



Humboldt Redwood
COMPANY, LLC

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March 25, 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 1-08-084HUM (Unit 2) in the Elk River WWDR, "Tier II"

Dear Ms. Kuhlman:

HRC is requesting Tier II enrollment under Watershed-Wide Waste Discharge Requirement (WWDR) Order No. R1-2006-0039 for unit 2 of THP 1-08-084 HUM. This unit is comprised of 20.2 acres of Selection (10.1 clear-cut equivalent acres). Total acres currently enrolled or proposed for enrollment under Order No. R1-2006-0039 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 unit is underlain by gently to moderately inclined slopes comprised of Wildcat group sediments. The unit is bound to the east by a Class II watercourse in a no harvest RMZ. Two Class III watercourses extend into the unit that drain to the downslope Class II watercourse. The only unstable area mapped or field observed was debris slide slopes / source areas. The slopes were not identified in the unit. No elevated SHALSTAB or MWP hazard was observed. The low slope gradients, limited mapped hazard, the partial harvest, and the infrequent watercourses make this unit a candidate for Tier II enrollment.

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. Ground based yarding is approved for the 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 R1-2006-0039 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. R1-2006-0039).

Respectfully,

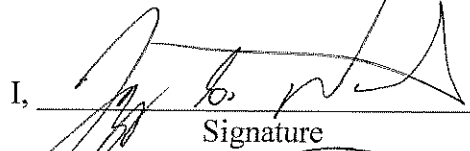


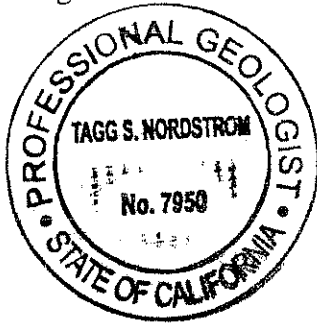
Wayne D. Rice,
RPF
Humboldt Redwood Company, LLC

Attachments:

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

Professional Certification of Design

I, , P.G. 7950, 3/25/09,
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. 1-08-084 HUM (South Lake) Unit # 2

- 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: South Lake THP 08-084 Unit # 2 3-23-09

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, 2005)	3
Mass Wasting Potential Map (HRC, 1999)	4
Aerial Photo Map (HRC, 2007)	5
HRC Elk River and Salmon Creek WA deep-seated LS inventory (HRC, 2004)	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
2-1	<p>The THP was approved for group selection with a minimum retention of 75 ft² basal area per acre. No changes were made.</p> <p>No site preparation will occur due to partial harvesting.</p>	No change to approved yarding methods.

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

The harvest unit occupies a broad convex ridge upslope of a well entrenched Class II watercourse. The unit is mapped to be underlain by undifferentiated Wildcat Group sediments that are composed of silts, sands, clays, and gravels. The formation material is moderate to well consolidated. Figure 3 maps debris slide slope / source areas across the toe of the unit and encompassing the Class II watercourse. No other mass wasting features are mapped.

The immediate banks of the downslope Class II watercourse are mapped as the right lateral margin of a rotational / translation/ earthflow that extend west and outside of the unit (Figure 6).

Review of Figure 2 (Hillslope Shade) shows uniformly irregular slopes without evidence of recent deep seated mass wasting. A truck road is visible across the toe of the unit and paralleling the Class II watercourse.

Mass Wasting Potential (MWP) (Figure 4) is modeled as regionally low throughout the unit. Areas of moderate occur where the slopes adjacent the watercourses are steeply inclined.

One Class III watercourse extends into the unit. The watercourse drains to the downslope Class II watercourse. The watercourse crosses 20 to 40% inclined slopes.

Unstable areas were not identified in the harvest unit by the RPF and CLG. Although a note 45 report was conducted for this harvest plan, this unit was excluded from that report due to very little potential hazard identified by the field work. The THP was reviewed by various agencies during PHI and found to be compliant with the Forest Practice Rules with respect to the disclosure of all known unstable areas.

The silviculture is group selection with a target retention of 75 square feet of basal area per acre.

The unit has been evaluated as a single polygon.

THP Unit: # 2

Polygon: 2-1

A) General Observations

The unit is bound by a Class III watercourse to the north, a Class II watercourses to the east, the apex of a descending ridge to the south, and a ridgetop to the west.

The polygon occupies a predominantly convex slope form that exhibits local surface irregularity. Slope inclinations seldom exceed 50%. The unit wide average is between 20 and 30%.

No elevated values of SHALSTAB are located within the unit.

Typical Riparian Management Zones for the Class II watercourses includes a 30-foot no harvest inner band and a selection buffer that extends the RMZ out to between 75 and 100 feet. The outerband may be harvested but must retain a minimum of 60% canopy closure. For this unit, the entire Class II RMZ has been established as a no harvest.

The implemented 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.

No unstable areas were identified in the unit during THP development.

The stand appears to have been commercially thinned within the last 10 years. The stand is predominantly redwood (80%).

B) Harvest Related Impacts and Hillslope Sensitivity

Landslides were not observed within the harvest. This suggests that the prior logging activities did not result in mass wasting. The prior logging activities were considerably more aggressive resulting in significantly more ground disturbance than this proposed harvest.

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.

The slope has shown no adverse slope stability impacts as a product of timber harvesting.

C) Forestry / Silviculture Plan

The silviculture for the unit has been approved as group selection. This silviculture will retain a considerable number of trees per acre. We have found no reason to change the silviculture.

Site preparation has been changed to none.

D) Operational Design Plan

THP approved yarding method is ground based. The lack of mass wasting attributed to past ground based yarding and the implemented RMZs suggest this yarding method to be appropriate.

References:

- CGS, 2005, Geologic and Geomorphic Features Related to Landsliding, Elk River Watershed, Humboldt County, California. Department of Conservation, now California Geological Survey (CGS) Watershed Mapping Series, Mapset 4, Plate 1. Available via the web at ftp://ftp.consrv.ca.gov/pub/dmg/thp/maps/elk/elk_color.pdf
- 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, 2004, Elk River / Salmon Creek Watershed Analysis, Scotia, California, prepared for Pacific Lumber Company (PALCO) dated 2004?, and acquired by Humboldt Redwood Company, LLC in 2008.
- HRC, 2005, (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 model's 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 South Fork Elk River. Revised 3/25/09

THP Name	THP Number	Unit Number	Silviculture					CC Equivalent	Hazard ²	
			CC	ROW	Disp VR	SHR	SEL		Low	High
Tom Collins	07-189	0				187	0.0	140.3	185	2
Tom Collins	07-189	1					4.9	2.5	4.9	0
Tom Collins	07-189	2					24	12.0	24	0
Tom Collins	07-189	3					5.3	2.7	5.3	0
Tom Collins	07-189	4					2.3	1.2	2.3	0
South Lake	08-084	2					20.2	10.1	20.2	0
*South Lake	08-084	1					29.1	14.6	29.1	0.0
							Total	183.2		

* This unit has 1.1 acres in N.F. Elk River total acres for the unit is 30.2

²Hazard Acres are reported here to conform to the requirements of the Pre-Harvest Planning Report. The Staff Landslide Model in South Fork Elk River allows up to 114 Acres irrespective of Hazard Class. Acres reported are true acres

Highlight indicates a THP and Specific Unit to be enrolled prior to establishing an enforceable Zero Discharge Monitoring Plan. Weighted Acreage Totals are listed below to demonstrate compliance with the Staff Landslide Model limit of 114 Acres in South Fork Elk River. 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 enforceable Zero Discharge Monitoring Plan (Tier II).

Indicatas a plan where a portion of the unit is Tier 1 with the remainder is tier 2

Total Clear Cut Equivilant Acres enrolled or submitted for enrollment	80.4
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Table 2. Summary of THPs to enrolled prior to establishment of Zero Discharge Monitoring Plan for South Fork Elk River.

