
- Install trash rack if the watercourse shows signs of debris movement.
- Install culverts to grade. Culvert outlets installed on grade may not need an energy dissipater.
- Road surface drainage is diverted before the crossing either by outsloping or by waterbreaks as per the rules.
- If inboard ditches drain to a crossing they shall be drained prior to the crossing by waterbreaks or shall be rock lined, mulched or use straw bales which shall be placed in the ditch line prior to the crossing to reduce sediment transport. If the inboard ditch is rock lined or mulched then at least the length of the WLPZ or ELZ shall be treated.
- Exposed soil within any WLPZ or ELZ, outside of the traveled way, shall be stabilized as per Item #18 SOIL STABILIZATION MEASURES.
- The road surface within any WLPZ or ELZ shall be rocked, mulched or seeded upon completion of operations.

For rock armored ford:

- Road surface drainage is diverted before the crossing either by outsloping or by waterbreaks as per 14 CCR 914.6 (c).
- If inboard ditches drain to a crossing they shall be drained prior to the crossing by waterbreaks or shall be rock lined, mulched or use straw bales which shall be placed in the ditch line prior to the crossing to reduce sediment transport. If the inboard ditch is rock lined or mulched then at least the length of the WLPZ or ELZ shall be treated.
- Exposed soil, outside of the traveled way, shall be stabilized as per Item #18 SOIL STABILIZATION MEASURES.

Other Specifications

- Road work, where applicable, shall follow the guidelines in the 2014 Handbook for Forest, Ranch and Rural Roads by Weaver, Weppner and Hagans.
- Due to existing pipe inventories, pipe installations may be upgraded to larger diameters.
- Unless otherwise noted above, if any of the above road points are wet prior to operations a minimum 4" pipe shall be installed for drainage and/or the road point may be rocked. Remove pipe at completion of operations if not associated with a rolling dip or ford.
- "Riprap" means rock or other suitable non-erodible material placed to prevent or reduce erosion.
- Fords or rolling dips shall be constructed to accommodate log truck hauling.
- Pipes shall be installed without "shot-gunned" outlets.
- Maintain existing and functional rolling dips within the plan area and along the appurtenant road.
- In order to reduce erosion, waterbreaks shall be placed so that water runs into duff, slash, rocks, stumps etc.
- Spoils hauled to a stable location means those areas < 30% slope and located outside of any WLPZ / ELZ / EEZ.
- Any proposed new culverts have been sized to pass the 100 year flood flow including debris and sediment loads.
- During major storm events waterbreaks shall be checked for functionality.
- Roads shall be hydrologically disconnected from watercourses to the extent feasible to minimize sediment delivery from road runoff to watercourse and reduce the potential for hydrologic changes that alter the magnitude and frequency of runoff delivery to water. This may be achieved by using the following mitigations:
 - Installing waterbreaks before rock fords or culverts.
 - Installing ditch relief culvert before watercourse crossing.
 - Installing sediment traps within ditches that lead to watercourse crossings
 - Installing straw wattles filter sediment in inside ditches that lead to watercourse crossing.
 - Outslope insloped or crowned roads.
 - Rock road surface which is hydrologically connected on seasonal road.
 - Straw mulch or slash roads that are hydrologically connected to watercourses.

CalTREES THP ITEM #24 & 25- ROADS AND LANDINGS

ASP WATERSHEDS	
<p>a. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Will hauling on roads and landings be limited to those which are Hydrologically disconnected from watercourses to the extent feasible, and exhibit a stable operating surface? If NO, address the exception pursuant to 923.6 [943.6,963.6] (h)(3).</p>
<p>ADDRESS THE FOLLOWING AS IT APPLIES TO ASP WATERSHEDS OR IMMEDIATELY UPSTREAM AND CONTIGUOUS TO, ANY WATERSHED WITH LISTED ANADROMOUS SALMONIDS</p>	
<p>• When logging road(s) or landing(s) construction or reconstruction is proposed identify:</p>	
<p>1) How the proposed operations will fit into the systematic layout pattern. Per 14 CCR 923.1 [943.1. 963.1](g)</p> <p><u>Per 14 CCR 923.1 (g)- Road reconstruction at Map Point E, will reconnect the existing road facilities. This will provide access to areas that will allow for uphill cable yarding and downhill tractor yarding.</u></p>	
<p>2) What, if any, offsetting mitigation measures (including but not limited to, abandonment of logging road(s) and landing(s) are needed to minimize potential adverse impacts to watersheds from the road system. Per 14 CCR 923.1 [943.1. 963.1](g)</p>	
<p>• Provide specific provisions for the protection of salmonid habitat for all logging road(s) construction:</p>	
<p>3) On slopes, greater than 50% with access to a watercourse or lake. Per 14 CCR 923.4 [943.4, 963.4](s)(1)</p> <p><u>See Item 24(e).</u></p>	
<p>• Provide specific erosion control measures for all permanent and seasonal roads:</p>	
<p>4) With a grade of 15% or greater which extends 500 feet or more. Per 14 CCR 923.5 [943.5, 963.5](q)(2)</p> <p><u>Not applicable to this Timber Harvest Plan.</u></p>	

CaITREES THP ITEMS 26 – WATERCOURSES

ITEM #26– WATERCOURSE LAKE PROTECTION ZONE (WLPZ) PROTECTION MEASURES

ITEM #26	WATERCOURSES		
<p>Per 14 CCR 916, 936, 956 – Intent of Watercourse and lake Protection [ALL DISTRICTS] – The purpose of this article is to ensure that timber operations do not potentially cause significant adverse site-specific and cumulative impacts to the beneficial uses of water, native aquatic and riparian-associated species, and the beneficial functions of riparian zones; or result in an unauthorized take of listed aquatic species; or threaten to cause violation of any applicable legal requirements. This article also provides protection measures for application in watersheds with listed anadromous salmonids and watersheds listed as water quality limited under Section 303(d) of the Federal Clean Water Act.</p> <p>It is the intent of the Board to restore, enhance, and maintain the productivity of timberlands while providing appropriate levels of consideration for the quality and beneficial uses of water relative to that productivity.... Further, it is the intent of the Board that the evaluations that are made, and the measures that are taken or prescribed, be documented in a manner that clearly and accurately represents those existing conditions and those measures.</p>			
<p>a. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Are there any watercourses or lakes classified as a CLASS I through CLASS IV within or adjacent to the plan area? <i>(Check all that apply)</i></p>		
	<p><input checked="" type="checkbox"/> Class I: <input checked="" type="checkbox"/> Class II: <input checked="" type="checkbox"/> Class III: <input checked="" type="checkbox"/> Class IV: <input type="checkbox"/> Lakes: <input checked="" type="checkbox"/> Other (Springs, Seeps)</p>	<p><u>Within plan area</u></p> <p><input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Springs</p>	<p><u>Adjacent to plan area</u></p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>

<p>If YES, to above question list:</p> <ul style="list-style-type: none"> • Class of the water feature • Associated WLPZ or ELZ and width • Protection measures; determined from 14 CCR 916.5[936.5, 956.5], Table I. and/or 14 CCR 916.9[936.9, 956.9] et seq. • Specify if Class III or IV watercourses will have a WLPZ or ELZ. <p><u>The Class IV watercourse is completely within the Flood Prone WLPZ of the Russian River. The Class IV is centerline flagged with blue and glo-orange. There are no skid trail crossings on this watercourse. The Class IV watercourse was constructed with a backhoe in 1979 in order to drain a wet area within the property. There does not appear to be any significant problems with this watercourse. The watercourse has re-vegetated since past activities and does not show signs of significant soil erosion which might have an adverse effect on water quality.</u></p>	
<p>b. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Will Class III or IV watercourses be protected with a WLPZ or ELZ? If YES, describe below</p> <p>The Class IV watercourse within the Flood Plain of the Russian River will be protected by a 30' ELZ.</p>

CalTREES THP ITEMS 26 – WATERCOURSES

LTO instructions:

Slope Class	Class I with Confined Channel Zone Width (feet) Core/Inner/Outer Zones Even Age Management	Class I with Confined Channel Zone Width (feet) Core/Inner Zones Uneven Age Management	Class II-L WLPZ Zone Width (feet) Core/Inner Zones	Class II-S WLPZ Zone Width (feet) Core/Inner Zones	Class III ELZ Width (feet)	Wet Area with WLPZ Width (feet)	Wet Area/Seeps with ELZ Width (feet)
<30%	30/70/50 = 150	30/70 = 100	30/70 = 100	15/35 = 50	30	50	25
30-50%	30/70/50 = 150	30/70 = 100	30/70 = 100	15/60 = 75	50	50	25
>50%	30/70/50 = 150	30/70 = 100	30/70 = 100	15/85 = 100	50	50	25

Watercourse description and protection measures to be applied: (14 CCR 916.5)

Class I Protection Measures:

Channel Migration Zone (adjacent to uneven-aged silviculture) – Wide Flood Prone Area (greater than 150 feet from Watercourse Transition Line)

- WLPZs will be flagged at the outer edge of the flood prone area also known as Inner Zone B. The width of this zone is determined by the extent of the flood prone area.
- From the edge of the channel migration zone to 30' is the Core Zone, which is a no harvest area (NH).
- From 30' to 150' is the Inner Zone A which is proposed for harvest.
- The Class I Inner Zone A will be flagged on the ground with solid orange flagging, prior to the PHI.
- Retain 80% overstory canopy of all tree species within the Class I Inner Zone A (30'- 150').
- Retain 50% overstory canopy of all tree species within the Class I Inner Zone B (150-WLPZ Flagging).
- Only selection/thin from below harvest in Class I Inner Zone A and B
- If active sliding present, then the NH extends 10' above the active scarp.
- Retain all conifer trees leaning over the watercourse (0 – at least 100').
- Retain the 13 largest conifers on each acre of the Inner Zone A and B combined (every 435 feet for a 100' wide zone).

Class II Watercourses:

There are numerous, unnamed Class II watercourses located within and adjacent to the plan area. The Classification of whether the Class II is a standard Class II-S or a large Class II-L was determined by mapping the area above the confluence of Class I and inspecting the width of the active channel of the Class II at the confluence per 14 CCR 936.9(g)(1)(A) and (B).

Class II-L Protection Measures:

- The enforceable standard for shade canopy retention for Class II-L watercourses is:
- Core zone, within 30 feet of the watercourse transition line, operations are limited to actions to allow for full suspension cable yarding per 936.9(e)(1)(D).
- Inner zone, a minimum 70% overstory canopy shall be retained within 70 feet of the core zone.
- The WLPZ is flagged at 100 feet with blue/white striped “Watercourse and Lake Protection Zone” flagging in addition to solid orange flagging for greater visibility.

CalTREES THP ITEMS 26 – WATERCOURSES

- The overstory canopy must be composed of at least 25% overstory conifer canopy post-harvest. If the above noted canopy levels are lacking in any given area timber is not marked for removal in that area, however it may be marked elsewhere in the zone.
- Per 14 CCR 936.9(f)(2)(B)(4), the thirteen largest DBH conifers (live or dead) on each acre of the area that encompasses the core and inner zones shall be retained. The retained conifers shall be selected from the THP area that lies within 100 feet of the watercourse transition line.
- WLPZ identification, flagging, and timber marking shall be completed prior to PHI.
- Harvest trees will be marked with a horizontal blue stripe at breast height with a corresponding base mark below stump level.
- No Salvage logging or hardwood harvest within the WLPZ.

Class II-S Protection Measures:

- The enforceable standard for shade canopy retention for Class II-S watercourses is:
- Core zone is 15 feet from the watercourse transition line, operations are limited to actions to allow for full suspension cable yarding per 936.9(e)(1)(D).
- Inner Zone is variable width, slope dependent, ranging from 35 to 85 feet from the core zone; a minimum 50% multi-story canopy shall be retained within this zone.
- The WLPZ is flagged at a slope dependent width of 50, 75, or 100 feet with blue/white striped “Watercourse and Lake Protection Zone” flagging in addition to solid pink flagging for greater visibility.
- The overstory canopy must be composed of at least 25% overstory conifer canopy post-harvest. If the above noted canopy levels are lacking in any given area timber is not marked for removal in that area, however it may be marked elsewhere in the zone.
- WLPZ identification, flagging, and timber marking shall be completed prior to PHI.
- Harvest trees will be marked with a horizontal blue stripe at breast height with a corresponding base mark below stump level.
- Groups shall not be located in a WLPZ.
- No Salvage logging or hardwood harvest within the WLPZ.

Class III Watercourses:

There are numerous, unnamed Class III watercourses within and adjacent the proposed project area. The center lines of the Class III watercourses have been flagged with solid blue flagging.

The following are the minimum requirements for timber operations in Class III watercourses per 936.9(h):

(1) Establish a 30-foot-wide ELZ on both sides of the watercourse for slopes less than 30% and an additional 20 foot ELZ where side slopes are >30%. The ELZ is measured from the WLTL. Within the ELZ:

(A) No new construction of tractor roads permitted;

(B) No ground-based equipment on slopes >50%; and

(C) Ground-based operations are limited to existing stable tractor roads that show no visible evidence of sediment deposition being transported into the adjacent watercourse or to the use of feller- bunchers or shovel yarding.

(2) Retain all pre-existing large wood on the ground within the ELZ that is stabilizing sediment and is necessary to prevent potential discharge into the watercourse.

(3) Retain all pre-existing down wood and debris in the channel zone.

(4) Retain hardwoods, where feasible, within the ELZ.

(5) Retain all snags (except as required for safety) within the ELZ.

(6) Retain all countable trees needed to achieve resource conservation standards in 14 CCR § 932.7 within the ELZ.

(7) Retain all trees in the channel zone which show visible indicators of providing bank or bed stability, excluding sprouting conifers that do not have boles overlapping the channel zone. Visible indicators of stability include roots that permeate the bank or provide channel grade control.

Exceptions pursuant to 14 CCR § 936.9, subsections (e)(1)(A)-(F) are permitted in any ELZ and channel zone.

Additional specific equipment limitations associated with ELZs are described in Item 21. In addition to the ELZ requirements the following apply to Class III watercourses:

CalTREES THP ITEMS 26 – WATERCOURSES

- Slash deposited into Class III watercourses shall be removed or stabilized prior to the completion of operations or October 15, whichever comes first. If slash is stabilized it shall be stabilized (such that the debris does not create the potential for diversion of the watercourse or the potential buildup of excess sediment in amounts greater than found in the watercourse where there is no logging associated debris).
- Soil deposited into Class III watercourses shall be removed prior to the completion of operations or October 15th, whichever comes first, except as noted in the winter operating plan.
- Per 936.4(c)(3) Soil deposited during timber operations in Class III watercourses other than a temporary crossing shall be removed and debris deposited during timber operations shall be removed or stabilized before the conclusion of timber operations or October 15th, whichever comes first.
- Groups shall not be located within the ELZ of Class III watercourses.

Wet Areas with ELZ:

These wet areas have moist ground, may ooze water year-round, and can support hydrophilic vegetation but do not provide habitat for aquatic species (see Operations Map for location of wet area symbols). These areas are centerline flagged with solid blue flagging. These areas shall be given 25-foot ELZ, which will not be flagged in the field and it is the operator's responsibility to respect the ELZ proposed in the plan. Tractor operations in these ELZs are limited to existing pre-flagged trails.

Wet Areas with WLPZ:

These wet areas can support hydrophilic vegetation, can provide habitat for aquatic species, and can have pool structure (typically at least a couple of feet wide and at least several inches deep). If located outside of Class I or II WLPZs and Class III channel zones, these areas shall be provided with a 25 foot ELZ when slopes are less than 30% and 50 foot ELZ when slopes are greater than 30% and canopy retention zone where 50% total canopy shall be retained. The 50% canopy shall be comprised of at least 25% of the pre-existing overstory conifers. The zone is flagged with blue/white striped "WLPZ" flagging and orange glo.

Seeps:

A seep is a feature created by anthropogenic structures (e.g. roads, landings) which intercepts subsurface flow and may create wet ditches, possibly including pools that may support hydrophilic vegetation. No protection is afforded seeps. Typically, they may be drained to ensure continued functionality and use of infrastructure. Seeps are only mapped (as map points) if specific work is associated with such sites.

c. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is there any tractor road watercourse crossings that require mapping per 14 CCR 1034(x)(7)
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will TRACTOR road watercourse crossings involve the use of a culvert? If YES, per 14 CCR 914.8[934.8, 954.8](e) state the minimum diameter and length for each culvert.

Map Reference Points (MRP)	Culver Diameter	Culvert Length

d. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Is there a Master Agreement for Timber Operations (MATO) for Streambed Alteration Agreement (SAA) approved by the Department of Fish and Wildlife for any portion of this plan? MATO or SSA Number: _____</p> <p>If YES, provide a list of the crossings, water drafting sites, or other water features to be used during operations and provide the conditions to be utilized and or consider from the MATO or SAA as operational instruction to the LTO in SECTION II.</p>
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MATO or SAA INSTRUCTIONS TO LTO

Specific water feature under MATO or SAA (crossings, drafting sites, etc.)	Conditions of MATO or SAA to be utilized at each specific feature

CalTREES THP ITEMS 26 – WATERCOURSES

e. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Is this THP Review Process to be used to meet Department of Fish and Wildlife CEQA review requirements?</p> <p>If YES, attach the required 1611 Addendum at the end of SECTION II and include any supporting information and analysis in SECTION III.</p> <p>List instructions to the LTO in SECTION II for installation, protection measures, and mitigation measures, per THP from instructions or CDF Mass Mailing (07/02/1999) "Fish and Game Code 1611 Agreements and THP Documentation."</p>
<p>LTO INSTRUCTIONS:</p> <p>See Road Point Table for list of watercourses that require 1600 Agreement.</p>	

Notification Information List Pursuant to Fish and Wildlife Code Section 1611

There are 11 proposed THP related instream activities that require a CDFW Agreement. The specific requirements of the approved CDFW agreement, specifically the Project Description and Conditions or PDC, shall be amended to the plan to govern operations at these locations. This THP is being used as the CEQA review mechanism for the CDFW 1600 series agreement for the following sites specific to this THP. The 1600 sites are listed in the Road Points Table located in Item 24 of Section II and are shown on the THP Roads and Features Map at the end of Section II.

(THP) #: 1-20-00084 SON

(THP) Name: Silver Estates

IMPORTANT: In order to facilitate processing of Streambed Alteration Notifications via Fish and Wildlife Code (FWC) Section 1611, the Department of Fish and Wildlife (Department) recommends all information requested below be attached in Item 26(d) of Timber Harvesting Plans (THP's) in Sections II or III, as appropriate. In accordance with CDFW Section 1611, the Department is not required to process the notification until the THP has been received by the Department.

Please provide the following information for notification of Lake or Streambed Alteration Activities in accordance with the "Guidelines for Lake or Streambed Alteration Notification via Timber Harvesting Plans".

1. Basic data, including all the following:

a. The name, address, and telephone number of the

Applicant: Roger and Michele Burch
c/o Redwood Empire Sawmill
P.O. Box 156
Cloverdale, CA 95425
(707) 489-4242

Operator: Unknown, to be amended to the plan.

Contractor: Unknown, to be amended to the plan

Contact Person: Jesse Weaver, RPF
c/o Redwood Empire Sawmill
P.O. Box 156
Cloverdale, CA 95425
(707) 272-3692

Property Owner(s): Roger and Michele Burch
c/o Redwood Empire Sawmill
P.O. Box 156
Cloverdale, CA 95425
(707) 489-4242

- b. **The name of each lake and the name and watercourse classification of each stream the lake or streambed alteration activities will affect, including the nearest downstream watercourse or water body.**

Activities will occur at 11 sites. Sites within the plan area are all associated with watercourses which are tributaries to the Russian River or Mays Canyon Creek.

- c. **The township, range and section numbers and the latitude and longitude of each lake and stream encroachment.**

There are 11 encroachments.

Map Point Number	Township, Range, Section	Latitude	Longitude
1	T8N R10W Sec. 31	38.49315	-123.00605
2	T8N R10W Sec. 31	38.48257	-123.00644
3	T8N R10W Sec. 31	38.49221	-123.00634
4	T8N R10W Sec. 31	38.49151	-123.00530
5	T8N R10W Sec. 31	38.49157	-123.00506
6	T8N R10W Sec. 31	38.49221	-123.00466
7	T8N R10W Sec. 31	38.49168	-123.00617
8	T8N R10W Sec. 31	38.49128	-123.00702
10	T7N R10W Sec. 5	38.48722	-123.99820
13	T7N R10W Sec. 5	38.48697	-123.99804
24	T8N R10W Sec. 32	38.48913	-122.99429

- d. **A single map or diagram clearly showing all of the following:**
- i. All lake and stream encroachments, with a number or other appropriate identifying label.**
 - ii. All roads, with a number or other appropriate identifying label**
 - ii. All watercourse classifications (i.e., Class I, II, or III).**
 - iii. Access from a named public road.**
 - iv. A north arrow and scale.**

Refer to the THP Roads and Features Maps, and Diagrams at the end of Section II.

