

Appendix A - Response to Comments Rethin

The proposed action along with a preliminary assessment (which in addition to proposed action included the need for the proposal, the alternatives considered, and the environmental consequences) was made available for public comment, (36 CFR 215, 5/13/03). Letters and e-mails were received during the 30-day comment period, which ended on November 3, 2008.

The responsible official has considered comments received and has developed the Rethin Environmental Assessment in response to those comments.

This appendix responds to the substantive comments. Substantive comments are comments that are within the scope of the proposed action, are specific to the proposed action, have a direct relationship to the proposed action and include supporting reasons for the Responsible Official to consider (36 CFR 215.2).

The emails and letters are in the analysis file; the following is a summary. In the responses, section numbers refer to the Environmental Assessment unless otherwise specified.

	Comment	Response
Oregon Wild	1. There are no plans to create down wood and snags that would result in historic levels of these legacy features due to cost concerns. We strongly believe that this work should be done – especially in LSR and RR allocations.	The proposed action would create some snags and down logs (s. 2.3.9.2&3). However, the only trees available in these units are small and no amount of felling or girdling would restore the units to historic levels of large down logs and large snags. Thinning does remove the smaller trees in a stand: the ones that would otherwise die if no action were taken. The proposed action provides a mix of some small snags and down wood now and thinning to create variability and larger trees (s. 4.1.1.1). The Regional Ecosystem Office LSR working group has reviewed the proposal and agreed that it provides the best mix of benefits to spotted owls and LSRs, (s. 2.2.10).
Oregon Wild	2. In Riparian Reserves, do not have yarding corridors, roads, or other yarding activities that impact water quality and aquatic habitat. We encourage you to plan on entering riparian reserves only once.	The impacts and benefits of thinning in riparian reserves are discussed in s. 2.2.1 and s. 4.3. The application of Best Management Practices and the provisions of the programmatic biological assessment (s. 2.3.9) would result in minimal impact to water quality (s. 4.3). The project is designed so that no further

	Comment	Response
		riparian thinning would be required (s. 2.3.3).
Oregon Wild	3. Don't thin to uniform spacing.	Variable density thinning is described in section 2.3.
Oregon Wild	4. Recognize that thinning captures mortality and that plantation stands are already lacking critical values from dead wood due to the unnatural stand history of all logged and planted stands. Retain abundant snags and coarse wood and green trees for future recruitment of snags and wood.	The proposal for snags, wildlife trees and down logs is in section 2.3.9. The effects to these resources are discussed in s. 4.5.2.
Oregon Wild	5. If any temporary roads are located within riparian reserves and/or LSR, we recommend that these roads be completely removed so the stands they access can develop undisturbed into the future.	No new temporary roads would be constructed. The use of existing temporary roads and their impacts are discussed in sections 2.3.7 and 4.3.3. When temporary roads are obliterated they are scarified and trees and shrubs are allowed to grow.
Ferranti	6. Thinning will create unnaturally healthy stands and will further aggravate the dearth of snags/decadence and CWD bringing these areas well outside the range of natural variability. Thinning will capture mortality and result in low levels of decadence.	See response to comment #1 and s. 4.1.7.1. The snag and down wood analysis is found in s. 4.5.2. The analysis found that late-successional characteristics would be achieved sooner with thinning, (s. 4.1.3.2). The Regional Ecosystem Office LSR working group reviewed this project and agreed that the proposed action was better for LSR development than no action or creating the levels of snags and down wood discussed in the LSR assessment, (s. 4.4.4). The landscape scale analysis found snags to be abundant (s. 4.5.2.11).
Ferranti	7. Girdling is an ineffective way to create snags. Active fungal inoculation should occur instead.	Girdling is included to create down logs (s. 2.3.9.3). Some trees would be felled for immediate input of down logs and some would be girdled so they fall down in a few years. This strategy spreads out the input of down logs so that it doesn't happen all at once. Inoculation is included to create snags (s. 2.3.9.2).
Ferranti	Ferranti submitted numerous questions.	On 12/5/2008, District staff conferred via telephone with Ferranti to answer his questions. Some of the questions were about how past, present and future actions were incorporated. Sections 4.1.7, 4.3.7.1, 4.4.3.4, 4.5.2.12 & 4.5.3.13 add clarification.
BARK	8. No Field Markings- the Forest Service has used virtually no field markings, leaving little proof that land managers have even been to the forests they are proposing to log. More importantly, it makes it difficult for the public to provide any	Forest Service staff use maps, aerial photographs and sometimes GPS to navigate to and through the proposed harvest units. Marking the unit boundaries usually happens after the EA is completed and decision notice signed. Until that point, changes

	Comment	Response
	substantive feedback to the decision maker.	could be made based on the analysis or public comment.
BARK	9. Scope is too large – the Forest Service should prepare several EAs not just one.	The units have similarities because they have been thinned before. The size and scope are similar to other recent thinning EAs such as Cloak and the 2007 Plantation Thinning. The scope of the project was reviewed with the decision maker early in the planning process and it was decided to pursue this project with one EA to gain efficiencies and facilitate better cumulative effects analysis (s. 3.2.3).
BARK	10. Full Environmental Assessments, not PAs nor CEs should be used.	A detailed ‘preliminary assessment’ was prepared to afford the public the opportunity to review essentially all of the information that is contained in the EA.
BARK	11. The PA has not fulfilled our scoping request for accurate and fully marked maps of the project areas. Riparian areas, LSRs, and management designations, roads, streams, wildlife corridors, and other relevant GIS layers should be clearly marked. NEPA is supposed to allow for informed decision-making and the accuracy of maps is a crucial component.	Detailed maps are included in Appendix E.
BARK	12. GIS layers developed or utilized should be made publicly available.	Project created GIS layers are available upon request.
BARK	13. The PA has very little description of the past prescriptions. The various units were thinned differently the first time.	Variable density thinning within and between units would result in diversity (s. 2.3). Section 4.1 describes the range of existing conditions. Clarification was added to s. 4.1.7.2.
BARK	14. Additional Alternatives Must Be Provided - This timber sale seems like a particularly appropriate example of why land managers and the public should see that the agency is considering all options for how to keep our public lands healthy.	The agency develops alternatives to its proposed action in response to public issues. See EA section 3. The decision maker considered the alternatives including the four that were generated by public comment and found the range of alternatives adequate to inform his decision.
BARK	15. Include Relevant Past, Present & Future Actions	Relevant past, present and future actions were considered. Each resource used a different analysis area and therefore a different group of past, present and future actions were included for each analysis. For example s. 4.4.3.1 indicates the types of projects included in the owl analysis. Older regeneration harvests are not listed by name in the EA but are included in the GIS vegetation data used for the analysis (s. 4.0.2). Other recent thinning sales are also included in the owl analysis. Sections 4.1.7, 4.3.7.1,

	Comment	Response
		4.4.3.4, 4.5.2.12 & 4.5.3.13 add clarification. On 12/9/2008 and 1/13/2009 presentations were made to the Clackamas Stewardship Partners to demonstrate how past, present and future actions were incorporated into the analysis.
BARK	16. All Roadbuilding Has An Impact – The project would open several closed roads for <i>temporary</i> use. We have found that this use of the word temporary is often misleading. Putting up a berm and taking the road, even a spur road off the agency’s record-keeping is not an effective way of decommissioning a road and often encourages continued use by off-highway vehicles and hunters.	Some roads that are closed with berms would be opened and used for the project and reclosed when complete (s. 2.3.7). The project does not include any decommissioning of system roads.
BARK	17. We submit the following observations to be considered for maintenance and our recommendations for road decommissioning.	These concerns were passed along to our road maintenance staff. Road maintenance is an activity that is categorically excluded from documentation in an EA. Roads will be maintained prior to timber haul. This project does not include system road decommissioning. We will consider your recommendations with the next road decommissioning EA.
BARK	18. Logging In Late-Successional & Riparian Reserves Bark does not support the commercial timber program being a vehicle for restorative thinning in LSR. In the LSR, no trees over 20 inches diameter should be cut.	The options of accomplishing thinning without a timber sale were considered (s. 3.2). The plantations in the LSR do not generally contain trees over 20 inches. Thinning involves the removal of the smallest trees, however if trees over 20 inches diameter must be cut in the LSR they will be left on the ground (s. 2.3.5).
BARK	19. Threatened Fish Habitat - Bark requests that Unit 29 be dropped from the Rethin Timber Sale. Pot Creek flows through the unit and the 100-ft buffer proposed is not sufficient.	The Fisheries Programmatic Biological Assessment indicates that the 100-foot buffer is sufficient to provide protection for listed fish (s. 4.3.4).
BARK	20. Restoration For Future Logging Or Future Ecosystems The units are already widely spaced, how will the Forest Service be able to leave down wood from tree felling and create a viable timber sale?	Stand exam data and silvicultural analysis has shown that thinning is appropriate in these stands to both enhance growth and introduce variability. Forests are not static; even though the units were thinned before, they have grown and will continue to grow (s. 4.1). The number of down logs created (s. 2.3.9.3) would not jeopardize the viability of the project. Section 4.1.7.2 adds clarification.
BARK	21. Effective management of decadence in the forest has been demonstrated to not be a simple matter of mechanical	Decadence would be created as described in s. 2.3.9.2 using techniques such as tree topping and fungus inoculation.

	Comment	Response
	snag creation as currently planned. Concentrating on the development of decadence within living trees has shown to be appreciably superior.	
BARK	22. Earthflow & Landslide Risk - areas of High Landslide Risk should be identified on all unit maps, especially those within the Collawash watershed and considered in all Environmental Assessments.	The proposed action would thin areas that are considered stable by a slope stability specialist. Known unstable or potentially unstable areas have already been deleted from the proposed thinning units (s. 4.6.11.3).
BARK	23. Tree Blowdown - We have seen innumerable instances of thinning projects affecting the blow-down potential of valuable habitat adjacent to the units and would ask to see studies to show that thinning will somehow mitigate the likelihood.	The edges outside units were exposed to wind at the time of the original clear cut and again at the time of the first thin. Trees that remain on these edges have been tested by wind before and it is not likely that the current plan would cause these edges to blow down (s. 4.1.5.2).
BARK	24. Invasive Weed Management May Be Impaired Very little information was provided about what specific design features will put the project in compliance with management plan amendments from the Regional Invasive Plant ROD.	Design criteria for invasive plants are found in sections 2.3.9.4 and 2.3.9.8. Botanists have surveyed the area for invasive plants.
BARK	25. Climate Change Must Be Accounted For “Our analysis found that a ‘no timber harvest’ scenario eliminating harvests on public lands would result in an annual increase in carbon sequestration.”	The quoted research considers all types of management on public lands including the clearcutting of old growth. The analysis of the thinning proposal is documented in section 4.15. It found that thinning would result in some carbon emissions and some carbon sequestration. The benefits to forest health and resiliency with the proposed action would allow stands to better respond and adapt to the future climate.
BARK	26. Economics Of Restoration An alternative was considered that would allow for more down logs to be added to the forest floor decay in order to achieve a recommended 10-15% ground cover as stated in the LSR Assessment. This should have been selected and accomplished outside the commercial timber sale program.	See response to comments #1 and 6. The Regional Ecosystem Office LSR working group has reviewed the proposal and agreed that it provides the best mix of benefits to spotted owls and LSRs (s. 2.2.10). This alternative was considered but not selected (decision notice).
BARK	27. Off-Highway Vehicle And Travel Planning Bark strongly encourages the Forest Service to cease logging within a mile of the OHV boundary and any road system stemming from a proposed OHV area until there is shown accomplishment in the Travel Planning process.	This option was considered (s. 3.2.4). Currently, none of the OHV alternatives involve land allocation changes. As designed, the project is compatible with the current OHV proposal. The OHV environmental impact statement is still being developed. Given the early planning stage and the potential for changes

	Comment	Response
		based on public comments, it is premature to speculate in this document about the outcome of that plan. However, this project includes design criteria in s. 2.9.3.6.8. As part of an adaptive management strategy, further action would be taken if necessary. If monitoring shows user created OHV routes expanding into the units in spite of the measures described in s. 2.9.3.6.8, corrective actions would be taken such as bringing in additional debris from off-site. Section 4.4.1.7 was added to clarify the OHV interaction with Rethin.
Proctor	28. Because of soil compaction and the inevitable sedimentation, Riparian Reserves are too sensitive to allow logging.	The analysis of water quality is in s. 4.3. The probability that measurable amounts of fine sediment would enter any stream within the project area as a direct result of logging activity is low (s. 4.3.4). The project would meet riparian reserve standards and guidelines (s. 4.3.8.3).
Proctor	29. Thinning would cause blowdown.	Thinning would result in stronger trees better able to withstand wind (s. 4.1.5).
Proctor	30. Please keep LSRs intact so that they can chart their own evolutionary path.	The Regional Ecosystem Office LSR working group has reviewed the proposal and agreed that it provides the best mix of benefits to spotted owls and LSRs (s. 2.2.10, s. 4.4.4).
Proctor	31. The units are already diverse. All of the major tree species are present.	The stands have a greater percentage of Douglas-fir than was present in the original forest and they are relatively uniform in terms of tree spacing. There is a need for greater variability of vertical and horizontal stand structure (s. 2.2.3).
Proctor	32. There is already sufficient sunlight hitting the forest floor. Thinning would increase sunlight and reduce diversity.	Stands are continuing to close after the previous thinning. If no action is taken, over time the stands would become increasingly dense resulting in a period of low structural diversity (s. 2.2.3).
Proctor	33. Skips and gaps are not needed.	Skips and gaps are recognized as an important component for introducing diversity into uniform stands (s. 2.3.1).
Proctor	34. The stands do not seem to need thinning.	Stand exams have been conducted and growth modeling demonstrates the benefit of thinning to increase growth and to introduce diversity (s. 4.1).
Proctor	35. The main feature the stands seem to be lacking is snags and downed woody debris of considerable size. Thinning would remove future snags and future down woody debris.	See response to #6.
Proctor	36. I also found many chanterelles in these units. These fungi	The fungi do not seem to have been harmed by the previous

	Comment	Response
	are mycorrhizal and are essential to maintaining healthy stands of trees. These fungi are often absent after logging and take many years to return. The fact that they are fruiting again is a good sign that the area is recovering.	thinning and design criteria would continue to protect soils and mycorrhizal fungi.
Proctor	37. Currently the housing market is in a huge slump. Cutting these stands now would cause great harm to the environment with very little revenue generated.	Generating revenue is not the primary objective of the project.