THP Number	Unit Number	Harvest Acres	Hazard	
			Low	High*
07-189	1	4.9	4.9	0.0
07-189	2	24	24	0.0
07-189	3	5.3	5.3	0.0
07-189	5	50	50	0.0
08-084	1	29.1	29.1	0.0
Totals		113.3	113.3	

Table 3. Summary of THPs by Yarding System and Site Preparation for South Fork Elk River.

THP Name	THP Number	Unit Number	Yarding System			Site Preparation	
			Ground Based	Yarder	Helicopter	Mechanical	Broadcast
Tom Collins	07-189	5	145.6	40.4			
Tom Collins	07-189	1	4.9	0			
Tom Collins	07-189	2	24	0			
Tom Collins	07-189	3	5.3	0			
Tom Collins	07-189	4	2.3	0			
South Lake	08-084	2	20.2				
South Lake	08-084	1	4.4	24.7			

Humboldt Redwood Company LLC

Erosion Control Plan (ECP) for South Lake THP 1-08-084HUM

Updated ECP – for purpose of identifying **Tier 2** erosion control sites specific to unit 2 (2009 enrollment requests); Unit 2 has sites TC1 and TC2 (Skid road) erosion control sites located on the spur road system leading specifically to this unit or in the unit.

This plan is being included in the THP to partially meet the requirements of the North Coast Regional Water Quality Control Board Watershed-wide Waste 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 20080930

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. R1-2006-0039 (Elk River) 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 Company LLC, P.O. Box 712 Scotia, CA 95565 (707) 764-2330.

This ECP is submitted for: THP Name: **South Lake 1-08-084HUM**
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. R1-2006-0039 (Elk River),

"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. R1-2006-0039 (Elk River). Highest priority is assigned to the largest sediment discharge sources that discharge to waters that support domestic water supplies or fish. The landowner'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 Humboldt Redwood Company 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:

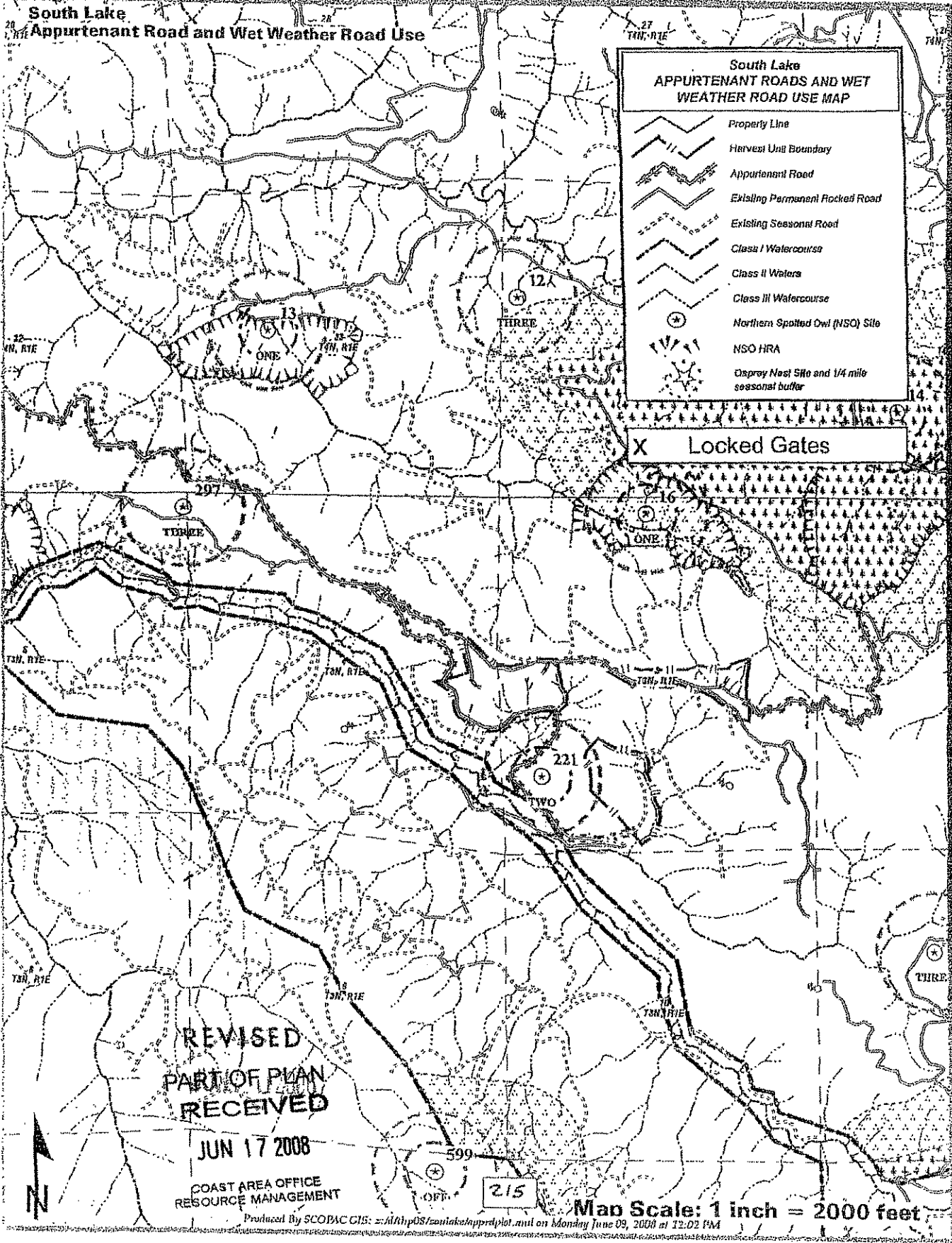
- Appurtenant Road and Wet Weather Road Use map
- Road Construction Locations/ECP Site Locator Map

**South Lake
Appurtenant Road and Wet Weather Road Use**

**South Lake
APPURTENANT ROADS AND WET
WEATHER ROAD USE MAP**

- Property Line
- Harvest Unit Boundary
- Appurtenant Road
- Existing Permanent Paved Road
- Existing Seasonal Road
- Class I Watercourse
- Class II Waters
- Class III Watercourse
- Northern Spotted Owl (NSO) Site
- NSO HRA
- Osprey Nest Site and 1/4 mile seasonal buffer

