



Humboldt Redwood  
COMPANY, LLC

N C R W Q C B

MAY 28 2010

Main Office  
P.O. Box 37  
Scotia, CA 95565  
(707) 764-4472

Timber Operations  
P.O. Box 712  
Scotia, CA 95565  
(707) 764-4472

<input type="checkbox"/> EO	<input type="checkbox"/> W Mgmt	<input checked="" type="checkbox"/> Admin <i>LIF</i>
<input type="checkbox"/> AEO	<input checked="" type="checkbox"/> Timber <i>RL</i>	<input type="checkbox"/> Legal
<input type="checkbox"/> Reg/NPS	<input type="checkbox"/> Cleanups	<input type="checkbox"/>

May 19<sup>th</sup>, 2010

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 1-10-012 HUM 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 1 of THP 1-10-012 HUM. The enrollment is comprised of 163.9 acres of group selection, 7.5 acres of ROW and 61.7 acres of selection (118.4 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. 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.

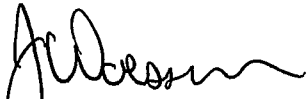
The Becks THP acres proposed for Tier 2 enrollment span different underlying geologies. This results in contrasting terrains with varying slope inclinations, watercourse densities, stand types and likely failure modes. A Note 45 geology report was prepared and included in the THP. The report addresses the previously mapped unstable area and what was identified during field reconnaissance. Through that evaluation, the proposed single tree and group selection silviculture with delineated areas of ground based and cable yarding was considered effective mitigation by the geologist to minimize the potential for harvest related mass wasting. Existing unstable areas are proposed for single tree selection harvesting in this enrollment. Following this review, we found nothing to indicate that greater buffers or retention standards were needed to further reduce the potential for mass wasting. As such, it is our opinion that the proposed activities marginally increase the potential for mass wasting and thereby meet the requirements for Tier 2 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. Cable and 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 R1-2006-0041 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,



Jon Woessner,  
Area Manager RPF #2571  
Humboldt Redwood Company, LLC

Attachments:

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

THP: Becks

THP 10-012

Unit # 1

May 20/ 2010

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

NCRWQCB

MAY 28 2010

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<input type="checkbox"/> AEO	<input type="checkbox"/> Timber	<input type="checkbox"/> Legal
<input type="checkbox"/> Reg/NPS	<input type="checkbox"/> Cleanups	<input type="checkbox"/> Date

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
1-W	No change to approved selection silviculture. No site preparation will occur due to partial harvesting.	No change to approved yarding methods.

1-E	<p>No change to approved selection silviculture.</p> <p>No site preparation will occur due to partial harvesting</p>	No change to approved yarding methods.
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## Geological Summary (information presented from existing bodies of work):

The Becks THP consists of one contiguous Unit. Roughly the southern one-third of the unit is proposed for Tier 2 enrollment (see Figure 1). The THP includes a Note 45 Geology Report that addresses both areas of existing and potential instability and mitigations deemed appropriate by the report author and the various reviewing agencies. The report also includes Shalstab modeling that was utilized as a tool during field review. The silvicultures applied include single tree where atop unstable areas and group selection throughout the remaining areas. As stipulated by the FPR, this silviculture requires the minimum retention of timber to remain at 75 square feet of basal area or above. Selection silviculture is a rather broad forestry application in that the harvest can be adjusted to meet the landowner's goal for future stand development. This was a concern raised at PHI and as such, a detailed description of the proposed harvest specific to the existing stand is documented in HRC (2010). The western 1/3 of the Tier 2 acres was partially harvested in the early to mid 1990s, thereby includes a vibrant understory of sprouting redwoods. The remainder of the Tier 2 acres is un-entered 2<sup>nd</sup> growth redwood and Douglas fir with isolated patches of hardwood. We direct the reader to the THP to review the geology report and phi responses. The geology report presents the most up to date mapping of the landslides within the area and supersedes all previous mapping of unstable areas in the area.

Figure 3 shows the eastern portion of the unit to be underlain by mélange of the Central Belt of the Franciscan Complex. This association of material is in fault contact (freshwater Fault) with the Quaternary aged Wildcat Group sediments to the west. The fault is not active. The Wildcat Group is depositionally placed atop Yager Terrane ( a younger terrane of the Coastal Belt of the Franciscan Complex). This material is often observed exposed in the incised channels of the Class I and Class II watercourses. Figure 3 also maps several deep seated and aerial extensive landslides. These landslides vary from translational to earthflow. As depicted by CGS (1999), and confirmed by our field review, these landslides are dormant mature in activity and likely last experienced movement during active faulting of the Freshwater Fault. Numerous smaller landslides were mapped in the proposed unit. Our field mapping has refined this mapping to more accurately present the existing unstable areas within the unit. Of note, the most prominent hazard presented by CGS (1999) on Figure 3 is debris slide

slopes typically flanking watercourses.

Watershed Analysis mapping (Figure 6) of deep seated landslides (rock slides) is fairly consistent with Figure 3. This mapping discloses the subjective potential of reactivation of the landslides as low to moderate. Previous harvesting atop the landslides has resulted in no observable reactivation. We consider the reactivation potential from harvest atop these landslides as very low negligible.

Review of Figure 2 (Hillslope Shade) shows irregular morphology typical of *mélange*, faulting, and subsequent regionally extensive mass wasting. The slopes appear smooth with a high density of poorly incised watercourses in the east. This morphology transitions to uniformly dissected slopes with consistent inclinations, drainage basin sizes, and relief. We interpret this to expression to suggest that the Wildcat Group sediments are consistent in texture and consolidation. The morphology underlying the deep seated landslides and earthflows presented on Figures 3 and Figure 6 is suggestive of mass wasting, however the margins appear subdued indicating a period of inactivity and weathering.

Figure 4 (Mass Wasting Potential) modeling suggests the slopes to vary from low to very high potential for mass wasting. The product of this modeling was taken into account with respect to the activity status of the existing unstable areas, slope inclinations, and the proposed harvest activities

As an overview, the un-entered second growth stand in the east will retain approximately 120 and 140 square feet of basal area. The stands in the west will retain between 75 and 100 square feet of basal area and a vibrant 20-year old understory stand of conifer that will meet FPR stocking standards without including the pre-harvest merchantable timber. Several existing unstable areas are proposed for partial harvesting. These areas have been marked accordingly, are subject to single tree harvesting and are located within cable yarding zones.

New road construction is proposed. Five small areas located along ridgetops are proposed for ground based yarding. The remainder of the unit is proposed for cable yarding.

Due to the significant change in slope morphology as a product of underlying geology, the Tier 2 acres have been divided into two polygons for further discussion (See Figure 1).

**THP Unit: # 1****Polygon: 1-W****A) General Observations**

As it turns out, the polygon underlain by the Wildcat Group sediments was also partially harvested in the early to mid 1990s. Hillslope morphology is generally moderate to steeply inclined with well incised watercourses that extend from the ridge tops downslope to prominent well entrenched higher order watercourses. The formation material appears to be significantly comprised of sand with minor silts and clays. In profile, the soft, permeable sandy soils gradually increase in consolidation with depth to about 5 feet. The underlying bedrock is moderate to well consolidated, offers no structural information and appears massive.

