Humboldt Redwood
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March 12, 2009

Ms. Catherine Kuhlman
California Regional Water Quality Control Board
North Coast Region
5550 Skylane Blvd, Suite A
Santa Rosa, CA 95403

Subject: Enrollment of THP 1-05-176 HUM (Unit 3) in the Freshwater Creek WWDR, "Tier II"

Dear Ms. Kuhlman:

HRC is requesting Tier II enrollment under Watershed-Wide Waste Discharge Requirement (WWDR) Order No. R1-2006-0041 for unit 3 of THP 1-05-176 HUM. This unit is comprised of 5.7 acres of Selection (2.9 clear-cut equivalent acres). Total acres currently enrolled or proposed for enrollment under Order No. R1-2006-0041 Tier II is shown in the Attached Pre-Harvest Planning Report provided by Forester, Mr. Wayne Rice. The Erosion Control Plan (ECP), Form 200 and an annual waste discharge enrollment fee have already been submitted for this THP.

Landslide risks associated with this plan were evaluated in compliance with the Freshwater Creek and Elk River WWDR Permit Acreage Enrollment and Compliance Monitoring Program Quality Assurance Project Plan (Version 2.0, September 1, 2006) approved by the Executive Officer of the North Coast Regional Water Quality Control Board. This approach uses commonly accepted standards for geologic practices in forest management (Sidle et al. 1985, Soeters and Van Western 1996, and Sidle and Ochiai 2006) to assess factors known to contribute to landslides, such as steepness of slope, slope convergence, hydrology, geologic features, and visibly unstable areas. Overlapping and complementary scientific techniques combining state-of-the-art digital elevation model (DEM) slope stability models, field investigation, and terrain analysis were used in this assessment.

In summary this is a small acreage unit underlain by Wildcat Group Sediments. The slopes are moderate to steeply inclined, uniformly weathered and include well defined watercourses. No mass wasting was identified within unit during THP and Tier II development. This suggests that the physical impacts resulting from the initial clearcut and ground based harvest did not exceed the stability thresholds for the soils and underlying bedrock. This unit was initially assessed with respect to clearcut silviculture. It has since been amended to group selection with a target retention of 75 square feet of basal area per acre. The silviculture change is in response to new management implementing a different stand management strategy. Standard HCP Riparian Management Zones (RMZ) have been implemented for the Class I and Class II watercourses. The Forester has implemented a Class III RMZ that will prohibit the placement of group selection adjacent or within the Class III watercourses. It is our opinion that the proposed selection silviculture represents considerably less of an impact that the initial harvest, and with the added watercourse mitigations, is not anticipated to significantly increase the potential for mass wasting. We consider the Unit, as

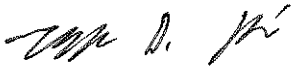
proposed, to meet the requirements for Tier II enrollment. No changes to the approved THP were made.

The THP proposes an uneven-age silviculture retaining 75 sqft of basal area. Sub-merchantable trees and those with specific wildlife value characteristics (e.g., cavities, large limbs, broken tops, snags, etc.) will be retained within the harvest area to the extent feasible. Cable yarding is approved for the entire unit. Post-harvest no site preparation will occur.

Greater detail regarding this landslide hazard assessment is provided in the attached *THP Unit Review for Tier 2 Enrollment.* The licensed geologist involved with the Tier 2 landslide risk evaluation has concluded the proposed harvest operation, if implemented as planned and approved, will result in a negligible increase in potential for post-harvest landsliding; and thereby meets the applicable Zero Delivery of landslide related sediment performance standards of NCRWQCB Orders R1-2006-0041 and R1-2008-0071.

Please do not hesitate to contact me should you have any questions or comments regarding this application for enrollment into WWDR (Order No. R1-2006-0041).

Respectfully,



Wayne D. Rice,
RPF
Humboldt Redwood Company, LLC

Attachments:
Professional Certification of Design
THP Unit Review for Tier II enrollment
Pre-harvest Planning Report
Unit Specific ECP
Maps

Professional Certification of Design

I, _____, P.G. 7950, 3/12/09,
Signature license # Date

Place licensed seal here

hereby certify, in accordance with North Coast Regional Water Quality Control Board (NCRWQCB) Order Nos. R1-2006-0039 and R1-2006-0041, that the attached application and the description of THP modifications, and the materials submitted along with:

THP No. 1-05-176 HUM (Little Fresh) Unit # 3

a. are in accordance with accepted practices, and recognized professional standards;
b. comply with the requirements of the Monitoring and Reporting Program No. R1-2006-0103, approved by the Executive Officer of the North Coast Regional Water Quality Control Board; and
c. provided that the THP is properly implemented, operated, and maintained, are adequate for the THP to meet the applicable Zero Net Delivery performance standards of NCRWQCB Orders R1-2006-0039, R1-2006-0041, and R1-2006-0103, insofar as such performance can reasonably be predicted by accepted engineering geologic practices.

The opinions presented in the subject THP have been developed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable engineering geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report.

THP: Little Fresh THP 05-176 Unit # 3 3-9-09

Tools Used in This Assessment	Figure Number
Elevation Map with 10 ft Contours (HRC LiDAR)	1
SHALSTAB (Montgomery and Dietrich, 1994 and Palco, 2006) / Slope Class / Hillshade Maps	2
CGS Geology and Geomorphic Features (CGS, 1999)	3
Mass Wasting Potential Map (HRC, 1999)	4
Aerial Photo Map (HRC, 2007)	5
HRC Freshwater Creek WA deep-seated LS inventory (HRC, 2001)	6
Road Condition Map	7

Please see back of enrollment for references

Summary of Changes to THP Prescriptions Based on Tier II Analysis in this Unit:

Geologic Review	Forestry Silviculture/Site Prep Plan	Operational Design Plan
3-1	For reasons other than slope stability hazard, silviculture is now group selection with a basal retention standard of 75 ft^2. No site preparation will occur due to partial harvesting.	No change to approved yarding methods.

Geological Summary (information presented from existing bodies of work):

Figure 3 shows the upper half of the unit to be underlain by the upper Wildcat Group sediments (silts, sands and clays) and the lower half of the unit to be underlain by the lower Wildcat Group sediments. These are sedimentary lithologies composed of fine grained silts, sands, infrequent gravels, and clays. Typical structural conditions result in gently dipping panels to the north.

Figure 3 also maps a large dormant deep seated landslide outside of and to the south of the unit. The lower elevations slopes within the unit are mapped as debris slide amphitheater slopes. Figure 6 shows no landsides mapped within the unit, consistent with the geologic field investigation.

Figure 2 review (Hillslope shade) shows generally smooth, moderate to steeply inclined slopes throughout the Class II drainage.

The THP was originally approved for even aged harvesting (clearcut). Slope stability conditions were evaluated with respect to that proposed silviculture. New ownership and changed management style has resulted in a silviculture change to group selection retaining a minimum of 75 square of basal area per acre.

The area was clearcut and ground-lead cable logged using 'steam donkeys' around the turn of the twentieth century and subsequently commercially thinned using a high-lead cable yarding system more recently, approximately 15-20 years ago. No new roads are proposed for construction to access the unit to accommodate the harvesting of the timber.

The unit has been addressed as one polygon due to the small size of the unit.

THP Unit: # 3
Polygon: 3-1

A) General Observations

The unit includes three swales and two ridges. The slope morphology consists of well defined and broad swales that transition to well defined and prominent ridges. The northwestern boundary is a Class III watercourse in the base of a swale. The northeastern boundary is

A) General Observations

a ridgetop haul road. The southeastern boundary of the unit follows a Class III watercourse, and the southwestern boundary is a Class II watercourse draining the sub-basin. The unit includes several Class III watercourses and one Class II stream.

Regionally, the watercourses are very well defined and deeply entrenched with the hillside. The actual channels are poorly to moderately incised and often include wide and broad approaches. The Class II watercourse includes a 30-foot no harvest inner band and a selection buffer that extends the RMZ out to between 75 and 100 feet.