**Appendix B
RETHIN
BIOLOGICAL EVALUATION SUMMARY**

**FOR THOSE WILDLIFE SPECIES LISTED AS THREATENED, ENDANGERED, OR PROPOSED
UNDER SECTION 4 OF THE ENDANGERED SPECIES ACT & SENSITIVE SPECIES UNDER
THE REGIONAL FORESTER'S LIST**

DATE: January 6, 2009

**Clackamas River Ranger District
Mt. Hood National Forest**

Written by: /s/ Sharon Hernandez Date: 1/06/09
Sharon Hernandez, Supervisory Wildlife Biologist

EXECUTIVE SUMMARY

Forest management activities that may alter the habitat for threatened, endangered, sensitive or proposed species are required to undergo review in a Biological Evaluation (FSM 2671.44 and FSM 2670.32) as part of the National Environmental Policy Act process. The Biological Evaluation process (FSM 2672.43) is intended to document that proposed management actions will not jeopardize the continued existence or cause adverse modification of habitat for listed or proposed species, or (for sensitive species) lead towards the likelihood of Federal Listing.

This Executive Summary serves as documentation to display the effects of Rethin Thin on threatened species and Forest Service Regional Forester’s sensitive species that are documented or suspected to occur within the Mt. Hood National Forest. The complete Biological Evaluation is in the analysis file. (Note: The Mt. Hood National Forest has no proposed or endangered wildlife species.)

Table 1:

Listed or Regional Forester’s Sensitive Species	Field Review – Presence of Potential Habitat for Species	Action Alternative Conflict Determination
Threatened		
Northern Spotted Owl (Strix occidentalis caurina)	Yes	May Affect, Not Likely to Adversely Affect
Sensitive		
Johnson’s Hairstreak (Callophrys Johnsoni)	No	No Impact
Mardon Skipper (Polites mardon)	No	No Impact
Oregon Slender Salamander (Batrachoseps wrightii)	No	No Impact
Larch Mountain Salamander (Plethodon larselli)	No	No Impact
Cope’s Giant Salamander (Dicamptodon copei)	Yes	May Impact Individuals, but not likely to cause a trend towards Federal listing or loss of viability
Oregon Spotted Frog (Rana pretiosa)	Yes	May Impact Individuals, but not likely to cause a trend towards Federal listing or loss of viability
Bald Eagle (Haliaeetus Leucocephalus)	Yes	May Impact Individuals, but not likely to cause a trend towards Federal listing or loss of viability
White-headed Woodpecker (Picoides albolarvatus)	No	No Impact
Lewis’ Woodpecker (Melanerpes Lewis)	No	No Impact
Bufflehead	No	No Impact

Harlequin Duck	Yes	No Impact
American Peregrine Falcon	Yes	May Impact Individuals, but not likely to cause a trend towards Federal listing or loss of viability
Townsend's Big-eared Bat (<i>Corynorhinus townsendii</i>)	No	No Impact
Fringed Myotis (<i>Myotis thysanodes</i>)	Yes	No Impact
California Wolverine (<i>Gulo gulo luteus</i>)	No	No Impact
Puget Oregonian	No	No Impact
Columbia Oregonian	No	No Impact
Evening Fieldslug	No	No Impact
Dalles Sideband	No	No Impact
Crater Lake Tightcoil	No	No Impact
Crowned Tightcoil (<i>Pristiloma Pilsbryi</i>)	No	No Impact

Appendix C Rethin

Fisheries Biological Evaluation Summary
Clackamas River Ranger District, Mt. Hood National Forest

Fifth Field Watersheds: Upper Clackamas, Middle Clackamas, Oak Grove, and Collawash

Table 1. List of Proposed, Endangered, Threatened, or Sensitive (PETS) Fish and Aquatic Invertebrate Species found on the Mt. Hood National Forest. This Biological Evaluation tiers to the Fisheries and Water Quality chapter of the Rethin EA.

	Date of Listing & Critical Habitat	Suitable Habitat Present	Species Present	Effects of Actions Alternatives	
Endangered Species Act Listing by ESU/DPS				No Action/ Alt A	B
Threatened					
Lower Columbia River steelhead & CH (<i>Oncorhynchus mykiss</i>)	1/06 9/05	Yes	yes	NE	NLAA
Lower Columbia River chinook & CH (<i>Oncorhynchus tshawytscha</i>)	6/05 9/05	Yes	yes	NE	NE
Columbia River Bull Trout* (<i>Salvelinus confluentus</i>)	6/98	no	no	NE	NE
Middle Columbia River steelhead & CH (<i>Oncorhynchus mykiss</i>)	1/06 9/05	no	no	NE	NE
Upper Willamette River chinook & CH (<i>Oncorhynchus tshawytscha</i>)	6/05 9/05	Yes	yes	NE	NLAA/NAA
Lower Columbia River coho* (<i>Oncorhynchus kisutch</i>)	6/05	Yes	yes	NE	NLAA/NAA
Regional Forester's Special Status Sensitive Species List					
Interior Redband Trout (<i>Oncorhynchus mykiss spp.</i>)	7/04	no	no	NI	NI
Columbia dusksnail (<i>Colligyrus sp. nov. 1</i>)	1/08	Yes	yes	NI	MIIH
Barren Juga (<i>Juga hemphilli hemphilli</i>)	1/08	unk	unk	NI	MIIH
Purple-lipped Juga (<i>Juga hemphilli maupinensis</i>)	1/08	unk	unk	NI	MIIH
Scott's Apatanian Caddisfly (<i>Allomyia scotti</i>)	1/08	unk	unk	NI	MIIH

Endangered Species Act Abbreviations/ Acronyms:		Essential Fish Habitat Abbreviations/ Acronyms:	
NE	No Effect	NAA	Not Adversely Affected
NLAA	May Affect, Not Likely to Adversely Affect	AE	Adverse Effects
LAA	May Affect, Likely to Adversely Affect		
Regional Forester's Special Status Sensitive Species List Abbreviations/ Acronyms:			
Unk	Species presence unknown but suspected		
NI	No Impact		
MIIH	May impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or loss of viability to the population or species		

*critical habitat is not designated for these species on Federal lands

Written by: /S/ Robert Bergamini

Fisheries Biologist

Forest management activities that may alter the aquatic habitat or affect individuals or populations of PETS (Proposed, Endangered, Threatened, and Sensitive) fish and aquatic species require a Biological Evaluation to be completed (FSM 2671.44 and FSM 2670.32) as part of the National Environmental Policy Act process and Endangered Species Act to determine their potential effects on sensitive, threatened or endangered species. The Biological Evaluation process (FSM 2672.43) is intended to conduct and document analyses necessary to ensure proposed management actions will not likely jeopardize the continued existence or cause adverse modification of habitat for:

- A. Species listed or proposed to be listed as endangered (E) or threatened (T) by the USDI-Fish and Wildlife Service or USDC-NOAA Fisheries, and their listed or proposed listed critical habitat.

The Biological Evaluation process (FSM 2672.41) is also intended to conduct and document analyses to ensure that Forest Service actions do not contribute to loss of viability of any native or desired non-native plant or contribute to animal species or trends toward Federal listing of any species for:

- B. Species listed as Sensitive (S) by USDA-Forest Service Region 6.

This combined Biological Evaluation/NEPA document addresses all alternatives presented in the Rethin Environmental Assessment.

ESA consultation

Section 7 consultation for the Rethin Project was completed on August 12, 2008 under the 2007 Northwest Oregon Thinning Programmatic. The original project certification signature page is on file in the fisheries department at the Clackamas River Ranger District.

Appendix D Rethin

BIOLOGICAL EVALUATION SUMMARY Proposed, Endangered, Threatened, and Sensitive Plants, Lichens, Bryophytes and Fungi Clackamas River Ranger District Mt. Hood National Forest

INTRODUCTION

This report evaluates the potential effects of the proposed action on Proposed, Endangered, Threatened, and Sensitive (PETS) plant species in accordance with The National Environmental Policy Act (42 USC 4321 et seq.) the federal Endangered Species Act (16 USC 1531 et seq.), and the National Forest Management Act (16 USC 1604 et seq.). To comply with the above, the Forest Service has set forth guidance in FSM 2670 that is designed to ensure Forest Service actions (1) do not contribute to the loss of viability of any native or desired non-native species or cause a trend toward federal listing for any species, (2) comply with the requirements of the Endangered Species Act; and (3) provide a process and standard which ensures that PETS species receive full consideration in the decision making process.

To achieve these objectives, all Forest Service projects, programs and activities are reviewed for possible effects on PETS species and the findings documented in the Decision Notice (FSM 2672.4). On the Mt. Hood National Forest there are no federally listed (proposed, endangered, threatened) plant species known to occur, however one federally threatened species (*Howellia aquatilis*) is suspected.

The Region 6 Regional Forester's Sensitive Species List as revised April, 2004 was used to determine species of vascular plants, fungi, bryophytes and lichens that are documented from or suspected to occur on the Mt. Hood National Forest.

METHODOLOGY

Pre-Field Analysis: Prior to any site visits, the following pertinent information was reviewed: Aerial photography, Regional Forester's list of PETS species (revised April, 2004), Mt. Hood PETS plant database, and the Interagency Species Management System (ISMS) with information on the project area. No PETS species are known to occur within or adjacent to the proposed project area.

Field Surveys: Field surveys were conducted within the project area between July 9, 2007 and October 25, 2007. With the exception of *Bridgeoporus nobilissimus*, surveys are not considered practical to detect the presence of PETS fungi species identified as having habitat within the proposed project area (FEIS 2004). It is assumed that these species are present in the project area where there is suitable habitat. Surveys to detect all other PETS species identified as having habitat in the project area are considered practical.

FINDINGS

PETS species detected by surveys: **NONE**

Species Assumed Present:

<i>Cordyceps capitata</i>	<i>Phaeocollybia attenuata</i>
<i>Cortinarius barlowensis</i>	<i>Phaeocollybia californica</i>
<i>Gyromitra californica</i>	<i>Phaeocollybia olivacea</i>
<i>Leucogaster citrinus</i>	<i>Phaeocollybia piceae</i>
<i>Otidea smithii</i>	<i>Phaeocollybia pseudofestiva</i>

DETERMINATION OF EFFECT

Proposed, Threatened and Endangered Species

Howellia aquatilis is generally confined to palustrine wetlands. No habitat of this type exists within the project area, thus the proposed action will have **NO EFFECT** on this threatened species.

Sensitive Species

No PETS species were detected by the survey, however for some fungi species, presence is assumed, because surveys are not practical and habitat is present.

