

## **SECTION II - PLAN OF TIMBER OPERATIONS**

**NOTE:** If a provision of this NTMP is proposed that is different than the standard rule, the explanation and justification required must be included in Section III of the NTMP

14. a. Check the Silvicultural methods or treatments allowed by the rules that are to be applied under this NTMP. Specify the option chosen to demonstrate Maximum Sustained Production (MSP) according to 14 CCR 913 (933, 953).11. If more than one method or treatment will be used show boundaries on map and list approximate acreage for each.

[ X ] Selection                      701 ac. [   ] Group Selection                      \_\_\_\_\_ ac. [   ] Transition                      \_\_\_\_\_ ac.  
[   ] Commercial Thinning                      \_\_\_\_\_ ac. [   ] Road Right of Way                      \_\_\_\_\_ ac. [   ] Sanitation Salvage                      \_\_\_\_\_ ac.  
[   ] Special Treatment Area                      \_\_\_\_\_ ac. [   ] Rehab of Understocked Area                      \_\_\_\_\_ ac. [   ] Fuelbreak                      \_\_\_\_\_ ac.  
[ X ] Alternative                      565\* ac. [   ] Conversion                      \_\_\_\_\_ ac. [   ] Non Timberland area                      \_\_\_\_\_ ac.

Total acreage 701 ac.: Explain if total is different than in Item 8. MSP option chosen: (a) [   ] (b) [   ] (c) [X]

The NTMP area is broken into three management Units for clear discussion and to facilitate ongoing research in the North and South Forks of Little Creek. (Refer to maps at the end of Section II)

North Fork (Little Creek) Unit = 191 acres

Tranquility Flats Sub-Unit = 11 acres

General Smith Sub-Unit = 34 acres

South Fork (Little Creek) Unit = 84 acres

Satellite Stands Unit = 426 acres

### **SILVICULTURE**

The first harvest under this NTMP is planned for a portion of the North Fork Unit and is scheduled to take place in summer 2008. Harvest entries are anticipated approximately every 10-20 years in each unit. The anticipated return-interval for modeling sustainability under the Sustained Yield Analysis is approximately 15 years for the majority of the plan area. Portions of the plan that are Site IV have an anticipated return-interval of 20 years, due to slower growth rates. Refer to Section III, Item 43(a) for projected frequency of harvest per management unit.

#### **Standard Regeneration Method per 14 CCR 913.8(a):**

The primary silvicultural method will be selection harvesting under 14 CCR 913.8(a) (Southern Subdistrict) and 14 CCR 926.25 (Santa Cruz County). A well distributed timber stand shall be left after operations that is at least 40% by number of trees 18 inches or more DBH (diameter at breast height), at least 60% by number of trees 14 inches to 18 inches DBH, and at least 50% by number of trees over 12 inches DBH but less than 14 inches DBH. For areas where 51-60% of the trees greater than 18 inches are harvested, the minimum re-entry period shall be 14 years. No area may be cut in excess of these leave tree standards in any 10-year period. Leave trees shall be thrifty coniferous trees that are dominant or co-dominant in crown class prior to timber harvesting and shall be free from significant damage caused by timber operations. No conifer shall be cut which is more than 75 feet from a leave tree 12 inches DBH or larger located within the harvest area. The Site Class and corresponding minimum basal area standards are listed below under (b).

These are the minimum retention standards allowable under the Forest Practice Rules. The actual level of retention will likely exceed the minimum standards based on detailed marking prescriptions which have been developed for each stand and up-to-date continuous forest inventory. A summary of the marking prescriptions is included in the Sustained Yield Analysis in Section III under Item 42(b). The stand types are listed in Section III under Item 41, Forest Stratification, and are shown on the CFI Plots and Stand Types Map at the end of Section II, along with site classification.

#### **Alternative Regeneration Method per 14 CCR 913.8(b):**

\* Although 565 acres have been identified as having the potential for this alternative silvicultural practice, no more than 10% of the harvest area shall be put in group selection cuts per harvest entry; therefore no more than 56 acres of groups less than ½ acres in size shall be cut in the first entry throughout the NTMP area. Groups may be proposed in suitable areas where there is a Douglas-fir/hardwood (DF HW), Douglas-fir (DF), Redwood Site III (RW III), or Monterey pine plantation (MPP) timber type, as shown on the CFI Plots and Stand Types Map. The conditions required for this regeneration method are discussed under Item 14 of Section III, Plan Addendum. Due to future conditions dictating appropriate group placement, the ½ acre group selection areas are unmappable at the time of NTMP submittal and shall be shown on the map accompanying the Notice

of Operations. The Notice of Operations shall be submitted to CDF 30 days prior to the commencement of operations, affording reviewing agencies the opportunity to inspect group placement. Two group selection areas have been delineated in the field prior to the pre-harvest inspection to aid the review team by demonstrating the typical conditions that will make an area candidate for group placement. Groups shall be flagged with solid pink flagging surrounding the group with trees designated for removal in the interior marked by blue paint.

Under this alternative silvicultural prescription, per 14 CCR 913.8(b), portions of the project area dominated by hardwoods with a smaller component of conifer species may be harvested in order to rehabilitate and regenerate former conifer site. In these areas removal will focus on group selection cuts (up to ½ acre in size) in stands heavily occupied by hardwoods that may have previously supported conifers. To comply with 913.8(b)(2), no more than 10% of the harvest unit shall be put in group selection cuts per harvest entry and no more than 50% of the total hardwood stems shall be harvested at one time. A well-distributed tree crown cover shall be maintained surrounding groups. Exemplary large hardwood or conifers with significant structural characteristics will be considered for retention in group placement.

Following harvesting in an area according to the group selection/transition prescription per 14 CCR 913.8(b), the area shall be planted and shall meet the stocking requirements described below within 5 years. Once stocking is met, the groups shall be free to grow and shall thereafter be managed under single-tree selection silviculture, according to 14 CCR 913.8(a). Brush control treatments may be necessary in situations with aggressive hardwood re-growth in order to complete the transition of groups to full conifer stocking. See Item 14 (e), below for more information on transition brush and hardwood treatments. Group B species left in group selection areas as wildlife retention trees will be used to meet stocking.

Within the above rules, marking will emphasize near- and far-view aesthetics, spacing, and minimizing damage to residual stems and significant hardwoods. Select trees having superior potential for wildlife habitat will not be marked for cutting; see details under Item 14(c) below and Item 32. Stands of mature tanoak, potentially suitable marbled murrelet habitat and Shreve oak have been delineated for aggregate protection.

#### Special Management Considerations In and Adjacent to WLPZ

Harvesting restrictions for the Watercourse and Lake Protection Zones and Equipment Limitation Zones adjacent to watercourses, ponds, and wet areas are described in detail under Item 26. In addition, within 300 feet of a Class I WLPZ or 150 feet of a Class II WLPZ, where slopes exceed 60%, no group selection placement shall be proposed unless reviewed by a CEG. Also within 300 feet of a Class I WLPZ or 150 feet of a Class II WLPZ, where slopes exceed 60%, if a recent shallow-seated landslide feature as defined per 895.1 is observed during timber marking, a higher retention standard shall be instituted (unless specifically reviewed by a CEG). Recent shallow-seated landslide features are shown on the Operations Map at the end of Section II. The higher retention standard is as follows:

1. Harvesting shall be restricted to redwoods in groups retaining 2/3 of the trees greater than 12 inches DBH.
2. Harvesting shall exclude Douglas-fir trees and stand alone redwoods, except for those incidentally damaged during operations.
3. No more than 50% of the total hardwood stems shall be harvested at one time.

#### Molino Creek Coastal Commission Special Treatment Area

The Molino Creek Coastal Commission Special Treatment Area (CCSTA) spans 235 acres of the Satellite Stands Unit, as shown on the Operations Maps at the end of Section II. This CCSTA was established to protect the visual character of the wooded groves, situated in finger-like gulches from the relatively flat agricultural lands eastward to the first coastal ridge, for the continued enjoyment of highway travelers and beach users (see the Molino Creek CCSTA description in Section V). Proposed NTMP operations are in-keeping with the goals of the CCSTA, and need not be modified significantly to maintain and protect the scenic resources within the CCSTA. Measures to ensure maintenance of visual aesthetics such as RPF designation of skid trails and marking to retain wildlife habitat features are described throughout Section II. Alternatives to the standard CCSTA rules, 14 CCR 921.1-921.8, are proposed which will achieve protection at least equal to the rules and in harmony with the goals of Section 921. These alternatives are explained and justified in Section III under Item 14.

#### Special Management Area Adjacent to Swanton Road

A Special Management Area (SMA) is designated along Swanton Road within 100 feet of the road edge for approximately 1,800 feet where the harvest area is adjacent to Swanton Road. Within this SMA, harvesting shall occur according to the selection silviculture proposed above in the standard regeneration method, 14 CCR 913.8(a) and 926.25. Swanton Road is a designated scenic road according to the Santa Cruz County General Plan. Maintenance of the quality of the view from Swanton Road shall be a primary consideration in timber marking and harvest operations within the SMA. Refer to Item 30 for additional hazard reduction mitigations within the SMA and Item 32 for Shreve oak stand mitigations within the SMA.

### Special Management Area Around Cabins Near Little Creek Confluence

Steve Spafford, Susan Spafford England and Stuart Spafford, timberland owners of parcel 057-121-10, shall have the opportunity to review and discuss timber marked within the Special Management Area around their cabins near the Little Creek confluence prior to operations. Cal Poly Corporation will make best efforts to agree to all reasonable requests of the Spaffords regarding non-removal of trees within the area described below, including proximity to the cabins, or personal reasons. Per the requirements of the Forest Practice Rules, the document ascribing timber rights to Cal Poly Corporation is provided in Section V.

The Special Management Area encompasses approximately 5 acres as shown on the Operations Maps in the following location: Starting from the Little Creek haul road on the south side of landing L18, a line heading approximately south to Little Creek, then traveling north up Little Creek into the North Fork of Little Creek, approximately 300 feet past the "Woodwardia cabin", the line shall turn approximately northwest (or perpendicular to the creek) and travel to the haul road, the northern boundary is along the haul road back to the south side of landing L18.

b. If Selection, Group Selection, Commercial Thinning, Sanitation Salvage or Alternative methods are selected, the post harvest stand stocking levels (differentiated by site if applicable) must be stated in the NTMP. Note mapping requirements of 14 CCR 1090.5 (x) (12).

The NTMP area is comprised primarily of Site III timberlands with small portions of Site II and Site IV, that predominantly exist in RW II and RW IV as delineated on the Stand Type Map at the end of Section II. The Site II timberland is located in and around the Tranquility Flats Sub-Unit of the upper North Fork Unit harvest area. The Site IV timberland is located on the drier sites of the Satellite Stands Unit.

In the selectively harvested areas managed under 14 CCR 913.8(a), upon completion of timber operations the following stocking standards shall be met: Per 14 CCR 913.8(a)(1), the average residual basal area on Site II timberlands shall be 100 square feet/acre; the average residual basal area on Site III timberlands shall be 75 square feet/acre; and the average residual basal area on Site IV timberlands shall be 50 square feet/acre. This basal area shall be comprised of seed trees at least 18 inches in diameter, of full crown, capable of seed production and representative of the best phenotypes. These stocking standards exceed the basal area requirements to conform to MSP option (c). Only Group A species shall be used to meet stocking. It should be noted that these are state guidelines and that residual basal area will likely be greater than state rules. Cutting regimes are based on the Sustained Yield Analysis in Section III and guided by information from Continuous Forest Inventory (CFI) over time.

In the group selection areas managed under 14 CCR 913.8(b), within five years following completion of timber operations, the following stocking standards shall be met: Per 14 CCR 913.8(a)(2) and 913.8(b)(6), group selections will be planted with conifer trees to equal at least 450 well-distributed countable trees per acre. In areas managed under group selection, Group B species may be used to meet stocking requirements.

c. Trees to be harvested or retained must be marked by or marked under the supervision of the RPF. Specify how the trees will be marked/designated:

### MARKING GUIDELINES

Marking prescriptions have been developed for each stand and summaries of these marking prescriptions are provided in the Sustained Yield Analysis in Section III, Item 43(b).

Marking will emphasize elimination of poorer growing trees while providing for spacing, release potential, aesthetics, and wildlife habitat. Trees to be cut will be marked with a horizontal blue stripe on two sides of the tree with an accompanying stump spot at the base of the tree. Groups shall be flagged with solid pink flagging surrounding the group with trees designated for removal in the interior marked by blue paint. All operations will be conducted to minimize damage to residual conifers and significant hardwoods.

During tree marking, virtually every tree will be examined by the RPF or supervised designee. During this scan, the timber markers shall be attentive to the presence of nests or territorial bird behavior. Please see Section II, Item 32, BIRDS, for more information on this subject.

### Wildlife Tree Retention and Snag Recruitment Guidelines

Trees having one or more of the following characteristics shall be retained for wildlife habitat and snag recruitment:

1. "Old Growth" characteristic redwood trees (Redwood trees greater than 60 inches at DBH that were present in the dominant overstory during the late successional stages of forest development of the first-growth stands). These trees have outward indicators such as platy bark with deep fissures, basal hollows with fire scars of multiple ages, large branching structures, flat tops, and limbs at least 8-10 inches in diameter that provide an opportunity for platforms/nesting.

2. Trees with "goose-pen" boles (basal cavities) extending twelve feet or more above the ground level that have potential bat or den habitat.
3. Stand alone granary trees (acorn storage trees for woodpeckers) or at least 50% of granary trees in clumps of two or more trees.
4. Contiguous stands of large diameter tanoak and Shreve oak as identified on the Botanical Conservation Map at the end of Section II.

#### Snag Retention Guidelines

All snags (standing dead trees) within the logging area shall be retained to provide wildlife habitat except as follows:

1. Where they pose a safety hazard to the public, timber fallers, Ranch visitors or employees, or the logging crew during operations.
2. For hazard reduction within 100 feet of all public roads, permanent roads, seasonal roads, and landings.
3. Within 100 feet of ridge tops suitable for fire suppression.
4. Within 200 feet of structures maintained for human habitation.
5. Snags whose falling is required for insect or disease control.

#### Old Growth

No old growth trees will be harvested. Individuals and small groups of trees meeting the description of old growth, as stated above, are present in two stands within the NTMP, the Little Creek Stand and the General Smith Stand (Smith Stand). Both stands are shown on the Botanical Conservation Map at the end of Section II. These previously harvested stands shall be thinned from below to reduce competition and to remove ladder fuels. The LTO shall strive to avoid negative impacts to the roots of old trees by keeping equipment away from the drip line. Tractors may approach old growth trees only on designated skid trails. In the interest of retaining coarse woody debris within the designated stands, large woody debris greater than 24" shall not be removed.

Three stands on the Ranch have been surveyed for potential presence of Marbled Murrelets with no positive detections. The third stand is located outside of the NTMP area along Scotts Creek. A map depicting all three stands is located in Section V.

One stand alone old growth redwood tree is located in the lower Satellite Stands Unit, approximately 100 feet from Swanton Road. It shall be retained.

[ ] Yes [X] No Is a waiver of marking by the RPF requirement requested? If yes, how will LTO determine which trees will be harvested or retained? If more than one silvicultural method or Group Selection is to be used, how will LTO determine boundaries of different methods or groups?

d. Forest Products to be harvested: Redwood and Douglas-fir sawlogs, hardwood fuelwood, and "buckskin" conifers.

e. [ ] Yes [X] No Are group B species proposed for management?  
 [X] Yes [ ] No Are group B or non-indigenous A species to be used to meet stocking standards?  
 [X] Yes [ ] No Will group B species need to be reduced to maintain relative site occupancy of A species?

If any answer is yes, list the species, describe treatment, and provide the LTO with necessary felling and slash treatment guidance. Explain who is responsible and what additional follow-up measures of manual treatment or herbicide treatment is to be expected to maintain relative site occupancy of A species. Explain when a licensed Pest Control Advisor shall be involved in this process.

Group B species on Swanton Pacific Ranch are tanoak (*Lithocarpus densiflorus*) and Pacific madrone (*Arbutus menziesii*). Most of the hardwood on the site will be retained for use by wildlife as nesting habitat, cover, and a food source. Hardwood removals are limited to those damaged during falling of conifers and construction of roads and skid trails. Hardwood removal is necessary to maintain and/or encourage adequate site occupancy and growth of conifers, and to reduce fuel loading and fire hazard where appropriate. The RPF or his/her designee shall mark all undamaged hardwoods designated for removal.

Hardwoods that will have a negative effect on established redwood sprouts or seedlings may be reduced. The objective of selective hardwood treatment is to maintain site occupancy of Group A species. Hardwood site occupancy may be reduced with one or more of the following methods: falling and removal, falling and lopping, girdling, mastication, judicious herbicide application prescribed by a licensed Pest Control Advisor, or other appropriate treatments.

Hardwoods occupying growing space that would be suitable for planting redwood or Douglas-fir seedlings may be selectively harvested per 913.8(b). Where group selection silviculture is proposed, these areas shall be

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specified on the Notice of Operations when submitted to CDF and shall be available for inspection by the reviewing agencies 30 days prior to the commencement of operations. The RPF or supervised designee shall mark the hardwoods to be removed and endeavor to preserve wildlife habitat features described in Section II under Item 14(c), Wildlife Tree Retention and Snag Recruitment Guidelines.

The RPF shall advise the LTO that the retention of conifer seedlings, sapling, and sub-merchantable poles is desirable. In areas managed under 913.8(b), following harvesting, redwood and Douglas-fir tree seedlings shall be planted, such that five years post harvest, these areas will meet stocking per 14 CCR 913.8(a)(2) with at least 450 well-distributed countable trees per acre. Group B species left in group selection areas as wildlife retention trees will be used to meet stocking. Slash treatment shall be carried out in accordance with the standard practices in the NTMP. The LTO is responsible for slash treatment as stated under Item #30. Planting spaces may be cleared by scalping in 2 foot patches where there is not enough bare mineral soil exposed to plant successfully.

Mature tanoak and Shreve oak stands exist in the NTMP area, as delineated on the Botanical Conservation Map at the end of Section II and protected according to the Oak mitigations in Item 32.

f. Other instructions to LTO concerning felling operations:

1. The fallers shall consult with the RPF or his supervised designee on any and all questionable tree marking.
2. Timber fallers shall make a visual check for nests for each tree to be felled. If nests are located which have indicators of current nesting activity, falling of the tree and in an area within 300 feet of the nest shall be stopped until the LTO notifies the RPF and a determination is made of the nesting status and species.
3. An arrow painted on a tree indicates the preferred direction to fall the tree. A painted "S" on a tree means "Stop" and no more trees are marked past that tree. A painted question mark (?) on a tree indicates the tree is to be felled only if safe.
4. When falling near watercourses, fallers shall minimize canopy reduction by preserving hardwoods whenever possible. On Class II and III watercourses, trees may be felled parallel to or toward a watercourse under conditions described in Item 27(c).
5. Falling of trees across a Class II watercourse will be allowed only in the general logging season in order to minimize reduction in canopy or for concerns of safety. Falling of trees across a Class III watercourse will be allowed in the winter period in order to minimize reduction in canopy or for concerns of safety. If a cross felled tree inadvertently lands in the watercourse it shall be brought to the attention of the RPF and based on a determination of whether the watercourse is lacking in large woody debris (LWD), the tree may be left. If the watercourse is not lacking in LWD, the tree shall be yarded appropriately. If the presence of the wood has the potential to negatively impede the flow of water that section of wood shall be bucked out immediately by hand. Trees shall not be felled into, or across a watercourse where negative impacts to the beneficial uses of water are anticipated. No sediment shall be discharged as a result of cross-falling.
6. Trees to be harvested within a tree length of power lines or phone lines shall be marked with a vertical stripe at approximately breast height with accompanying stump spots at the base of the tree.

g. ☒ Yes ☐ No Will artificial regeneration be required to meet stocking standards?

Artificial regeneration shall not be required to meet stocking standards in areas harvested under 14 CCR 913.8(a); however, group selection areas harvested under 14 CCR 913.8(b) shall be planted with conifers to equal at least 450 countable trees per acre, per 14 CCR 913.8(a)(2) and 913.8(b)(6), within five years following completion of operations. In areas managed under group selection, Group B species may also be used to meet stocking requirements. Planted seedlings shall be redwood and Douglas-fir with origins in the local seed zone. Tree planting may also occur in areas where hardwood basal area is reduced following harvest operations, in cable corridors and in naturally occurring understocked areas.

h. ☐ Yes ☒ No Will site preparation be used to meet stocking standards? If yes, provide the information required for a site preparation addendum, as per 14 CCR 915.4 (935.4, 955.4).

Preparation for planting in areas managed under 14 CCR 913.8(b) may entail cleanup and removal of non-commercial trees, lopping of slash, and possibly judicious herbicide application, prescribed by a licensed Pest Control Advisor on competing vegetation to ensure seedling survival.

i. If the rehabilitation method is chosen, provide a regeneration plan as required by 14 CCR 913 (933, 953) .4(b).

Not applicable

## PESTS

15. a. ☒ Yes ☐ No Is this NTMP within an area that the Board of Forestry and Fire Protection has declared a Zone of Infestation or Infection pursuant to PRC 4712-4718? If yes, identify feasible

measures being taken to mitigate adverse infestation or infection impacts from the timber operation. See 14 CCR 917 (937, 957) .9 (a).

#### Pitch Canker

The NTMP is located in Santa Cruz County, which is within the Coastal Pitch Canker Zone of Infestation. Many of the native Monterey pine trees in the area are infected with the exotic fungus that causes pitch canker (*Fusarium circinatum*). The only known specimens of native Monterey pine trees in the NTMP area are located approximately 50 feet south of Little Creek, just above Swanton Road, around a small parking area, according to Dr. Walter Mark. Portions of the Satellite Stands Unit are plantations of non-native Monterey pine stock from New Zealand. The non-native pine plantings present the threat of introducing genes that may make the natural, locally adapted pines more susceptible to disease. Some of these plantations have been inter-planted with redwood and Douglas-fir seedlings. Non-native stock will be gradually removed to allow redwood and Douglas-fir to re-colonize the site.

During pine removal, to mitigate the spread of the pitch canker pathogen, no pine material will be removed from the zone of infestation. Monterey pine brood material shall be treated in the following manner as soon after creation as is practical:

1. Lop all branches from the sides and tops of the bole of the tree bole which are three inches or more in diameter.
2. Lopped stems should be cut into short segments to decrease drying time and further reduce hazard.
3. Branches should be scattered so that stems have maximum exposure to solar radiation.
4. Do not pile pine slash or stack pine firewood next to living pine trees.
5. Logs from diseased trees may be split for firewood for local use, but the wood should be seasoned beneath a tightly sealed, clear plastic tarp to prevent the buildup of destructive insects.

More information on Monterey pine and pitch canker is available in under Item 32 and in Section III, Plan Addendum to Item 32.

#### Sudden Oak Death

The NTMP is within the designated quarantine area for Sudden Oak Death (SOD) syndrome, which encompasses 14 coastal counties from Monterey to Humboldt. Operations will follow guidelines set by the California Oak Mortality Task Force, which monitors distribution of sudden oak death and disseminates current information. The approved NTMP shall function as the compliance agreement to allow for the removal of hardwood for commercialization from the project area. If more than one year has passed since NTMP approval, the guidelines shall be re-assessed prior to submitting a Notice of Timber Operations and as necessary, revised measures to limit the spread of SOD shall accompany the NTO or be submitted as a minor amendment to the NTMP. Current CDFA requirements and up-to-date information on Best Management Practices are available on the California Oak Mortality Task Force website, [www.suddenoakdeath.org](http://www.suddenoakdeath.org).

At this time the pathogen *Phytophthora ramorum* is not suspected to be present in the project area. Stream sampling conducted jointly by Cal Poly and UC Davis has not detected any positives for *Phytophthora ramorum*. Stream sampling is one of the early detection methods utilized in tracking the spread. Symptoms such as spots on the leaf tips of California bay laurel are often the first physical signs of SOD in an infected area. More advanced symptoms include symptoms on other hosts including mortality of large and small tanoaks and bleeding cankers on the trunks of oaks and tanoaks. Since SOD is not suspected to be present, it is important to take measures to prevent introduction of the pathogen into the NTMP area on equipment. The intent of the following mitigation measures is to prevent spread of the disease.

To function as the compliance agreement, the following information and mitigation is contained in the NTMP:

1. Counties regulated for Sudden Oak Death at the time of plan submittal include: Alameda, Contra Costa, Humboldt, Lake, Marin, Mendocino, Monterey, Napa, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, and San Francisco.
2. Regulated host plants in the area include: Pacific madrone, California bay laurel, California buckeye, bigleaf maple, manzanita, California coffeeberry, toyon, California honeysuckle, coast redwood, Douglas-fir, western starflower, salmonberry, tan oak, coast live oak, interior live oak, arrow wood, wood rose, western maidenhair fern, California maidenhair fern, huckleberry, canyon live oak, poison oak, cascara, false Solomon's seal, rhododendron (and azalea), California black oak, and Shreve's Oak. A complete host list, as of October 2007, is included in Section III under Item 15.
3. All equipment entering or leaving the NTMP area will be inspected by the LTO or his designee to assure that it is free of any foliar materials (leaves, twigs, branches) and soil. If need be, equipment will be washed to remove accumulations of soil and organic debris, according to the guidelines provided by the California Oak Mortality Task Force.

4. Tanoak, madrone, redwood and Douglas-fir will be removed from the NTMP area either as logs stripped of branches, hardwood rounds, lumber, or split firewood. No host foliage will be removed from the project area.
5. The approved NTMP will function as the compliance agreement to allow for the movement of conifers logs and hardwood firewood within the regulated area. Conifer logs shall stay within Santa Cruz County unless an amendment specifying an alternate destination is approved. Hardwood firewood shall stay within Santa Cruz, San Mateo, and Santa Clara Counties unless an amendment specifying an alternate destination is approved. No material from host plants less than four inches in diameter will be removed from the NTMP area.
6. The RPF will review the current regulations pertaining to SOD prior to operations in any given year. If hardwood removal is to occur, the current SOD protocol will be implemented and necessary changes to this compliance agreement will be submitted as a minor amendment to the NTMP.
7. The RPF will be responsible to inform the LTO prior to the start-up of initial operations during any given year regarding current SOD hosts, regulated area, and operational requirements necessary to be in conformance with the compliance agreement.

- b. ☒ Yes ☐ No If outside a declared zone, are there any insect, disease or pest problems of significance in the NTMP area? If yes, describe the proposed measures to improve the health, vigor and productivity of the stand(s).

#### Red Ring Rot

Douglas-fir trees on Swanton Pacific Ranch suffer from red ring rot, *Phellinus pini* (a heart rot), as indicated by the presence of fruiting bodies on the boles of some of the trees. This fungus is present within the Southern Sub-district in moderate levels and is more severe in older stands and pure Douglas-fir stands. There is an elevated frequency in the Douglas-fir trees growing on the fringes of the timber stands on the Ranch, possibly because these areas have not been intensively managed over the past century. Infected trees will be gradually removed as part of the proposed harvest as long as there is at least 25% sound wood and the trees do not meet the wildlife tree or snag recruitment guidelines. Overall incidence of red ring rot infected trees is expected to decrease over time with periodic harvest entries on the property.

#### HARVESTING PRACTICES

16. Indicate type of yarding system and equipment to be used:

- |   |   |   |
|---|---|---|
| GROUND BASED*   | CABLE   | SPECIAL   |
| a. <input checked="" type="checkbox"/> Tractor, including end/long lining | d. <input type="checkbox"/> Cable, ground lead        | g. <input type="checkbox"/> Animal                |
| b. <input checked="" type="checkbox"/> Rubber tired skidder, Forwarder    | e. <input type="checkbox"/> Cable, high lead          | h. <input checked="" type="checkbox"/> Helicopter |
| c. <input type="checkbox"/> Feller buncher                                | f. <input checked="" type="checkbox"/> Cable, Skyline | i. <input type="checkbox"/> Other                 |

\* All tractor operations restrictions apply to ground based equipment.

Management Unit	Acres in Unit	Ground Based Yarding	Cable Yarding	Helicopter Yarding
North Fork Unit	191	137	79	122
South Fork Unit	84	71	30	14
Satellite Stands Unit	426	355	93	74

Existing infrastructure has been utilized wherever reasonable and in accordance with the resource protection goals of the NTMP. Tractor operations were limited to slopes generally less than 50%, exceptions are described under Item 21. Tractors will long-line from existing roads. Cable yarding has been proposed where topography, deflection and span are appropriate and tail holds are available. A cable yarder may traverse designated skid trails to gain better deflection, where deemed appropriate by the RPF. Helicopter operations are proposed for areas where other yarding methods are not feasible or environmentally sound. A description of the proposed Units and yarding methods is included Section III, under Item 16.

## HELICOPTER OPERATIONS

1. Helicopter Operations will occur approximately every 15-20 years. The re-entry period for helicopter operations is not anticipated to be less than 15 years.
  2. The FAA regulates helicopter safety. The LTO shall comply with all Federal, State and Local regulations pertaining to employee safety, and the handling and storage of fuel.
  3. A secondary impermeable containment device shall be installed around the fuel storage area of the helicopter service landing.
  4. Landings L7, L19, L20, L22 and L23 are all suitable helicopter landings. Of these, landing L7, the conclave site, will likely be designated as the service area for helicopter operations. Other landings shown on the operations maps may be suitable log landings, depending on the area being yarded from and the size of the helicopter. The landings listed above may be expanded up ½ acre where feasible. Landing L7 is an existing 2 acre clearing which may be used for helicopter operations.
  5. The helicopter flight path shall take into account spatial or temporal flight restrictions due to wildlife considerations. The helicopter shall stay outside the minimum restricted distance for any species of concern, as identified in 14 CCR 919.3(e).
17. Erosion Hazard Rating: Indicate Erosion Hazard Ratings present on NTMP. (Must match EHR worksheets)

Low [ X ]                      Moderate [ X ]                      High [ X ]                      Extreme [   ]

Maps indicating the boundaries of each EHR area are included at the end of Section II. The Estimated Surface Soil Erosion Hazard Worksheets which show EHR calculations are included in Section V. Although there are no extreme EHR areas identified, some areas shall be conservatively treated as such for resource protection as described elsewhere in the NTMP.

If more than one rating is checked, areas must be delineated on map to 20 acres in size (10 acres for high and extreme EHRs in the Coast District).

18. Soil Stabilization:  
In addition to the standard waterbreak requirements describe soil stabilization measures or additional erosion control measures to be implemented and the location of their application, as per requirements of 14 CCR 916.9(n) and 923.2 (943.2, 963.2) (m), and 923.5 (943.5, 963.5) (f).

The project area is located in a Watershed with Threatened or Impaired Values due to the presence of listed anadromous fish species in Little Creek and in Scotts Creek downstream. The plan shall comply with 14 CCR 916.9(d) and the following measures are intended to fully offset sediment loading from the project area. Additional mitigation measures are described under Item 21, Item 23, Item 24, Item 25, Item 26, and Item 27.

## GENERAL RULES FOR SOIL STABILIZATION

In general, for the treatment of roads, landings, temporary crossings, and bared areas, the following shall apply:

1. Ground based equipment shall only utilize skid trails designated by the RPF or supervised designee for yarding operations.
2. All skid trails utilized (existing or proposed) in the operation shall be outsloped, to the extent possible (except where stated otherwise), waterbarred, and surfaced with tractor-crushed slash and debris where feasible following completion of use, or as specified in the plan. Slash coverage shall be approximately 90% of the bared surface in areas exceeding 100 contiguous square feet where timber operations have exposed bare soil in the WLPZ and ELZ/EEZ. Slash coverage shall be approximately 75% of the bared surface if slash is called for as a mitigation on slopes over 50% with a high EHR, or on mapped unstable areas. No specific slash coverage is required in all other areas. In areas where, due to steepness of slope or lack of slash and debris, tractor crushing is not feasible, hand slashing, straw mulching, or another method of effective erosion control will be implemented.
3. Any areas where full deflection is not achieved during cable yarding operations shall be examined for possible bared soil due to poor deflection. Hand-dug waterbars that meet or exceed the standard spacing shall be installed in bared areas and hand-lopped slash shall be spread where necessary to mitigate erosion.

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4. Existing trails which are also used as recreational trails may be seeded, straw mulched, or treated with another method of effective erosion control rather than slash packed, to facilitate trail use between harvests. For a map of the private recreational trail network see NTMP Section V.
5. The RPF, or his supervised designee, shall flag the location of all rolling dips/waterbars on the truck roads prior to installation, following operations. Hand-dug waterbars may be constructed with less than the requisite 6" above grade and 6" below grade where appropriate. Location of waterbars may be reasonably altered outside of the maximum waterbreak spacing where necessary at the RPFs discretion to reduce any impacts to the beneficial uses of water and shall be situated to drain into stable soil configurations. Truck roads shall be outsloped where feasible. The waterbreak spacing shall conform to 14 CCR 914.6(c) as depicted in the following table, or at spacing prescribed by the RPF\*.

Maximum Waterbreak Spacing in Feet*				
Erosion Hazard Rating (EHR)	Road or Trail Gradient (in percent)			
	10% or less	11-25	26-50	>50
Extreme	100	75	50	50
High	150	100	75	50
Moderate	200	150	100	75
Low	300	200	150	100

\* Where feasible to allow for proper drainage.

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6. Where vegetation is not adequate to act as a sediment filter at waterbar or dip outlet locations, the LTO shall armor the road drainage outlets with slash, chunks of wood, rock or other methods, as determined by the RPF.
7. Landings shall be evaluated by the RPF or supervised designee prior to close-out and the proper erosion control treatment shall be determined and implemented, per 14 CCR 923.5(f). Landings shall be seeded, straw mulched, or surfaced with tractor-crushed slash and debris where feasible following completion of use, per 14 CCR 926.19. Refer to Item 23, Winter Operations, for protocol on landing use in the winter period.
8. Placement of spoils shall be limited to slopes less than 30%, and shall not be placed in any swale, draw or watercourse. Spoils shall be placed in a stable configuration, less than 10' deep with a fill face inclined no steeper than 65% (2:1). Spoil shall be properly drained by out sloping or crowning. Appropriate erosion control methods shall be implemented, such as track walking, slash packing and seeding the fill face. Slash can also be placed at the base of the fill to filter out any eroded sediment.
9. Sidecast shall not occur on slopes greater than 65% that are above a watercourse. Sidecast or fill material shall be treated per 14 CCR 923.2 (m) and 923.5 (f)(4).

#### GENERAL RULES FOR SOIL STABILIZATION IN THE WLPZ AND ELZ/EEZ

1. Skid trails and areas exceeding 100 contiguous square feet where timber operations have exposed bare soil in the WLPZ and ELZ/EEZ shall be treated to minimize soil erosion by packing with tractor-crushed slash (unless otherwise stated in the NTMP). Slash coverage shall be approximately 90% of the bared surface. In areas where, due to steepness of slope or lack of slash and debris, tractor crushing is not feasible, hand slashing, straw mulching, or another method of effective erosion control will be implemented. These trail sections shall be water-barred at an extreme EHR spacing.
2. For areas disturbed within the WLPZ adjacent to Class I and Class II waters from April 15 through October 15, treatment shall be completed prior to the start of any rain that causes overland flow across or along the disturbed surface. For areas disturbed from October 16 through December 1, treatment shall be completed prior to any day for which a chance of rain of 30% or greater is forecast by the National Weather Service or within 10 days, whichever is earlier.
3. The traveled surface of logging roads shall be treated to prevent waterborne transport of sediment and concentration of runoff that results from timber operations. Rock may be used on sections of road in the WLPZ, to an approximate depth of 2 inches, except for portions of road where a mudstone component is present in levels great enough to mitigate effects on the beneficial uses of water, in combination with other road treatments, or where addition of drain rock could create unsafe driving conditions.
4. Areas that shall be treated with soil stabilization measures include:
  - (A) Approaches to tractor road watercourse crossings between drainage facilities closest to the crossing
  - (B) Approach to seasonal road watercourse crossings between drainage facilities closest to the crossing

- (C) Road cut banks and fill
- (D) Any bared areas in the WLPZ or ELZ that are greater than 100 square feet (10 feet x 10 feet)
- (E) Any other area of disturbed soil that threatens to discharge sediment into waters in amounts deleterious to the quality and beneficial uses of water.

#### GENERAL SPECIFICATIONS FOR EROSION CONTROL

1. Soil stabilization measures may include, but need not be limited to, tractor crushed slash, or hand placed/lopped slash, rocking, rip-rapping, planting, seeding, or straw mulching. Where straw mulch is used, the minimum coverage shall be approximately 90%. Any treated area that has been subject to reuse or has less than the above surface cover shall be treated again prior to the end of timber operations.
2. Grass seeding for erosion control purposes may include seeding at an application rate of 15 – 25 lbs. per acre at the discretion of the RPF or supervised designee. Non-invasive cereal grains such as oats, barley, or wheat, buckwheat, or other species known to effectively control surface erosion may be spread. In the interest of preserving grassland species diversity, road seeding in the coastal prairie shall be limited to areas with the highest erosion potential. In general, seeding will be limited in application per the recommendations of the consulting botanist.
3. Straw mulching for the NTMP shall be done with rice straw, barley, wheat or weed-free straw, and sterile if available. The LTO shall deliver straw bales before roads or trails are closed.
4. Road rock shall be adequately sized by the RPF (3/4 inch -3 inch). Rock shall be applied to the appropriate thickness, total depth shall be approximately 2 inches.

#### Discussion of General Haul Road Upgrade and Maintenance

The Ranch roads are generally in good condition and shall be maintained as such through limited wet weather access and continued wet weather monitoring and maintenance. Future road work and crossing replacement necessity will be evaluated by the RPF prior to submitting a future Notice of Timber Operations in any Unit. Crossings exhibiting failure potential or significant rust lines shall be replaced in conjunction with operations and crossings shall be designed to accommodate a 100 year flood flow. A Lake or Streambed Alteration Agreement shall be obtained for future crossing replacements on Class I or II watercourses.

For operations, the haul road will be treated in the following manner:

1. Following operations, the road shape shall be restored as directed by the RPF.
2. The road shape will be maintained where appropriate through insloping, outsloping or crowning.
3. Semi-permanent rolling dips or waterbars will be constructed per the required waterbar interval or at locations specified by the RPF.
4. Where necessary to facilitate frequent drainage on insloped road sections, additional cross drain culverts may be installed.
5. Cross drain culverts may also be installed in wet areas encountered during road work, under the direction of the RPF and shall be a minimum of 18" in diameter, unless it is not feasible due to road configuration.
6. All road crossings will be provided with critical dips to ensure that, should a crossing fail, the failure is confined and the drainage direction is maintained, unless otherwise specified in the NTMP. Critical dips should be capable of carrying flow up to the 100 year flood flow level, if attainable.
7. In order to ensure the continued integrity of the road base, the entire length of haul road surface in use will be watered at least once daily during operations, or as necessary. In general, the RPF has the authority to stop hauling operations if he/she feels the road integrity is compromised.

#### Discussion of Little Creek Haul Road Upgrade and Maintenance (Mitigation Point MP20):

Currently, the primary haul road that travels parallel to the mainstem and North Fork of Little Creek possesses a solid base composed of well-compacted Santa Cruz mudstone. Portions of this road are in the Class I WLPZ. The road is located on a stable historic railroad grade except for several sections that were realigned in 1989 to bypass switchbacks. Following the Lower Little Creek harvest in 2004, the road, below the confluence of the North and South Forks was reshaped and rocked in sections as directed by the RPF. Following operations, additional sections of this road shall be rocked to an approximate 2 inch depth to facilitate wintertime travel for management purposes and access.

#### Discussion of Archibald Creek Haul Road Upgrade and Maintenance (Mitigation Point MP21):

The existing road up Archibald Creek has portions located in the ELZ and WLPZ, at crossing R1. Archibald Creek is a Class III in the lower stretch due to extremely permeable substrate, changing to a Class II above crossing R1. Operations will be limited to minor skidding around landing L1 and hauling from L1 to Swanton Road. The road is very flat and is routinely used for farm operations and residential access. Following operations in 2004, the road berm was broken to drain the road in some sections and ¾" drain rock was applied

to the road and watercourse approaches. The drainage structures will be accentuated following future harvests and rock may be re-applied as necessary to maintain a stable operating surface.

#### Guidelines for Coastal Prairie Roads

Coastal prairie grasslands are sensitive plant communities that could suffer potential impacts from loss of native plants through trampling, introduction and spread of exotic invasive species, or changed hydrology. To mitigate impacts, road seeding shall be limited to areas with the highest erosion potential and shall be done only with non-invasive species (see above). The landowner shall mow roads when possible and limit NTMP road use in prairie areas to the dormant season to the extent feasible for land management and educational purposes. The LTO and RPF shall maintain natural hydrological features by careful planning and installation of drainage structures.

#### 14 CCR 916.9(o), Assessment of Active Erosion Sites in the Logging Area

Per 14 CCR 916.9(o) the RPF has addressed potential erosion sites in the logging area through the abundant crossing, road and skid trail mitigations. Specific road and landing mitigation points to increase soil stabilization are described under Item 24.

19. ☐ Yes ☒ No Are tractor or skidder constructed layouts to be used? If yes, specify the location and extent of use:
20. ☒ Yes ☐ No Will ground based equipment be used within the area(s) designated for cable yarding? If yes, specify the location and for what purpose the equipment will be used? See 14 CCR 914.3 (934.3, 954.3) (e).

Portions of the area designated for cable yarding are relatively flat and are accessible to ground based equipment on existing infrastructure. To minimize the number of cable corridors needed, ground based equipment may be used to bunch the timber in the flats to and bring it to cable corridor locations. Ground based equipment shall operate outside of the WLPZ and shall not construct trails, unless specified in the NTMP.

21. Within the NTMP area will ground based equipment be used on:
- a. ☒ Yes ☐ No Unstable soils or slide areas? Only allowed if unavoidable.
- b. ☒ Yes ☐ No Slopes over 65%?
- c. ☒ Yes ☐ No Slopes over 50% with high or extreme EHR?
- d. ☐ Yes ☒ No Slopes between 50% and 65% with moderate EHR where heavy equipment use will not be restricted to the limits described in 14 CCR 914 (934, 954) .2 (f) (2) (i) or (ii)?
- e. ☐ Yes ☒ No Slopes over 50% which lead without flattening to sufficiently dissipate water flow and trap sediment before it reaches a watercourse or lake?

If "a." is yes, provide site specific measures to minimize effect of operations on slope stability and provide explanation and justification in Section III as required per 14 CCR 914 (934, 954) .2 (d). CDF requests the RPF consider flagging tractor road locations if "a." is yes.

If "b., c., d., or e." is yes:

- 1) the location of tractor roads must be flagged on the ground prior to the PHI or start of operations if a PHI is not required, and
- 2) you must clearly explain the proposed exception and justify why the standard rule is not feasible or would not comply with 14 CCR 914 (934, 954).