The approved THP mitigation for the Class III watercourses includes the retention of all trees growing within the active channel and all trees 8 inches and less within 15 feet of the channel. The new silviculture has bolstered Class III mitigations to include a 50' RMZ where side slopes greater than 50% exist and maintaining 75 sq. ft evenly distributed in the buffer. Where side slopes are less than 50% employ a 25' RMZ that maintains 75 sq. ft evenly distributed in the buffer and no group opening greater than ¼ acre immediately above the terminus of class III with slopes greater than 40% or immediately above a headwall swale. Additionally sub-merchantable trees and those with specific wildlife value characteristics (e.g., cavities, large limbs, broken tops, snags, etc.) will be retained within the harvest area to the extent feasible.

The drainage area for each watercourse is relatively small, possibly providing explanation to the poor and recent channel incision (geologic time). Channel incision was observed in numerous watercourse segments where the flowing water had eroded through sediment wedges resulting from legacy timber yarding.

Hillslope inclinations within the unit vary from 30 to over 60%, with the majority of the slopes over 40%. The slope inclinations are consistent across the concave slopes and convex slopes.

Elevated values of SHALSTAB are modeled in all of the swales within the unit. The modeled areas are typically located adjacent to the watercourses. MWP is modeled throughout the unit as low with a small area of moderate MWP modeled in the south. The moderate MWP is modeled on slopes outside of and upslope of the Class II watercourse.

No landslides were recorded in the THP during development and agency review.

CGS mapping of debris slide slopes throughout the base of the unit represents steeply inclined slopes upslope of a watercourse. The mapping appears to represent areas that may have a higher than average propensity for mass wasting due to inclination and deliverability. No actual landslides were observed within this area.

A) General Observations

The stand appears to have been commercially thinned within the last 15 to 20 years using a high-lead cable yarding method. The stand is predominantly redwood (80%).

B) Harvest Related Impacts and Hillslope Sensitivity

No landslides were observed within the harvest unit despite the history of active management including substantial ground-disturbance from turn of the twentieth century logging. Current planned operations will result in less ground disturbance than previous operations and are unlikely to increase potential for mass wasting-related discharge.

The extensive RMZs were designed to provide sediment filtration bands adjacent the watercourses should extensive sediment be generated from the clearcut harvesting. The current level of harvest will retain both canopy closure and slash from the harvested trees potentially increasing the effectiveness of the sediment filtration band.

Overall hillslope sensitivity to harvest activities appears minimal with respect to mass wasting. The geophysical impacts from the turn of the century clearcutting of the old growth stand, the ground based dragging of the felled timber, and the landscape wide burning of both the duff and harvest generated slash appears concentrated to the watercourses. The geomorphic nature of the channels has been adjusted to accommodate sediment inputs.

Activities that could potentially increase the likelihood of mass wasting would be significant road building. No roads are proposed.

C) Forestry / Silviculture Plan

THP approved silviculture is clearcut with selection harvesting in the outerband of the Class II RMZ. The silviculture has been amended to group selection silviculture with a targeted retention of 75 ft^2 BA/A due to a management change. Class III RMZ have been established to prevent groups from being located within or adjacent to the watercourses.

Site preparation has been changed to none.

C) Forestry / Silviculture Plan

D) Operational Design Plan
THP approved yarding method is cable. Given the steeply inclined slopes and interfluvial ridges, deflection is good and minimal ground disturbance is anticipated.

References:

CGS, 1999, Geology and Geomorphic Features Related to Landsliding, Freshwater Creek Watershed, Humboldt County, California, Open File Report 99-10. ftp://redirect.conservation.ca.gov/CGS/information/publications/database/Publications_year.asp

Montgomery, D.R. and W.E. Dietrich, 1994. A physically based model for the topographic control on shallow landsliding. Wat. Resour. Res. 30: 1153-1171. For specific details regarding the model used in this evaluation, please see Palco, 2006. Additional information from the model authors is available at the following website: http://socrates.berkeley.edu/~geomorph/shalstab

HRC, 2007, Ortho-photo rectified aerial photographs flown by 3Di West, Eugene Oregon,

HRC, 2008. Freshwater Creek and Elk River WDR Permit Acreage Enrollment and Compliant Monitoring Program, NCRWQCB R1-2006—0039 and R1-2006-0041, Quality Assurance Project Plan, Version 3.0. Policy document submitted to NCRWQCB dated June 7, 2006.

HRC, 2001, Freshwater Creek Watershed Analysis, prepared for Pacific Lumber Company (PALCO) dated January 2001, and acquired by Humboldt Redwood Company, LLC in 2008.

HRC, 2002, (Policy Acquired from The Pacific Lumber Company (PALCO)) Prescriptions Based on Watershed Analysis for Freshwater Creek, California, August 15, 2002.

HRC, 1999, The Pacific Lumber Company's Habitat Conservation Plan, Vol. 2 Part D, Landscape Assessment of Geomorphic Sensitivity, Public Review Draft.

Brief descriptions of the models used in this evaluation:

SHALSTAB was first described in Dietrich and Montgomery (1994). SHALSTAB is a simple, physically-based model based on the Mohr-Coulomb failure law that can be used to map shallow landslide potential. The model calculates the potential for failure using gridded digital elevation data. The simplicity of the model lies in the formulation of slope stability parameters that allow the model to be run parameter-free using default values suggested by the authors or determined by local measurement. Because the model uses no field measurements of critical characteristics that determine slope stability, the evaluation of potential instability is only an approximation. In applying SHALSTAB for Tier 2 enrollment, HRC has run the model on a 10-m spatial grid using LiDAR elevation data and applied the parameters as suggested by the model authors. HRC's application of the method and parameters is described in HRC (2008).

Mass Wasting Potential (MWP) modeling is a cursory regional assessment that numerically values soil, slope inclination, geology type, and geomorphology with respect to past mass wasting (HRC, 1999). The sums of the values specific to an area are measured against a set ranking system that extends from very low to extreme. The models intent is to highlight areas of high potential for instability at the planning level. The model's use at the site specific level is limited in that pedogenic soil types are used, not textures, the geologic formations utilized provide one value for all of the incorporated facies, and the model is heavily biased if past mass wasting has occurred or has been mapped as occurring in the area.

Table 1. Proposed 2009 Harvest in Freshwater Creek. Revised 3/13/09

THP Name	THP Number	Unit Number	Silviculture			SEL	CC Equivalent	Hazard	
			CC	ROW	CT			Low	High*
Little 34	08-048	1				22.4	11.2	22.4	0.0
Little 34	08-048	2				25.4	12.7	25.4	0.0
Little 34	08-048	3				30.3	15.2	27.4	10.8
McCready Ridge	07-132	1	0	0	0	15.6	7.8	15.6	0.0
McCready Ridge	07-132	2	0	0	0	15	7.5	13.1	7.3
Around gills	05-077	4		3.1		32	19.1	34.9	0.8
Mid Incline	05-123	1		0.4		24.7	12.8	3.3	83.7
Mid Incline	05-123	2				31.5	15.8	31.5	0.0
Mid Incline	05-123	3				28.3	14.2	23.4	18.8
Fresh 1	04-242	2				36.1	18.1	34.3	6.9
Fresh 1	04-242	3				27.4	13.7	27.1	1.2
Little Fresh	05-176	1				36.3	18.2	30.1	23.8
Little Fresh	05-176	2				20	10.0	12.4	29.2
Little Fresh	05-176	3				5.7	2.9	5.7	0
Little Fresh	05-176	5				39.6	19.8	39.6	0.0
Little Main	05-085	2				29.7	14.9	14.3	59.1
Little Main	05-085	3				25.3	12.7	16	35.7
Little Main	05-085	7				33.3	16.7	19.5	53.0
Whiskey	08-041	1				20.9	10.5	20.6	1.2
Whiskey	08-041	2				23.5	11.8	23.2	1.2
Whiskey	08-041	3				35.4	17.7	29.6	22.4
Whiskey	08-041	4				32	16.0	32	0.0
Whiskey	08-041	5				11.3	5.7	9.5	6.9
						Total	304.4		

*The acres represented here have been converted to High Hazard Acres by multiplying by 3.8404.