- e. **A description of the types of lake or stream encroachments the applicant intends to construct, install, use or remove (e.g., a corrugated metal pipe, "Humboldt" crossing, impoundment for water diversion, water drafting sites, bank stabilization, rocked ford, bridge, etc.), and whether they will be temporary or permanent. If multiple lake or stream encroachments are proposed, the applicant should include a table that describes each type of encroachment (e.g., permanent culvert, temporary bridge, rock revetment, etc.), watercourse classification, culvert size and encroachment map reference number.**

Site Number	Map Distinction Number	Type of Activity	Permanent or Temporary	Culvert Size (Diameter in inches)	Watercourse Classification
1	1	Inlet Improvements	Permanent	24	Class II(s)
2	2	Rocked Ford	Permanent	n/a	Class III
3	3	Culvert	Permanent	18	Class III
4	4	Rocked Ford	Permanent	n/a	Class III
5	5	Rocked Ford	Permanent	n/a	Class III
6	6	Rocked Ford	Permanent	n/a	Class III
7	7	Rocked Ford	Permanent	n/a	Class III
8	8	Culvert	Permanent	18	Class III
9	10	Culvert	Permanent	18	Class III
10	13	Culvert	Permanent	24	Class III
11	24	Culvert	Permanent	48	Class II(s)

- f. **A description of the fish and wildlife and botanical resources the work could adversely affect, including riparian resources and special status species (i.e., species listed under the California Endangered Species Act (“CESA”) and/or the federal Endangered Species Act (“ESA”), species fully protected under state law, and/or species of special concern). If the work could adversely affect any listed species, the applicant should indicate whether consultation under CESA or ESA has commenced and if so, the current status of the consultation. Applicant should also provide the biological opinion, as applicable.**

The proposed activities are part of Timber Harvest Plan (THP), a document reviewed by those standards established within the Forest Practice Act – a process functionally equivalent to that of an EIR, with CalFire acting as the lead agency. Coho salmon, Chinook salmon and steelhead trout have been observed downstream of the proposed activity sites. Mitigations proposed in the THP are designed to avoid significant adverse impacts to these species. A floristic survey has been completed and is included in Section V of this THP. Please refer to the THP Sections 2 and 3, Item 32 for additional information concerning wildlife and botanical resource issues.

- g. **Indicate if the work takes place in, adjacent to, or near a river that has been designated as “wild and scenic” under state or federal law.**

The proposed activities do not take place adjacent to or near a wild or scenic river.

2. **Information about each lake and stream encroachment, including the following:**
a. **Construction plans, including specific details, cross sections, and dimensions.**

See descriptions in the Road Points Table under Item #24 of THP.

- b. **If water will be present and diversion of flow around the work site is necessary, the volume of water to be diverted and the method of diversion.**

Minimal volumes of water (average <0.1 cfs) may need to be diverted by coffer dams around project areas if necessary.

- c. **If water drafting is proposed, provide drafting site information (i.e. estimated volume, drafting rate, timing, etc.). Indicate if the activity will be done pursuant to a water right application or permit.**

Water drafting is not proposed under this permit.

- d. **The materials (e.g., soil, sand, gravel, ¼- to ½-ton rip-rap, large wood, etc.) and volumes that will be used for and/or removed from the lake or stream encroachment, the dimensions of the area to be excavated and the dimensions of the area to be filled.**

Site	Road Point	Material Removed (Volume)	Material Installed (Volume)	Comments
1	1	10 yds fill	25 yds rock	Inlet Repairs, Road Rock
2	2	n/a	3 yds rock	Add Rock
3	3	5 yds fill	n/a	18" Culvert
4	4	n/a	3 yds rock	Add Rock
5	5	n/a	3 yds rock	Add Rock
6	6	5 yds fill	10 yds rock	Rocked Ford
7	7	3 yds fill	5 yds rock	Rocked Rolling Dip
8	8	2 yds fill	n/a	18" Culvert
9	10	n/a	n/a	18" Culvert Repair
10	13	12 yds fill	n/a	24" Culvert
11	24	5 yds fill	5 yds fill	48" Culvert

- e. **Specify the type of equipment to be used.**

Tractors, excavators, trucks, grader, crawler tractor and backhoes.

- f. **Proposed work periods including the date or conditions requiring temporary crossing removal.**

April 1 through November 15.

- g. **The species composition and density of vegetation to be removed or disturbed as a result of lake or streambed alteration activities. Indicate if sensitive plant surveys have been completed within areas which will be affected by lake or stream encroachments. Include any plans to restore the affected riparian or hydrophytic vegetation.**

The small amounts of herbaceous and aquatic vegetation disturbed during operations will be limited to the vegetation within and around the specified crossings. Disturbance will be isolated to the various site locations. Conifer and hardwood trees, annual grasses, forbs along with minor amounts of riparian vegetation may potentially be disturbed during operations. A floristic survey has been conducted in and around the project sites before operations to determine if any rare, threatened or endangered floral species exist. It has been included in the THP and can be found in Section V.

- h. Mode of impact to fish, wildlife and botanical resources (i.e., changes in sediment and/or flow delivery rates, dewatered or impounded watercourses, destabilized stream banks, erosion causing sediment deposition, changes to or elimination of riparian vegetation, reduced canopy effects on microclimate and/or water temperature, etc.)**

Direct disturbance will be limited to the project vicinities. Sediment production occurring at these sites will be the primary mode of impact to wildlife resources. Significant changes in flow, stream volume, bank stability, reduced riparian vegetation, canopy reduction and water temperature increase are not anticipated in association with the crossing upgrade activities.

- i. Measures included to protect fish, wildlife and botanical resources (i.e., avoidance measures, sediment control measures, construction time periods, methods to divert water around or away from the work site, special measures necessary to protect special-status species, a post-work action plan including measures to minimize soil erosion, re-vegetation, etc.).**

Crossings work will be conducted when there is no surface flow. If water is present, a temporary coffer dam will be constructed, and water diverted around the project site using a pump. Bare mineral soil will be stabilized as per Section II, Item 18 "Soil Stabilization Measure" of the THP.

- j. Calculations or other data used to size culverts.**

Table on Next Page.

Table 1. Culvert Calculations.

Map Point #	area (ac)	100 year flood (cfs)	Headwall to pipe diameter ratio	What does the pipe inlet look like?	100 yr	
					Culvert Size (In)	area (ft ²)
3	3	4.6	0.67	Mitred/bevel ->	18	1.8
				Projected pipe ->	18	1.8
			0.75	Mitred/bevel ->	18	1.8
				Projected pipe ->	18	1.8
			0.9	Mitred/bevel ->	18	1.8
				Projected pipe ->	18	1.8
8	3	4.6	1	Mitred/bevel ->	18	1.8
				Projected pipe ->	18	1.8
			0.67	Mitred/bevel ->	18	1.8
				Projected pipe ->	18	1.8
			0.75	Mitred/bevel ->	18	1.8
				Projected pipe ->	18	1.8
10	3	4.6	0.9	Mitred/bevel ->	18	1.8
				Projected pipe ->	18	1.8
			1	Mitred/bevel ->	18	1.8
				Projected pipe ->	18	1.8
			0.67	Mitred/bevel ->	18	1.8
				Projected pipe ->	18	1.8
13	3	4.6	0.75	Mitred/bevel ->	18	1.8
				Projected pipe ->	18	1.8
			0.9	Mitred/bevel ->	18	1.8
				Projected pipe ->	18	1.8
			1	Mitred/bevel ->	18	1.8
				Projected pipe ->	18	1.8
24	25	37.0	0.67	Mitred/bevel ->	18	1.8
				Projected pipe ->	18	1.8
			0.75	Mitred/bevel ->	18	1.8
				Projected pipe ->	18	1.8
			0.9	Mitred/bevel ->	18	1.8
				Projected pipe ->	18	1.8
			1	Mitred/bevel ->	48	12.6
				Projected pipe ->	51	14.2
			0.67	Mitred/bevel ->	48	12.6
				Projected pipe ->	48	12.6
			0.75	Mitred/bevel ->	42	9.6
				Projected pipe ->	40	8.7
			0.9	Mitred/bevel ->	42	9.6
				Projected pipe ->	42	9.6

- k. For bridge installations: indicate if the abutments or road approaches will encroach into the floodplain or channel; provide the calculations or data used to determine bridge height and flow capacity; describe the type of abutments and scour protections with dimensions; provide any engineering reports or plans; etc.

N/A

- l. Describe any torrent, debris or landslide conditions at each encroachment.

Refer to Road Points Table, Roads and Features Maps in Section II. See Focused Engineering Geologic Review of a Proposed Timber Harvest Plan: Silver Estates, report in Section V.

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f. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are any exceptions provided under F & G code 1600 et seq., and made an enforceable part of plan? If YES, per 14 CCR 923 [943,963](d) identify the exceptions and provide the enforceable standards as instructions to the LTO in SECTION II.
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g. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will new drainage structures and facilities on watercourses that support fish or listed aquatic species be constructed? If YES, per 14 CCR 914.8[934.8, 954.8](c) and 923.9 [943.9, 963.9](c). Structures and facilities shall be fully described and allow unrestricted passage of all life stages of fish or listed aquatic species, and natural movement of bedload. Provide operational instructions to the LTO in SECTION II.
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<p>Per 14 CCR 923.9(e) – The location of all NEW permanent constructed and reconstructed, and temporary logging road watercourse crossings, including those crossings to be abandoned or deactivated, SHALL be shown on a map. If the structure is a culvert intended for permanent use, the minimum diameter of the culvert and the method(s) used to determine the culvert diameter SHALL be specified in the plan,</p>	
<p>h. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Are there any NEW PERMANENT constructed logging road watercourse crossings requiring mapping?</p>
<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Are there any NEW RECONSTRUCTED logging road watercourse crossings requiring mapping?</p>
<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Are there any watercourse crossings to be ABANDONED or DEACTIVATED?</p>
<p>If YES, to the above questions these crossing shall be shown on a map in section II</p> <p>Per 14 CCR 923.9(e) If any watercourse crossing has a culvert intended for permanent use, the minimum diameter of the culvert and the method(s) used to determine culvert diameter shall be stated in the plan.</p> <p>Per 14 CCR 923.9(f) permanent watercourse crossings that are constructed or reconstructed SHALL accommodate the estimated 100-year flood flow, including debris and sediment loads.</p> <p><u>See Maps and Road Point Table for location and descriptions of crossings. The majority of crossings are existing, and most will require some reconstruction or upgrading.</u></p>	
<p>Method for sizing crossing:</p> <p><u>Culverts were sized using the Rational Method.</u></p> <p><u>See Section II for culvert calculations.</u></p>	
<p>i. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Is there any exception to flagging or otherwise identifying the location of any constructed or reconstructed road watercourse crossing prior to the pre-harvest inspection?</p> <p>If YES, per 14 CCR 923.9[943.9, 963.9](j) provide the explanation and justification in SECTION III.</p>
<p>j. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Will other methods for diversion of overflow at culver crossings be utilized (<u>other than critical dips</u>) in the construction or reconstruction of logging road watercourse crossings which culverts?</p> <p>If YES, per 14 CCR 923.9[943.9, 963.9](j) provide instructions to the LTO in SECTION II identifying the methods to be used for the diversion of overflow at watercourse crossings.</p>
<p>Per 14 CCR 923.9[943.9, 963.9](k) watercourse crossings and associated fills and approaches SHALL be constructed and maintained to prevent diversion of stream overflow down the road, and to minimize fill erosion should the drainage structure become obstructed.</p>	
<p>k. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Are there any existing watercourse crossings that are located on logging roads within the logging area?</p>
<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Are there any watercourse crossing proposed for construction located on logging roads within the logging area?</p> <p>If YES, per 14 CCR 923.9[943.9, 963.9](k) identify the crossing and provide the methods to mitigate or address the diversion of stream overflow at the crossing.</p> <p><u>See Operations Maps and Road Point Table for list of crossings and their requirements.</u></p>
<p>l. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Will rock be used to stabilize crossing outlets?</p> <p>If YES, per 14 CCR 923.9[943.9, 963.9](k) Rock used to stabilize outlets of crossings shall be adequately sized to resist mobilization of soil and significant sediment discharge. The range of rock size shall be described within the plan as instruction to the LTO in SECTION II indicate the range of the rock dimensions to be used.</p> <p><u>See Operations Maps and Road Point Table for list of crossings and their requirements.</u></p>

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<p>m. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Watercourse crossing proposed to be reconstructed or removed, are there any significant volumes of sediment accumulated upstream of the watercourse crossing?</p> <p>If, YES per 14 CCR 923.9[943.9, 963.9](n) provide instructions to the LTO, in SECTION II, describing how the material will be stabilized, removed (the extent feasible), and in conformance with CDFW agreements, where applicable.</p>
<p>n. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Do logging road watercourse crossing drainage structures and other erosion control features have a high historical fail rate within the project area?</p>
<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Do/will existing watercourse crossings utilizing a culvert have large amounts of fill material covering the culvert making up the crossing?</p> <p>If, YES per 14 CCR 923.9[943.9,963.9](o) drainage structures and erosion control features shall be oversized, designed for low maintenance, reinforced, or removed before the completion of timber operations or as specified in the approved plan.</p> <p>Provide instruction to the LTO in SECTION II identifying these crossings, providing instruction of how these crossings will be treated.</p>
<p>Guidance on reducing the potential for failure at high risk watercourse crossings may be found in "Board of Forestry Technical Rule Addendum Number 5: Guidance on Hydrologic Disconnection, Road Drainage, Minimization of Diversion Potential, and High Risk crossings" (1st Edition, revised 10/27/14)</p>	
<p>o. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Will any logging road watercourse crossing be removed?</p> <p>If YES, provide instructions to the LTO, in SECTION II, describing the removal plan pursuant to the standards per 14 CCR 923.9[943.9, 963.9](p)(1)-(4).</p>

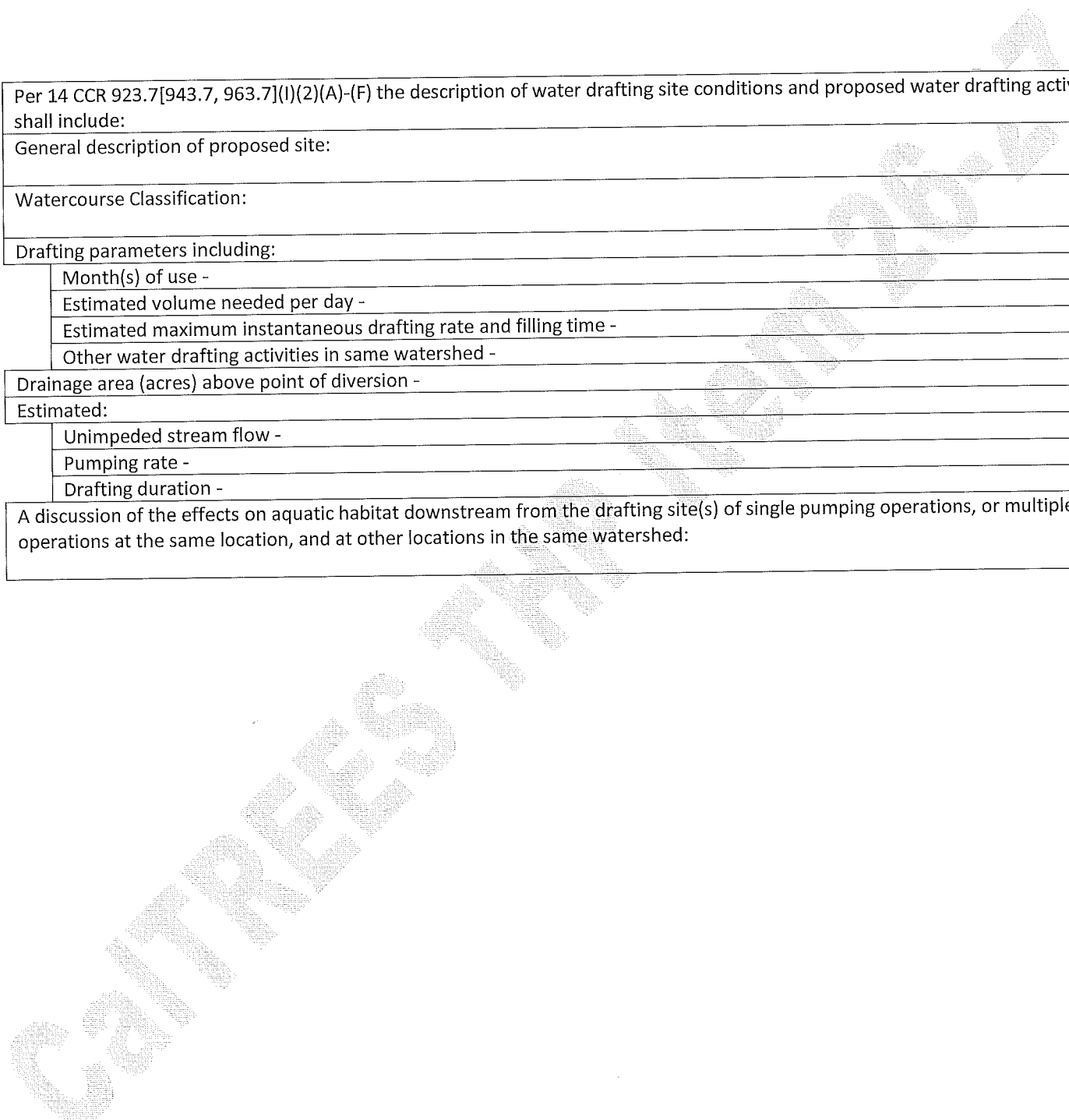
CalTREES THP ITEMS 26 – WATERCOURSES

FOR PLANS LOCATED WITHIN AN ASP WATERSHED	
p. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Will timber operations occur within a class I WLPZ?</p> <p>Timber operations within the Class I and Class II WLPZs are designated and will be conducted so that the significant objective of protection, maintenance, or restoration of the beneficial uses of water or the populations and habitat of anadromous salmonids or listed aquatic or riparian-associated species will be attained. Specific practices utilized include the no harvest core area within the WLPZs and limiting heavy equipment use near watercourses and on steep slopes. Refer to Item 26(a) for Class I watercourse descriptions and protection measures including canopy retention. Refer to Item 27(a) for WLPZ operations and Preferred Management Practices.</p>
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will timber operations occur within a WLPZ adjacent to a restorable Class I watercourse?</p> <p>If YES, Address per 14 CCR 916.9[936.9, 956.9](f)(2)(A)-(E).</p>
<p>Per 14 CCR 916.9[936.9, 956.9](e)(1)(A)-(E) there shall be NO timber operations within a channel zone with the exception of those conditions listed within 916.9[936.9, 956.9](e)(1)(A)-(E)</p>	
q. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Will there be any timber operations within the channel zone of any watercourse?</p> <p>If YES, Indicted the location and type of timber operations to be conducted and provide instructions to the LTO in SECTION II.</p> <p><u>See the Roads and Features Maps and Map Point Table for operations within a channel zone of a watercourse associated with crossing installation and removal.</u></p>
<p>Per 14 CCR 923.1[943.1, 963.1](h) NO logging road(s) or landing(s) shall be planned for construction or reconstruction in the CMZ or Core Zone of a Class I watercourse or within 150 feet of a watercourse transition line. with the exception of those conditions listed within 916.9[936.9, 956.9](e)(1)(A)-(E) and 916.9[936.9, 956.9](v)</p>	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will there be any logging road(s) or landing(s) constructed in the CMZ or Core Zone of a Class I?</p> <p>If Yes, indicate the location and provide instructions to the LTO in SECTION II.</p>
<p>Per 14 CCR 923.9[943.9, 963.9](d) Watersheds with listed anadromous salmonids. A description of all existing permanent Class I watercourse crossings shall be provided, where fish are always or seasonally present or fish passage is restorable.</p>	
r. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Are there existing permanent Class I crossings where fish are always present?</p>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Are there existing permanent Class I crossings where fish are seasonally present?</p>
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Are there existing permanent Class I crossings where fish passage is restorable?</p>
	<p>If YES, provide a description of the existing permanent Class I watercourse crossings. Indicate in the description where the current crossing conditions may be adversely affecting fish passage and identify the proposed measures, if feasible, to address the conditions.</p> <p><u>There is a permanent Class I crossing on an existing permanent road that crosses Mays Canyon. The crossing is currently a 72" cement squash pipe. The culvert is set below grade and is maintaining a gravelly substrate. The culvert functional and in good working order.</u></p>
s. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Will water drafting occur in association with the timber operations?</p> <p>If YES, timber operations shall comply with Fish and Game Code Section 1600, et seq. <u>Water for timber operation purposes will be acquired from The Sonoma Water Treatment Center adjacent to the plan area</u></p>
t. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>Is there a Fish and Game Code Section 1600 Mater Agreement for Timber Operations which addresses water drafting?</p> <p>If YES, provide the operational restrictions from the Master Agreement in SECTION II as instructions to the LTO.</p>