Vascular Plants			
Species Name	Common Name	Species Likely Present in Project Area?	Impact of Project
<i>Botrychium minganense</i>	mingan moonwort	No	No Impact
<i>Botrychium pinnatum</i>	pinnate moonwort	No	No Impact
<i>Cimicifuga elata</i>	tall bugbane	No	No Impact
<i>Montia howellii</i>	Howell's montia	No	No Impact
Lichens			
<i>Leptogium burnetiae</i> var. <i>hirsutum</i>	jellyskin lichen	No	No Impact
<i>Leptogium cyanescens</i>	blue jellyskin lichen	No	No Impact
<i>Pannaria rubiginosa</i>	brown-eyed shingle lichen	No	No Impact
<i>Peltigera neckeri</i>	black saddle lichen	No	No Impact
<i>Peltigera pacifica</i>	fringed pelt lichen	No	No Impact
<i>Usnea longissima</i>	Methuselah's beard lichen	No	No Impact
Fungi			
<i>Cordyceps capitata</i>	earthtongue	Yes	MII
<i>Cortinarius barlowensis</i>	mushroom	Yes	MII
<i>Gyromitra californica</i>	mushroom	Yes	MII
<i>Leucogaster citrinus</i>	truffle	Yes	MII
<i>Otidea smithii</i>	cup fungi	Yes	MII
<i>Phaeocollybia attenuata</i>	mushroom	Yes	MII

<i>Phaeocollybia californica</i>	mushroom	Yes	MII
<i>Phaeocollybia olivacea</i>	mushroom	Yes	MII
<i>Phaeocollybia piceae</i>	mushroom	Yes	MII
<i>Phaeocollybia pseudofestiva</i>	mushroom	Yes	MII

MII = May Impact Individuals but not likely to lead to a trend toward federal listing.

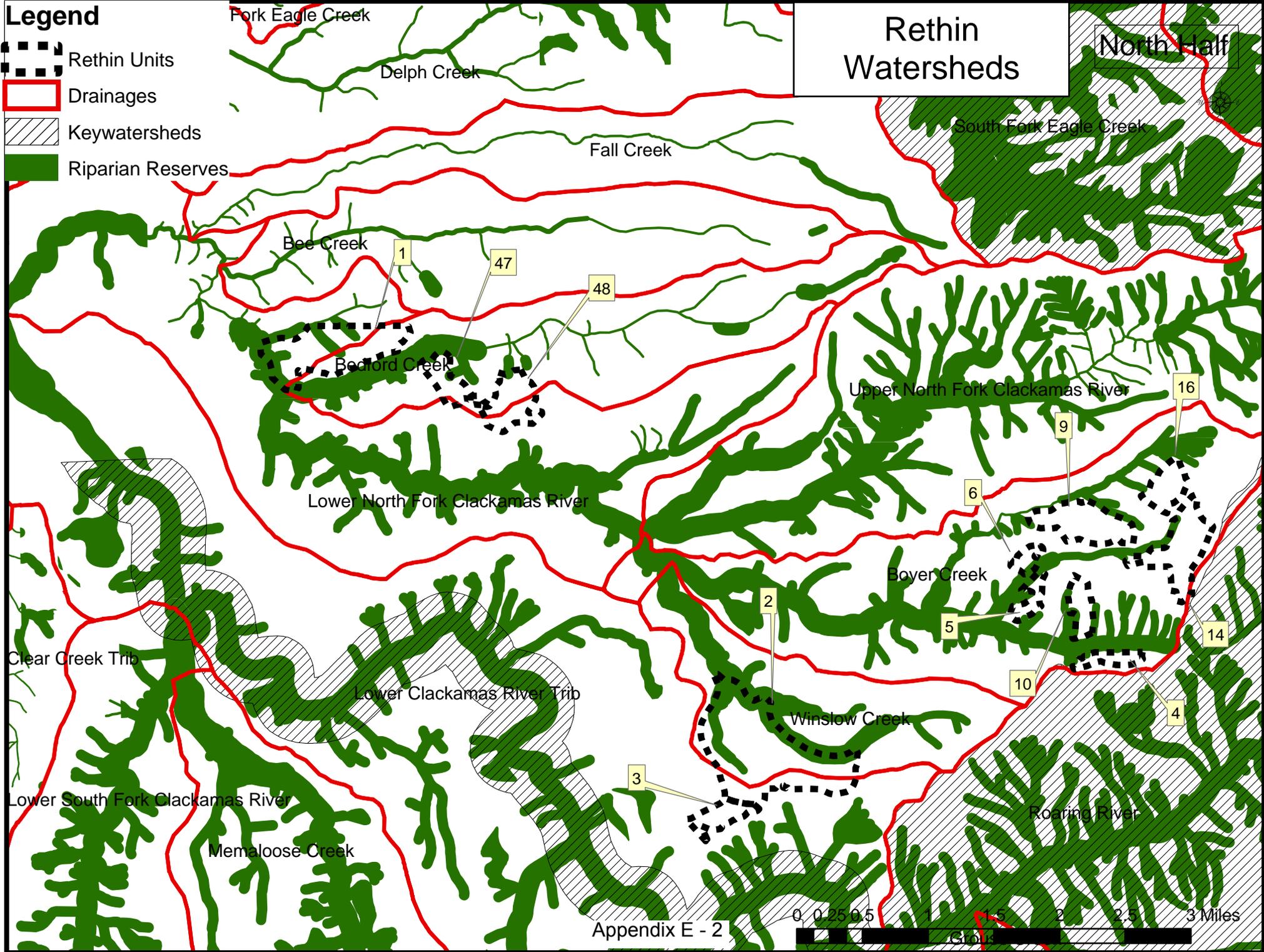
Mark Boyll
Mark Boyll, Botanist

December 3, 2007
Date

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E8-9	Deer & Elk – Analysis Areas, Summer and Winter Range
E10	Earthflows – High and Moderate Risk Earthflows
E11-12	Scenery & Recreation – Modification, Partial Retention, and Retention Visual Quality Objectives, Wild and Scenic Rivers
E13	Off Highway Vehicle Areas
E14 to end	Unit Maps – Units, Unit Numbers, Roads, Road Numbers, Logging Systems, Temporary Roads, Streams, Contour Lines