Highlight indicates a THP and Specific Unit to be enrolled prior to establishing an enforceable Zero Discharge Monitoring Plan (Tier I). Weighted Acreage Totals are listed below to demonstrate compliance with the Staff Landslide Model limit of 144 Harvest Acres in Freshwater Creek. Other THP Units will be enrolled after approval of the aforementioned Monitoring Plan

No Highlight Indicates a THP and Specific Unit to be enrolled after establishment of an enforcable Zero Discharge Monitoring Plan (Tier II).

Indicates tier 1 for ROW and tier 2 for remainder of the unit

Total Clear Cut Equivilant Acres enrolled or submitted for enrollment	289.1

Table 2. Summary of THPs to enrolled prior to establishment of Zero Discharge Monitoring Plan for Freshwater Creek

THP Number	Unit Number	Harvest Acres	Hazard	
			Low	High*
08-048	1	22.4	22.4	0.0
05-077	4	3.1	3.1	0.0
05-176	5	39.6	39.6	0.0
08-041	1	20.9	20.6	1.2
08-041	2	23.5	23.2	1.2
08-041	4	32.0	32	0.0
Totals		141.5	143.3	

Table 3. Summary of THPs by Yarding System and Site Preparation for Freshwater Creek

THP Name	THP Number	Unit Number	Yarding System			Site Preparation	
			Ground Based	Yarder	Helicopter	Mechanical	Broadcast
Little 34	08-048	1	3.9	18.5			
Little 34	08-048	2	8.2	17.2			
Little 34	08-048	3	6.9	23.4			
McCready Ridge	07-132	1	0	15.6			
McCready Ridge	07-132	2	10.1	4.9			
Around gills	05-077	4	19.7	15.4			
Mid Incline	05-123	1	0.4	24.7			
Mid Incline	05-123	2	11.5	23			
Mid Incline	05-123	3	14.1	14.2			
Fresh 1	04-242	2	10.9	25.2			
Fresh 1	04-242	3	0	27.4			
Little Fresh	05-176	1	0	36.3			
Little Fresh	05-176	2	7.3	12.7			
Little Fresh	05-176	3	0	5.7			
Little Fresh	05-176	5	0	39.6			
Little Main	05-085	2	0	29.7			
Little Main	05-085	3	0	25.3			
Little Main	05-085	7	0	33.3			
Whiskey	08-041	1	20.9	0			
Whiskey	08-041	2	11.7	11.8			
Whiskey	08-041	3	9.3	26.1			
Whiskey	08-041	4	19	13			
Whiskey	08-041	5	0	11.3			

Humboldt Redwood Co. LLC

Erosion Control Plan (ECP) for the "Little Fresh" THP

1-05-176HUM

Updated ECP – for purpose of identifying **Tier 2** erosion control sites specific to units 1, 2 and 3 (2009 enrollment requests); No sites are associated with these units. All ECP sites for this THP have been completed.

This plan is being included in the THP to partially meet the requirements of the North Coast Regional Water Quality Control Board Watershed-wide Discharge Requirements. (**WWDRs**)

All operational portions of this ECP that are to be enforced through the Forest Practice Rules have been included in Section II of the THP.

Version **20080226**

Humboldt Redwood Company LLC Erosion Control Plan (ECP)

This document addresses the requirements of the California Regional Water Quality Control Board, North Coast Region Order No. R1-2006-0041 (Freshwater Creek) for an Erosion Control Plan (ECP) related to timber harvest activities on Non-Federal lands in the North Coast Region (Sec. III D2 and D3). The responsible party for this ECP is Humboldt Redwood Co. LLC P.O. Box 712 Scotia, CA 95565 (707) 764-2330.

This ECP is submitted for: THP Name: **Little Fresh**
Contact Person: **Jon Woessner** Phone: **(707) 764-4376**

The landowner is committed to a wide variety of measures to prevent and minimize the discharge or threatened discharge of sediment from controllable sediment discharge sources as part of this project into the waters of the state in violation of applicable water quality requirements. Prevention and Minimization of Controllable Sediment Discharge Sources associated with this project are identified in the *Controllable Sediment Sources* table. The specific conditions of sediment discharge sources and a summary of prevention and minimization measures (Section I) are identified in the table. General prevention and minimization measures for the project (Section II) are incorporated in the ECP by reference.

The RPF and/or the RPF Designee have conducted an inventory of potential "controllable sediment discharge sources" within the project area. As defined in California Regional Water Quality Control Board Order No. R1-2006-0041 (Freshwater Creek).

> "Controllable sediment discharge source" means sites or locations, both existing and those created by proposed timber harvest activities, within the Project area that meet all the following conditions:
>
> 1. is discharging or has the potential to discharge sediment to waters of the state in violation of applicable water quality requirements or other provisions of these WWDRs,
> 2. was caused or affected by human activity, and
> 3. may feasibly and reasonably respond to prevention."

Upon guidance of the North Coast Regional Water Quality Control Board (NCRWQCB) staff, discharge from the source must be likely to occur during the life of the Timber Harvesting Plan (THP) and WWDR. (Holly Lundborg, personal communication)

The inventory method consisted of an appurtenant road survey, aerial photos and ground assessments of the harvest units, and a complete ground assessment of all watercourses and associated stream protection zones.

The schedule for implementing the prevention and minimization management measures for the controllable sediment sources will be consistent with the duration of the THP. These measures will be implemented in accordance with the priority level assigned to each site. High priority sites will be addressed first with low priority sites to follow. Work at all sites will be accomplished prior to THP expiration. The general prevention and minimization measures will be implemented concurrent with operations.

I. Inventory and Treatment of Controllable Sediment Sources

All controllable sediment sources are listed in the attached "Erosion Control Plan" table. These sources have been assigned a treatment priority of low, medium or high based on: 1) potential for significant sediment delivery to a Class I, II or III channel; 2) treatment immediacy (a subjective combination of event probability and sediment delivery); and 3) treatment cost-effectiveness.

The Prioritization for implementing prevention and minimization measures for road-related and non road-related controllable sediment sources is based upon guidance provided in Order No. R1-2006-0041 (Freshwater Creek)
Highest priority is assigned to the largest sediment discharge sources that discharge to waters that support domestic water supplies or fish. HRC's prioritization method considers this guidance, and combines it with consideration for accessibility and level of imminent risk of significant sediment discharge. Sources that receive a high priority rating will be treated by a date certain as noted in the Controllable Sediment Sources table. Sources that receive a low or medium rating are determined to have a low to moderate risk of imminent discharge and will be treated prior to completion of the THP, or as otherwise indicated.

Non-road related controllable sediment sources can include skid road crossings, yarding furrow, skid road in watercourse, perched skid road fill, skid road rutting, landslide, layouts, railroad grade, incline, etc.

Information specific to Controllable Sediment Discharge Sources is listed in the Controllable Sediment Sources Table, below. An explanation of information provided in that table is provided below.