The watercourse density is relatively high. The polygon occupies convergent and divergent slopes with inclinations that vary from 10% to over 60%. Steeper slope inclinations are located on flanking slopes of the well incised Class I, II and Class III watercourses.

The typically steep slopes blanketed by shallow sandy soils initially suggests a high potential for shallow mass wasting following the removal of vegetation. Our field review of the area found a few areas of mass wasting that could be attributed to the initial clearcut harvest of the old growth timber. Failures resulting from the early to mid 1990s harvesting were not identified. This is in part due to the partial harvesting of the timber stand that retained both canopy and viable living rooting structures. This is also in part due to the development of the second growth stand. The second growth stand is of a higher density (tree trunks per acre) than the old growth forest was. Therefore it would seem that the contributions to total soil cohesion from root structures would have increased.

The Forester has implemented the HCP required Riparian Management Zone (RMZ). They are as follows: Class I watercourses receive a 50-foot no harvest inner band. The outerband extends to 150 feet and allows harvesting until 50% canopy closure is reached. The South Fork Freshwater Creek (Class I) defines the western boundary of the polygon. The Forester has provided areas where the entire Class I RMZ is no harvest and areas where partial harvesting will occur within the outer band. Class II watercourses include a 30-foot no harvest inner band and a selection buffer that extends out to between 75 and 100 feet (slope dependent). Retention standards are 60% canopy closure. Class III watercourse include 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% will maintain 75 sq. ft of basal area within the buffer. Where side slopes are less than 50% a 25' RMZ will maintain 75 sq. ft of basal area within the buffer. No group openings greater than ¼ acre will occur immediately above the terminus of the slopes leading to a Class III watercourse where slopes are 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.

#### A) General Observations

Taking the existing stand conditions, the proposed level of harvest, and the applied watercourse buffers into account, we evaluated the areas modeled with elevated hazard by SHALSTAB (Values 1 and 2). Three locations of the highest ranked hazard are present within the polygon. Only one area is coincident with a Class III watercourse channel. The remaining two are located upslope and outside of existing RMZs. Aside from the locally steep and concave nature of the slopes, we found no indications suggesting a higher potential for mass wasting that adjacent slopes.

Debris slide slopes mapped (Figure 3) within this unit correlate with slopes inclined over 40% that lead to a watercourse. This mapping provided indication to the forester to retain the services of a licensed geologist for review of potential for failure following harvest. We have done that and have modified that mapping (See THP). Four HCP Headwall Swales were identified in the polygon. These areas are within no harvest zones due to insufficient canopy for retention. All four were harvested in the early to mid 1990s partial harvest. Based on our findings, the debris slides slopes do not exist. In addition, we do not consider the proposed activities atop these slopes to result in debris slides atop these slopes.

The stand is predominantly redwood and fir. The original harvest was a ground based clearcut yarded either to the downslope watercourse or the ridge top. This harvest was ground based and resulted in the dragging of the large diameter felled timber across the slopes using large diameter cables (steam donkey). The unit was also partially harvest by ground based and cable yarding in the mid 1990s. The mass wasting response to the initial harvest appeared constrained to the steeply inclined banks of the well entrenched watercourses. These areas are mitigated with RMZ that prohibit ground based yarding (surface alteration) and over harvesting. No unstable areas were identified resulting from the 2<sup>nd</sup> harvest.

#### B) Harvest Related Impacts and Hillslope Sensitivity

The slopes have experienced to episodes of harvesting. The first harvest would be considered the greatest impact to slope stability in that a primeval stand in place thousands of years was rapidly removed, the landscape burned, and the forest floor scoured by yarding. Although steeply inclined and underlain by silty clayey sands, the mass wasting response was relatively minimal. The 2<sup>nd</sup> harvest was a partial harvest, likely harvesting ½ of the trees. The mass wasting response to this harvest has been relatively minimal. This proposed harvest will likely be even less of an impact than the mid 1990s partial harvest. The basal area retentions will be higher, there is an

#### B) Harvest Related Impacts and Hillslope Sensitivity

advancing conifer understory providing canopy closure and root strength, the watercourses are buffered and the area will be cable logged.

The term 'Debris slide slope / source' area is just that. The potential for mass wasting is directly proportional to the impacts imparted on the slope by the chosen activity. Too aggressive a harvest coupled with significant surface alteration could and would be expected to manifest into debris sliding. These slopes have shown a stability threshold that is rather high. It is our opinion that the proposed activities do not impart impacts to the degree necessary for the development of shallow debris slides.

Partially harvesting the slopes within the unit is unlikely to significantly increase the potential for mass wasting.

The extensive RMZs were designed to provide sediment filtration bands adjacent the watercourses should extensive sediment be generated from clearcut harvesting (Palco). The partial harvest will retain both canopy closure and slash from the harvested trees. This effectively expands the intent of the RMZ to the whole harvested area.

Overall hillslope sensitivity to harvest activities appears minimal with respect to mass wasting.

#### C) Forestry / Silviculture Plan

The Forester proposes a group selection silviculture where 75 square feet of basal area will be retained throughout the area being reviewed. New road construction is proposed to accommodate cable yarding. The road will be constructed to FPR and HCP requirements with construction method dependent upon slope inclination.

#### D) Operational Design Plan

THP approved yarding method is predominantly cable with gently inclined ridge top slopes proposed for ground based harvesting. The volume of timber to be yarded coupled with the diameter of the trees and the anticipated moderate deflection should result in minimal ground disturbance. Where this disturbance is exceptional, the RPF will provide for waterbarring. We did not find reason to change the yarding methods as approved in the THP.



**THP Unit: # 1****Polygon: 1-E****A) General Observations**

This polygon is essentially underlain by sheared rocks of the Franciscan Complex. Mélange by definition is a heterogeneous mixture of varying rock types in a silt clay matrix. These materials are typically weak structurally and exhibit morphology that is gently inclined and irregular. This polygon exhibits this morphology. The formation material appears to be significantly comprised of indurated fractured sandstone supported in a matrix of clay, silt, sand and gravels. Unless shallowly underlain by an erratic rock body supported in the formation material, we anticipate extensive soil depths. As with mélanges, structural associations were not observed.

The polygon occupies convergent and divergent slopes with inclinations that vary from 10% to over 60%. The majority of the unit is underlain by slopes inclined between 20 and 40%. Steeper slope inclinations are located on flanking slopes of the well incised Class I, II and Class III watercourses.

The predominant mode of failure atop mélange materials is earthflow. These types of failures are typically effected seasonally through hydration and dehydration cycles. As a product for forest growth atop the soils, it is assumed that the addition of root strength and canopy coverage minimizes the soil creep or where top an active earthflow, reduces the rate of earthflow movement. Timber harvesting or extensive road building atop these slopes can increase the rate of flow although rates usually remains slow to very slow. With respect to this unit underlying mélange, the dormant mature landslides mapped in Figures 3 and 6 did not appear to reactivate following the initial harvest. This suggests to us that they were likely in response to faulting the built up elevations across the fault. These elevations were unsustainable due to the inherent rock strength of the sheared mélange and failed. That process is no longer active. The mapped landslides are well dissected by watercourses and the margins are very subdued. Harvest related impacts to these slopes would likely be the development of new, independent of the larger failures, earthflows and debris slides.