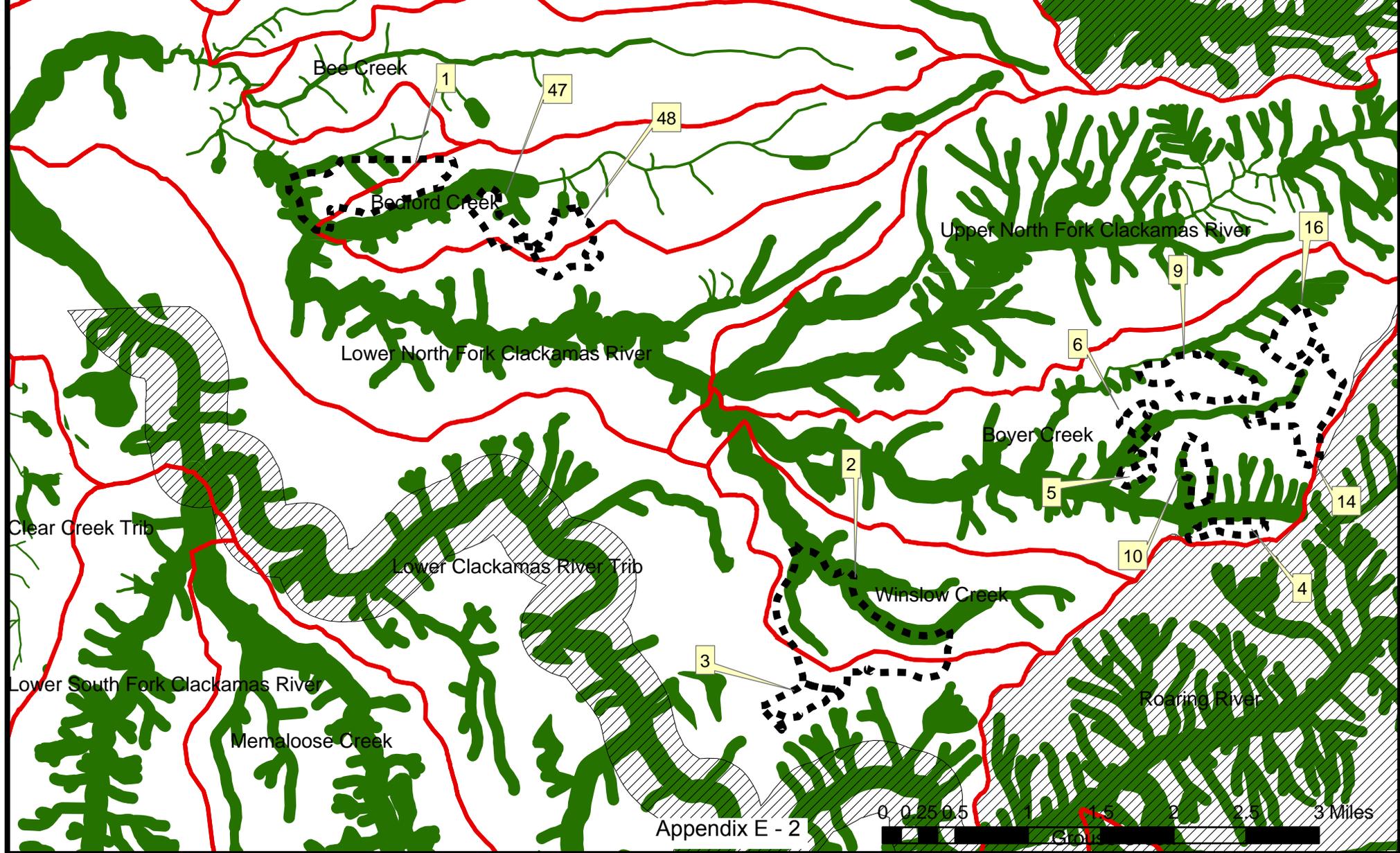


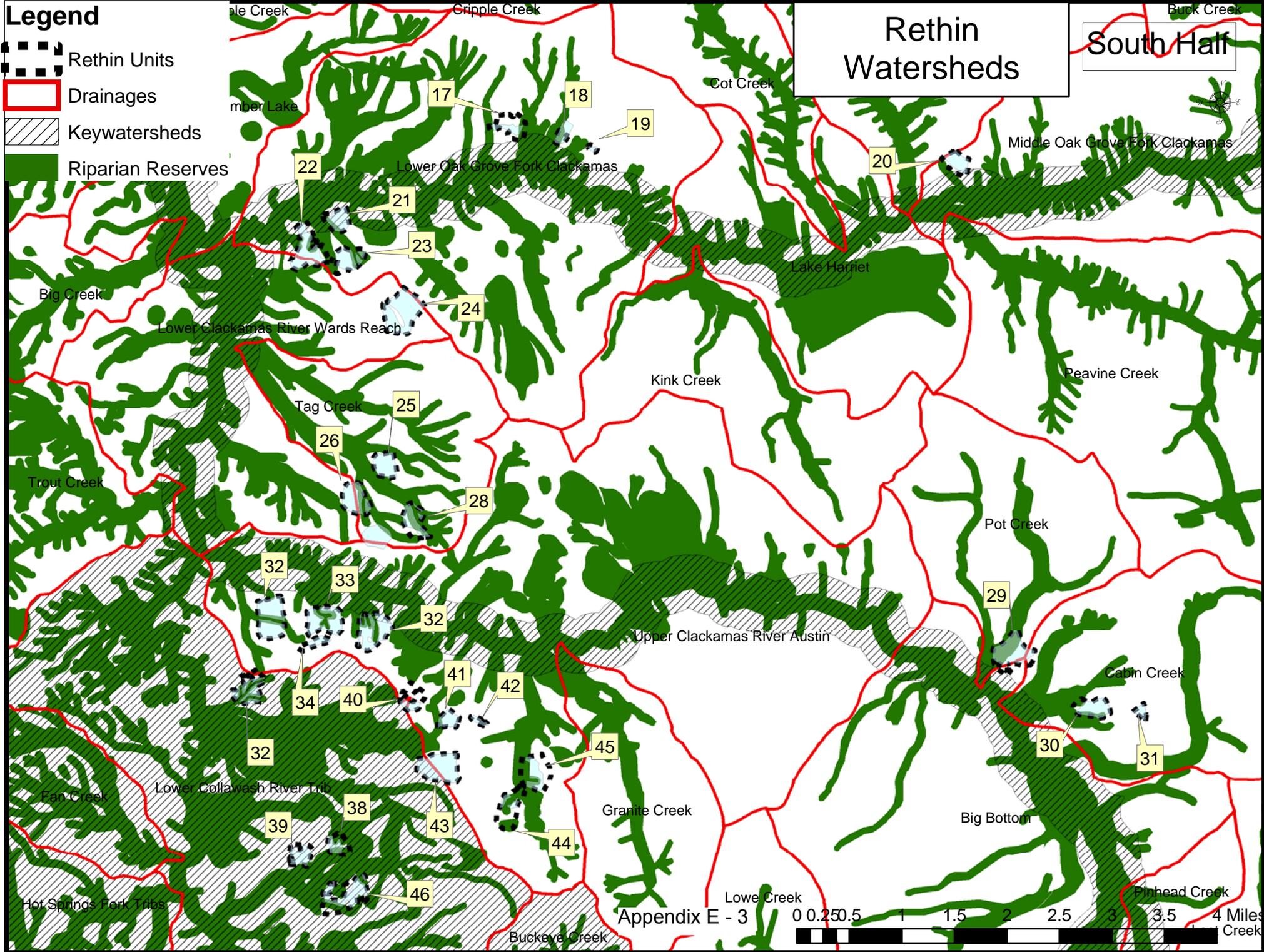
Legend

-  Rethin Units
-  Drainages
-  Keywatersheds
-  Riparian Reserves

Rethin Watersheds

North Half

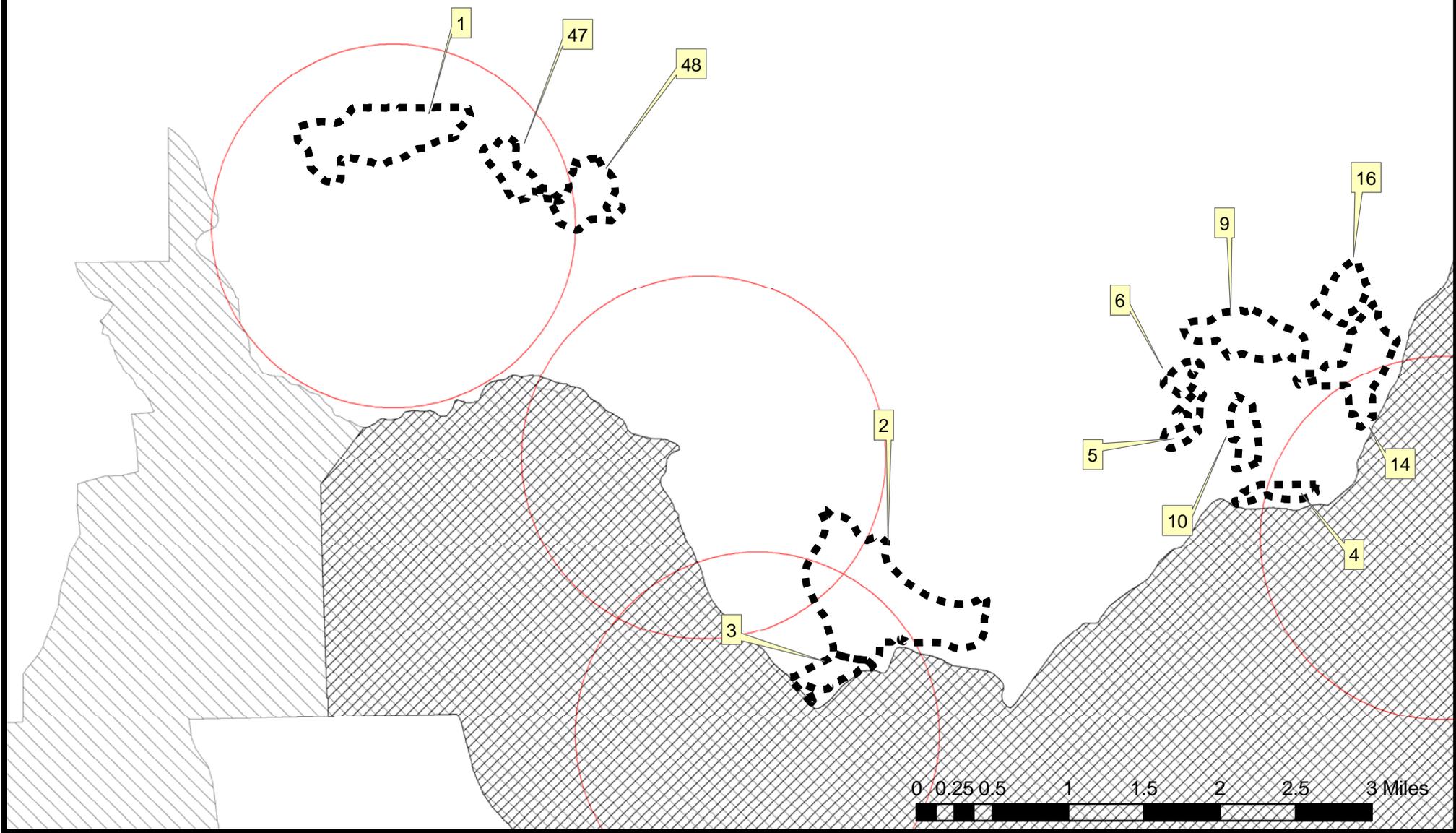




Legend

-  Rethin Units
-  Owl Analysis Area
-  Owl Critical Habitat
-  LSR

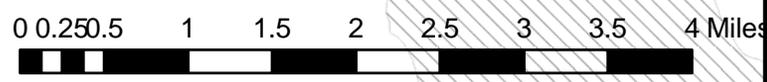
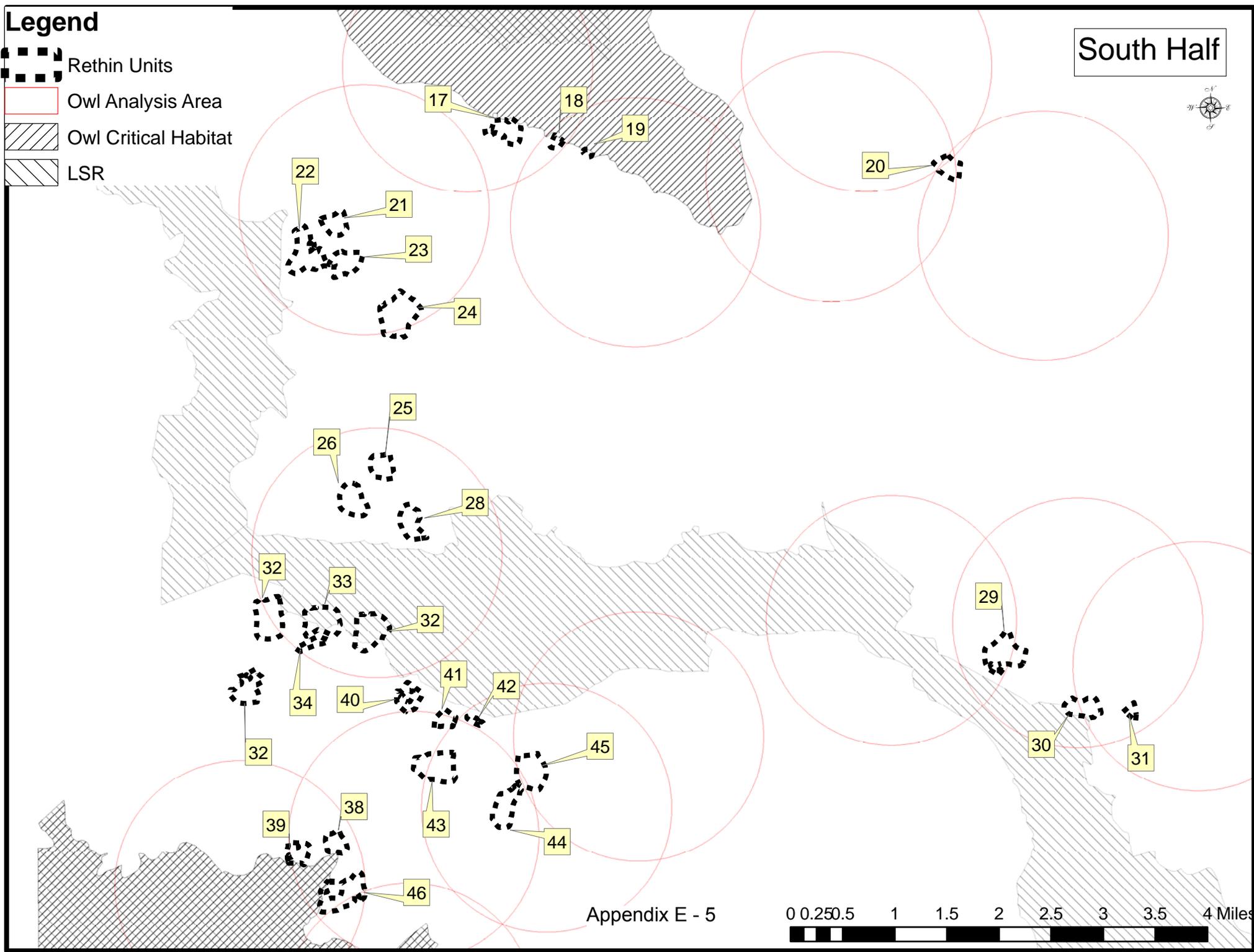
North Half