II. General Prevention and Minimization Measures for Controllable Sediment Discharge

In addition to the site specific measures detailed above, the general measures proposed in this project, either as required by another State or Federal regulating agency, or as a matter of HRC policy, will prevent or minimize future sediment delivery. These measures include, but are not limited to measures incorporated in the THP Section Items as follows:

THP Section II:

- Item 14 – Describes silvicultural prescriptions
  - (i) Site Preparation – Disclosure of selected site preparation treatments and mitigation measures
- Item 16 – Harvesting Practices – Describes yarding systems, equipment utilized, equipment limitations, and drainage facility installation timing
  - Inclusive through (m) – equipment use limitations and mitigation
- Item 18 – Soil Stabilization – waterbreak requirements, mitigation to minimize soil disturbance and sediment transport
- Item 20 – Ground Based Equipment Use Location
- Item 21 – Ground Based Equipment Use in Sensitive Areas – locations, descriptions of operations, limitations and mitigation measures
- Item 22 – Alternative Practices to Harvesting and Erosion Control
- Item 23 – Winter Operations – Provides descriptions of limitations and mitigation measures required during winter period operations and Winter Operating Plan
- Item 24 – Roads and Landings – Describes road and landing construction and re-construction operations, limitations, drainage relief structure installation, mitigation measures, road maintenance, inspections and wet weather road use restrictions
- Item 25 – Site Specific Measures to Reduce Adverse Impacts and Special Instructions to the LTO
- Item 26 – Watercourse and Lake Protection (WLPZ)
- Item 27 – "In Lieu" WLPZ Practice(s)
- Item 28 – Downstream Water Users Notification and Domestic Water Supply Protection Description of protection measures
- Item 29 – Sensitive Watershed – Identifies whether the plan is located in a designated sensitive watershed and mitigation measures
- Item 29 – 1 Hillslope Management (HCP 6.3.3.7) – Describes HCP hillslope management measures required as per watershed analysis

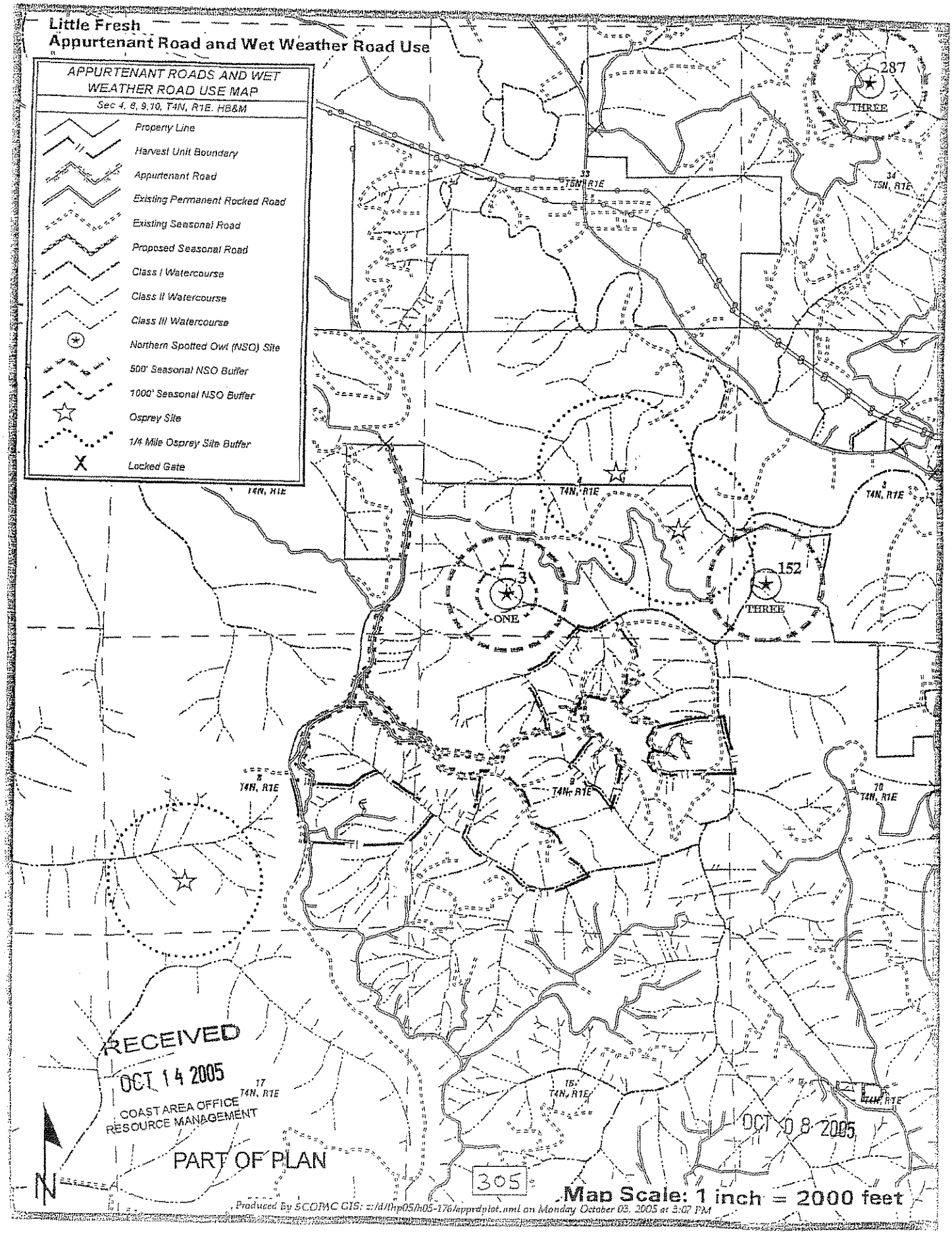
THP Section V:

- Sediment Reduction from Roads and THP Sediment Production--Including Table 1 – "Sediment Delivery for Units and Roads for this THP," references, letter regarding Road related sediment assessment for this THP with the calculations of deliverable net cubic yards of sediment, calculations and PWA information related to the THP project area when available

Maps attached:

- **Appurtenant road map**
- **ECP Site Locator Map**

Little Fresh
Appurtenant Road and Wet Weather Road Use



Little Fresh THP

PART OF PLAN 306

OCT 08 2005

III Inspection Plan and Reporting Requirements

A. Inspection Plan
The Inspection Plan is designed to ensure that all required management measures are installed and functioning prior to rainfall events; that the management measures are effective in controlling sediment discharge sources throughout the winter period; and that no new controllable sediment discharge sources developed.

B. Qualified and trained professionals will conduct all specified inspections of the project site to identify areas causing or contributing to a violation of the applicable water quality requirements or other provisions of these WWDRs. The responsible party for inspection and reporting is **Mike Miles (707) 764-4173**.

C. No inspections are required in Project Areas where Timber Harvest Activities have not yet commenced.

D. Project Areas where Timber Harvest Activities have commenced and no winter period Timber Harvest Activities have occurred inspections will be conducted each year and throughout the duration of the Project while Timber Harvest Activities occur.

a. The Project is covered under WWDRs and the following inspection requirements will begin at the startup of timber harvest activities within the Project area:
   i. By November 15 to assure Project Areas are secure for the winter period;
   ii. Once following ten (10) inches of cumulative rainfall commencing on November 15 and prior to March 1, as worker safety and access allows; and
   iii. After April 1 and before June 15 to assess the effectiveness of management measures designed to address controllable sediment discharges and to determine if any new controllable sediment discharges sources have developed.

b. Project Areas with Winter Period Timber Harvest Activities will conduct inspections of such Project Areas while Timber Harvesting Activities occur and the Project is covered under the WWDRs as follows:
   i. Immediately following cessation of winter period Timber Harvest Activities to assure areas with winter Timber Harvest Activities are secure for the winter;
   ii. Once following ten (10) inches of cumulative rainfall commencing on November 15 and prior to March 1, as worker safety and access allows; and
   iii. After April 1 and before June 15 to assess the effectiveness of management measures designed to address controllable sediment discharges and to determine if any new controllable sediment discharges sources have developed.

c. Inspection reports will identify where management measures have been ineffective and when repairs and design changes will be implemented to correct management measure failures.

d. After completing the required inspections, and when it has been determined new controllable sediment discharges sources have developed, the ECP, implementation schedule, and inspection plan will be updated, if required, consistent with the WWDRs and submit the updated documents to the Regional Water Board to maintain coverage under the WWDRs. If the approved amendment is found to be out of compliance with the WWDRs, the Project will be amended to be consistent with the provisions of the WWDR within 30 days, or coverage under the WWDRs will be terminated. The Project will then be required to seek Project coverage under an individual WDR.

e. Equipment, materials, and workers will be available for rapid response to failures and emergencies, implement, as feasible, emergency management measures depending upon field conditions and worker safety for access.