Our field review of the area found a few areas of mass wasting that appeared last active following the initial harvest. We could not differentiate if the unstable areas existed prior to the initial harvest. The areas exhibit complex slope failure morphology and are somewhat regionally significant. Therefore we assume that the inherent undying rock strength was low enough to be affected by the forest removal and or surface scour produced during the initial harvest. Utilizing the growing timber within these areas as a strain gauge, it appears that activity was highest shortly following the initial clearcut harvest and then ceased. We assume that since the mass wasting ceased prior to the re-establishment of the forest (current), the slope failed to a stable configuration.

Similar to polygon 1W, the second growth stand is of a higher density (tree trunks per acre) than the old growth forest was. Therefore it

#### A) General Observations

would seem that the contributions to total soil cohesion from root structures would have increased throughout.

The Forester has implemented the HCP required Riparian Management Zone (RMZ). They are as follows: Class I watercourses receive a 50-foot no harvest inner band. The outerband extends to 150 feet and allows harvesting until 50% canopy closure is reached. The South Fork Freshwater Creek (Class I) defines the western boundary of the polygon. The Forester has provided areas where the entire Class I RMZ is no harvest and areas where partial harvesting will occur within the outer band. Class II watercourses include a 30-foot no harvest inner band and a selection buffer that extends out to between 75 and 100 feet (slope dependent). Retention standards are 60% canopy closure. Class III watercourse include 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% will maintain 75 sq. ft of basal area within the buffer. Where side slopes are less than 50% a 25' RMZ will maintain 75 sq. ft of basal area within the buffer. No group openings greater than ¼ acre will occur immediately above the terminus of the slopes leading to a Class III watercourse where slopes are 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.

Taking the existing stand conditions, the proposed level of harvest, and the applied watercourse buffers into account, we evaluated the areas modeled with elevated hazard by SHALSTAB (Values 1 and 2). Three locations of the highest ranked hazard are present within the proposed harvest polygon. Two occur low on the slope encompass Class III watercourses where within the downslope Class II RMZ outer band. These areas are proposed for harvest, but realistically are will result in minimal harvesting due to the limited existing canopy and watercourse mitigations. The remaining area is located at higher elevations, downslope of a proposed truck road and upslope of a Class III watercourse. The area is vegetated with a mix of hardwoods and conifers and exhibits marginal surface alteration from legacy ground based yarding. The area is within a single tree selection zone that is proposed for cable yarding. We found no indications suggesting a higher potential for mass wasting that adjacent slopes.

Debris slide slopes mapped (Figure 3) within this polygon correlate with slopes inclined over 40% that lead to a watercourse. This mapping provided indication to the forester to retain the services of a licensed geologist for review of potential for failure following harvest. We have done that and have modified that mapping (See THP). A series of small shallow debris slides and one regional area of complex mass wasting have been identified. The shallow debris slides appear as single event failures and are currently void of merchantable timber (default no harvest zones). The complex landslide is not a debris slide and has been mitigated with single tree selection, a high retention standard and cable yarding. Based on our findings, the debris slides slopes do not exist. In addition, we do not consider the proposed activities atop these slopes to result in debris slides atop these slopes.

#### A) General Observations

The stand is predominantly redwood and fir. The original harvest was a ground based clearcut yarded upslope to a midslope train grade (Road 15). This harvest was ground based and resulted in the dragging of the large diameter felled timber across the slopes using large diameter cables (steam donkey). The mass wasting response to the initial harvest appeared predominantly constrained to the steeply inclined banks of the well entrenched watercourses or where extensive ground disturbance resulted from yarding. The complex landslide located partially within the CGS mapped debris slide slope is an exception. These areas are mitigated with RMZ that prohibit ground based yarding (surface alteration) and over harvesting.

#### B) Harvest Related Impacts and Hillslope Sensitivity

The slopes have experienced one episode of harvesting. That harvest would be considered the greatest impact to slope stability in that an old forest in place thousands of years was rapidly removed, the landscape burned, and the forest floor scoured by yarding. Although moderate to steeply inclined and underlain by deformable earth materials, the overall mass wasting response was relatively minimal. This proposed harvest represents a significantly impact to slope stability than the initial harvest. This harvest will retain about ½ of the stand, avoids extensive ground disturbance in areas likely to be affected by such activities, incorporates buffers on the watercourses, and utilizes slope dependent yarding methods that present the least potential for the development of landslides.

The term 'Debris slide slope / source' area is just that. The potential for mass wasting is directly proportional to the impacts imparted on the slope by the chosen activity. Too aggressive a harvest coupled with significant surface alteration could and would be expected to manifest into debris sliding. These slopes have shown a stability threshold that is rather high. It is our opinion that the proposed activities do not impart impacts to the degree necessary for the development of shallow debris slides.

Partially harvesting the slopes within the unit is unlikely to significantly increase the potential for mass wasting.

The extensive RMZs were designed to provide sediment filtration bands adjacent the watercourses should extensive sediment be generated from clearcut harvesting (Palco). The partial harvest will retain both canopy closure and slash from the harvested trees. This effectively expands the intent of the RMZ to the whole harvested area.

Overall hillslope sensitivity to harvest activities appears minimal with respect to mass wasting.

C) Forestry / Silviculture Plan

The Forester proposes a group selection silviculture where 75 square feet of basal area will be retained throughout the area being reviewed. New road construction is proposed. The roads will be built to FPR and HCP standards that specify construction method based on slope inclination.

D) Operational Design Plan

THP approved yarding method is cable and ground based. Based on the locations proposed by the forester, this method of yarding is not anticipated to significantly increase the potential for mass wasting. The volume of timber to be cable yarded coupled with the diameter of the trees and the anticipated moderate deflection should result in minimal ground disturbance. Where this disturbance is exceptional, the RPF will provide for water barring. We did not find reason to change the yarding methods as approved in the THP.

## References:

- CGS, 1999, Geologic and Geomorphic Features Related to Landsliding, Freshwater Creek, Humboldt County, California. DMG Open-File Report 99-10. Available via the web at <http://www.conservation.ca.gov/cgs/fwgp/Pages/fresh.aspx>
- 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, 2010, THP 1-10-012hum (Becks) CGS PHI Responses, letter submitted to Mr. Mark Destefano, RPF, dated April 19, 2010.
- 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 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 2010 Harvest in Freshwater Creek.