Legend

-  Rethin Units
-  Owl Analysis Area
-  Owl Critical Habitat
-  LSR

South Half



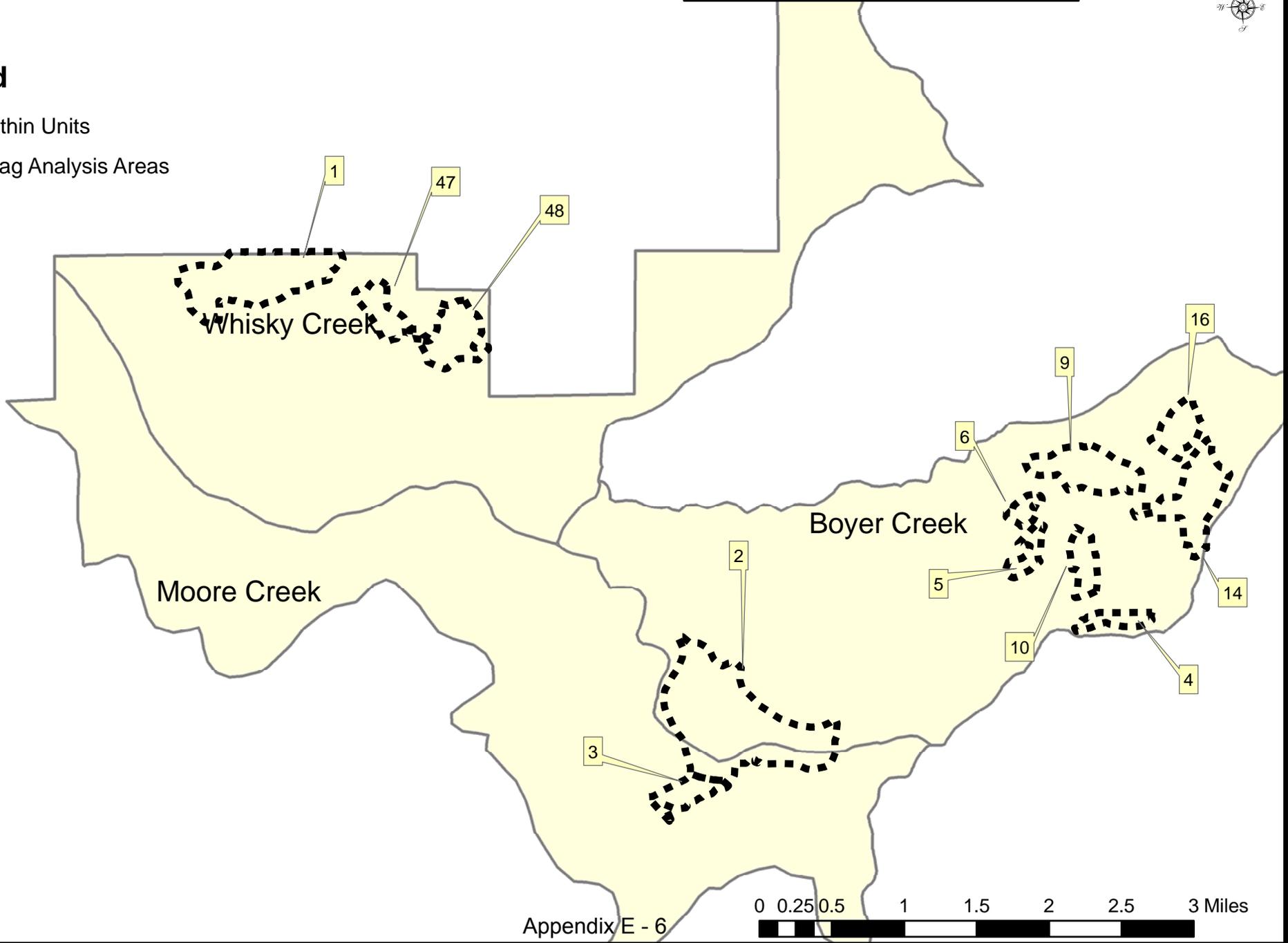
Rethin Snag Analysis

North Half



Legend

-  Rethin Units
-  Snag Analysis Areas



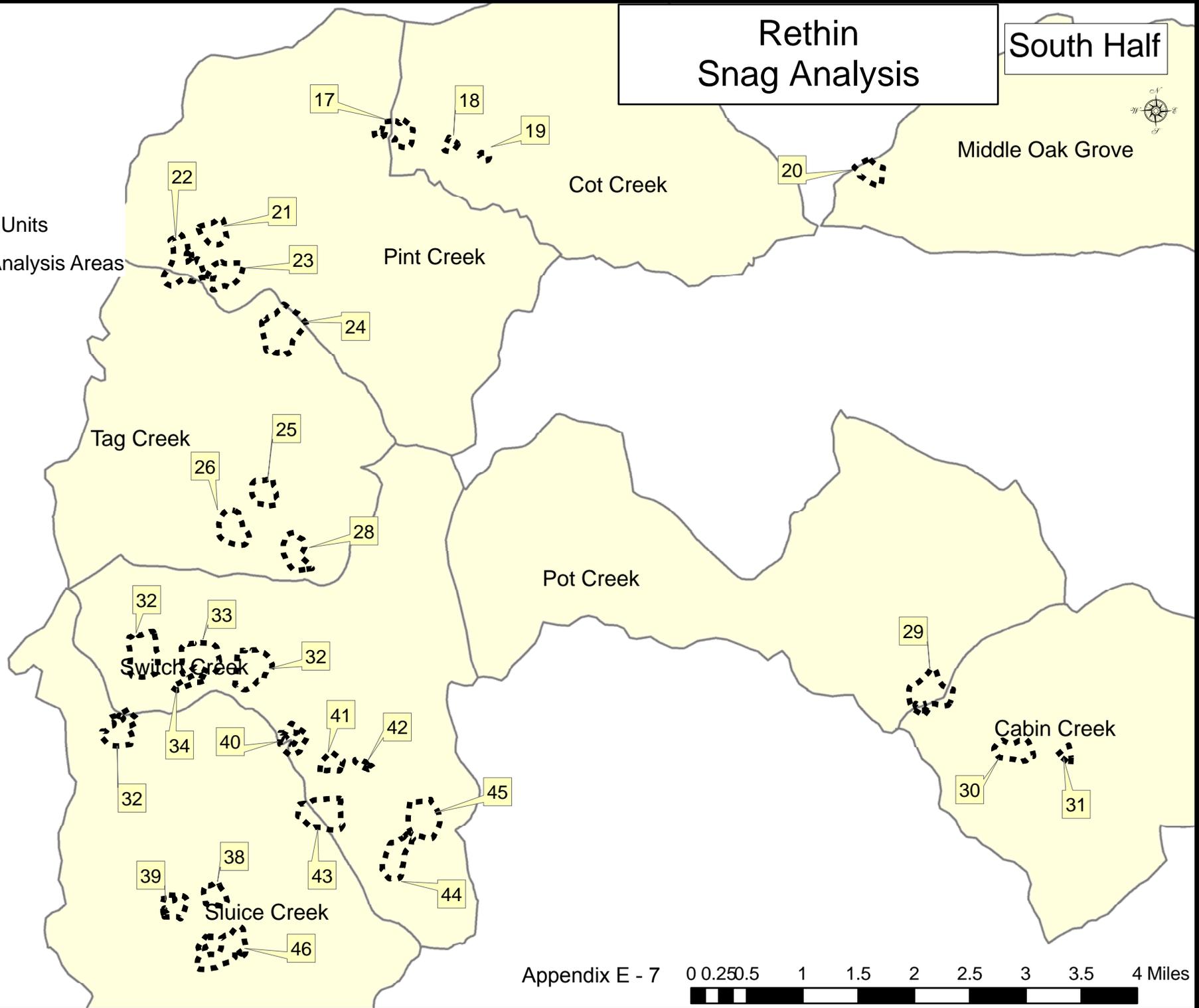
Rethin Snag Analysis

South Half



Legend

-  Rethin Units
-  Snag Analysis Areas



Appendix E - 7 0 0.250.5 1 1.5 2 2.5 3 3.5 4 Miles

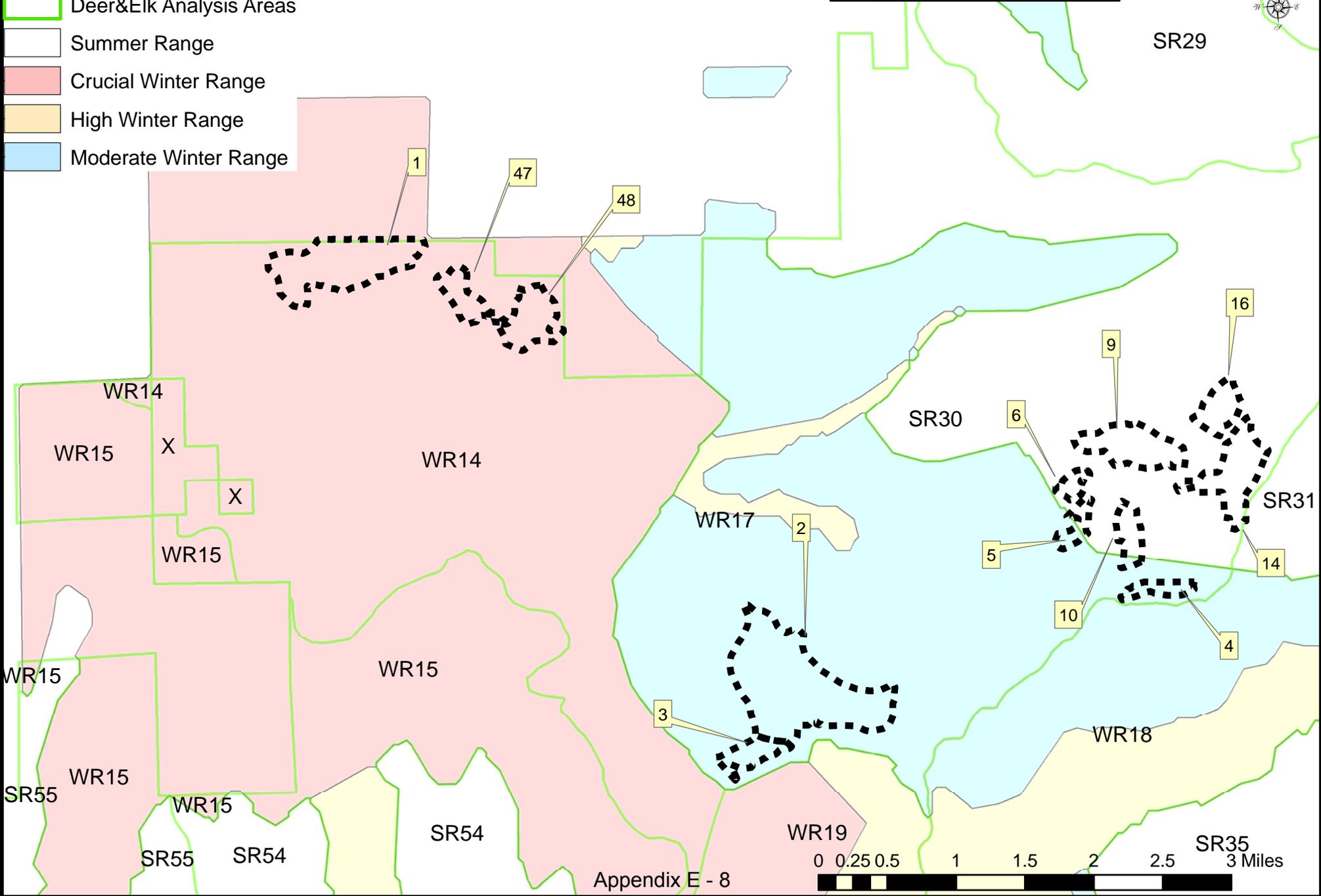


Legend

-  Rethin Units
-  Deer&Elk Analysis Areas
-  Summer Range
-  Crucial Winter Range
-  High Winter Range
-  Moderate Winter Range

Rethin Deer and Elk

North Half



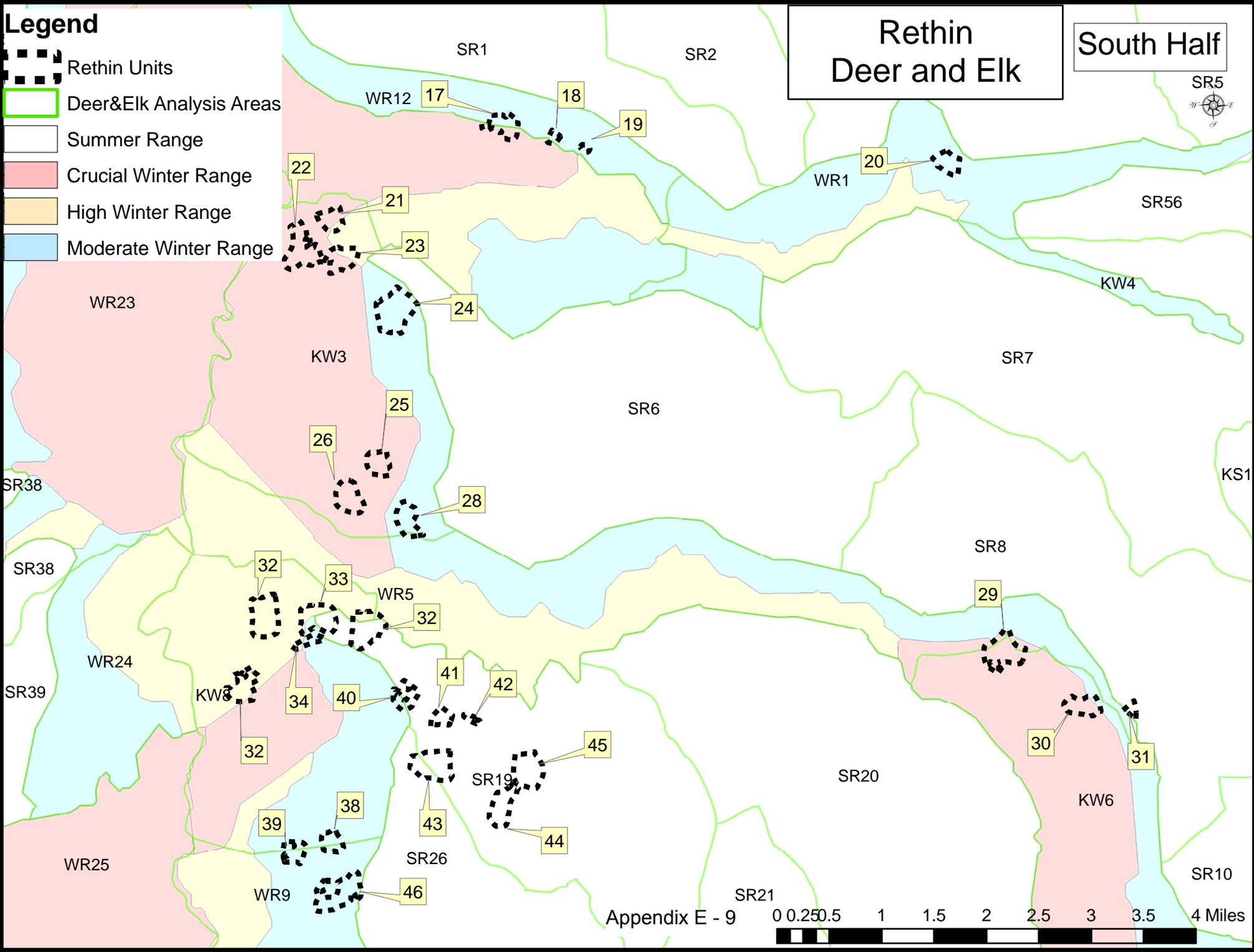
0 0.25 0.5 1 1.5 2 2.5 3 Miles

Legend

-  Rethin Units
-  Deer&Elk Analysis Areas
-  Summer Range
-  Crucial Winter Range
-  High Winter Range
-  Moderate Winter Range