The location of heavy equipment operation on unstable areas or any use beyond the limitations of the standard rules must be shown on the map. List specific instructions to the LTO below.

See Technical Addendum, Section III for explanation and justification.

#### Ground based equipment on unstable soils of slide areas

#### Satellite Stands Unit

**Mitigation Point MP2:** This location is an existing skid trail previously used in the 2004 harvest that crosses an unstable area. The trail shall be routed to minimize cutting into the toe of the slope while skidding. Following use, the skid trail shall be outsloped and tractor packed with slash.

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## North Fork Unit

**Tranquility Flats:** Existing skid trails are located on unstable slopes of a deep seated landslide in this area. The extent of the slide margins and their relative ages are shown on the Geologic and Landslide Map at the end of Section II. Along the slide margins, tipped trees have been noted and significant cracks in the earth are present in several places, including landing L21. Skidding equipment shall only operate on designated skid trails in this area. The LTO shall conduct operations with as little blade work as possible so as to minimize vegetation and soil disturbance. No ground based equipment operations shall take place on unstable areas in the winter period. Prior to the winter period or following operations, soil stabilization shall be carried out according to the erosion control specifications under Item 18.

Ground based equipment on slopes over 50% with a High Erosion Hazard Rating or slopes over 65%

## Satellite Stands Unit

**Mitigation Point MP4:** Proposed skid trail on slopes greater than 50% with a high EHR for approximately 150 feet. This trail is positioned at a slight angle across the slope so that it may be easily drained with outsloping and waterbars. Prior to the winter period or following operations, refer to Soil Stabilization under Item 18 for the close-out of this trail.

## South Fork Unit

**Mitigation Point MP9:** Existing skid trail on slopes over 50% as the trail goes through a through-cut for approximately 50 feet. Following use, a waterbar shall be placed directly above and below the through-cut. The berm may be broken at intervals if possible to drain the trail onto stable ground. Prior to the winter period or following operations for other specifications, refer to Soil Stabilization under Item 18 for the close-out of this trail.

**Mitigation Point MP10:** Existing skid trail on slopes over 50% as the trail goes through a through-cut for approximately 100 feet. Following use, a waterbar shall be placed directly above and below the through-cut. The berm may be broken at intervals if possible to drain the trail onto stable ground. Prior to the winter period or following operations for other specifications, refer to Soil Stabilization under Item 18 for the close-out of this trail.

## North Fork Unit

**Mitigation Point MP18:** At this location an existing skid trail is located on slopes over 50% for approximately 50 feet. Slopes do not exceed 60%. Prior to the winter period or following operations, refer to Soil Stabilization under Item 18 for the close-out of this trail.

**Mitigation Point MP25:** The trail to the General Smith Tree has several switchbacks with turns too sharp to skid around. Short sections of existing bypass skid trails have short pitches with slopes over 50%. Prior to the winter period or following operations, refer to Soil Stabilization under Item 18 for the close-out of these trails.

**Mitigation Point MP26:** At this location an existing full-bench skid trail is located on slopes over 50%. This is a historic trail through rocky mudstone substrate. Small accumulations of bank slough may need to be cleared from the inside edge of the trail to make it passable. Material shall be back-bladed and reincorporated into the trail surface. This is an existing trail that is also part of the recreational trail network and the landowner desires to keep it open. The trail surface shall not be packed with slash, but may be straw mulched if needed, as determined by the RPF. Additional mitigations to be implemented prior to the winter period or following operations are specified in Soil Stabilization under Item 18.

22. [ X ] Yes [ ] No Are any alternative practices to the standard harvesting or erosion control rules proposed for this plan? If yes, provide all of the information as required in 14 CCR 914.9 (934.9, 954.9) and 1090.5 (ee) in Section III. List specific instructions to the LTO below.

## Recreation Trails

An alternative to slash-packing of skid trails, as proposed in general for this NTMP, is proposed where existing trails are also used as recreation trails, making up part of the extensive private hiking and horse trail network of the Swanton area. Existing trails that are aligned with recreational trails shall be maintained as open trails following operations. The LTO shall not slash pack these trails but shall apply alternative erosion controls as necessary that allow hiker and horse passage while maintaining the beneficial uses of water. Alternative erosion controls shall include: decreasing the waterbar spacing, slightly outsloping, applying seed and/or straw mulch, or other treatments as appropriate. A map of the recreational trail network is included in Section V. Further explanation and justification of this practice is included in Section III.



## WINTER OPERATIONS

23. a. ☒ Yes ☐ No Will timber operations occur during the winter period? If yes, complete "b.", and then "c." or "d." State in space provided if exempt because yarding method will be cable, helicopter, or balloon.
- b. ☐ Yes ☒ No Will mechanical site preparation be conducted during the winter period? If yes, complete "d."
- c. ☐ I choose the in-lieu option as allowed in 14 CCR 914 (934, 954) .7 (c) and 1090.5 (bb). Specify below 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), if there will be no winter operations in these areas, so state.
- d. ☒ I choose to prepare a winter operating plan per 14 CCR 914 (934, 954) .7 (b) and 1090.5 (bb).

## WINTER PERIOD OPERATING PLAN

The winter period in Santa Cruz County, as defined in 14 CCR 926.18 is October 15 through April 15. However, since this NTMP is located in a watershed with threatened or impaired values, the winter period shall be from October 15 to May 1. A complete winter period operating plan is described below which also incorporates protection measures to avoid take of California Red Legged Frogs. The LTO must read Item 32 for additional CRLF measures.

The LTO shall review the plan with the RPF prior to the commencement of Winter Operations so that they may agree on the extent of operations, as well as prioritize the location and progression of operations. The LTO and RPF will make every effort to minimize the amount of road that remains open during the Winter Period. A table is provided below to assist the LTO in determining what type of operational activity is allowable in the winter period. The LTO shall also review items 1 – 13 in detail below because many of the activities listed in the Winter Period Operating Table have significant limitations:

### Winter Period Operating Table:

FOP – Fall Operating Period, October 15 to December 1  
WOP - Winter Operating Period, December 1 to April 15  
SOP – Spring Operating Period, April 15 to May 1

Activity	FOP	WOP	SOP
Tractor Yarding	X		X
Road Construction / Reconstruction			
Landing Construction / Reconstruction			
Cable Yarder Operations	X	X	X
Log Hauling	X	X	X
Log Loading	X	X	X
Temporary Water Crossings			
Timber Falling in WLPZ	X	X	X
Cross Falling of Class III Watercourses	X	X	X
Cross Falling of Class II Watercourses			
Lopping	X	X	X
Planting	X	X	X
Erosion Control	X	X	X

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1. Erosion Hazard Rating: Areas with ground based tractor operations are located primarily on slopes with a low or moderate erosion hazard rating. Cable and helicopter yarding areas, on steeper portions of the property, generally have a high erosion hazard rating (see EHR maps for a more detailed delineation).
2. Mechanical site preparation methods: None
3. Yarding System: Ground based equipment, cable yarding, and helicopter yarding are proposed for use during the winter period with the following limitations:
  - a. All temporary crossings shall be removed and/or treated prior to October 15.
  - b. Tractor yarding or the use of tractors shall be allowed in areas designated for tractor yarding during dry, rainless periods where soils are not saturated as defined in 14 CCR 895.1.
  - c. Only two landings, with the appurtenant tractor roads and haul roads, will be opened and in use at any given time.

**PART OF PLAN**

- d. Construction or reconstruction of logging roads, tractor roads, or landings shall not take place during the winter period.
4. Operating Period:
- Tractor operations may occur during the winter period from October 15 to December 1, or until the accumulation of 4" of rain (as measured at the closest Swanton Pacific Ranch rain gauge), whichever comes first, subject to the following: Tractor operations shall only occur during extended periods with low antecedent soil moisture and no saturated soil conditions as defined in 14 CCR 895.1, and an RPF or a qualified wildlife biologist with training in CRLF life history and behavior has determined whether operations are appropriate.
  - Following December 1<sup>st</sup>, or the preceding rainfall total, wet condition operations will be limited to skyline cable yarding, helicopter yarding, loading, hauling, felling, lopping, planting and erosion control. Cable yarding, helicopter yarding, log loading and hauling shall only occur when landing and road surfaces are not saturated as defined in 14 CCR 895.1.
  - Tractor operations may occur from April 15 to May 1 subject to the following: Tractor operations shall only occur during extended periods with low antecedent soil moisture and no saturated soil conditions as defined in 14 CCR 895.1, and the RPF shall consult with a qualified wildlife biologist familiar with CRLF life history to determine if operations are appropriate.
  - Low antecedent soil moisture shall be considered present if: 1) The applicable rain gauge has recorded less than 4 inches of rain during the previous month, and 2) A storm producing more than ¼ inch of rain has not occurred within the past 24 hours.
5. General Limitations:
- Known Unstable areas: Operations on unstable areas in the winter period will be limited to timber falling, full suspension skyline cable yarding and helicopter yarding.
  - Cross felling: Cross felling of Class III watercourses is permitted during the winter period. If a cross felled log segment is blocking the watercourse during the winter period, the timber faller shall buck out the blocking portion by hand. Cross felling of Class I and II watercourses shall not occur during the winter period. Refer to Items 27 (c): Directional felling of trees within the WLPZ parallel to or toward the watercourse or lake where added protection is afforded by the alternative practice.
  - The haul road shall be treated as necessary, per the specifications in Soil Stabilization under Item 18, to prevent the waterborne transport of sediment to a watercourse as a result of hauling operations.
6. Erosion control facilities, timing:
- All drainage facilities and other erosion controls shall be installed on all skid trails, landings and truck roads 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) prior to the end of the day if the U.S. Weather Service forecast is a "chance" (30% or more) of rain, a flash flood warning, or a flash flood watch before the next day, or prior to any 48 hour shutdown period with a forecast of 30% or more chance of rain over the 48 hour shutdown, and 4) in any case by the end of the day on December 1<sup>st</sup>.
  - Erosion control structures for roads in use will consist of rolling dips, hand dug waterbars, or rocking.
  - During the winter period, the LTO shall maintain sufficient straw bales on site to carry out the necessary erosion controls.
7. Consideration of form of precipitation: Rain. Real-time measurements from the Davenport Station (DAPC1) of the National Weather Service, California/Nevada River Forecast Center shall be used [http://www.cnrfc.noaa.gov/rainfall\\_data.php](http://www.cnrfc.noaa.gov/rainfall_data.php). Cal Poly operates several rain gauges on Swanton Pacific Ranch; however, at this time the readings are not publicly available. If the Cal Poly rainfall data becomes publicly available, the plan may be amended to reference the site-specific gauges.
8. Ground conditions: Cable yarding, helicopter yarding, log loading and hauling shall only occur when landing and road surfaces are not saturated as defined in 14 CCR 895.1. Tractor operations in the winter period shall only occur during extended periods with low antecedent soil wetness.
9. Silvicultural system: Single-tree and group selection harvesting shall leave a continuous forest canopy and minimize disturbance of ground cover in the harvest area.
10. Operation within the WLPZ: No tractor skidding shall occur in the WLPZ during the winter period. Full suspension skyline cable yarding, helicopter yarding, loading, hauling, felling, lopping, tree planting and erosion control shall be allowed in the WLPZ during the winter period. No cross felling of Class I or II watercourses shall occur during the winter period.
11. Operation within the ELZ: Felling timber across Class III watercourses is permitted during the winter period. If a cross-felled log could impede the flow of water in the channel, that section shall be bucked out by hand.
12. Equipment use limitations: See items 3, 4, 5, 6 and 8 above.
13. Logging sports access: Periodically, the Cal Poly Logging Sports Team requires wood material to practice with. In such event, under the direction of the RPF, the team shall be allowed to harvest undesirable planted non-native Monterey pine or conduct small timber stand improvement projects to obtain material for conclave purposes. During the winter period, access to work sites for the logging team shall be limited to foot traffic and ATVs and no equipment shall be used that damages the road.

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ROADS AND LANDINGS

24. Will any roads be constructed? ☒ Yes ☐ No, or reconstructed? ☒ Yes ☐ No. If yes, check items a through g.  
Will any landings be constructed? ☒ Yes ☐ No, or reconstructed? ☒ Yes ☐ No. If yes, check items h through k:
- a. ☐ Yes ☒ No Will new or reconstructed roads be wider than single lane with turnouts?
  - b. ☐ Yes ☒ No Are logging roads proposed in areas of unstable soils or known slide-prone areas?
  - c. ☐ Yes ☒ No Will new roads exceed a grade of 15% or have pitches of up to 20% for distances greater than 500 feet? Map must identify any new or reconstructed road segments that exceed an average 15% grade for over 200 feet.
  - d. ☐ Yes ☒ No Are roads to be constructed or reconstructed, other than crossings, within the WLPZ of a watercourse? If yes, completion of NTMP Item 27 a. will satisfy required documentation.
  - e. ☐ Yes ☒ No Will roads longer than 100 feet in length be located on slopes over 65%, or on slopes over 50% which are within 100 feet of the boundary of a WLPZ?
  - f. ☐ Yes ☒ No Will any roads or watercourse crossings be abandoned?
  - g. ☐ Yes ☒ No Are exceptions proposed for flagging or otherwise identifying the location or roads to be constructed?
  - h. ☐ Yes ☒ No Will any landings exceed one half acre in size? If any landing exceeds one quarter acre in size or requires substantial excavation the location must be shown on the map.
  - i. ☒ Yes ☐ No Are any landings proposed in areas of unstable soils or known slide prone areas?  
(See Sections II and III, Item 27, and the Focused Engineering Geologic Report)
  - j. ☐ Yes ☒ No Will any landings be located on slopes over 65% or on slopes over 50% which are within 100 feet of the boundary of a WLPZ?
  - k. ☐ Yes ☒ No Will any landings be abandoned?
25. If any section in item 24 is answered yes, specify site-specific measures to reduce adverse impacts and list any additional or special information needed by the LTO concerning the construction, maintenance and/or abandonment of roads or landings as required by 14 CCR Article 12, and 1090.5 (r, cc, ff, hh, ii). Include required explanation and justification in NTMP Section III.

ROADS AND LANDINGS

The road and landing infrastructure on the Ranch was extended in previous harvest entries (1989 and 1993) to accommodate access to the majority of the manageable timber resource. The existing road system is in good condition and nearly complete for the proposed operations, and shall be used wherever possible. In general, all roads and landings shall be closed-out prior to the winter period or following operations per the specifications in Soil Stabilization under Item 18, unless in accordance with the Winter Period Operating Plan.

Refer to the Operations Maps at the end of Section II for the locations of specific mitigation points discussed below. Further explanation and justification for existing landing use in unstable soils (Landings L21/MP16) is included in Sections II and III under Item 27.

Satellite Stands Unit

Spur Road to Landing L16

A short (<200 foot) section of seasonal road shall be constructed that spurs off of the existing road system to provide access to landing L16. This proposed road section is located on gentle slopes of less than 30% with a grade of less than 10%. Construction will require only minor earth movement and will be built with the natural topography and a balance between cut and fill volume as is feasible. Due to the potential for the presence of archaeological resources in the vicinity, construction activities shall be monitored by the RPF or a designee. If any artifacts, archaeological features or other cultural evidence are observed, construction shall stop and the CDF Northern Region Archaeologist shall be contacted. Prior to the winter period or following operations, the road shall be closed out per the Soil Stabilization specifications in Item 18.

Winter Creek Road (Mitigation Point MP3):

An existing seasonal Ranch Road is located upslope from a pond in Winter Creek at this location. Approximately 660 feet of this road shall not be used for harvest operations, due to the steep gradient and close proximity to the watercourse. No viable alternate route to landing L3 could be located. Non-native Monterey pine trees planted along the outboard edge of the existing grade are in decline and pose the risk of toppling down the slope toward the watercourse, bringing sediment with their roots. The trees may be felled downhill and the stumps retained to limit sediment delivery to Winter Creek. The pine slash will be lopped per Item 15.

Should bare soil be exposed in any areas on the outside berm or fillslope, slash mulch shall be used to maintain the filter strip properties.

**Mitigation Point MP7:** On this stretch of upslope road, 45 feet of the outside edge of road fill has cracked and settled about 18 inches with cracks extending about 8 feet into the road prism. The failure occurred on a partial bench across 85% sideslopes on a section of road constructed many years ago. During wet weather in November 2006 several large tanoaks on the downslope road edge started to lean progressively away from the road, a crack appeared and fill material settled. The oak trees were immediately cut to reduce weighting on the outer edge of the road and the slide appeared to have temporarily stabilized. A small ditch was hand-dug around the scarp to prevent road runoff from discharging onto it. The cracked and settling fill material is potentially unstable and could fail in a large storm event. This location has been reviewed by the project CEG and is described in the Focused Engineering Geologic Report which is located in Section V. The CEG recommendations are listed below and the diagram is at the end of Section II.

Prior to use of this road for log hauling, the following shall be implemented per the CEG recommendations:

1. The road shall be widened to a 16 foot width by cutting into the bank.
2. The road surface may also be lowered approximately 2 feet to minimize bank cutting.
3. On the outer edge of the road, the cracked fill shall be pulled back to a more stable configuration.
4. Spoils will likely need to be endhailed to a stable location on slopes less than 30%, as directed by the RPF,

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**APR 15 2008**

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RESOURCE MANAGEMENT

**PART OF PLAN**

see specifications under Item 18 GENERAL RULES FOR SOIL STABILIZATION.

- 5 ~~2.~~ Some of the fill may be feathered out along the inboard edge of the road to give the road an outsloped pitch.  
6 ~~3.~~ No spoils shall be sidecast.

Landing L1: This landing is located just outside of the Class II WLPZ for Archibald Creek, next to an existing road and watercourse crossing. Landing operations shall be limited the north side of the haul road. The road must be kept open at all times to facilitate access for the landowners on the adjacent parcel. The landing is virtually flat and shall be used as is. Prior to the winter period following operations, the landing shall be closed out per the Soil Stabilization specifications in Item 18.

#### North Fork Unit

Mitigation Point MP29: This location is a control point for access to the infrastructure on the ridge between the North and South Forks of Little Creek. The road was built in a geologic sensitive area on an active portion of a deep-seated landslide. The outer edge of road was apparently constructed on 3 to 4 feet of sidecast fill on steep slopes. About 50+ feet of linear distance of the road fill has failed with relatively little residual fill material left. Cutbank instability is another factor that has contributed to narrowing of the road, which is now 10 feet in width. A large redwood root wad, which was perched on the edge of the cut at the time of road construction, has since slid downslope toward the culvert at crossing R15 and partially obstructs the seep-fed watercourse, causing water to pipe below the root wad and seep out of the cutbank and onto the road, just below R15. This causes the road to be seasonally wet. Below crossing R15, the road is insloped and drained to a ditch relief culvert. This area has been reviewed by the project Certified Engineering Geologist and his discussion is included in the Focused Engineering Geologic Report found in Section V. Recommendations are specified below and a diagram is included at the end of Section II.

The recommendation identifies that it is not possible to stabilize the large landslide complex within the economic constraints of the NTMP and therefore any road reconstruction/repair at this site will need to be designed and constructed to accommodate future landslide movement. The goal is to upgrade the road for use in the NTMP in a manner that, although it may be partially or wholly damaged by future slide movement, it will not increase the instability of the slide nor result in a significant increase in sediment to a watercourse. The proposed mitigation to take place in conjunction with harvesting of the North Fork Unit in 2008 is to restore the function of crossing R15, widen the road to the minimum width necessary for safe passage of equipment, inslope the road to allow proper drainage and minimize erosion, and equip the culverts with downspouts to reduce saturation of the outboard edge of the road.

#### Grading

Prior to operations the following shall be implemented:

1. Widen the road by cutting into the bank a maximum of 2 feet and endhaul spoils.
  - For minimal cuts that are less than 2 feet into the bank, the cut will not need to be laid back, thus maintaining the small established Douglas-fir trees at the top of the cut.
2. Spoils will be endhailed to a stable location on slopes less than 30%, as directed by the RPF, see specifications under Item 18 GENERAL RULES FOR SOIL STABILIZATION.
3. Backfill in the inboard ditch and inlet to the southern ditch relief culvert.

Prior to the winter period following operations the following shall be implemented:

1. Project Certified Engineering Geologist or designee shall inspect the cut.
2. Replace the toe of the slope with compacted earth if directed by the geologist or designee.
3. Regrade the road to have an inslope pitch.
4. Clean culvert inlets.

#### R15 Stream Crossing

Prior to the winter period following operations the following shall be implemented:

1. Replace the existing culvert at R15 with a new 30 inch diameter pipe.
  - Install the pipe at grade.
  - Install 30 foot long downspout and energy dissipater.
2. Remove redwood stump such that the crossing inlet basin can be restored.
3. Construct a 15 to 20 foot long catch basin at culvert inlet.
4. Line inlet basin and banks with rock rip rap.
  - Rock shall extend 5 feet up the channel bank in the area where the seep is located as directed.
  - Rock shall be inclined no steeper than 1.25:1 (H:V).
  - Use 12 to 18 inch diameter rock placed 1½ layers deep.
5. Conform to DFG 1600 agreement.

#### Road Drainage

1. Replace southern ditch relief culvert if necessary.
  - Add downspout and energy dissipater.

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APR 15 2008

COAST AREA OFFICE  
RESOURCE MANAGEMENT

2. Maintain inslope pitch to road.
3. Upgrade 200 feet of road drainage to the south by installing rolling dips at 75 foot spacings or ditch relief culverts at 100 foot spacings.

#### Other

1. Mulch exposed soils with straw or slash per Item 18.
2. Project geotechnical consultant or designee shall oversee the work and advise the contractor.

Optional treatments that could occur in conjunction with the above mitigations, depending on conditions:

#### Extra Road Width

1. Widen the road up to 5 feet by cutting to the bank on a full bench and endhaul material to a stable location.
2. Lay the slope back to 1.25:1 (80%).
3. For cuts greater than 20 feet tall, incorporate a 6-foot wide intermediate bench.

#### Drainage

1. Install a 3-4 foot deep curtain drain on the inside road edge.  
- See the typical design criteria at the end of Section II or in the Focused Engineering Geologic Report.

#### Cross-vane structures

1. Install cross-vane structures in the channel to help stabilize the channel banks and direct flow to the center of the channel.
2. Cross-vane structure designs shall be designed by Dr. Brian Dietterick, Professional hydrologist who will also oversee their installation.

#### WATERCOURSE AND LAKE PROTECTION ZONE (WLPZ) AND DOMESTIC WATER SUPPLY PROTECTION MEASURES:

26. a. ☒ Yes ☐ No Are there any watercourse or lakes which contain Class I through IV waters on or adjacent to the plan area? If yes, list the class, WLPZ or ELZ width, and protective measures determined from Table I and/or 14 CCR 916 (936, 956) .4 (c) of the WLPZ rules for each watercourse. Specify if Class III or IV watercourses have WLPZ, ELZ or both.
- b. ☒ Yes ☐ No Are there any watercourse crossings that require mapping per 14 CCR 1095.7 (x)?
- c. ☒ Yes ☐ No Will tractor road watercourse crossings involve the use of a culvert? If yes state minimum diameter and length for each culvert (may be shown on map).
- d. ☒ Yes ☐ No Is this NTMP Review Process to be used to meet Department of Fish and Game CEQA review requirements? If yes, attach the 1603 Addendum below or at the end of this Section II; provide the background information and analysis in Section III; list instructions for LTO below for the installation, protection measures and mitigation measures; see CDF Mass Mailing, 07/02/1999, "Fish and Game Code 1603 Agreements and THP Documentation".

Locations requiring Department of Fish and Game CEQA review under Fish and Game Code § 1600-1616 are Road Crossings R7, R15 and R17 and Skid Trail Crossings S1, S2, S3, and S4, all in the North Fork Unit. These road and skid trail crossings are expected to be operated on in the next five years and the 1603 Addendum: Notification of Lake or Streambed Alteration is included in the NTMP at the end of Section II. Subsequent Lake or Streambed Alteration Agreements for locations covered under this NTMP shall use the NTMP as the CEQA compliance document and shall be amended to the NTMP once developed.

#### PROTECTION OF QUALITY AND BENEFICIAL USES OF WATER IN THE LITTLE CREEK AND BIG CREEK PLANNING WATERSHEDS WITH THREATENED OR IMPAIRED VALUES

These Watersheds are treated as though they have Threatened or Impaired Values due to the presence of listed anadromous fish species in Little Creek, in Big Creek below the waterfall, and in Scotts Creek. In compliance with the "Incidental Take Permit Guidelines for Timber Operations, 2007" this plan incorporates mitigation measures for the protection of coho salmon according to 14 CCR § 916.9.1, which are equivalent to the 2007 Threatened or Impaired Watershed Rules.

#### WLPZ WIDTHS

The following WLPZ widths and protection measures shall be adhered to throughout operations.

##### CLASS I WATERCOURSES

<30%	30-50%	>50%
150 Feet	150 Feet	150 Feet

##### CLASS II WATERCOURSES AND WET AREAS

<30%	30-50%	>50%
50 Feet	75 Feet	100* Feet

\* Subtract 25 feet width for cable yarding

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**APR 15 2008**

COAST AREA OFFICE  
RESOURCE MANAGEMENT

### CLASS III WATERCOURSES

<30%	>30%
25 Foot ELZ	50 Foot ELZ

### GENERAL PROTECTION MEASURES

Per 14 CCR 916.9(d)(1), the mitigation measures below shall be implemented to offset potential significant adverse watershed effects from the proposed timber operations. The LTO shall be responsible for the implementation of each measure.

### CLASS I WATERCOURSES

#### Mainstem Little Creek

Little Creek is a major Class I watercourse running through the harvest area with 150-foot Watercourse and Lake Protection Zones on either side. The Little Creek and Big Creek watersheds are "Watershed with Threatened or Impaired Values" where populations of anadromous salmonids (coho salmon and steelhead) are present, at least in the lower reaches. The mainstem of Little Creek has a natural barrier to upstream migration of coho salmon several hundred feet from the confluence with Scotts Creek.

#### North Fork Little Creek

Electrofishing done by research scientist Sean Hayes of the National Oceanic and Atmospheric Administration (NOAA) was used to confirm fish presence on the mainstem and North Fork of Little Creek. The North Fork is designated a Class I watercourse to the property line.

#### South Fork Little Creek

A natural rock waterfall barrier to anadromy is located on the South Fork of Little Creek, approximately 400 feet above the confluence. A shelf of granitic rock extends from a pool at approximately 30°, for 4 feet, where it meets a ~90° rock wall that is 4-5 feet tall, with woody debris lodged at the top of the fall. Pool habitat in proximity to the natural barrier does not allow for fish passage. Flow and pool volume are limiting factors above this point, where no fish have been found. The South Fork is designated as a Class II watercourse above this point.

1. The WLPZ shall be clearly identified on the ground by the RPF, or supervised designee, with paint, flagging, or other suitable means, prior to the pre-harvest inspection or NTO submittal. Pre-harvest canopy cover has been determined on both sides of the North Fork of Little Creek by running transects with a vertical sighting tube within the inner and outer bands of the WLPZ. These measurements demonstrate whether the minimum canopy retention requirements are exceeded throughout the WLPZ. The results of the canopy study are included in Section III, under Item 26.
2. To ensure retention of shade canopy filter strip properties and the maintenance of wildlife values described in 14 CCR 916.4(b), trees within the WLPZ shall be marked by the RPF or supervised designee prior to the pre-harvest inspection, or NTO submittal. NTO submittal shall occur 30 days prior to the start of operations.
3. Within the Class I WLPZ at least 85% overstory canopy shall be retained within 75 feet of the watercourse or lake transition line, and at least 65% overstory canopy within the remaining 75 feet of WLPZ. The over story canopy must be composed of at least 25% of the existing conifer canopy post-harvest.
4. Recruitment of large woody debris for aquatic habitat in Class I anadromous fish-bearing or restorable waters shall be ensured by retaining the ten largest DBH conifers (live or dead) per 330 feet of the stream channel length that are the most conducive to recruitment to provide for the beneficial functions of riparian zones. The retained conifers shall be selected from within the plan area that lies within 50 feet of the watercourse transition line.
5. Within the Class I WLPZ at least 75% surface cover and undisturbed area shall be retained to act as a filter strip for raindrop energy dissipation, and for wildlife habitat.
6. No equipment will operate within the Class I WLPZ unless on an existing road or explained and justified in this NTMP.

### CLASS II WATERCOURSES

Class II watercourses flowing through the project area include tributaries to the North and South Forks of Little Creek as well as several tributaries to Scotts Creek, including stretches of Archibald Creek and Winter Creek. Three Class II ponds are located in and adjacent to the harvest area, one of which is an in-stream pond on Winter Creek. Wet areas including springs and seeps which exhibit Class II characteristics, such as flow throughout the year and the presence of facultative wet area plants, are also afforded Class II protections as described below. Conformance with protection standards shall be determined based on evaluation of the entire WLPZ, not just a selected 200-foot stretch.

The following protection measures shall apply to the Class II watercourses and wet areas on the property.

1. The WLPZ shall be clearly identified on the ground by the RPF, or supervised designee, with paint, flagging,

or other suitable means, prior to the PHI or NTO. Pre-harvest canopy cover has been determined on both sides of four Class II watercourses and two Class II wet areas in the North Fork Unit by running transects with a vertical sighting tube along the WLPZ. These measurements demonstrate whether the minimum canopy retention requirements are exceeded throughout the WLPZ. The results of the canopy study are included in Section III, under Item 26.

2. To ensure retention of shade canopy filter strip properties and the maintenance of wildlife values described in 14 CCR 916.4(b), trees within the WLPZ shall be marked by the RPF or supervised designee prior to the PHI or NTO. NTO submittal shall occur 30 days prior to the start of operations.
3. To protect water temperature, filter strip properties, upslope stability, and fish and wildlife values, at least 50% of the total canopy covering the ground shall be left in a well distributed, multi-storied stand composed of a diversity of species similar to that found prior to the start of operations. The residual overstory canopy shall be composed of at least 25% of the existing conifers.
4. Within the Class II WLPZ at least 75% surface cover and undisturbed area shall be retained.
5. No equipment will operate within the Class II WLPZ unless on an existing road or explained and justified in this NTMP.
6. Haul roads located in a Class II WLPZ shall be treated according to the specifications in Soil Stabilization, refer to Item 18.

### CLASS III WATERCOURSES

Class III watercourses are located throughout the property and shall be protected with the following measures:

1. Harvest trees within 25' of Class III watercourses shall be marked by the RPF or his supervised designee prior to commencement of operations in the harvest area in order to ensure retention of filter strip properties and maintain soil stability in the zone.
2. The center-line of all class III watercourses shall be flagged with blue flagging prior to operations.
3. At least 50% of the understory vegetation present before operations shall be left living and well distributed adjoining Class III watercourses to maintain soil stability.
4. An Equipment Limitation Zone (ELZ) shall be observed when operating near Class III watercourses. The width of the buffer will be dependent on the watercourse sideslopes. The width shall be at least 25 feet on slopes under 30% and at least 50 feet where slopes exceed 30%.
5. Equipment operations within these ELZs are allowed at designated crossings, and on flagged and mapped skid trails, truck roads, and landings. Any soil deposited in a Class III watercourse shall be removed and debris removed or stabilized before the conclusion of operations or prior to the winter period.
6. No trees shall be harvested within the Class III channel zone unless harvesting is pursuant to 916.9(e)(1)(c).
7. It is the LTO's responsibility to familiarize himself and his crew with the location of the Class IIIs within the NTMP area to assure compliance with the ELZ requirements.

Per 14 CCR 916(b)(1) & (2), the LTO shall not do either of the following during timber operations:

1. Place, discharge, 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 which may cause harm to fish, wildlife, beneficial functions of riparian zones, or the quality and beneficial uses of water.
2. Remove water, trees or large woody debris from a watercourse or lake, the adjacent riparian area, or the adjacent flood plain in quantities which may cause harm to fish, wildlife, beneficial functions of riparian zones, or the quality and beneficial uses of water.

### Haul Road Watercourse Crossings

All existing crossings in the NTMP area have been evaluated for their risk of failure during plan preparation. Only crossings with near term failure potential or desired realignment are proposed for replacement and this work shall be completed as part of the first entry under the NTMP in 2008. Future crossings replacements will be evaluated by Ranch staff during routine road maintenance and by the RPF prior to submitting future NTOs. If a culvert is identified for replacement, the culvert shall be sized for 100-year flood flows and design criteria will be amended to the NTMP. If a Lake or Streambed Alteration Agreement is necessary, that permit shall be coordinated with CDFG and also amended to the NTMP.

#### Crossings All Units

Unless otherwise specified, crossing treatments prior to the winter period following operations shall follow the guidelines in Soil Stabilization under Item 18. Please refer to the Operations Map at the end of Section II for the locations of all crossings.



Per CCR 923.4(n), permanent watercourse crossings and associated approaches shall be maintained to prevent diversion of stream overflow down the road should the drainage structure become plugged. Where appropriate, critical dips shall be installed near watercourse crossings as part of road close-out.

Crossing R1: This is an existing haul road crossing of a Class II watercourse with a 36" CMP culvert. A gabion rock lined critical dip is installed on the north side of the culvert. The crossing will be used as is. Following operations, the critical dip will be restored and the crossing approaches within the WLPZ will be rocked with drain rock to a 2" depth.

Crossing R2: This is an existing crossing of Class III Winters Creek, which goes subsurface and is dry at this point for much of the year. A 24" culvert crosses under the road accessing the watertank above the CDF fire station. A critical dip will be installed following use of the section of skid trail above this crossing.

Crossing R3: This is an existing haul road crossing of Class III Winter Creek with a 30" culvert. The crossing will be used as is. This crossing shows no evidence of failure and is in good condition.

Crossing R4: This location has an existing functional French drain installed concurrent with the 2004 harvest on the inside edge of the haul road below a seep. The drain consists of a 6" perforated pipe at 20" depth that is wrapped in filter fabric, surrounded by drain rock and capped with gabion rock. A solid 6" pipe is connected to the perforated pipe to drain across the road at the low spot. The drain shall be maintained and kept clear utilizing the cleanout riser.

Crossing R5: This location is an existing 12" culvert crossing under the haul road which drains a seep and inside ditch from above the road. Flow through the pipe dissipates approximately 20' below the crossing. The crossing will be used as is and following operations, a critical dip will be installed down slope of the culvert.

Crossing R6: This location is a failed bridge over the mainstem of Little Creek where a 54 foot railroad flatcar collapsed from the southern abutment into the watercourse during high water in 1998. Designs for a new bridge installation are approved in the Lower Little Creek THP #1-04-053 SCR which also includes an approved Lake and Streambed Alteration Agreement. The designs as part of the Engineering Geologic Report for the LLC THP are included in Section V of this NTMP. If the bridge cannot be replaced before the expiration of the LLC THP, due to obstacles to moving the new bridge in and financial constraints, it shall be amended out of the THP. This NTMP would then act as the vehicle for subsequent CEQA compliance to replace the bridge, according to the approximate design included in this plan revised as necessary, or an alternative design approved as part of a subsequent Streambed Alteration Agreement. Whether or not the new bridge installation will take place, the failed bridge shall be removed in conjunction with the 2008 harvest in the North Fork Unit and transported up Little Creek Road to crossing R7 for installation there.

Crossing R7: This is an 18 inch by 30 foot long plastic pipe located at a narrow and steep gradient Class II watercourse that is prone to debris flows. The NTMP proposes to reconstruct the crossing for the proposed harvest. At this location the road contours across 75+% sideslopes following an old railroad grade. The outer edge of the crossing has repeatedly failed causing sections of hand-stacked rock wall to fall away, and narrowing the road to about 10 feet. The 18 inch diameter culvert was installed in 1998, as an emergency repair following crossing failure associated with a 1998 El Nino event. This pipe is undersized and was installed with the outlet misaligned to the native channel and shot gunned out the side of the crossing fill. The misalignment was done to avoid having to disturb and reconstruct the stacked rock wall, which supports the outer edge where the road is narrowest. Because the road is too narrow for logging operations and because the culvert is undersized and misaligned, the crossing will need to be reconstructed. The best alternative to widen the road is to cut into the bank slightly on a full bench. The best alternative to reconstruct the crossing is to remove the culvert and install a relatively short bridge. Additional description of these alternatives is provided in the Addendum to the Focused Engineering Geologic Report, which is located in Section V. The CEG recommendations are listed below and the CEG diagrams can be found at the end of Section II. Additional explanation and diagrams for installation of cross vane structures are also included at the end of Section II. Prior to operations the following mitigations shall be implemented:

1. Widen the road into the bank about 4 to 6 feet on a full bench. Soils may be endhailed or feathered out along the inboard edge. Following this treatment, the crossing shall be used as is for log hauling.

Prior to the winter period following operations:

1. Remove crossing and associated fill. The excavated crossing shall have a minimum 6 foot wide channel bottom with uniform channel grade. Banks shall be laid back to 1.5:1 (65%) slope or gentler, unless otherwise directed onsite by the project engineering geologist or designee. Steeper channel banks up to a 1:1 slope may occur if competent native earth materials are encountered.
  - a. Depending on conditions encountered, approximately 100 to 150 cy of material will need to be excavated and endhailed to a stable location on slopes less than 30%.
  - b. If the CEG determines that banks may be steeper than 1.5:1, a letter with observations to support that the steeper slope is reasonable shall be provided to DFG and CDF.

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APR 15 2008 PART OF PLAN

2. Install cross-vane structures in the channel to help stabilize the channel banks and direct flow to the center of the channel, as warranted by channel bottom conditions
  - a. Cross-vane structures have been designed by Dr. Brian Dietterick, Professional hydrologist who will also oversee their installation
3. Install a bridge that is long enough to span between its abutments.
4. Bridge shall utilize suitable footings.
5. For this crossing, a long-lasting footing such as reinforced concrete blocks or piers is preferred. Footings shall be offset a minimum of 5 feet from the edge of the channel bottom. Final location and depth of footings to be determined in the field by the project geotechnical consultant at the time of operations.
6. Conform to the DFG 1600 agreement.
7. Mulch exposed soils per Section II, Item 18 of the NTMP.
8. The project Certified Engineering Geologist or designee shall supervise work.

Crossing R8: This location has two existing Class II watercourse crossings, each with a 24" CMP culvert positioned out of alignment with the natural channel, as was common practice for basins prone to debris flows. The crossings are just above a road intersection and the outlet for the upper culvert drains into a wooden box between the two roads before entering the lower culvert. This crossing was overtopped in a debris flow during a 1998 storm; however a majority of the debris was caught by the upper road and no sustained damage resulted. Critical dips were installed in conjunction with the 2004 LLC THP and the roads were rocked. Prior to log hauling on this road section, the critical dip on the upper road shall be removed and the headwall above the upper culvert shall be built up approximately 1 foot.

Prior to the winter period following operations:

1. Critical dips shall installed and armored to mitigate diversion potential.

Multiple options for culvert replacement have been explored by the RPF, landowner, CEG, and review team agencies at this location. The current crossing condition does not necessitate immediate replacement and more analysis of the various options is desired prior to crossing replacement. This crossing may be upgraded in the future under the NTMP and prior to upgrade, the review team agencies shall be consulted and a Lake or Streambed Alteration Agreement shall be obtained.

Crossing R9: The section of road was constructed in 1989 across a steep (75% to 80%) swale at a 17 to 20 foot width supported by a 5 to 6 foot high, 45 foot long, log crib wall. The wall consisted of two 24± inch diameter stacked redwoods logs retained on either end behind two small groups of redwoods. The site is located within an area that has perennially high groundwater and the sound of subsurface water can be heard year round flowing within the swale axis at shallow depth below the ground. A 2 to 3 foot deep inside ditch draining to a 12 inch culvert is installed along the back edge of the road to intercept shallow groundwater. The bulk of flow is below the depth of the inside ditch, which primarily captures cutbank seeps. Runoff from the inside ditch is conveyed to a ditch relief culvert and discharged to the south of the swale. A spring servicing a domestic water intake is located approximately 100 feet below the road within the swale. The road grade is between 12% and 17% with a strong outslope pitch past the swale. Over the past 18 years the two logs have slowly decayed contributing to the failure of the upper portion of the log crib wall during the 2007-08 winter. Less than 5 cy of material failed with debris retained a short distance downslope. Presently the outside edge of the road is potentially unstable and the road is too narrow for long term use. Following the PHI, a detailed engineering geologic review of the site was conducted. Several alternatives were considered to upgrade the road at this site for both short and long term use. The alternative to maintain the existing narrow roadway for short term use provides the most economical short term solution for road access, while minimizing offsite impacts. Over time, however, a more lasting solution may need to be employed. For longer term stability, installing a bridge across the failure is a viable options for replacement of the log crib wall. Building the road out on a rock buttress is also feasible but uncertainties in subsurface soil strength and groundwater conditions may complicate construction and result in possible impacts to the downstream water intake. The following mitigations under Alternative 1, to maintain the narrow road, outline the minimum work needed to upgrade the road. Additional work may be required over time, in which case either the option to bridge the site or reconstruct the road on a rock buttress will be implemented. The alternatives are discussed in more in the Addendum to the Focused Engineering Geologic Report, included in Section V. The specific CEG recommendations for the short term and long term alternatives are listed below and the CEG diagrams can be found at the end of Section II.