D. If during the inspection or during the course of conducting timber harvest activities, a violation of an applicable water quality requirement or conditions of WWDRs is discovered, the following procedures will be followed:

a. When it has been determined that discharges are causing or contributing to a violation or an exceedence of an applicable water quality requirement or a violation of a WWDR prohibition:

i. Corrective measures will be implemented immediately following the discovery that applicable water quality requirements were exceeded or a prohibition violated, followed by notification to the Regional Board by telephone as soon as possible but no later than 48 hours after the discharge has been discovered. The notification will be followed by a report within 14 days to the Regional Board, unless otherwise directed by the Executive Officer, that includes:

1. the date the violation was discovered;
2. the name and title of the person(s) discovering the violation;
3. a map showing the location of the violation site;
4. a description of recent weather conditions prior to discovering the violation;
5. the nature and cause of the water quality requirement violation or exceedence or WWDR prohibition violation;
6. photos of the site characterizing the violation;
7. the management measure(s) currently being implemented;
8. any maintenance or repair of management measures;
9. any additional management measures which will be implemented to prevent or reduce discharges that are causing or contributing to the violation or exceedence of applicable water quality requirements or WWDR prohibition violation; and,
10. The signature and title of the person preparing the report.
11. The report will include an implementation schedule for corrective actions and describe the actions taken to reduce the discharges causing or contributing to violation or exceedence of applicable water quality requirements or WWDR prohibition violation.

E. For other inspections conducted where violations are not discovered, a summary report will be submitted to Executive Officer by June 30th for each year of coverage under the WWDRs or upon termination of coverage. The summary report, at a minimum will include the date of inspections, the inspector's name, the location of each inspection, and the title and name of the person submitting the summary report.

If helicopter operations are proposed for this project, please find attached a Columbia Helicopters, Inc. (CHI) Fuel Spill Prevention and Cleanup Plan For Columbia Helicopters Field Operations.

Explanation of Information Included in the Controllable Sediment Sources Table	
Column Heading	Explanation
Site No.	Site identification unique to project area
Site Type	A description of the existing site. Example: Humboldt Crossing; Culvert Crossing; Unstable Fill; Unstable Cut Slope; Diversion Potential.
Estimate of Potential Erosion	A quantitative estimate of the volume, in cubic yards, of the total amount of potential erosion/displacement of soil that will occur should the site entirely fail. PALCO often uses a methodology developed by Pacific Watershed Associates to estimate erosion, which assumes 100% delivery of calculated volume—use of this method for individual sites is noted in Site Description.
Potential Sediment Delivery Percent	An estimate of the relative potential for sediment delivery expressed as a percent of the total amount of Potential Erosion that will be discharged to waters of the State should the site fail.
Sediment Prevention Volume	The volume, in cubic yards, of sediment discharge estimated to be prevented by implementation of the prescribed treatment. Volume represents the Estimate of Potential Erosion multiplied by the Potential Sediment Delivery Percent.
Priority for Treatment	Treatment priority reflects the immediacy of sediment discharge and the relative risk to the receptor, should the site fail. Low priority sites are ones that will not likely deliver significant amounts of sediment during the life of the WWDR permit, and will be treated prior to filing of THP work completion report, which does not exceed 5-years following THP approval date. Medium or high priority sites indicate potentially imminent discharge, and the timing of treatment is indicted in Implementation Schedule column.
Implementation Schedule	Indicates the timing of implementing the prevention and minimization measures listed in the Treatment column.
Site Description	Provides sufficient information that describes the existing condition of the site and factors that inform the chosen treatment methods and implementation schedule. This information will include a description of how the existing condition of the site (ie. stable or unstable) will be affected by different storm events, and whether sediment discharge is imminent. For example, an unstable site could easily discharge significant amounts of sediment in a small storm, thus the treatment priority should be higher. Conversely, a stable site that may take one or more very large storms to trigger discharge could be lower treatment priority. If PWA method is used to calculate erosion/delivery volumes, it will noted here.
Treatment	Sediment discharge prevention and minimization measures that will be implemented at the site, including treatment specifications if necessary.

Attachments:

- **ECP Table**

Erosion Control Plan

Site	Site Type	Est. Potential Erosion (Cu.Yards)	Est. Potential Delivery (Cu.Yards & %)		Priority for Treatment	Implementation Schedule	Site Description	Treatment
Project Little Fresh								
RD: X10 STATION: 5398 SITE: P2 WOID: -1456851545 SEDID: 4N1E08F401 REPAIRED: YES	Failing Fill	192	192	100%	Low	Prior to THP Final Completion.	Road crosses failing fill. Sediment calculated following LxWxD/27 measurements. Road crosses unstable area. Minor to moderate storm events will have little to no affect on the sediment load. Extreme storm may cause the entire sediment load to be delivered.	Portion of road prism has failed due to unstable area below. Excavate overhanging and slumping fill from road prism. Grade and outslope remaining portion of prism to facilitate dispersal of overland flow. Pull and shape fills or sidecast where necessary to prevent discharge of materials into nearby watercourse. Exposed soil shall be stabilized following Item 18 Soil Stabilization measures. Excavated material shall be endhauled to a stable location outside any RMZ's or EEZ's. Install waterbar immediately north and south of excavated area. This road segment shall be blocked so that standard production four wheel drive highway vehicles cannot pass the point of closure at the time of abandonment. Edge of landslide has been identified by geology flagging in the field.
RD: X10 STATION: 5865 SITE: P1 WOID: 848251390 SEDID: 4N1E08F501 REPAIRED: YES	Failing Crossing	63	63	100%	Low	Prior to THP Final Completion.	Failling culvert. Sediment calculated following the stream program. Minor to moderate storm events will have little to no affect on the sediment load. Extreme storm may cause the entire sediment load to be delivered.	Culvert on the class III watercourse is failling. Pull culvert and install new 24" CMP. Rock inlet, outlet and install critical dip.
Total Estimated Yards		255	255					