X Locked Gates



**REVISED
PART OF PLAN
RECEIVED**

JUN 17 2008

**COAST AREA OFFICE
RESOURCE MANAGEMENT**

Map Scale: 1 inch = 2000 feet

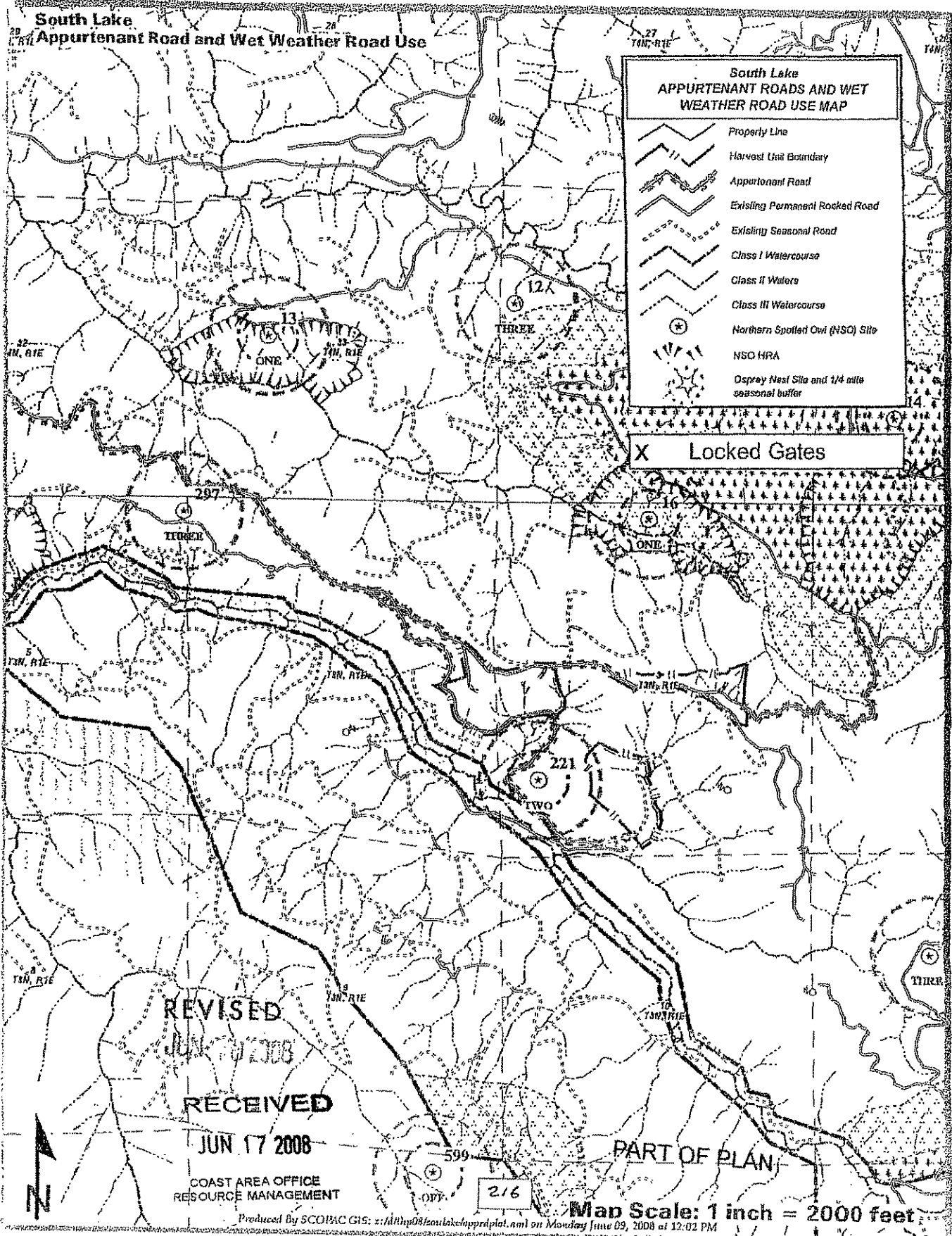
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**South Lake
Appurtenant Road and Wet Weather Road Use**

**South Lake
APPURTENANT ROADS AND WET
WEATHER ROAD USE MAP**

- Property Line
- Harvest Unit Boundary
- Appurtenant Road
- Existing Permanent Rocked Road
- Existing Seasonal Road
- Class I Watercourse
- Class II Waters
- Class III Watercourse
- Northern Spotted Owl (NSO) Site
- NSO HRA
- Osprey Nest Site and 1/4 mile seasonal buffer

X Locked Gates



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JUN 10 2008

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JUN 17 2008

COAST AREA OFFICE
RESOURCE MANAGEMENT

PART OF PLAN

Map Scale: 1 inch = 2000 feet

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COAST AREA OFFICE
RESOURCE MANAGEMENT

South Lake
N Road Construction Specifications Map

TPR 242 REC. 3.9.8648

USGS QUAD 1411 - MCINTOSH CREEK

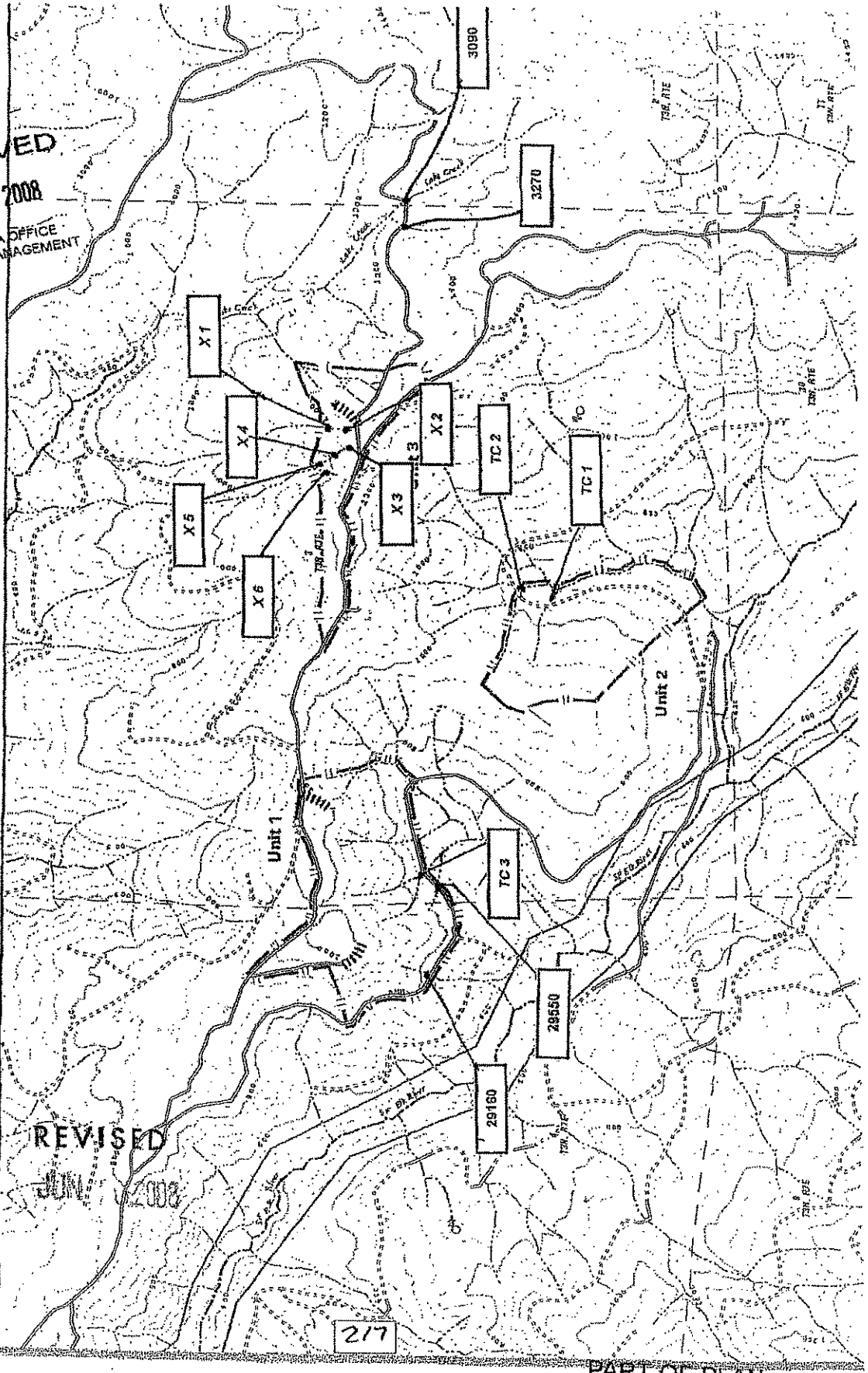
Map Scale: 1 inch = 1000 feet

Contour Interval: 40 feet

- Property Line
- Narrowest Boundary
- Permanent Road
- Seasonal Road
- Class I Watercourse
- Class II Watercourse
- Class III Watercourse
- Class II Wetlands