#### Short Term

##### Alternative 1: Maintain narrow road

1. Remove crib log and pull back residual fill material to a 1:1 slope
2. Temporarily backfill the inside ditch with drain rock
3. Level out the strongly outslowed road on temporary fill
4. About 50 feet north of the swale the road can be widened a maximum of 3 feet into the comparatively stable bank if extra road width is required for trucks to make the turn through the swale.
5. Maintain existing rolling dip located about 75 feet to the north

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APR 15 2008

**Optional:**

1. Install a 2+ foot deep subdrain (French drain) below the inboard ditch
  - a. See R2 for typical drain specifications
  - b. Drain shall be sloped to discharge in a reasonable and controlled manner to an area within the swale and above the water intake, unless otherwise specified by the project CEG or designee at the time of construction. If discharged upslope of the water intake, materials used in drain construction shall conform to drinking water standards.
  - c. To allow for periodic cleaning, a cleanout shall be installed at the head of the subdrain.
  - d. Drain installation to be supervised by geotechnical consultant or designee

**Long Term**

**Alternative 2: Bridge the site**

1. Remove crib log and pull back residual fill material to a 1.5:1 slope
2. Install permanent 62 foot long railcar bridge
  - a. Bridge abutments to be keyed into firm native soils behind the two redwood clumps located at either side of the swale
  - b. Bridge abutments may consist of reinforced concrete blocks or piers. The RPF and/or landowner shall provide final bridge footing design criteria to the project geotechnical consultant prior to bridge installation.
  - c. The existing 12" diameter ditch relief culvert may need to be relocated to accommodate the bridge footing. Culvert shall discharge outside of the swale leading to the domestic water intake.
  - d. Inside edge of the bridge to be founded on native earth or on a gravel mat
3. Temporarily backfill the inside ditch with drain rock as judged necessary. Reestablish ditch at the conclusion of operations and prior to the winter season.
4. About 50 feet north of the swale the road can be widened a maximum of 3 feet into the comparatively stable bank if extra road width is required for trucks to make the turn through the swale.
5. Maintain existing rolling dip located about 75 feet to the north
6. Geotechnical consultant or designee to supervise excavation of bridge abutments

**Optional:**

1. Install a 2+ foot deep subdrain (French drain) below the inboard ditch as described in Alternative 1

**Alternative 3: Reconstruct road on rock buttress**

The following are conceptual recommendations:

1. Rock buttress to be keyed a minimum of 3 feet into firm native soils
  - a. The keyway shall be a minimum of 8 feet wide and inclined into the hillside 5%
  - b. The back cut shall be inclined no steeper than a 0.75:1 slope. The final inclination of the temporary cut is the responsibility of the contractor based on safety considerations.
  - c. About 120± cy of material will need to be excavated. Some of this material may be incorporated into the inside edge of the road above and below the site, the remainder will need to be endhauled to a stable location on slopes less than 30%
  - d. Note: Excavation of the keyway may encounter the zone of high groundwater flow complicating excavation and buttress construction.
2. A backdrain shall be installed at the back and base of the keyway
  - a. The backdrain shall consist of a 4-inch diameter, perforated SDR35 pipe (or equivalent) surrounded on all sides by at least 4-inches of ½ to ¾ inch drain rock wrapped in filter fabric (Mirafi 180NC or equivalent).
  - b. Approved Class 2 permeable material may be used in lieu of drain rock wrapped in fabric
  - c. The backdrain shall be sloped to drain to a controlled discharge point a minimum of 30 feet downslope. Water shall be discharged in a manner so as to minimize the impact to the water intake.
  - d. To allow for periodic cleaning, a cleanout shall be installed at the head of the backdrain, at every bend greater than 45 degrees, and at 150 foot intervals
  - e. Materials used in the drain shall be compatible with drinking water standards.
  - f. Note: Discharging groundwater flow outside of the swale or downslope the water intake could impact the quantity of water available at the intake.
3. The rock buttress shall consist of 24 inch to 36 inch diameter sound angular rock and brought up to grade at a 1:1 slope and capped with a minimum of 18" of compacted soil. Separate soil from rock with woven geotextile fabric (Mirafi 500X or equivalent).
4. Temporarily backfill the inside ditch with drain rock as judged necessary. Reestablish ditch at the conclusion of operations and prior to the winter season.
5. About 50 feet north of the swale the road can be widened a maximum of 3 feet into the comparatively stable bank if extra road width is required for trucks to make the turn through the swale.
6. Maintain existing rolling dip located about 75 feet to the north
7. Geotechnical consultant or designee to supervise excavation of the rock buttress

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Crossing R10: This location is a Class III watercourse crossing utilizing a 12" culvert. The flow often goes subsurface upstream of the culvert inlet and resurfaces downstream below the outlet. The crossing is functioning and shall be used as is. Following operations, a critical dip shall be installed.

Crossing R11: This location is a Class III watercourse crossing utilizing an 18" culvert. This crossing does not appear to flow much water as soil is building up in the culvert inlet, yet it remains clear. The crossing will be used as is. Following operations, a critical dip shall be installed.

Crossing R12: This location is a rail car bridge over a Class II watercourse. The bridge was put in place in 1989 and rests on redwood cant abutments. The integrity of the cants shall be evaluated prior to operations on this road section and if necessary replacement options shall be established at that time. Prior to the winter period or following operations the following mitigations shall be implemented:

1. The sediment catchment basins on either side of the bridge shall be dug out.
2. The approaches to the bridge for 50 feet on either side of R12 and the span between R12 and R14 shall be rocked with drain rock to approximately 2 inch depth.

Mitigation Point MP1: Approximately 40' upstream of the bridge at R12, a trail crosses the Class II watercourse utilizing a 24" culvert. The culvert outlet is shotgunned, yet there is a bedrock basin at the outfall, limiting scour potential. No treatment is proposed at this location at this time; however, when the culvert deteriorates or otherwise needs to be replaced, the NTMP shall be amended to identify that the culvert will be removed, the Class II watercourse channel restored, and a recreational bridge installed.

Crossing R13: This location is a 14" culvert that captures drainage from landing L20 above. The culvert is clear and functioning with a downspout below the road. Following operations or prior to the winter period, the road shall be outsloped to the extent feasible and waterbars or rolling dips shall be placed on this road section to minimize flow toward the cross-drain culvert.

Crossing R14: This location is a rail car bridge over the North Fork of Little Creek. The bridge was put in place in 1989 and rests on redwood cant abutments. The integrity of the cants shall be evaluated prior to operations on this road section and if necessary replacement options shall be established at that time. Prior to the winter period or following operations the following mitigations shall be implemented:

1. The sediment catchment basins on either side of the bridge shall be dug out.
2. The approaches to the bridge for 50 feet on either side of R14 and the span between R12 and R14 shall be rocked with drain rock to approximately 2 inch depth.

Crossing R15: This is an existing crossing of a Class II seep-fed watercourse. A 14" metal culvert was installed when the road was constructed in 1989. Subsequently, when the culvert inlet plugged, a snorkel drain and an additional 12" plastic culvert were installed above the original culvert. Both culverts extend past the downslope road edge several feet and their outflow has likely contributed to instability of the road fill. This location is discussed in detail under Item 24 Mitigation Point MP29 and in the Focused Engineering Geologic Report in Section V. The following recommendations are from the CEG report. Also refer to the diagram of MP29 at the end of Section II.

Prior to operations the following shall be implemented:

1. Remove the redwood stump such that the crossing inlet basin can be restored.
2. Remove both culverts at R15.
3. Reconstruct approximately 15-20 feet of channel to create an inlet basin.
4. Line inlet basin with 12-18" rock.
5. Install a 30" diameter, 20' long culvert.

Following operations prior to the winter period the following shall be implemented:

1. Install a 30+ foot downspout.
2. Place energy dissipaters at the culvert downspout outlet to minimize erosion.
3. Inslope road.
4. Install a critical dip below the crossing.
5. Install waterbreaks at regular intervals.

Crossing R16: This location is an existing 14" metal culvert on a Class III watercourse. The watercourse is fed by several springs and seeps upslope. The crossing is functional and shall be used as is. Following operations, a critical dip shall be installed.

Crossing R17 and R18: This location is an existing 8" metal culvert conveying water under the haul road from a 70' long inside ditch. The ditch collects water, which seeps from the cutbank along its length and trickles over the cutbank in multiple locations, originating from a spring, upslope.

Following operations prior to the winter period the following shall be implemented:

1. A new 18" culvert shall be installed that is aligned with the approximate watercourse centerline.

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APR 15 2008

COAST AREA OFFICE  
RESOURCE MANAGEMENT

PART OF PLAN

2. The inside ditch to R17 shall be maintained so that it may continue to handle any bank seep.
3. If any water exists within the proposed work site area at the time of crossing implementation, water shall be channeled around the work area by confining the flow with sand bags and placing 4" to 6" flexible ADS pipe to move water around the project area until work is completed.

### Skid Trail Watercourse Crossings

#### North Fork Unit

\* For crossings S1-S4, if any water exists within the proposed work site area at the time of crossing implementation, water shall be channeled around the work area by confining the flow with sand bags and placing 4" to 6" flexible ADS pipe to move water around the project area until work is completed.

Crossing S1: This location is an existing skid trail crossing on a Class II watercourse that remains wet throughout the year. A temporary Spittler Modified Humboldt crossing shall be installed prior to use\*. See the sketch and specifications describing temporary skid trail crossing construction at the end of Section II. Following use or prior to the winter period, the Spittler Modified Humboldt shall be removed and the crossing be dipped out with the approaches slash packed. Post-operations the trail shall be re-contoured such that it gently slopes away on either approach. This location shall be monitored per the botanist's recommendation to track the species composition and percent cover over time, see mitigation point MP31 under Item 32.

Crossing S2: This location is an existing skid trail crossing on a Class II watercourse. A temporary Spittler Modified Humboldt crossing shall be installed prior to use\*. See the sketch and specifications describing temporary skid trail crossing construction at the end of Section II. Following use or prior to the winter period, the Spittler Modified Humboldt shall be removed and the crossing be dipped out with the approaches slash packed.

Crossing S3: This location is an existing skid trail crossing on a Class II watercourse. A temporary Spittler Modified Humboldt crossing shall be installed prior to use\*. See the sketch and specifications describing temporary skid trail crossing construction at the end of Section II. Following use or prior to the winter period, the Spittler Modified Humboldt shall be removed and the crossing be dipped out with the approaches slash packed. The crossing approach from the west side of this crossing shall be slash packed such that slash has full ground contact. To accomplish the desired ground contact, the LTO shall place 6-8" of slash on the trail surface, pack it in with the tractor, then place at least 6" more slash on top and re-pack.

Crossing S4: This location is a proposed skid trail crossing on a Class II watercourse, close to the spring origin. A temporary Spittler Modified Humboldt crossing shall be installed prior to use\*. See the sketch and specifications describing temporary skid trail crossing construction at the end of Section II. Following use or prior to the winter period, the Spittler Modified Humboldt shall be removed and the crossing be dipped out with the approaches slash packed. Previous harvest entries crossed this watercourse on a different alignment downstream, where the trail was not quite perpendicular to the watercourse at the crossing point. The proposed crossing has a perpendicular approach to the watercourse, yet requires minor trail construction on the edge of the WLPZ. East of the crossing, the proposed trail traverses side-hill across a small ridge nose. Minor bench

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APR 15 2008

COAST AREA OFFICE  
RESOURCE MANAGEMENT

construction will be necessary to open this trail and removed material will be pulled back from the slope and not sidcast in the process. At the time of trail close-out, the ridge nose will be recontoured, leaving no perched fill and will be treated with packed slash.

**Crossing S5:** This location is an existing skid trail crossing on a minor Class III watercourse. The crossing shall be dry at the time of operations and shall be used as is. Following operations or prior to the winter period the crossing shall be restored to a dipped out condition. The local parent material has a high proportion of Santa Cruz mudstone and requires no further surfacing. Chunks of wood or rock may be placed in the crossing outlet to prevent headcutting into the trail.

27. Are site specific practices proposed in-lieu of the following standard WLPZ practices?
- a. ☒ Yes ☐ No Prohibition of the construction or reconstruction of roads, construction or use of tractor roads or landings in Class I, II, III, or IV watercourses, WLPZs, marshes, wet meadows, and other wet areas except as follows:
    - (1) At prepared tractor road crossings.
    - (2) Crossings of Class III watercourses which are dry at time of timber operations.
    - (3) At existing road crossings.
    - (4) At new tractor and road crossings approved by Department of Fish and Game.**(See below and Plan Addendum, Section III)**
  - b. ☐ Yes ☒ No Retention of non-commercial vegetation bordering and covering meadows and wet areas?
  - c. ☒ Yes ☐ No Directional felling of trees within the WLPZ away from the watercourse or lake?  
**(See below and Plan Addendum, Section III)**
  - d. ☐ Yes ☒ No Decrease of width(s) of the WLPZ(s)?
  - e. ☐ Yes ☒ No Protection of watercourses which conduct class IV waters?
  - f. ☒ Yes ☐ No Exclusion of heavy equipment from the WLPZ except as follows:
    - (1) At prepared tractor road crossings.
    - (2) Crossings of Class III watercourses which are dry at time of timber operations.
    - (3) At existing road crossings.
    - (4) At new tractor and road crossings approved by Department of Fish and Game.**(See below and Plan Addendum, Section III)**
  - g. ☐ Yes ☒ No Establishment of ELZ for Class III watercourses unless sideslopes are <30% and EHR is low?
  - h. ☐ Yes ☒ No Retention of at least 50% of the overstory canopy in the WLPZ?
  - i. ☐ Yes ☒ No Retention of at least 50% of the understory in the WLPZ?
  - j. ☐ Yes ☒ No Are any additional in-lieu or any alternative practices proposed for watercourse or lake protection?

**NOTE:** A yes answer to any of items a. through j. constitutes an in-lieu practice. If any item is answered yes, refer to 14 CCR 916.1 (936.1, 956.1) and 1090.5 (dd), and address the following for each item checked yes:

1. The RPF shall state the standard rule,
2. Explain and describe each proposed practice;
3. Explain how the proposed practice differs from the standard practice;
4. The specific location where it shall be applied, see map requirements of 14 CCR 1034 (x) (15) and (16);
5. Provide in NTMP Section III an explanation and justification as to how the protection provided is equal to the standard rule and provides for the protection of the beneficial uses of water per 14 CCR 916 (936, 956) .1 (a). Reference the in-lieu and location to the specific watercourse to which it will be applied.

The following in-lieu practices, as identified, described, and mitigated below comply, by the intent of the RPF, with the goals of 14 CCR 916.9(a). These practices have been planned and shall be conducted to prevent deleterious interference with the watershed conditions that primarily limit the values set forth in 14 CCR 916.2(a).

#### Items 27 (a),(f): In-Lieu Use of Roads, Landings, and Skid Trails in the WLPZ

14 CCR 916.3(c) states "The timber operator shall not construct or reconstruct roads, construct or use tractor roads or landings in Class I, II, III, or IV watercourses, in the WLPZ, marshes, wet meadows, and other wet areas unless when explained and justified in the THP by the RPF, and approved by the Director, except as follows:

1. At prepared tractor road crossings as described in 914.8(b).
2. Crossings of Class III watercourses which are dry at the time of timber operations.
3. At existing road crossings.
4. At new tractor and road crossings approved as part of the Fish and Game Code process."

14 CCR 916.4(d) states "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."

In-lieu practices for the NTMP consist of using three existing skid trail segments in the WLPZ, and using two existing landings at least partially in the WLPZ. In addition, the NTMP proposes using the main haul road along

Little Creek for log skidding in select segments and log hauling. For the locations of each mitigation point, refer to the Operations Map at the end of Section II. See Section III of the NTMP for explanation and justification of each in-lieu practice. Unless otherwise stated below, refer to Item 18 for Soil Stabilization measures.

#### Use of Existing Road in the WLPZ for Skidding

##### North Fork Unit & Satellite Stands Unit

Currently, the primary haul road that travels parallel to the mainstem and North Fork of Little Creek possesses a solid base composed of well-compacted Santa Cruz mudstone. Portions of this road are in the Class I WLPZ and may be used for skidding in select segments. Following operations, including specifications set forth in Soil Stabilization under Item 18, sections of this road shall be rocked to an approximate 2 inch depth to facilitate wintertime travel for management and access.

#### Use of Existing Landing in the WLPZ

##### Satellite Stands Unit

Landing L18: Landing L18 is an existing landing within the Class I WLPZ of Little Creek as well as the Class II WLPZ for the watercourse crossed by R8. This landing is found on an existing flat, wide, cleared area at a fork in the road and was rocked following the previous harvest. Prior to landing use, the surface drain rock shall be scraped aside. Prior to the winter period following operations:

1. The landing shall be positively drained.
2. Rock initially removed from the surface shall be re-spread.
3. An additional layer of drain rock shall be placed as necessary to achieve an approximate depth of 2 inches.

##### North Fork Unit

Landing L21/Mitigation Point MP16: Landing L21 is an existing landing partially in the WLPZ of a Class II watercourse. The landing is approximately 20' from the Class II watercourse, below crossing R16, with several redwoods and a vegetated filter strip in between. The south side of the landing has settled approximately 2 feet due to large-scale geologic movement in the area. This location has been reviewed by the project CEG and is discussed in the Focused Engineering Geologic Report which is located in Section V. A sketch of this location can be found at the end of Section II. The following mitigations shall be implemented while opening the landing, during, and following use:

1. The LTO shall grade over the scarps.
2. No soil or debris shall be pushed past the landing edge.
3. If necessary, to prevent material from nearing the watercourse, a barricade or silt fence shall be constructed on the landing edge closest to the watercourse.
4. Refueling may occur at this landing, at least 60 feet from the watercourse transition line.
5. The landing will be shaped to drain by outslipping.
6. Prior to the winter period following operations soil stabilization shall be implemented as described under Item 18.

#### Use of Existing Skid Trail in the WLPZ

##### Satellite Stands Unit

Mitigation Point MP5: At this location a seasonal road that was used as a skid trail in 2004 is proposed for use as a skid trail again. The existing road/skid trail enters a Class II WLPZ for approximately 160' and also touches the Class I WLPZ of Little Creek. The section in the WLPZ is on a switchback in the road and will be drained to a stable surface above and below the bend. A spring in the WLPZ comes within 25' of the road edge and shall be protected. Following operations the trail surface shall be seeded and/or straw mulched for soil stabilization.

##### North Fork Unit

Mitigation Point MP17: At this location a wet area above and east of the skid trail seeps onto the inside edge of the skid trail where Carex and Woodwardia (wet area species) are growing. This trail is an access route to the General Smith tree that is too steep with tight switchbacks for truck traffic. The flagged skid trail bypasses the tightest switchbacks by going straight upslope. At MP17, the trail stays away from the wet area, by avoiding the switchback closest to the seep. The trail is currently drained with a functioning rolling dip and is in good condition. The flagged trail shall be used as is and prior to the winter period following operations the following mitigations shall be implemented:

1. The main trail shall be dipped out to drain away from the switchback following use.
2. The main trails shall be seeded and/or straw mulched as necessary to mitigate erosion.
3. The switchback by-pass shall be covered with tractor crushed or hand placed slash to discourage use.

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APR 15 2008

**Mitigation Point MP19:** At this location an existing skid trail is located within 10 feet of a seep that forms a Class III watercourse below. Above the seep there is approximately 30 feet of channel that does not show signs of recent sediment movement. The following mitigations shall be implemented for operations:

1. Brow logs shall be placed on the skid trail edge if necessary to prevent sediment movement into the channel.
2. Prior to the winter period following operations the skid trail shall be treated as specified in Soil Stabilization under Item 18.

#### ALL Units

**Items 27 (c): Directional felling of trees within the WLPZ parallel to or toward the watercourse or lake where added protection is afforded by the alternative practice**

Trees may be felled in any direction within a Class II WLPZ or Class III ELZ, including parallel to or toward a watercourse, when doing so will improve the safety of operations or better protect residual vegetation and the beneficial uses of water within the watercourse, as compared to the standard rule. Timber fallers shall minimize canopy reduction in the WLPZ by preserving hardwoods whenever possible. Falling of trees across a Class II watercourse will be allowed only in the general logging season in order to minimize reduction in canopy or for concerns of safety. Falling of trees across a Class III watercourse will be allowed in the winter period in order to minimize reduction in canopy or for concerns of safety. If a cross felled tree inadvertently lands in the watercourse it shall be brought to the attention of the RPF and based on a determination of whether the watercourse is lacking in large woody debris (LWD), the tree may be left. If the watercourse is not lacking in LWD, the tree shall be yarded appropriately. If the presence of the wood has the potential to negatively impede the flow of water that section of wood shall be bucked out immediately by hand. Trees shall not be felled into, or across a watercourse where negative impacts to the beneficial uses of water are anticipated. No sediment shall be discharged as a result of cross-felling. Further explanation and justification is included in Section III.

28. a. ☒ Yes ☐ No Are there any landowners within 1000 feet downstream of the NTMP boundary whose ownership adjoins or includes a class I, II, or IV watercourse(s) which receives surface drainage from the proposed timber operations? If yes, the requirements of 14 CCR 1032.10 apply. Proof of notice by letter and newspaper must be enclosed in NTMP Section V. If No, Item 28 b. need not be answered.
- b. ☐ Yes ☒ No Is an exemption requested of the notification requirements of 14 CCR 1032.10? If yes, explanation and justification for the exemption must be included. Specify if requesting an exemption from the letter, the newspaper notice, or both.
- c. ☐ Yes ☒ No Was any information received on domestic water supplies that required additional mitigation beyond that required by standard Watercourse and Lake Protection rules? If Yes, list site specific measures to be implemented by the LTO.

Two in-stream domestic water uptakes and one spring uptake are located in Little Creek. One of the uptakes supplies a portion of the Ranch from the South Fork of Little Creek, another spring-fed uptake is located in the swale below R9 that supplies water to the cabins, and the other uptake is a personal water supply in lower Little Creek for neighbors of the property. A water supply of non-potable water is conveyed to the Staub house and Al's House from an uptake in the upper reaches of the South Fork of Little Creek. Refer to the Water Resources map at the end of Section II for the locations of these uptakes. For work in the vicinity of the uptakes, the RPF shall identify the locations of nearby water systems to the LTO during the pre-operations meeting. The LTO will assume responsibility for protection of water intakes and tanks and will repair any damaged or broken waterlines resulting from harvest operations in a timely manner.

A spring-fed water tank can be found on a ridgeline between Winter Creek and Archibald Creek (refer to Operations Map at the end of Section II). This tank is not a domestic water supply, but serves as water storage for the Big Creek CDF Fire Station. Several broken or damaged pipes, believed to be abandoned, can currently be found in the vicinity of the tank.

During the noticing process, no contacts were made with the RPF concerning additional domestic water uptakes.

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PART OF PLAN

APR 15 2008

COAST AREA OFFICE  
RESOURCE MANAGEMENT



29. ☐ Yes ☒ No Is any part of the NTMP area within a Sensitive Watershed as designated by the Board of Forestry and Fire Protection? If yes, identify the watershed and list any special rules, operating procedures or mitigation that will be used to protect the resources identified at risk?

HAZARD REDUCTION:

30. ☒ Yes ☐ No Are there roads or improvements which require slash treatment adjacent to them? If yes, specify the type of improvement, treatment distance, and treatment method.

Multiple structures maintained for human habitation are located on the property proposed for harvest and the areas adjacent to them shall be treated for hazard reduction as described below. Swanton Road is a public road that travels adjacent to the NTMP area and a Special Management Area (SMA) is designated within 100 feet of the road. The locations of structures and the SMA are shown on the Operations Map at the end of Section II. Per 14 CCR 917.2 and 917.4, to reduce fire hazards, treatment of slash created by timber operations shall be done in accordance with the following:

1. Areas within 50 feet of the edge of Swanton Road shall be kept free of slash greater than 1 inch in diameter and less than 8 inches. Slash between 50 feet and 100 feet of the edge of said roads and slash within 200 feet of all permanently located structures currently maintained for human habitation shall be treated by piling and burning, chipping, burying, removal, or lopping to within 12 inches above the ground not later than April 1 of the year following its creation. Distances shall be measured along the surface of the ground. Timber operations shall not cause a violation of PRC 4291, which generally requires defensible space within 100 feet of structures.
2. Concentrations of slash created by the current operation around landings or located within the logging area, excluding those areas substantially covered with logs on the ground, shall be lopped, crushed, chipped, spread, piled and burned, or otherwise treated no later than April 1<sup>st</sup> of the year following creation.
3. Slash created by operations along roads not in the harvest area shall be lopped concurrent with its creation.
4. Per 14 CCR 895.1, slash created by timber operations shall be severed and/or spread so that no portion of it remains more than 30 inches above the ground. For special slash requirements pertaining to Monterey pine, see Item 32.

- b. ☐ Yes ☒ No Are any alternatives to the rules for slash treatment along roads and within 200 feet of structures requested? If yes, RPF must explain and justify how alternative provides equal fire protection. Include a description of the alternative and where it will be utilized below.

31. ☐ Yes ☒ No Will piling and burning be used for hazard reduction? See 14 CCR 917.1-.11, 937.1-.10, or 957.1-.10, for specific requirements. Note: LTO is responsible for slash disposal. This responsibility cannot be transferred.

BIOLOGICAL AND CULTURAL RESOURCES

32. a. ☒ Yes ☐ No Are any plant or animal species, including their habitat, which are listed as rare, threatened or endangered under federal or state law, or a sensitive species by the Board, associated with the NTMP area? If yes, identify the species and the provisions to be taken for the protection of the species.
- b. ☐ Yes ☒ 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.

**NOTE:** See instructions or the CDF Mass Mailing, 07/02/1999, section on "CDF Guidelines for Species Surveys and Mitigations" to complete these questions.

The following measures shall be carried out to avoid negative impacts to rare, threatened, endangered, and/or sensitive species. A CNDDDB query was conducted utilizing species information from the current CDF&G RareFind 3 GIS database, issued July, 2007. A map and species list from this query is included in Section V. The scoping process to determine the presence of species or habitats that could be affected by this project was

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PART OF PLAN

APR 15 2008

COAST AREA OFFICE  
RESOURCE MANAGEMENT

done by consulting a variety of resources and experts, including professional wildlife biologist Dr. John Bulger, professional botanist Dr. Grey Hayes, local botanical expert Jim West, NOAA researcher Dr. Sean Hayes, USFWS biologist Bill McIver, and CDFG environmental scientists Stacey Martinelli and Suzanne Deleon, among others. A full discussion is included in Sections III and IV of the NTMP. Mitigations for specific species and general protection measures are described below. Discussion of species that do not have the potential to be impacted by the project is included in Section III. Additional information regarding the biological resources present on this property can be found in Sections III and IV of the NTMP.

## FISH

### Coho Salmon (*Oncorhynchus kisutch*)

Central California Coast ESU coho salmon are listed as threatened under the federal ESA and endangered under the California ESA. In the greater Scotts Creek watershed, approximately 14.1 miles of stream are accessible to salmonids, see Map 1. The size of the coho spawning run in the Scotts Creek system varies from year to year, but is never more than a few hundred fish. Statistically reliable population estimates are not available for this population ([www.scottscreekwatershed.org](http://www.scottscreekwatershed.org)). Coho salmon numbers in the Scotts Creek system are routinely augmented by routine releases from the Kingfisher Flat hatching and rearing facility located on Big Creek. This facility is operated by the Monterey Bay Salmon and Trout Project ([www.mbstp.org](http://www.mbstp.org)). Due to the rigid 3-year lifecycle that coho exhibits, years of hardship (such as drought or flood years) have potential to eliminate an entire age class of fish.

Within the vicinity of the NTMP, coho salmon occupy the Scotts Creek mainstem, and the lower reaches of Mill Creek, Big Creek, Little Creek, and Queseria Creek, which are tributary to Scotts Creek. Coho salmon use the Scotts Creek tributaries up to natural migration barriers, shown on the map in Section V. They are particularly likely to use the tributaries as refugia during winter storm events. The NTMP area contains both designated (64 FR 24049) and proposed (69 FR 71880) critical habitat for Central California Coast ESU coho salmon. Critical habitat includes all naturally accessible stream channels to the ordinary high water mark.

Streams must have cool water with sufficient dissolved oxygen as well as some level of riparian canopy cover to support coho salmon. Spawning habitat must also include pools and beds of loose, silt-free, coarse gravel. Coho spawning usually occurs during December and January in the Scotts Creek watershed, and the embryos hatch after 2-3 months of incubation in the stream gravels. Hatchlings remain in the gravel until their yolk sacs have absorbed, typically within 10 weeks of hatching. The emerging fry form schools and inhabit shallow water at the stream margins or elsewhere. As they mature, the parr establish territories in pools, requiring deeper water in low gradient stream sections (<3%) as they grow larger. Optimal rearing habitat is considered to consist of heavily shaded, deep (>1 m) pools with some overhead cover. At between 14-18 months of age, the parr undergo smoltification in preparation for outmigration and life at sea. Outmigration occurs during late spring and early summer. Mitigations for coho salmon and steelhead are outlined jointly below.

### Steelhead (*Oncorhynchus mykiss*)

Central California Coast ESU steelhead are listed as federally threatened and are a State Species of Special Concern. Steelhead spawning runs comprise a few hundred adult fish annually in Scotts Creek, and the population appears to be comparatively stable and at or near carrying capacity for this system ([www.scottscreekwatershed.org](http://www.scottscreekwatershed.org)).

Within the NTMP area steelhead occupy the mainstem of Little Creek to a natural rock fall that is considered a likely barrier to migration, located approximately 500 feet upstream of crossing R6. Refer to the Natural Barriers to Anadromous Fish Map in Section V. Upstream of this fish barrier, a resident population of rainbow trout can be found. The furthest upstream extent of rainbow trout found during electrofishing in 2006 is also shown on the map indicated above. The NTMP area contains both designated (65 FR 7764) and proposed (70 FR 52488) critical habitat for the Central California Coast steelhead ESU. Critical habitat within the NTMP area includes all naturally accessible stream channels to the ordinary high water mark.

In the Scotts Creek system, the bulk of the upstream steelhead migration and spawning occurs from January through March or April. Time to hatching is about 30 days. The fry generally emerge from the gravel 4 to 6 weeks after hatching and move to shallow water where there is suitable cover at the stream margins. As they grow, the parr establish feeding stations, most frequently in riffles or deeper runs, and occasionally in pools. Estuaries at the mouths of coastal streams are particularly important rearing areas for larger juveniles. Steelhead remain in their natal stream for 1 to 7 years prior to migrating out to sea.

### Coho Salmon and Steelhead Mitigations:

To avoid incidental take of coho salmon and steelhead, the following mitigations are proposed.

1. Canopy retention standards as discussed under Item #26 of the NTMP.
2. Limitations on use of heavy equipment in the WLPZ as discussed under Item #26 of the NTMP.

3. Treatment of roads, skid trails, and landings near watercourses as discussed under Item #27 of the NTMP.
4. Soil stabilization as discussed under Item #18 of the NTMP.
5. Winter operating restrictions as discussed under Item #23 of the NTMP.

The following fish species is discussed in Section III of the NTMP:

Tidewater Goby (*Eucyclogobius newberryi*)

## AMPHIBIANS

### California Red-legged Frog (*Rana aurora draytonii*)

The California red-legged frog is a federally threatened species and a CDFG Species of Special Concern. Breeding habitats include natural and artificial ponds and reservoirs, deepwater marshes, and freshwater coastal lagoons. Streams in the Santa Cruz Mountains are not used for breeding, presumably because spawning and early larval development occur coincident with the timing of peak flows. Spawning occurs from January through March. Eggs hatch within two weeks after oviposition, and larvae metamorphose four to seven months after hatching. Adults feed on aquatic and terrestrial invertebrates and small vertebrates. Tadpoles graze on algae.

California red-legged frogs and their habitats are ubiquitous in the general vicinity of the NTMP area; see the California Red-legged Frog Distribution Map. Virtually all ponds and reservoirs in the area are occupied by red-legged frogs, and most support breeding.<sup>1</sup> Scotts Creek and some of its tributaries are also occupied by red-legged frogs. In these streams, red-legged frogs are almost exclusively associated with deep (>2 feet) pools. Red-legged frog presence has been documented in Scotts Creek from the estuary upstream continuously for at least 5 miles. A large proportion of the frogs inhabiting the streams are juveniles that disperse to the creek after metamorphosing at breeding ponds. Whereas most juveniles are likely to be year-round residents of the creek and adjacent riparian habitats, adult red-legged frogs use the streams principally as summer habitat, and then move upslope to breeding ponds for the winter. No breeding has been documented on any of the local streams.

Although this species is highly dependent on aquatic habitats, it is able to reside in both riparian and upland habitats when precipitation and ambient moisture conditions allow. During the dry summer months, red-legged frogs rarely are found more than 10 feet from water. With the onset of winter rains (October/November), most red-legged frogs move into terrestrial habitats adjacent to their aquatic home site, where they reside nearly continuously at distances of up to 300 feet from water until breeding activities commence.<sup>2</sup> Some adults reside at breeding sites the year around, while others disperse to and from breeding sites, residing at streams or other permanent aquatic habitats during the summer months. California red-legged frogs have been documented migrating overland between aquatic sites that are separated by distances as great as two miles. These overland movements occur at night, usually during or following rains.

The NTMP area contains proposed critical habitat for the California red-legged frog (69 FR 19620). California red-legged frogs are mobile and, during different life history stages or different seasons of the year, may occupy a variety of aquatic and upland habitats. Proposed critical habitat includes (1) all aquatic habitats having a minimum pool depth of 20 inches and which can maintain water during the entire tadpole rearing season; (2) upland areas within 300 feet of suitable aquatic habitat, as defined above; and (3) upland dispersal habitat that is barrier-free and at least 300 feet wide and that connects two or more suitable breeding locations.

### California Red-Legged Frog Mitigations

To avoid incidental take of this species, timber operations shall proceed in accordance with the take avoidance measures outlined below. These measures are based on guidelines developed by the U.S. Fish and Wildlife Service, with technical assistance from Bill McIver of the Ventura USF&WS office.

1. All road, skid trail, and landing construction shall occur prior to the start of the wet season (\*see below for the definition of the wet season). All ground based yarding and skidding activities shall occur prior to the onset of the wet season. All temporary crossing shall be removed prior to the onset of the wet season.
2. As the wet season approaches, the number of open landings will be limited to the minimum necessary and areas where harvesting is complete will be closed out with erosion controls in progress.
3. Construction activities associated with installation and removal of crossings will occur during daylight hours only. Hauling and loading of logs during the wet season shall occur during daylight hours only.

<sup>1</sup> Data are from unpublished surveys conducted by John Bulger, 1997-2006. Also available in the CNDDDB.

<sup>2</sup> Bulger, J.B., N.J. Scott Jr., and R.B. Seymour. 2003. Terrestrial activity and conservation of adult California red-legged frogs *Rana aurora draytonii* in coastal forests and grasslands. *Biological Conservation* 110: 85-95.

4. All segments of skid trail in the WLPZ shall be packed with slash, and/or straw mulched to a depth of 3 inches and seeded. All segments of road in the WLPZ shall be rocked, and/or straw mulched to a depth of 3 inches and seeded.
5. Trees shall be felled away from riparian habitat, including springs, seeps, bogs, and other wet areas with saturated ground in most cases; however, in site-specific situations to improve the safety of operations or to better protect residual vegetation and the beneficial uses of water within the watercourse, trees may be felled in whichever direction spares the most residual vegetation, including parallel to or toward a watercourse, where circumstances warrant it.
6. Prior to operations occurring in the late fall or involving crossing work, a qualified biologist will conduct a biological resources education program for workers, and will appoint a crew member to act as an on-site biological monitor. The educational program will include a description of the California red-legged frog and its habitat, and the guidelines that must be followed by all harvest personnel to avoid take of the species during the operational period. The Licensed Timber Operator will be responsible for ensuring that crew members comply with the guidelines. Educational programs will be conducted for new personnel before they join harvest activities. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.
7. Before timber harvest activities begin each day, for operations occurring in the late fall or involving crossing work, a biological monitor will inspect logging vehicles and equipment to look for California red-legged frogs. If a red-legged frog is found, the red-legged frog will not be relocated or captured, all activities that could result in take will cease and the USF&WS will be consulted to ensure that appropriate actions are taken in order for project activities to continue.
8. All refueling, maintenance, and staging of equipment and vehicles will occur at least 60 feet from riparian habitat or water bodies in a location where a spill would not drain directly toward aquatic habitat. The LTO will insure that all heavy vehicles and equipment are inspected for fuel leaks, oil leaks, and other fluid leaks before and during their operation, to ensure that aquatic and upland habitats are not contaminated. Prior to the onset of work, the LTO will ensure that a plan is in place for prompt and effective response to accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
9. During project activities, all trash that may attract predators will be put in sealed trash containers, removed from the work site, and disposed of regularly. Following project activities, all trash and construction debris will be removed from work areas.

(\*For purposes of protection of red-legged frogs, the wet season begins when precipitation events are sufficient to cause saturated soil conditions, according to a wildlife biologist familiar with California red-legged frog life history, or the RPF who has had RLF training and can demonstrate familiarity with RLF life history and identification. Saturated soil conditions, described in 14 CCR 895.1 could occur after one downpour at the start of the winter period, or following a succession of light rains. However, if light rains are dispersed with dry periods in-between and the soil does not become saturated, the wet season restrictions will be deferred. The California red-legged frog does not become mobile in upland habitat until moisture conditions are such that desiccation is not a great risk. This guideline allows assessment of site-specific conditions to provide operational flexibility when the red-legged frog is not at risk. Barring rain events that cause saturated soil conditions at the start of the winter period, wet season restrictions will apply on December 1, or when cumulative rainfall exceeds 4 inches as measured at the Cal Poly rain gauge, whichever comes first.)

The guidelines outlined above as California Red-legged Frog Mitigations provide protection for this species in a watershed where they are known to be present. The management of Swanton Pacific Ranch by Cal Poly has sought to nurture the population of California red-legged frogs. Cal Poly has approximately 19 ponds and reservoirs with confirmed red-legged frog presence (see map of CRLF Distribution). Several ponds on the Ranch have been restored and partially fenced to protect them from cattle damage. Two spring development projects to create enhanced red-legged frog habitat have been completed with a USF&WS matching fund grant.

The following amphibian species are discussed in Section III of the NTMP:

California Tiger Salamander (*Ambystoma californiense*)

Santa Cruz Black Salamander (*Aneides flavipunctatus*)

Western Spadefoot (*Spea hammondi*)

Foothill Yellow-legged Frog (*Rana boylei*)

#### INSECT

No rare, threatened or endangered insects occur within the NTMP area. Monarch Butterfly (*Danaus plexippus*) is discussed in Section III of the NTMP.

#### REPTILES

No rare, threatened or endangered reptiles occur within the NTMP area. The following reptile species are discussed in Section III of the NTMP:

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RESOURCE MANAGEMENT

Western Pond Turtle (*Emys marmorata*)  
Coast Horned Lizard (*Phrynosoma coronatum frontale*)  
California Legless lizard (*Anniella pulchra*)  
San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*)  
Rubber Boa (*Charina bottae*)

## BIRDS

CDF&G Bird Species of Special Concern (SSC), Board Listed Species (CDFS), and Nesting Raptor Species shall be protected by the following protocol. Individual species descriptions are included in Section III.

### Reconnaissance Level Survey:

A Reconnaissance Level Survey was conducted by the RPF during the 2006 and 2007 field layout of this NTMP. Pre-operational field work consisted of many days of property line flagging, WLPZ flagging, mapping, archaeological surveying, road and skid trail layout, inventory, unit boundary flagging, and tree marking. Most of this work was completed between March 15 and prior to August 15, which is considered by DFG as the critical breeding period. The Reconnaissance Level Survey covered suitable raptor habitat and looked for nests, breeding behavior, whitewash, pellets, feathers, plucking posts, and any other appropriate raptor sign of SSC and CDFS. No active nests were discovered within the project boundaries.

### Walk-Through Survey:

In order to reduce the potential that harvest activities may adversely affect SSC or CDFS during the nesting period (March 15 – August 15), a qualified surveyor, which could include the RPF, shall perform a walk through survey of the NTMP area scheduled for harvesting activity during this period. This walk through survey shall be conducted no earlier than March 15<sup>th</sup> in any year of active operations. This survey shall focus on previously identified active SSC or CDFS nests, ocular observation for aerial displays, calls, and other evidence of SSC or CDFS presence within the unit boundary. If Reconnaissance Level Surveys have occurred the year of operations, the requirement for the walk-through survey is waived. If active nests are discovered during this survey, mitigation as per Nest Protection shall apply. If timber operations are not planned during the period of March 15 to August 15, the Reconnaissance Level Surveys shall be adequate and the walk through survey is not required.

### Walk-Through Survey Protocol:

1. Survey shall be conducted during the critical breeding period from March 15<sup>th</sup> to August 15<sup>th</sup>.
2. Survey shall commence no later than 7 a.m. and last no less than 4 hours.
3. Survey shall consist of walking of existing roads and interior of harvest area, so that the survey effort sufficiently covers the area of suitable habitat for bird species. During this effort, the surveyor shall be alert for nests, breeding behavior, whitewash, pellets, feathers, plucking posts, and any other appropriate SSC or CDFS sign. If active nests are discovered during this survey, mitigation as per Protection Measures shall apply.

### Timber Falling and Timber Operations:

To the extent feasible, considering timber felling and safety, timber will be felled to avoid designated retention trees as described in the above language. Each tree is reviewed while marking the stand and shall be surveyed for the presence of bird and mammal species and their nests. In addition, the timber fallers shall be aware of the condition of the trees they are felling, as well as other trees that may be damaged during felling operations. Any evidence of SSC, CDFS, or nesting raptor species presence identified during falling operations occurring between March 15<sup>th</sup> – August 15<sup>th</sup> shall be conveyed to the RPF responsible for plan implementation. This evidence may include, but is not limited to, identified stick nests, ocular observation of aerial displays and calls.

### Protection Measures:

If an occupied nest of a SSC, CDFS or nesting raptor is discovered during timber operations, the LTO shall immediately protect the nest, screen, and perch trees. Vegetation disturbing activities within 300 feet (or applicable protection measures as per 14 CCR 919.2 and 919.3) of the occupied nest shall be suspended until consultation with a qualified wildlife biologist has been completed to determine appropriate protection measures. Buffer Zones may be modified upon recommendation of the qualified wildlife biologist based on site specific factors such as topography, stand density, and adjacency of operational activity. Once a qualified wildlife biologist has determined appropriate protection measures, DFG and CDF shall be provided with written documentation. Operations may commence with full compliance of the recommended protection measures and written documentation to DFG and CDF, as identified by the qualified wildlife biologist.

### Marbled Murrelet (*Brachyramphus marmoratus*)

The marbled murrelet is listed as endangered under CESA and as federally threatened in Washington, Oregon, and California. Marbled murrelets inhabit near-shore marine waters where they feed on small fish and invertebrates, but during the breeding season adults fly inland to nest in mature conifer forests within 50 miles of the ocean. The southernmost breeding population of marbled murrelets in North America occurs in

PART OF PLAN

association with the Santa Cruz Mountains. This is also the smallest and most isolated population, separated from the northern California murrelet population by a distance of 300 miles. The size of the Santa Cruz Mountains murrelet population is estimated to be approximately 600 adults.<sup>3</sup>

In California, nesting occurs from late March to late September. The female lays a single egg on a large limb or other structure that forms a platform in the nest tree. No nest is constructed, although moss, lichen, duff, or litter often covers the platform. Structures greater than 6 inches wide are large enough to support an egg and an adult murrelet, but in general platforms tend to be considerably wider. Nest platforms include large primary or secondary branches, mistletoe infections, damaged or deformed limbs, witches' broom, and occasionally disused raptor or squirrel nests.

Tree species utilized for nesting in the Santa Cruz Mountains include redwood and Douglas-fir. Although murrelets typically nest in late-seral forest stands, the species has also been documented nesting in residual mature trees that have been left uncut in stands that have a history of harvesting. In consequence, any timber stand that contains redwood or Douglas-fir trees with apparent nesting platforms is considered to be "potentially suitable nesting habitat" for murrelets.

There is no designated (61 FR 26256) or proposed (71 FR 53838) critical habitat for murrelets within the NTMP area. However, potentially suitable murrelet nesting habitat is present at three locations within the NTMP Area, see Map 3 'Potentially Suitable Marbled Murrelet Habitat' in Section V. All three habitat areas have been harvested at least once previously, and murrelet habitat elements are present within these stands as widely scattered individual trees. All three potentially suitable murrelet habitat areas were recently (2000-2003) surveyed in accordance with protocol standards developed by the Pacific Seabird Group and California Department of Fish and Game and found not to be occupied. Protocol-level murrelet surveys have also been conducted on adjacent forest lands owned by Big Creek Lumber Company. This includes nearly all of the Scotts Creek drainage upstream from the NTMP area for a distance of 2.5 miles, as well as the lower portions of the Big Creek drainage. Based on the results of these field studies, the nearest timber stand known to be occupied by murrelets is located approximately one mile north of the northern boundary of the NTMP area in T9S, R4W, Section 36. Murrelets have been observed flying over the Big Creek drainage, but there have been no observations indicative of site occupancy. A list of pertinent murrelet reports is given below and may be provided upon request.