CalTREES THP ITEMS 26 – WATERCOURSES

	If NO, describe the water drafting site conditions and proposed water drafting activity in the plan. Per 14 CCR 923.7[943.7, 963.7](1)(2)(A)-(F) (See Below)
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Per 14 CCR 923.7[943.7, 963.7](1)(2)(A)-(F) the description of water drafting site conditions and proposed water drafting activity shall include:	
General description of proposed site:	
Watercourse Classification:	
Drafting parameters including:	
Month(s) of use -	
Estimated volume needed per day -	
Estimated maximum instantaneous drafting rate and filling time -	
Other water drafting activities in same watershed -	
Drainage area (acres) above point of diversion -	
Estimated:	
Unimpeded stream flow -	
Pumping rate -	
Drafting duration -	
A discussion of the effects on aquatic habitat downstream from the drafting site(s) of single pumping operations, or multiple operations at the same location, and at other locations in the same watershed:	



CaITREES THP ITEMS 27 – WLPZ IN-LIEU OR ALTERNATIVE PRACTICES

ITEM #27– WLPZ IN-LIEU OR ALTERNATIVE PRACTICES

ITEM #27	WLPZ IN-LIEU OR ALTERNATIVES
	<p>Per 14 CCR 916.1[936.1, 956.1] (In-Lieu Practices) – In rule sections where provision is made for site specific practices to be proposed by the RPF, approved by the Director and included in the THP in lieu of a standard rule, the RPF shall:</p> <ul style="list-style-type: none"> • Reference the standard rule • Explain and describe each proposed practice • Explain how it differs from the standard practice, • Explain and justify how the protection provided by the proposed practice is at least equal to the protection provided by the standard rule. • Identify the specific location where it shall be applied. 14 CCR 1034(x)(15) and (16) <p>Per 14 CCR 916.6[936.6, 956.6] (Alternatives) – Alternative prescription for the protection of watercourses and lakes may be developed by the RPF or proposed by the Director on a site specific basis provided the following conditions are complied with and the alternative prescription will achieve compliance with the standards set forth in 14 CCR 916.3[936.3, 956.3] and 916.4[936.4, 956.4](b) The alternative prescription shall include in the THP information per 14 CCR 916.6[936.6, 956.6]a)(1)-(3)</p>
<p>a. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Are there any site-specific practices proposed in-lieu of, or as an alternative, to the prohibition of the construction or use of tractor roads listed below?</p> <p>Per 14 CCR 916.3[936.3, 956.3]c) Timber operators shall not construct or use tractor roads in a Class I, II, III, IV watercourses, wet meadows and other wet areas unless explained and justified in the plan by the RPF. Except at:</p> <ul style="list-style-type: none"> • Prepared tractor crossing described in 14 CCR 914.8[934.8, 954.8](b) • Class III watercourse crossings dry at the time of use • At new and existing tractor road crossings approved as part of a Fish and Game Code Process (F&GC 1600 et seq.) <p>If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Provide the explanation and justification in SECTION III, (see table below)</p> <p><u>See WLPZ Operations Map for WLPZ skid trail and WLPZ landing use.</u></p> <p><u>WLPZ Skid trail use: Avoid side cast and blading material from the trail. Skid logs with blade lifted to avoid disturbing soils. Following use: water bar to moderate EHR standards and treat exposed areas for erosion per Item 18 above.</u></p> <p><u>WLPZ landing use: RPF or Supervised designee familiar with WLPZ landings and their locations shall meet with the LTO and instruct the LTO on limitations of equipment operations near watercourses. Specifically minimizing disturbance close to the watercourse channel and spreading and compacting slash following operations. See L1, L2, L3, and L4 in the Road Points Table in Item 24.</u></p> <p><u>See Explanation and Justification in Section III.</u></p> <p><u>Preferred Management Practices in the Inner Zone A and B of Flood Prone Areas:</u></p> <ol style="list-style-type: none"> 1. Minimize Yarding and Skidding- Existing skid roads proposed for use within the WLPZ shall be flagged prior to the pre-harvest inspection, or before the start of operations if a PHI is not required. Skid roads were specifically selected for reuse to minimize the number of

CaITREES THP ITEMS 27 – WLPZ IN-LIEU OR ALTERNATIVE PRACTICES

	<p>skid roads while protecting the hydrologic functions of the floodplain. Skid roads have been limited to the amount feasible.</p> <ol style="list-style-type: none"> 2. Minimize Soil Erosion and Prevent Discharge- The running surface of skid roads on slopes greater than 10% shall be treated with straw or slash. Operations shall be conducted only when soil conditions are dry and stable. Avoid disturbance of vegetation not intended for harvest that could increase the likelihood of erosion or damages the reinforcing root network on the channel banks, including any secondary overflow channels. Roads shall be watered concurrent with operations in order to keep dust production to a minimum. Equipment used for skidding logs will operate with the blade raised to minimize soil disturbance. 3. Avoid Road and Landing Use- No new roads are proposed and use of existing roads and landings have been minimized to the greatest extent feasible. 4. Avoid Slash Concentration and Site Preparation- Logging slash shall not be disposed of or concentrated into side channels. When slash is treated within the flood prone areas, scatter slash and avoid piling or other concentrations that may obstruct flows within side channels. When possible/feasible concentrate slash and mulch in skid roads. No mechanical site preparation, broadcast burning shall occur in the flood prone area. 5. Delineate Zone on the Ground- This segment of the Russian River is classified as a Wide Flood Prone Area. The edge of the flood prone area, or “Inner Zone B” shall be flagged with WLPZ flagging. The width of this zone is determined by the extent of the flood prone area. The Core Zone (Channel Migration Zone edge to 30’) is not flagged on the ground, however, no trees are marked for harvest within the Core Zone. “Inner Zone A” is flagged with Solid Glo-Orange flagging at 150’ from the WTL, and consists of the area between the Core Zone and 150’. “Inner Zone A” has been marked prior to the PHI to 80% overstory retention. “Inner Zone B” has been marked to retain 50% overstory prior to the PHI. The 13 largest trees per acre within Inner Zone A and Inner Zone B combined shall be retained. 6. Avoid Use of Water Drafting Sites (in the flood prone area)- Water drafting from inside the flood prone area shall not occur. Water for the purposes of dust abatement shall be procured from the Russian River Water Treatment Center adjacent to the Timber Harvest Plan. 7. Avoid Disturbance to Critical Flood Prone Area Habitat- No abandoned meanders, oxbow lakes, or other features that provide off habitat for fish during flood flows will be affected by the THP since they have been given protection zones and all skid trails have been flagged. No activities that increase the potential for diversion or avulsion of stream flow out of existing channel, including breaching or lowering the elevation of natural levees will occur. No large woody debris in the flood prone area will be harvested. Areas with concentrations of aquatic plants and obligate wetland plants are avoided and will not be filled.
<p>b. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Are there any site-specific practices proposed in-lieu of, or as an alternative, to the retention of non-commercial vegetation bordering and covering meadows and wet areas? 14 CCR 916.3[936.3, 956.3(d)</p> <p>If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Provide the explanation and justification in SECTION III, (see table below)</p>
<p>c. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Are there any site-specific practices proposed in-lieu of, or as an alternative, to the Directional felling of trees within any WLPZ away from the watercourse or lake? 14 CCR 916.3[936.3, 956.3(e)</p>

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	If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Provide the explanation and justification in SECTION III, (see table below)
d. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are there any site-specific practices proposed in-lieu of, or as an alternative, to the standard WLPZ(s) width(s) identified in 14 CCR 916.5[936.5, 956.5], Table I? If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Provide the explanation and justification in SECTION III, (see table below)
e. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are there any site-specific practices proposed in-lieu of, or as an alternative, to the protection of Class IV watercourse(s)? 14 CCR 916.4[936.4,956.4](c) and 916.5[936.5, 956.5], Table I If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Provide the explanation and justification in SECTION III, (see table below)

f. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are there any site-specific practices proposed in-lieu of, or as an alternative, to the exclusion of heavy equipment from the WLPZ except at those locations listed below? Per 14 CCR 916.4[936.4, 956.4(d)&(f) – Heavy equipment shall not be used in timber falling, yarding, or site preparation within the WLPZ unless such use is explained and justified in the THP and approved by the Director. Except at: <ul style="list-style-type: none"> • Prepared tractor crossing described in 14 CCR 914.8[934.8, 954.8](b) • Class III watercourse crossings dry at the time of use • Existing road crossings • New tractor and road crossings approved as part of a Fish and Game Code Process (F&GC 1600 et seq.) If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Provide the explanation and justification in SECTION III, (see table below)
g. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are there any site-specific practices proposed in-lieu of, or as an alternative, to the establishment of ELZ(s) for Class III watercourses unless side slopes are, 30% and EHR is low? 14 CCR 916.4[936.4, 956.4](c)(1) If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Provide the explanation and justification in SECTION III, (see table below)
h. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are there any site-specific practices proposed in-lieu of, or as an alternative, to the Retention of at least 50% of the overstory canopy in the WLPZ? 14 CCR 916.5[936.5, 956.5](e)“G” If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Provide the explanation and justification in SECTION III, (see table below)
i. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are there any site-specific practices proposed in-lieu of, or as an alternative, to the Retention of at least 50% of the understory in the WLPZ? 14 CCR 916.5[936.5, 956.5](e)“G” If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Provide the explanation and justification in SECTION III, (see table below)
j. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are there any additional in-lieu or alternative practices proposed for watercourse or lake protection? If YES, provide operational information to the LTO under each item selected YES, in SECTION II. Provide the explanation and justification in SECTION III, (see table below)

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(1) Trees may be felled, where necessary, to accommodate cable yarding corridors. If trees are felled within the Class I WLPZ core zone (0-30'), Large Class II core zone (0-30') or Small Class II core zone (0-15') they shall be left for large woody debris recruitment. Trees felled within Large Class II inner zone (30-100') and Small Class II WLPZ (outside of 15') may be yarded. Corridor trees in the WLPZ shall not be marked prior to the PHI as their locations are typically not known until immediately before timber falling commences, if not later. It is expected that less than 10% of the corridors may need to have a tree(s) harvested in the WLPZ for this purpose, if at all. The Large Class II core zone (0-30') and Small Class II core zone WLPZ (0-15') shall have at least 85% canopy retention. The Large Class II inner zone (30-100') and small Class II WLPZ (outside of 15') shall have at least 50% canopy retention. These retentions are post cable corridor operations - if in fact corridor trees need to be cut. These retentions meet the canopy restrictions of the FPR's. Please see Section III for a complete discussion of this in-lieu practice.

(2) In-Lieu practice for skid tail soil stabilization measures located within the WLPZ. WLPZ skid trails and landings that are under 10% slope will not require stabilization measures such as straw mulching or slashpacking. WLPZ skid trails that are on slopes under 30% that are more than 150' from a Class I or II watercourse will not require stabilization measures such as straw mulching or slashpacking. All skid trails in the WLPZ have been flagged and the LTO will only be allowed to use flagged skid trails. Any WLPZ skid trail that traverses a slope greater than 10% or traverses a slope greater than 30% and is within 150' of a Class I or II watercourse will be slashed packed (to the standards in Item 18 Soil Stabilization Measures) and will be waterbarred. Any landing that is on slopes greater than 10% or is within 150' of a Class I or II watercourse will be slash packed (to the standards in Item 18 Soil Stabilization Measures) and waterbarred. Please see Section III, Item 27(j) for an explanation and justification for this in-lieu practice.

The following measures will provide protection equal to the standard rule to the beneficial uses of water:

- Operations on these trails shall be limited to dry rainless periods when soils are not saturated. The definition of saturated soils is as set forth in 14 CCR 895.1 and listed in item #18.
- Operations on these trails shall not occur between November 15th – April 1st.
- To minimize soil disturbance within the WLPZ that could produce sediment runoff, the trail shall be water barred to high erosion hazard rating standards and the water bars shall be directed into clumps of vegetation when possible.
- To minimize soil disturbance within the WLPZ that could produce sediment, these portions of WLPZ landings shall be seeded and/or mulched and drained with rolling dips and/or waterbars.

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Explanation and justification table for in-lieu WLPZ practices. SECTION III This table is consistent with the table provided in the CaITREES online submission.				
Map reference point	Standard rule	Describe each proposed practice	Explain how proposed practice differs from the standard practice	How is the proposed practice equal to the standard rule?
L1	<p>Per 14 CCR 916.3[936.3, 956.3(c) Timber operators shall not construct or use tractor roads in a Class I, II, III, IV watercourses, wet meadows and other wet areas unless explained and justified in the plan by the RPF.</p> <p>Except at:</p> <ul style="list-style-type: none"> • Prepared tractor crossing described in 14 CCR 914.8[934.8, 954.8](b) • Class III watercourse crossings dry at the time of use • At new and existing tractor road crossings approved as part of a Fish and Game Code Process (F&GC 1600 et seq.) 	<p>An existing WLPZ landing on an existing permanent road within the flood prone zone WLPZ of a Class I Watercourse (Russian River) is proposed for use.</p>	<p>As it pertains to L1 the standard rule (14 CCR 916.3 (c)) states that timber operator shall not use tractor roads or landings within the WLPZ of a Class I and Class II watercourse unless explained and justified within the plan by the RPF and approved by the director.</p>	<p>This existing WLPZ landing is located along an existing permanent road located on a flat terrace adjacent to the Russian River. The landing is flat, and fill slopes around the edge of the landing are stable. Once operations are complete, exposed soil within the WLPZ shall be stabilized as per Item 24 specific mitigation descriptions. No operations will occur at L1 during the winter period. Abiding by the standard rule is not feasible because the WLPZ landings and tractor roads: 1) allow for access into areas that would be inaccessible if operations as proposed were not allowed, 2) allows for less ground disturbance as the timber operators will utilize the existing infrastructure (landings and tractor roads) and 3) cable yarding is not feasible at this location due to poor deflection and blind leads. The protection provided in the THP is equal to the standard rule and provides for the protection of the beneficial uses of water. The WLPZ Operations Map, located at the end of Section II, depicts the location of L1.</p>
L2	<p>Per 14 CCR 916.3[936.3, 956.3(c) Timber operators shall not construct or use tractor roads in a Class I, II, III, IV watercourses, wet meadows and other wet areas unless explained and justified in the plan by the RPF.</p> <p>Except at:</p>	<p>A large flat area adjacent to a permanent road within the flood prone zone WLPZ of a Class</p>	<p>As it pertains to L2 the standard rule (14 CCR 916.3 (c)) states that timber operator shall not use tractor roads or landings within the WLPZ of a Class I and Class</p>	<p>This large flat area is proposed as a WLPZ landing and is located adjacent to an existing permanent road located on a flat terrace adjacent to the Russian River. The landing is flat, and fill slopes around the edge of the landing are stable. Once</p>

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<ul style="list-style-type: none"> • Prepared tractor crossing described in 14 CCR 914.8[934.8, 954.8](b) • Class III watercourse crossings dry at the time of use • At new and existing tractor road crossings approved as part of a Fish and Game Code Process (F&GC 1600 et seq.) 	<p>I Watercourse (Russian River) is proposed as a WLPZ Landing.</p>	<p>II watercourse unless explained and justified within the plan by the RPF and approved by the director.</p>	<p>operations are complete, exposed soil within the WLPZ shall be stabilized as per Item 24 specific mitigation descriptions. No operations will occur at L2 during the winter period. Abiding by the standard rule is not feasible because the WLPZ landings and tractor roads: 1) allow for access into areas that would be inaccessible if operations as proposed were not allowed, 2) allows for less ground disturbance as the timber operators will utilize the existing infrastructure (landings and tractor roads) and 3) cable yarding is not feasible at this location due to poor deflection and blind leads. The protection provided in the THP is equal to the standard rule and provides for the protection of the beneficial uses of water. The WLPZ Operations Map, located at the end of Section II, depicts the location of L2.</p>
<p>L3</p> <p>Per 14 CCR 916.3[936.3, 956.3](c) Timber operators shall not construct or use tractor roads in a Class I, II, III, IV watercourses, wet meadows and other wet areas unless explained and justified in the plan by the RPF.</p> <p>Except at:</p> <ul style="list-style-type: none"> • Prepared tractor crossing described in 14 CCR 914.8[934.8, 954.8](b) • Class III watercourse crossings dry at the time of use • At new and existing tractor road crossings approved as part of a Fish and Game Code Process (F&GC 1600 et seq.) 	<p>An existing WLPZ landing on an existing permanent road within the flood prone zone WLPZ of a Class I Watercourse (Russian River) is proposed for use.</p>	<p>As it pertains to L3 the standard rule (14 CCR 916.3 (c)) states that timber operator shall not use tractor roads or landings within the WLPZ of a Class I and Class II watercourse unless explained and justified within the plan by the RPF and approved by the director.</p>	<p>This existing WLPZ landing is located along an existing permanent road located on a flat terrace adjacent to the Russian River. The landing is flat, and fill slopes around the edge of the landing are stable. Once operations are complete, exposed soil within the WLPZ shall be stabilized as per Item 24 specific mitigation descriptions. No operations will occur at L3 during the winter period. Abiding by the standard rule is not feasible because the WLPZ landings and tractor roads: 1) allow for access into areas that would be inaccessible if operations as proposed were not allowed, 2) allows for less ground disturbance as the timber operators will utilize the existing infrastructure (landings and tractor roads)</p>

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<p>and 3) cable yarding is not feasible at this location due to poor deflection and blind leads. The protection provided in the THP is equal to the standard rule and provides for the protection of the beneficial uses of water. The WLPZ Operations Map, located at the end of Section II, depicts the location of L3.</p>			<p>and 3) cable yarding is not feasible at this location due to poor deflection and blind leads. The protection provided in the THP is equal to the standard rule and provides for the protection of the beneficial uses of water. The WLPZ Operations Map, located at the end of Section II, depicts the location of L3.</p>
<p>L4</p> <p>Per 14 CCR 916.3[936.3, 956.3(c) Timber operators shall not construct or use tractor roads in a Class I, II, III, IV watercourses, wet meadows and other wet areas unless explained and justified in the plan by the RPF.</p> <p>Except at:</p> <ul style="list-style-type: none"> • Prepared tractor crossing described in 14 CCR 914.8[934.8, 954.8](b) • Class III watercourse crossings dry at the time of use • At new and existing tractor road crossings approved as part of a Fish and Game Code Process (F&GC 1600 et seq.) 	<p>As it pertains to L4 the standard rule (14 CCR 916.3 (c)) states that timber operator shall not use tractor roads or landings within the WLPZ of a Class I and Class II watercourse unless explained and justified within the plan by the RPF and approved by the director.</p>	<p>An existing rocked WLPZ landing on an existing permanent road within the flood prone zone WLPZ of a Class I Watercourse (Mays Canyon), and a Class II Watercourse (tributary to Mays-Canyon) is proposed for use.</p>	<p>This existing rocked WLPZ landing is located along an existing permanent road located on a flat terrace adjacent to the Mays Canyon. The landing is flat, and fill slopes around the edge of the landing are stable. Once operations are complete, exposed soil within the WLPZ shall be stabilized as per Item 24 specific mitigation descriptions. No operations will occur at L4 during the winter period. Abiding by the standard rule is not feasible because the WLPZ landings and tractor roads: 1) allow for accessible if areas that would be inaccessible if operations as proposed were not allowed, 2) allows for less ground disturbance as the timber operators will utilize the existing infrastructure (landings and tractor roads) and 3) cable yarding is not feasible at this location due to property line constraints, poor deflection and blind leads. The protection provided in the THP is equal to the standard rule and provides for the protection of the beneficial uses of water. The WLPZ Operations Map, located at the end of Section II, depicts the location of L4.</p>

CaITREES THP ITEMS 28-29 – DOMESTIC WATER NOTIFICATIONS

ITEM #28-29 – DOMESTIC WATER NOTIFICATIONS

ITEM #28		DOMESTIC WATER NOTIFICATIONS	
<p>Per 14 CCR 1032.10 – The THP submitter shall provide notice by letter to all other landowners within 1,000 feet downstream of the THP boundary whose ownership adjoins or includes a Class I, II, or IV watercourse(s) which receives surface drainage from the proposed timber operations.</p> <p>The notice shall request that the THP submitter be advised of surface domestic water use from the watercourse, within the THP or within 1,000 feet downstream of the THP boundary.</p> <p>When required to notice by letter, publication shall also be given one time by the THP submitter in a newspaper of general circulation in the area affected by the proposed project.</p> <p>Such letter and publication shall notify the adjoining party:</p> <ul style="list-style-type: none"> • of the proposed timber operation • describe its legal location • identify the name, if any, of the watercourse it may affect • request a response by the property owner within ten days of the post-marked date on the letter or the date of publication as appropriate <p>The RPF may propose, with justification and explanation, an exemption to such notification requirements, and the Director may agree.</p> <p>Copies of either notice, proof of service and publication, and any responses shall be attached to the THP (SECTION V) when submitted.</p> <p>If domestic use is noted, the plan shall contain mitigations necessary to protect domestic water use.</p> <p>THE PLAN SHALL NOT BE SUBMITTED UNTIL <u>TEN DAYS</u> AFTER THE ABOVE NOTIFICATION(S) HAVE BEEN COMPLETED</p>			
<p>a. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Are there any landowners with 1,000 feet downstream of the THP boundary whose ownership adjoins or includes a class I, II or IV watercourse(s) which receive surface drainage from the proposed timber operations?</p> <p>If YES, the requirement of 1032.10. Proof of letter notification shall be included in THP SECTION V.</p> <p>If NO, notification exemption request below need not be answered.</p> <p><u>There are 319 landowners within 1000 feet downstream of the proposed plan boundary, all landowners have been notified. A copy of the letter and map have been included in Section V of this THP.</u></p>		
<p>b. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> Letter</p> <p><input type="checkbox"/> Newspaper</p> <p><input type="checkbox"/> Both</p>	<p>Is an exemption to the notification requirements requested? (check notification requesting to be exempted)</p>	<p>If YES, provide the explanation and justification for the exemption request in SECTION III of the THP.</p>	
<p>c1. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Was any information received in response to domestic water notifications indicating domestic water supplies may be present within or downstream of the project area?</p>		
<p>c2. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>If YES, are there any additional mitigation measures needed beyond that required by standard watercourse and lake protection rules?</p> <p>If YES, provide the site-specific instruction to the LTO in SECTION II.</p>		

CalTREES THP ITEMS 28-29 – DOMESTIC WATER NOTIFICATIONS

ITEM #29	SENSITIVE WATERSHEDS
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is any part of the THP area within a Sensitive Watershed as designated by the Board of Forestry and Fire Protection? If YES, identify the watershed and list the special rules, operating procedures or mitigation that will be used to protect the resources identified at risk.