THP Name	THP Number	Unit Number	CC	Silviculture			CC Equivalent	Hazard	
				ROW	shr	SEL		Low	High*
Becks 2010	10-012	1		7.5		225.6	118.4	166.4	139.98
Ridge Meander	09-010	1 TII				89.1	44.6	82.7	24.6
Ridge Meander	09-010	2 TI				37.7	18.9	37.7	0.0
Ridge Meander	09-010	3 TII				90.3	45.2	88.3	7.7
Ridge Meander	09-010	1A TI				37.1	18.6	37.1	0.0
Ridge Meander	09-010	1B TI				36.1	18.1	35.4	2.7
Ridge Meander	09-010	3A T1				24.1	12.1	24.1	0.0
little little	09-100	All		2.7		58.8	31.4	57	6.9
City Dump	05-006	1				14.8	7.4	14.8	0.0
City Dump	05-006	2				7.7	3.9	7.7	0.0
City Dump	05-006	3			38.9	5.8	32.1	44.7	9.6
City Dump	05-006	4				9.8	4.9	7	10.8
City Dump	05-006	5			1	0	0.8	0.1	3.5
City Dump	05-006	6				8	4.0	5.6	9.2
City Dump	05-006	7			4.4	0	3.3	4.2	0.8
						Total	363.3		

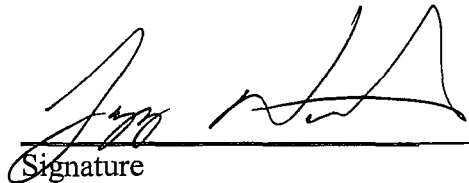
Table 3. Summary of THPs by Yarding System and Site Preparation for Freshwater Creek

THP Name	THP Number	Unit Number	Yarding System			Site Preparation	
			Ground Based	Yarder	Helicopter	Mechanical	Broadcast
Becks	10-012		81.3	151.8		0	0
Ridge Meander	09-010	1 TII	27.1	62			
Ridge Meander	09-010	2 TI	3.2	34.5			
Ridge Meander	09-010	3 TII	14.9	75.4			
Ridge Meander	09-010	1A TI		37.1			
Ridge Meander	09-010	1B TI		36.1			
Ridge Meander	09-010	3A T1	3	21.1			
little little	09-100		17.9	49.2			
City Dump	05-006	1	14.8	0			
City Dump	05-006	2	0	7.7			
City Dump	05-006	3	44.7	0			
City Dump	05-006	4	7.1	2.7			
City Dump	05-006	5	0	1			
City Dump	05-006	6	5	3			
City Dump	05-006	7	0	4.4			



# Professional Certification of Design

I, Tagg Nordstrom, P.G. 7950, 5/20/10,  
Name license # Date

  
Signature



*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. 1-10-012 HUM (Becks) Unit # 1

- a. are in accordance with accepted practices, and recognized professional standards;
- b. comply with the requirements of the Monitoring and Reporting Program No. R1-2008-0071, 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.



State of California  
Regional Water Quality Control Board  
**APPLICATION/REPORT OF WASTE DISCHARGE  
GENERAL INFORMATION FORM FOR  
WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT**



**NCRWQC**  
**MAY 28 2010**  
EO  
AEG  
Reg/NPS  
Wdgmt  
Timber  
Cleanups  
Admin  
Legal

**A. Facility:**

**I. FACILITY INFORMATION**

Name: <b>THP 1-10-012 "Becks"</b>			
Address:			
City:	County:	State:	Zip Code:
Contact Person: <b>Jon Woessner</b>		Telephone Number: <b>707-764-4376</b>	

**B. Facility Owner:**

(timber owner)

Name: <b>Humboldt Redwood Company LLC</b>			Owner Type (Check One):	
Address: <b>P.O. Box 712</b>			1. <input type="checkbox"/> Individual 2. <input checked="" type="checkbox"/> Corporation	
City: <b>Scotia</b>	State: <b>CA</b>	Zip: <b>95565</b>	3. <input type="checkbox"/> Governmental Agency 4. <input type="checkbox"/> Partnership Agency	
Contact Person: <b>Jon Woessner</b>			5. <input type="checkbox"/> Other	
Telephone Number: <b>707-764-4376</b>			Federal Tax ID:	

**C. Facility Operator (The agency or business, not the person): (plan submitter)**

Name: <b>Humboldt Redwood Company LLC</b>			Owner Type (Check One):	
Address: <b>P.O. Box 712</b>			1. <input type="checkbox"/> Individual 2. <input checked="" type="checkbox"/> Corporation	
City: <b>Scotia</b>	State: <b>CA</b>	Zip: <b>95565</b>	3. <input type="checkbox"/> Governmental Agency 4. <input type="checkbox"/> Partnership Agency	
Contact Person: <b>Jon Woessner</b>			5. <input type="checkbox"/> Other	
Telephone Number: <b>707-764-4376</b>			Federal Tax ID:	

**D. Owner of the Land:**

Name: <b>Humboldt Redwood Company LLC</b>			Owner Type (Check One):	
Address: <b>P.O. Box 712</b>			1. <input type="checkbox"/> Individual 2. <input checked="" type="checkbox"/> Corporation	
City: <b>Scotia</b>	State: <b>CA</b>	City: <b>Scotia</b>	3. <input type="checkbox"/> Governmental Agency 4. <input type="checkbox"/> Partnership Agency	
Contact Person: <b>Jon Woessner</b>			5. <input type="checkbox"/> Other	
Telephone Number: <b>707-764-4376</b>			Federal tax ID:	

**E. Address Where Legal Notice May Be Served:**

Address: <b>125 Main Street</b>		
City: <b>Scotia</b>	State: <b>CA</b>	Zip: <b>95565</b>
Contact Person: <b>Mike Jani</b>		Telephone Number: <b>707-764-4403</b>

**F. Billing Address:**

Address: <b>P.O. Box 712</b>		
City: <b>Scotia</b>	State: <b>CA</b>	Zip: <b>95565</b>
Contact Person: <b>Jon Woessner</b>		Telephone Number: <b>707-764-4376</b>



State of California  
Regional Water Quality Control Board  
**APPLICATION/REPORT OF WASTE DISCHARGE  
GENERAL INFORMATION FORM FOR  
WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT**



## II. TYPE OF DISCHARGE

Check Type of Discharge(s) Described in this Application (A or B):

☒ A. WASTE DISCHARGE TO LAND ☐ B. WASTE DISCHARGE TO SURFACE WATER

**Check all that apply:**

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Domestic/Municipal Wastewater Treatment and Disposal         | <input type="checkbox"/> Animal Waste Solids           | <input type="checkbox"/> Animal or Aquacultural Wastewater  |
| <input type="checkbox"/> Cooling Water  | <input type="checkbox"/> Land Treatment Unit           | <input type="checkbox"/> Biosolids/Residual                 |
| <input type="checkbox"/> Mining   | <input type="checkbox"/> Dredge Material Disposal      | <input type="checkbox"/> Hazardous Waste (see instructions) |
| <input type="checkbox"/> Waste Pile   | <input type="checkbox"/> Surface Impoundment           | <input type="checkbox"/> Landfill (see instructions)        |
| <input type="checkbox"/> Wastewater Reclamation                                       | <input type="checkbox"/> Industrial Process Wastewater | <input type="checkbox"/> Storm Water                        |
| <input checked="" type="checkbox"/> Other, please describe: Timber harvest activities |  |   |

## III. LOCATION OF THE FACILITY

Describe the physical location of the facility.

1. Assessor's Parcel Number(s)  
Facility:  
Discharge Point:

2. Latitude  
Facility:  
Discharge Point:

3. Longitude  
Facility:  
Discharge Point:

## IV. REASON FOR FILING

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> New Discharge or Facility | <input type="checkbox"/> Changes in Ownership/Operator (see instructions)               |
| <input type="checkbox"/> Change in Design or Operation        | <input type="checkbox"/> Waste Discharge Requirements Update or NPDES Permit Reissuance |
| <input type="checkbox"/> Change in Quantity/Type of Discharge | <input type="checkbox"/> Other:   |

## V. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Name of Lead Agency: California Department of Forestry and Fire Protection

Has a public agency determined that the proposed project is exempt from CEQA? ☐ Yes ☒ No

If Yes, state the basis for the exemption and the name of the agency supplying the exemption on the line below.