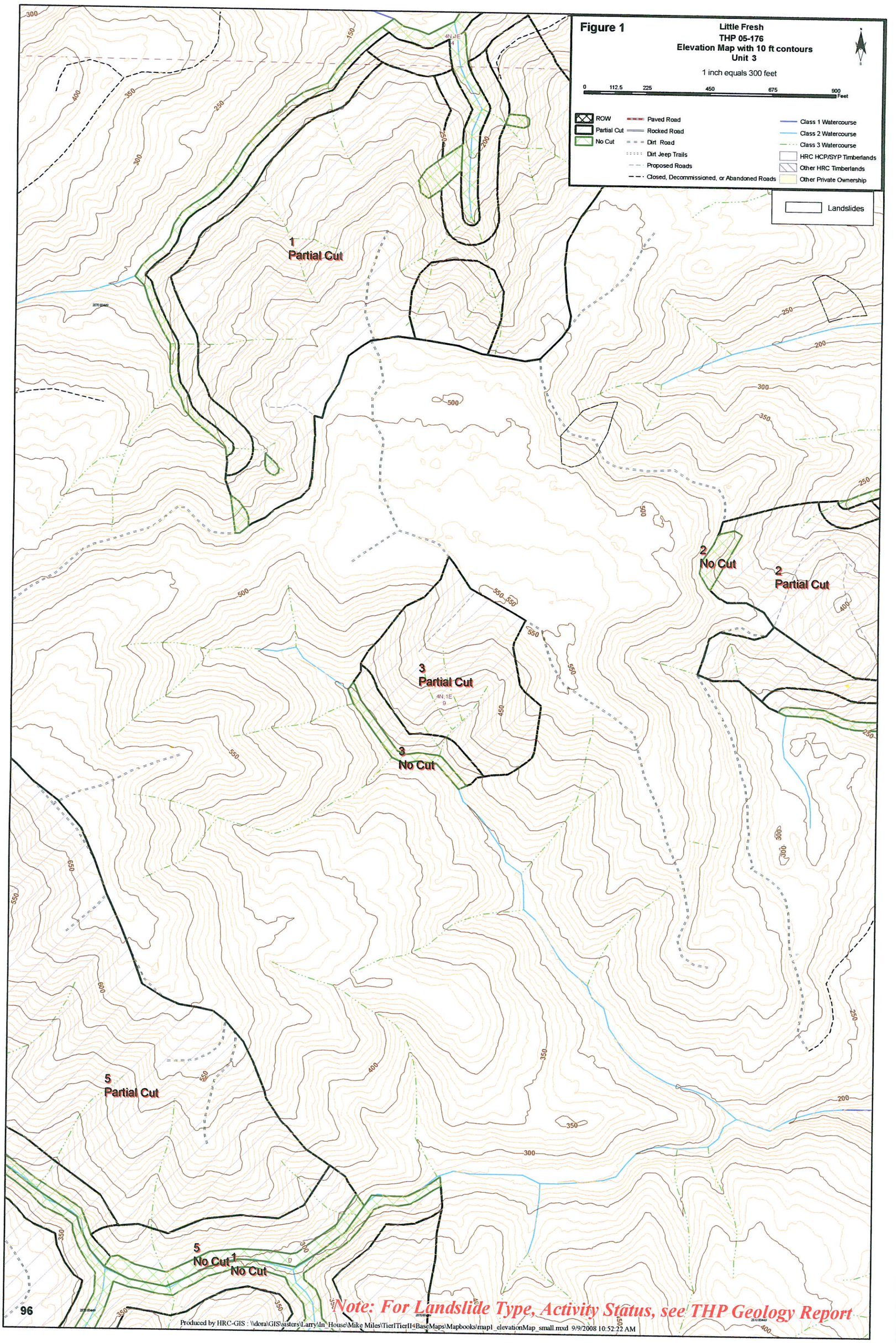


Figure 1
Little Fresh
THP 05-176
Elevation Map with 10 ft contours
Unit 3
1 inch equals 300 feet
0 112.5 225 450 675 900 Feet
ROW
Partial Cut
No Cut
Paved Road
Rocked Road
Dirt Road
Dirt Jeep Trails
Proposed Roads
Closed, Decommissioned, or Abandoned Roads
Class 1 Watercourse
Class 2 Watercourse
Class 3 Watercourse
HRC HCP/SYP Timberlands
Other HRC Timberlands
Other Private Ownership
Landslides
1 Partial Cut
2 No Cut
2 Partial Cut
3 Partial Cut
3 No Cut
5 Partial Cut
5 No Cut
1 No Cut
4N,1E
9
Note: For Landslide Type, Activity Status, see THP Geology Report
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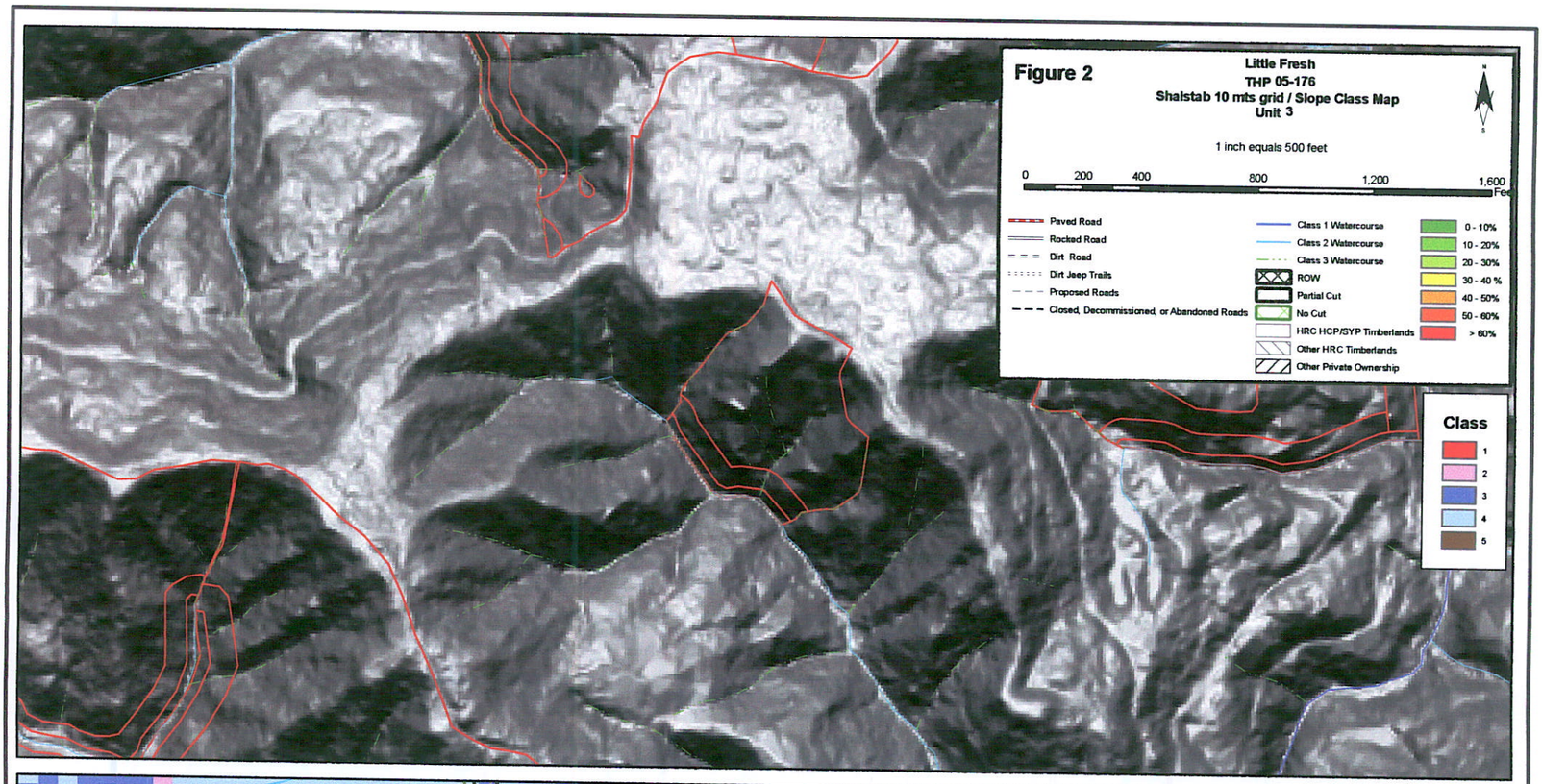
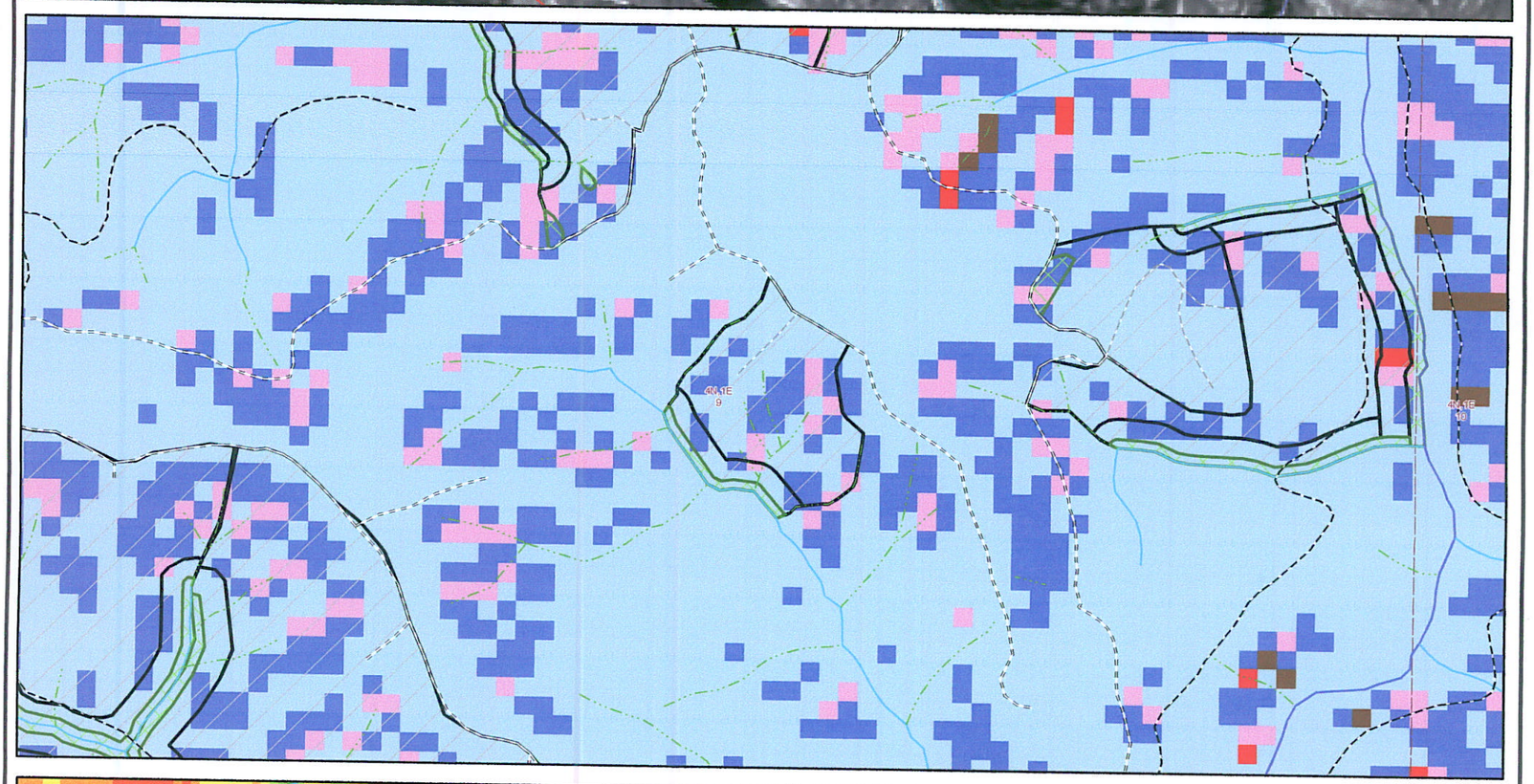