WATERSHED	SPECIAL RULE	MITIGATION MEASURES PROTECTING RESOURCES IDENTIFIED AT RISK

CaITREES THP ITEM #30 – HAZARD REDUCTION

ITEM #30 – HAZARD REDUCTION

ITEM #30	HAZARD REDUCTION
	<p>Per 14 CCR 917, 937, 957 - Hazard reduction shall provide standards for the treatment of snags and logging slash in order to reduce fire and pest safety hazards in the logging area, to protect such area from potential insect and disease attack, and to prepare the area for natural or artificial reforestation while retaining wildlife habitat.</p> <p>Per 14 CCR 917.2, 937.2, & 957.2 – The following standards shall apply to the treatment of slash created by timber operations within the plan area and on roads adjacent to the plan area.</p>
<p>a. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Will slash treatment occur within 100 feet of the edge of the traveled surface of a PUBLIC road?</p> <p><u>Slash treatment will be required within 100 feet Neely Road, and Mays Canyon Road. Treatment methods may include lopping, chipping, burying, or removal from the zone in accordance with the provisions of 14 CCR 917.2(b).</u></p>
<p>b. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Will slash treatment occur within 50 feet of the edge of the traveled surface of PERMANENT private roads open for public use where permission to pass is not required?</p>
<p>c. <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>[SOUTHERN only]</p> <p>Will slash treatment occur within 50 feet of the edge of the traveled surface of SEASONAL private roads open for public use where permission to pass is not required?</p>
	<p>If YES to any of the above, slash created or trees knocked down by road construction or timber operations shall be treated by: (Select all that apply)</p> <p><input checked="" type="checkbox"/> lopping for Fire hazard reduction per (14 CCR 895.1)</p> <p>Lopping is defined as: Severing and spreading of slash (branches and limbs less than four (4) inches in diameter, and bark and split products debris left on the ground as a result of timber operations) so that no part is generally remains more than 30 inches above the ground.</p> <p><input type="checkbox"/> Piling and burning per (14 CCR 917.2, 937.2, 957.2(a)(1-3))</p> <p><input checked="" type="checkbox"/> chipping</p> <p><input checked="" type="checkbox"/> burying</p> <p><input checked="" type="checkbox"/> removal</p> <p><input type="checkbox"/> Other (explain)</p>
<p>d. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Are there any permanently located structures maintained for human habitation in the project area requiring slash treatment?</p> <p>If YES, identify distance slash treatment will occur and indicate the method of treatment</p> <p><input type="checkbox"/> Within 100 feet of permanent structure</p> <p><input type="checkbox"/> Removed</p> <p><input type="checkbox"/> Piled and burned per (14 CCR 917.2, 937.2, 957.2(a)(1-3))</p> <p><input type="checkbox"/> Other (explain)</p> <p><input type="checkbox"/> Between 100-200 feet of permanent structure</p> <p><input type="checkbox"/> Lopped for fire hazard reduction (per 14 CCR 895.1)</p> <p><input type="checkbox"/> removed</p> <p><input type="checkbox"/> chipped</p> <p><input type="checkbox"/> Piled and burned per (14 CCR 917.2, 937.2, 957.2(a)(1-3))</p> <p><input type="checkbox"/> Other (explain)</p>
<p>e. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Has the RPF or Director determined there is an unusual fire risk or other hazard exists within the proposed project area?</p>

CalTREES THP ITEM #30 – HAZARD REDUCTION

	If YES then logging is required within 200-500 feet of permanent structures.
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f. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the RPF proposing any alternatives to treating slash along roads and within 200 feet of structures. If YES, the RPF shall explain and justify in the plan how equal fire protection will be provided. The explanation and justification shall include:
	Description of the alternative treatment(s):
	Estimated amount / distribution of slash:
	Type of remaining vegetation:
	Topography:
	Climate:
	Degree of public exposure fire history:
	Provide a description of where the alternative will be used: (mapping area(s) is suggested)

g. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will piling and burning be used for hazard reduction? If YES, refer to 14 CCR 917.2, 937.2, 957.2(a)(1-3). (select all that apply) <input type="checkbox"/> Piles created prior to September 1 shall be treated not later than April 1 of the year following its creation, or within 30 days following climatic access after April 1 of the year following its creation. <input type="checkbox"/> Piles created on or after September 1 shall be treated not later than April 1 of the second year following its creation, or within 30 days following climatic access after April 1 of the second year following its creation.
h. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the RPF proposing any alternatives to piling and burning from those required in 14 CCR 917.2, 937.2, 957.2(a)(1-2)? If YES, the RPF shall provide and explanation and justification in the plan to be approved by the director.

CaITREES THP ITEMS #32-35 BIOLOGICAL RESOURCES

ITEM # 32 – BIOLOGICAL RESOURCES

ITEM #32		LISTED PLANT or ANIMAL SPECIES INCLUDING HABITAT
a. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are there any <u>ANIMAL SPECIES</u> , including their habitat(s), which are listed as rare, threatened or endangered under Federal or state law, or a sensitive species by the Board of Forestry associated with the THP area? If YES, identify the animal species and the provisions to be taken for the protection of the species.	

*The Clarr Tree (location is depicted on the WLPZ Operations Map located at the end of Section II of this THP), is a Historical Old Growth Redwood Tree located in the Alluvial Flat of the Floodplain adjacent to the Russian River. The Clarr tree is NOT proposed for harvest. There shall be a permanent 75-foot "No Harvest" Buffer placed around the Clarr tree. The LTO shall instruct timber fallers to fall trees away from the Clarr Tree.

Listed and Sensitive Animal Species Table					
Animal Species	Species type Mammal / bird / reptile / amphibia / fish / Invertebrate	FEDERAL Threatened / endangered /	STATE Threatened / endangered / candidate	BOF Sensitive	Protection measures
Northern Spotted Owl	Bird	Threatened			<p><u>Northern Spotted Owl</u></p> <p>Note to LTO:</p> <p>1. No operations shall occur until all required surveys have been provided to CAL-FIRE, evaluated for consistency with the plan and protocols, and amended into the plan. Pursuant to 14 CCR 939.9(e), this THP is using Scenario 4. The person submitting the original plan or the successor in interest will submit subsequent consultations to the Department as enforceable amendments to the plan prior to operations being conducted pursuant to that consultation. Surveys shall be conducted pursuant to the most current, approved survey protocol.</p> <p>Also habitat retention, standard protection measures, operational limitations, and surveys shall be conducted in compliance with February 27, 2008 Attachment A for the Coast Forest District. NSO surveys for 2018-2020 have been included in the THP and are located in Section V.</p> <p>According to the Northern Spotted Owl database dated 14MAR18, 22JAN19 and 02MAR20, there is one known NSO territory within 0.7 miles of the Silver Estates THP (SON0076). Discussion with other local biologists did not know of any other known NSOs. A daytime stand search was conducted within the property and off the property in the vicinity of the SON0076 AC looking for evidence of NSOs on 25APR18, 22APR19 and 09MAR20, and no NSO's were found.</p> <p>1. Definitions</p> <p>USFWS NSO Take Avoidance Analysis- Attachment A Northern Spotted Owl Coast District Range</p> <p>a. Nesting/Roosting</p> <p>i. High Quality Nesting/Roosting Habitat</p> <p>1. Basal area= 210+ sq. ft., and</p> <p>2. ≥15" quadratic mean diameter (QMD),</p> <p>and</p> <p>3. ≥8 trees per acre (TPA) of trees ~26" in diameter at breast height (DBH), and</p> <p>4. ≥60% canopy closure</p> <p>ii. Nesting/Roosting Habitat</p> <p>1. A mix of basal areas ranging from 150-180+ sq. ft., and</p> <p>2. ≥15" QMD, and</p> <p>3. ≥8 TP A of trees ~26" DBH, and</p> <p>4. ≥60% canopy closure</p> <p>b. Foraging</p>

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					<p>i. Foraging Habitat</p> <ol style="list-style-type: none"> 1. A mix of basal areas ranging from 120-180+ sq. ft., and 2. ~13" QMD, and 3. ~5 TP A of trees ~26" DBH, and 4. A mix of ~40%-100% canopy closure <p>ii. Low Quality Foraging Habitat</p> <ol style="list-style-type: none"> 1. A mix of basal areas ranging from 80-120+ sq. ft., and 2. ~11" QMD, and 3. ~40% canopy closure <p>2. Quantities</p> <ol style="list-style-type: none"> a. Within 1000 feet of an activity center <ol style="list-style-type: none"> i. Outside breeding season (September 1- January 31): no timber operations other than use of existing roads ii. During breeding season (February 1-August 31): no timber operations other than the use of existing, permanent, year-round roads. If NSOs are nesting, utilize seasonal restriction for all timber operations within 0.25 mile of nest. b. Within 0.5 mile radius (502 acres) centered on an activity center <ol style="list-style-type: none"> i. Retention of habitat should follow Section III.4 of this document ii. At least 250 acres nesting/roosting habitat present, as follows: <ol style="list-style-type: none"> 1. 100 acres High Quality Nesting /Roosting Habitat, and 2. 150 acres Nesting/Roosting Habitat -AND iii. At least 150 acres foraging habitat must be present, as follows: <ol style="list-style-type: none"> 1. 100 acres Foraging Habitat, and 2. 50 acres Low Quality Foraging Habitat iv. No more than 1/3 of the remaining suitable habitat may be harvested during the lifetime of the THP c. Between the 0.5 mile radius and the 1.3 mile radius circles centered on an activity center <ol style="list-style-type: none"> i. Retention of habitat should follow Section III.4 of this document ii. ~935 acres of suitable habitat must be present, as follows: <ol style="list-style-type: none"> 1. At least 655 acres of Foraging Habitat, and 2. At least 280 acres of Low Quality Foraging, and 3. No more than 113 of the remaining suitable habitat may be harvest during the life of the THP <p>If a Northern Spotted Owl is found to be nesting within the THP area, halt all operations, other than standard logging road use for egress, within 500 feet of the suspected nesting site and notify the Plan Submitter. Do not recommence operations until appropriate measures have been taken by the Plan Submitter and accepted and approved by CDFW.</p>
Marbled Murrelet	Bird	Threatened	Endangered	Yes	No known occurrences within THP area. If a Marbled Murrelet is found to be nesting within the THP area, halt all operations, other than standard logging road use for egress, within 300 feet of the suspected nesting site and notify the Plan Submitter. Do not recommence operations until appropriate measures have been taken by the Plan Submitter and accepted and approved by CDFW.
Bald Eagle	Bird	Fed Delisted	Endangered Fully Protected	Yes	No known occurrences within the THP area. Buffer zone around active nest site/trees ranges from 10-40 acres in consultation with CDFW. The following year around restrictions shall apply within the buffer zone. No clear cutting is allowed within the buffer zone. Selection, commercial thinning, sanitation-salvage, and the shelterwood regeneration method, except for the removal step, are permitted if all trees are marked prior to preharvest

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					inspection. All nest trees containing active nests, and all designated perch trees, screening trees and replacement trees, shall be left standing and unharmed.
Great Blue Heron and Great Egret	Bird			Yes	No known occurrences within the THP area. For the Great Blue Heron and Great Egret, the buffer zone around nest sites shall consist of the area within a 300-foot radius of a tree or trees containing a group of five or more active nests in close proximity as determined by the CDFW. For the Great Blue Heron and Great Egret, the critical period is February 15 until July 1 for coastal counties south of and including Marin County. For all other areas, the period is from March 15 through July 15. During this critical period, timber operations within the buffer zone shall be staged with a gradual approach to the nest.
Northern Goshawk	Bird			Yes	No known occurrences within the THP area. For the Northern Goshawk, the buffer zone around active nest sites shall be a minimum of five acres in size. When explained and justified in writing, the Director may increase the size of the buffer zone to a maximum of 20 acres when necessary to protect nesting birds. For the Northern goshawk, designated nest trees, screening trees, perch trees, and replacement trees shall be left standing and unharmed. Only the commercial thinning, sanitation-salvage, and selection regeneration methods are permitted in the buffer zone. If a Northern Goshawk is found to be nesting within the THP area, halt all operations, other than standard logging road use for egress, within 333 feet of the suspected nesting site and notify the Plan Submitter. Do not recommence operations until appropriate measures have been taken by the Plan Submitter and accepted and approved by CDFW.
Osprey	Bird			Yes	For the Osprey, the buffer zone around active nest sites shall be up to five acres in size. When explained and justified in writing, the Director may increase the size of the buffer zone to a maximum of 18 acres when necessary to protect nesting birds. For the Osprey, all designated nest trees, perch trees, screening trees, and replacement trees shall be left standing and unharmed. If the RPF believes that retention is not feasible, he/she may propose construction of an artificial nest structure as an alternative. If an Osprey is found to be nesting within the THP area during the period of March 1 to August 1, halt all operations within 150 feet of the suspected nesting site and notify the Plan Submitter. Do not recommence operations until appropriate measures have been taken by the Plan Submitter and accepted and approved by CDFW.
Peregrine Falcon	Bird		Fully Protected	Yes	No known occurrences within the THP area. For the Peregrine Falcon, the buffer zone around active nest sites shall be a minimum of ten acres in size. The Director may increase the buffer zone beyond 40 acres in size so that timber operations will not result in a "take" of either species. The Director shall develop the buffer zone in consultation with the CDFW and the RPF. For the Peregrine Falcon, where timber provides part of the immediate nesting habitat, special cutting prescriptions may be required by the Director on an area up to ten acres in size immediately surrounding the nest. The cutting prescriptions shall protect the nesting habitat.
Bank Swallow	Bird		Threatened		No known occurrences within THP area. If a Bank Swallow is sited contact Plan Submitter whom shall contact CDFW to develop protection measures.
Tri-colored Blackbird	Bird		Threatened		No known occurrences within THP area. If a Tri-colored Blackbird is sited contact Plan Submitter whom shall contact CDFW to develop protection measures.
Western Snowy Plover	Bird	Threatened			No known occurrences within THP area. If a Western Snowy Plover is sited contact Plan Submitter whom shall contact CDFW to develop protection measures.
Western Yellow-billed Cuckoo	Bird	Threatened	Endangered		No known occurrences within THP area. If a Western Yellow-billed Cuckoo is sited contact Plan Submitter whom shall contact CDFW to develop protection measures.

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Coho Salmon	Fish	Threatened	Threatened	No	Protective measures for the Coho Salmon and other aquatic wildlife species have been incorporated into the silvicultural methods in Item #14, soil stabilization measures in Item #18, watercourse protection measures included in Item #26, and other provisions of the THP.
Steelhead	Fish		Threatened	No	Protective measures for the Steelhead and other aquatic wildlife species have been incorporated into the silvicultural methods in Item #14, soil stabilization measures in Item #18, watercourse protection measures included in Item #26, and other provisions of the THP.
Chinook	Fish	Threatened		No	Protective measures for the Chinook and other aquatic wildlife species have been incorporated into the silvicultural methods in Item #14, soil stabilization measures in Item #18, watercourse protection measures included in Item #26, and other provisions of the THP.
Longfin Smelt	Fish		Threatened		Protective measures for the Longfin Smelt and other aquatic wildlife species have been incorporated into the silvicultural methods in Item #14, soil stabilization measures in Item #18, watercourse protection measures included in Item #26, and other provisions of the THP.
California Freshwater Shrimp	Other	Endangered			Protective measures for the California Freshwater Shrimp and other aquatic wildlife species have been incorporated into the silvicultural methods in Item #14, soil stabilization measures in Item #18, watercourse protection measures included in Item #26, and other provisions of the THP.
Humboldt Martin	Mammal		Candidate	No	The plan is within the historic range of Humboldt Marten is listed as a Species of Special Concern by the CDFW and candidate species under the Federal Endangered Species Act. Humboldt Martin was not discovered during plan preparation. Measures proposed for protection of habitat elements of this species are included in Item 14, Item 26, and Item 32(b), as well as other provisions of the THP.
Pacific Fisher	Mammal		Threatened	No	This plan is within the current range of the Fisher. Protections for pacific fisher during operations of the THP: The RPF or supervised designee shall be responsible for identification of den trees during timber marking activities and oversight of measures intended to protect fisher. Generally potential den trees shall not be felled. If a potential den tree must be felled for safety reasons it will not be felled during the natal period (March 1 st to May 15 th) and if it is felled during the maternal denning period (May 16 th thru July 31 st) it will not be cut until the day after all other trees intended to be felled within a ten acre area (375' radius) have been felled. During timber operations, if a fisher is observed, Cal Fire and DFW will be notified of the detection and all vegetation disturbing activities will cease within the affected area. During timber operations, if a den, resting area or other habitation of a fisher is discovered, all operations shall cease within .25 mile of a natal den or within 375-foot radius buffer around the maternal den or other habitation until it can be confirmed that fisher are no longer present. In order to avoid take, habitat elements utilized by fisher shall be retained.
Gray Wolf	Mammal		Endangered	No	Gray Wolf is listed as endangered in California. If an individual, active den, or a rendezvous site for this species is observed, all vegetation disturbing activities within 200-feet will be suspended and the RPF, DFW, and CALFIRE will be notified. Vegetation disturbing activities will not recommence until approved by the consulting agencies.
California Tiger Salamander	Amphibian	Threatened	Threatened		No known occurrences within the THP area. Protective measures for the Steelhead and other aquatic wildlife species have been incorporated into the silvicultural methods in Item #14, soil stabilization measures in Item #18, watercourse protection measures included in Item #26, and other provisions of the THP.
California Red-legged Frog	Amphibian	Threatened			No known occurrences within the THP area. Protective measures for the Steelhead and other aquatic wildlife species have been incorporated into the silvicultural methods in Item #14, soil stabilization measures in Item #18, watercourse

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				<p>protection measures included in Item #26, and other provisions of the THP.</p> <p>The USFWS developed four take avoidance measures for THP's as being the most effective manner in avoiding take. This THP shall incorporate Scenarios III and IV from the California Red-legged Frog Take Avoidance Scenarios March 2, 2008 (Replaces 2/1/08 version) which are recommended tools to avoid take. The following definitions of wet and dry season definitions vary slightly from weather periods defined by the Forest Practice Rules.</p> <p>Scenario III: Suitable habitat within 2 miles of the harvest units or in units where harvest activities are planned within 300 feet of suitable habitat during wet season. No take is estimated under the following conditions: *The wet season is defined as the first frontal rain system depositing a minimum of 0.25 inches of rain after October 15th and ends on April 15th. 1. For Class III Watercourses, when dry, maintain a minimum 30 foot "No Harvest" buffer, and fell trees away from watercourses. 2. For Class II Watercourses and intermittent ponds/wetlands that meet the definition of suitable habitat, where water is present, 300 foot "No Harvest" buffer, where dry, 30-foot "No Harvest" buffer and no equipment within 75-feet of annual high water mark. Trees shall be felled away from any suitable habitat. 3. Class I Watercourses and permanent ponds or wetlands, that meet the definition of suitable habitat, a 300-foot "No Harvest" Equipment Exclusion Zone shall be established around the suitable habitat.</p> <p>Scenario IV: Suitable habitat within 2 miles of the harvest units or in units where harvest activities are planned within 300 feet of suitable habitat during dry season. No take is estimated under the following conditions: * The dry season is defined as April 16th and ends with the first frontal rain system which deposits a minimum of 0.25 inches of rain after October 15th. 1. All suitable habitat must maintain a 30-foot "No Harvest" and Equipment Exclusion Zone buffer.</p> <p>Under all above scenarios, the following operational conditions must also be included:</p> <ul style="list-style-type: none"> a. Pile burning must be outside the 300 foot "No Harvest" buffer. b. No herbicide use allowed within 300 feet of suitable habitat except for direct application to stumps. c. Roads and Landings, if constructed, must be at least 300 feet from suitable habitat, and construction must occur during the dry season.
Myrtle's Silverspot Butterfly	Insect	Endangered		No known occurrences within THP area. If a Myrtles Silverspot Butterfly is sited contact Plan Submitter whom shall contact CDFW to develop protection measures.
Western Bumblebee	Insect		Endangered	No known occurrences within THP area. If a Western Bumblebee is sited contact Plan Submitter whom shall contact CDFW to develop protection measures.

b. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Are there any <u>PLANTS</u>, including their habitat(s), which are listed as rare threatened or endangered under Federal or state law, or a sensitive species by the Board of Forestry associated with the THP area?</p> <p>If YES, identify the animal species and the provisions to be taken for the protection of the species.</p>
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CalTREES THP ITEMS #32-35 BIOLOGICAL RESOURCES

Plant Species Table				
Plant Species	FEDERAL Threatened / endangered	STATE Rare / Threatened / Endangered	CRPR (1A, 1B, 2A, 2B, 3, 4)	Protection measures
<i>Juglans hindsii</i> (Northern California Black Walnut)			1B.1	This species is present in one location within the THP. It is located in the Core Zone (No Harvest) of the Russian River. The specimen shall not be cut or damaged by the falling of nearby trees.