Basis for Exemption/Agency:

Has a "Notice of Determination" been filed under CEQA? ☐ Yes ☒ No

If Yes, enclose a copy of the CEQA document, Environmental Impact Report, or Negative Declaration. If no, identify the expected type of CEQA document and expected date of completion.

**Expected CEQA Documents:**

☐ EIR ☐ Negative Declaration

Expected CEQA Completion Date:



State of California  
Regional Water Quality Control Board  
**APPLICATION/REPORT OF WASTE DISCHARGE**  
**GENERAL INFORMATION FORM FOR**  
**WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT**



## VI. OTHER REQUIRED INFORMATION

Please provide a **COMPLETE** characterization of your discharge. A complete characterization includes, but is not limited to, design and actual flows, a list of constituents and the discharge concentration of each constituent, a list of other appropriate waste discharge characteristics, a description and schematic drawing of all treatment processes, a description of any Best Management Practices (BMPs) used, and a description of disposal methods.

Also include a site map showing the location of the facility and, if you are submitting this application for an NPDES permit, identify the surface water to which you propose to discharge. Please try to limit your maps to a scale of 1:24,000 (7.5' USGS Quadrangle) or a street map, if more appropriate.

## VII. OTHER

Attach additional sheets to explain any responses which need clarification. List attachments with titles and dates below:

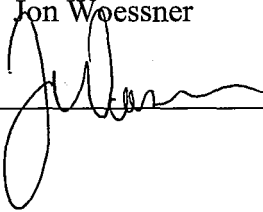

You will be notified by a representative of the RWQCB within 30 days of receipt of your application. The notice will state if your application is complete or if there is additional information you must submit to complete your Application/Report of Waste Discharge, pursuant to Division 7, Section 13260 of the California Water Code.

## VIII. CERTIFICATION

"I certify under penalty of law that this document, including all attachments and supplemental information, were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Print Name: Jon Woessner

Title: Northern Area Manager

Signature: 

Date: 5/11/10

### FOR OFFICE USE ONLY

Date Form 200 Received:	Letter to Discharger:	Fee Amount Received:	Check #:
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Humboldt Redwood Company, LLC  
3500 Durable Mill Rd. P.O. Box 390  
Calpella, CA 95418

4521 North Coast Regional Water

5/21/10

INVOICE NO.	INVOICE DATE	DESCRIPTION	GROSS AMOUNT	DISCOUNT	NET AMOUNT
051010 110	5/10/10	1-10-012HUM Bec	\$ 1,226.00	\$ 0.00	\$ 1,226.00
CHECK NO.	30158	TOTALS	\$ 1,226.00	\$ 0.00	\$ 1,226.00

NCRWQCB

MAY 28 2010

☐ EO ☐ WMgmt ☒ Admin *LME*  
☐ AEO ☒ Timber ☐ Legal  
☐ Reg/NPS ☐ Cleanups ☐ Other

THIS CHECK HAS A COLORED BACKGROUND AND CONTAINS MULTIPLE SECURITY FEATURES. SEE BACK FOR DETAILS.

Humboldt Redwood Company, LLC  
6500 Durable Mill Rd. P.O. Box 390  
Calpella, CA 95418

Bank of America  
Northbrook, IL

030158

70-2328  
0719

CHECK DATE 5/21/10  
CHECK NO. 030158

\*\*\*\*\*\$ 1,226.00

ONE THOUSAND TWO HUNDRED TWENTY-SIX AND 00/100\*\*\*\*\*  
CHECK AMOUNT

PAY  
TO THE  
ORDER OF

North Coast Regional Water  
Quality Control Board  
5550 Skylane, Suite A  
Santa Rosa CA 95403



TWO SIGNATURES REQUIRED FOR OVER 5,000 DOLLARS

030158 0719232841 87653 16430

# Humboldt Redwood Company LLC

## Erosion Control Plan (ECP) for the "Becks" THP

N C R W Q C B

MAY 28 2010

<input type="checkbox"/> EO	<input type="checkbox"/> WMgmt	<input type="checkbox"/> Admin
<input type="checkbox"/> AEO	<input type="checkbox"/> Timber	<input type="checkbox"/> Legal
<input type="checkbox"/> Reg/NPS	<input type="checkbox"/> Cleanups	<input type="checkbox"/> Other

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 20080819

## 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: Becks THP  
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" in 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. 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 Map
- Road Construction Locations/ECP Site Locator Map