- Class I Wetlands
- Class II Wetlands
- Class III Wetlands

REVISED
JUN 2008



PART OF PLAN

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 **Jon Woessner (707) 764-4376**.
- 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. The landowner 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 indicated 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 South Lake							
RD Off Road STATION 0 SITE tc1 WOID -952739630 SEDID 3N1E03D702	Tractor Crossing	30	30 100%	Low	Prior to THP Final Completion.	Existing tractor crossing located on a class III watercourse.	Historic skid trail crossing that was never pulled. Excavate existing crossing down to natural channel grade from top to bottom flag. Lay side slopes back at 2:1.
RD Off Road STATION 0 SITE tc2 WOID 1926908139 SEDID 3N1E03D808	Humboldt	300	300 100%	Med	Prior to THP Final Completion.	Failing Humboldt crossing located on a class II watercourse.	Failing Humboldt crossing. Excavate crossing down to natural channel gradient from top to bottom flag. Lay side slopes back at 2:1. Armour head to prevent head cutting.
RD Off Road STATION 0 SITE tc3 WOID 832697168 SEDID 3N1E03A502	Humboldt	30	30 100%	Med	Prior to THP Final Completion.	Failing Humboldt crossing located on a class II watercourse.	Failing Humboldt crossing. Excavate crossing down to natural channel gradient from top to bottom flag. Lay side slopes back at 2:1. Armour head to prevent head cutting.
RD SkidRoad STATION 0 SITE x1 WOID 2115085585 SEDID 3N1E03F401	Tractor Crossing	50	50 100%	Low	Prior to Oct 15; FIRST year of operations.	Existing tractor crossing located on a class III watercourse.	Temporary crossing. Use minimum 6" culvert if water is present at time of use. Excavate existing crossing down to natural channel grade from top to bottom flag. Lay side slopes back at 2:1. Stock pile locally. (This site shall be repaired before October 15 year of use)
RD SkidRoad STATION 0 SITE x2 WOID -1297659394 SEDID 3N1E03F501	Tractor Crossing	30	30 100%	Low	Prior to Oct 15; FIRST year of operations.	Existing tractor crossing located on a class III watercourse.	Temporary crossing. Use minimum 6" culvert if water is present at time of use. Excavate existing crossing down to natural channel grade from top to bottom flag. Lay side slopes back at 2:1. Stock pile locally. (This site shall be repaired before October 15 year of use)
RD SkidRoad STATION 0 SITE x3 WOID -1117637209 SEDID 3N1E03F503	Perched Fill	20	20 100%	Low	Prior to Oct 15; FIRST year of operations.	Perched fill located above the head of a class III watercourse.	Perched fill located above the head of a class III watercourse. Excavate perched fill located along outboard edge of skid-trail. (This site shall be repaired before October 15 year of use)
RD SkidRoad STATION 0 SITE x4 WOID -315131812 SEDID 3N1E03F502	Tractor Crossing	30	30 100%	Low	Prior to Oct 15; FIRST year of operations.	Existing tractor crossing located on a class III watercourse.	Temporary crossing. Use minimum 6" culvert if water is present at time of use. Excavate existing crossing down to natural channel grade from top to bottom flag. Lay side slopes back at 2:1. Stock pile locally. (This site shall be repaired before October 15 year of use)
RD SkidRoad STATION 0 SITE x5 WOID -740110291 SEDID 3N1E03F402	Tractor Crossing	100	100 100%	Low	Prior to Oct 15; FIRST year of operations.	This is an existing tractor crossing located on a class III watercourse.	Temporary crossing. Use minimum 6" culvert if water is present at time of use. Excavate existing crossing down to natural channel grade from top to bottom flag. Lay side slopes back at 2:1. Stock pile locally. (This site shall be repaired before October 15 year of use)

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Site	Site Type	Est. Potential Erosion (Cu.Yards)	Est. Potential Delivery (Cu.Yards & %)	Priority for Treatment	Implementation Schedule	Site Description	Treatment
RD SkidRoad STATION 0 SITE x6 WOID -265878038 SEID 3N1E03E401	Tractor Crossing	75	75 100%	Low	Prior to Oct 15; FIRST year of operations.	This is an existing tractor crossing located on a class III watercourse.	Temporary crossing. Use minimum 6" culvert if water is present at time of use. Excavate existing crossing down to natural channel grade from top to bottom flag. Lay side slopes back at 2:1. Stock pile locally. (This site shall be repaired before October 15 year of use)
RD U08 STATION 29160 SITE p1 WOID -1161435211 SEID 3N1E04H601	Permanent Crossing	30	30 100%	Low	Prior to THP Final Completion.	Water is currently pooling above the culvert inlet on a class III watercourse, which is saturating the fill material in the crossing.	Realign class III channel from culvert inlet to top flag. This will help eliminate standing water above the culvert inlet and increase surface drainage. Rock line channel to help increase bank stabilization. Install downspout at culvert outlet to eliminate down cutting.
RD U08 STATION 29550 SITE c2 WOID 229894916 SEID 3N1E03A602	Watercourse Diversion	30	30 100%	Low	Prior to THP Final Completion.	A class III watercourse has been disconnected from its natural channel due to an existing skidtrail crossing.	Class III watercourse has been diverted by an old skidroad. Excavate crossing down to natural channel grade from top to bottom flag. Lay sideslopes back at 2:1.
RD U46.60 STATION 3090 SITE NFE1005 WOID 5957 SEID 3N1E02A501	Humboldt	1302	1302 100%	Med	Prior to THP Final Completion.	This is a failing Humboldt crossing located on a class III stream.	Excavate humboldt down to natural channel from top to bottom flag. Lay back slopes as far back to 2:1 as possible. If it is not feasible to reach the natural bottom, install down spout.
RD U46.60 STATION 3270 SITE c1 WOID 1210352623 SEID 3N1E03H501	Humboldt	1260	1260 100%	Med	Prior to THP Final Completion.	This is a failing Humboldt crossing located on a class III watercourse.	Failing Humboldt crossing. Excavate down to natural channel grade from top to bottom flag. Lay side slopes back at 2:1. If it is not feasible to reach natural bottom install down spout. Rock armour head to prevent head cutting.
Total Estimated Yards		3287	3287				

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Note: For Landslide Type, Activity Status, see THP Geology Report

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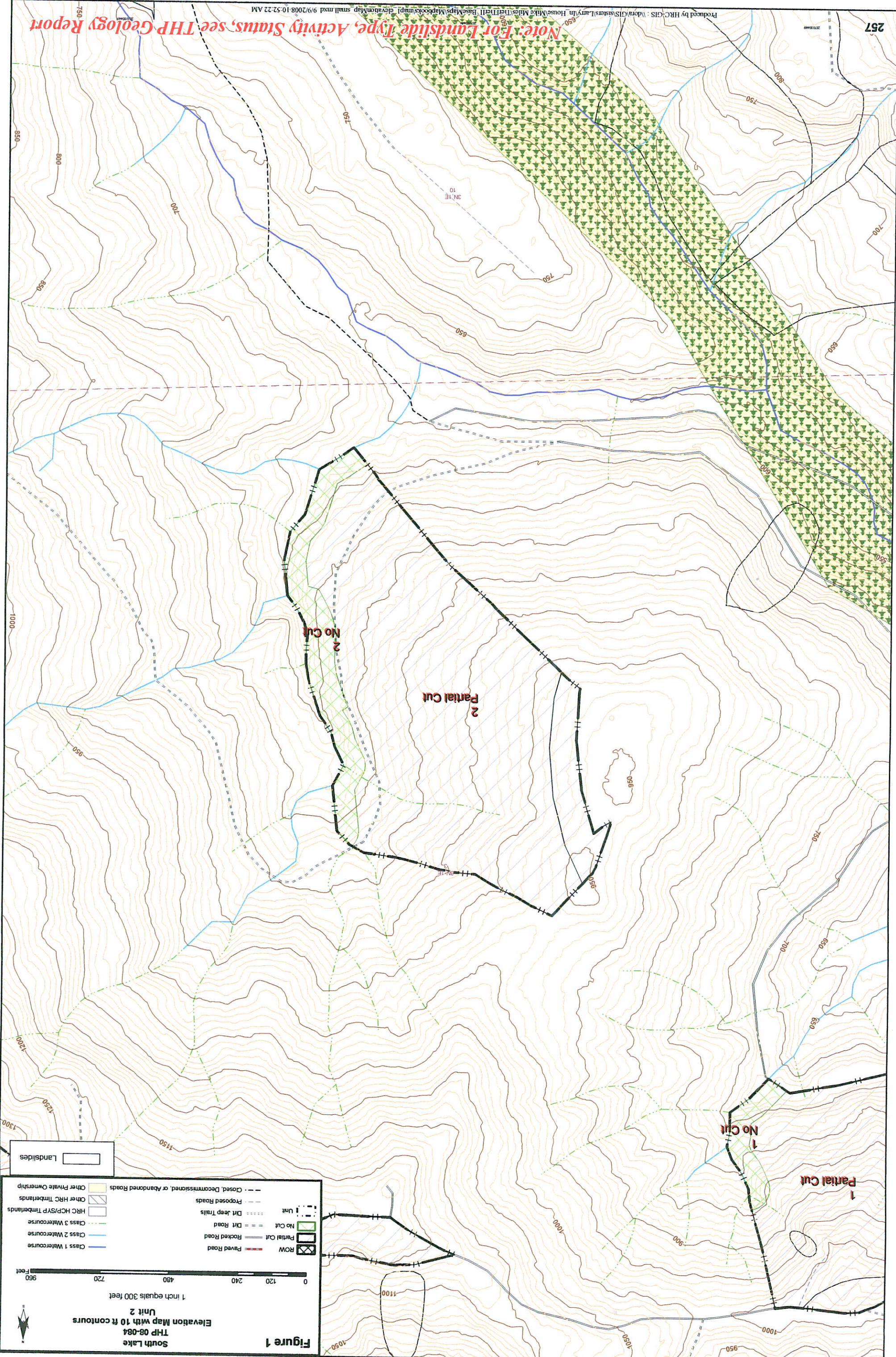