Post-approval Plant Discovery: In the event that a rare or sensitive plant is found after plan approval, default mitigation measures of avoidance will be implemented by placing a 50-foot buffer around the sensitive plant beginning at the outer most occurrence of the subject plant, until species specific mitigation measures can be developed. No timber harvesting or road construction shall occur within 50-feet of any location supporting a listed/sensitive plant unless alternative mitigation measures, developed through consultation with CDFW, are applied. The CDFW and RPF will work together to develop species specific measures to reduce impacts to sensitive plant taxa to less than significant. If agreed upon, protection measures alter the operations of the plan, those measures will be made part of the plan though a minor amendment submitted to CAL FIRE.

Invasive Species: Within the THP area there are populations of French Broom (*Genista monspessulana*) and pampas grass (*Cortaderia jubata*). These invasive species are mostly concentrated in open areas such as roads, skid trails, and landings. These species should be removed when ever feasible.

NON-LISTED SPECIES IMPACTS	
c. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Are there any NON-LISTED species which will be significantly impacted by the operation? If yes, identify the species and the provisions to be taken for the protection of the species.

Non-Listed Species Table		
Species	Species type Mammal / bird / reptile / amphibia / fish / Invertebrate	Protection measures
Red Tree Vole	Mammal	Sonoma (Red) Tree Vole (RTV) nests were not discovered during plan preparation but may be associated with the plan area. The CNDDDB has no reports of RTV. If RTV nests are discovered, the Plan Submitter shall be notified, and nest trees shall be retained along with screen trees (those with crowns touching the nest tree).
Foothill Yellow-Legged Frog	Amphibian	FYLF were not discovered during plan layout but may be associated with the plan area. Avoidance measures to protect habitat for FYLF will be met through the standard WLPZ protection measures as well as through BMP's for watercourse crossing work.
Western Pond Turtle	Amphibian	Western Pond Turtles were not discovered during plan layout but may be associated with the plan area. Avoidance measures to protect habitat for Western Pond Turtles will be met through the standard WLPZ protection measures as well as through BMP's for WLPZ operations and watercourse crossing work.
California Giant Salamander	Amphibian	California Giant Salamanders were not discovered during plan layout but may be associated with the plan area. Avoidance measures to protect habitat for California Giant Salamander will be met through the standard WLPZ protection measures as well as through BMP's for WLPZ operations and watercourse crossing work.
Townsend's Big-eared Bat	Mammal	Townsend's Big-eared Bats were not discovered during plan layout but may be associated with the plan area. Habitat for this species exists within the BAA and within the plan area. Habitat within the plan area is probably in the form of basal hollows in large redwood trees. The plan does have mitigations in Item 38 to protect special habitat elements that would be beneficial for Townsend's big-eared bat.
Pallid Bat	Mammal	Pallid Bats were not discovered during plan layout but may be associated with the plan area. Habitat for this species exists within the BAA and within the plan area. Habitat within the plan area is probably in the form of basal hollows in large redwood trees. The plan does have mitigations in Item 38 to protect special habitat elements that would be beneficial for Pallid Bats.

In the course of preparing this plan, plant and animal species that are not rare, threatened, endangered, or sensitive species were given consideration and review. Special habitat elements shall be maintained across the landscape to maintain forest ecosystems by providing complexity, which supports wildlife diversity. All feasible steps are being taken to retain special habitat features. For example all snags, except as required in 14 CCR 939.1(b), shall be retained. In addition, to provide habitat structure, all existing downed large woody debris and cull logs shall remain on site. Also, conifer and hardwoods with

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pre-eminent wildlife value, such as large woody limbs, bole defects, nesting cavities, basal hollows, and broken or snag tops, shall be left to provide habitat and mast for food supplies. These include trees that meet the definition of “decadent and deformed trees of value to wildlife” as defined in 14 CCR 895.1. If an occupied, non-listed raptor nest is located the nest tree and screening trees shall be protected and if the nest is unoccupied the nest tree shall be retained. Riparian zones and springs shall have special protection given (see Item #26) to provide for habitat and water sources.

*Should any listed species (plant and/or animal) be found within or adjacent to the THP area, the RPF will complete and submit a Native Species Occurrence form to the CNDDDB to document and positive detection of a rare, threatened, or endangered species.

ITEM # 33 – SNAGS

ITEM #33	SNAGS
Per 14 CCR 919, 939, 959 – Timber operations shall be planned and conducted to maintain suitable habitat for wildlife species as specified by the provisions of Article 9 of the Forest Practice Rules.	
Within the logging area all snags shall be retained to provide wildlife habitat with the exception of snags for safety reasons Per 14 CCR 919.1, 939.1, 959.1(a)-(f)	
a. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are there any snags which must be felled for fire protection or safety reasons?
b. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will snags over 20 feet in height and 16 inches dbh be felled within 100 feet of a main ridge that is suitable for fire suppression? If YES, ridge shall be delineated on a THP map.
c. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will snags over 20 feet in height and 16 inches dbh be felled within 100 feet of all public roads, permanent roads, landings and railroads? (select all that apply) <input type="checkbox"/> Public road(s) <input type="checkbox"/> Permanent road(s) <input checked="" type="checkbox"/> Landing(s) <input type="checkbox"/> Railroad(s)
d. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will snags be felled where federal and state safety laws and regulations require the felling of snags?
e. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will snags be felled within 100 feet of structures maintained for human habitation?
f. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Will merchantable snags be felled in any location as provided for in the plan?
g. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Will snags be felled as required to control insect or disease concerns?

ITEM # 34 – LATE SUCCESSIONAL FOREST STANDS

ITEM #34	LATE SUCCESSIONAL FOREST STANDS
a. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are any Late Successional Forest stands proposed for harvest? If YES, describe measures to be implemented by the LTO to avoid long-term significant adverse effects on fish, wildlife and listed species known to be primarily associated with late successional forests.
Describe:	

ITEM # 35 – OTHER WILDLIFE PROTECTION REQUIRED BY FOREST PRACTICE RULES

a. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are there any other provisions for wildlife protection required by the rules? If YES, describe.
Description:	

CalTREES THP ITEMS #36-38 – CULTURAL RESOURCES / GROWTH AND YIELD / SPECIAL INSTRUCTIONS

ITEM # 36 – CULTURAL RESOURCES

ITEM #36		ARCHAEOLOGICAL / HISTORICAL
a. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Has an archaeological / historical survey been made for the THP area?	
b. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Has a current archaeological / historical records check been conducted for the THP area?	
c. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	During pre-field research and surveys were archaeological or historical sites identified within the plan area? If YES, THIS INFORMATION IS CONFIDENTIAL AND NOT AVAILABLE TO REVIEW AGENCIES, OTHER THAN CAL FIRE, AND THE GENERAL PUBLIC. RPF is advised to complete the Confidential Archaeological Addendum (CAA) and place in Section VI of the THP.	

ITEM # 37 – GROWTH AND YIELD INFORMATION

<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Has any inventory or growth and yield information designated "TRADE SECRET" been submitted in a separate confidential envelope in Section VI of this THP? If YES, THIS INFORMATION IS CONFIDENTIAL AND NOT AVAILABLE TO REVIEW AGENCIES.
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ITEM # 38 – SPECIAL INSTRUCTIONS OR CONSTRAINTS

CONDITION Flagging codes / water drafting / paint colors etc.	INSTRUCTION
Notify of Start-Up	a. The person responsible for notifying CAL FIRE of start up of operations may be any one of the following: LTO, RPF or Plan Submitter. CAL FIRE will be notified in accordance with 14 CCR 1035.4 using one or more of the contacts below: Telephone: LNU, Sonoma-Lake Napa Unit = (707) 576-2344 Mail: Address: 135 Ridgeway Ave. Santa Rosa, CA 95401, or Email: current office technician using the formula— <u>First Name.Last Name@fire.ca.gov</u> (The actual name-email does not have to be provided, only the generic email contact information). When notifying, have the THP number available and earliest start date.
Flagging	Solid Pink and Black "Timber Harvest Boundary" - THP Boundary Solid Blue - Centerline of Class III Watercourses Solid Blue and Glo Orange- Class IV Watercourse Solid Lime-Glo and black "Silviculture Boundary" with Solid Orange -Glo - Silviculture boundary Blue and white stripe with "Watercourse and Lake Protection" with <u>solid Orange-Glo</u> - Class I and II WLPZ flagging Solid yellow with black "Skid Trail" flagging - skid trails, three hung together means stop. Lime Glo and Orange Glo- Road Point Orange with black "Truck Road"- Truck road, three hung together means end of road. White with orange stripe and black "Special Treatment"- Special Treatment Area Solid Glo Orange within WLPZ- Inner Zone A of Flood Prone Area (flagged at 150' from Watercourse Transition Line) Blue Paint- Harvest Tree Mark Blue or Orange Paint "W" or "O" - Wildlife Tree to be Retained
WQ Requirements	a. "Conditions stated in Section V of the plan which pertain to NCRWQCB waste discharge requirements will not be enforced by CAL FIRE unless those same conditions are subject to the Forest Practice Act/Rules and included as enforceable provisions in Section II of the plan."
Russian River County Sanitation District	Portions of the plan are located within the Russian River County Sanitation Districts easement grant. A copy of this easement can be found in Section V of this THP. A map of the Easement Grant and active spray field areas is located at the end of Section II of this THP on the Effluent Spray Fields Map. In order to ensure the RRCSD functions without interruption the following shall implemented prior to timber harvesting.

CalTREES THP ITEMS #36-38 – CULTURAL RESOURCES / GROWTH AND YIELD / SPECIAL INSTRUCTIONS

	<p>1. At least 30 days prior to timber harvesting, the Landowner shall provide the District a plan that clearly describes when and where timber is to be harvested from within the Easement area.</p>
Log Truck Traffic	Log truck drivers shall drive at reduced speeds through residential areas.
Note to LTO Regarding Tractor Operations	In order to ensure minimal ground disturbance from ground-based yarding, tractors may not drive with their blade lowered, except as needed to move debris. No excavation shall occur on flood prone areas except at watercourse crossings described in Section II or as needed to improve drainage or resolve access problems resulting from previous logging operations.
Note to LTO Regarding Falling Operations	Consistent with safety, trees should be felled in whatever direction best preserves the canopy as long as no part of any tree falls into a watercourse.
Note to LTO Regarding Beneficial Uses of Water	<p>At a minimum, the LTO shall not do either of the following during timber operations:</p> <p>1. Place, discharge, or dispose of or deposit in such a manner as to permit to pass into the waters of the state, any substances or materials, including, but not limited to, soil, silt, bark, slash, sawdust, or petroleum, in quantities deleterious to fish, wildlife, beneficial functions of riparian zones, or the quality and beneficial uses of water;</p> <p>2. Remove water, trees or large woody debris from a watercourse or lake, riparian areas, or the floodplain in quantities deleterious to fish, wildlife, and beneficial functions of riparian zones, or the quality and beneficial uses of water.</p>
Note to LTO and supervising RPF Regarding Wet Area Protections	During the pre-operations meeting with the LTO, the RPF will explain the characteristics of wet areas, the location of mapped wet areas and the importance of protecting them. The RPF will also explain the importance of not operating heavy equipment on saturated soils.
Note to the LTO Regarding Servicing Equipment	<p>1) No servicing of equipment within 150' of a Class I watercourse or 100' of a Class II watercourse or wet area. Maps showing these watercourses and/or buffer zones are included at the end of Section II.</p> <p>2) All state and federal regulations pertaining to the handling and storage of fuel must be adhered to during logging operations.</p>

DIRECTOR OF FORESTRY AND FIRE PROTECTION

This Timber Harvesting Plan conforms to the rules and regulations of the Board of Forestry and Fire Protection and with the Forest Practice Act.

By: _____ (Signature) _____ (Date)
_____ (Printed Name) _____ (Title)



April 15, 2020

Roger A. Burch and Michele Burch
c/o Redwood Empire Sawmill
P.O. Box #156
Cloverdale, CA 95425

Mr. and Mrs. Burch,

This letter is to inform you of the filing of "Silver Estates" Timber Harvest Plan (THP) on your property located in portions of Sections 31 and 32, T8N R10W, and a portion of Section 5, T7N R10W MDB&M in Sonoma County. In accordance with Item 13(a) of the THP and Title 14CCR 1035.1(a)(2) of the Forest Practice Rules, I hereby notify you of your responsibilities as plan submitter and timberland owner. Your responsibilities are as follows:

As Plan Submitter:

1. You must ensure that an RPF conduct any activities that require an RPF.
2. You must provide the RPF preparing the plan or amendments with complete and accurate information regarding pertinent legal rights to, interests in, and responsibilities for land, timber, and access as these affect the planning and conduct of timber operations.
3. You must sign the THP certifying knowledge of the plan contents and the requirements of this section.
4. You must retain an RPF who is available to provide professional advice to the LTO and timberland owner upon request throughout the active timber operations regarding:
 - A) The plan,
 - B) The Forest Practice Rules, and
 - C) Other associated regulations pertaining to timber operations.

You may waive the requirement to retain an RPF to provide professional advice to the LTO and timberland owner under the following conditions:

- A) You provide advice to the LTO on a continuing basis throughout the active timber operations provided that you are a natural person who personally performs the services of a professional forester and such services are personally performed on lands owned by the timberland owner;



- B) You agree to be present on the logging area at a sufficient frequency to know the progress of operations and advise the LTO, but not less than once during the life of the plan.

I have included myself in the THP as the RPF responsible for providing professional advice. If you wish to waive the requirement to retain me as RPF you must provide in writing an agreement to A & B above and this agreement will be made part of the plan.

Also, it is hereby being disclosed that you are the real party of interest for whom we are providing professional forestry services and we know of no current or potential conflict of interest we may have with regard to the timber or land that is subject to operations under the plan.

5. Within 5 working days of change in RPF responsibilities for THP implementation or substitution of another RPF, you must file with the Director of CDF at 135 Ridgway Ave., Santa Rosa, CA., 95401 a notice that states the RPF's name and registration number, address, and subsequent responsibilities for any RPF required fieldwork, amendment preparation, or operation supervision.
6. You must provide a copy of the portions of the approved THP and any approved operational amendments to the LTO containing the General Information, Plan of Operations, THP Map, Yarding System Map, Erosion Hazard Rating Map and any other information deemed by the RPF to be necessary for timber operations.
7. You must notify the Director prior to commencement of site preparation operations. Receipt of a burning permit is sufficient notice.

As Timberland Owner:

8. After the work completion report has been filed and approved by CDF, it is your responsibility to maintain roads and erosion control devices through the prescribed maintenance period. The prescribed maintenance period for erosion control devices on permanent and seasonal roads and associated landings and drainage facilities shall be three years.
9. All trees to be harvested will be marked by the RPF or their designee prior to the start of timber harvest operations. If you have any questions regarding the mark, please contact the RPF prior to the start of operations.
10. You must comply with the Resource Conservation Standards for Minimum Stocking immediately upon completion of timber operations and file a stocking report within six



months following the completion of operations. Stocking standards are stated in Section III of the THP.

11. Within one month after completion of the work described in the timber harvest plan, excluding work for stocking, site preparation, or maintenance of drainage and soil stabilization treatments on skid trails, roads, and landings after the plan period, a work completion report shall be filed with the Department.
12. Within 5 working days of change of ownership of the property, file with the Director a notice, which amends the listed owners off of the plan and the new owners on to the THP.

If you have any questions regarding your responsibilities pertaining to the Timber Harvest Plan, please do not hesitate to call me.