**N Becks**  
**Appurtenant Road Map**

T4N R1E Sec. 13, 14, 23, 24, 25 H&M

USGS Quad (s): MCWHINNEY CREEK

**Map 1 of 4**

Map Scale: 1 inch = 2000 feet

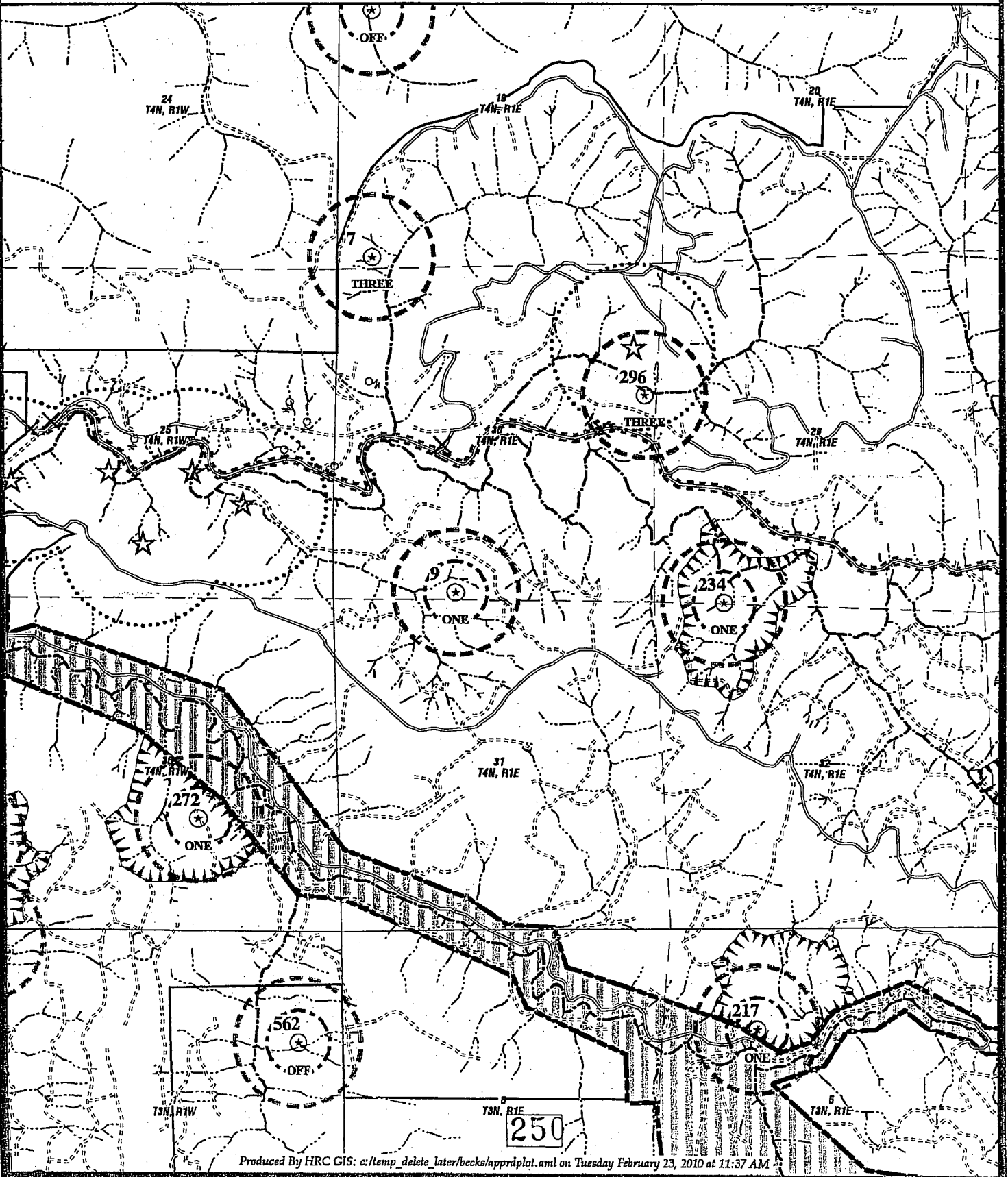


Appurtenant  
 (Private Road)  
 Property Line

Federal, State and County Parks

Permanent Road  
 Seasonal Road

NSO Site  
 500' NSO Buffer  
 1000' NSO Buffer  
 HRA  
 Osprey Site  
 Gate  
 1/4 Mile Seasonal Buffer



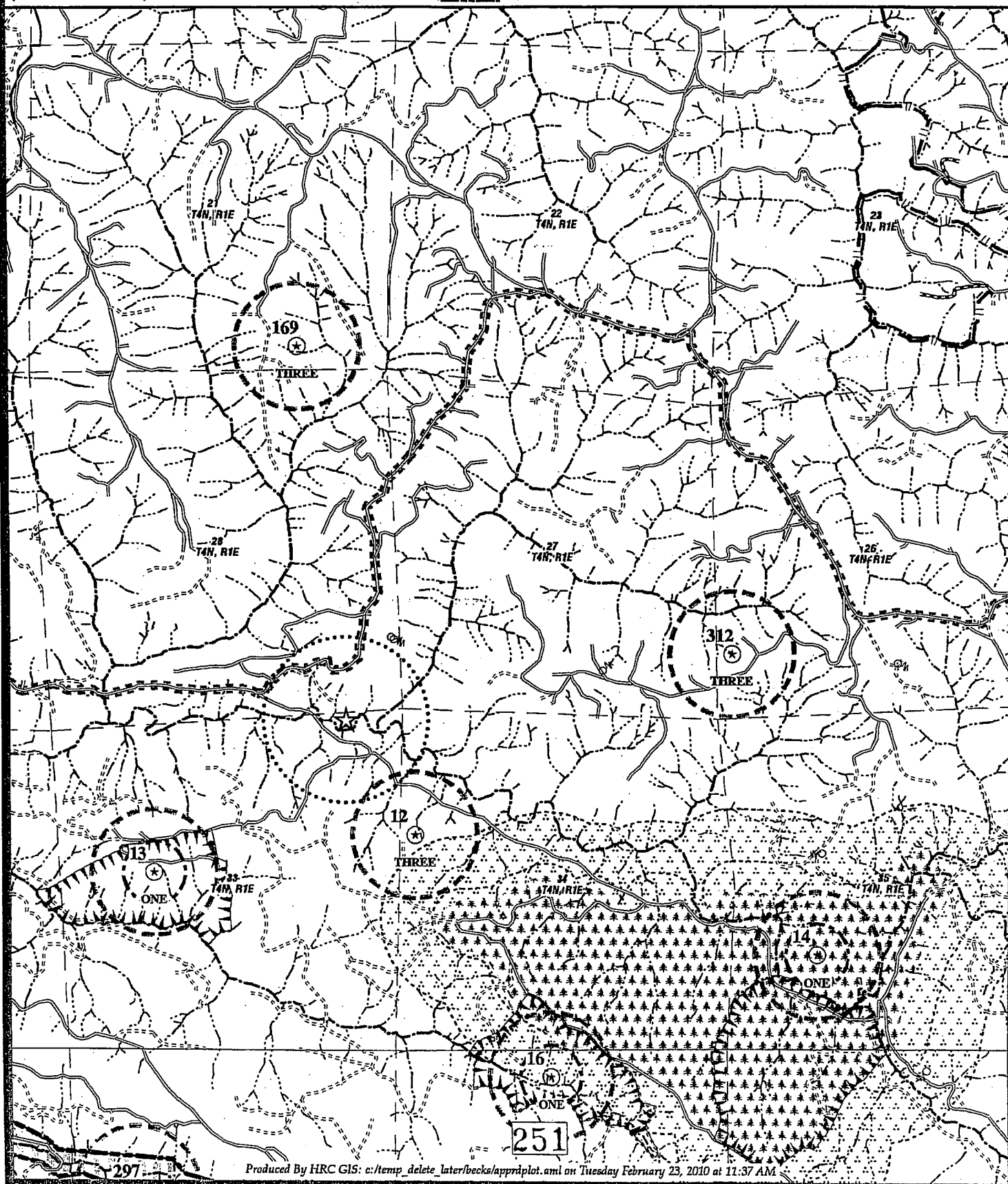
**Becks**  
**Appurtenant Road Map**  
 T4N R1E Sec. 13, 14, 23, 24, 25 H96M  
 USGS Quad (a): MCWHINNEY CREEK  
**Map 2 of 4**

Map Scale: 1 inch = 2000 feet

Appurtenant  
 (Private Road)  
 Property Line

Permanent Road  
 Seasonal Road  
 Proposed  
 Seasonal Road  
 Marbled Murrelet Conservation  
 Area (MCCA)  
 1/4 Mile Seasonal Buffer  
 Federal, State and County Parks

NSO Site  
 500' NSO Buffer  
 1000' NSO Buffer  
 HRA  
 Osprey Site  
 1/4 Mile Seasonal Buffer