#### *Murrelet Survey Reports for NTMP Area:*

Bulger, J.B. 2001a. Final report on marbled murrelet surveys at the Swanton Pacific Ranch. Letter to Dr. Wally Mark, Director, Swanton Pacific Ranch, Davenport, California, dated 28 August 2001.

Bulger, J.B. 2003a. Results of marbled murrelet surveys during 2002 and 2003 in the Little Creek drainage, Swanton Pacific Ranch, Santa Cruz County, California. Report prepared for Swanton Pacific Ranch, Davenport, California, August 2003.

Bulger, J.B. 2003b. Results of marbled murrelet surveys during 2002 and 2003 in the General Smith stand, Berry Creek, Swanton Pacific Ranch, Santa Cruz County, California. Report prepared for Swanton Pacific Ranch, Davenport, California, August 2003.

#### *Murrelet Survey Reports for Adjacent Areas of the Scotts Creek Watershed:*

Bulger, J.B. 2000a. Surveys for marbled murrelets on Big Creek Lumber Company's Scott Creek Unit, Santa Cruz County, California, during 1999 and 2000. Report prepared for Big Creek Lumber Company, Davenport, California, September 2000.

Bulger, J.B. 2000b. Surveys for marbled murrelets at Big Creek Lumber Company's Big Creek Unit, Santa Cruz County, California, during 1999 and 2000. Report prepared for Big Creek Lumber Company, Davenport, California, October 2000.

Bulger, J.B. 2001b. Surveys for marbled murrelets in Lair Gulch on Big Creek Lumber Company's Scott Creek Unit during 2001. Report prepared for Big Creek Lumber Company, Davenport, California, September 2001.

Bulger, J.B. 2002. Marbled murrelet surveys in Bannister Gulch on Big Creek Lumber Company's Scott Creek Unit during 2001 and 2002. Report prepared for Big Creek Lumber Company, Davenport, California, August 2002.

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<sup>3</sup> McShane, C., et al. 2004. Evaluation report for the 5-year status review of the marbled murrelet in Washington, Oregon, and California. Unpublished report. EDAW, Inc. Seattle, Washington. Prepared for U.S. Fish and Wildlife Service, Region 1. Portland, Oregon.

**Marbled Murrelet Mitigations:**

The following mitigations are proposed to avoid incidental take of marbled murrelets.

All potentially suitable marbled murrelet nesting habitat within the NTMP area shall be surveyed in accordance with the most recent protocols issued by PSG and CDFG prior to commencing harvest operations in or immediately adjacent to these stands. The three stands are denoted as the Lower Scotts Creek, Little Creek and General Smith stands and are depicted on the map 'Potentially Suitable Marbled Murrelet Habitat' which can be found in Section V. The results of the survey shall be submitted to CDFG prior to filing a Notice of Timber Operations. The surveys shall be completed within three years of the onset of operations or, with CDFG consultation, surveys may remain valid for up to five years. Operations in the North Fork harvest area may proceed through 2008 without the need to resurvey, per the CDFG preconsultation letter located in Section V. The survey requirement shall apply to all harvest entries for the lifetime of the NTMP. In the absence of such surveys, the three stands shall be protected by means of 300-ft no-cut buffer zones and 0.25-mile operational restriction buffers during the murrelet nesting season, which is March 24 to September 15. Survey results that show no occupied behavior within the potential habitat areas shall lift the 300-ft no-cut buffer zones and 0.25-mile operational restriction buffers for the duration that the surveys are valid.

The following CDF&G Bird Species of Special Concern and Board Listed Species are discussed in Section III of the NTMP:

Double-crested Cormorant (*Phalacrocorax auritus*)  
Great Blue Heron and Great Egret (*Ardea herodias* and *A. alba*)  
California Black Rail (*Laterallus jamaicensis coturniculus*)  
California Clapper Rail (*Rallus longirostris obsoletus*)  
Black Swift (*Cypseloides niger*)  
Vaux's Swift (*Chaetura vauxi*)  
Red-breasted Sapsucker (*Sphyrapicus ruber*)  
Olive-sided Flycatcher (*Contopus cooperi*)  
Loggerhead Shrike (*Lanius ludovicianus*)  
California horned lark (*Eremophila alpestris actia*)  
Purple Martin (*Progne subis*)  
Bank Swallow (*Riparia riparia*)  
California Thrasher (*Toxostoma redivivum*)  
Yellow Warbler (*Dendroica petechia brewsteri*)  
Saltmarsh Common Yellowthroat (*Geothlypis trichas sinuosa*)  
Yellow-breasted Chat (*Icteria virens*)  
Lark Sparrow (*Chondestes grammacus*)  
Bell's Sage Sparrow (*Amphispiza belli belli*)  
Tricolored Blackbird (*Agelaius tricolor*)

The following Birds of Prey (Listed Raptor Species) are discussed in Section III of the NTMP:

Osprey (*Pandion haliaetus*)  
Bald Eagle (*Haliaeetus leucocephalus*)  
White-tailed Kite (*Elanus leucurus*)  
Northern Harrier (*Circus cyaneus*)  
Sharp-shinned Hawk (*Accipiter striatus*)  
Cooper's Hawk (*Accipiter cooperii*)  
Ferruginous Hawk (*Buteo regalis*)  
Golden Eagle (*Aquila chrysaetos*)  
Merlin (*Falco columbarius*)  
American Peregrine Falcon (*Falco peregrinus anatum*)  
Burrowing Owl (*Athene cunicularia*)  
Long-eared Owl (*Asio otus*)  
Short-eared Owl (*Asio flammeus*)

The following Birds of Prey (Unlisted Raptor Species) are discussed in Section III of the NTMP:

Turkey Vulture (*Cathartes aura*)  
Red-shouldered Hawk (*Buteo lineatus*)  
Red-tailed Hawk (*Buteo jamaicensis*)  
American Kestrel (*Falco sparverius*)  
Barn Owl (*Tyto alba*)  
Great Horned Owl (*Bubo virginianus*)  
Western Screech Owl (*Otus kennicottii*)  
Northern Pygmy Owl (*Glaucidium gnoma*)  
Northern Saw Whet Owl (*Aegolius acadicus*)

## MAMMALS

No rare, threatened or endangered mammal species occur within the NTMP area. The following mammal species are discussed in Section III of the NTMP:

Bats (*Antrozous pallidus*), (*Corynorhinus townsendii*), (*Myotis evotis*), (*M. thysanodes*), (*M. volans*), (*M. yumaensis*)

American Badger (*Taxidea taxus*)

San-Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*)

Ringtail (*Bassariscus astutus*)

## TERRESTRIAL NATURAL COMMUNITIES

### Northern Maritime Chaparral

Northern maritime chaparral is a plant community usually including endemic, relict, and locally rare plant species. It occurs on marine sands and Zayante coarse sand soils in association with Santa Cruz cypress (*Cupressus abramsiana*), Ponderosa pine (*Pinus ponderosa*), Bonny Doon manzanita (*Arctostaphylos silvicola*) and annual grasses and forbs. One area dominated by *Arctostaphylos* within the zone of heavy summer fog incursion is located on the ridge south of Winter Creek. The type of northern maritime chaparral found at this site is primarily composed of the most widespread of maritime chaparral-associated species, the brittle-leaf manzanita (*Arctostaphylos crustacea* spp. *crinita*). A portion of this site was included in the harvest area for the Lower Little Creek THP #1-04-046 and a skid trail on the ridgeline was used for approximately 75 yards.

Mitigations measures implemented at that time included minimizing the amount of soil disturbance, installing waterbars at regular intervals to maintain hydrology and reduce erosion, and keeping the trail surface free from slash. These mitigations appear to have been effective at maintaining the presence and diversity of species. Since seeds from some sensitive plant species may occur in the dormant seedbank, these mitigations reduce potential impacts to this site and may even encourage native seed germination. Mitigation measures to be carried out for operations under this NTMP are similar and are described under Mitigation Point MP30, below.

The following terrestrial natural communities are discussed in Section III of the NTMP:

Monterey Pine Forest (mitigations discussed below)

Northern Interior Cypress Forest

Maritime Coast Range Ponderosa Pine Forest

Coastal Brackish Marsh

Northern Coastal Salt Marsh

## PLANTS

The Swanton area has an interesting array of diverse flora with a high incidence of rare plants, many of which are recorded on the California Natural Diversity Database (NDDDB). The project area has suitable habitat for several rare plant species, as indicated by previous surveys and botanical research conducted on the Ranch. More discussion on the scoping for this project and past survey efforts is included in Section III of the NTMP. Local botanical consultant, Dr. Grey Hayes completed rare plant surveys of the project area, and the proposed infrastructure in particular, during the blooming periods of 2006 and 2007. His survey efforts focused on determining the possible presence of, and necessary protection for, rare, threatened and endangered plant species located in the project area. In addition, un-listed but potentially sensitive plant communities have been identified and protection measures have been developed. These sites are shown as Mitigation Points on the Operations Maps and mitigation measures are described below. The botanical survey report is included in Section V of the NTMP.

### Rare Plant Mitigation Measures:

Survey results identified several areas with rare plant populations that will be protected over the course of operations by mitigation measures described below:

### ALL Units

#### Monterey Pine (*Pinus radiata*)

Monterey pine is classified as a group1B species (rare or endangered in California) by the California Native Plant Society (CNPS). This listing status is due to several factors, including habitat alteration and threats from disease. The Monterey pine stand to the west of Scotts Creek (described in Section III), are more threatened by the latter than the former. Many of the native Monterey pine trees in the area are infected with the exotic fungus that causes pitch canker (*Fusarium circinatum*). The NTMP is located in Santa Cruz County, which is within the Coastal Pitch Canker Zone of Infestation. The pine pitch canker fungus is a wound pathogen, i.e. it enters the tree through a wound. Naturally occurring wounds such as wind stress and various animals (including insects feeding) as well as branch removal and other mechanical damage can provide entry sites for spores. The spores are spread by wind, rain splash, and by insects such as bark, twig, and cone beetles. Beetles normally over-



winter as adults and find new brood material when the weather warms. To avoid infestation, the objective is to not have a lot of brood wood available for them in the spring when they are looking for new breeding sites. Limiting the creation of pine brood material to summer months in combination with the mitigations below will facilitate rapid drying.

The only known specimens of native Monterey pine trees in the NTMP area are located approximately 50 feet south of Little Creek, just above Swanton Road, around a small parking area, according to Dr. Walter Mark, refer to the Botanical Conservation Map at the end of Section II. These shall be retained. Within the NTMP area, several plantations of non-native Monterey pine stock are present in the Satellite Stands Unit as shown on the Botanical Conservation Map at the end of Section II. These cutover areas, comprising approximately 52 acres, were planted between 1979 and 1984 with genetic clones of hybrids from New Zealand. Within the planted areas, some trees have grown exceptionally fast. Portions of the plantations have been inter-planted with redwood and Douglas-fir seedlings which are now 5-10 feet tall. The non-native pine plantings present the threat of introducing genes that may make the natural, locally adapted pines more susceptible to disease. Due to the threat of gene contamination to the native pine population, the non-native plantation trees shall be gradually removed as described under Item 14 to allow redwood and Douglas-fir to re-colonize the site.

During pine removal, to mitigate the spread of the pitch canker pathogen, no pine material will be removed from the zone of infestation. Monterey pine brood material shall be treated in the following manner as soon after creation as is practical:

1. Lop all branches from the sides and tops of the bole of the tree bole which are three inches or more in diameter.
2. Lopped stems should be cut into short segments to decrease drying time and further reduce hazard.
3. Branches should be scattered so that stems have maximum exposure to solar radiation.
4. Do not pile pine slash or stack pine firewood next to living pine trees.
5. Logs from diseased trees may be split for firewood for local use, but the wood should be seasoned beneath a tightly sealed, clear plastic tarp to prevent the buildup of destructive insects.

#### Shreve oak (*Quercus parvula* var. *shrevei*)

Shreve oak stands are patchily distributed in moist slopes, from approximately 100-2000' elevation, west of the Coast range crest from Marin to Monterey Counties. The species is similar taxonomically to interior live oak, and although its taxonomic status is currently being reviewed, most scientists currently suggest stands receive conservation attention for two reasons. First, the species is threatened by sudden oak death (*Phytophthora ramorum*). Second, much of the distribution of stands occurs in proximity to areas of high development pressure. The Shreve oak stands on the Ranch are experiencing the threat of Douglas-fir introgression. Common associated tree species include coast redwood, Douglas-fir, and tan oak, Monterey pine and buckeye. Common understory species include poison oak, sword fern, bracken fern, and nightshade (*Solanum douglasii*).

Shreve oak is a common component of many of the vegetation communities throughout the NTMP. However, the species is the definitive element of stands between the Al Smith House and Swanton Road, as shown on the Botanical Conservation Map at the end of Section II. Management actions addressing ecological succession to foster Shreve oak habitat are proposed for a component of the stand. It is recommended by Dr. Hayes that this treatment be conducted on approximately 2 to 3 acres within the stand, which are also delineated on the Botanical Conservation Map. The treatment shall include:

1. Douglas-fir trees shall be removed to reduce Shreve oak competition.
2. Taller-statured trees shall not be planted within the stand area.
3. Shreve oak trees shall be pointed out to the LTO and protected from damage during operations, to the extent feasible.
4. Mitigations to inhibit the spread of sudden oak death, as described in Item 15, shall be followed.

#### Elmer's fescue (*Festuca elmeri*)

Elmer's fescue is a short-lived perennial bunchgrass which lacks any status; it is, however, regionally uncommon and is in decline throughout its range. The species is found in cismontane or coniferous forests in understory areas that receive moderate light levels. Local populations are known only from the Swanton area and the University of California at Santa Cruz (where it may have been recently extirpated). This species is widespread in grasslands on Swanton Pacific Ranch and on roadsides and landings in the NTMP area. It shall not be negatively affected by operations and is in fact favored by practices. More discussion of Elmer's fescue is included in Section III near the end of Item 32.

#### Invasive species

Invasive species impacts shall be mitigated as much as possible as part of the NTMP. Priority should be given to the current problem species: jubata grass (*Cortaderia jubata*), periwinkle (*Vinca major*), and French broom (*Genista monspessulana*). Other priority species include cape ivy (*Delairea odorata*), sticky eupatorium (*Ageratina millefolium*) and any other species listed on the highest priority list by the California Invasive Plant Council. The Ranch is currently controlling the most pervasive species, jubata grass and eucalyptus, by removing each population as soon as possible following identification. Where jubata grass is removed it shall

be done when the plants are not flowering to avoid spreading seeds. Roads are kept open by mowing, which keeps invasive species growing along their length in check. As resources are available, the Ranch will implement a control program, which may rely on hand weeding and judicious application of herbicides, prescribed by a licensed Pest Control Advisor.

#### Satellite Stands Unit

##### Mitigation Point MP30: (Northern Maritime Chaparral)

This section of existing skid trail goes through a plant community of maritime chaparral, located on a ridge above a portion of the harvest area south of Winter Creek. No rare plants were identified in this area and the dominant species, brittle-leaf manzanita (*Arctostaphylos crustacean ssp. crinita*) is widely distributed in the Santa Cruz Mountains. The skid trail is on a key fire protection ridge and connects to the Ranch road system. It was successfully used during the 2004 harvest, by employing mitigations described above, which shall be repeated under the NTMP. The ridge trail and connected herring-bone trails will be used for skidding and unnecessary disturbance of the chaparral plants will be avoided. Exposure of bare soil on this trail could entice dormant seeds to germinate; therefore, no slash, seed or straw mulch will be applied to the trail surface. The trail surface is relatively flat with a high rock content and gentle shaping to allow the trail to drain is all that is necessary for erosion control. Waterbars will be installed where natural deflection of water from the trail surface is not anticipated but existing hydrology will be maintained to the extent possible. The skid trail does not pose a risk to water quality as it is well away from any watercourses. A single blue gum eucalyptus shall be removed from the center of the stand; although it will cause some damage to the chaparral, removal will reduce invasive competition. Likewise, encroaching conifers, especially Douglas-fir, may be removed to reduce competition, as was strongly recommended by the botanist.

#### North Fork Unit

##### Mitigation Point MP31: (Hygric plants)

This section of existing skid trail goes through a spring-fed wet area with hygric plants, refer to crossing S1 under Item 26. In order to maintain the integrity of this area, this section of trail shall only be skidded across in a condition when approaches are not saturated. Accessing this area with equipment is considered favorable for the species diversity since the diversity is maintained by allowing light in, a result of the previous harvest. Following skidding, the trail shall be re-contoured to mimic the pre-operations condition, such that it gently slopes away on either approach. No seed or straw mulch will be applied to the trail surface, to allow the native species to re-occupy the site. Slash may be applied. Since this trail was used similarly in the past and the plants have responded positively to the increased light conditions, future use is expected to maintain the species diversity and not cause harm. More discussion of the hygric plant area is included in Section III near the end of Item 32.

##### Mitigation Point MP32: (Mature tanoak stand)

Structurally complex trees make up a stand of mature tanoak that is approximately 2 acres in size at this location. Significant tanoak trees in this stand shall be retained. Operations shall be restricted to the designated skid trail in the stand to minimize potential for direct impacts to the trees. Potential impacts include damage to the trees, soil compaction, and disease introduction. The LTO shall avoid trees with equipment as much as possible and brow logs may be placed where log rub is an issue. Operations shall be limited to the drier months and equipment will stay away from the base of trees to minimize risk of soil compaction. Equipment shall be cleaned of soil and debris and also potentially washed as described under Item 15 to minimize the risk of disease introduction.

The following plant species are of botanical interest and were either located within five miles of the project area based on the NDDB search or were found on the property during the botanical survey. They do not require special mitigation are therefore discussed in Section III of the NTMP:

Santa Cruz Microseris (*Stebbinsoseris decipens*)  
White-rayed Pentachaeta (*Pentachaeta bellidiflora*)  
Santa Cruz Wallflower (*Erysimum teretifolium*)  
San Francisco Campion (*Silene verecunda ssp. verecunda*)  
Santa Cruz Manzanita (*Arctostaphylos andersonii*)  
Schreibers Manzanita (*Arctostaphylos glutinosa*)  
Pajaro Manzanita (*Arctostaphylos pajaroensis*)  
Bonny Doon Manzanita (*Arctostaphylos silvicola*)  
Kelloggs Hokelia (*Horkelia cuneata ssp. sericea*)  
Santa Cruz Clover (*Trifolium buckwestorium*)  
Ben Lomond Spineflower (*Chorizanthe pungens var. hartwegiana*)  
Santa Cruz Mountains Beardtongue (*Penstemon rattanii var. kleei*)  
Dudley's Lousewort (*Pedicularis dudleyi*)  
Santa Cruz Cypress (*Cupressus abramsiana*)  
Blasdales Bent Grass (*Agrostis blasdalei*)

San Francisco Popcorn-Flower (*Plagiobothrys diffusus*)  
Awne bentgrass (*Agrostis aristiglumis*)  
Bent-flowered fiddleneck (*Amsinckia lunaris*)  
Slender silver-moss (*Anomobryum julaceum*)  
Coast rock cress (*Arabis blepharophylla*)  
Santa Cruz Mountains pussypaws (*Calyptridium parryi* var. *hesseae*)  
Franciscan thistle (*Cirsium andrewsii*)  
San Francisco Collinsia (*Collinsia multicolor*)  
California bottlebrush grass (*Elymus californicus*)  
Zayante buckwheat (*Eriogonum nudum decurrens*)  
Coast Wallflower (*Erysimum amophilum*)  
Elmer's fescue (*Festuca elmeri*)  
Zayante everlasting (*Gnaphalium zayatense* (pro sp.)  
Short-leaved evax (*Hesperervax sparsiflora* var. *brevifolia*)  
Redwood lily (*Lilium rubescens*)  
Arcuate bushmallow (*Malacothamnus arcuatus*)  
Gairdner's yampah (*Perideridia gairdneri* ssp. *gairdneri*)  
Michael's rein orchid (*Piperia michaelii*)  
Artist's popcornflower (*Plagiobothrys chorisianus* var. *chorisianus*)  
Straggly gooseberry (*Ribes divaricatum* var. *pubiflorum*)  
Hoffmann's sannicle (*Sanicula hoffmannii*)  
Mt Diablo cottonweed (*Micropus amphibolus*)

**Notice of Timber Operations & Future Species Listings:**

Prior to future harvest entries, as required before submitting a Notice of Operations, the RPF must review the status of all listed species (plant and animal), including those listed since approval of the NTMP, to determine whether a listed species has been discovered within the harvest area since the approval of the NTMP. For newly listed animal species known to occupy habitats found on the property, CDFG shall be consulted to determine appropriate mitigation measures and those shall be amended to the plan. The botanical survey included in the NTMP is valid for 5 years. If the area covered by an NTO has not been surveyed for botanical resources within the past 5 years, that area covered by the NTO shall be re-surveyed in the blooming period prior to operations. If listed species are discovered, the RPF shall notify CDF and CDFG and mutually acceptable mitigation measures to ensure protection of the detected species shall be agreed upon and incorporated by amendment into the plan.

33. ☒ Yes ☐ No Are there any snags which must be felled for fire protection or safety reasons? If yes, describe which snags are going to be felled and why.

As described under Item 14, all snags within the logging area shall be retained to provide wildlife habitat except as follows per 14 CCR 919.1:

1. Where they pose a safety hazard to the public, timber fallers, Ranch visitors or employees, or the logging crew during operations.
2. For hazard reduction within 100 feet of all public roads, permanent roads, seasonal roads, and landings.
3. Within 100 feet of ridge tops suitable for fire suppression.
4. Within 200 feet of structures maintained for human habitation.
5. Snags whose falling is required for insect or disease control.

34. ☒ Yes ☐ No Are any Late Succession Forest Stands proposed for harvest? If yes, describe the measures to be implemented by the LTO that avoid long-term significant adverse effects on fish, wildlife and listed species known to be primarily associated with late succession forests.

Late Succession Forest Stands (LSF) per the definition in 14 CCR 895.1 are present in the NTMP area, in the General Smith Sub-unit of the Nork Fork Unit. This stand shall be protected as a High Conservation Value Forest as described under Items 14 and 32. Management in this stand shall protect the scattered residual old growth trees, continue to foster the development of large diameter trees and desirable wildlife habitat attributes, and improve stand health and vigor. Further discussion of LSF is included in Section III under Item 34.

35. ☐ Yes ☒ No Are any other provisions for wildlife protection required by the rules? If yes, describe.

36. a. ☒ Yes ☐ No Has an archaeological survey been made of the NTMP area?  
 b. ☒ Yes ☐ No Has an archaeological records check been conducted for the NTMP area?  
 c. ☒ Yes ☐ No Are there any archaeological or historical sites located in the NTMP area? Specific site locations and protection measures are contained in the Confidential Archaeological Addendum in Section VI of the NTMP, which is not available for general public review.

Refer to Section VI, the Confidential Archaeological Addendum, for pertinent protection measures and maps.

As the forest floor is disturbed during harvest operations, the RPF shall continue to survey for archaeological sites. If artifacts are discovered, timber operations shall cease at that location until a qualified archaeologist has surveyed the site, recorded any additional pertinent information, and appropriate protection measures have been developed and submitted to CDF.

37. ☐ Yes ☒ No Has any inventory or growth and yield information designated "trade secret" been submitted in a separate confidential envelope in Section VI of this NTMP?
38. Describe any special instructions or constraints that are not listed elsewhere in Section II, and specify their location in the NTMP if not listed immediately below:

**Flagging Key (ribbon color and application(s)):**

1. Solid pink ribbon with TIMBER HARVEST PLAN BOUNDARY black print signifies the exterior timber harvesting plan boundary.
2. Solid red ribbon signifies approximate property line, which in many cases is synonymous with the NTMP boundary.
3. Blue and white striped ribbon with WATERCOURSE AND LAKE PROTECTION ZONE in black print signifies the boundary of a Watercourse and Lake Protection Zone.
4. Solid blue ribbon signifies the approximate centerline location of a Class III watercourse. Double solid blue ribbons signify a spring or the beginning or end of a Class III watercourse.
5. Solid yellow with SKID TRAIL in black print is an RPF designated ground based equipment travel route. Double skid trail ribbons indicates the end of a designated skid trail.
6. Solid yellow ribbon with SKID TRAIL in black print hung with solid blue and white with a location identification signifies a watercourse crossing for ground based equipment.
7. Solid yellow ribbon with SKID TRAIL in black print hung with white with a location identification signifies the location of a ground based infrastructure mitigation point.
8. Solid orange ribbon with TRUCK ROAD in black print signifies the approximate location of the centerline of a road grade.
9. Solid orange ribbon with TRUCK ROAD in black print hung with solid blue and white with a location identification signifies the location of a watercourse crossing of a haul route.
10. Double solid orange ribbon with TRUCK ROAD in black print hung with solid white signifies the location of a landing or road-related mitigation point.
11. Solid pink surrounding a group with trees marked in the interior signifies the boundary of a group selection per 14CCR 913.8(b).
12. Solid pink and white with a location identification signifies a mitigation point.

**Hours of Operation**

Within 300 feet of any occupied dwelling, other than those owned by Cal Poly Corporation, the operation of chain saws and other power equipment, except licensed highway vehicles, shall be restricted to the hours between 8:00 a.m. and 6:00 p.m., and shall be prohibited on Saturdays, Sundays and nationally designated legal holidays. More than 300 feet from any occupied legal dwelling, the operation of chain saws and other power-driven equipment shall be restricted to the hours between 7:00 a.m. and 7:00 p.m., and shall be prohibited on Sundays and nationally designated legal holidays, except Columbus Day. Log trucks shall not idle in front of the gate on Little Creek Road for an extended duration, especially prior to 8:00 a.m. Due to the rural surroundings of the NTMP area, operation of chain saws and other power-driven equipment, excluding log hauling, may proceed on Saturdays, so long as there are no neighbor complaints. Previous harvest operations on the Ranch have included Saturday operations while maintaining good neighborly relations. If one complaint is received by an adjacent landowner, contact will be made with the landowner to see if the location of harvest operations can be changed to mitigate their concerns. If an agreement cannot be reached with the landowner, then harvest operations on Saturdays will cease for the duration of the operation. Helicopter yarding shall be restricted to the hours between 7:00 a.m. and 6:00 p.m. and shall be prohibited on Saturdays, Sundays, and nationally designated legal holidays, except Columbus Day. Helicopter flight operations are expected to last up to three weeks total, weather permitting.

**Helicopter Operations**

The flight paths for helicopter yarding are contained within the project area parcels. The FAA regulates helicopter safety. The LTO shall comply with all Federal, State and Local regulations pertaining to employee safety, and the handling and storage of fuel. A secondary impermeable containment device shall be installed around the fuel storage area of the helicopter service landing.

**Log Hauling**

Log hauling on public roads shall be prohibited on weekends and nationally designated legal holidays, except Columbus Day. "Caution Log Truck" signs shall be posted on either side of the haul route entering Swanton Road and at regular intervals (approximately every ½ mile) along Swanton Road to inform road users of the presence of log trucks during hauling operations.

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PART OF PLAN

### Notice of Operations

The Notice of Operations for future entries shall be submitted at least 30 days prior to the start of operations. The Review Team Agencies shall be notified and the WLPZ mark and any proposed group selections shall be available for review.

To better monitor the growth of the forest over time, Cal Poly has set up a grid of continuous forest inventory (CFI) plots throughout the property. The growth data from these plots shall be re-evaluated by the RPF prior to each harvest entry. The RPF shall include current growth data and growth related harvest levels in each Notice of Operations.

### Operational Constraints – Powerlines and Waterlines

#### South Fork Unit

**Mitigation Point MP6:** At this location the designated skid trail crosses the 1½" black plastic waterline from the Upper South Fork of Little Creek to the Staub house. The waterline must be buried prior to crossing with a tractor.

**Mitigation Point MP8:** At this location the designated skid trail crosses a waterline. The waterline must be avoided or buried prior to skidding over this section of trail.

**Mitigation Point MP15:** At this location the existing skid trail crosses and runs parallel to a waterline. The waterline must be protected during skidding operations by burying, buffering with crib logs, or removing this section of line and replacing it after skidding and close-out are complete.

#### Satellite Stands Unit

Overhead powerlines are present in the Satellite Stands Unit of the NTMP and are shown on the Operations Maps. Trees to be harvested within a tree length of power lines or phone lines shall be marked with a vertical stripe at approximately breast height with accompanying stump spots at the base of the tree. The LTO shall take precautions in the vicinity of overhead powerlines.

**Mitigation Points MP11, MP12, MP13, MP14:** At these locations control boxes to access power and water lines are buried, with 3 ft x 2 ft plastic covers flush with the ground. These will be marked with high-visibility flagging prior to operations and must be protected by not skidding over. The LTO shall be responsible for damage to control boxes, communication lines, or water lines in this area.

39. Provide a general description of physical conditions of the plan site, include in Section III, as per 14 CCR 1034 (jj).  
**See Section III (Plan Addendum)**
40. Describe present and proposed plan area uses other than timber production, include in Section III, as per 14 CCR 1090.5 (f).  
**See Section III (Plan Addendum)**
41. Provide a description by management unit(s) of the timber stand characteristics including the items listed below, in Section III. Such description shall provide the basis for the information provided in the NTMP, as per 14 CCR 1090.5 (g):
  - a. species composition;
  - b. age classes;
  - c. projected growth;
  - d. present stocking level;
  - e. present volume per acre;
  - f. size class distribution;
  - g. stand management history;
  - h. potential pest or protection problems.**See Section III, Item 41**
42. Provide a description by management unit(s) of the proposed management objectives, including a discussion of projected timber volumes and sizes available for timber harvesting in Section III, as per 14 CCR 1090.5 (h).  
**See Section III, Item 42**
43. Provide a description by management unit(s) of proposed activities to achieve the management objectives, include in Section III, as per 14 CCR 1090.5 (i):
  - a. projected frequencies of harvest;
  - b. silvicultural prescriptions for harvesting;
  - c. type of yarding systems to be used for each area/unit;

d. anticipated interim management activities which may result in rule compliance questions (i.e., erosion control maintenance).

See Section III, Item 43

44. Provide the period of time over which growth will be balanced with harvest in Section III, as per 14 CCR 1090.5 (j).  
See Section III, Item 44

45. Provide a description of the cumulative effects analysis with supporting information, including impact of projected harvesting over the life of the NTMP, per 14 CCR 1090.5 (v). Include mitigation measures, if any, and instructions to LTO in Section II and the analysis in Section III, as per 14 CCR 1090.5 (v).  
See Section IV (Cumulative Impacts Assessment)

46. Maps and drawings. Include as per 14 CCR 1090.5 (x) and as needed; insert in Sections II and/or III, as appropriate.

47. ☒ Yes ☐ No A copy of the forest practice regulations in effect at the time of submission is enclosed, as per 14 CCR 1090.5 (w). If no, the plan is incomplete: an explanation of how a copy of the regulations will be maintained by the timberland owner must be included.

48. a. ☒ Yes ☐ No This NTMP will be used for one or more of the forestry assistance programs for non-industrial forest landowners. If yes, answer b., below.

At some point Swanton Pacific Ranch may explore one or more of the forestry assistance programs for non-industrial landowners. If it is found that value can be provided, additional information shall be amended to Section III at that time.

b. ☐ Yes ☒ No If yes, this NTMP has the additional information as an Addendum in Section III. If no, the information will be amended into the plan at a later time.

Note: The NTMP when expanded with additional information can meet the requirements to participate in state and federal cost-share programs. It is even possible for these programs to help offset the cost of preparing the NTMP. Contact your local Forestry Assistance Specialist (FAS) for further information concerning these programs; call toll free 1-800-783-TREE.

#### DIRECTOR OF FORESTRY AND FIRE PROTECTION

This Nonindustrial Timber Management Plan conforms to the rules and regulations of the Board of Forestry and Fire Protection and the Forest Practice Act:

By:

Leslie A. Markham  
(Signature)

Leslie A. Markham  
(Printed Name)

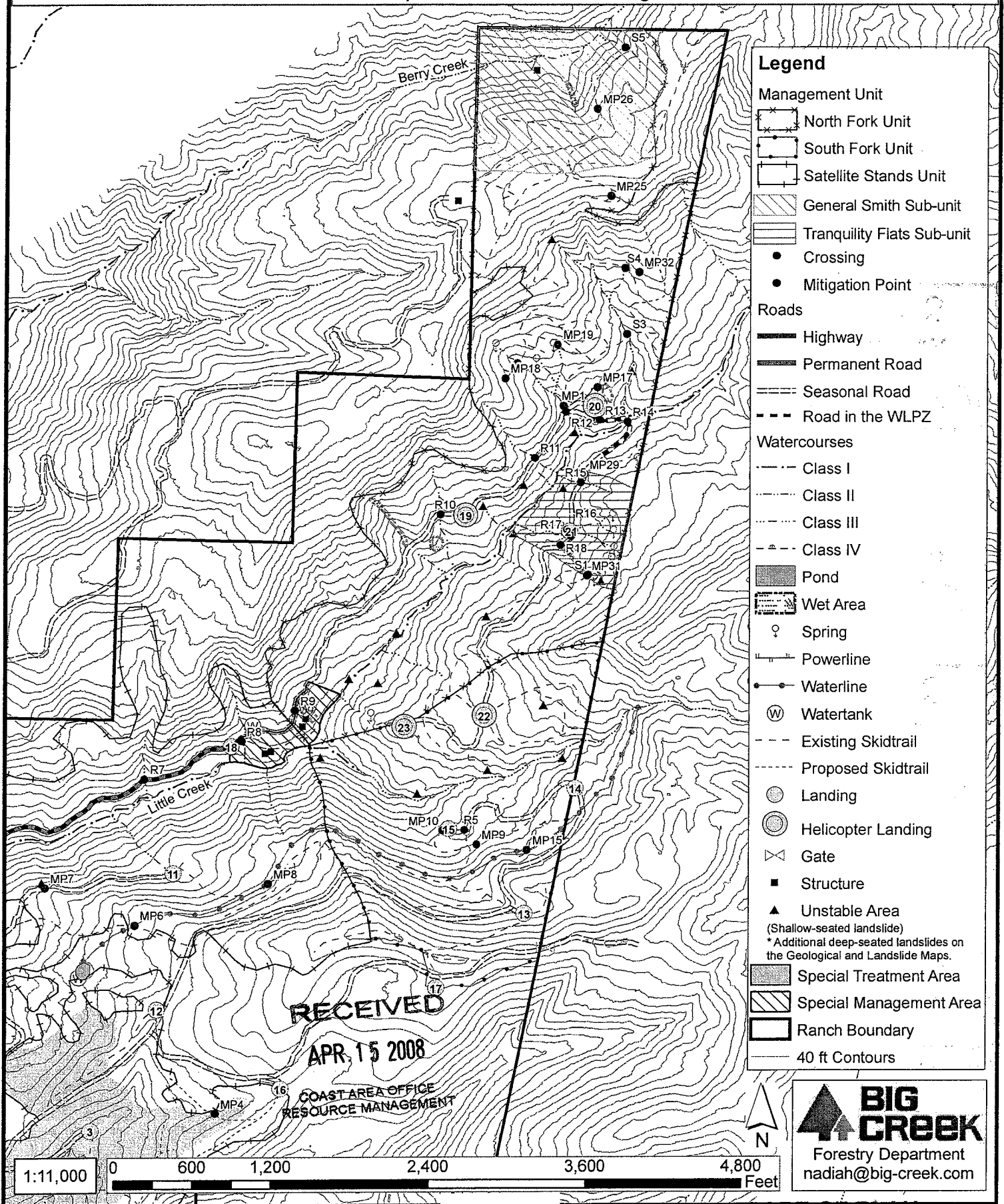


June 10, 2008  
(Date)

Deputy Chief, Forest Practice  
(Title)

# Swanton Pacific Ranch NTMP - Operations Map 2 of 2

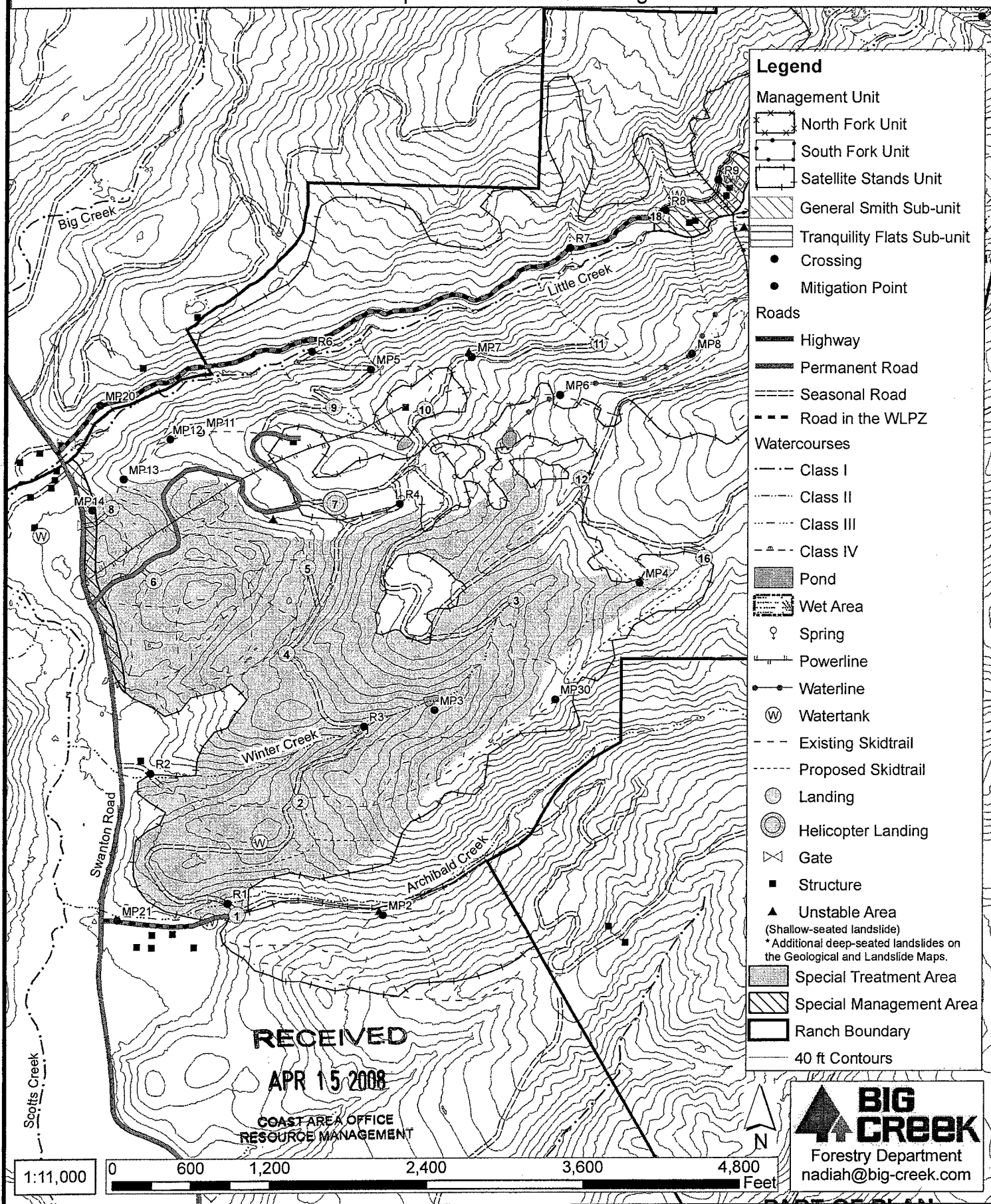
T10S R3W, Portions of Sections 8,9,16,17 and Rancho Agua Puerca y Las Trancas, MDB&M  
Davenport USGS 7.5' Quadrangle