Sincerely,

Jamie B. Pusich
RPF #3043



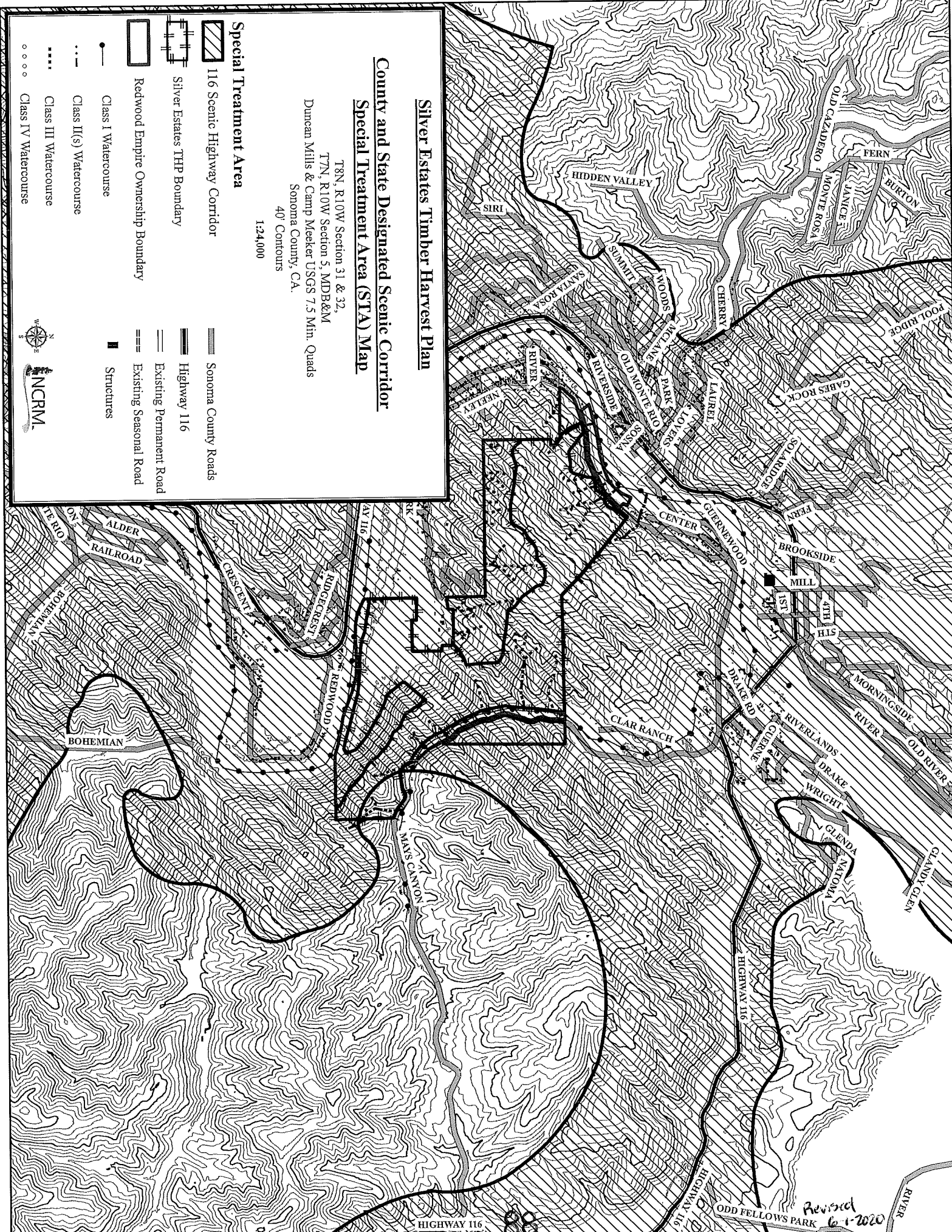
Silver Estates Timber Harvest Plan

County and State Designated Scenic Corridor Special Treatment Area (STA) Map

T8N, R10W Section 31 & 32,
T7N, R10W Section 5, MDB&M
Duncan Mills & Camp Meeker USGS 7.5 Min. Quads
Sonoma County, CA.
40' Contours
1:24,000

Special Treatment Area

- | | | | |
|--|-----------------------------------|---|-------------------------|
|  | 116 Scenic Highway Corridor |  | Sonoma County Roads |
|  | Silver Estates THP Boundary |  | Highway 116 |
|  | Redwood Empire Ownership Boundary |  | Existing Permanent Road |
|  | Class I Watercourse |  | Existing Seasonal Road |
|  | Class II(s) Watercourse |  | Structures |
|  | Class III Watercourse | | |
|  | Class IV Watercourse | | |



Revised
6-1-2020

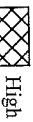
HIGHWAY 116

Silver Estates Timber Harvest Plan

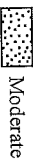
Erosion Hazard Rating Map

T8N, R10W Section 31 & 32,
T7N, R10W Section 5 MDB&M,
Duncan Mills &
Camp Meeker USGS 7.5 Min. Quads
Sonoma County, CA
40' Contours
1:9,000

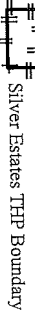
Erosion Hazard Rating



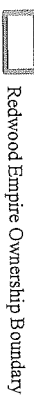
High



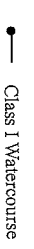
Moderate



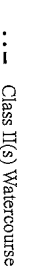
Silver Estates THP Boundary



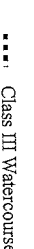
Redwood Empire Ownership Boundary



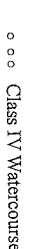
Class I Watercourse



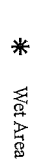
Class II(s) Watercourse



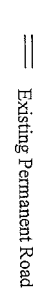
Class III Watercourse



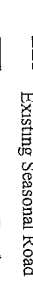
Class IV Watercourse



Wet Area



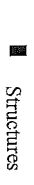
Existing Permanent Road



Existing Seasonal Road



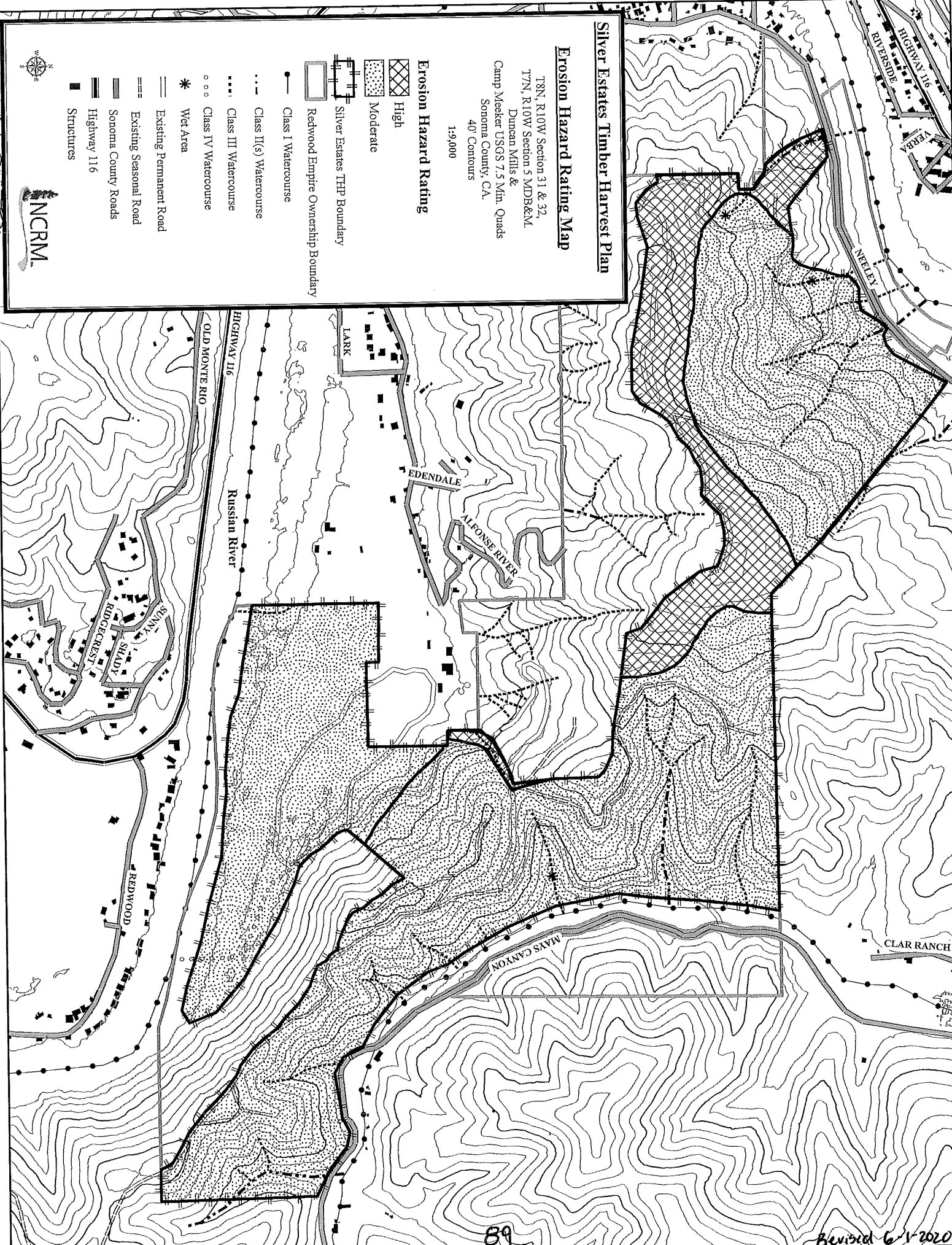
Sonoma County Roads



Highway 116



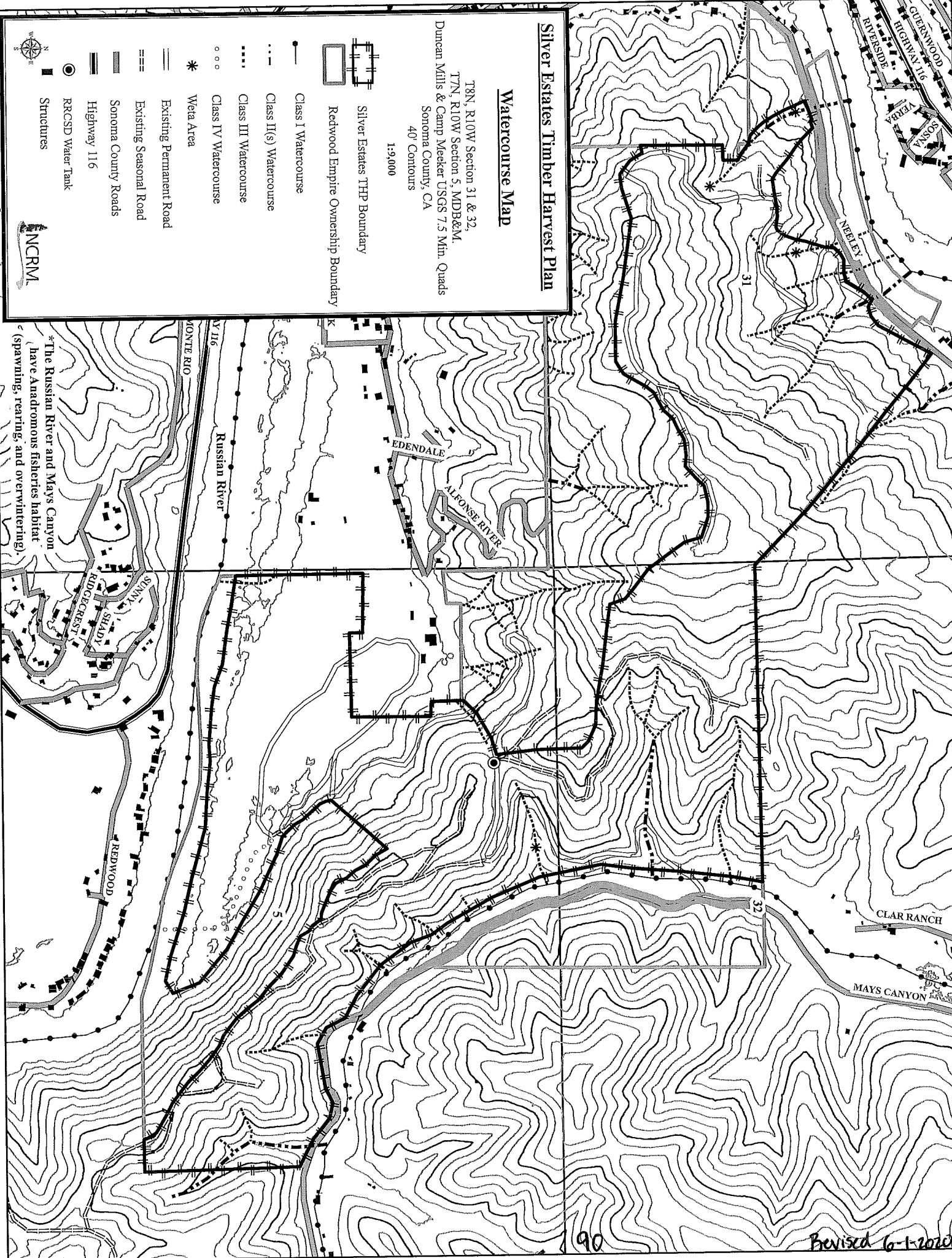
Structures



Silver Estates Timber Harvest Plan

Watercourse Map

T8N, R10W Section 31 & 32,
 T7N, R10W Section 5, MDB&M,
 Duncan Mills & Camp Meeker USGS 7.5 Min. Quads
 Sonoma County, CA
 40' Contours
 1:9,000



- Silver Estates THP Boundary
- Redwood Empire Ownership Boundary
- Class I Watercourse
- Class II(s) Watercourse
- Class III Watercourse
- Class IV Watercourse
- Wet Area
- Existing Permanent Road
- Existing Seasonal Road
- Sonoma County Roads
- Highway 116
- RRCS Water Tank
- Structures

*The Russian River and Mays Canyon
 have Anadromous fisheries habitat
 (spawning, rearing, and overwintering).

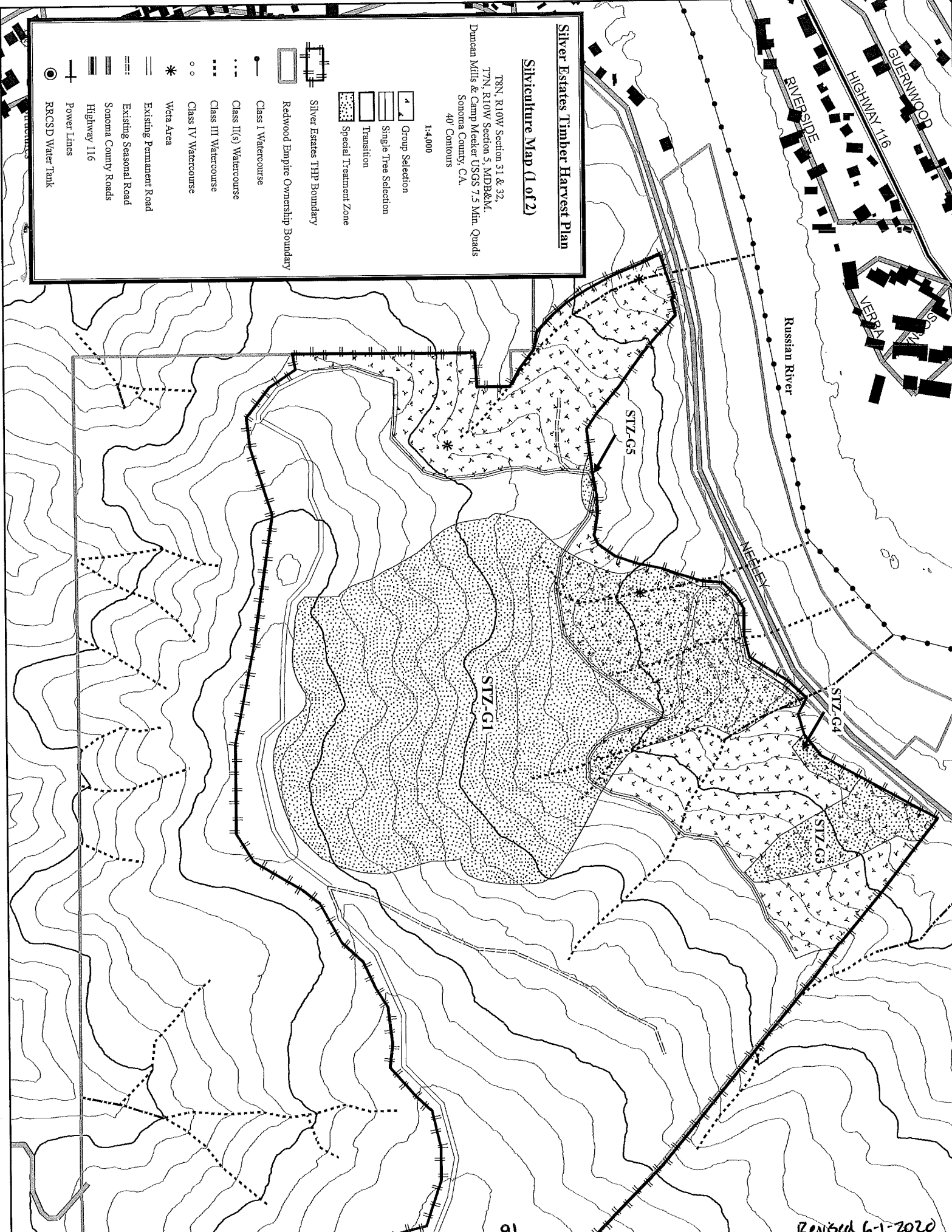


Silver Estates Timber Harvest Plan

Silviculture Map (1 of 2)

T8N, R10W Section 31 & 32,
 T7N, R10W Section 5, MDB&M,
 Dumeau Mills & Camp Meeker USGS 7.5 Min. Quads
 Sonoma County, CA.
 40 Contours
 1:4,000

	Group Selection		Redwood Empire Ownership Boundary
	Single Tree Selection		Silver Estates THP Boundary
	Transition		Class I Watercourse
	Special Treatment Zone		Class II(s) Watercourse
			Class III Watercourse
			Class IV Watercourse
			Vista Area
			Existing Permanent Road
			Existing Seasonal Road
			Sonoma County Road
			Highway 116
			Power Lines
			RRCS D Water Tank



Revised 6-1-2020

Silver Estates Timber Harvest Plan

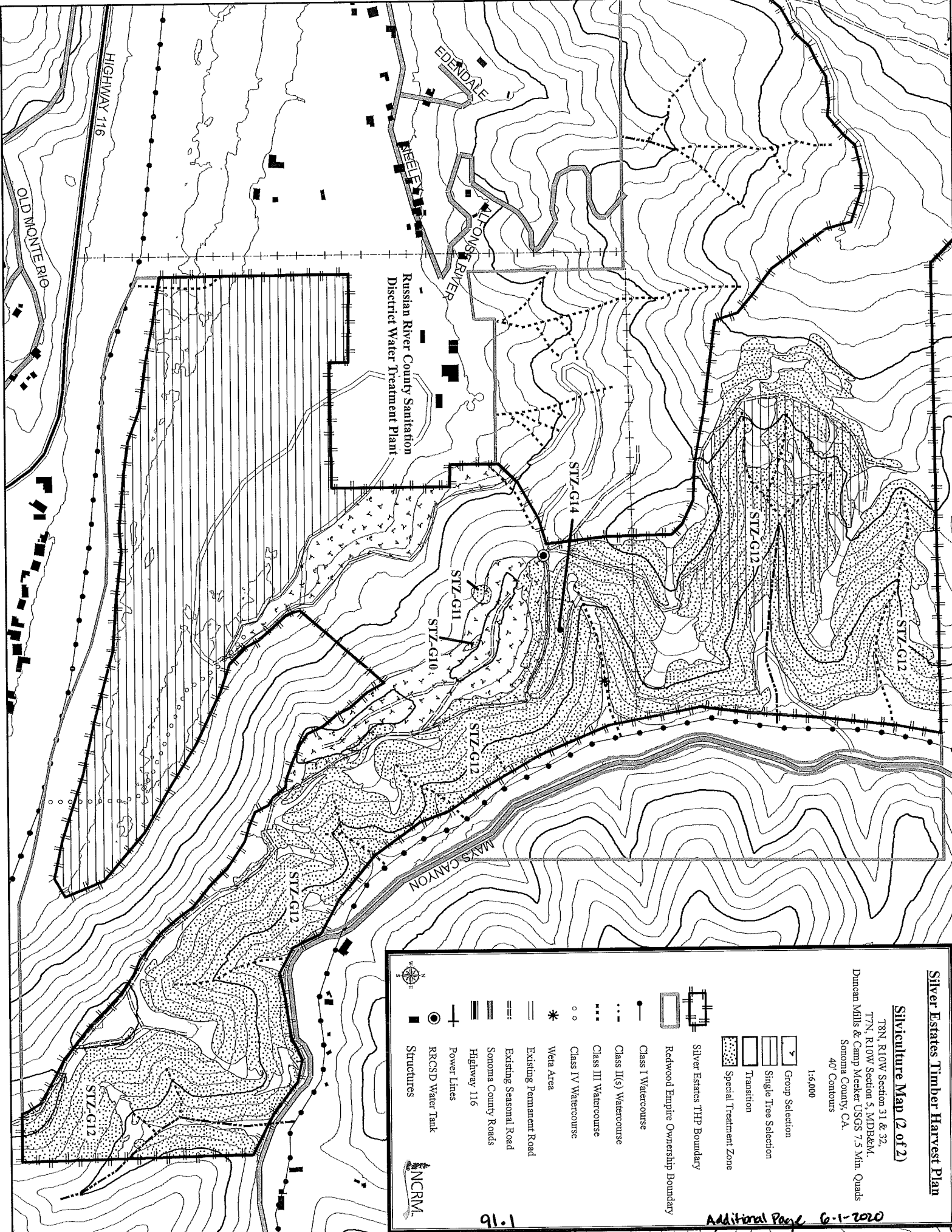
Silviculture Map (2 of 2)