Figure 2
Little Fresh
THP 05-176
Shalstab 10 mts grid / Slope Class Map
Unit 3
1 inch equals 500 feet
0
200
400
800
1,200
1,600
Paved Road
Rocked Road
Dirt Road
Dirt Jeep Trails
Proposed Roads
Closed, Decommissioned, or Abandoned Roads
Class 1 Watercourse
Class 2 Watercourse
Class 3 Watercourse
ROW
Partial Cut
No Cut
HRC HCP/SYP Timberlands
Other HRC Timberlands
Other Private Ownership
0 - 10%
10 - 20%
20 - 30%
30 - 40 %
40 - 50%
50 - 60%
> 60%
Class
1
2
3
4
5



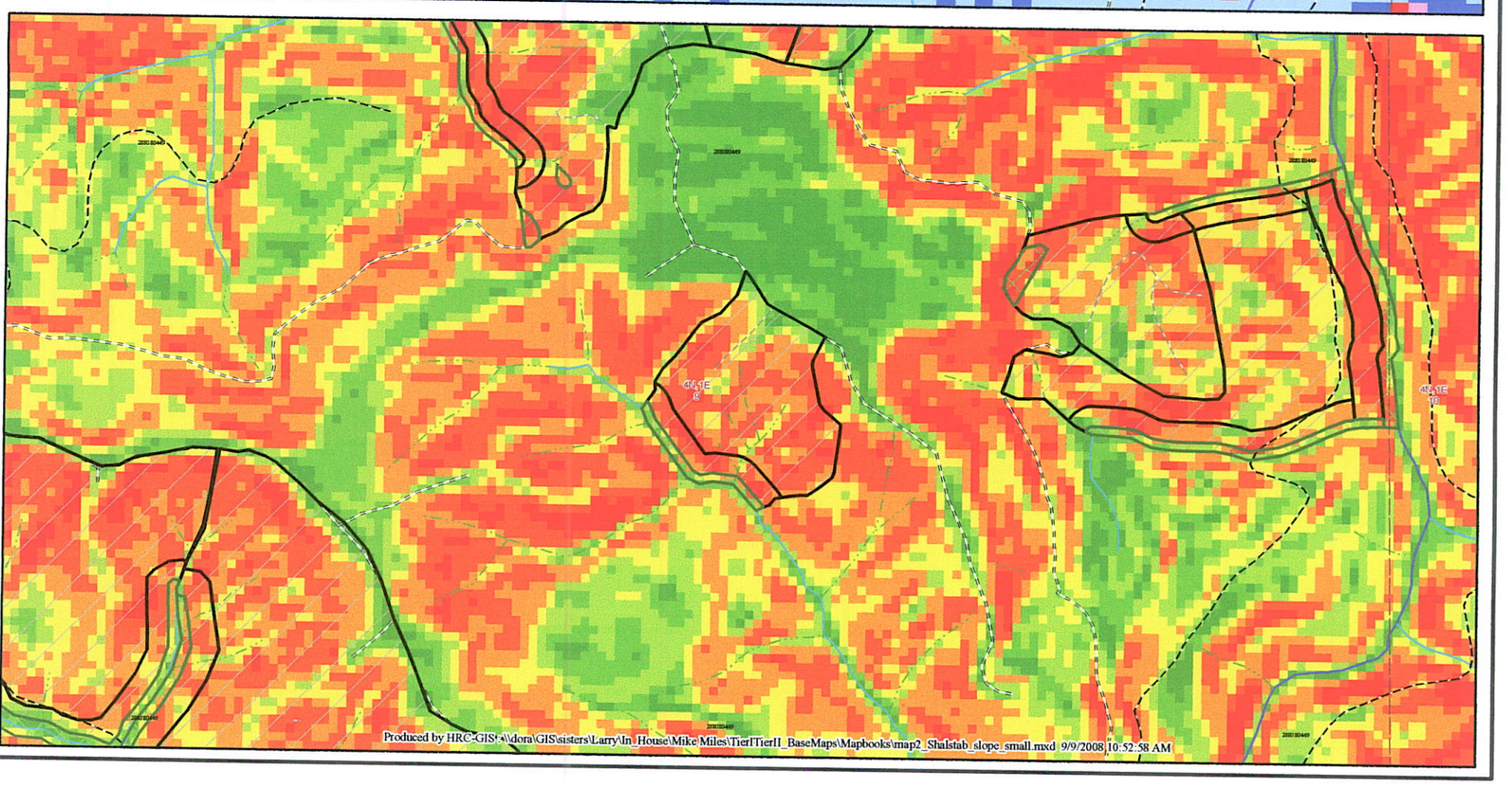

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Figure 3

Little Fresh
THP 05-176
CGS Map Unit 3

1 inch equals 300 feet

0 — 205 — 410 — 820 — 1,230 — 1,640 Feet

N
S

HRC HCP/SYP Timberlands
Other HRC Timberlands
Other Private Ownership

ROW
Partial Cut
No Cut

Paved Road
Rocked Road
Dirt Road
Dirt Jeep Trails
Proposed Roads
Closed, Decommissioned, or Abandoned Roads