# Swanton Pacific Ranch NTMP - Operations Map 1 of 2

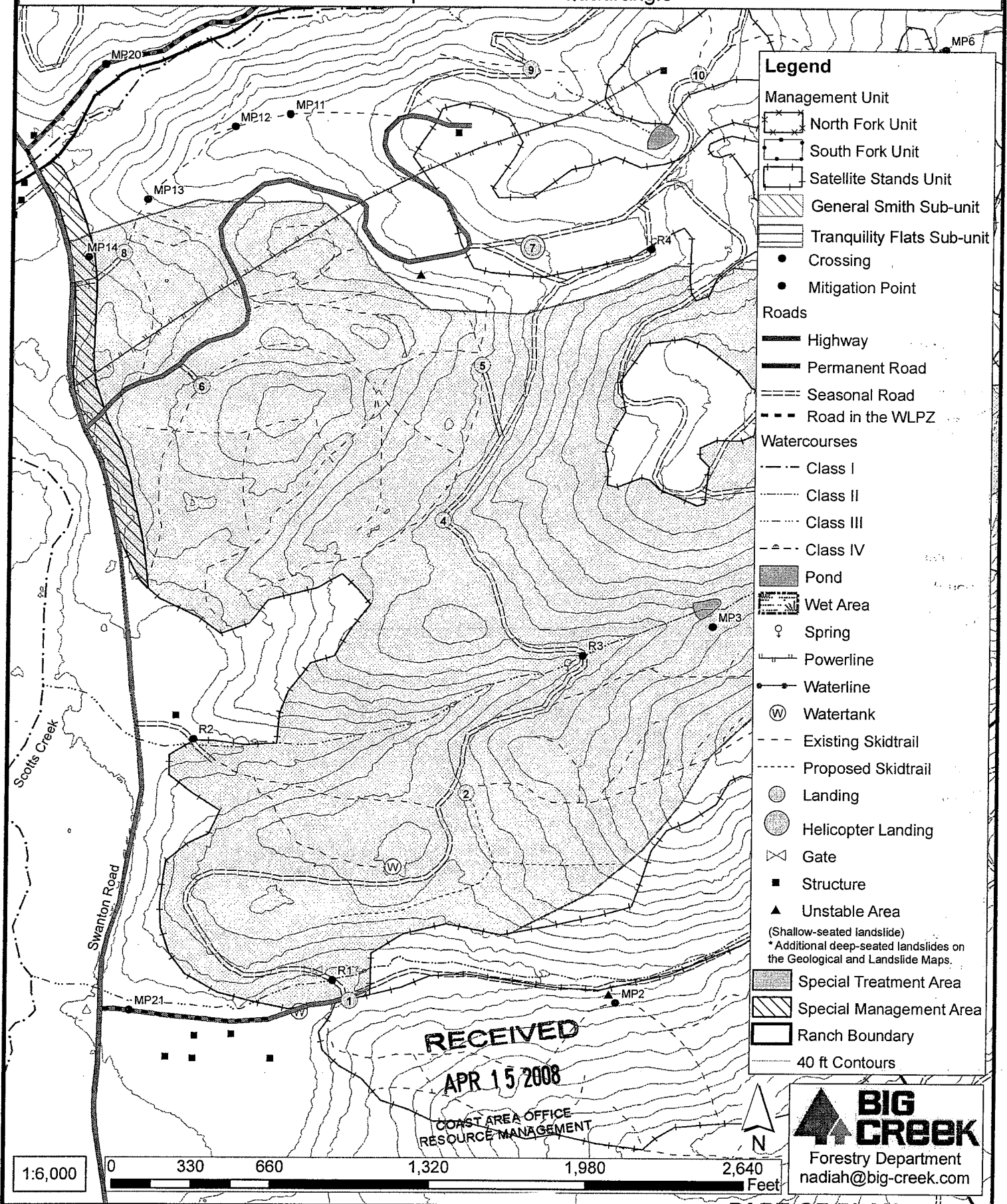
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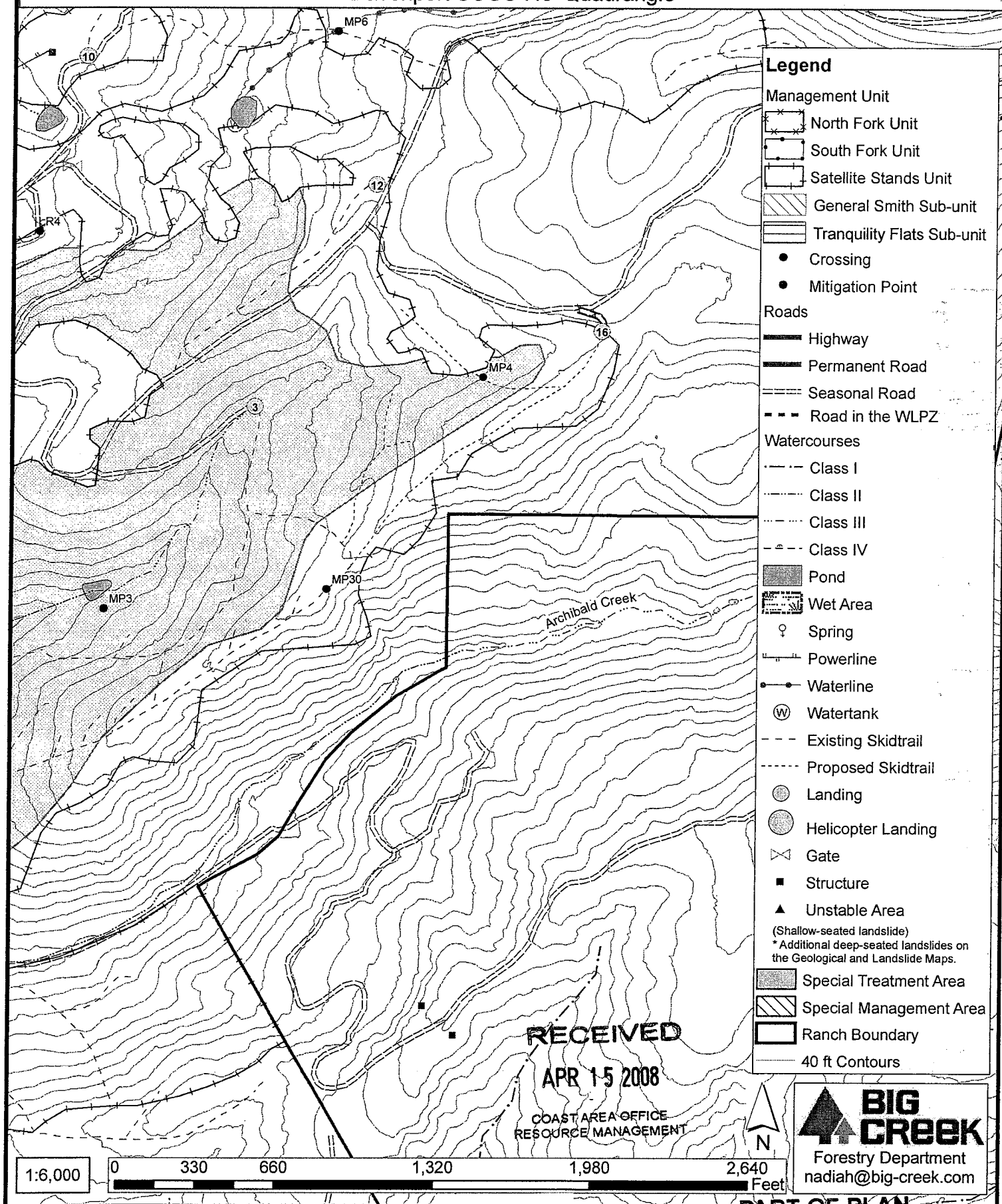
# Swanton Pacific Ranch NTMP - Operations Map 1 of 5

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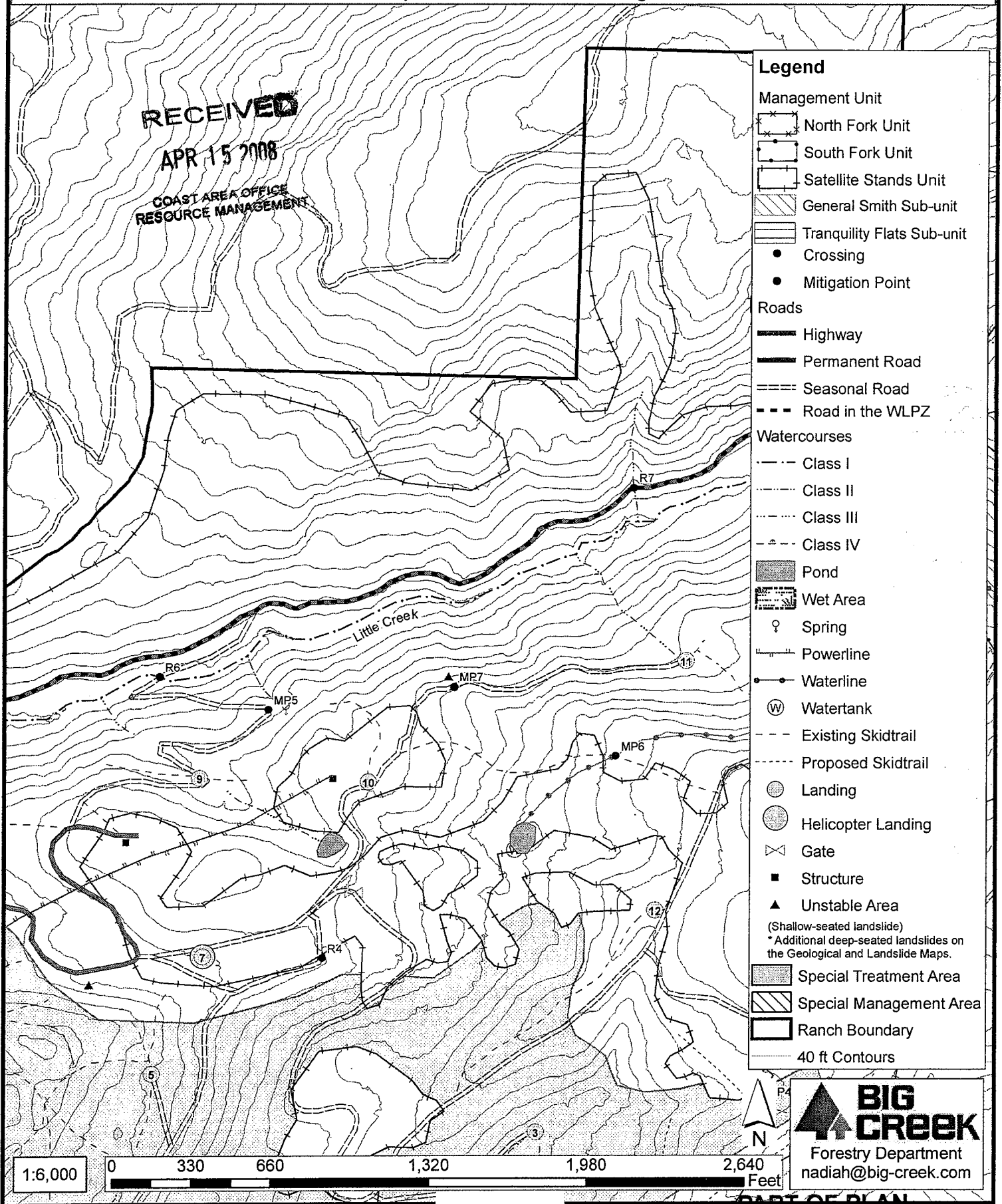
# Swanton Pacific Ranch NTMP - Operations Map 2 of 5

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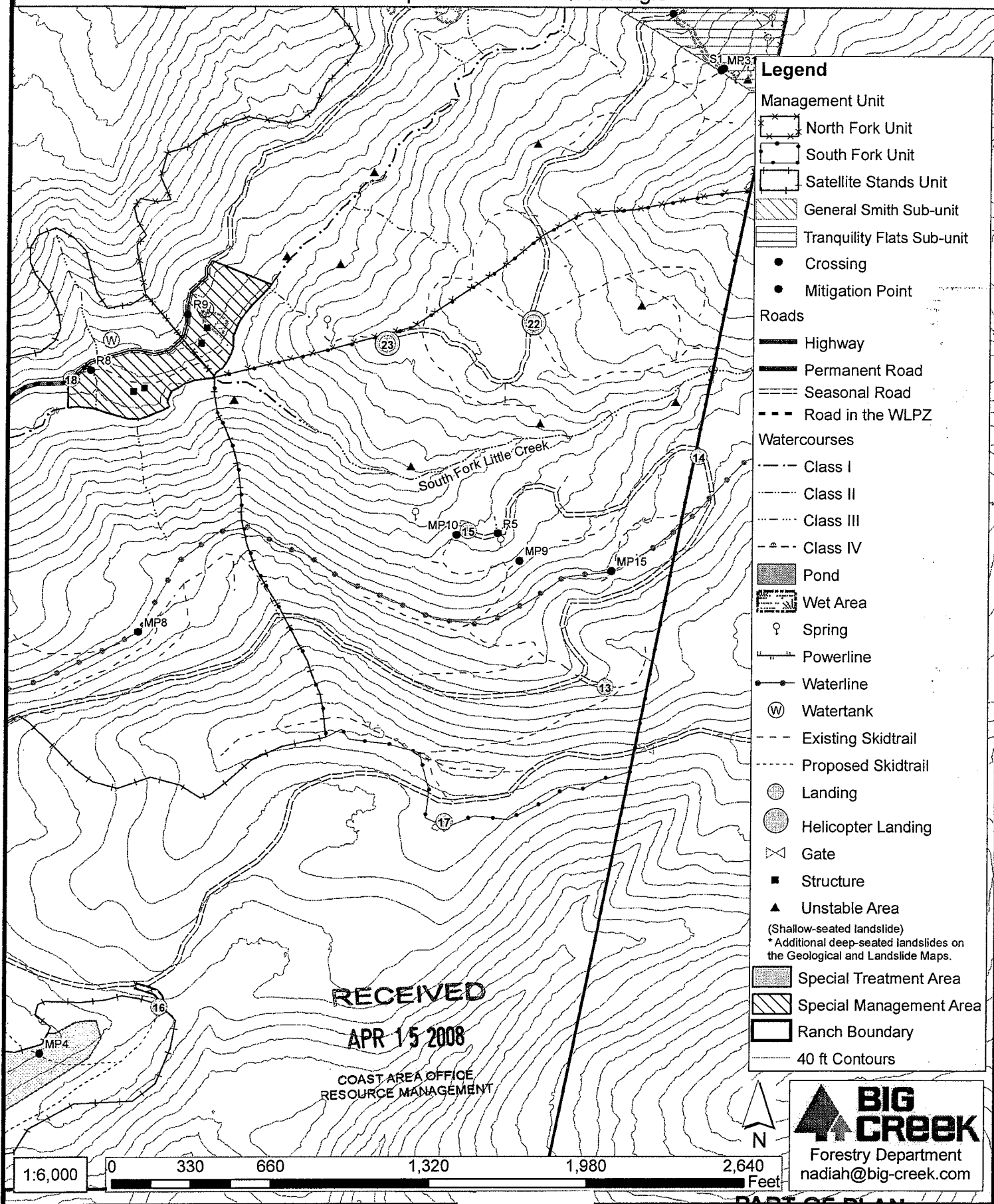
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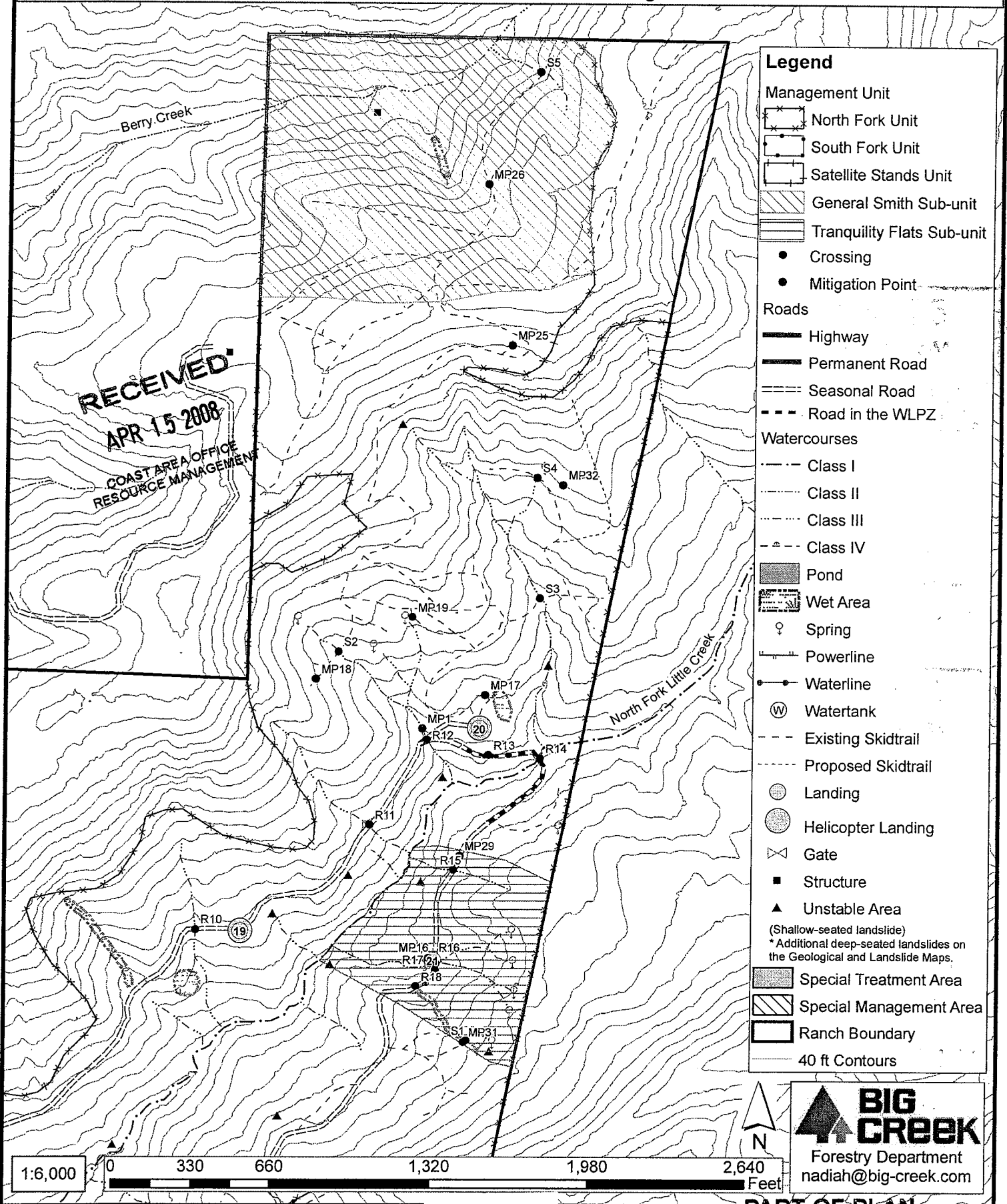
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T10S R3W, Portions of Sections 8,9,16,17 and Rancho Agua Puerca y Las Trancas, MDB&M  
Davenport USGS 7.5' Quadrangle



# Swanton Pacific Ranch NTMP - Operations Map 5 of 5

T10S R3W, Portions of Sections 8,9,16,17 and Rancho Agua Puerca y Las Trancas, MDB&M  
Davenport USGS 7.5' Quadrangle





# Swanton Pacific Ranch NTMP - Yarding Methods Map 2 of 2

T10S R3W, Portions of Sections 8,9,16,17 and Rancho Agua Puerca y Las Trancas, MDB&M  
Davenport USGS 7.5' Quadrangle

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COAST AREA OFFICE  
RESOURCE MANAGEMENT

## Legend

### Yarding Method

- Cable
- Helicopter
- Tractor

### Management Unit

- North Fork Unit
- South Fork Unit
- Satellite Unit

### Roads

- Highway
- Permanent Road
- Seasonal Road
- Realigned Road

### Watercourses

- Class I
- Class II
- Class III
- Class IV

Pond

Wet Area

Spring

Existing Skidtrail

Proposed Skidtrail

Landing

Helicopter Landing

Special Management Area

Ranch Boundary

40 ft Contours

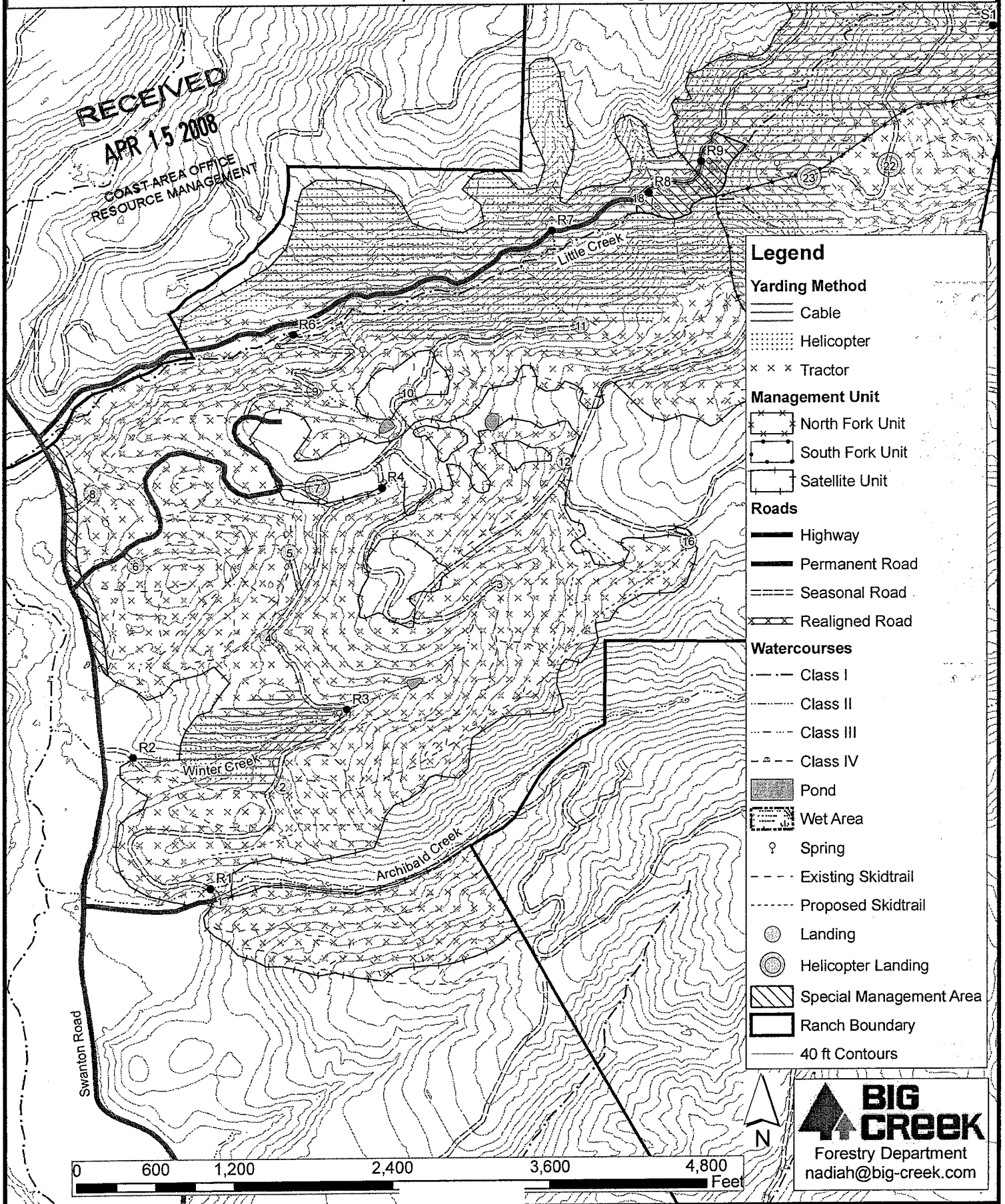


Forestry Department  
nadiah@big-creek.com

0 600 1,200 2,400 3,600 4,800 Feet

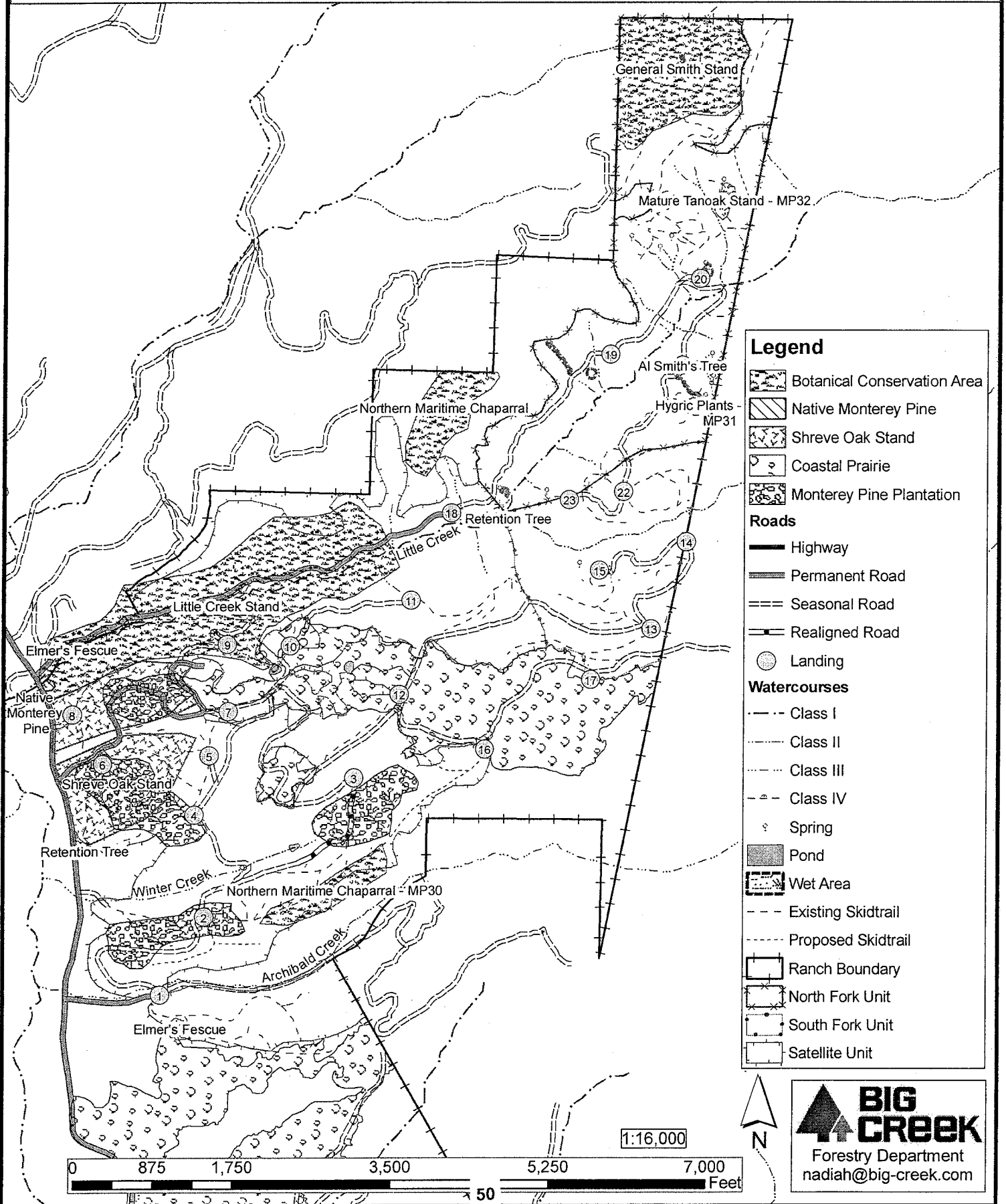
# Swanton Pacific Ranch NTMP - Yarding Methods Map 1 of 2

T10S R3W, Portions of Sections 8,9,16,17 and Rancho Agua Puerca y Las Trancas, MDB&M  
Davenport USGS 7.5' Quadrangle



# Swanton Pacific Ranch NTMP - Botanical Conservation Map

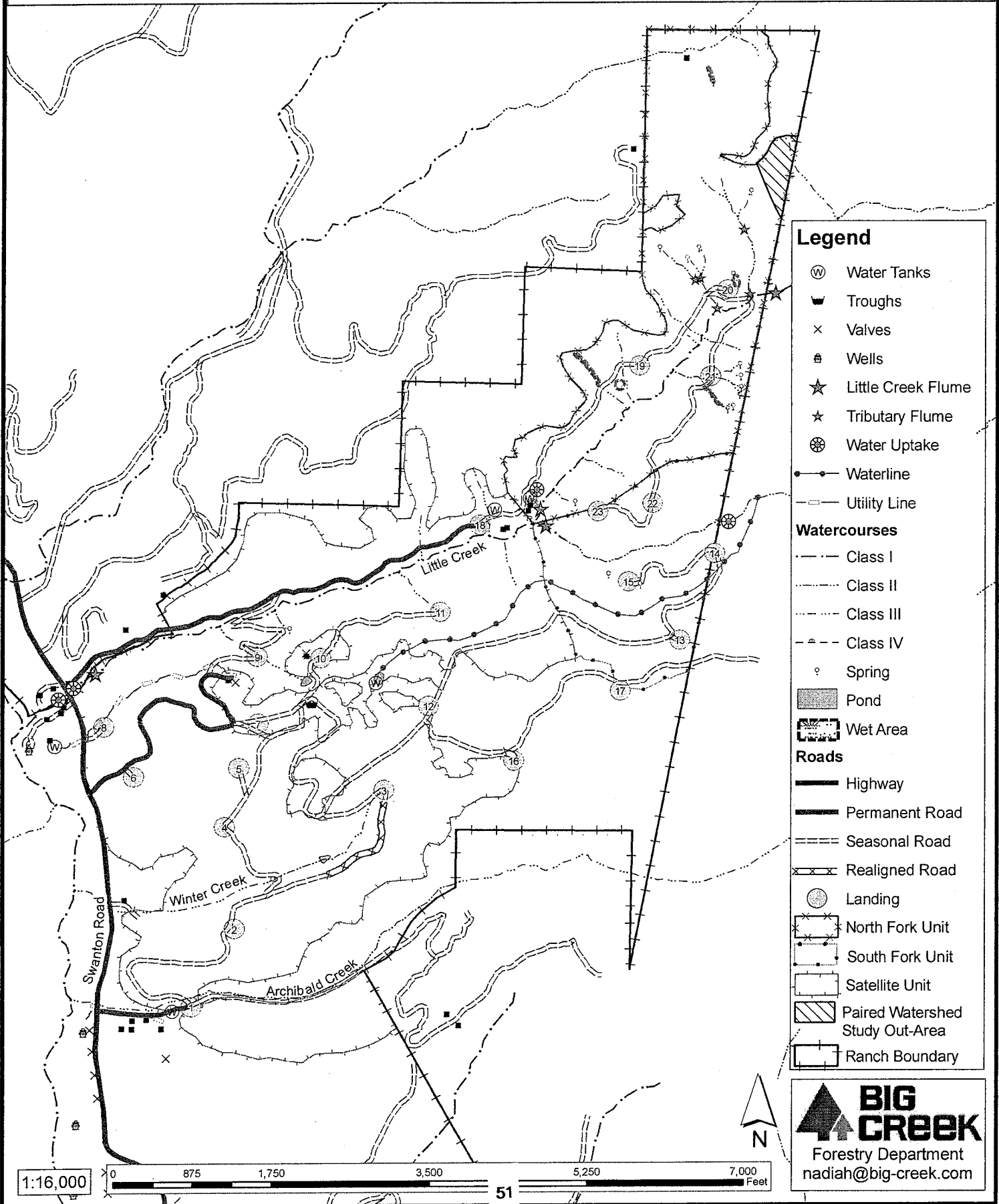
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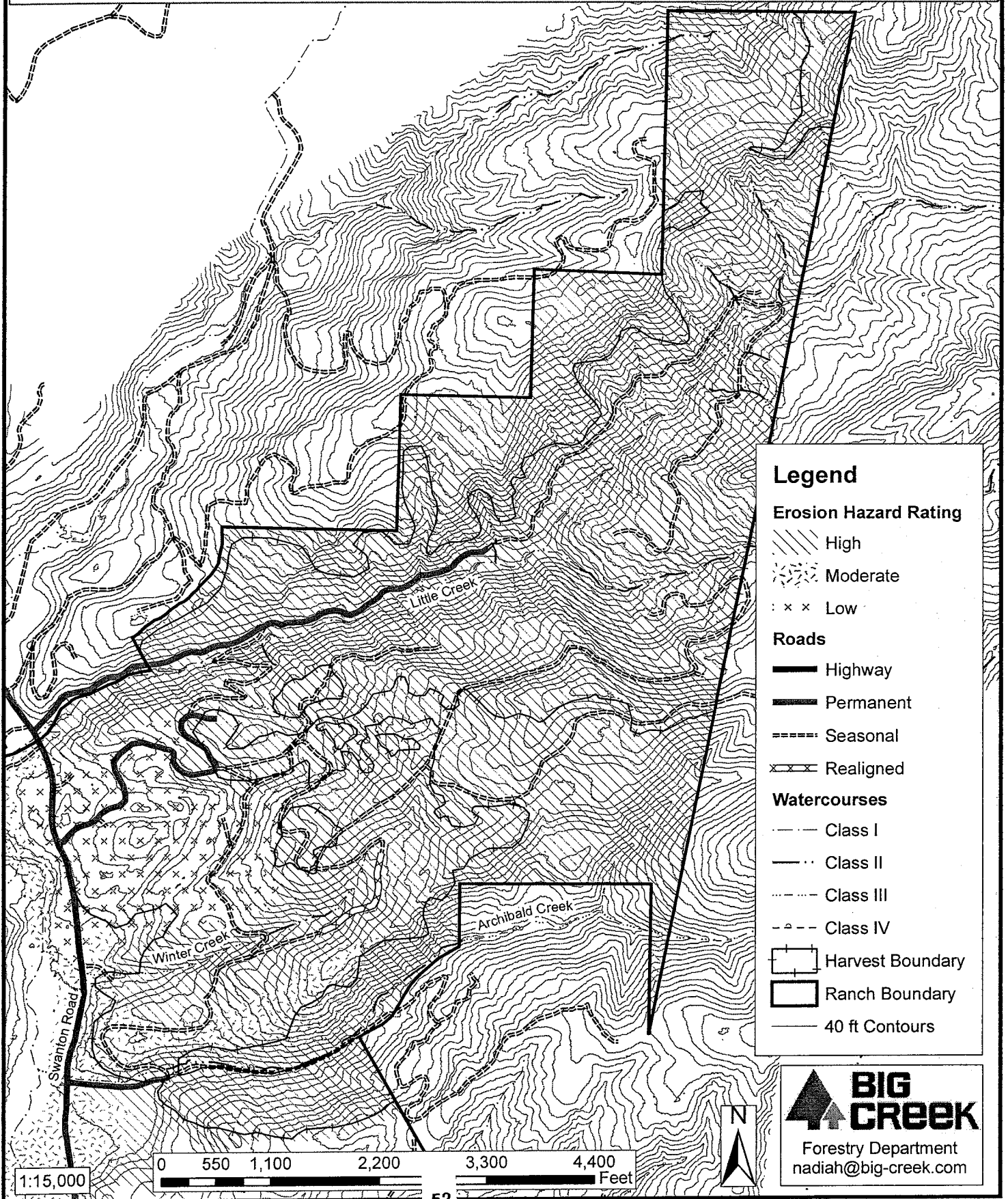
# Swanton Pacific Ranch NTMP - Water Resources Map

T10S R3W, Portions of Sections 8,9,16,17 and Rancho Agua Puerca y Las Trancas, MDB&M  
Davenport USGS 7.5' Quadrangle



# Swanton Pacific Ranch NTMP - Erosion Hazard Rating Map

T10S R3W, Portions of Sections 8,9,16,17 and Rancho Agua Puerca y Las Trancas, MDBM  
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# Swanton Pacific Ranch NTMP - CFI Plots and Stand Types











T10S R3W, Portions of Sections 8,9,16,17 and Rancho Agua Puerca y Las Trancas, MDB&M  
Davenport USGS 7.5' Quadrangle

**PART OF PLAN**

Selection/alternative per  
14 CCR 913.8(b) may take place  
in the following stand types:  
DF HW, DF, RW III, MPP.

## Legend

### Stand Types

-  RW III - Site III
-  RW II - Site II
-  RW IV - Site IV
-  RW Smith Stand - Site III
-  DF - Site III
-  DF HW - Site III
-  MPP - Site III
-  Ranch Boundary
-  40 ft Contours
-  Tranquility Flats - Site II

0 500 1,000 2,000 3,000 4,000 Feet

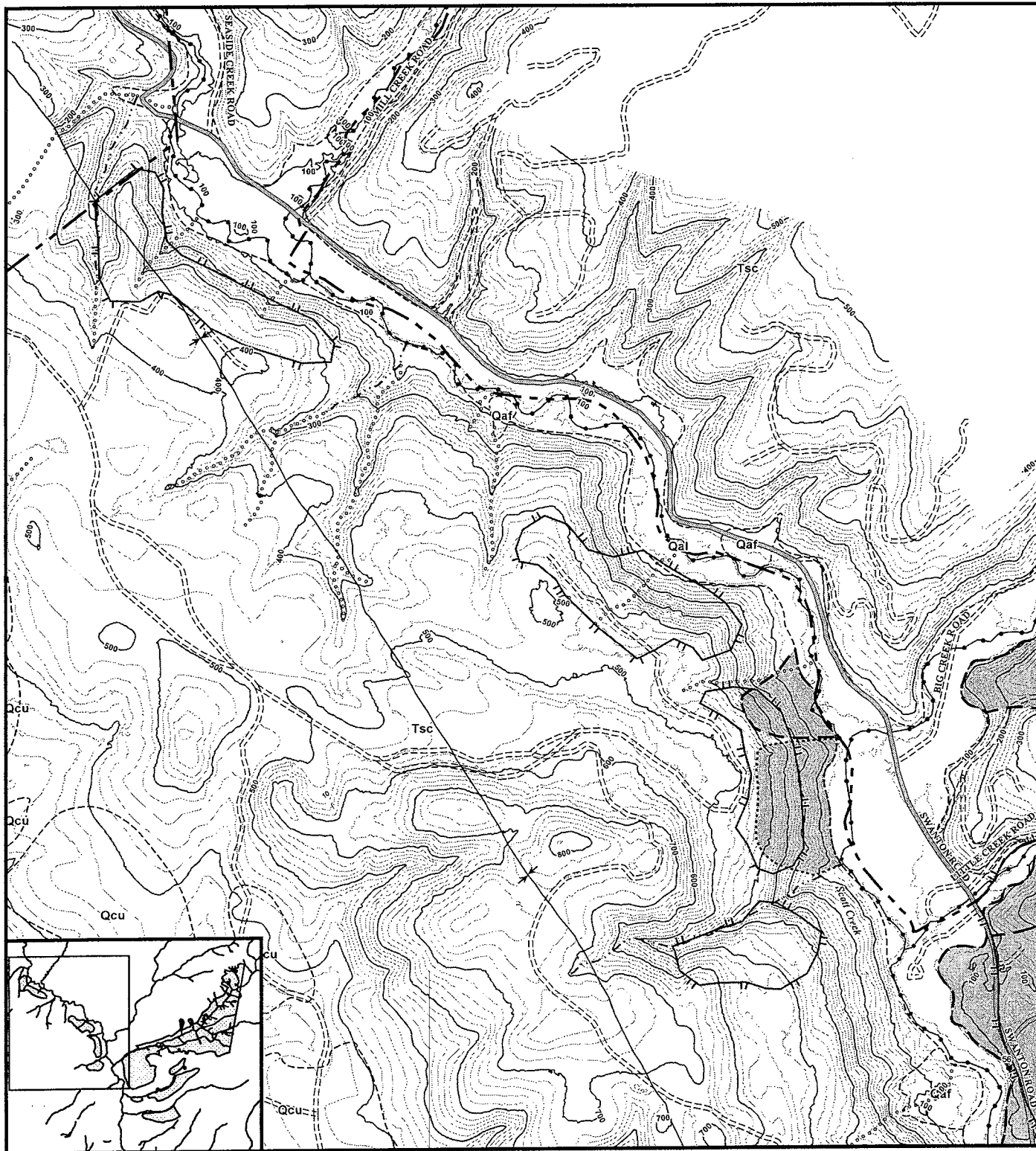
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COAST AREA OFFICE  
RESOURCE MANAGEMENT





#### EARTH MATERIALS

Qaf: Alluvial fan deposits  
 Qal: Alluvium  
 Qcu: Marine terrace deposits  
 Tsc: Santa Cruz Mudstone  
 Tsm: Santa Margarita Sandstone  
 sch: Schist  
 gd: Quartz-diorite

#### SYMBOLS

Geologic Contact  
 dashed where approximate  
 Strike and dip  
 of bedding  
 Syncline axis



Deep-seated landslide  
 recent activity (solid)  
 dormant (dashed)  
 uncertain (dotted)  
 Shallow landslides  
 Hillslope Failure  
 Road/Skid Fill Failure  
 Cutbank Failure  
 Channel Bank Failure  
 Large Failure (typ. >750 cy)

Approximate slide volume  
 (Estimated from air photos)

Size Code  
 • < 100 cy  
 • 100 - 250 cy  
 • 250 - 500 cy  
 • 500 - 2000 cy  
 • > 2000 cy

87 Air Photo year

#### Roads

Highway  
 Paved  
 Permanent/  
 Seasonal  
 Watercourse  
 Class 1  
 Class 2  
 Class 3

#### G1 + Reference Point

Harvest Unit and  
 Boundary  
 Property Boundary

Geology modified from Brabb (1989)  
 Landslides mapped from air photos  
 and LIDAR imagery

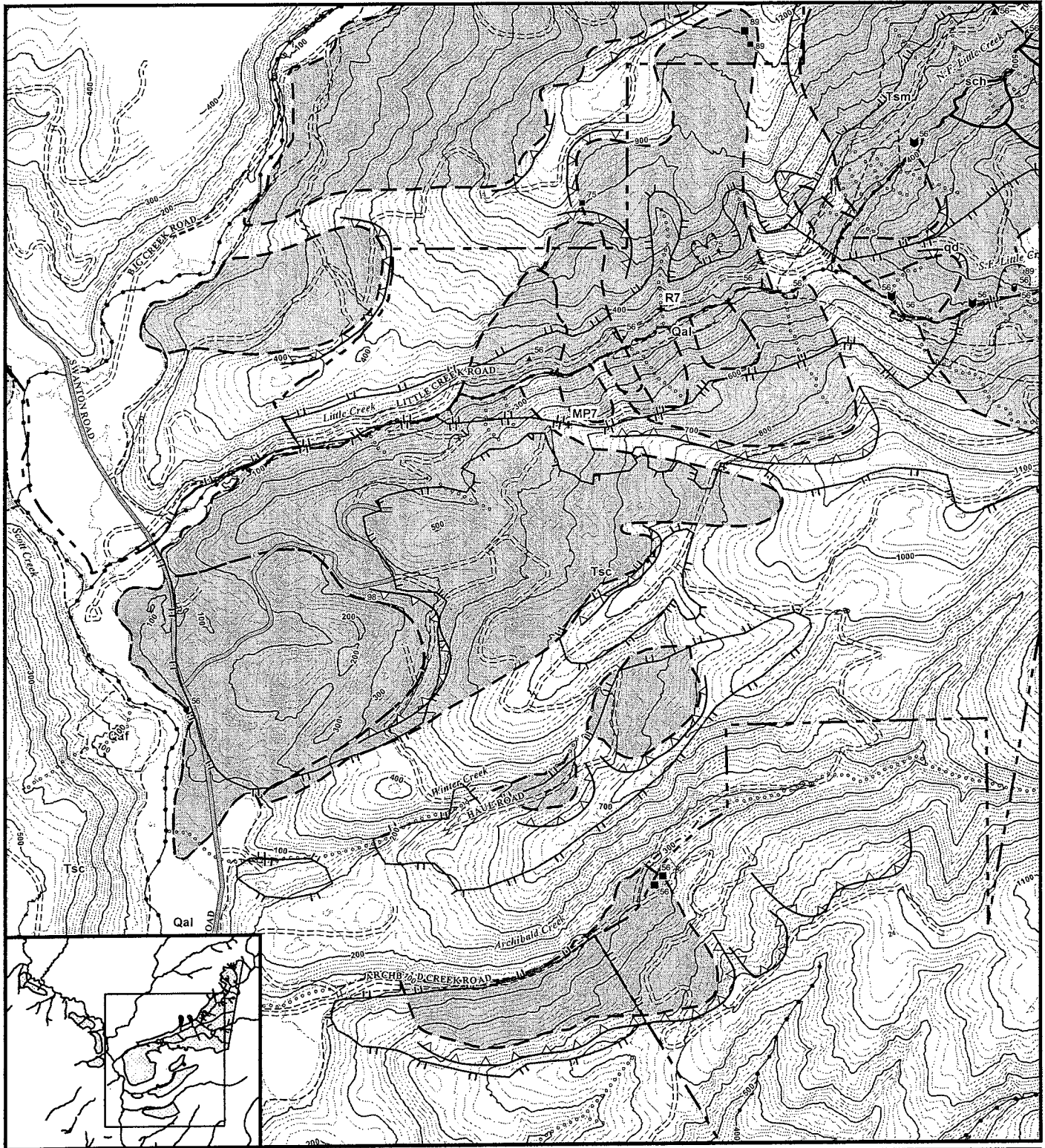
**TIMOTHY C. BEST, CEG**  
 ENGINEERING GEOLOGY AND HYDROLOGY  
 1002 Columbia Street, Santa Cruz, CA 95060  
 (831) 425 5832 (831) 425 5830 (fax)