# N Becks

## Appurtenant Road Map

T4N R1E Sec. 13, 14, 23, 24, 25 H&M

USGS Quad (e): MCWHINNEY CREEK

Map 3 of 4



Appurtenant  
(Private Road)  
Property Line

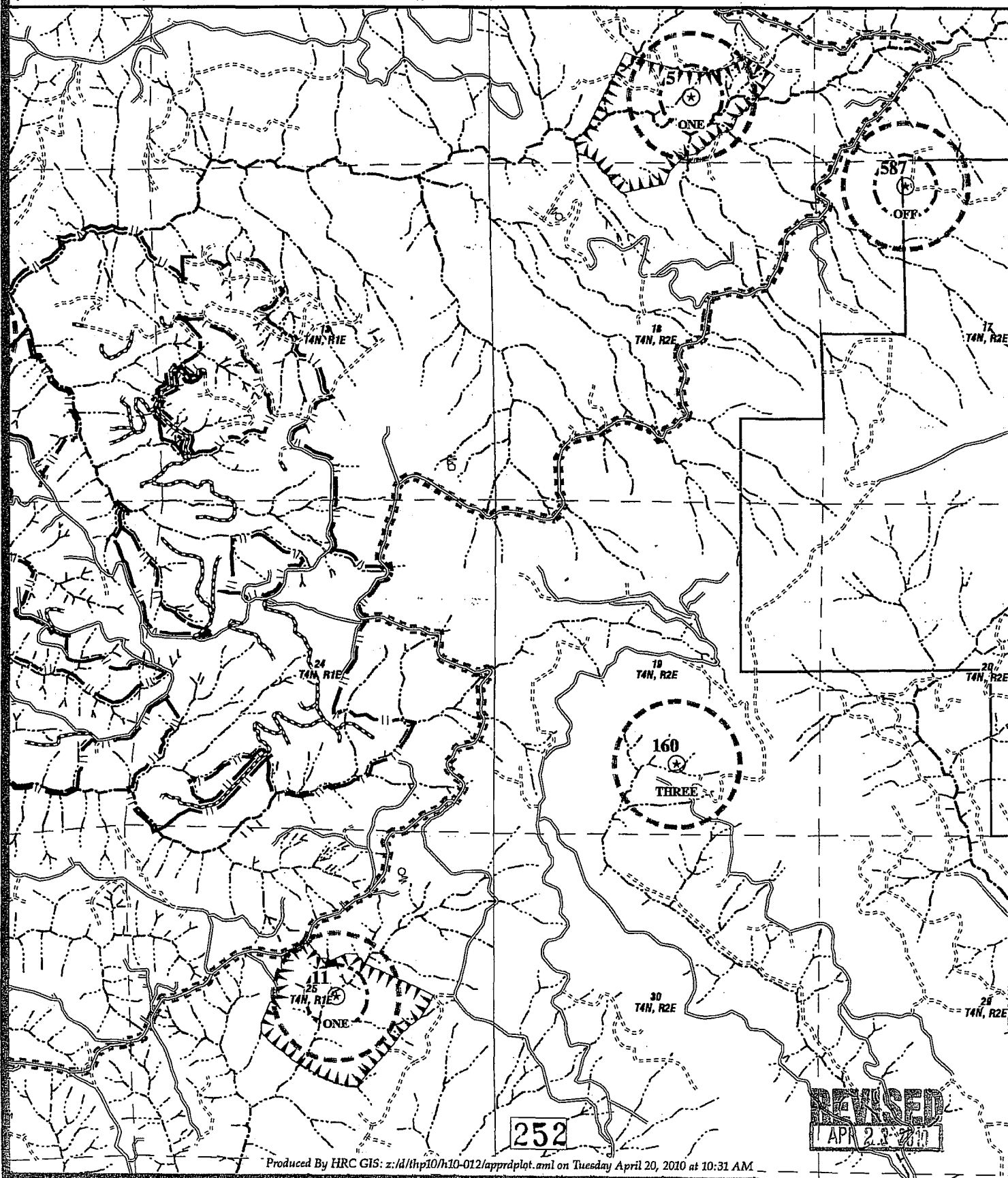


Permanent Road  
Seasonal Road  
Temporary Road  
Proposed  
Seasonal Road



NSO Site  
500' NSO Buffer  
1000' NSO Buffer  
HRA

Map Scale: 1 inch = 2000 feet



# N Becks

## Appurtenant Road Map

T4N R1E Sec. 13, 14, 23, 24, 25 HB&M

USGS Quad (s) : MCWHINNEY CREEK

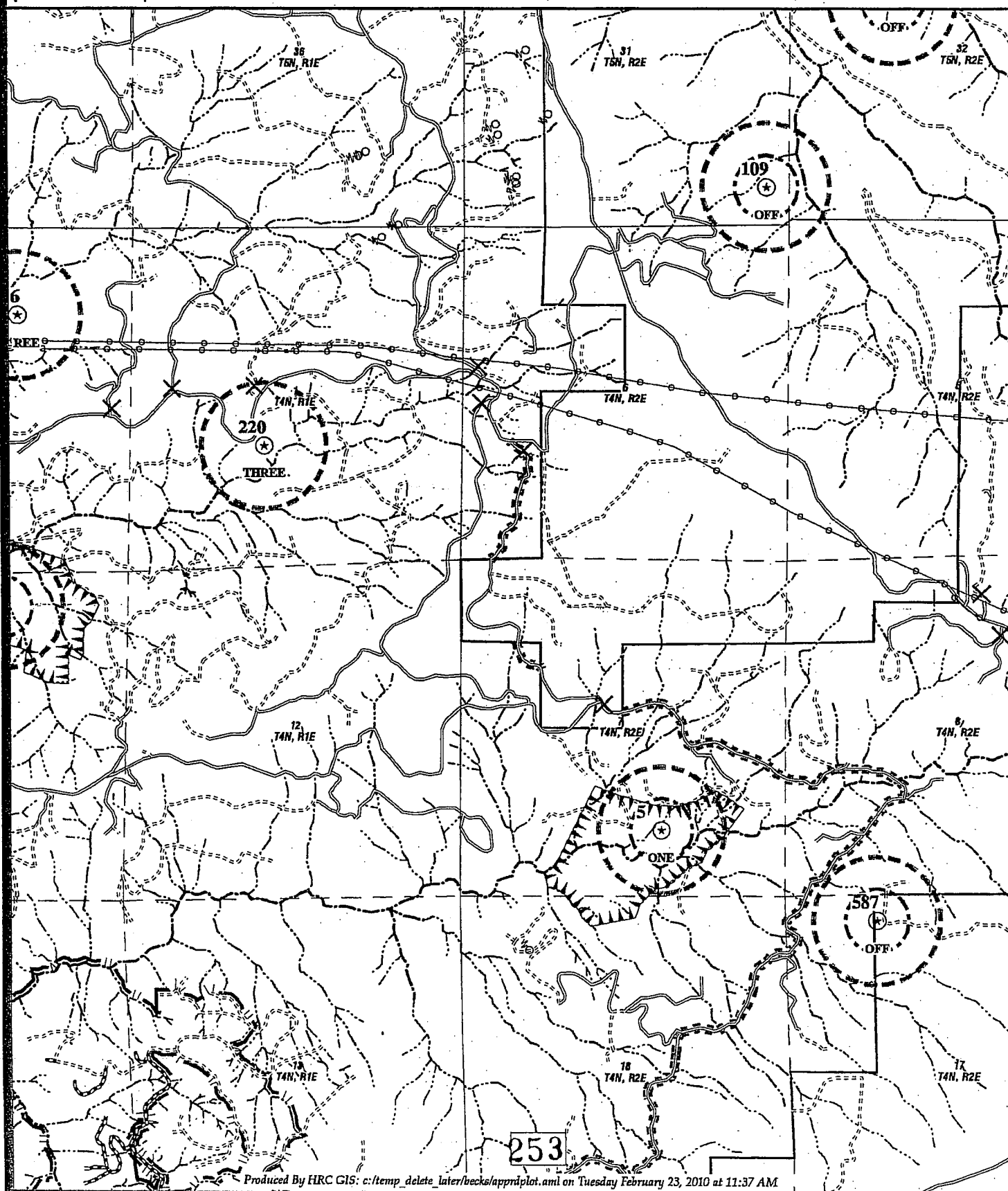
Map 4 of 4

Map Scale: 1 inch = 2000 feet

Appurtenant  
(Private Road)  
Property Line

Permanent Road  
Seasonal Road  
Temporary Road  
Proposed  
Seasonal Road

Power Line  
NSO Site  
500' NSO Buffer  
1000' NSO Buffer  
HRA  
Gate



# Becks

## N Planimetric Map

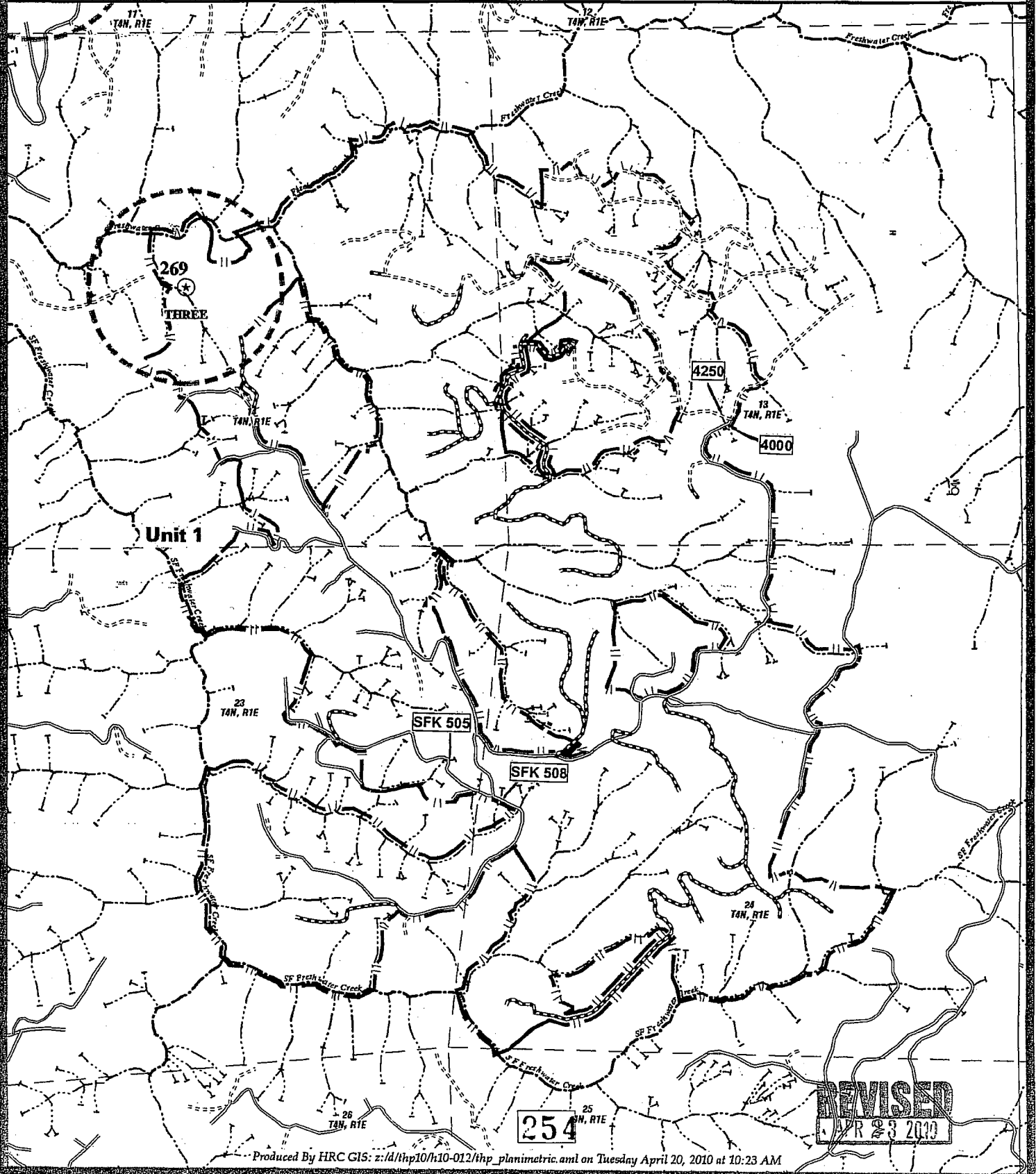
TAN RTE Sec. 13, 14, 23, 24, 25 H&M

## ECP Site Locator Map

USGS Quad (n): MCWHINNEY CREEK

Map Scale: 1 inch = 1320 feet

- |                              |                         |                  |
|------------------------------|-------------------------|------------------|
| —  — Harvest Boundary        | ~ Class I Watercourse   | ★ NSO Site       |
| — Permanent Road             | ~ Class II Watercourse  | 500' NSO Buffer  |
| - - - Seasonal Road          | ~ Class III Watercourse | 1000' NSO Buffer |
| - - - Proposed Seasonal Road | ~ Class II Waters       | HRA              |



### 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.

E. 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.

F. For other inspections conducted where violations are not discovered, a summary report will be submitted to Executive Officer by June 30<sup>th</sup> 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. Helicopter operations are not proposed.

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
<b>Project Becks</b>							