Class 1 Watercourse
Class 2 Watercourse
Class 3 Watercourse

Legend

CGS Freshwater structure
FEATURE
anticline, approx. loc.
fault, approx. loc.
fault, concealed
thrust fault, approx. loc.
thrust fault, concealed
thrust fault, queried
lineament

CGS Freshwater lines
TYPE
ig
tt

CGS Freshwater LS
INIT_TYPE, ACTIVITY
df, h
ds, d
ds, h
ef, d
ef, h
rs, d
rs, h
dss,

CGS Freshwater symbols
<all other values>
ACTIVITY
ah
d

CGS Freshwater geology
UNIT
KJfm
KJfs
Q
Qfa?
Qrt
Twl
Twl?
Twu
Ty
Ty?
u

CGS Freshwater contacts
CONTACT
approimately located
certain location
queried location

Twu

Ty

4N-1E-9

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Figure 4

Little Fresh
THP 05-176
Mass Wasting Potential
Unit 3

1 inch equals 300 feet

675 337.5 0 675 Feet

HRC HCP/SYP Timberlands
Other HRC Timberlands
Other Private Ownership
ROW
Partial Cut
No Cut

Class 1 Watercourse
Class 2 Watercourse
Class 3 Watercourse
DS & Amphitreatre / Slope

Paved Road
Rocked Road
Dirt Road
Dirt Jeep Trails
Proposed Roads
Closed, Decommissioned, or Abandoned Roads

Potential
Very Low
Low
Moderate
High
Very High
Extreme

Low

4N.1E
9

Moderate

High

Very High

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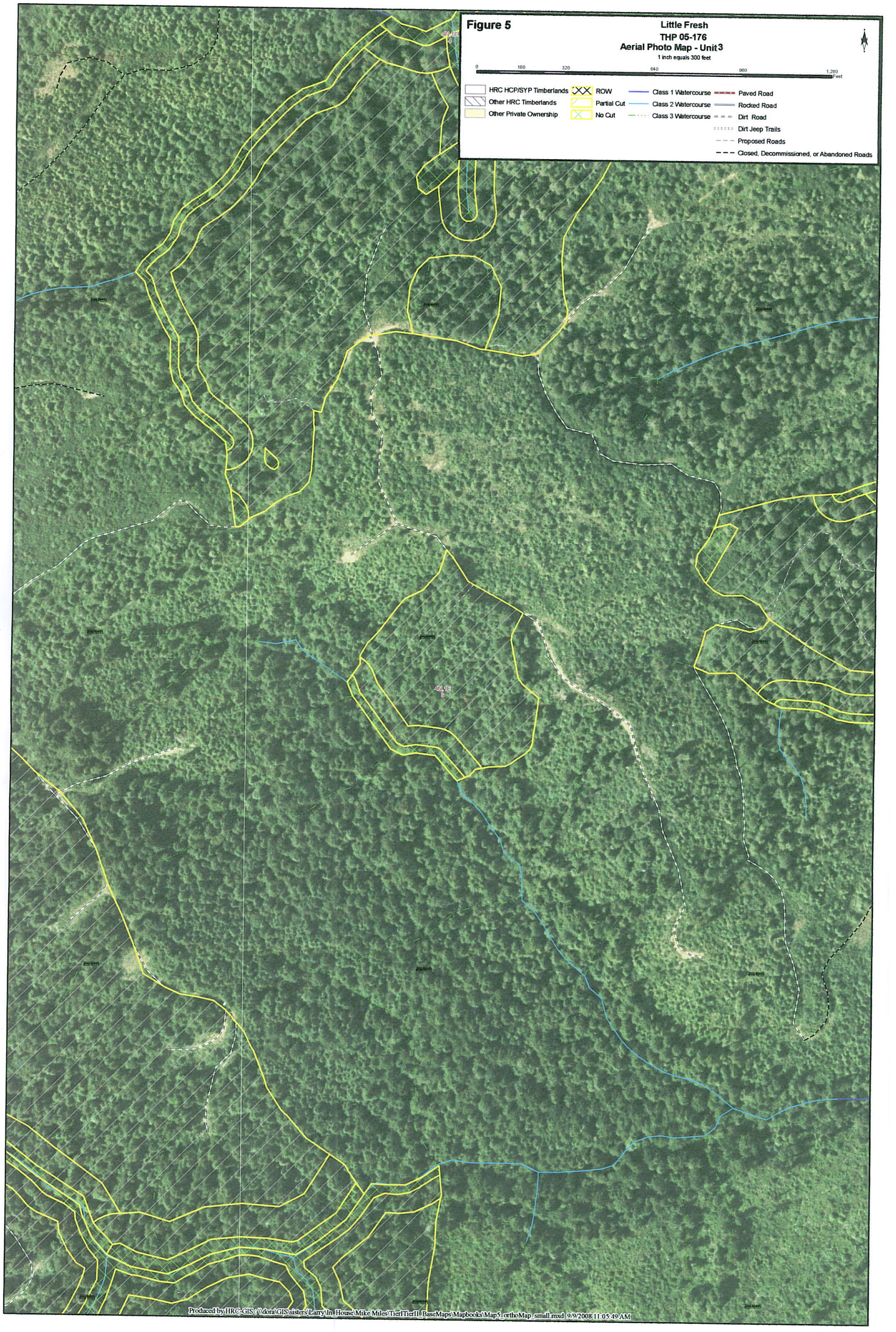
Figure 5
Little Fresh
THP 05-176
Aerial Photo Map - Unit 3
1 inch equals 300 feet
0
160
320
640
960
1,280
Feet
HRC HCP/SYP Timberlands
Other HRC Timberlands
Other Private Ownership
ROW
Partial Cut
No Cut
Class 1 Watercourse
Class 2 Watercourse
Class 3 Watercourse
Paved Road
Rocked Road
Dirt Road
Dirt Jeep Trails
Proposed Roads
Closed, Decommissioned, or Abandoned Roads
4N,1E
9
4N,1E
9
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Figure 6

THP 05-176
Watershed Analysis Deep-Seated Landslide Inventory
Unit 3

1 inch equals 300 feet

0 150 300 600 900 1,200 Feet

N S

- HRC HCP/SYP Timberlands
- Other HRC Timberlands
- Other Private Ownership
- ROW
- Partial Cut
- No Cut
- Class 1 Watercourse
- Class 2 Watercourse
- Class 3 Watercourse
- Paved Road
- Rocked Road
- Dirt Road
- Dirt Jeep Trails
- Proposed Roads
- Closed, Decommissioned, or Abandoned Roads
- Crown of Deep-Seated Landslides

Hazard for Reactivation or Acceleration of Movement
REACT_HAZARD

- N/A (landslides in grassland areas)
- Very Low
- Low
- Low to Moderate
- Moderate
- High

LM
LM
LM
LM
L
4N,1E 4
4N,1E 9

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Figure 7

Little Fresh
THP 05-176
Road Map

1 inch equals 1,000 feet

0 500 1,000 2,000 3,000 4,000 5,000 Feet

- HRC HCP/SYP Timberlands
- Other HRC Timberlands
- Other Private Ownership
- ROW
- Partial Cut
- No Cut
- Class 1 Watercourse
- Class 2 Watercourse
- Class 3 Watercourse
- Paved Road
- Rocked Road
- Dirt Road
- Dirt Jeep Trails
- Proposed Roads
- Closed, Decommissioned, or Abandoned Roads
- Stormproofed
- Updgraded
- Decommissioned

City Dump

FRESHWATER

Garfield School

Little Freshwater Creek

Garbage Can

5N,1E 32

4N,1E 5

4N,1E 4

4N,1E 3

4N,1E 8

4N,1E 9

4N,1E 10

4N,1E 17

4N,1E 16

4N,1E 15

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