Figure 1

South Lake
THP 08-084
Elevation Map with 10 ft contours
Unit 2
1 inch equals 300 feet

0 120 240 400 600 720 960 Feet

	ROW
	Paved Road
	Rocked Road
	Dirt Road
	Dirt deep Trails
	Proposed Roads
	Closed, Decommissioned, or Abandoned Roads
	Other Private Ownership
	HRC HCP/SYP Timberlands
	Other HRC Timberlands
	Landslides

Class 1 Watercourse
 Class 2 Watercourse
 Class 3 Watercourse
 No Cut
 Partial Cut
 No Cut

Figure 2

South Lake
THP 08-084
Shaistab 10 mrs grid / Slope Class Map
Unit 2

1 inch equals 500 feet

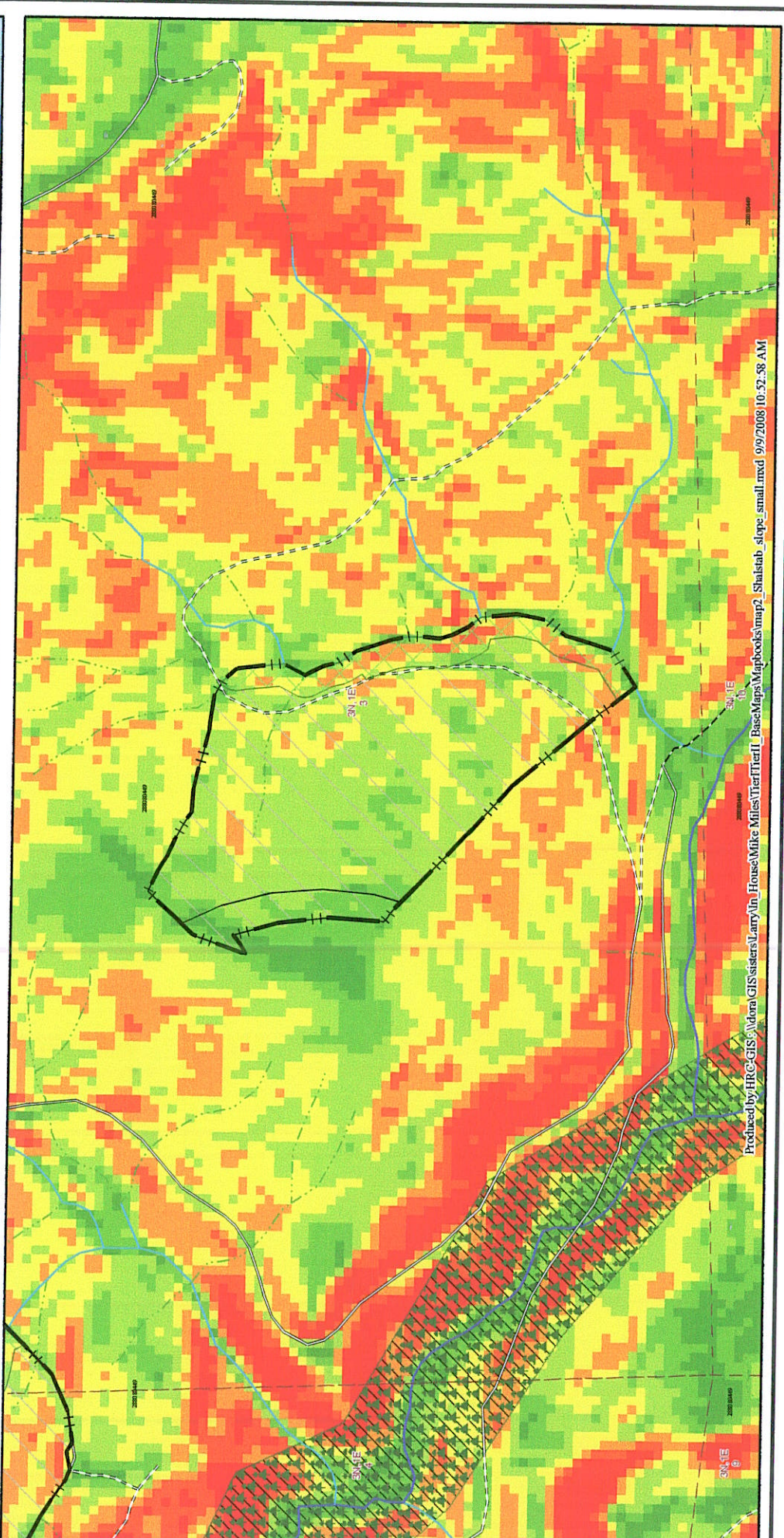
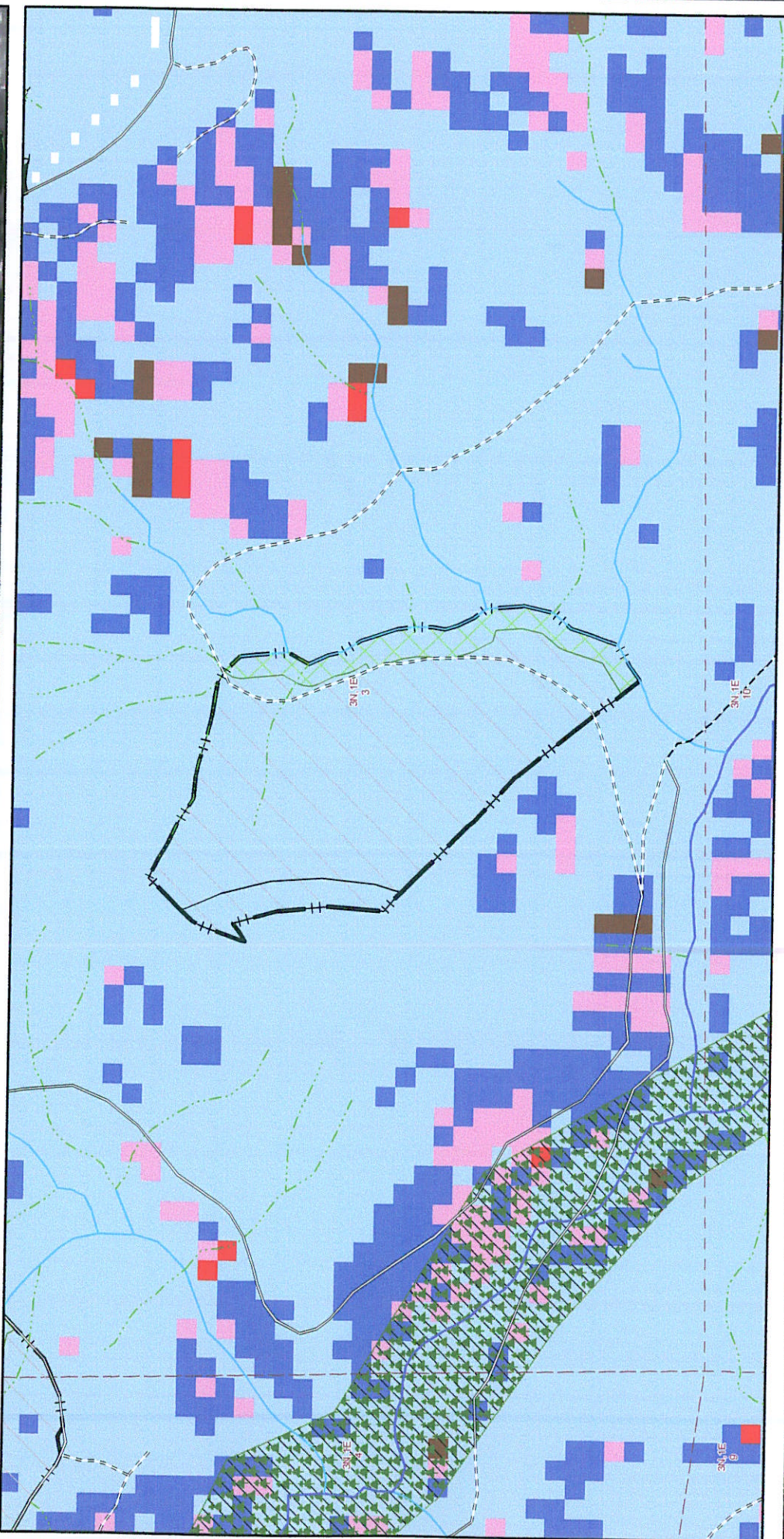
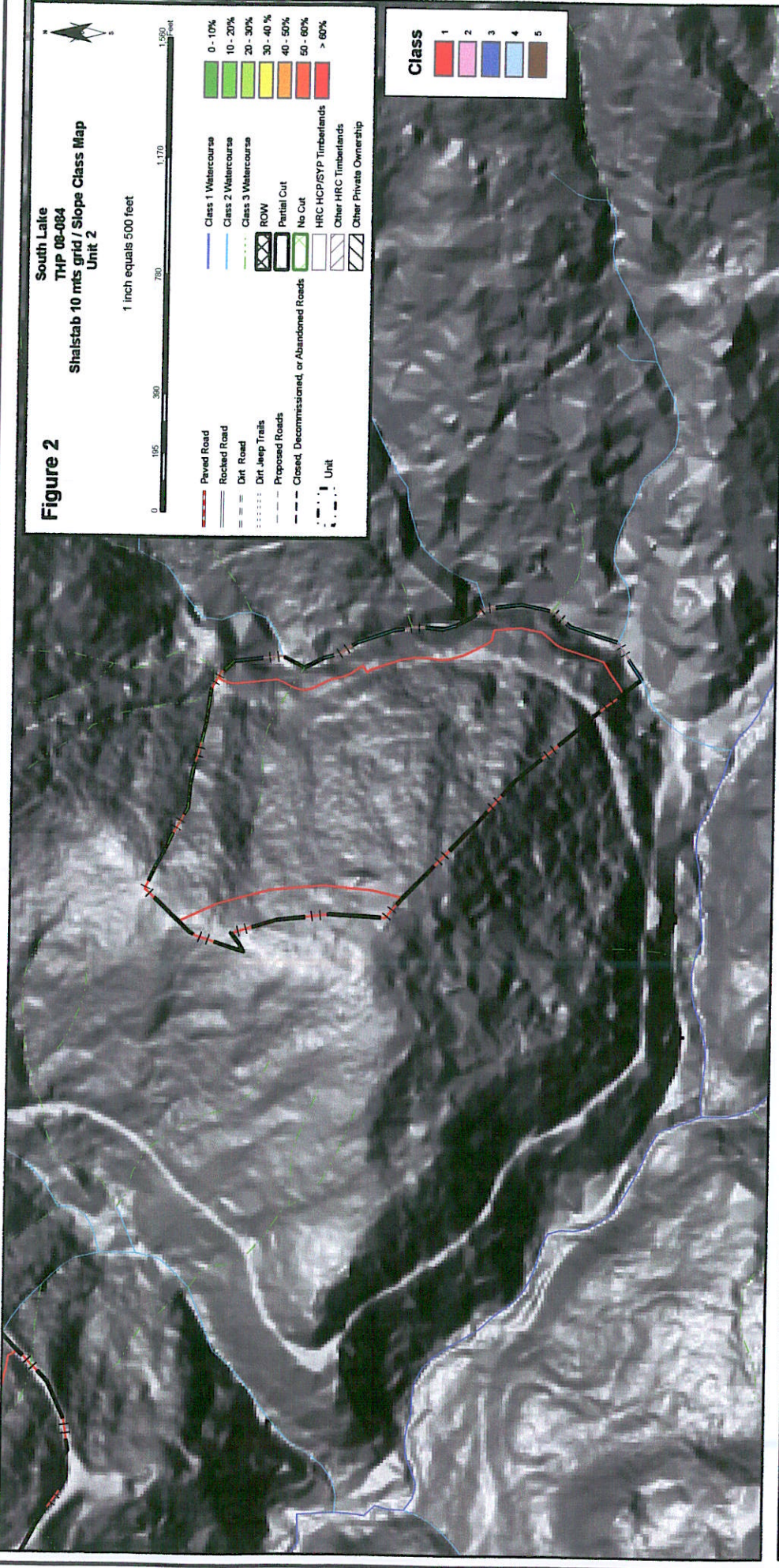
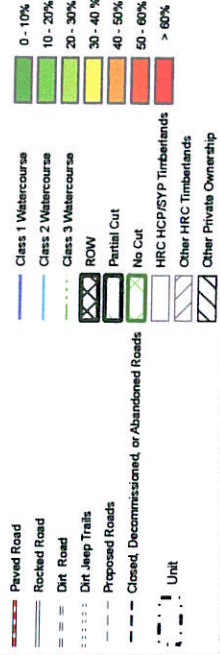
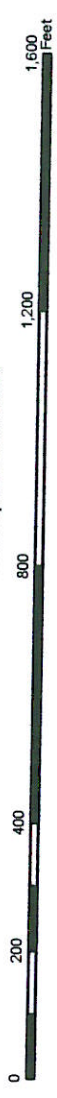