## GEOLOGIC AND LANDSLIDE MAP SWANTON PACIFIC NTMP

55

**FIGURE 1A**  
 Job: SPR-NTMP-429  
 Date 10/22/2007





#### EARTH MATERIALS

Qaf: Alluvial fan deposits  
 Qal: Alluvium  
 Qcu: Marine terrace deposits  
 Tsc: Santa Cruz Mudstone  
 Tsm: Santa Margarita Sandstone  
 sch: Schist  
 gd: Quartz-diorite

#### SYMBOLS

Geologic Contact  
 dashed where approximate  
 Strike and dip of bedding  
 Syncline axis



Deep-seated landslide  
 recent activity (solid)  
 dormant (dashed)  
 uncertain (dotted)

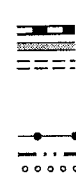


Shallow landslides  
 Hillslope Failure  
 Road/Skid Fill Failure  
 Cutbank Failure  
 Channel Bank Failure  
 Large Failure (typ. >750 cy)

Approximate slide volume  
 (Estimated from air photos)

Size Code  
 • < 100 cy  
 • 100 - 250 cy  
 • 250 - 500 cy  
 • 500 - 2000 cy  
 • > 2000 cy

87 Air Photo year



Roads  
 Highway  
 Paved  
 Permanent/  
 Seasonal  
 Watercourse  
 Class 1  
 Class 2  
 Class 3

G1 + Reference Point  
 Harvest Unit and Boundary  
 Property Boundary

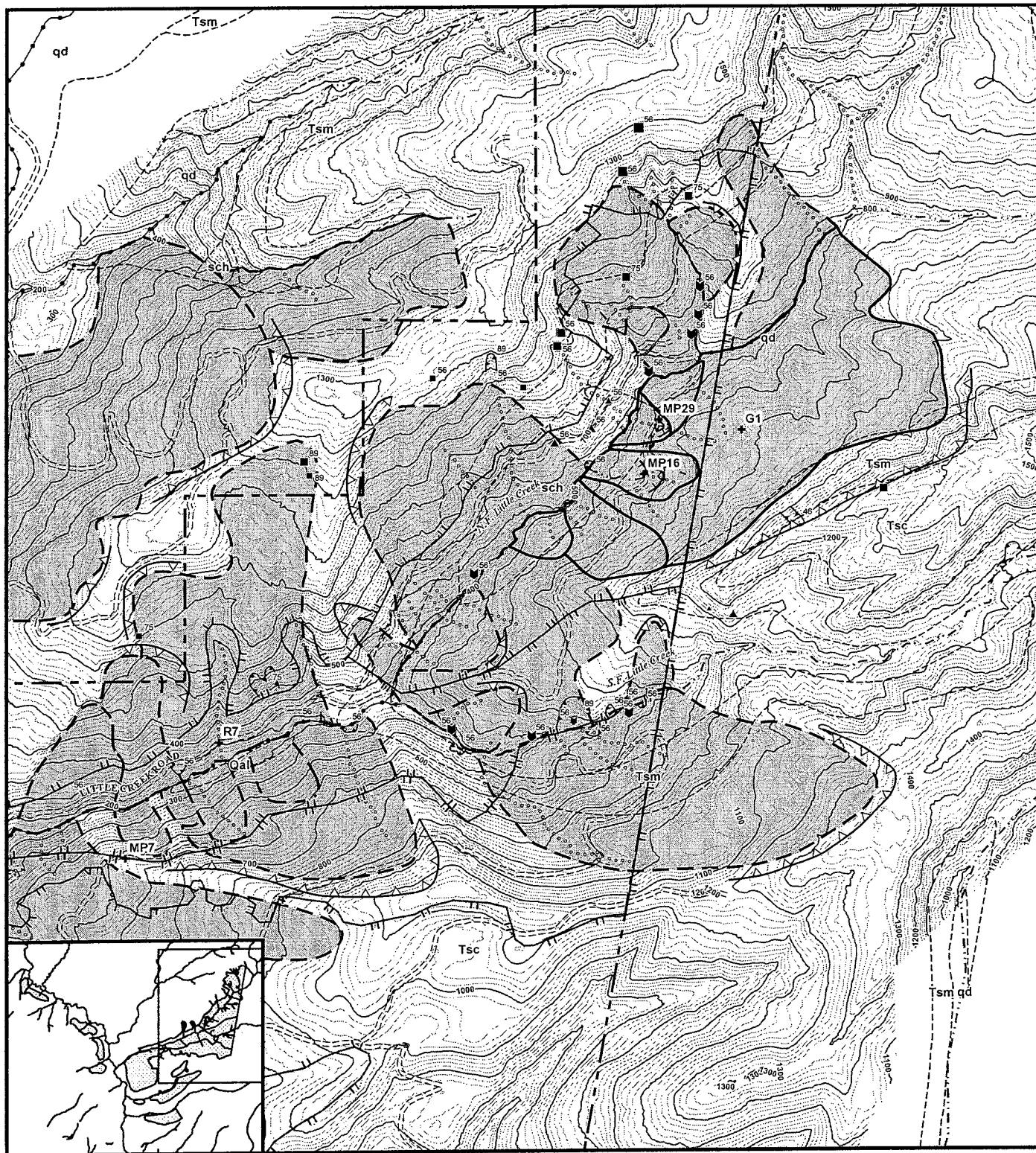
Geology modified from Brabb (1989)  
 Landslides mapped from air photos  
 and LIDAR imagery

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 MAP SWANTON PACIFIC NTMP

56

FIGURE 1B  
 Job: SPR-NTMP-429  
 Date 10/22/2007



#### EARTH MATERIALS

Qaf: Alluvial fan deposits  
 Qal: Alluvium  
 Qcu: Marine terrace deposits  
 Tsc: Santa Cruz Mudstone  
 Tsm: Santa Margarita Sandstone  
 sch: Schist  
 gd: Quartz-diorite

#### SYMBOLS

Geologic Contact  
 dashed where approximate  
 Strike and dip of bedding  
 Syncline axis



Deep-seated landslide  
 recent activity (solid)  
 dormant (dashed)  
 uncertain (dotted)  
 Shallow landslides  
 Hillslope Failure  
 Road/Skid Fill Failure  
 Cutbank Failure  
 Channel Bank Failure  
 Large Failure (typ. >750 cy)

#### Approximate slide volume (Estimated from air photos)

Size Code  
 • < 100 cy  
 • 100 - 250 cy  
 • 250 - 500 cy  
 • 500 - 2000 cy  
 • > 2000 cy  
 87 Air Photo year

#### Roads

Highway  
 Paved  
 Permanent/  
 Seasonal

#### Watercourse

Class 1  
 Class 2  
 Class 3

#### G1 + Reference Point

Harvest Unit and Boundary

Property Boundary

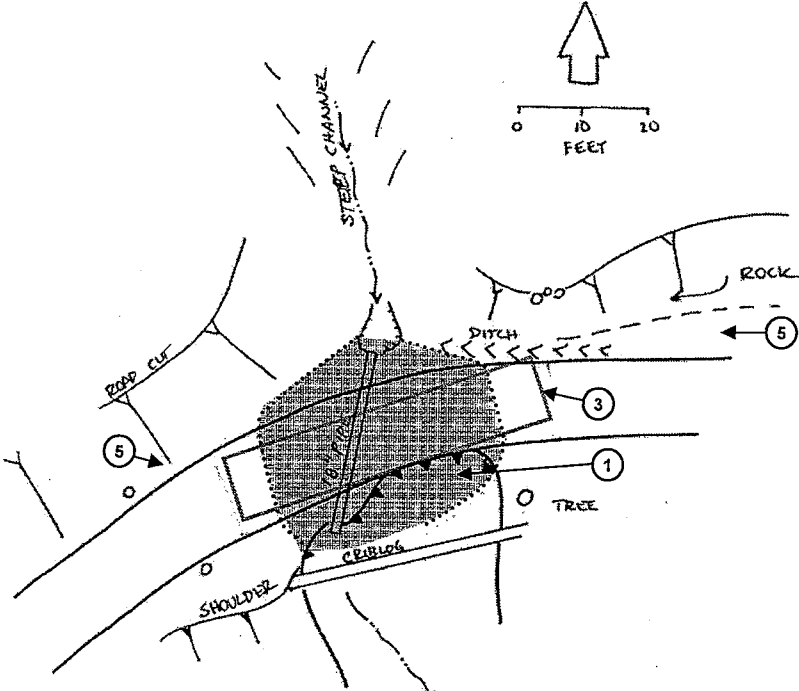
Geology modified from Brabb (1989)  
 Landslides mapped from air photos  
 and LIDAR imagery

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## GEOLOGIC AND LANDSLIDE MAP SWANTON PACIFIC NTMP

FIGURE 1C  
 Job: SPR-NTMP-429  
 Date 10/22/2007

## Crossing R7 Diagrams

MP	FEATURE	DESCRIPTION AND RECOMMENDATION
R7 Cont		 <p>Remove crossing and associated fill. The excavated crossing shall have a minimum 6 feet wide channel bottom with uniform channel grade. Banks shall be laid back to 1.5:1 (65%) slope or native grade, unless otherwise directed onsite by the project engineering geologist or designee. Steeper channel banks up to a 1:1 slope may occur if competent native earth materials are encountered.</p> <p>1</p> <p>3</p> <p>5</p> <p>Remove crossing and associated fill. The excavated crossing shall have a minimum 6 feet wide channel bottom with uniform channel grade. Banks shall be laid back to 1.5:1 (65%) slope or native grade, unless otherwise directed onsite by the project engineering geologist or designee. Steeper channel banks up to a 1:1 slope may occur if competent native earth materials are encountered.</p> <p>3</p> <p>5</p> <p>Install a bridge that is long enough to span between its abutments</p> <p>5</p> <p>Cut into bank to gain extra road width. Drain road prior to bridge.</p>

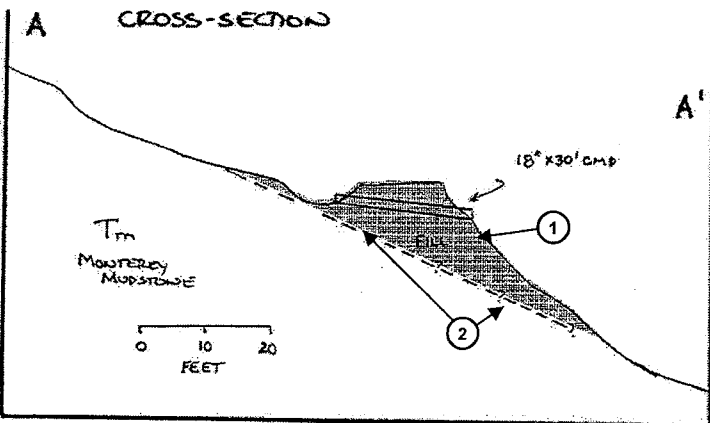
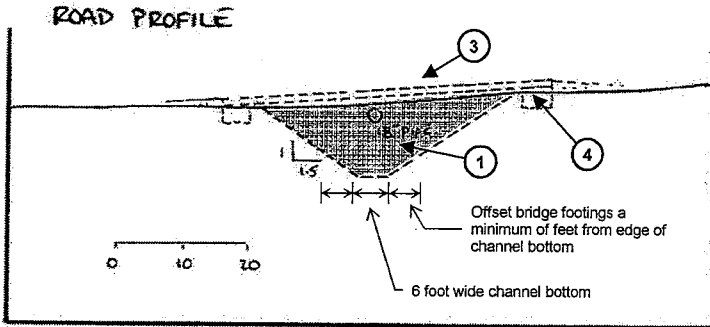
**PART OF PLAN**

**RECEIVED**

**APR 15 2008**

COAST AREA OFFICE  
RESOURCE MANAGEMENT

## Crossing R7 Diagrams

MP	FEATURE	DESCRIPTION AND RECOMMENDATION
R7 Cont		<div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <ol style="list-style-type: none"> <li>① Remove crossing and associated fill. The excavated crossing shall have a minimum 6 feet wide channel bottom with uniform channel grade. Banks shall be laid back to 1.5:1 (65%) slope or gentler, unless otherwise directed onsite by the project engineering geologist or designee.</li> <li>② Install cross-vein structures per recommendations of Cal Poly hydrologist</li> <li>③ Install a bridge that is long enough to span between its abutments.</li> <li>④ Bridge shall utilize suitable footings. Footings to be offset a minimum of 5 feet from the channel bottom. Final location and depth of footings to be determined in the field by the project geotechnical consultant at the time of operations.</li> </ol>

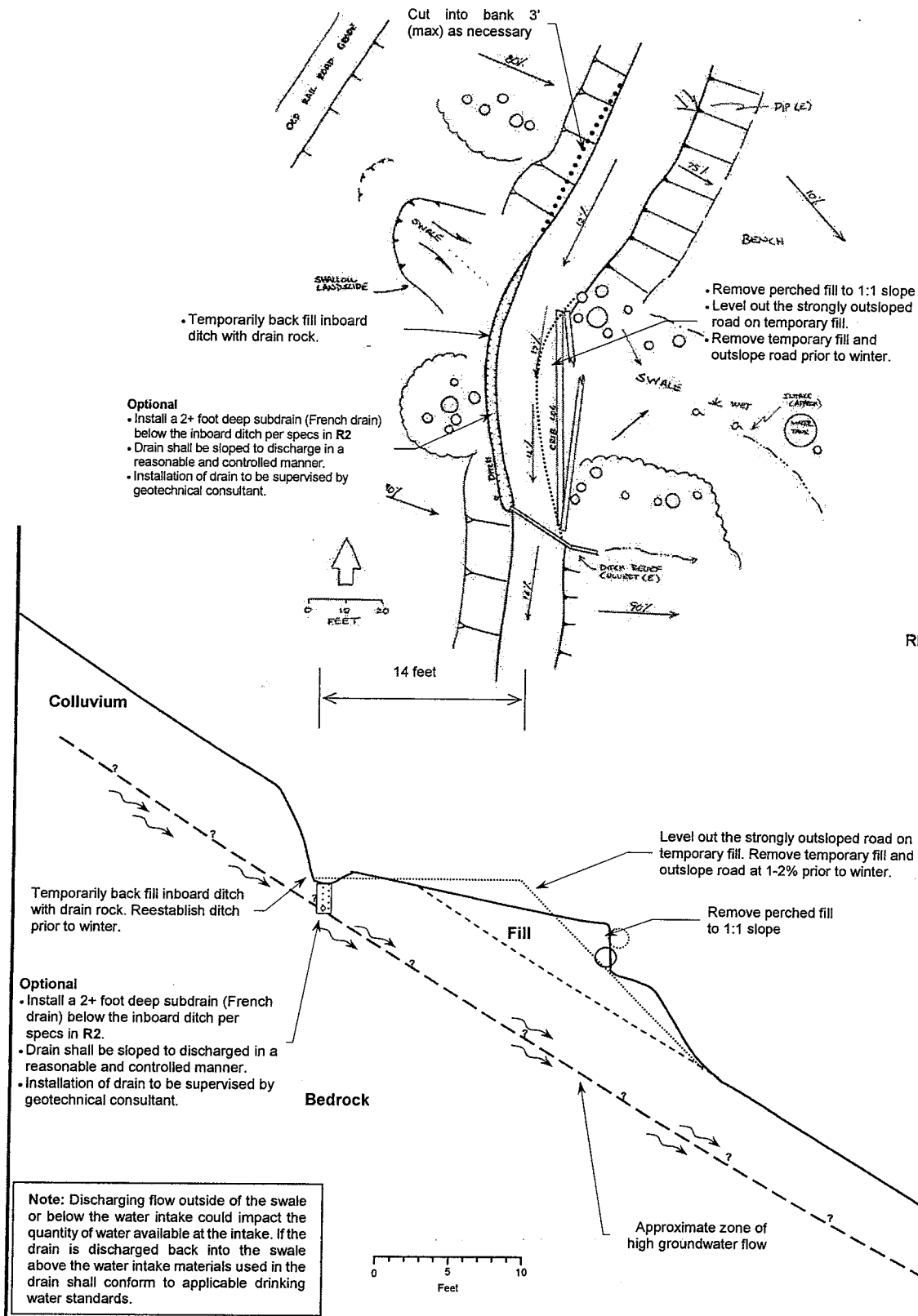
**PART OF PLAN**  
**RECEIVED**  
**APR 15 2008**

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## Crossing R9 / Crib Log Wall Diagrams

### ALTERNATIVE 1: MAINTAIN NARROW ROAD



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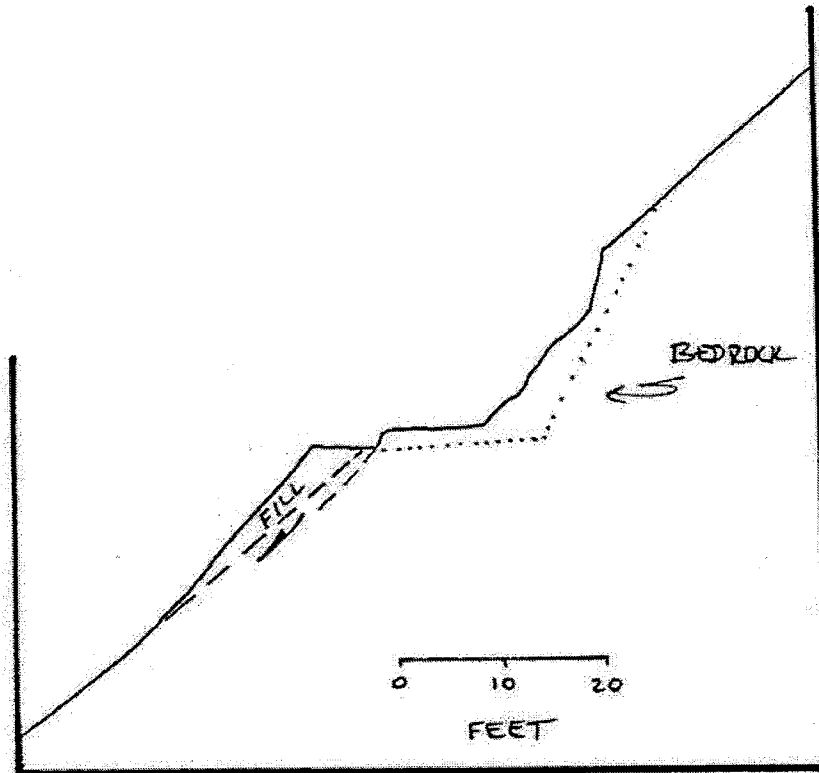
APR 15 2008

COAST AREA OFFICE  
RESOURCE MANAGEMENT

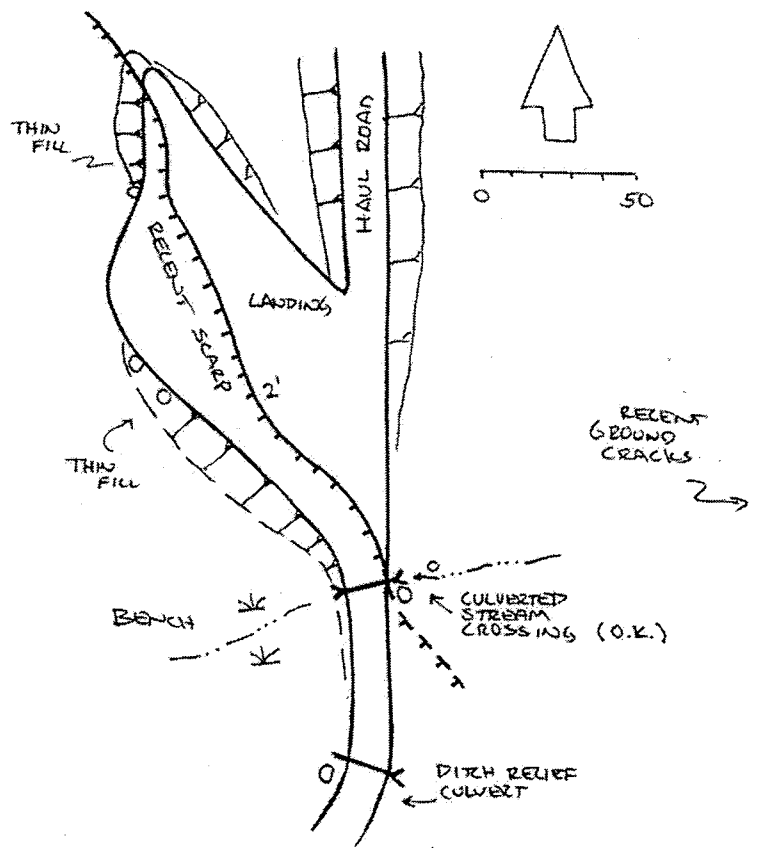
## ALTERNATIVE 2: BRIDGE



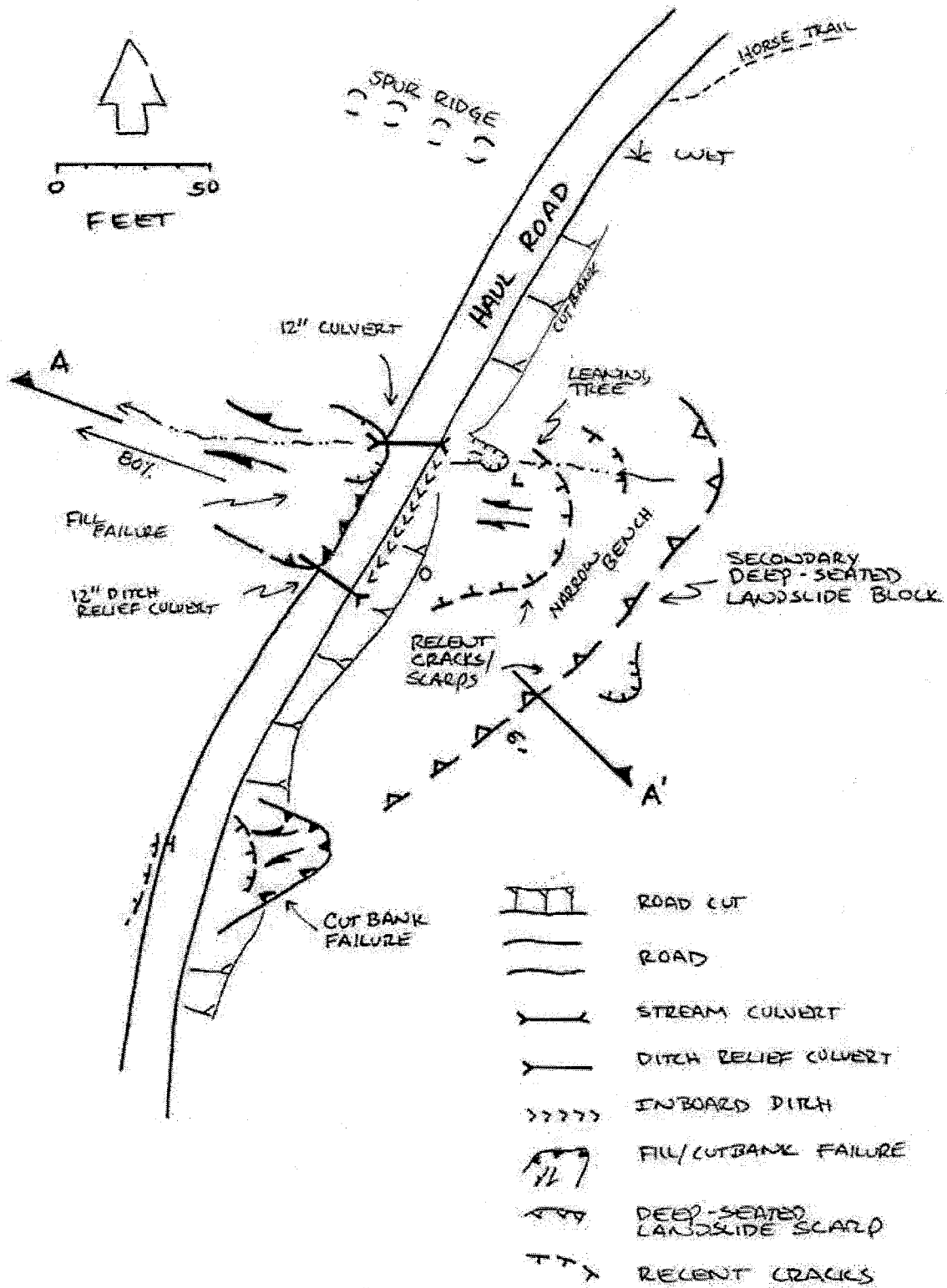
### Mitigation Point MP7 Diagram



### Mitigation Point MP16 Diagram

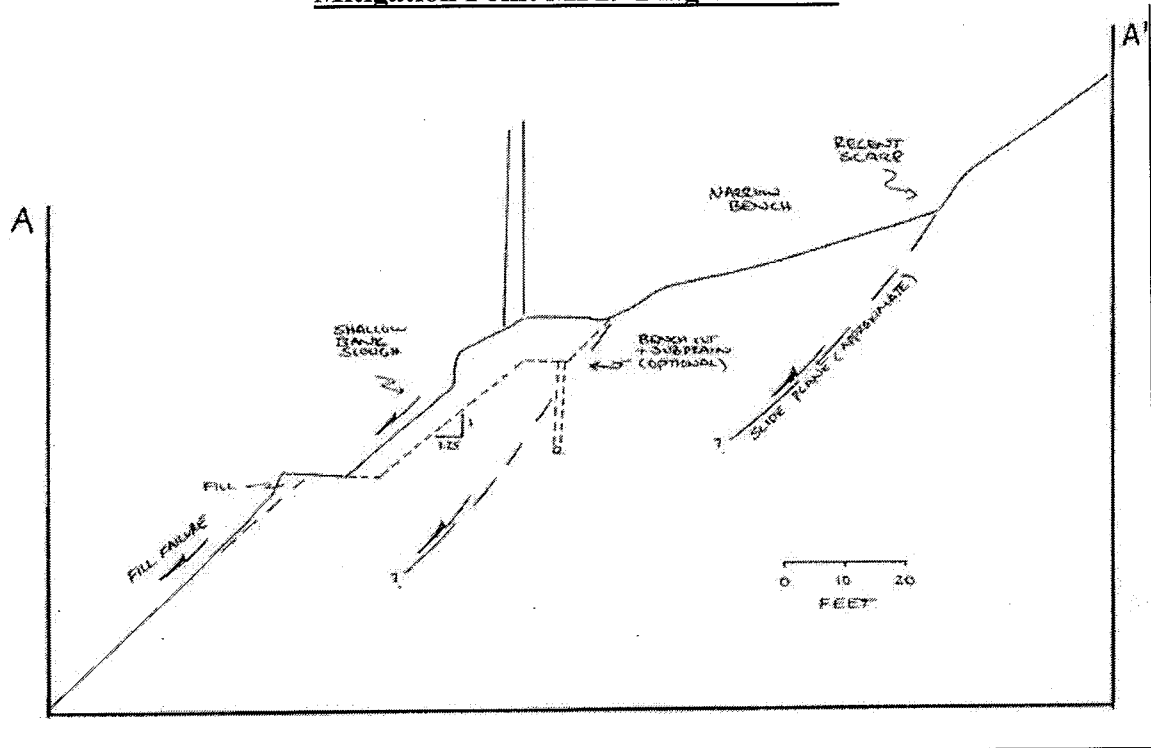


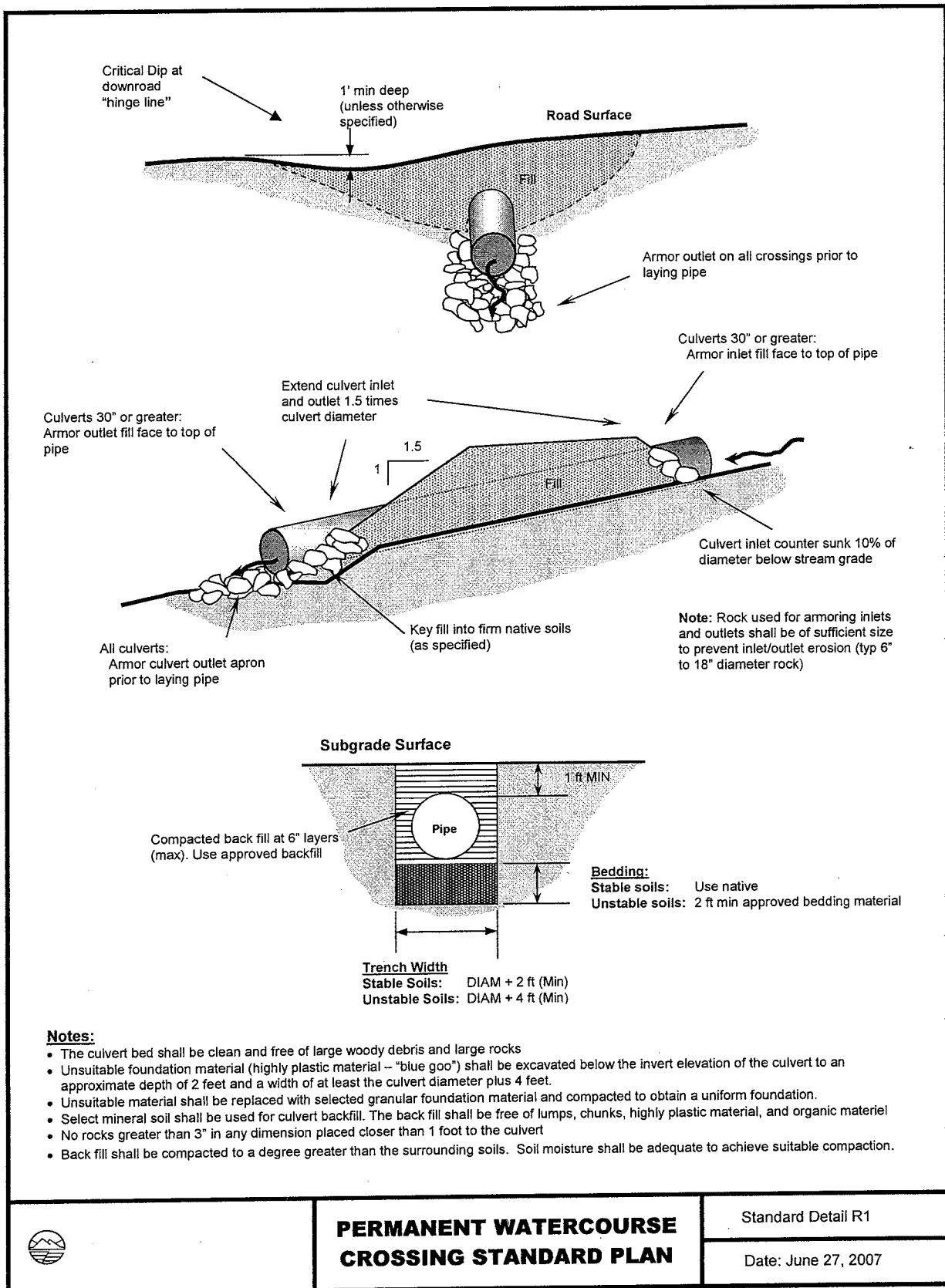
# Mitigation Point MP29 Diagram

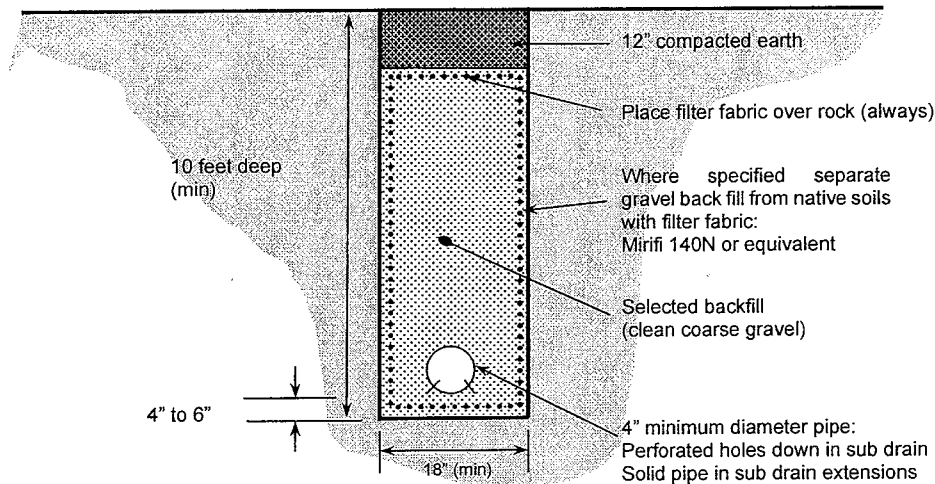


Cont.

Mitigation Point MP29 Diagram Cont.







#### NOTES

- Excavate 18" wide trench as specified. Trench should have positive gradient to discharge point.
- Where specified, line trench with approved filter fabric (Mirifi 140N or equivalent).
- Place perforated pipe 4" to 6" from bottom of trench. Solid pipe should extend from trench to discharge point.
- Back fill trench with clean coarse gravel to within 12" of grade.
- Place fabric over top of gravel back fill.
- Cap with 12" of compacted earth.
- Discharge in a reasonable and controlled manner.



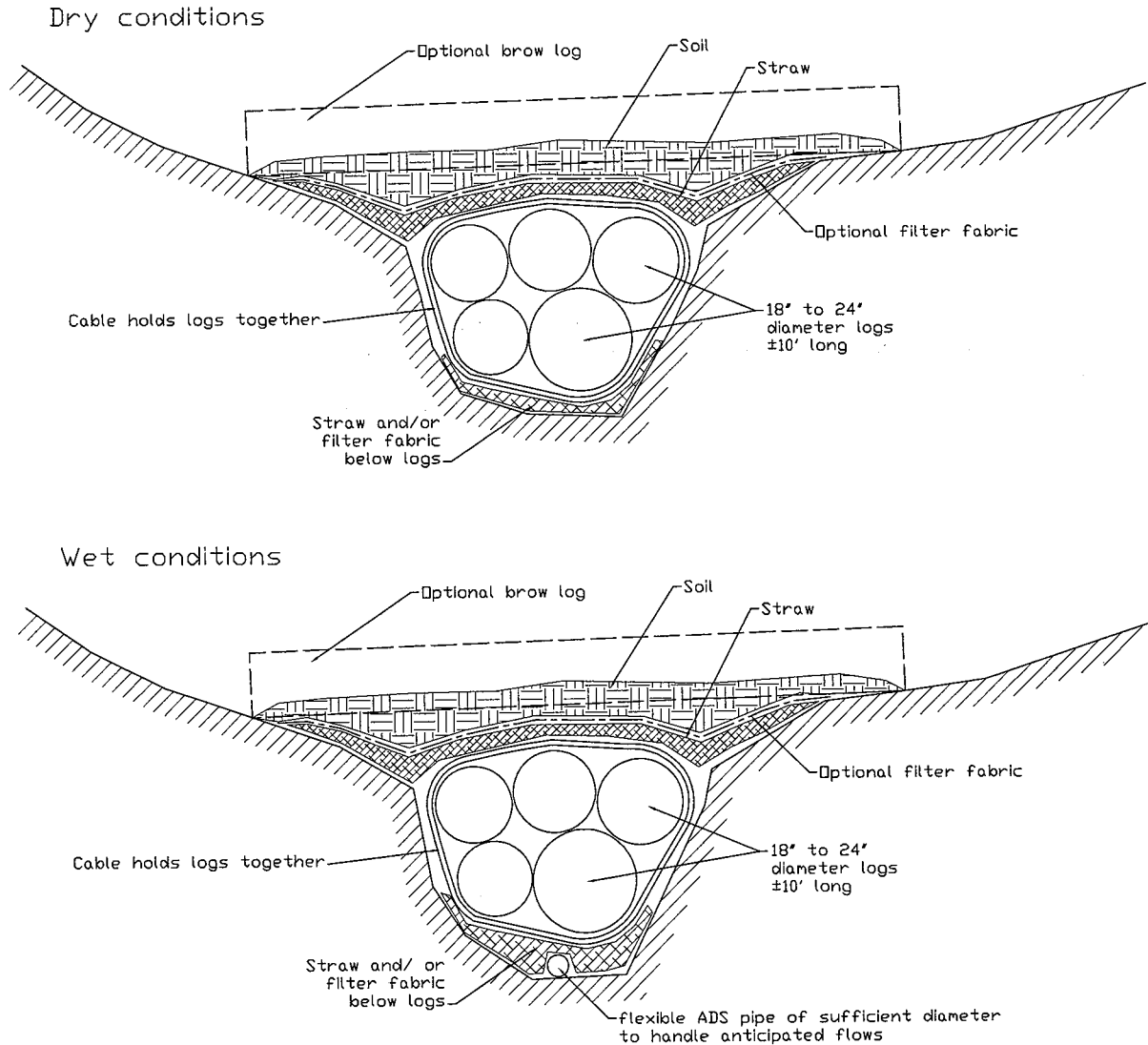
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### PERFORATED SUBDRAIN STANDARD PLAN

Standard Detail R2

Date: June 27, 2007

Swanton Pacific Ranch NTMP  
 Typical Temporary Crossing Construction Diagram  
 for S1, S2, S3, and S4.  
 Spittler Modified Humbolt Crossing of Class II and III streams.  
 Cross sections for wet and dry conditions.



Not to scale

Description: If water is present, sandbags may be used to create a catchment for water at the pipe inlet. Filter fabric or straw shall be placed across the crossing profile (below logs). Several logs shall be placed in the channel and cabled together for ease of removal. Enough logs shall be placed in the channel to build up to the level of the channel banks and approaches. The logs shall be covered with straw (and then optional filter fabric), then soil to ramp over for skidding. A brow log may be placed downstream if necessary to prevent soil from entering the watercourse. Following operations, all material shall be removed from the crossing and the crossing approaches shall be recontoured so they gently slope toward the watercourse. Any bared soil surfaces shall be slash packed or straw mulched.

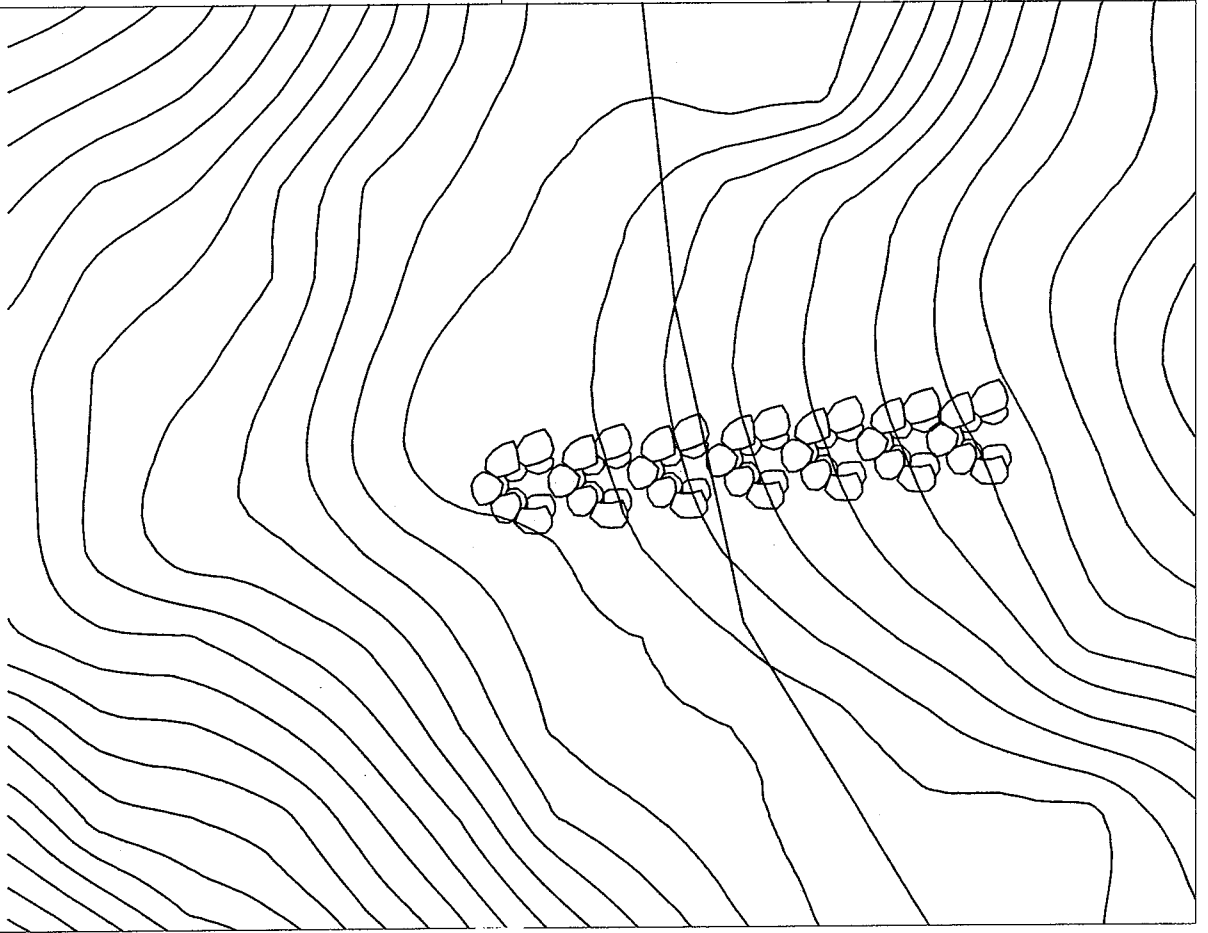


# CROSSING R7

Little Creek Haul Rd.  
Crossing R7

Plan View

Scale: 1" = 10'

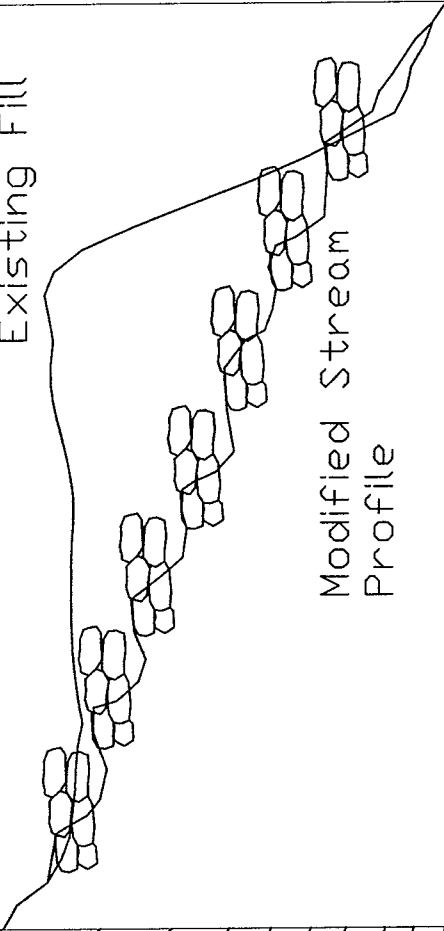


Profile View

Scale: 1" = 8'

Existing Fill

Modified Stream  
Profile

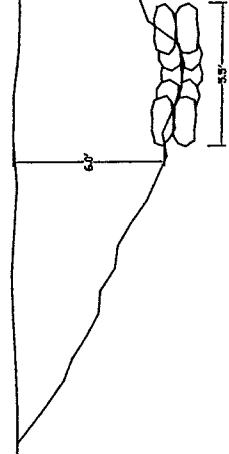


Cross Section View

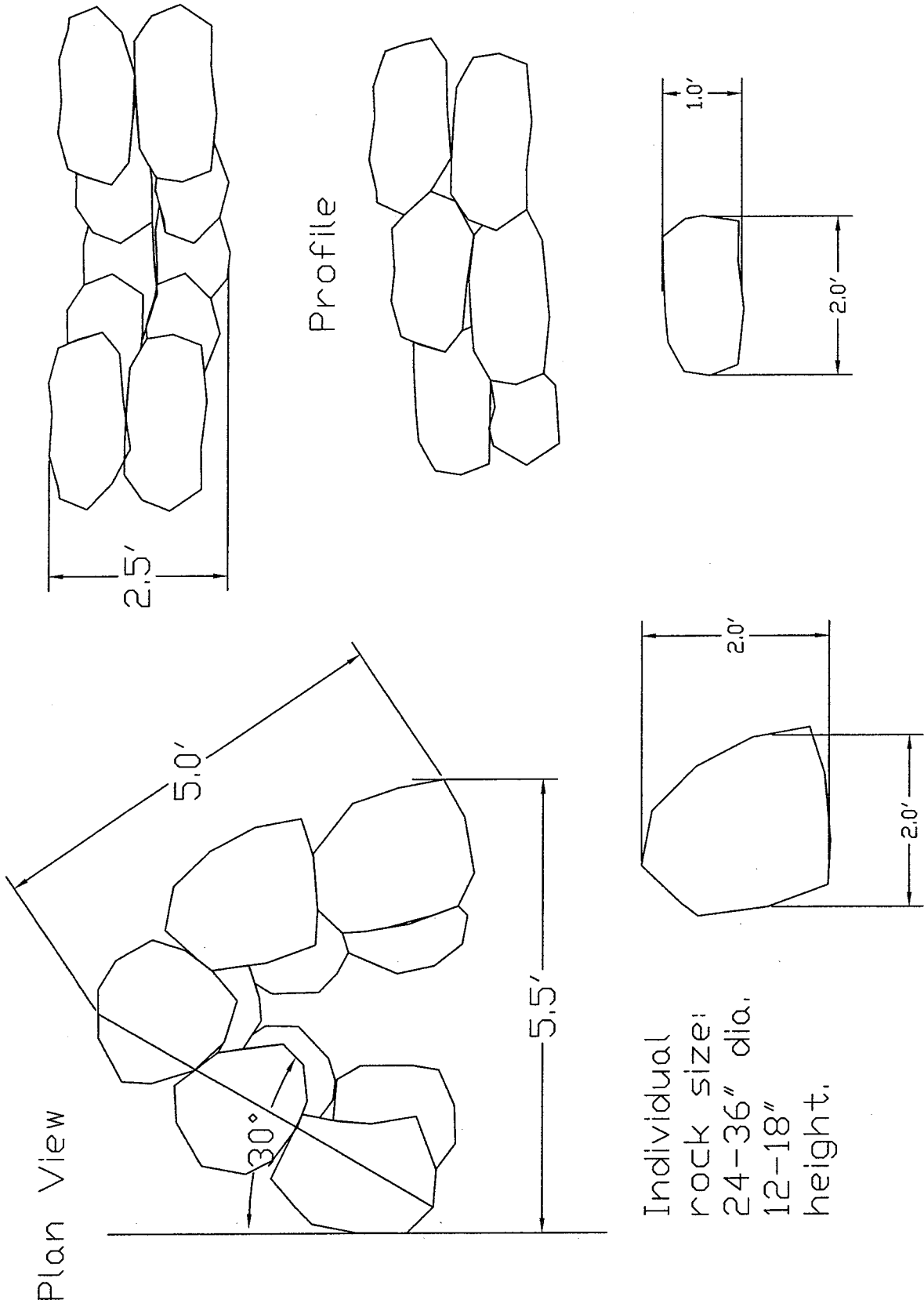
Scale: 1" = 8'

Road profile and  
estimated bridge elevation

2:1 to 2.5:1  
side slopes



# Cross Vane Structure Detail



### **Additional Explanation for R7**

#### Installation of instream rock structures at Crossing R7

The existing culvert and fill material at crossing R7 will be removed to be replaced by a flatcar bridge. Fill material occupies a 24 foot length along the watercourse with an estimated volume of 93 cubic yards. Material will be removed by excavator in order to restore the original channel gradient and cross sectional configuration of the watercourse.