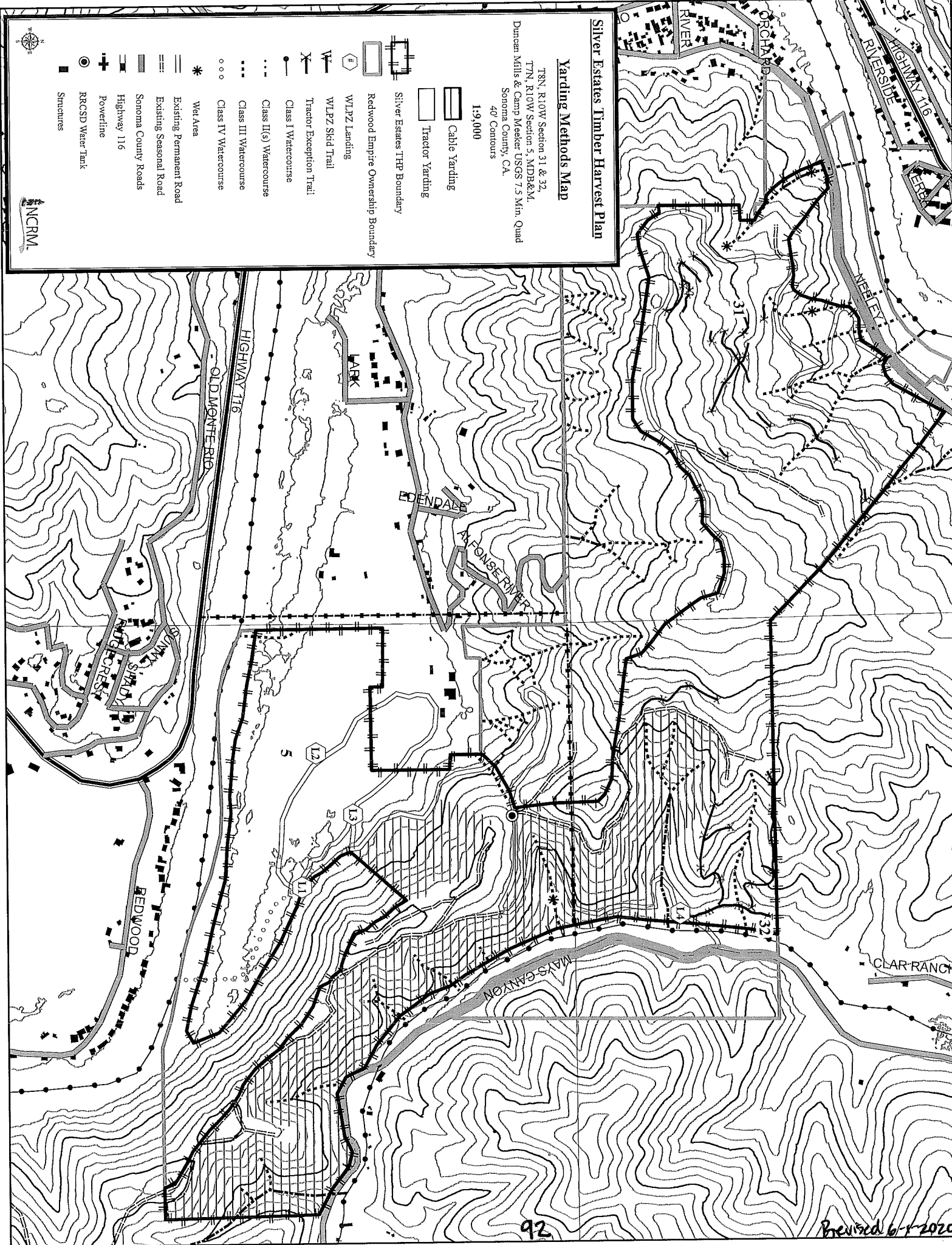
T8N, R10W Section 31 & 32,
 T7N, R10W Section 5, MDB&M,
 Duncan Mills & Camp Meeker USGS 7.5 Min. Quads
 Sonoma County, CA
 40' Contours
 1:6,000

Group Selection
 Single Tree Selection
 Transition
 Special Treatment Zone
 Silver Estates THP Boundary
 Redwood Empire Ownership Boundary
 Class I Watercourse
 Class II(s) Watercourse
 Class III Watercourse
 Class IV Watercourse
 Wetland Area
 Existing Permanent Road
 Existing Seasonal Road
 Sonoma County Roads
 Highway 116
 Power Lines
 RRCSD Water Tank
 Structures

91.1

Additional Page 6-1-2020





Silver Estates Timber Harvest Plan

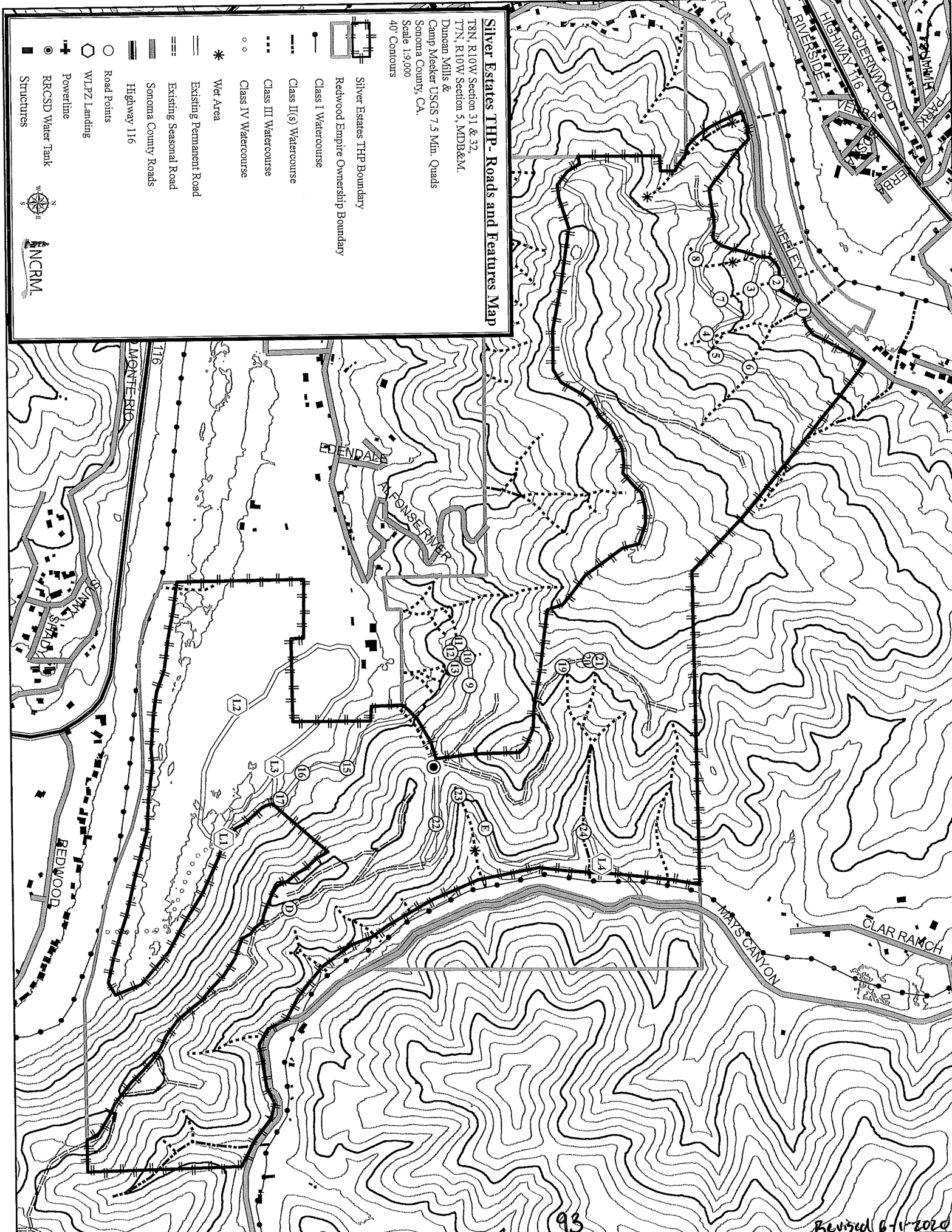
Yarding Methods Map

T8N, R10W Section 31 & 32,
 T7N, R10W Section 5, MDB&M
 Durcan Mills & Camp Meeker USGS 7.5 Min. Quad
 Sonoma County, CA
 40' Contours
 1:9,000

- Cable Yarding
- Tractor Yarding

- Silver Estates THP Boundary
- Redwood Empire Ownership Boundary
- WLPZ Landing
- WLPZ Skid Trail
- Tractor Exception Trail
- Class I Watercourse
- Class II(s) Watercourse
- Class III Watercourse
- Class IV Watercourse
- Wet Area
- Existing Permanent Road
- Existing Seasonal Road
- Sonoma County Roads
- Highway 116
- Powerline
- RRCSD Water Tank
- Structures





Silver Estates THP - Roads and Features Map

T8N, R10W Section 31 & 32,
 T7N, R10W Section 5, MDD&M,
 Duncan Mills &
 Camp Meeker USGS 7.5 Min. Quads
 Sonoma County, CA.
 Scale 1:9,000
 40' Contours

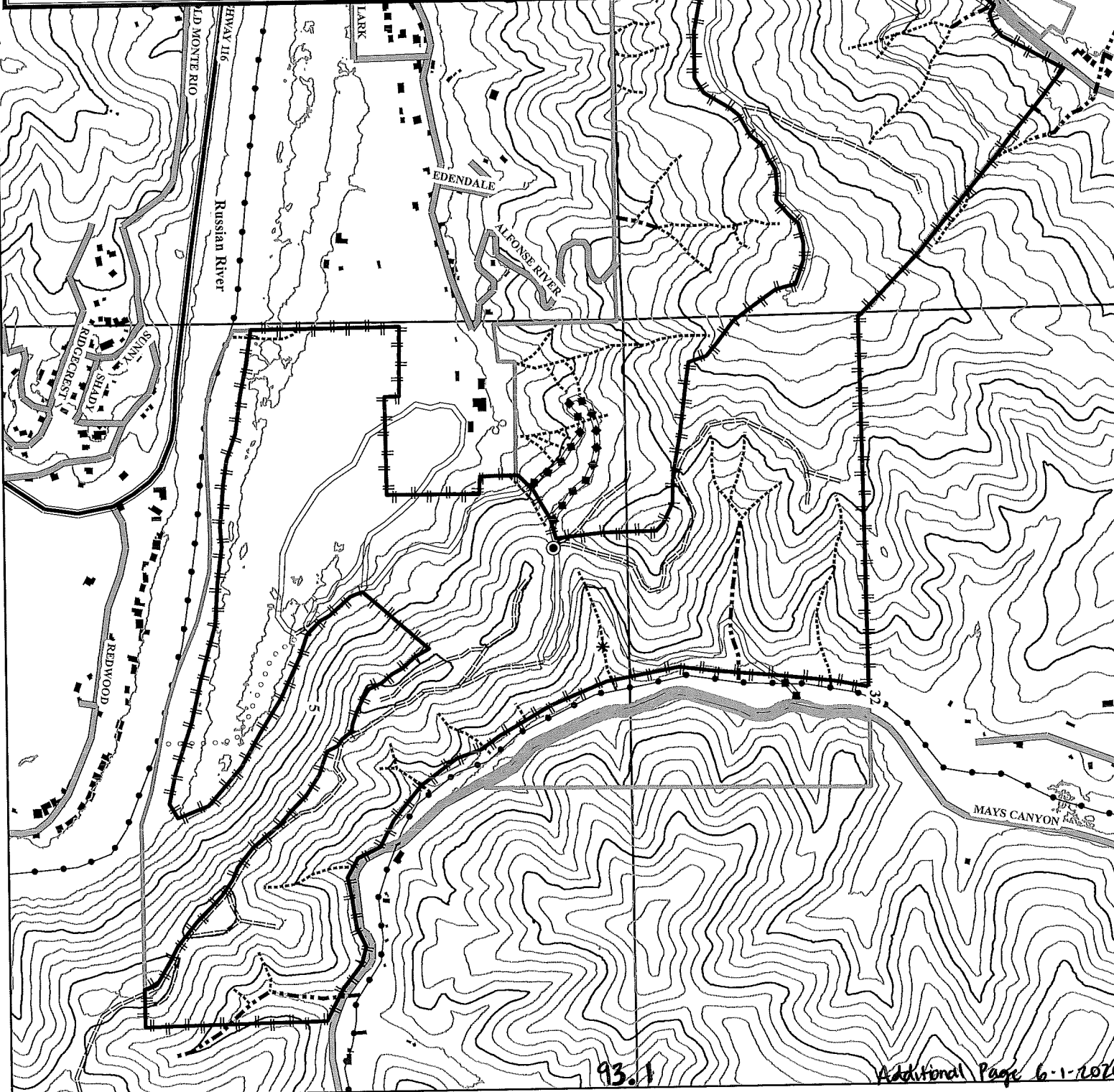
- Silver Estates THP Boundary
- Redwood Empire Ownership Boundary
- Class I Watercourse
- Class II(s) Watercourse
- Class III Watercourse
- Class IV Watercourse
- Wet Area
- Existing Permanent Road
- Existing Seasonal Road
- Sonoma County Roads
- Highway 116
- Road Points
- WLPZ Landing
- Powerline
- RCSD Water Tank
- Structures

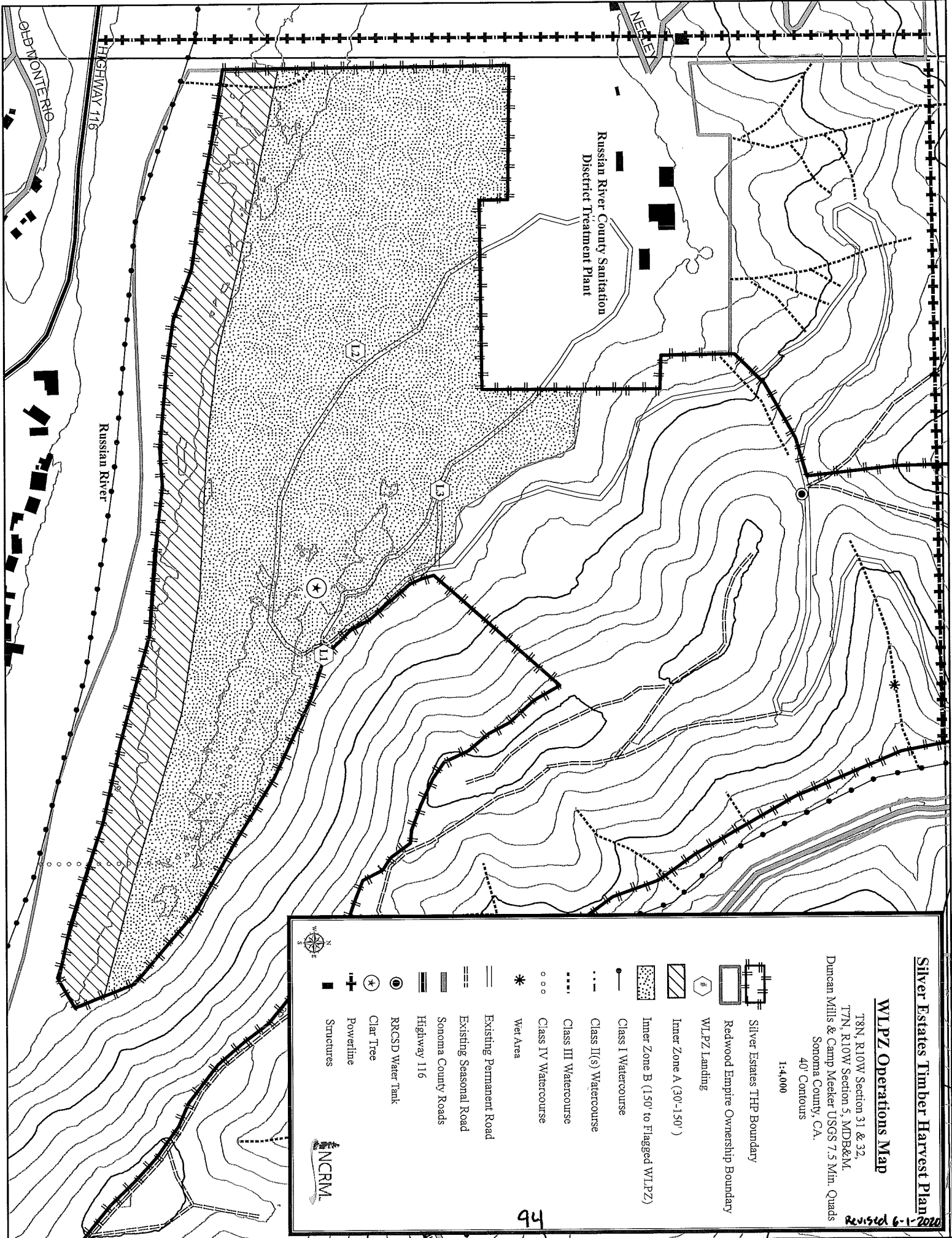
Silver Estates Timber Harvest Plan

Appurtenant Road Map

T8N, R10W Section 31 & 32,
 T7N, R10W Section 5, MDB&M,
 Duncan Mills & Camp Meeker USGS 7.5 Min. Quads
 Sonoma County, CA.
 40' Contours
 1:9,000

- Silver Estates THP Boundary
- Redwood Empire Ownership Boundary
- Class I Watercourse
- Class II(s) Watercourse
- Class III Watercourse
- Class IV Watercourse
- Wet Area
- Appurtenant Road
- Existing Permanent Road
- Existing Seasonal Road
- Sonoma County Roads
- Highway 116
- RRCSD Water Tank
- Structures





Silver Estates Timber Harvest Plan

WLPZ Operations Map

T8N, R10W Section 31 & 32,
 T7N, R10W Section 5, MDB&M
 Duncan Mills & Camp Meeker USGS 7.5 Min. Quads
 Sonoma County, CA.
 40' Contours
 1:4,000

	Silver Estates THP Boundary
	Redwood Empire Ownership Boundary
	WLPZ Landing
	Inner Zone A (30'-150')
	Inner Zone B (150' to Flagged WLPZ)
	Class I Watercourse
	Class II(s) Watercourse
	Class III Watercourse
	Class IV Watercourse
	Wet Area
	Existing Permanent Road
	Existing Seasonal Road
	Sonoma County Roads
	Highway 116
	RRCSJ Water Tank
	Clar Tree
	Powerline
	Structures

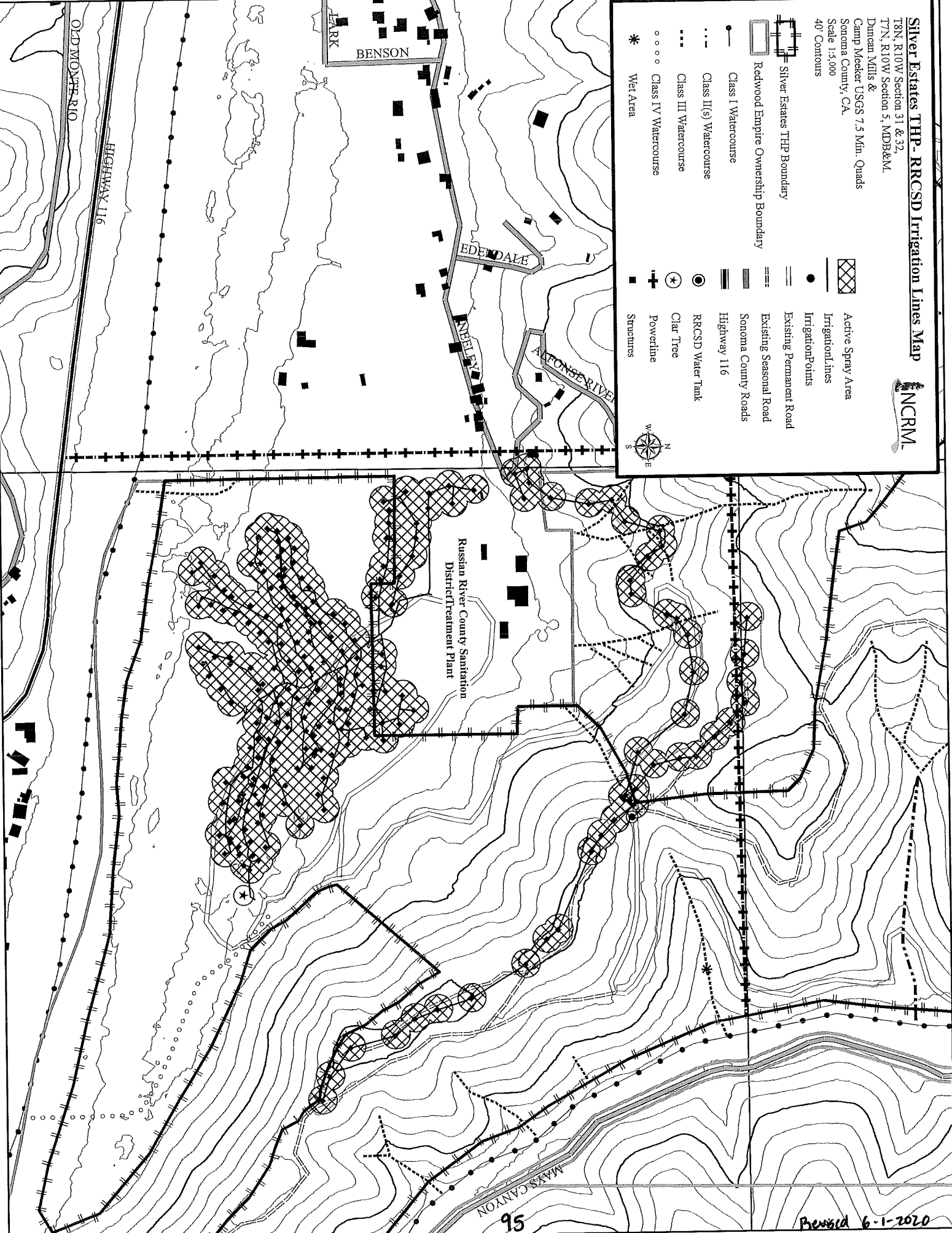


Silver Estates THP - RRCSD Irrigation Lines Map



T8N, R10W Section 31 & 32,
 T7N, R10W Section 5, MDB&M
 Duncan Mills &
 Camp Meeker USGS 7.5 Min. Quads
 Sonoma County, CA
 Scale 1:5,000
 40' Contours