Figure 3

South Lake
THP 08-084
CGS Map Unit 2

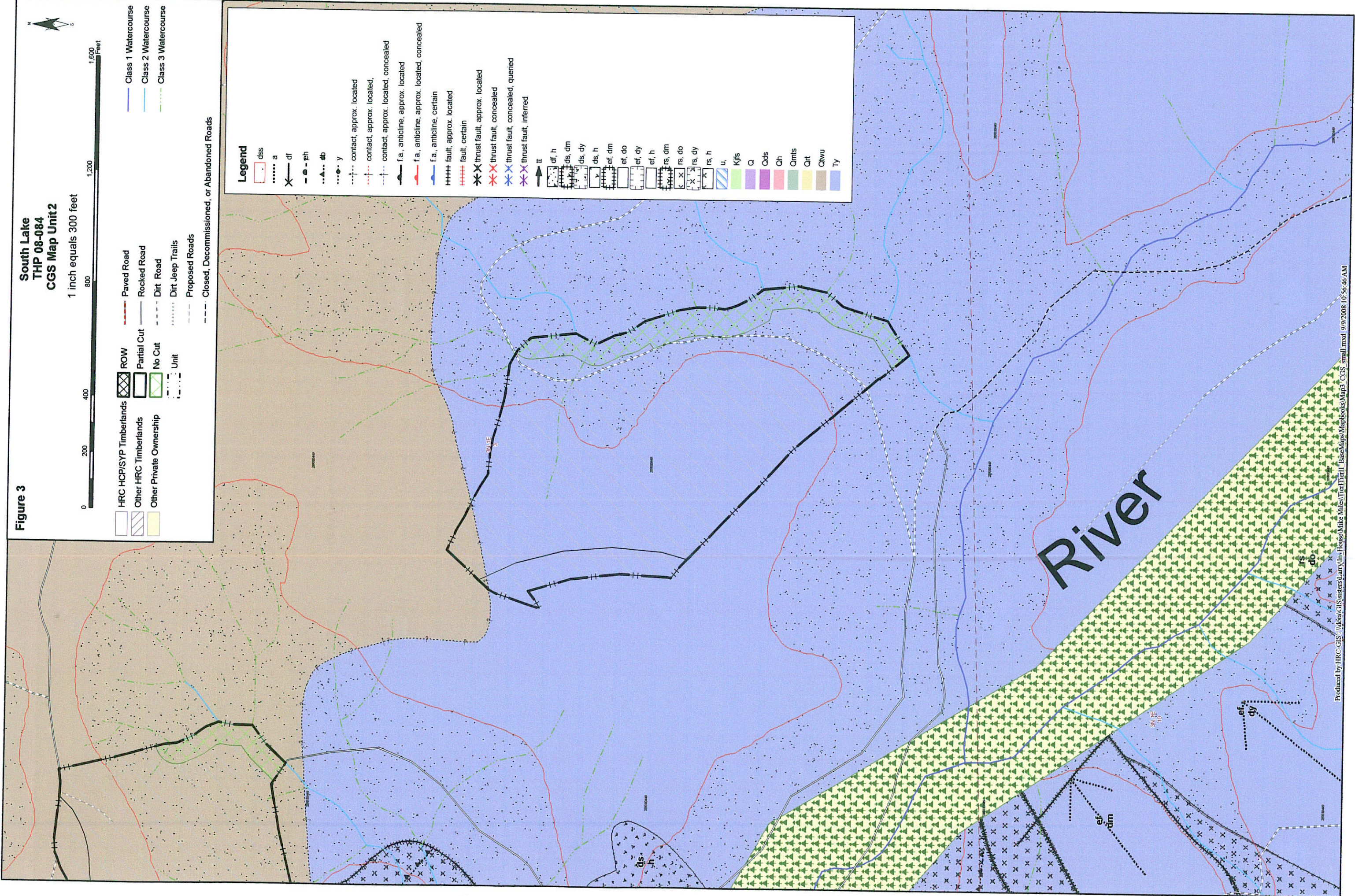
1 inch equals 300 feet



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

- dss
- a
- df
- ph
- db
- y
- contact, approx. located
- contact, approx. located,
- contact, approx. located, concealed
- f.a., anticline, approx. located
- f.a., anticline, approx. located, concealed
- f.a., anticline, certain
- fault, approx. located
- fault, certain
- thrust fault, approx. located
- thrust fault, concealed
- thrust fault, concealed, queried
- thrust fault, inferred
- tt
- df, h
- ds, dm
- ds, dy
- ds, h
- ef, dm
- ef, do
- ef, dy
- ef, h
- rs, dm
- rs, do
- rs, dy
- rs, h
- u
- Kjfs
- Q
- Cds
- Ch
- Cmfs
- Crt
- Qrwu
- Ty