A series of instream rock structures patterned in a cross vane design will be placed within the restored channel to provide grade control and scour protection for this steep gradient reach. These structures are composed of 24"-36" by 12"-18" individual rocks locked together in an inverted "V" design to focus flow towards the center of the channel and provide protection from lateral scour of sideslopes. These structures provide scour protection since each vane arm, extending from the center apex rock, is sloped upward 2-7%. This feature of the cross vane ensures that flow velocities along the channel margin will be slowed at the approach of each structure. Flows passing over the structure are focused towards the center of the channel encouraging the formation of pools.

Arranged in series, these structures are designed to promote a step-pool stream bed morphology, allowing high energy flows to dissipate energy in the formation of pools, while downcutting of the channel is prevented by the grade control offered by the next downstream structure.

Channel side slopes will be graded to a 2:1 slope where possible to match the cross sectional configuration of undisturbed reaches of this watercourse. Newly graded side slopes will be re-vegetated with suitable native riparian vegetation and treated with erosion control blankets. Revegetation and erosion control materials will not extend into the active channel itself.

FOR DEPARTMENT USE ONLY				
Date Received	Amount Received	Amount Due	Date Complete	Notification No.
	\$	\$		



STATE OF CALIFORNIA  
DEPARTMENT OF FISH AND GAME  
**NOTIFICATION OF LAKE OR STREAMBED ALTERATION**



Complete EACH field, unless otherwise indicated, following the enclosed instructions and submit ALL required enclosures. Attach additional pages, if necessary.

**1. APPLICANT PROPOSING PROJECT**

Name	Cal Poly Corporation			
Business/Agency				
Street Address	Building 15			
City, State, Zip	San Luis Obispo, CA, 93407			
Telephone	(831) 458-5413	Fax	(831) 458-5411	
Email	sauten@calpoly.edu			

**2. CONTACT PERSON** (Complete only if different from applicant)

Name	Nadia Hamey			
Street Address	3564 Highway 1			
City, State, Zip	Davenport, CA 95017			
Telephone	(831) 457-6383	Fax	(831) 425-2872	
Email	nadiah@big-creek.com			

**3. PROPERTY OWNER** (Complete only if different from applicant)

Name	Same as above			
Street Address				
City, State, Zip				
Telephone		Fax		
Email				

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**JAN 30 2008**

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RESOURCE MANAGEMENT

**4. PROJECT NAME AND AGREEMENT TERM**

A. Project Name		Swanton Pacific Ranch Non-industrial Timber Management Plan		
B. Agreement Term Requested		<input checked="" type="checkbox"/> Regular (5 years or less) <input type="checkbox"/> Long-term (greater than 5 years)		
C. Project Term		D. Seasonal Work Period		E. Number of Work Days
Beginning (year)	Ending (year)	Start Date (month/day)	End Date (month/day)	
2008	2012	05/01	10/15	116.00

# NOTIFICATION OF LAKE OR STREAMBED ALTERATION

## 5. AGREEMENT TYPE

Check the applicable box. If box B, C, D, or E is checked, complete the specified attachment.

A.	<input type="checkbox"/> Standard (Most construction projects, excluding the categories listed below)
B.	<input type="checkbox"/> Gravel/Sand/Rock Extraction (Attachment A) <span style="float: right;">Mine I.D. Number: _____</span>
C.	<input checked="" type="checkbox"/> Timber Harvesting (Attachment B) <span style="float: right;">THP Number: <u>1-07NTMP-020 SCR</u></span>
D.	<input type="checkbox"/> Water Diversion/Extraction/Impoundment (Attachment C) <span style="float: right;">SWRCB Number: _____</span>
E.	<input type="checkbox"/> Routine Maintenance (Attachment D)
F.	<input type="checkbox"/> DFG Fisheries Restoration Grant Program (FRGP) <span style="float: right;">FRGP Contract Number: _____</span>
G.	<input type="checkbox"/> Master
H.	<input type="checkbox"/> Master Timber Harvesting

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## 6. FEES

COAST AREA OFFICE  
RESOURCE MANAGEMENT

Please see the current fee schedule to determine the appropriate notification fee. Itemize each project's estimated cost and corresponding fee. *Note: The Department may not process this notification until the correct fee has been received.*

	A. Project	B. Project Cost	C. Project Fee
1	R7, R15, R17, S1, S2, S3, S4 (See Project Description for more information)	\$40,000.00	\$700.00
2			
3			
4			
5			
		D. Base Fee (if applicable)	\$1,200.00
		<b>E. TOTAL FEE ENCLOSED</b>	<b>\$1,900.00</b>

## 7. PRIOR NOTIFICATION OR ORDER

A. Has a notification previously been submitted to, or a Lake or Streambed Alteration Agreement previously been issued by, the Department for the project described in this notification?

☐ Yes (Provide the information below) ☒ No

Applicant: \_\_\_\_\_ Notification Number: \_\_\_\_\_ Date: \_\_\_\_\_

B. Is this notification being submitted in response to an order, notice, or other directive ("order") by a court or administrative agency (including the Department)?

☒ No ☐ Yes (Enclose a copy of the order, notice, or other directive. If the directive is not in writing, identify the person who directed the applicant to submit this notification and the agency he or she represents, and describe the circumstances relating to the order.)

☐ Continued on additional page(s)

# NOTIFICATION OF LAKE OR STREAMBED ALTERATION

## 8. PROJECT LOCATION

<b>A. Address or description of project location.</b> <i>(Include a map that marks the location of the project with a reference to the nearest city or town, and provide driving directions from a major road or highway)</i>				
Please see the map provided in the 1600 Addendum under item II. Project Location <span style="float: right;"><input checked="" type="checkbox"/> Continued on additional page(s)</span>				
<b>B. River, stream, or lake affected by the project.</b>		Class II Tributaries to Little Creek		
<b>C. What water body is the river, stream, or lake tributary to?</b>		Little Creek flows into Scotts Creek		
<b>D. Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts?</b>		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown		
<b>E. County</b>	Santa Cruz			
<b>F. USGS 7.5 Minute Quad Map Name</b>	<b>G. Township</b>	<b>H. Range</b>	<b>I. Section</b>	<b>J. ¼ Section</b>
Davenport	10S	R3W	9, 17	
<input type="checkbox"/> Continued on additional page(s)				
<b>K. Meridian (check one)</b>		<input type="checkbox"/> Humboldt <input checked="" type="checkbox"/> Mt. Diablo <input type="checkbox"/> San Bernardino		
<b>L. Assessor's Parcel Number(s)</b> 057-121-22, 057-121-10, 057-151-07				
<input type="checkbox"/> Continued on additional page(s)				
<b>M. Coordinates (If available, provide at least latitude/longitude or UTM coordinates and check appropriate boxes)</b>				
<b>Latitude/Longitude</b>		Latitude: _____ Longitude: _____		
		<input checked="" type="checkbox"/> Degrees/Minutes/Seconds <input type="checkbox"/> Decimal Degrees <input type="checkbox"/> Decimal Minutes		
<b>Crossing</b>	<b>Latitude</b>	<b>Longitude</b>		
S1	122°12'09"W	37°04'21"N		
S2	122°12'16"W	37°04'38"N		
S3	122°12'05"W	37°04'40"N		
S4	122°12'05"W	37°04'45"N		
R7	122°12'50"W	37°04'06"N		
R15	122°12'09"W	37°04'28"N		
R17	122°12'10"W	37°04'25"N		
R18	122°12'10"W	37°04'25"N		
<b>UTM</b>		<b>Easting:</b> _____	<b>Northing:</b> _____	<input type="checkbox"/> Zone 10 <input type="checkbox"/> Zone 11
<b>Datum used for Latitude/Longitude or UTM</b>		<input type="checkbox"/> NAD 27 <input checked="" type="checkbox"/> NAD 83 or WGS 84		

# NOTIFICATION OF LAKE OR STREAMBED ALTERATION

## 9. PROJECT CATEGORY AND WORK TYPE (Check each box that applies)

PROJECT CATEGORY	NEW CONSTRUCTION	REPLACE EXISTING STRUCTURE	REPAIR/MAINTAIN EXISTING STRUCTURE
Bank stabilization – bioengineering/recontouring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bank stabilization – rip-rap/retaining wall/gabion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boat dock/pier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boat ramp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bridge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Channel clearing/vegetation management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Culvert	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Debris basin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diversion structure – weir or pump intake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Filling of wetland, river, stream, or lake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geotechnical survey	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Habitat enhancement – revegetation/mitigation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Levee	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low water crossing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Road/trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sediment removal – pond, stream, or marina	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Storm drain outfall structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temporary stream crossing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Utility crossing : Horizontal Directional Drilling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jack/bore	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Open trench	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## NOTIFICATION OF LAKE OR STREAMBED ALTERATION

### 10. PROJECT DESCRIPTION

- A. Describe the project in detail. Photographs of the project location and immediate surrounding area should be included.
- Include any structures (e.g., rip-rap, culverts, or channel clearing) that will be placed, built, or completed in or near the stream, river, or lake.
  - Specify the type and volume of materials that will be used.
  - If water will be diverted or drafted, specify the purpose or use.

Enclose diagrams, drawings, plans, and/or maps that provide all of the following: site specific construction details; the dimensions of each structure and/or extent of each activity in the bed, channel, bank or floodplain; an overview of the entire project area (i.e., "bird's-eye view") showing the location of each structure and/or activity, significant area features, and where the equipment/machinery will enter and exit the project area.

Please refer to the 1600 Addendum under item III. Project Description for mitigations R7, R15, R17, S1, S2, S3, S4

☒ Continued on additional page(s)

- B. Specify the equipment and machinery that will be used to complete the project.

Bull Dozer, Excavator, Backhoe, Dump Truck

☐ Continued on additional page(s)

- C. Will water be present during the proposed work period (specified in box 4.D) in the stream, river, or lake (specified in box 8.B).

☒ Yes    ☐ No (Skip to box 11)

- D. Will the proposed project require work in the wetted portion of the channel?

☒ Yes (Enclose a plan to divert water around work site)  
☐ No



# NOTIFICATION OF LAKE OR STREAMBED ALTERATION

## 11. PROJECT IMPACTS

**A. Describe impacts to the bed, channel, and bank of the river, stream, or lake, and the associated riparian habitat. Specify the dimensions of the modifications in length (linear feet) and area (square feet or acres) and the type and volume of material (cubic yards) that will be moved, displaced, or otherwise disturbed, if applicable.**

The beds, channels and associated riparian habitats will not be permanently impacted. R7, R15, and R18 will likely benefit from the resulting mitigations. S1, S2, S3, and S4 are temporary crossings utilizing Spittler Modified Humboldts that will minimize impacts to the beds, channels and associated riparian habitats. Linear feet is provided under B. Please see item III. Project Description for information on cubic yard displacement for R7, and R15. R18 is expected to be <10 yards.

☒ Continued on additional page(s)

**B. Will the project affect any vegetation?**

☒ Yes (Complete the tables below) ☐ No

Vegetation Type	Temporary Impact	Permanent Impact
Herbaceous riparian habitat	Linear feet: <u>120</u> Total area: _____	Linear feet: <u>0</u> Total area: _____
	Linear feet: _____ Total area: _____	Linear feet: _____ Total area: _____

Tree Species	Number of Trees to be Removed	Trunk Diameter (range)
California Bay	5	10,8,14,16,12
Douglas-fir	3	16,16,14

☐ Continued on additional page(s)

**C. Are any special status animal or plant species, or habitat that could support such species, known to be present on or near the project site?**

☒ Yes (List each species and/or describe the habitat below)

☐ No

☐ Unknown

See Project Impacts, item G. in the 1600 Addendum

☒ Continued on additional page(s)

**D. Identify the source(s) of information that supports a "yes" or "no" answer above in Box 11 C.**

The Swanton Pacific Ranch NTMP. a CEQA compliant document.

☐ Continued on additional page(s)

**E. Has a biological study been completed for the project site?**

☒ Yes (Enclose the biological study)

☐ No

*Note: A biological assessment or study may be required to evaluate potential project impacts on biological resources.*

**F. Has a hydrological study been completed for the project or project site?**

☐ Yes (Enclose the hydrological study)

☒ No

*Note: A hydrological study or other information on site hydraulics (e.g., flows, channel characteristics, and/or flood recurrence intervals) may be required to evaluate potential project impacts on hydrology.*

## NOTIFICATION OF LAKE OR STREAMBED ALTERATION

### 12. MEASURES TO PROTECT FISH, WILDLIFE, AND PLANT RESOURCES

**A. Describe the techniques that will be used to prevent sediment from entering watercourses during and after construction**

Please refer to item III. Project Description for crossings mitigations R7, R15, R17, S1, S2, S3, S4

☒ Continued on additional page(s)

**B. Describe project avoidance and/or minimization measures to protect fish, wildlife, and plant resources**

Please refer to item III. Project Description for crossings mitigations R7, R15, R17, S1, S2, S3, S4

☒ Continued on additional page(s)

**C. Describe any project mitigation and/or compensation measures to protect fish, wildlife, and plant resources**

Please refer to item III. Project Description for crossings mitigations R7, R15, R17, S1, S2, S3, S4

☒ Continued on additional page(s)

### 13. PERMITS

List any local, state, and federal permits required for the project and check the corresponding box(es). Enclose a copy of each permit that has been issued.

- |  |   |                                 |
|--|---|---------------------------------|
| A. <u>Swanton Pacific Ranch Non-industrial Timber Management Plan</u>  | <input checked="" type="checkbox"/> Applied | <input type="checkbox"/> Issued |
| B. _____   | <input type="checkbox"/> Applied            | <input type="checkbox"/> Issued |
| C. _____   | <input type="checkbox"/> Applied            | <input type="checkbox"/> Issued |
| D. Unknown whether <input type="checkbox"/> local, <input type="checkbox"/> state, or <input type="checkbox"/> federal permit is needed for the project. (Check each box that applies) |   |                                 |

☐ Continued on additional page(s)

## NOTIFICATION OF LAKE OR STREAMBED ALTERATION

## 14. ENVIRONMENTAL REVIEW

<p>A. Has a draft or final document been prepared for the project pursuant to the California Environmental Quality Act (CEQA), National Environmental Protection Act (NEPA), California Endangered Species Act (CESA) and/or federal Endangered Species Act (ESA)?</p> <p><input checked="" type="checkbox"/> Yes (Check the box for each CEQA, NEPA, CESA, and ESA document that has been prepared and enclose a copy of each)</p> <p><input type="checkbox"/> No (Check the box for each CEQA, NEPA, CESA, and ESA document listed below that will be or is being prepared)</p>			
<p><input type="checkbox"/> Notice of Exemption      <input type="checkbox"/> Mitigated Negative Declaration      <input type="checkbox"/> NEPA document (type): _____</p> <p><input type="checkbox"/> Initial Study      <input type="checkbox"/> Environmental Impact Report      <input type="checkbox"/> CESA document (type): _____</p> <p><input type="checkbox"/> Negative Declaration      <input type="checkbox"/> Notice of Determination (Enclose)      <input type="checkbox"/> ESA document (type): _____</p> <p><input checked="" type="checkbox"/> THP/ NTMP      <input type="checkbox"/> Mitigation, Monitoring, Reporting Plan</p>			
B. State Clearinghouse Number (if applicable)			
C. Has a CEQA lead agency been determined?		<input checked="" type="checkbox"/> Yes (Complete boxes D, E, and F) <input type="checkbox"/> No (Skip to box 14.G)	
D. CEQA Lead Agency	California Department of Forestry and Fire Protection (Cal Fire)		
E. Contact Person	Richard Sampson	F. Telephone Number	(831) 335-6742
<p>G. If the project described in this notification is part of a larger project or plan, briefly describe that larger project or plan.</p> <p>The project work is part of timber harvesting activities associated with the Swanton Pacific Ranch Non-industrial Timber Management Plan</p> <p style="text-align: right;"><input type="checkbox"/> Continued on additional page(s)</p>			
<p>H. Has an environmental filing fee (Fish and Game Code section 711.4) been paid?</p> <p><input checked="" type="checkbox"/> Yes (Enclose proof of payment)      <input type="checkbox"/> No (Briefly explain below the reason a filing fee has not been paid)</p> <p>A check for the THP/NTMP base fee including 7 proposed crossings is provided. (\$1900.00)</p> <p>Note: If a filing fee is required, the Department may not finalize a Lake or Streambed Alteration Agreement until the filing fee is paid.</p>			

## 15. SITE INSPECTION

Check one box only.

☐ In the event the Department determines that a site inspection is necessary, I hereby authorize a Department representative to enter the property where the project described in this notification will take place at any reasonable time, and hereby certify that I am authorized to grant the Department such entry.

☒ I request the Department to first contact (*insert name*) Nadia Hamey  
at (*insert telephone number*) (831) 457-6383 to schedule a date and time  
to enter the property where the project described in this notification will take place. I understand that this may  
delay the Department's determination as to whether a Lake or Streambed Alteration Agreement is required and/or  
the Department's issuance of a draft agreement pursuant to this notification.

RECEIVED

RECEIVED

## NOTIFICATION OF LAKE OR STREAMBED ALTERATION

### 16. DIGITAL FORMAT

Is any of the information included as part of the notification available in digital format (i.e., CD, DVD, etc.)?

☐ Yes (Please enclose the information via digital media with the completed notification form)

☒ No

### 17. SIGNATURE

I hereby certify that to the best of my knowledge the information in this notification is true and correct and that I am authorized to sign this notification as, or on behalf of, the applicant. I understand that if any information in this notification is found to be untrue or incorrect, the Department may suspend processing this notification or suspend or revoke any draft or final Lake or Streambed Alteration Agreement issued pursuant to this notification. I understand also that if any information in this notification is found to be untrue or incorrect and the project described in this notification has already begun, I and/or the applicant may be subject to civil or criminal prosecution. I understand that this notification applies only to the project(s) described herein and that I and/or the applicant may be subject to civil or criminal prosecution for undertaking any project not described herein unless the Department has been separately notified of that project in accordance with Fish and Game Code section 1602 or 1611.

Nadia Hamey  
Signature of Applicant or Applicant's Authorized Representative

2/8/2008  
Date

NADIA HAMEY  
Print Name

RECEIVED

APR 15 2008

COAST AREA OFFICE  
RESOURCE MANAGEMENT

Portion of Sections 8,9,16,17 and Rancho Agua Puerca y Las Trancas, T10S - R3W, MDB&M  
Davenport USGS 7.5' Quadrangle

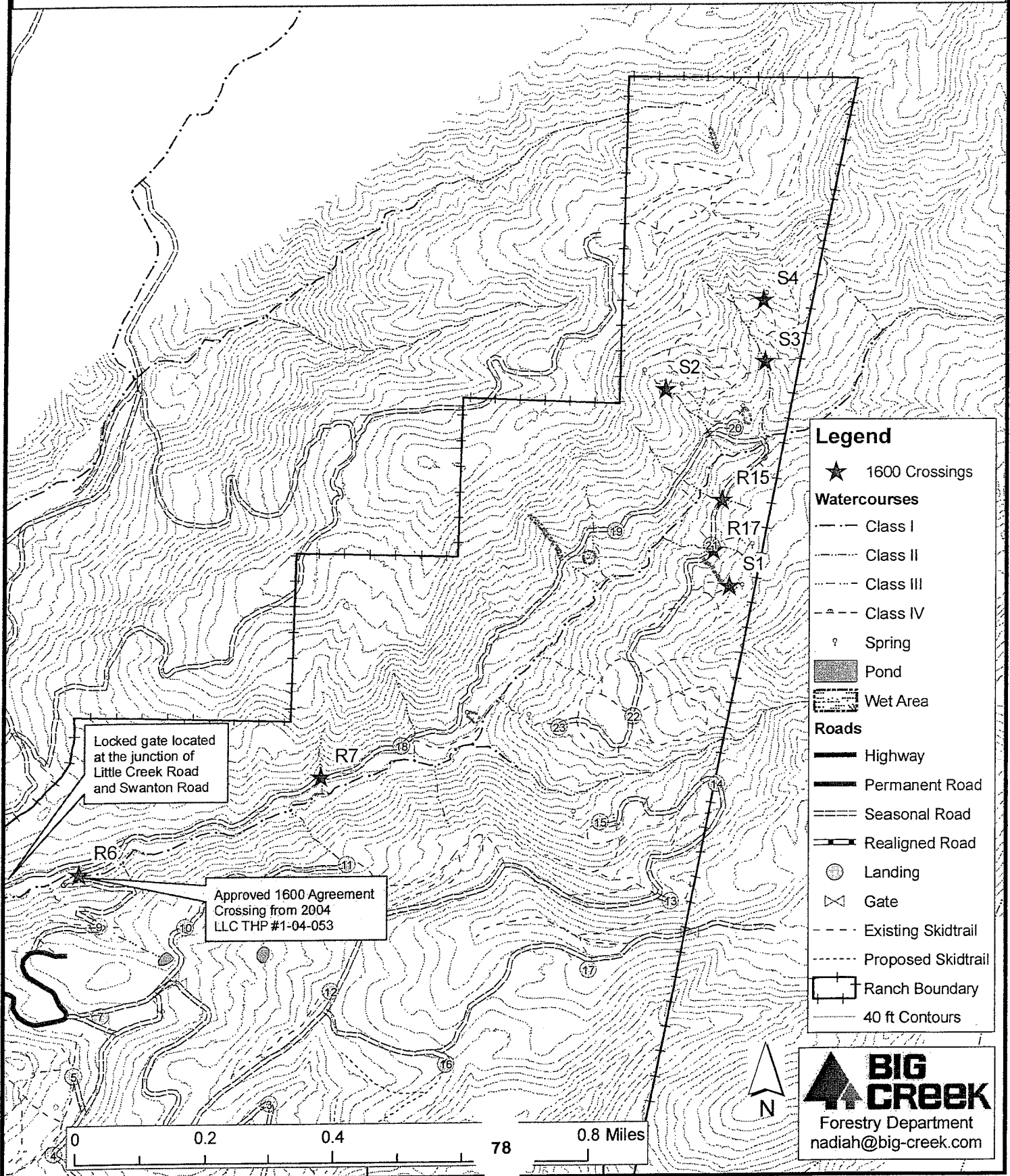




# Swanton Pacific Ranch NTMP

## Lake and Streambed Alteration Agreement (1600) Map

T10S R3W, Portions of Sections 8,9,16,17 and Rancho Agua Puerca y Las Trancas, MDB&M  
Davenport USGS 7.5' Quadrangle



# 1600 Addendum

## I. SWANTON PACIFIC RANCH NTMP (NTMP # not available at this time)

## II. PROJECT LOCATION MAPS

Project location maps follow the notification package.

## III. PROJECT DESCRIPTION

### Multiple Encroachments

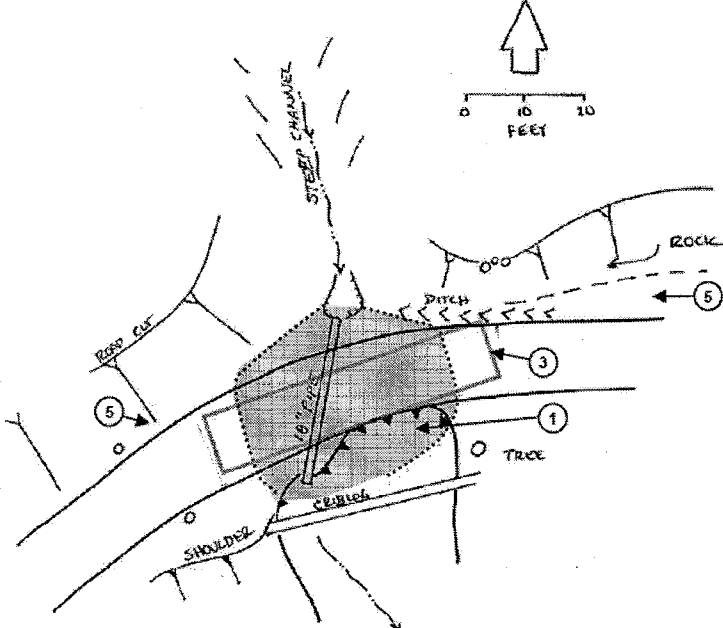
Encroachment Type	Watercourse Classification	Structure	Map Reference Number
Permanent Culvert	Class III	Bridge	R7
Permanent Culvert	Class II Seep or wet area	Culvert Replacement	R15
Permanent Culvert	Class II Seep or wet area	Culvert Replacement	R18
Temporary Crossing	Class II	Spittler Modified Humboldt	S1
Temporary Crossing	Class II	Spittler Modified Humboldt	S2
Temporary Crossing	Class II	Spittler Modified Humboldt	S3
Temporary Crossing	Class II	Spittler Modified Humboldt	S4

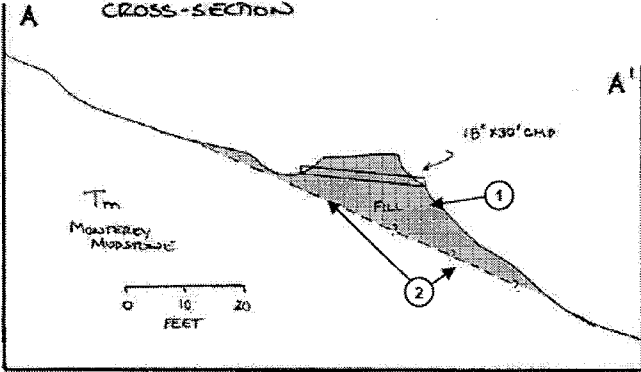
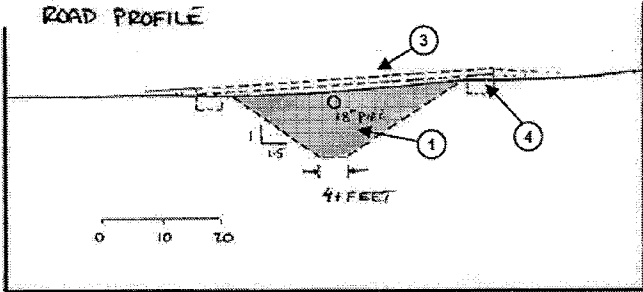
## Crossing Descriptions

R7

MP	FEATURE	DESCRIPTION AND RECOMMENDATION
R7	<u>Stream Crossing</u>	<p><b>DESCRIPTION</b></p> <p>This is an 18 inch by 30 foot long plastic pipe located at a narrow and steep gradient Class II watercourse. The outer edge of the crossing has repeatedly failed narrowing the road to about 10 feet. The THP proposes to reconstruct the crossing for the proposed harvest.</p> <p>The Class II watercourse drains a roughly 30 acre basin. The active channel is about 30 inch wide and 16 inches deep with thin alluvial/colluvial mantle. Channel morphology suggests past debris flow activity extending down the channel and through the crossing, but it is unknown if this has occurred in historic times. Road cut exposes relatively competent sandstone bedrock at a shallow depth.</p> <p>The road contours across 75+% sideslopes following an old rail road grade. The old road/railroad grade was probably constructed at a 24± foot width on balanced cut and fill with the outer edge partially supported by a 24 inch diameter 40 foot long crib log.</p> <p>The original Humboldt crossing is reportedly still in place but is not functioning. This crossing failed at some unknown date and was subsequently reconstructed at a much narrower 12 to 14 foot width. The outer edge of the road is reportedly supported on stacked rock.</p> <p>The 18 inch diameter culvert was installed in 1998, as an emergency repair following crossing failure associated with a 1998 El Nino event. This pipe is undersized and was installed with the outlet misaligned to the native channel. The misalignment was probably done to avoid having to disturb and reconstruct the stacked rock wall where the road was narrowest. The pipe was placed high with the outlet shot gunned out the side of the crossing fill, which has resulted in some outlet erosion. I</p> <p>Because the road is too narrow for logging operations and because the culvert is undersized and misaligned, the crossing will need to be reconstructed. The principal geotechnical concerns are slopes stability of the residual fill and cut, crossing capacity, and upslope debris flows that may extend through the channel.</p> <p>The best alternative to widen the road is to cut into the bank slightly on a full bench. For the most part this would require removing old slough that has accumulated on the inboard road edge. Competent nature of the mudstone bedrock exposed in the cut to either side of the crossing suggests that the cuts will be reasonably stable.</p> <p>Two alternatives exist to reconstructing the crossing. The first alternative would be to remove the old culvert and install a new 48 inch diameter pipe at grade and aligned with the natural channel. The 48 inch pipe would carry the expected 100 year flow but would be at risk for plugging from an upslope debris flow. The second alternative would be to remove the crossing and install a short (~50 foot long bridge). The bridge option would provide a higher level of stability against upslope debris flows, although it would not be entirely immune. The landowner proposes to implement the second alternative.</p>



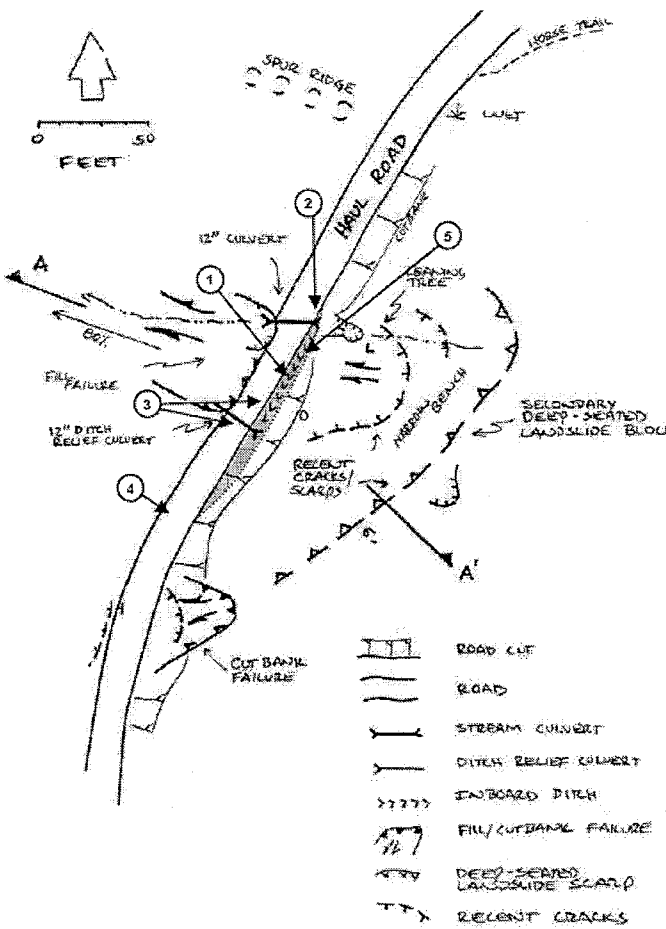
MP	FEATURE	DESCRIPTION AND RECOMMENDATION
R7 Cont		<p><b>RECOMMENDATION</b></p> <ul style="list-style-type: none"> <li>• Widen the road into the bank about 4 to 6 feet on a full bench. Soils may be endhailed or feathered out along the inboard edge.</li> <li>• Remove crossing and associated fill. The excavated crossing shall have a minimum 6 feet wide channel bottom with uniform channel grade. Banks shall be laid back to 1.5:1 (65%) slope or gentler, unless otherwise directed onsite by the project engineering geologist or designee. <ul style="list-style-type: none"> <li>◦ About 100 to 150 cy of material will need to be excavated and endhailed to a stable location on slopes less than 30%.</li> </ul> </li> <li>• Install cross-vein structures in the channel to help stabilize the channel banks and direct flow to the center of the channel. <ul style="list-style-type: none"> <li>◦ Cross-drain structures shall be designed by Dr. Brian Dietterick, Professional hydrologist who will also oversee their installation</li> </ul> </li> <li>• Install a minimum 50 foot long bridge <ul style="list-style-type: none"> <li>◦ Bridge shall utilize suitable footings. It is my understanding that Cal Polly has traditionally used buried wood logs for the bridge footings. Logs are generally adequate for temporary bridges but are <u>not</u> suitable for a permanent crossings because they tend to rot out in time. For this crossing a more permanent footing such as reinforced concrete blocks or piers is preferred. The RPF and/or landowner shall provide final bridge footing design criteria to the project geotechnical consultant prior to bridge implementation.</li> </ul> </li> <li>• Conform to DFG 1600 agreement</li> <li>• Mulch exposed soils per Section II, Item 18 of the NTMP</li> <li>• The project engineering geologist or designee shall supervise work</li> </ul>
R7 Cont		 <p>1 Remove crossing and associated fill. The excavated crossing shall have a minimum 6 feet wide channel bottom with uniform channel grade. Banks shall be laid back to 1.5:1 (65%) slope or gentler, unless otherwise directed onsite by the project engineering geologist or designee.</p> <p>3 Install a minimum 50 foot long bridge</p> <p>5 Cut into bank to gain extra road width. Drain road prior to bridge.</p>

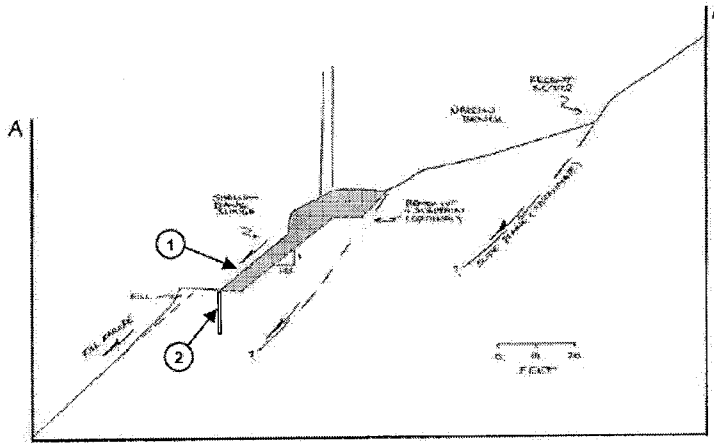
MP	FEATURE	DESCRIPTION AND RECOMMENDATION
R7 Cont		<p><b>A CROSS-SECTION</b></p>  <p><b>ROAD PROFILE</b></p>  <p>Remove crossing and associated fill. The excavated crossing shall have a minimum 6 feet wide channel bottom with uniform channel grade. Banks shall be laid back to 1.5:1 (65%) slope or gentler, unless otherwise directed onsite by the project engineering geologist or designee.</p> <ol style="list-style-type: none"> <li>① Install cross-vein structures per recommendations of Cal Poly hydrologist</li> <li>② Install a minimum 50 foot long bridge</li> <li>③ Bridge shall utilize suitable footings</li> </ol>

MP	FEATURE	DESCRIPTION AND RECOMMENDATION
MP 29 R15	<u>Cutbank and fill slope instability</u>	<p><b>DESCRIPTION</b></p> <p><b>Site Conditions</b></p> <p>A roughly 150 foot long segment of seasonal haul road has been narrowed to a 10 foot width by both cut and fill slope instability. The road was built in a geologic sensitive area across 60% to 80% slopes below a narrow midslope bench. This midslope bench represents a secondary slide block of an active portion of deep-seated landslide <b>G1</b>. Underlying bedrock is weathered granite.</p> <p>The road was constructed in 1989 at a 14 to 16 foot width. Construction resulted in a 18 foot high cut that stands at a 1:1 to 1.25:1 slope. The cut has experienced past shallow sloughing depositing debris at the base and narrowing the road slightly. The upper portion of the cut is presently vegetated with small Douglass-fir. The outer edge of road was apparently constructed on 3 to 4 feet of sidecast fill on steep slopes. About 50+ feet of linear distance of the road fill has failed with relatively little residual fill material left.</p> <p>On the north side of the road segment is a small Class II seep fed watercourse (Crossing <b>R15</b>). A 14 inch diameter metal culvert was installed when the road was constructed in 1989. Subsequently, when the culvert inlet plugged, a snorkel drain was added to the inlet and an additional 12 inch diameter plastic culvert installed on top. There are no downspouts.</p> <p>There is a large redwood root wad in the cutbank above the culvert inlet. The root wad has since slid or rotated downslope slightly toward the culvert at crossing <b>R15</b> and partially obstructs the seep-fed Class II watercourse, causing water to pipe below the root wad and seep out of the cutbank and onto the road. This causes the road to be seasonally wet. South of <b>R15</b> the road is insloped and drained to a ditch relief culvert.</p> <p>High groundwater conditions exist nearing the immediate vicinity of crossing <b>R15</b> with standing water observed in a hand auger hole drilled adjacent to the crossing. The wet area is very localized and south of crossing groundwater was not encountered in two other shallow hand auger holes drilled along the inboard edge of the road.</p> <p>Geotechnical issues associated with this road are cutbank stability, fill slopes stability, stability of the larger landslide <b>G1</b>, and erosion at the outlet of the Class III watercourse. The following is a discussion of these issues. Please refer to figure below.</p> <p><b>Deep-seated landslide:</b> Portions of slide <b>G1</b> in the vicinity of this road segment have experienced recent incipient slide movement. About 100 feet above the road along the back edge of a narrow bench is a series recent discontinuous scarps with about 2 to 4 of vertical displacement that are associated with incipient movement on a secondary landslide block to deep-seated landslide <b>G1</b>. This conclusion is supported by location of the scarp along the back edge of a pre existing bench, slide morphology and adjacent instability to the north. It is possible that the road cut has undercut the slope causing a relatively large block to down drop. There is however little field evidence to indicate that the toe of the slide block has moved onto the road way. A subsurface investigation (trenching or down-hole borings) would be required to determine if the upslope block toes out above or below the road. Cracks do not appear to cross the road and outside of cut and fillslope instability the road has not yet been directly damaged by slide activity.</p> <p>The large landslide complex at <b>G1</b> is marginally stable with a high probability for future movement under adverse seismic or climatic events. Future movement will likely result in additional ground cracks similar to what is observed and could result in additional damage to the road. Reconstructing the road across the slide is unlikely to impact deep-seated stability since the mass balance and hydrology of the large landslide will not be substantially altered.</p> <p><b>Cutbank stability:</b> Road construction resulted in an 18 foot high cut that stands at a 1:1 to 1.25:1 slope. Portions of the cut have sloughed onto the roadway requiring the material to be periodically graded off. A small amount of extra road width could be obtained by cutting into the bank less than 2 feet on a full bench. For larger cuts (&gt;2 feet into the bank) the cutbank will need to be laid back to minimize the risk of causing a cutbank failure by oversteepening the cut. It should be recognized that future cutbank instability should be expected which could periodically block the road requiring debris to be excavated and endhauled offsite. Future road failures would most likely be localized and be retained on the road with out sediment input to stream.</p>