Rethin Deer and Elk

South Half



Rethin Earthflows

South Half



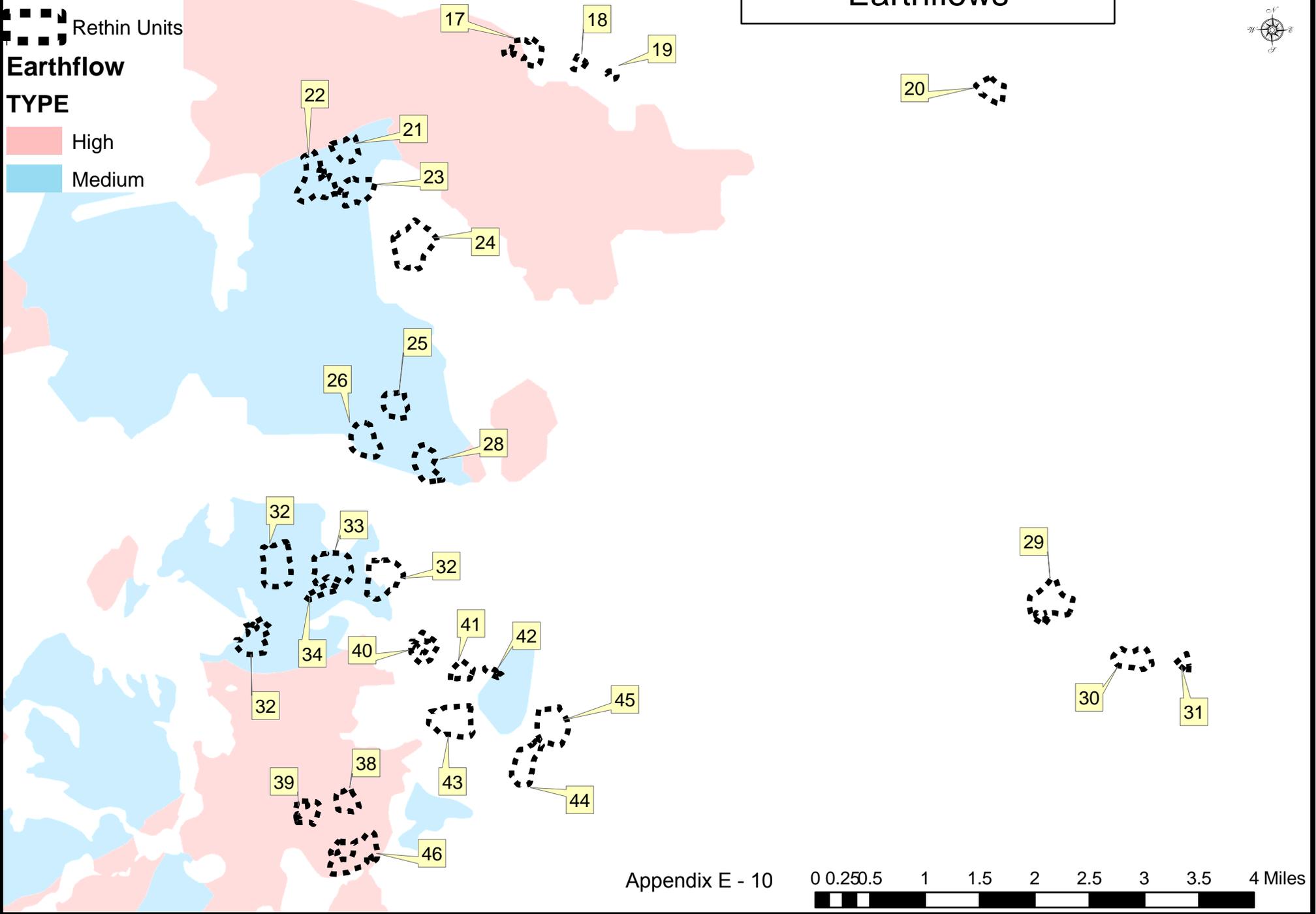
Legend

 Rethin Units

Earthflow TYPE

 High

 Medium



Legend

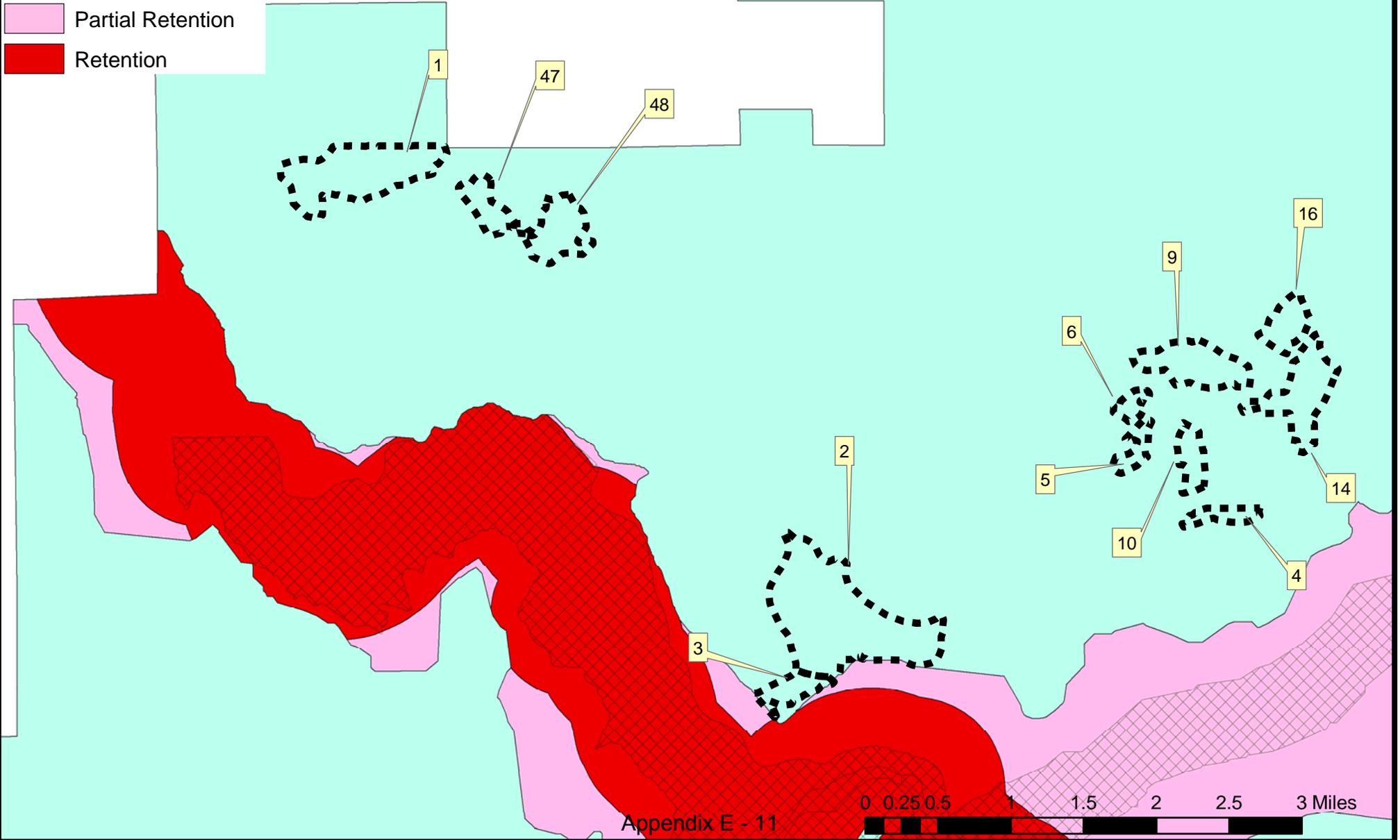
-  Rethin Units
-  Wild & Scenic River

Visual Quality Objectives

-  Modification
-  Partial Retention
-  Retention

Rethin Scenery & Recreation

North Half



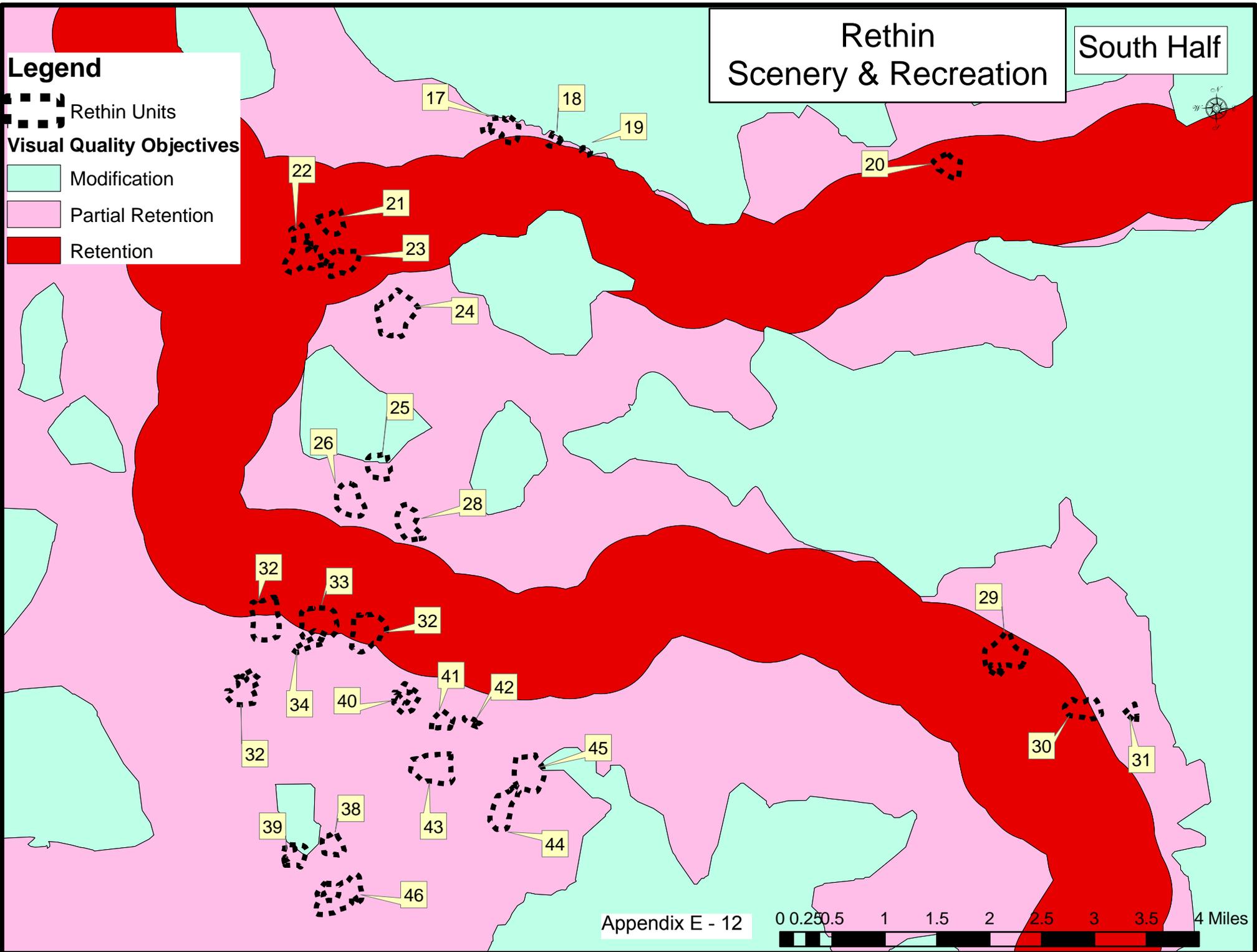
0 0.25 0.5 1 1.5 2 2.5 3 Miles

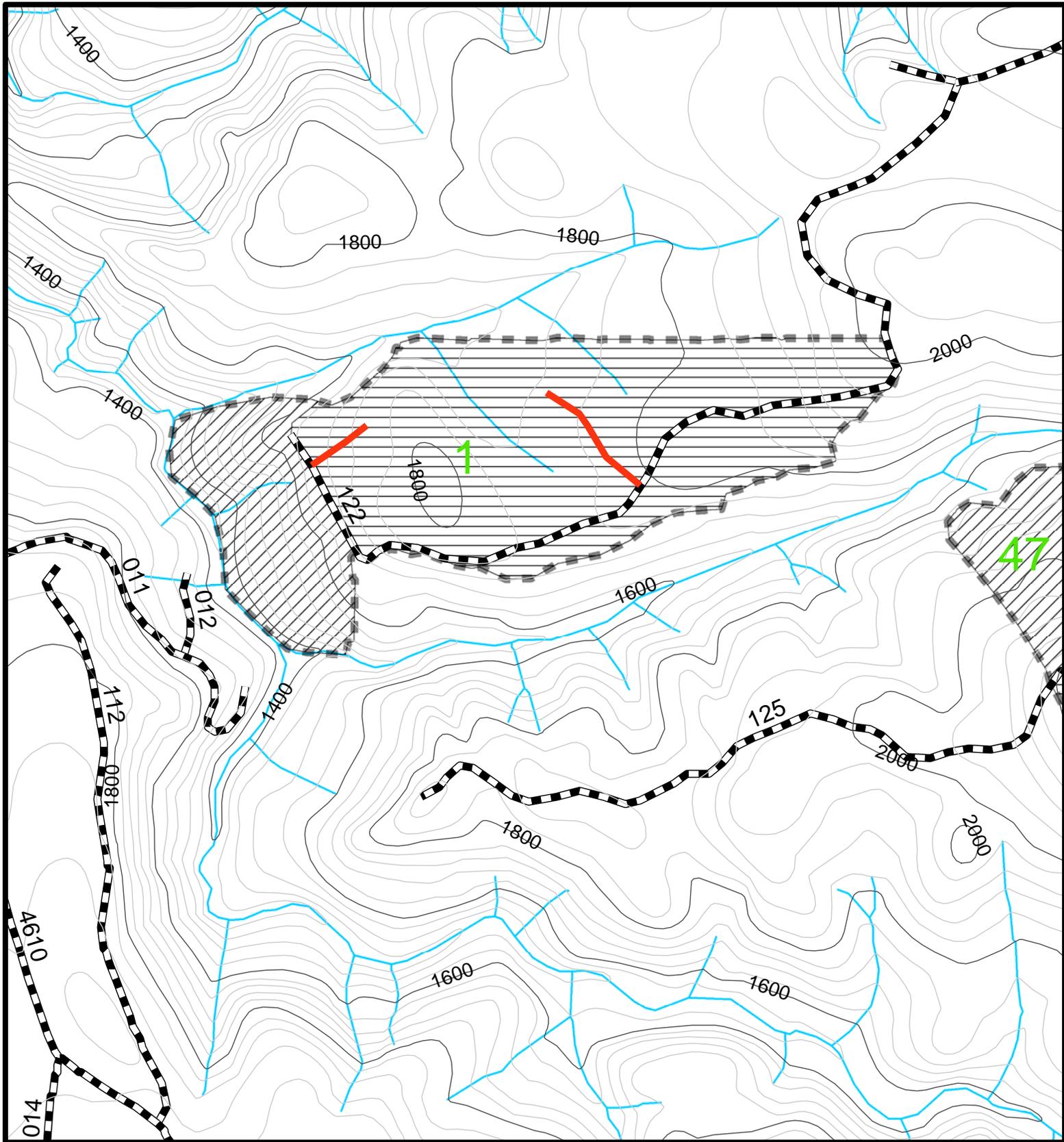
Rethin Scenery & Recreation

South Half

Legend

-  Rethin Units
- Visual Quality Objectives**
-  Modification
-  Partial Retention
-  Retention