	Silver Estates THP Boundary		Active Spray Area
	Redwood Empire Ownership Boundary		Irrigation Lines
	Class I Watercourse		Irrigation Points
	Class II(s) Watercourse		Existing Permanent Road
	Class III Watercourse		Existing Seasonal Road
	Class IV Watercourse		Sonoma County Roads
	Wet Area		Highway 116
			RRCSD Water Tank
			Clar Tree
			Powerline
			Structures

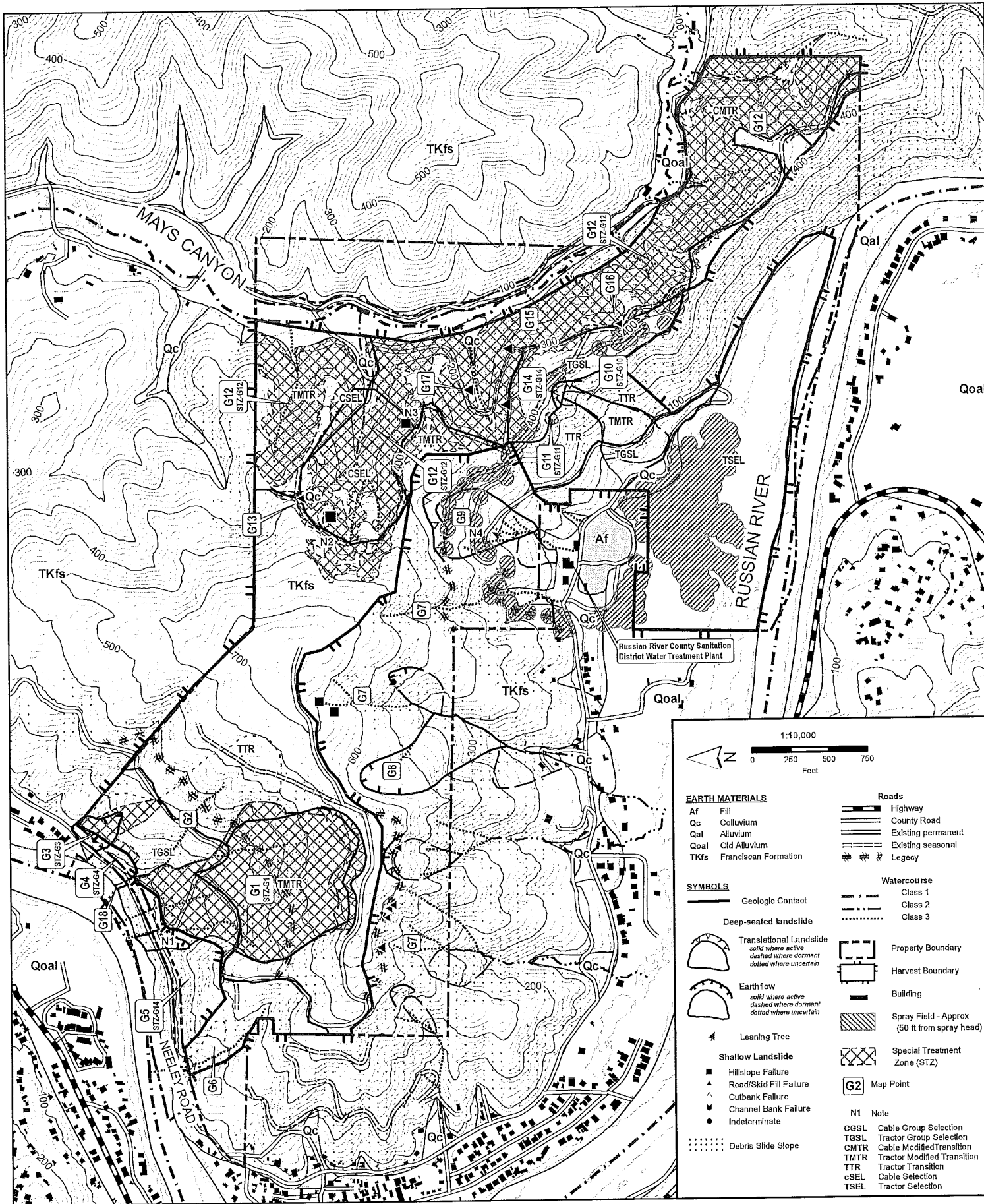



Geology Map

All unstable features were identified and assessed by Professional Geologist Tim Best, C.E.G.

The full Geologic Report can be found in Section V of this THP.

The following map "Geologic and Landslide Map" is included to show the location of all geologic features.




TIMOTHY C. BEST, CEG
 ENGINEERING GEOLOGY AND HYDROLOGY
 1002 Columbia Street, Santa Cruz, CA 95060
 (831) 425 5832 (831) 425 5830 (fax)

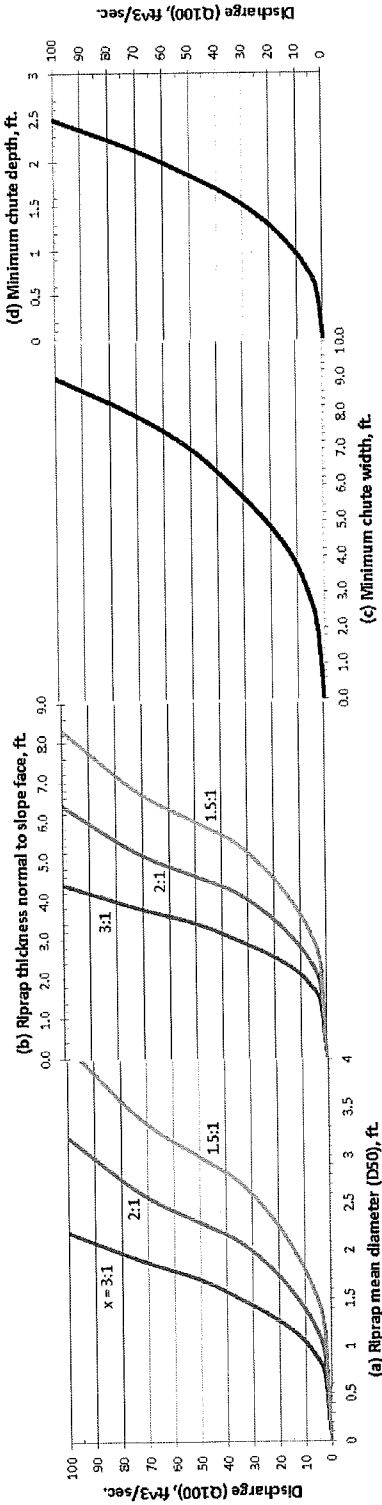
GEOLOGIC AND LANDSLIDE LIDAR HILLSHADE MAP
SILVER ESTATES THP
 Redwood Empire, Sonoma County

FIGURE: 1
 Job: NCRM-SILVER-857
 Date: 06/11/2020

95.2

Revised 6-11-2020

Simplified design of rock-armored crossings



Note: Slopes armored at a 1.5:1 slope inclination shall be less than 15 feet in height, and be constructed by placing rock in a running bond with at least 3 points of contact and with the long axis of the rock placed horizontal and facing into the slope.

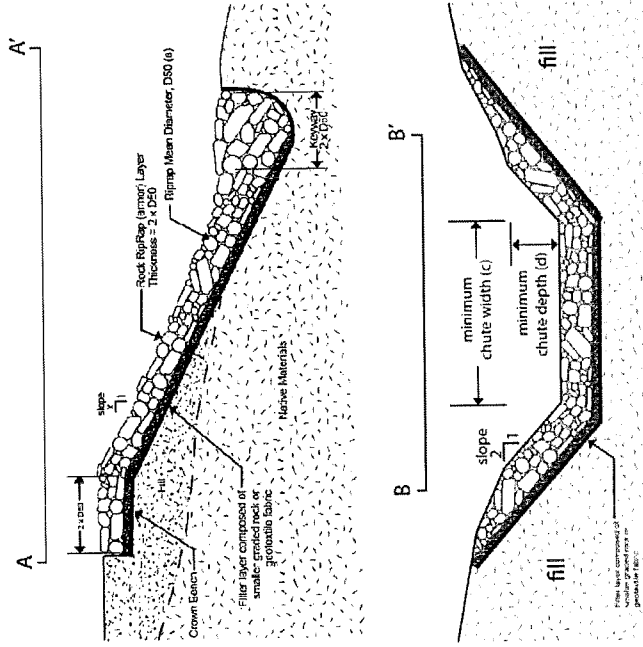
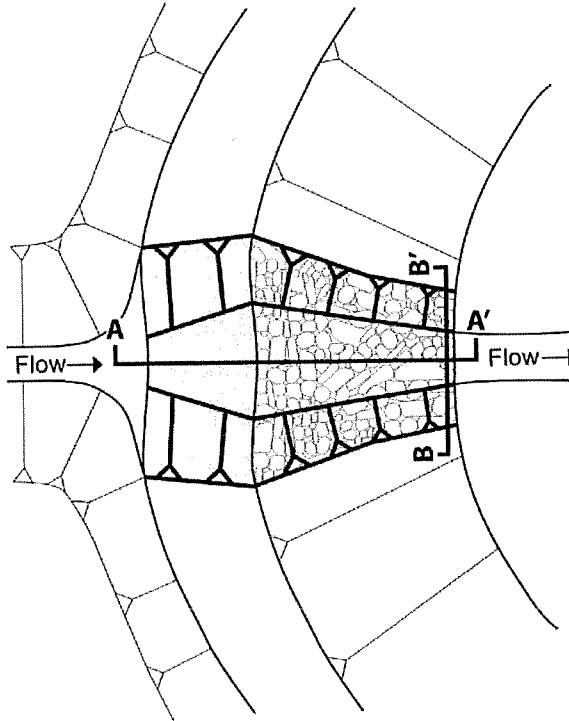


Figure 23. Simplified design nomograph (may be printed in an expanded 11 x 17 inch format).

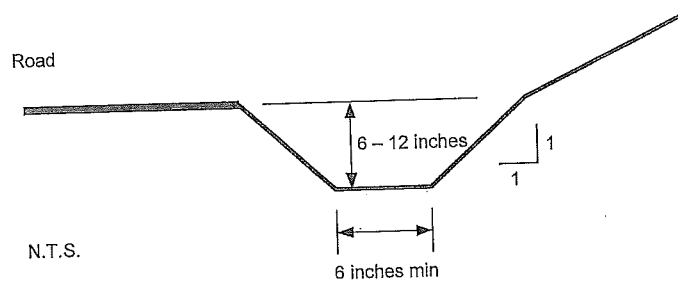
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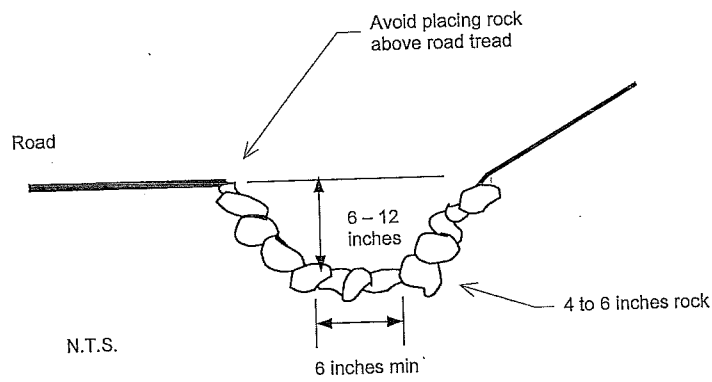
INSIDE ROAD DITCH (Typical)

NTS

INSIDE DITCH (native)



INSIDE DITCH (Rock lined)



NOTES

- Slope ditch to drain 3% minimum.
- Armor ditch where specified.
- Drain ditch to ditch relief culvert inlet as specified.



**INSIDE ROAD DITCH
TYPICAL SPECIFICATIONS**

Standard Detail C6

2013

Diagram # 1

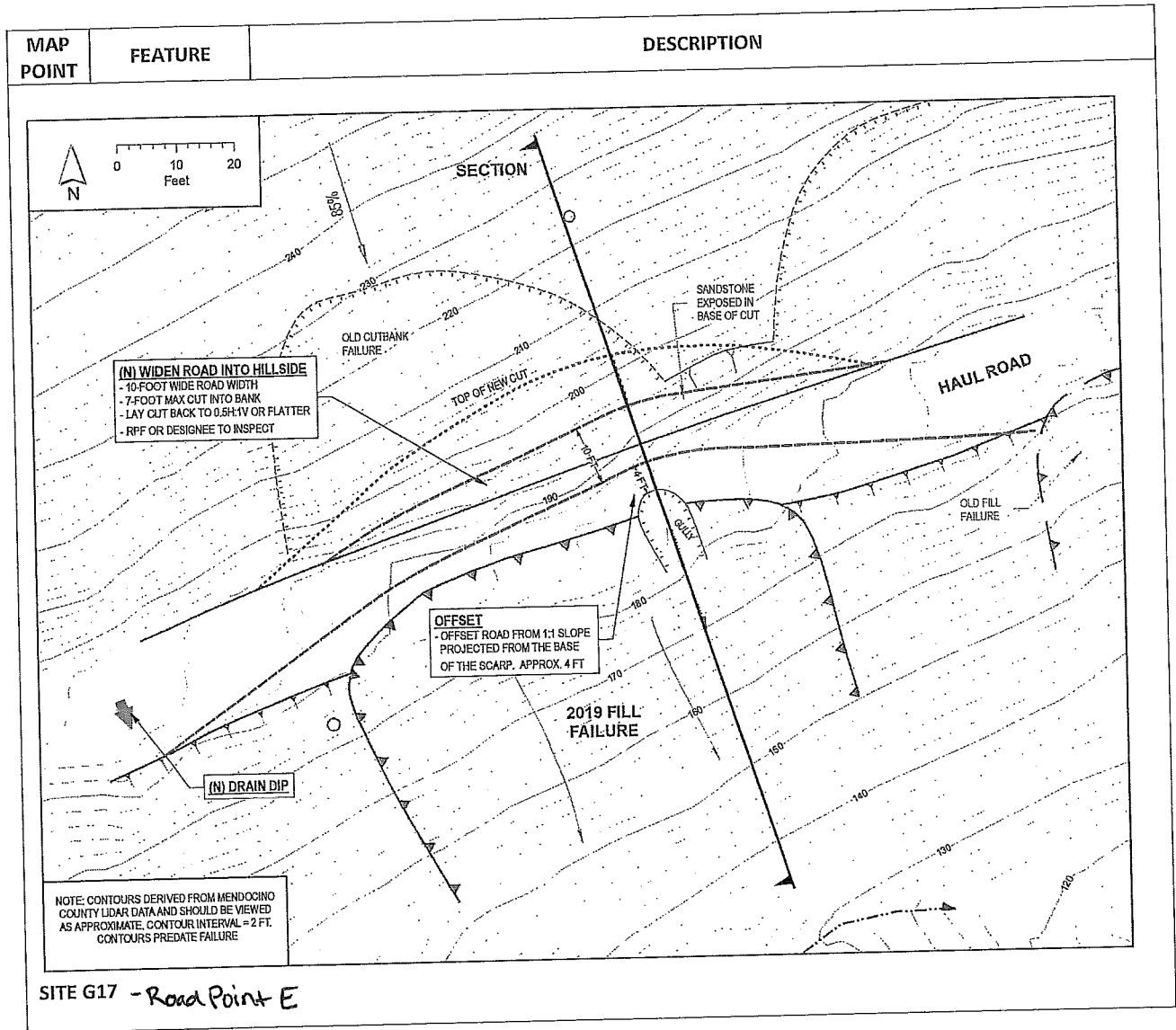


Diagram # 2

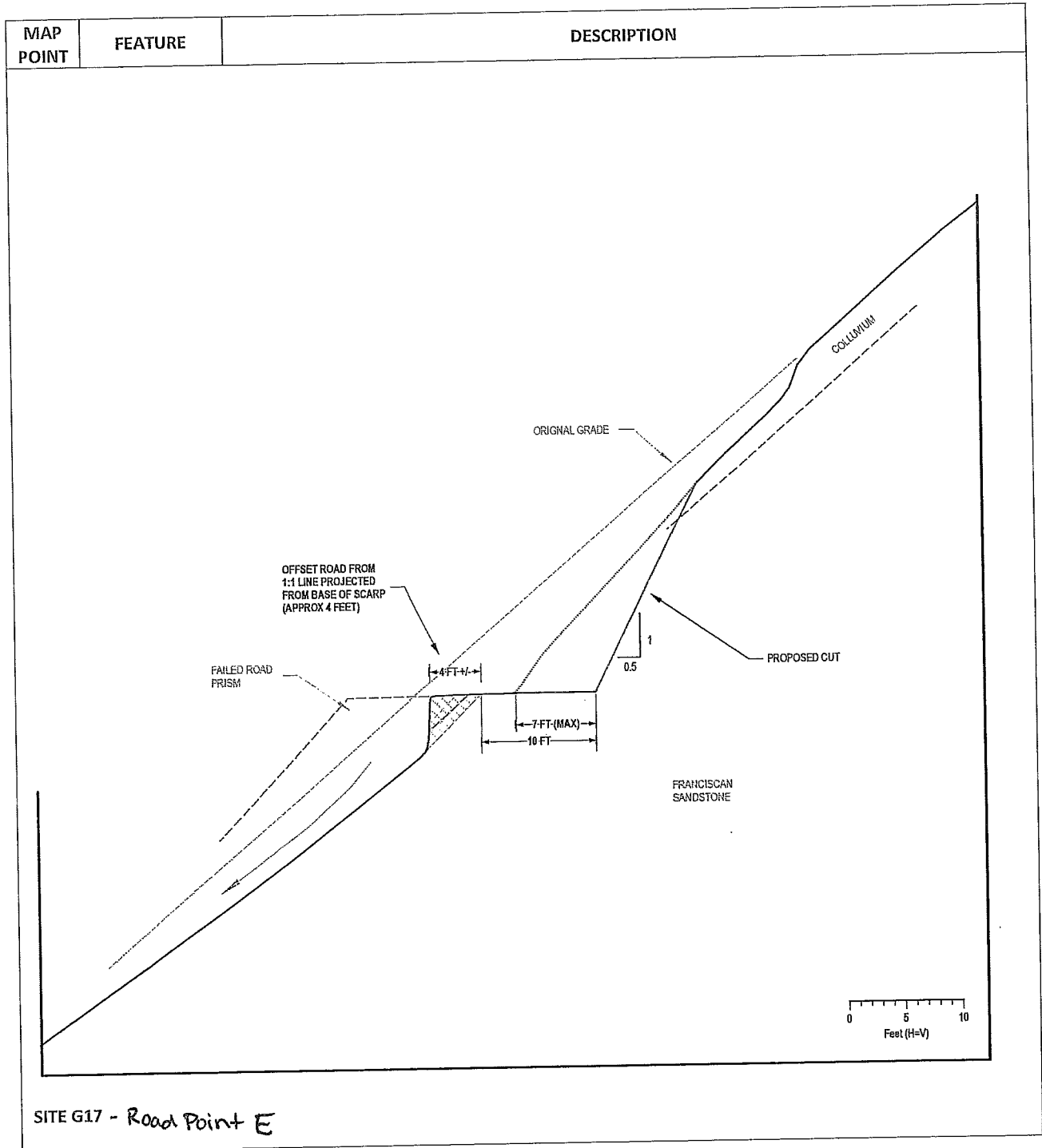


Diagram # 3