RD: U91.24 STATION: 4000 SITE: C1 WOID: 678781769 SEDID: 4N1E13D701 REPAIRED: NO	Surface Drainage	2	2 100%	Low	Prior to THP Final Completion.	Surface drainage from the road is concentrating at the outlet of the CIII culvert and is delivering fine sediments to the outlet of the culvert.	Disconnect the road surface upslope of the culvert at road point 4000 using a waterbar, rolling dip and/or other suitable drainage structure.
RD: U91.24 STATION: 4250 SITE: C2 WOID: -1189738026 SEDID: 4N1E13D601 REPAIRED: NO	Surface Drainage	2	2 100%	Low	Prior to THP Final Completion.	Surface drainage from the road is concentrating at the outlet of the CIII culvert and is delivering fine sediments to the outlet of the culvert.	Disconnect the road surface upslope of the culvert at road point 4250 using a waterbar, rolling dip and/or other suitable drainage structure.
RD: U91.41 STATION: 0 SITE: SFK508 WOID: 1789379157 SEDID: 4N1E24A503 REPAIRED: NO	Critical Dip	126	126 100%	Low	Prior to THP Final Completion.	This site is an existing culvert location that need a critical dip installed to be considered storm proofed.	Install a critical dip on the left hinge line. Insure that critical dip ties into cutbank and disconnects the downslope inside ditch. Install a rolling dip or water bar approximately 75 feet downslope of culvert inlet to further disconnect the inside ditch from the downslope Class III culvert crossing. This is the sediment savings site for the Becks THP.
RD: U91.4136 STATION: 0 SITE: sfk505 WOID: -244768549 SEDID: 4N1E23H404 REPAIRED: NO	Critical Dip	114	114 100%	Low	Prior to THP Final Completion.	This site is an existing culvert that needs a critical dip installed to be considered storm proofed.	Install critical dip on right hinge line.
<b>Total Estimated Yards</b>		244	244				

REVISED  
APR 23 2010

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