Legend

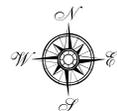
Logging Systems — Existing Temporary Road

 Ground Base

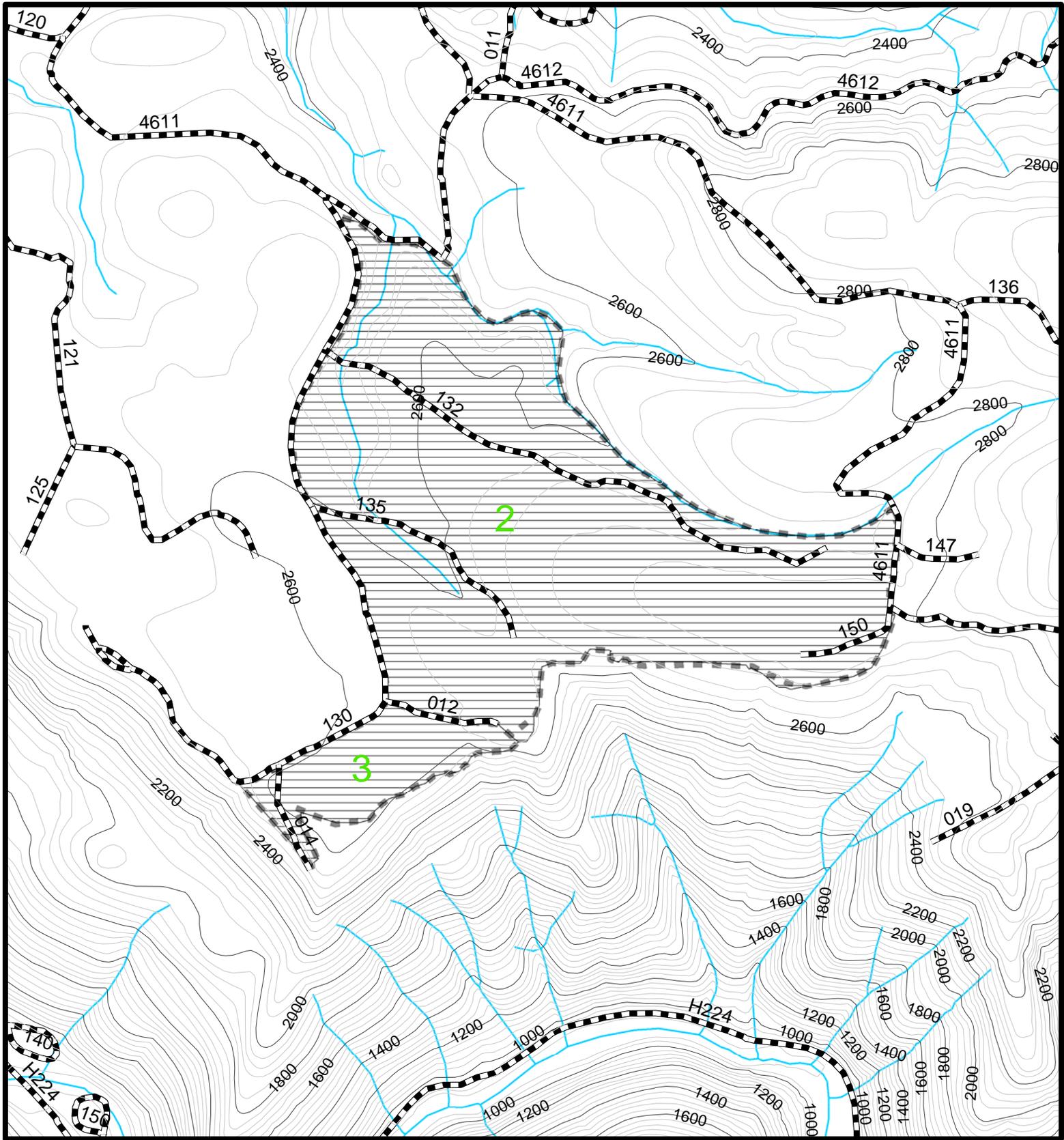
 Skyline

 Helicopter

Rethin

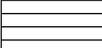


0 500 1,000 2,000 3,000 Feet



Legend

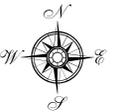
Logging Systems — Existing Temporary Road

 Ground Base

 Skyline

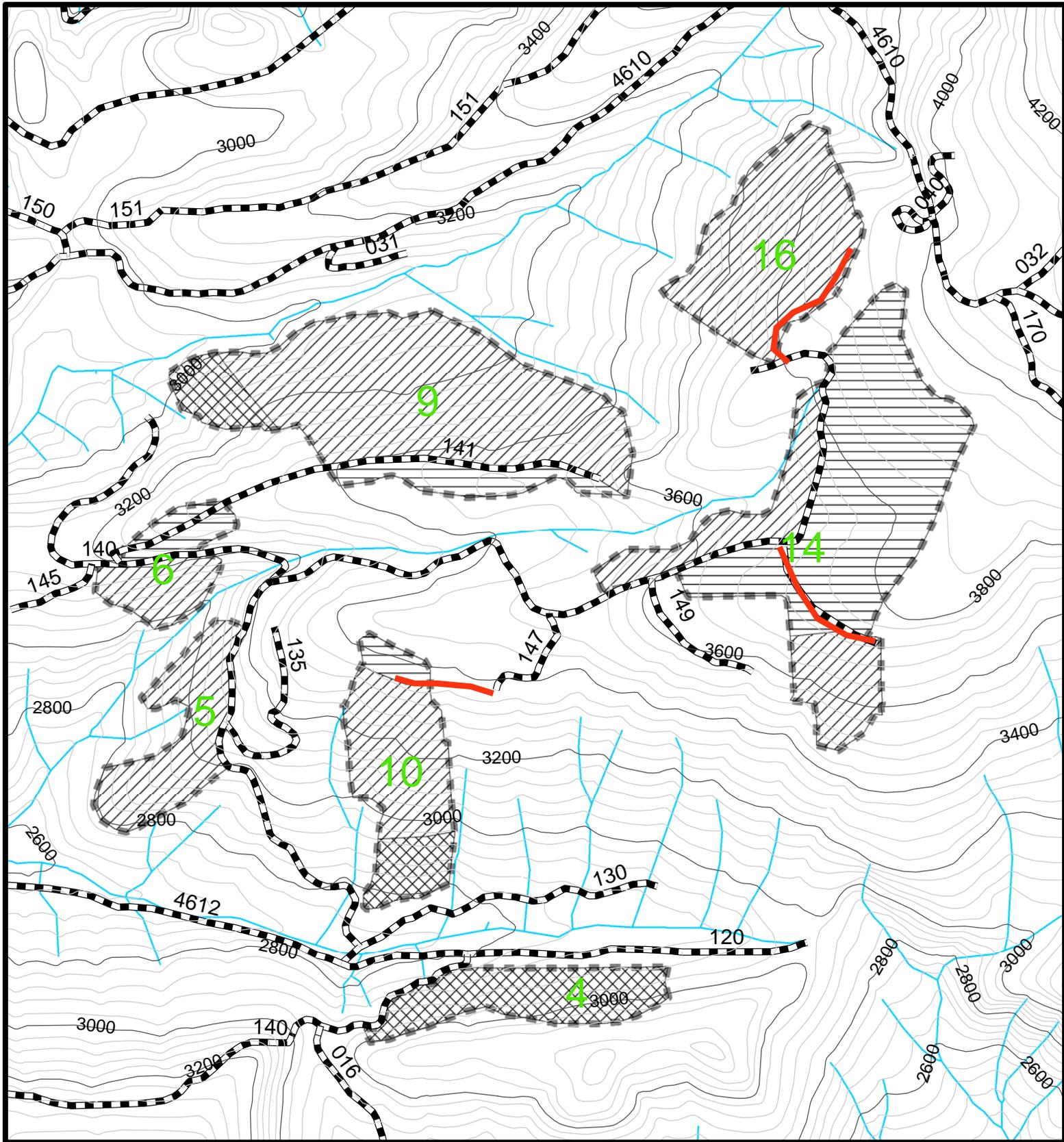
 Helicopter

Rethin



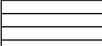
0 500 1,000 2,000 3,000 Feet





Legend

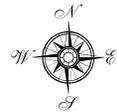
Logging Systems  Existing Temporary Road

 Ground Base

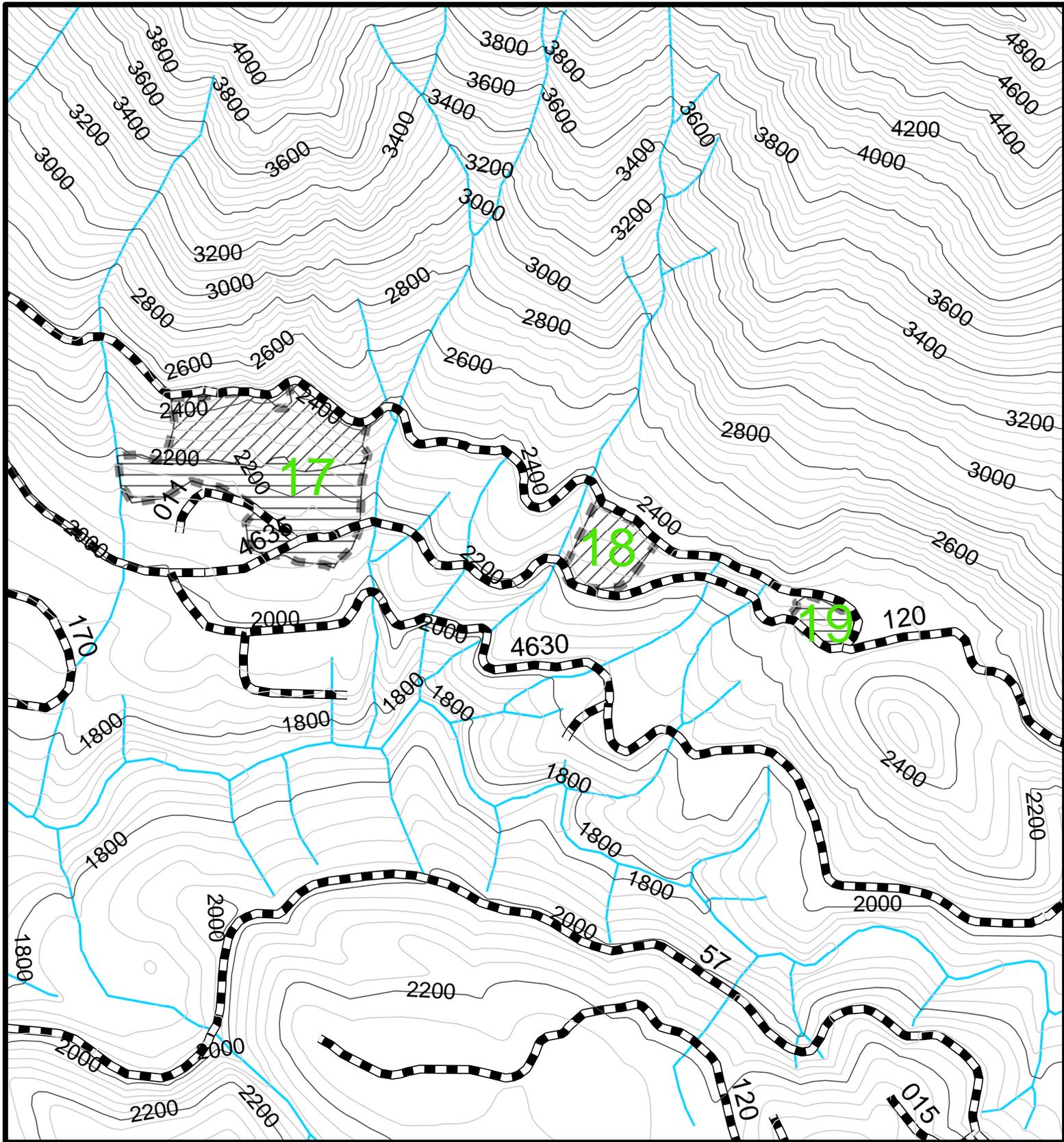
 Skyline

 Helicopter

Rethin

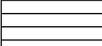


0 500 1,000 2,000 3,000 Feet



Legend

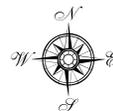
Logging Systems — Existing Temporary Road