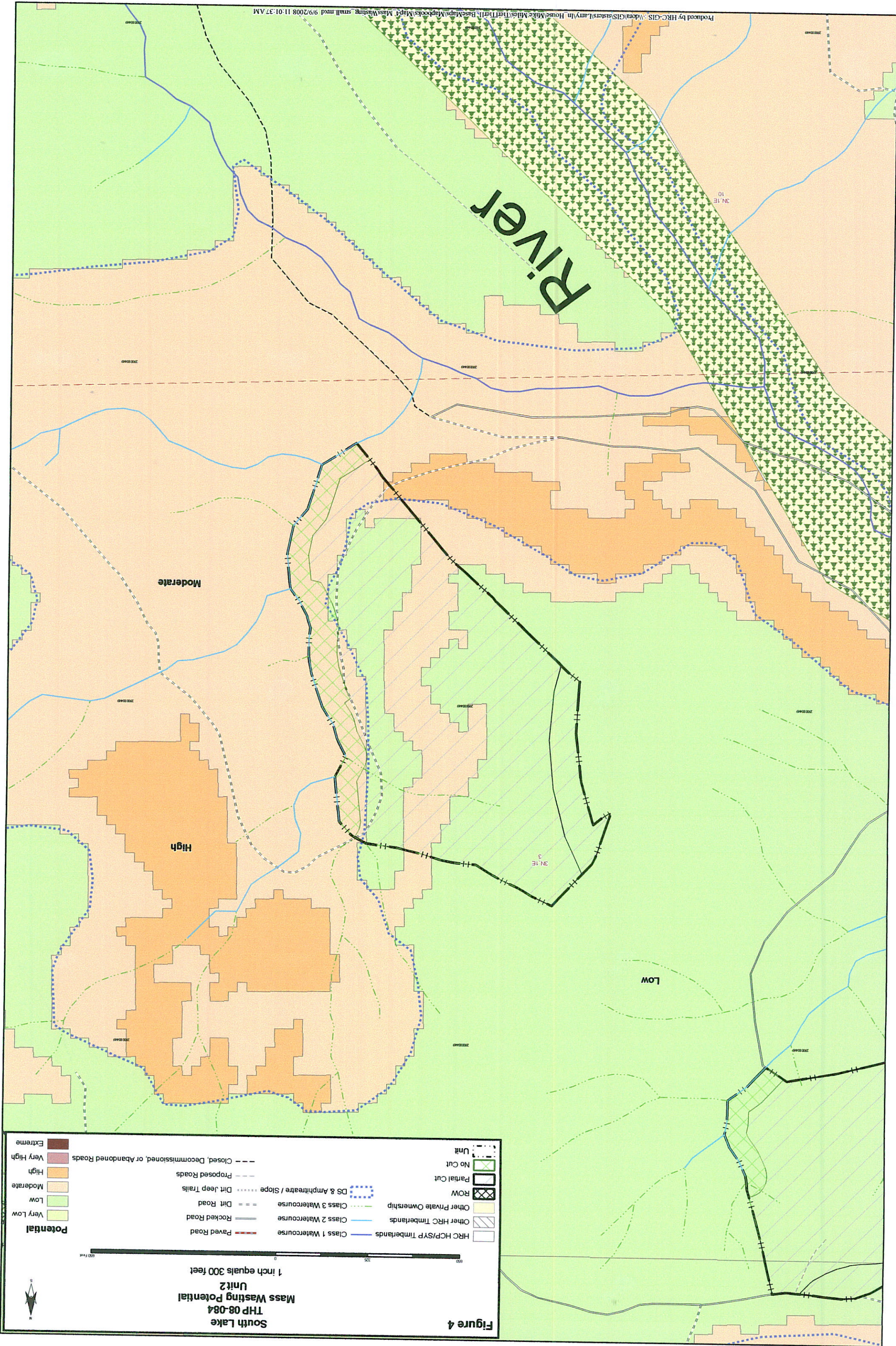


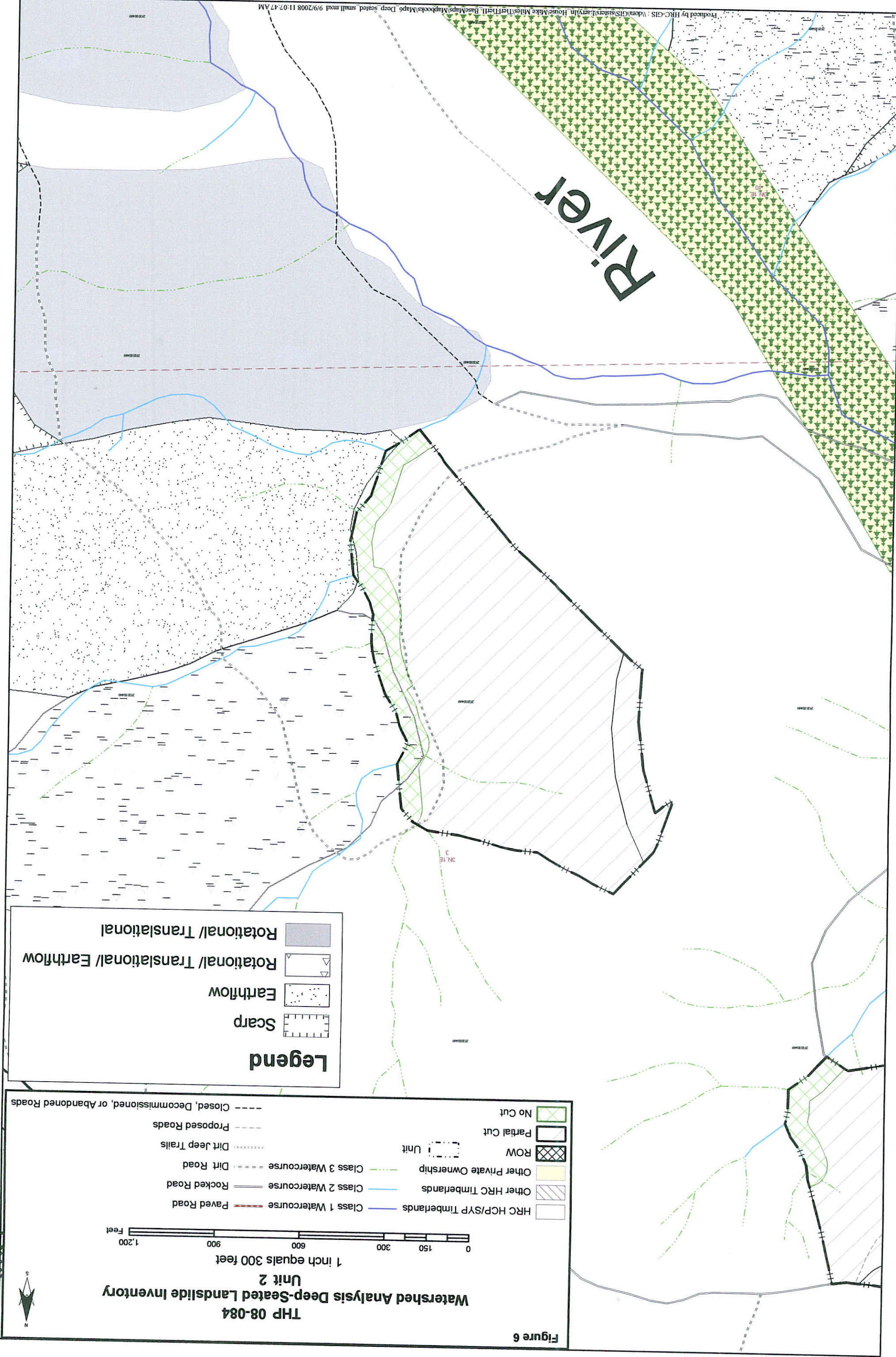
Figure 4
 South Lake TWP 08-084
 Mass Wasting Potential Unit 2
 1 inch equals 300 feet

- | | | | |
|----------|--|---------------------------|-------------------------|
| Extreme | Closed, Decommissioned, or Abandoned Roads | DS & Amphitreatre / Slope | HRC HCP/SYP Timberlands |
| High | Proposed Roads | Class 3 Watercourse | Other Private Ownership |
| Moderate | Ditch Deep Trails | Class 2 Watercourse | Other HRC Timberlands |
| Low | Dirt Road | Class 1 Watercourse | ROW |
| Very Low | Rocked Road | Paved Road | Partial Cut |
| | No Cut | | Unit |

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**THP 08-084
Watershed Analysis Deep-Seated Landslide Inventory
Unit 2**

1 inch equals 300 feet
0 150 300 600 900 1,200
Feet

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

- Legend**
- | | |
|--------------------------------------|---------------------------|
| Rotational/ Translational/ Earthflow | Rotational/ Translational |
| Scarp | |

Figure 6

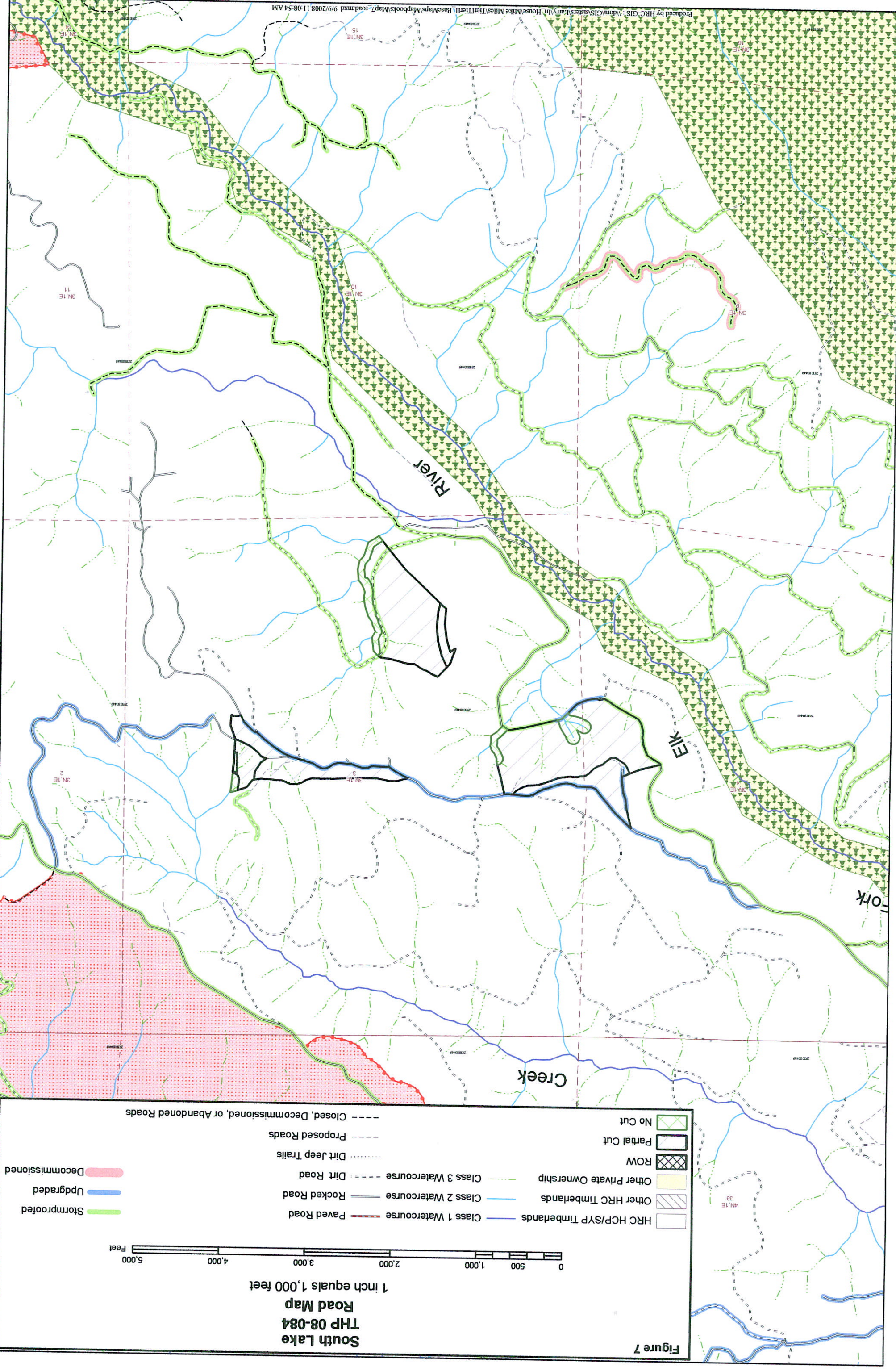


Figure 7