MP	FEATURE	DESCRIPTION AND RECOMMENDATION
MP 29 cont		<p><b>Fillslope stability:</b> The outer edge of the road was apparently constructed on 3 to 4 feet of sidecast fill. About 50+ feet of the road fill has failed with relatively little residual fill material left. Age of the failure is unknown. Failure is attributed to saturation of thick fill sidecasted onto steep slopes. A significant contributing factor may have been water discharged from the small Class II watercourse at <b>R15</b> and from the 12 inch ditch relief culvert to the south. Both of these culverts were placed high in the fill and do not have adequate downspouts. Most of the fill at risk for failure has already failed with the risk of a future large fill failure being relatively low. Adding downspouts to culverts will minimize the risk that runoff from culverts will saturate the residual fill and native soils leading to renewed slide activity.</p> <p><b>Road drainage:</b> The 14 inch plugged CMP and the new 12 inch plastic pipe at <b>R15</b> will need to be replaced with a new 30 inch culvert with downspout. The root wad at the culvert inlet will need to be removed and the bank stabilized with rock armor. Cal Poly would like to install cross vien structures on the upstream channel.</p> <p><b>Treatment Alternatives</b> The existing road is located in a geologic sensitive area. Its location on an active portion of a deep-seated landslide (<b>G1</b>) places it at inherent risk for instability. Future deep-seated movement could result in damage to the road network requiring the road to be repaired, reconstructed or rerouted. The probability and the amount of future road damage cannot be quantified at this time. It is not possible to stabilize the large landslide within the economic constraints of the NTMP and therefore any road reconstruction/repair at this site will need to be designed and constructed to accommodate future landslide movement. The goal is to upgrade the road for use in the NTMP in a manner that, although it may be partially or wholly damaged by future slide movement, it will not increase the instability of the slide nor result in a significant increase in sediment to a watercourse.</p> <p>Presently the road is too narrow for use in logging operations. Three alternatives were considered to upgrade the road past this site: 1) reroute the road, 2) build the outboard edge of road out on a retaining wall and 3) cut into the bank.</p> <p><b>Alternative 1: Reroute Road</b> - It may be possible to reroute the road upslope along the back edge of the midslope bench. The road will still be rerouted across the active slide but would avoid having to cross it where slopes are steep. The disadvantage of this alternative is that over 500 feet of new road would be required. Some of the new road would be required to cross steep slopes but generally in an area that appears to be slightly more stable. A steep (&gt; 18%) adverse grade would be required to the south which may preclude this as a viable alternative.</p> <p><b>Alternative 2: Build road out on retaining wall</b> -In theory, the road can be widened by shoring up the outer road edge on a 10 to 15 foot high retaining wall. Because of the deep-seated instability that exists at this site, future slide movement could damage or destroy this wall. As a result the retaining wall option is not viable within the economic constraints of the project.</p> <p><b>Alternative 3: Widen road into the bank</b> - The road can be widened to a 14 foot width by cutting into the bank on a full bench and endhauling spoils (~ 500 cy). The cut would be laid back to a 1.25:1 (80%) slope which is slightly gentler than what exists now. A concern is whether this alternative would increase the risk of landsliding. As demonstrated on the cross-section below, cutting into the bank should not significantly alter the mass balance of the hillside contributing to an increased risk of deep-seated landsliding. Shallow slumping of the cut would continue to occur. The road would be insloped and adequately drained. Downspouts would need to be added to the two culverts and discharged in a reasonable and controlled manner away from the road.</p> <p>This is considered the best alternative since it provides reasonable access, albeit temporary and does not significantly increase the risk for instability. If the landowner decides to proceed with this alternative they should be aware that the alternative does not increase the level of hillslope stability over what exists now. Future instability will occur regardless of landuse and such instability could damage or destroy the road. Ongoing maintenance of the road will be required.</p>

MP	FEATURE	DESCRIPTION AND RECOMMENDATION
MP 29 cont		<p><b><u>RECOMMENDATION</u></b></p> <ul style="list-style-type: none"> <li>• Grading <ul style="list-style-type: none"> <li>◦ Widen the road by cutting into the bank a maximum of 2 feet and endhaul spoils <ul style="list-style-type: none"> <li>- For minimal cuts that are less than 2 feet into the bank, the cut will not need to be laid back thus maintaining the small established Douglas fir trees at the top of the cut.</li> </ul> </li> <li>◦ Backfill in the inboard ditch and inlet to the southern ditch relief culvert</li> <li>◦ At the conclusion of operations <ul style="list-style-type: none"> <li>- Project engineering geologist shall inspect the cut.</li> <li>- Replace the toe of the slope with compacted earth if directed by the geologist or designee</li> <li>- Regrade the road to have an inslope pitch</li> <li>- Clean culvert inlets</li> </ul> </li> </ul> </li> <li>• Stream crossing <ul style="list-style-type: none"> <li>◦ Replace the existing culvert at R15 with a new 30 inch diameter pipe <ul style="list-style-type: none"> <li>- Install the pipe at grade</li> <li>- Install 30 foot long downspout and energy dissipater</li> </ul> </li> <li>◦ Remove redwood stump such that the crossing inlet basin can be restored</li> <li>◦ Construct a 15 to 20 foot long catch basin at culvert inlet</li> <li>◦ Line inlet basin and banks with rock rip rap <ul style="list-style-type: none"> <li>- Rock shall extend 5 feet up the channel bank in the area where the seep is located as directed</li> <li>- Rock shall be inclined no steeper than 1.25:1 (H:V)</li> <li>- Use 12 to 18 inch diameter rock placed 1½ layers deep</li> </ul> </li> <li>◦ Conform to DFG 1600 agreement</li> </ul> </li> <li>• Road drainage <ul style="list-style-type: none"> <li>◦ Replace southern ditch relief culvert if necessary <ul style="list-style-type: none"> <li>- Add downspout and energy dissipater</li> </ul> </li> <li>◦ Maintain inslope pitch to road</li> <li>◦ Upgrade 200 feet of road drainage to the south by installing rolling dips at 75 foot spacings or ditch relief culverts at 100 foot spacings</li> </ul> </li> <li>• Other <ul style="list-style-type: none"> <li>◦ Mulch exposed soils with straw or slash per Item 18</li> <li>◦ Project geotechnical consultant or representative should oversee the work and advise the contractor</li> </ul> </li> </ul> <p>Optional treatments that could occur in conjunction with the above mitigations, depending on conditions:</p> <ul style="list-style-type: none"> <li>• Extra road width <ul style="list-style-type: none"> <li>◦ Widen the road up to 5 feet by cutting to the bank on a full bench and endhaul material to a stable location.</li> <li>◦ Lay the slope back to 1.25:1 (80%).</li> </ul> </li> <li>• Drainage <ul style="list-style-type: none"> <li>◦ Install a 3-4 foot deep curtain drain on the inside road edge, see the typical design specifications</li> </ul> </li> <li>• Cross-vein structures <ul style="list-style-type: none"> <li>◦ Install cross-vein structures in the channel to help stabilize the channel banks and direct flow to the center of the channel.</li> <li>◦ Cross-drain structures shall be designed by Dr. Brian Dietterick, Professional hydrologist who will also oversee their installation</li> </ul> </li> </ul>

MP	FEATURE	DESCRIPTION AND RECOMMENDATION
MP 29 cont		 <p>1 • Widen road by cutting into the bank a maximum of 2 feet. Backfill inboard ditch and endhaul excess spoils.    ◦ At the conclusion of operations replace the toe of the slope with compacted earth as directed</p> <p>• Optional:    ◦ For additional width, widen the road into bank up to 5 feet (max) and endhaul spoils    ◦ Lay cut back to a 1.25:1 (H:V) slope    ◦ For cuts greater than 20 feet, incorporate a 6-foot wide intermediate bench</p> <p>2 • Replace the existing culvert with a new 30 inch diameter pipe. Add 30± foot long downspout.    • Remove redwood stump and construct a 15 to 20 foot long catch basin at culvert inlet    • Line inlet basin and banks with rock rip rap    • Optional:    ◦ Install cross-vein structures in the channel to help stabilize the channel banks and direct flow to the center of the channel per Cal Poly Hydrologist</p> <p>3 • Inslope road    • Replace southern ditch relief culvert if necessary. Add downspout.</p> <p>4 • Upgrade 200 feet of road drainage to the south by installing rolling dips at 75 foot spacings or ditch relief culverts at 100 foot spacings</p> <p>5 • Optional: Install a 3-4 foot deep curtain drain on the inside road edge</p>

MP	FEATURE	DESCRIPTION AND RECOMMENDATION
MP 29 cont		 <p>① • Widen road by cutting into the bank a maximum of 2 feet. Backfill inboard ditch and endhaul excess spoils.  ○ At the conclusion of operations replace the toe of the slope with compacted earth as directed</p> <p>• Optional:  ○ For additional width, widen the road into bank up to 5 feet (max) and endhaul spoils  ○ Lay cut back to a 1.25:1 (H:V) slope</p> <p>• For cuts greater than 20 feet, incorporate a 6-foot wide intermediate bench</p> <p>② • Optional: Install a 3-4 foot deep curtain drain on the inside road edge</p>

## R18

This location is an existing 8" metal culvert conveying water under the haul road from a 70' long inside ditch. The ditch collects water, which seeps from the cutbank along its length and trickles over the cutbank in multiple locations, originating from a spring, upslope.

Following operations prior to the winter period the following shall be implemented:

1. A new 18" culvert shall be installed that is aligned with the approximate watercourse centerline.
2. The inside ditch to R17 shall be maintained so that it may continue to handle any bank seep.

If any water exists within the proposed work site area at the time of crossing implementation, water shall be channeled around the work area by confining the flow with sand bags and placing 4" to 6" flexible ADS pipe to move water around the project area until work is completed.

## S1

This location is an existing skid trail crossing on a Class II watercourse that remains wet throughout the year. A temporary Spittler Modified Humboldt crossing shall be installed prior to use. See the sketch and specifications describing temporary skid trail crossing construction below in the Project Description. Following use or prior to the winter period, the Spittler Modified Humboldt shall removed and the crossing be dipped out with the approaches slash packed. Post-operations the trail shall be re-contoured such that it gently slopes away on either approach.

If any water exists within the proposed work site area at the time of crossing implementation, water shall be channeled around the work area by confining the flow with sand bags and placing 4" to 6" flexible ADS pipe to move water around the project area until work is completed.

**S2**

This location is an existing skid trail crossing on a Class II watercourse. A temporary Spittler Modified Humboldt crossing shall be installed prior to use. See the sketch and specifications describing temporary skid trail crossing construction below in the Project Description. Following use or prior to the winter period, the Spittler Modified Humboldt shall be removed and the crossing be dipped out with the approaches slash packed.

If any water exists within the proposed work site area at the time of crossing implementation, water shall be channeled around the work area by confining the flow with sand bags and placing 4" to 6" flexible ADS pipe to move water around the project area until work is completed.

**S3**

This location is an existing skid trail crossing on a Class II watercourse. A temporary Spittler Modified Humboldt crossing shall be installed prior to use. See the sketch and specifications describing temporary skid trail crossing construction below in the Project Description. Following use or prior to the winter period, the Spittler Modified Humboldt shall be removed and the crossing be dipped out with the approaches slash packed. The crossing approach from the west side of this crossing shall be slash packed such that slash has full ground contact. To accomplish the desired ground contact, the LTO shall place 6-8" of slash on the trail surface, pack it in with the tractor, then place at least 6" more slash on top and re-pack.

If any water exists within the proposed work site area at the time of crossing implementation, water shall be channeled around the work area by confining the flow with sand bags and placing 4" to 6" flexible ADS pipe to move water around the project area until work is completed.

**S4**

This location is a proposed skid trail crossing on a Class II watercourse, close to the spring origin. A temporary Spittler Modified Humboldt crossing shall be installed prior to use. See the sketch and specifications describing temporary skid trail crossing construction below in the Project Description. Following use or prior to the winter period, the Spittler Modified Humboldt shall be removed and the crossing be dipped out with the approaches slash packed. Previous harvest entries crossed this watercourse on a different alignment downstream, where the trail was not quite perpendicular to the watercourse at the crossing point. The proposed crossing has a perpendicular approach to the watercourse, yet requires minor trail construction on the edge of the WLPZ. East of the crossing, the proposed trail traverses side-hill across a small ridge nose. Minor bench construction will be necessary to open this trail and removed material will be pulled back from the slope and not sidecast in the process. At the time of trail close-out, the ridge nose will be recontoured, leaving no perched fill and will be treated with packed slash.

If any water exists within the proposed work site area at the time of crossing implementation, water shall be channeled around the work area by confining the flow with sand bags and placing 4" to 6" flexible ADS pipe to move water around the project area until work is completed.



## **IV GENERAL STABILIZATION MEASURES FOR ALL PROPOSED CROSSINGS**

### **Conditions at Encroachments**

R7: No torrent, debris, or landslide issues at this encroachment

R15: Refer to Geologic reports provided above for this crossing

R18: No torrent, debris, or landslide issues at this encroachment

S1: No torrent, debris, or landslide issues at this encroachment

S2: No torrent, debris, or landslide issues at this encroachment

S3: No torrent, debris, or landslide issues at this encroachment

S4: No torrent, debris, or landslide issues at this encroachment

### **Work Periods**

May 1 – October 15 is the specified work period for all crossings proposed in the 1600.

### **Culverts**

Calculations for crossings R15 and R18 are provided below

Magnitude and Frequency Method for 100-year flood flow							100-yr flood flow Q100 (cfs)
Crossing	Area (acres) A	Basin maximum elevation (ft)	Crossing elevation (ft)	Area (mi <sup>2</sup> ) A	Precipitation (in/yr) P	Elevation (ft/1000) H	Central Coast (CC)
R15	5	1240	720	0.008	45.4	0.52	8
R18	5	1200	730	0.008	45.4	0.47	9
Magnitude & Frequency Q <sub>100</sub> equation							
(CC)	Q <sub>100</sub> = 19.7 (A) <sup>0.88</sup> (P) <sup>0.84</sup> (H) <sup>-0.33</sup>						
Rational Method for 100-year flood flow							
	T <sub>c</sub> = 60((11.9 X L <sup>3</sup> )/H) <sup>0.385</sup>			Q <sub>100</sub> = CIA			
Crossing	Channel length (to top of basin) (mi) L	Elevation difference (ft) H	Concentration time (min) T <sub>c</sub>	Runoff coefficient C	Precipitation (in/hr) I	Area (acres) A	100-yr flood flow (cfs) Q100
R15	0.25	520	3	0.4	4.38	5	9
R18	0.18	470	2	0.4	4.38	5	9

## **Bridges**

1. Abutments and road approaches will not encroach on the flood plain or stream channel. Please see the geologic report provided under Project Description, R7.
2. Please see the geologic report provided under Project Description, R7.
3. Please see the geologic report provided under Project Description, R7.
4. Please see the geologic report provided under Project Description, R7.

## **Water Diversion or Drafting**

No water diversion or drafting is proposed as part of this project

## **Special Status Animal or Plant Species Information**

The following measures shall be carried out to avoid negative impacts to rare, threatened, endangered, and/or sensitive species. A CNDDB query was conducted utilizing species information from the current CDF&G RareFind 3 GIS database, issued July, 2007. A map and species list from this query is included in Section V. The scoping process to determine the presence of species or habitats that could be affected by this project was done by consulting a variety of resources, including professional wildlife biologist Dr. John Bulger, professional botanist Dr. Grey Hayes, local botanical expert Jim West, NOAA researcher Dr. Sean Hayes, USFWS biologist Bill McIver, and CDFG environmental scientists Stacey Martinelli and Suzanne Deleon, among others. A full discussion is included in Sections III and IV of the NTMP. Mitigations for specific species and general protection measures are described below. Discussion of species that do not have the potential to be impacted by the project is included in Section III. Additional information regarding the biological resources present on this property can be found in Sections III and IV of the NTMP.

## **FISH**

### **Coho Salmon (*Oncorhynchus kisutch*)**

Central California Coast ESU coho salmon are listed as threatened under the federal ESA and endangered under the California ESA. In the greater Scotts Creek watershed, approximately 14.1 miles of stream are accessible to salmonids, see Map 1. The size of the coho spawning run in the Scotts Creek system varies from year to year, but is never more than a few hundred fish. Statistically reliable population estimates are not available for this population ([www.scottscreekwatershed.org](http://www.scottscreekwatershed.org)). Coho salmon numbers in the Scotts Creek system are routinely augmented by routine releases from the Kingfisher Flat hatching and rearing facility located on Big Creek. This facility is operated by the Monterey Bay Salmon and Trout Project ([www.mbstp.org](http://www.mbstp.org)). Due to the rigid 3-year lifecycle that coho exhibits, years of hardship (such as drought or flood years) have potential to eliminate an entire age class of fish.

Within the vicinity of the NTMP, coho salmon occupy the Scotts Creek mainstem, and the lower reaches of Mill Creek, Big Creek, Little Creek, and Queseria Creek, which are tributary to Scotts Creek. Coho salmon use the Scotts Creek tributaries up to natural migration barriers, shown on the map in Section V. They are particularly likely to use the tributaries as refugia during winter storm events. The NTMP area contains both designated (64 FR 24049) and proposed (69 FR

71880) critical habitat for Central California Coast ESU coho salmon. Critical habitat includes all naturally accessible stream channels to the ordinary high water mark.

Streams must have cool water with sufficient dissolved oxygen as well as some level of riparian canopy cover to support coho salmon. Spawning habitat must also include pools and beds of loose, silt-free, coarse gravel. Coho spawning usually occurs during December and January in the Scotts Creek watershed, and the embryos hatch after 2-3 months of incubation in the stream gravels. Hatchlings remain in the gravel until their yolk sacs have absorbed, typically within 10 weeks of hatching. The emerging fry form schools and inhabit shallow water at the stream margins or elsewhere. As they mature, the parr establish territories in pools, requiring deeper water in low gradient stream sections (<3%) as they grow larger. Optimal rearing habitat is considered to consist of heavily shaded, deep (>1 m) pools with some overhead cover. At between 14-18 months of age, the parr undergo smoltification in preparation for outmigration and life at sea. Outmigration occurs during late spring and early summer. Mitigations for coho salmon and steelhead are outlined jointly below.

### **Steelhead (*Oncorhynchus mykiss*)**

Central California Coast ESU steelhead are listed as federally threatened and are a State Species of Special Concern. Steelhead spawning runs comprise a few hundred adult fish annually in Scotts Creek, and the population appears to be comparatively stable and at or near carrying capacity for this system ([www.scottscreekwatershed.org](http://www.scottscreekwatershed.org)).

Within the NTMP area steelhead occupy the mainstem of Little Creek to a natural rock fall that is considered a likely barrier to migration, located approximately 500 feet upstream of crossing R6. Refer to the Natural Barriers to Anadromous Fish Map in Section V. Upstream of this fish barrier, a resident population of rainbow trout can be found. The furthest upstream extent of rainbow trout found during electrofishing in 2006 is also shown on the map indicated above. The NTMP area contains both designated (65 FR 7764) and proposed (70 FR 52488) critical habitat for the Central California Coast steelhead ESU. Critical habitat within the NTMP area includes all naturally accessible stream channels to the ordinary high water mark.

In the Scotts Creek system, the bulk of the upstream steelhead migration and spawning occurs from January through March or April. Time to hatching is about 30 days. The fry generally emerge from the gravel 4 to 6 weeks after hatching and move to shallow water where there is suitable cover at the stream margins. As they grow, the parr establish feeding stations, most frequently in riffles or deeper runs, and occasionally in pools. Estuaries at the mouths of coastal streams are particularly important rearing areas for larger juveniles. Steelhead remain in their natal stream for 1 to 7 years prior to migrating out to sea.

### **Coho Salmon and Steelhead Mitigations:**

To avoid incidental take of coho salmon and steelhead, the following mitigations are proposed. Canopy retention standards as discussed under Item #26 of the NTMP. Limitations on use of heavy equipment in the WLPZ as discussed under Item #26 of the NTMP. Treatment of roads, skid trails, and landings near watercourses as discussed under Item #27 of the NTMP. Soil stabilization as discussed under Item #18 of the NTMP.

Winter operating restrictions as discussed under Item #23 of the NTMP.

## AMPHIBIANS

### **California Red-legged Frog (*Rana aurora draytonii*)**

The California red-legged frog is a federally threatened species and a CDFG Species of Special Concern. Breeding habitats include natural and artificial ponds and reservoirs, deepwater marshes, and freshwater coastal lagoons. Streams in the Santa Cruz Mountains are not used for breeding, presumably because spawning and early larval development occur coincident with the timing of peak flows. Spawning occurs from January through March. Eggs hatch within two weeks after oviposition, and larvae metamorphose four to seven months after hatching. Adults feed on aquatic and terrestrial invertebrates and small vertebrates. Tadpoles graze on algae.

California red-legged frogs and their habitats are ubiquitous in the general vicinity of the NTMP area; see the California Red-legged Frog Distribution Map. Virtually all ponds and reservoirs in the area are occupied by red-legged frogs, and most support breeding.<sup>1</sup> Scotts Creek and some of its tributaries are also occupied by red-legged frogs. In these streams, red-legged frogs are almost exclusively associated with deep (>2 feet) pools. Red-legged frog presence has been documented in Scotts Creek from the estuary upstream continuously for at least 5 miles. A large proportion of the frogs inhabiting the streams are juveniles that disperse to the creek after metamorphosing at breeding ponds. Whereas most juveniles are likely to be year-round residents of the creek and adjacent riparian habitats, adult red-legged frogs use the streams principally as summer habitat, and then move upslope to breeding ponds for the winter. No breeding has been documented on any of the local streams.

Although this species is highly dependent on aquatic habitats, it is able to reside in both riparian and upland habitats when precipitation and ambient moisture conditions allow. During the dry summer months, red-legged frogs rarely are found more than 10 feet from water. With the onset of winter rains (October/November), most red-legged frogs move into terrestrial habitats adjacent to their aquatic home site, where they reside nearly continuously at distances of up to 300 feet from water until breeding activities commence.<sup>2</sup> Some adults reside at breeding sites the year around, while others disperse to and from breeding sites, residing at streams or other permanent aquatic habitats during the summer months. California red-legged frogs have been documented migrating overland between aquatic sites that are separated by distances as great as two miles. These overland movements occur at night, usually during or following rains.

The NTMP area contains proposed critical habitat for the California red-legged frog (69 FR 19620). California red-legged frogs are mobile and, during different life history stages or different seasons of the year, may occupy a variety of aquatic and upland habitats. Proposed critical habitat includes (1) all aquatic habitats having a minimum pool depth of 20 inches and which can maintain water during the entire tadpole rearing season; (2) upland areas within 300 feet of suitable aquatic habitat, as defined above; and (3) upland dispersal habitat that is barrier-free and at least 300 feet wide and that connects two or more suitable breeding locations.

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<sup>1</sup> Data are from unpublished surveys conducted by John Bulger, 1997-2006. Also available in the CNDDB.

<sup>2</sup> Bulger, J.B., N.J. Scott Jr., and R.B. Seymour. 2003. Terrestrial activity and conservation of adult California red-legged frogs *Rana aurora draytonii* in coastal forests and grasslands. *Biological Conservation* 110: 85-95.

### **California Red-Legged Frog Mitigations**

To avoid incidental take of this species, timber operations shall proceed in accordance with the take avoidance measures outlined below. These measures are based on guidelines developed by the U.S. Fish and Wildlife Service, with technical assistance from Bill McIver of the Ventura USF&WS office.

All road, skid trail, and landing construction shall occur prior to the start of the wet season (\*see below for the definition of the wet season). All ground based yarding and skidding activities shall occur prior to the onset of the wet season. All temporary crossing shall be removed prior to the onset of the wet season.

As the wet season approaches, the number of open landings will be limited to the minimum necessary and areas where harvesting is complete will be closed out with erosion controls in progress.

Construction activities associated with installation and removal of crossings will occur during daylight hours only. Hauling and loading of logs during the wet season shall occur during daylight hours only.

All segments of skid trail in the WLPZ shall be packed with slash, and/or straw mulched to a depth of 3 inches and seeded. All segments of road in the WLPZ shall be rocked, and/or straw mulched to a depth of 3 inches and seeded.

Trees shall be felled away from riparian habitat, including springs, seeps, bogs, and other wet areas with saturated ground in most cases; however, in site-specific situations to improve the safety of operations or to better protect residual vegetation and the beneficial uses of water within the watercourse, trees may be felled in whichever direction spares the most residual vegetation, including parallel to or toward a watercourse, where circumstances warrant it.

Prior to operations occurring in the late fall or involving crossing work, a qualified biologist will conduct a biological resources education program for workers, and will appoint a crew member to act as an on-site biological monitor. The educational program will include a description of the California red-legged frog and its habitat, and the guidelines that must be followed by all harvest personnel to avoid take of the species during the operational period. The Licensed Timber Operator will be responsible for ensuring that crew members comply with the guidelines. Educational programs will be conducted for new personnel before they join harvest activities. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

Before timber harvest activities begin each day, for operations occurring in the late fall or involving crossing work, a biological monitor will inspect logging vehicles and equipment to look for California red-legged frogs. If a red-legged frog is found, the red-legged frog will not be relocated or captured, all activities that could result in take will cease and the USF&WS will be consulted to ensure that appropriate actions are taken in order for project activities to continue.

All refueling, maintenance, and staging of equipment and vehicles will occur at least 60 feet from riparian habitat or water bodies in a location where a spill would not drain directly toward aquatic habitat. The LTO will insure that all heavy vehicles and equipment are inspected for fuel

leaks, oil leaks, and other fluid leaks before and during their operation, to ensure that aquatic and upland habitats are not contaminated. Prior to the onset of work, the LTO will ensure that a plan is in place for prompt and effective response to accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. During project activities, all trash that may attract predators will be put in sealed trash containers, removed from the work site, and disposed of regularly. Following project activities, all trash and construction debris will be removed from work areas.

(\*For purposes of protection of red-legged frogs, the wet season begins when precipitation events are sufficient to cause saturated soil conditions, according to a wildlife biologist familiar with California red-legged frog life history, or the RPF who has had RLF training and can demonstrate familiarity with RLF life history and identification. Saturated soil conditions, described in 14 CCR 895.1 could occur after one downpour at the start of the winter period, or following a succession of light rains. However, if light rains are dispersed with dry periods in-between and the soil does not become saturated, the wet season restrictions will be deferred. The California red-legged frog does not become mobile in upland habitat until moisture conditions are such that desiccation is not a great risk. This guideline allows assessment of site-specific conditions to provide operational flexibility when the red-legged frog is not at risk. Barring rain events that cause saturated soil conditions at the start of the winter period, wet season restrictions will apply on December 1, or when cumulative rainfall exceeds 4 inches as measured at the Cal Poly rain gauge, whichever comes first.)

The guidelines outlined above as California Red-legged Frog Mitigations provide protection for this species in a watershed where they are known to be present. The management of Swanton Pacific Ranch by Cal Poly has sought to nurture the population of California red-legged frogs. Cal Poly has approximately 19 ponds and reservoirs with confirmed red-legged frog presence (see map of CRLF Distribution). Several ponds on the Ranch have been restored and partially fenced to protect them from cattle damage. Two spring development projects to create enhanced red-legged frog habitat have been completed with a USF&WS matching fund grant.

More information, if needed, on other species can be reviewed in the Swanton Pacific Ranch NTMP.

Proof of Payment of the Environmental Filing Fee  
to the Department of Fish and Game

THIS CHECK CONTAINS MULTIPLE SECURITY FEATURES DESIGNED TO DETECT DUPLICATION OR ALTERATION



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**DEPARTMENT OF FISH AND GAME**

BAY DELTA REGION

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Mailing address:

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Street address:

7329 SILVERADO TRAIL

NAPA, CALIFORNIA 94558



May 23, 2008

Notification Number: **1600-2008-0037-3****THP: 1-07NTMP-020 SCR****Class II Tributaries to Little Creek, Santa Cruz County**

Ms. Nadia Hamey  
Big Creek Lumber  
3564 Highway 1  
Davenport, CA 95017

**2<sup>nd</sup> REVISED PROJECT DESCRIPTION and PROJECT CONDITIONS****DESCRIPTION**

The Applicant proposes the installation of a permanent bridge on a Class II watercourse, the installation of one permanent culvert on a Class II watercourse, and the replacement of one permanent culvert on a Class II watercourse. The Applicant also proposes the installation of four temporary stream crossings on Class II watercourses. The watercourse crossings are associated with Non-Industrial Timber Management Plan (NTMP) 1-07NTMP-020 SCR. The NTMP area is located in Township 10 South, Range 3 West, Sections 9 and 17 of the Davenport 7.5 Minute U.S.G.S. Quadrangle; Mt. Diablo Meridian. The watercourse crossings are located on tributaries of Little Creek which is a Class I watercourse which drains into Scott Creek. The Scott Creek watershed as well as the lower reaches of Little Creek have been identified as areas that are within the Evolutionally Significant Unit (ESU) of Federally-threatened and State-endangered coho salmon (*Oncorhynchus kisutch*). Federally-threatened steelhead trout (*Oncorhynchus mykiss*) have also been documented in the lower reaches of Little Creek downstream of a natural fish barrier. California red-legged frog (*Rana aurora draytonii*) has been documented within the project area. Trees proposed to be removed include five California Bay with diameters ranging from 8 to 16 inches, and three Douglas-fir with diameters ranging from 14 to 16 inches.

The Applicant is required to comply with all applicable state and federal laws, including the California and Federal Endangered Species Acts. This agreement does not authorize the take of any state or federally listed species. Liability for any take or incidental take of such listed species remains the responsibility of the Applicant for the duration of the project. Any unauthorized take of such listed species may result in prosecution and nullification of the agreement.

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Map Point R7 is an 18-inch diameter culvert crossing which is proposed to be replaced with a minimum 50-foot long permanent bridge. The crossing is located on a Class II watercourse. The culvert is undersized and misaligned with the natural stream channel, and the outer edge of the crossing has failed. A Humboldt crossing is still present at the stream crossing, but is not functioning. Construction at the crossing will include widening the road at the crossing by approximately four to six feet, and excavation of approximately 100 to 150 cubic yards of material. Banks are proposed to be laid back at a 1.5:1 slope or steeper if competent rock is encountered.

Map Point R15 is a crossing with two culverts (one 14-inch diameter and one 12-inch diameter) that are proposed to be replaced with a 30-inch diameter permanent culvert with a downspout. The crossing is located on a Class II watercourse. An energy dissipater is will be installed at the downspout outlet. The road is proposed to be widened by cutting into the bank up to five feet. The existing cutbank is at a 1:1 or 1.25:1 slope. After construction, banks will not be steeper than 1.25:1 slope unless the road is widened by cutting into the bank. If bank is cut to five feet, 20 to 30  $\leq$ 6-inch diameter Douglas-fir trees will be removed. The removal of a redwood stump and installation of a 15 to 20-foot catch basin are proposed at the culvert inlet. Catch basin and banks will be lined with rock rip-rap. Cross-vein structures may be installed in the channel for bank stabilization, and will be designed by a professional hydrologist.

Project designs and construction specifications for Map Points R7 and R15 are described in the consultant engineering geologist's report which is included in the NTMP.

Map Point R18 is the installation of an 18-inch permanent culvert on a Class II watercourse. The existing 8-inch culvert will remain in place for the purpose of draining the inside ditch. The inside ditch is collecting water which originates from a spring located upslope of the cutbank. The inside ditch is proposed to be maintained to continue collecting water seepage. If water is present during operations, flow is proposed to be confined with sand bags and diverted around the work area using 4 to 6-inch pipe.

Map Points S1, S2 and S3 are existing skid trail crossings on Class II watercourses. Temporary Spittler Modified Humboldt crossings are proposed to be installed at the three locations. At the close of operations, crossings will be removed and dipped out, and the approaches will be slash-packed. If water is present during operations, flow is proposed to be confined with sand bags and diverted around the work area using 4 to 6-inch pipe.

Map Point S4 is a proposed skid trail crossing on a Class II watercourse. A temporary Spittler Modified Humboldt crossing is proposed to be installed. The crossing used in the past located downstream of S4 was misaligned with the stream channel. Minor skid trail construction is proposed at S4 in order to allow for correct alignment of the crossing with the stream channel. If water is present during operations, flow is proposed to be confined with sand bags and diverted around the work area using 4 to 6-inch pipe.

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## CONDITIONS

### All Watercourse Crossings

1. This Lake and Streambed Alteration Agreement (1600-2008-0037-3) shall expire on December 31, 2012.
2. Work in within the stream/riparian corridor shall be confined to the period of June 1 to October 15. Actual project start and end dates, within this timeframe, are at the discretion of the Department of Fish and Game.
3. No heavy equipment (i.e., bulldozer, excavator) shall operate in flowing water or wetted pools.
4. Erosion control measures shall be utilized throughout all phases of operation where sediment runoff from exposed slopes threatens to enter waters of the State. At no time shall silt laden runoff be allowed to enter the stream or directed to where it may enter the stream. Only clean rocks and boulders shall be used for the project.
5. Work must be performed in isolation from the flowing stream. To isolate the work area, water tight coffer dams shall be constructed upstream of the work area and water diverted through a suitably sized pipe from upstream of the coffer dam and discharged downstream of the work area. Coffers shall be constructed of a non-erodible material which does not contain soil or fine sediment. Coffers and the stream diversion system shall remain in place and functional throughout the construction period. If the coffer dams or stream diversion fail, they shall be repaired immediately. Normal flows shall be restored to the affected stream immediately upon completion of work at that location.
6. When isolating the work area from flow as described above, the Applicant shall check daily for stranded aquatic life as the water level in the dewatering area drops. All reasonable efforts shall be made to capture and move all stranded aquatic life observed in the dewatered areas. Capture methods may include fish landing nets, dip nets, buckets and by hand. Captured native species shall be released immediately in the closest body of water adjacent to the work site. Any individuals of exotic species, such as bullfrogs, centrarchid fishes, and non- native crayfish shall be permanently removed from within the project work site, to the maximum extent possible. The Applicant shall have the responsibility that such removals are done in compliance with the California Department of Fish and Game Code. This condition does not allow for the take or disturbance of any State or Federally-listed Species.

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7. If it is necessary to divert flow around the work site, either by pump or by gravity flow, the suction end of the intake pipe shall be completely screened with wire mesh not larger than five (5) millimeters to prevent entrainment or impingement of California Red-Legged Frog (CRLF) and juvenile salmonids from entering the pump system. Water shall be released or pumped downstream, at an appropriate rate, to maintain unimpeded downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that returns stream flow to its natural channel with the least disturbance to the substrate.
8. Prior to construction, a qualified biologist shall educate the work crew on identification of CRLF and its habitat, and shall appoint a crew member to act as a biological monitor. If any CRLF are found, work shall not start until the U.S. Fish and Wildlife Service has been contacted and has given their approval for work to continue. If any CRLF are found, the Department of Fish and Game shall be contacted within two hours at (707) 944-5520.
9. If for some reason mitigation measures to protect CRLF, coho salmon, or steelhead cannot be implemented, or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to listed species or their habitat, then activity at that work site will be discontinued.
10. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations. All exposed/disturbed areas and access points within the stream zone left barren of vegetation as a result of the construction activities shall be restored by seeding with a seed blend not containing annual ryegrass or mulched with weed-free straw. Revegetation shall be completed as soon as possible after construction activities in those areas cease.
11. Trees removed shall be replanted with locally obtained native plant species. Hardwood and conifer species used should be specific to the project vicinity or the region of the state where the project is located. Plant at a ratio of two plantings to one removed plant for each hardwood and conifer removed. Revegetation shall be completed as soon as possible after construction activities in those areas cease.
12. Road approaches to permanent watercourse crossings shall be rocked with competent rock to at least 25 feet and to a depth of at least two inches. Road approaches to temporary watercourse crossings shall be slash-packed, or seeded with native grass species and/or mulched with weed-free straw.
13. Rock, gravel, and/or other materials shall not be imported to, taken from or moved within the bed or banks of the stream except as otherwise addressed in this Agreement.
14. Large volumes of fill removed from watercourse crossings shall either be end-hauled, or placed in a stable location outside of the Watercourse and Lake Protection Zone (WLPZ).

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15. All fill material placed on top of crossings (i.e. backfill) shall be free of rocks, limbs or other debris (greater than six inches in diameter).
16. All heavy equipment and vehicles operated within a WLPZ, for the purposes of the activities described herein, shall, prior to operations be cleaned [outside of a WLPZ, Equipment Exclusion Zone (EEZ) or Equipment Limitation Zone (ELZ)] of all external materials, which may be deleterious to aquatic life, wildlife and riparian habitat, such as oil, grease, or hydraulic fluid. All heavy equipment and vehicles shall be checked daily and maintained when necessary to minimize leaks of deleterious materials from entering a WLPZ or the channel zone.
17. All leaks emanating from any vehicle or piece of equipment staged within a WLPZ, EEZ or ELZ shall be minimized from entering the soil or any waterbody by utilizing drip pans placed beneath all leaks (regardless of leak rate and volume). Drip pans shall be sufficient size to capture at least two to three gallons of leaking fluids. Absorbent blankets, sheet barriers and/or thick straw beds shall be placed on parking pads and beneath parked equipment that have several small but chronic leaks.

**Permanent Bridge- Map Point R7**

18. Bottom of bridge structure shall be of sufficient height to allow maximum water flows generated during 100-year high intensity storms to pass beneath unrestricted.
19. Abutments shall be located on the stream banks above ordinary high water.
20. Any topping soil material on bridges shall be less than 2 inches deep and shall not enter the stream.

**Permanent Culverts- Map Points R15 and R18**

21. Permanent culverts shall be sized to pass a 100-year storm event using the Cal-Trans, SC or USGS methods.
22. Culverts shall be long enough to extend completely beyond the toe of fill (unless both the up and downstream sides of fill are substantially armored with rock up to the maximum high water mark).
23. The bottom of the permanent culverts shall be aligned at stream grade and with the natural stream channel, and be placed in the channel with at least 15 percent of its diameter below stream bottom.
24. Culvert inlets and outlets shall be armored with appropriately-sized rock. Only clean, angular, durable and boulders shall be used.

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25. Fills shall be substantially armored with rock or native vegetation to prevent scouring and erosion.
26. Permanent culverts shall be maintained and kept open year round. The Applicant is responsible for such maintenance as long as the culvert remains in the stream

#### **Temporary Humboldt Crossings**

27. Logs shall be placed in such a way and to a sufficient depth so as to cause little or no damage to the stream's channel or banks during installation, skidding, and removal.
28. Temporary fill shall be removed from the channel and the channel returned to a clean and natural condition prior to runoff from the first seasonal rains. The spoil shall be placed in a stable area above high water mark.

#### **Additional Conditions**

29. To the extent that any provisions of this Agreement provide for activities that require the Applicant to traverse another owner's property, such provisions are agreed to with the understanding that the Applicant possesses the legal right to so traverse. In the absence of such right, any such provision is void.
30. In the event that the project scope, nature, or environmental impact is altered by the imposition of subsequent permit conditions by any local, state or federal regulatory authority, the Applicant shall notify the Department of any imposed project modifications that interfere with compliance to Department conditions.
31. If the Applicant needs more time to complete the authorized activity, the work period may be extended on a day-to-day basis by Brenda Blinn at (707) 944-5541 or by the Yountville office at (707) 944-5520.
32. A copy of this agreement must be provided to the contractor and all subcontractors who work within the stream zone and must be in their possession at the work site.
33. Building materials and/or construction equipment shall not be stockpiled or stored where they could be washed into the water or where they will cover aquatic or riparian vegetation.
34. Debris, soil, silt, bark, rubbish, creosote-treated wood, raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic life, resulting from project related activities, shall be prevented from contaminating the soil and/or entering the waters of the State. Any of these materials, placed within or where they may enter a stream or lake, by

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**MAY 30 2008**

94.7

**PART OF PLAN**

Applicant or any party working under contract, or with the permission of the Applicant, shall be removed immediately.

35. The contractor shall not dump any litter or construction debris within the riparian/stream zone. All such debris and waste shall be picked up daily and properly disposed of at an appropriate site.
36. Department personnel or its agents may inspect the work site at any time.
37. The Applicant is liable for compliance with the terms of this Agreement, including violations committed by the contractors and/or subcontractors. The Department reserves the right to suspend construction activity described in this Agreement if the Department determines any of the following has occurred:
  - a) Failure to comply with any of the conditions of this Agreement
  - b) Information provided in support of the Agreement is determined by the Department to be inaccurate.
  - c) Information becomes available to the Department that was not known when preparing the original conditions of this Agreement (including, but not limited to, the occurrence of State or federally listed species in the area or risk to resources not previously observed)
  - d) The project as described in the Agreement has changed or conditions affecting fish and wildlife resources change.
  - e) Any violation of the terms of this Agreement may result in the project being stopped, a citation being issued, or charges being filed with the District Attorney. Contractors and subcontractors may also be liable for violating the conditions of this agreement.

#### **Amendments and Extensions**

38. The Applicant shall notify the Department before any modifications are made in the project plans submitted to the Department. Project modifications may require an amendment or a new notification.
39. This Agreement is transferable to subsequent owners of the project property by requesting an amendment.
40. To extend the Agreement beyond the expiration date, a written request or completed "Request to Extend Lake or Streambed Alteration Agreement" form, with an appropriate fee, must be submitted to the Department (1600 Program, Post Office Box 47, Yountville,

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**MAY 30 2008**

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**PART OF PLAN**

94.8

California 94599) for consideration at least 30 days before the Agreement expiration date. An extension requires a fee. The Fee Schedule and Extension form can be obtained at [www.dfg.ca.gov/1600](http://www.dfg.ca.gov/1600) or by phone at (707) 944-5520. Extensions of the original Agreement are issued at the discretion of the Department.

41. To modify the project, a written request for an amendment or a completed "Request to Amend Lake or Streambed Alteration Agreement" form, with an appropriate fee, must be submitted to the Department (1600 Program, Post Office Box 47, Yountville, California 94599). An amendment requires a fee. The Fee Schedule and Amendment form can be obtained at [www.dfg.ca.gov/1600](http://www.dfg.ca.gov/1600) or by phone at (707) 944-5520. Amendments to the original Agreement are issued at the discretion of the Department.

***Please note that you may not proceed with construction until your proposed project has undergone CEQA review and the Department signs the Agreement.***

***I, the undersigned, state that the above is the final description of the project I am submitting to the Department for CEQA review, leading to an Agreement, and agree to implement the conditions above required by the Department as part of that project. I will not proceed with this project until the Department signs the Agreement. I also understand that the CEQA review may result in the addition of measures to the project to avoid, minimize, or compensate for significant environmental impacts:***

Applicant's name (print): Nadia Hamey RPF # 2783

Applicant's signature: Nadia Hamey

Signed the 30<sup>th</sup> day of May, 2008

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**MAY 30 2008**

94.9