 Ground Base

 Skyline

 Helicopter

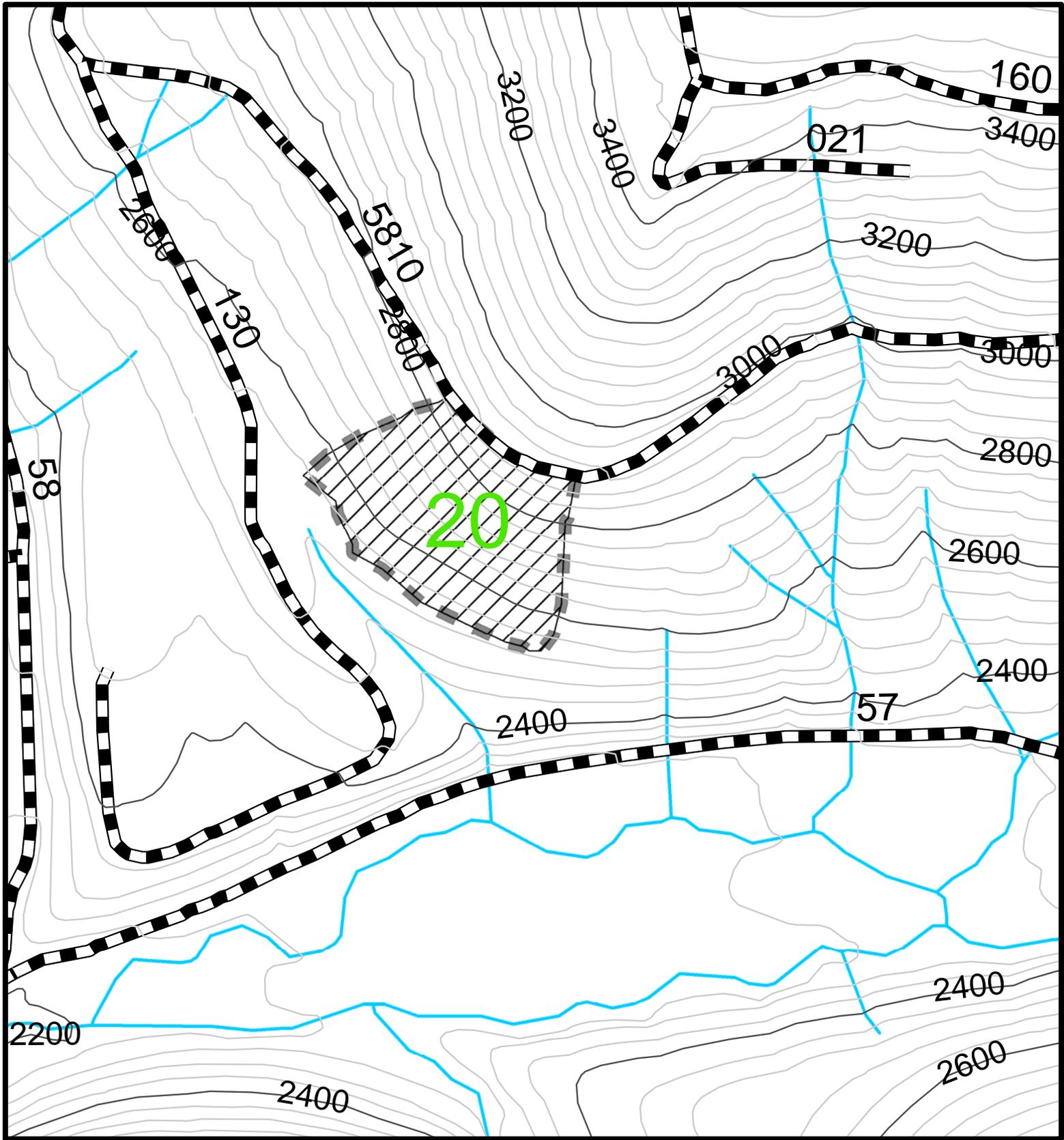
Rethin



0 500 1,000 2,000 Feet

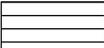
Appendix E - 17





Legend

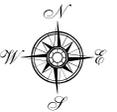
Logging Systems — Existing Temporary Road

 Ground Base

 Skyline

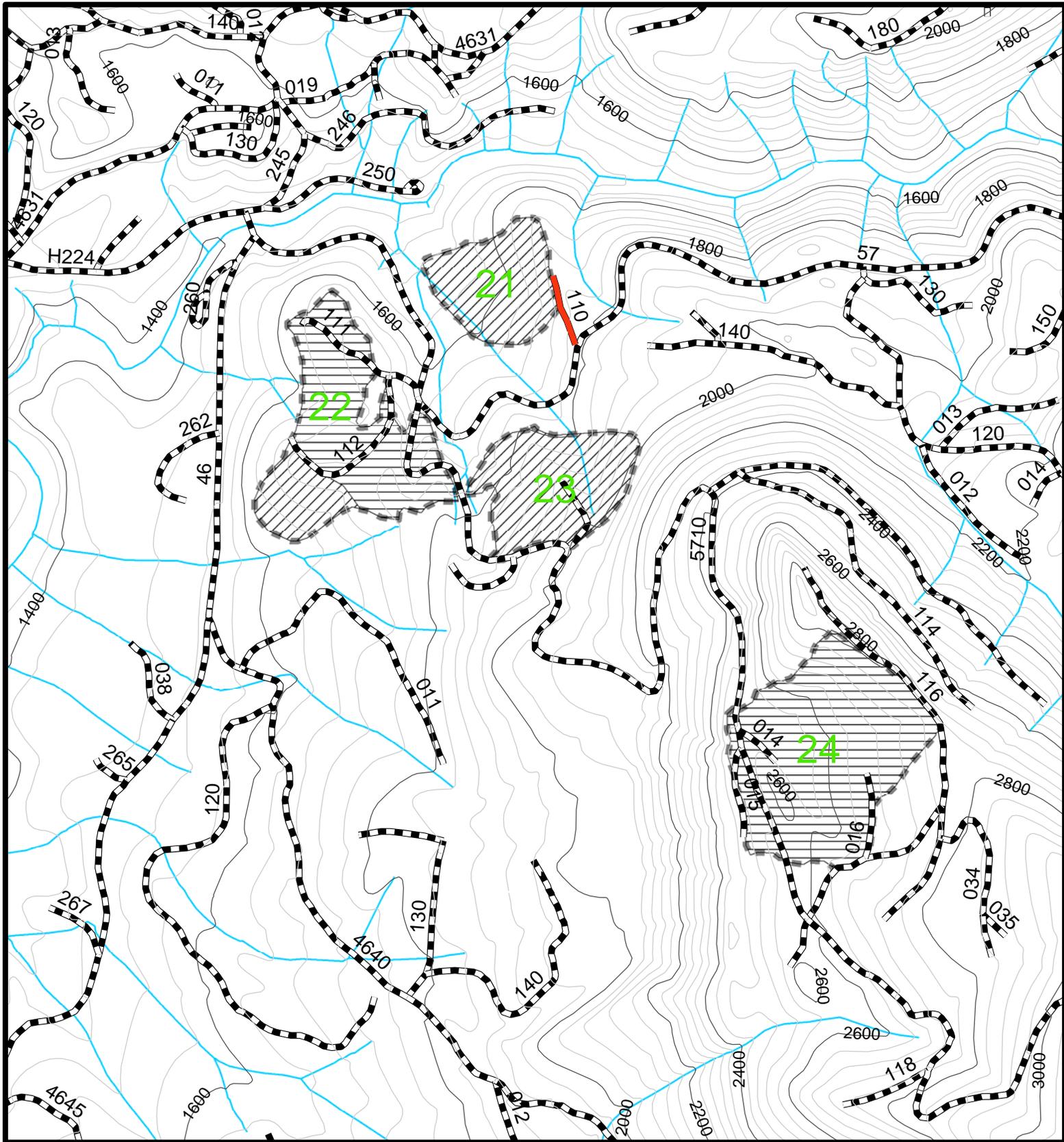
 Helicopter

Rethin



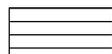
0 500 1,000 2,000 Feet





Legend

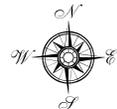
Logging Systems — Existing Temporary Road

 Ground Base

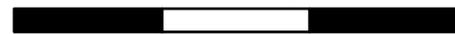
 Skyline

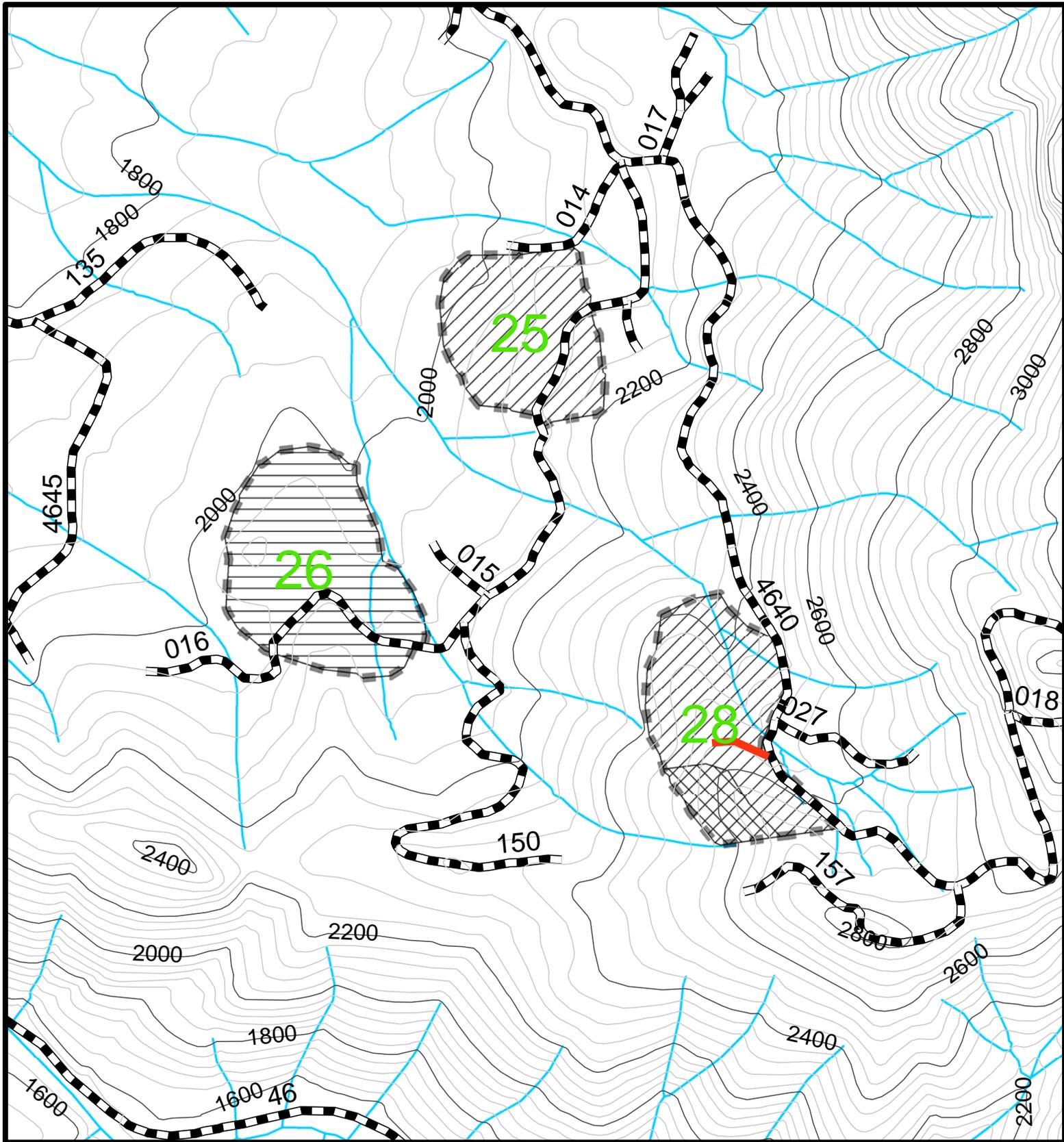
 Helicopter

Rethin



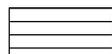
0 500 1,000 2,000 3,000 Feet





Legend

Logging Systems — Existing Temporary Road

 Ground Base

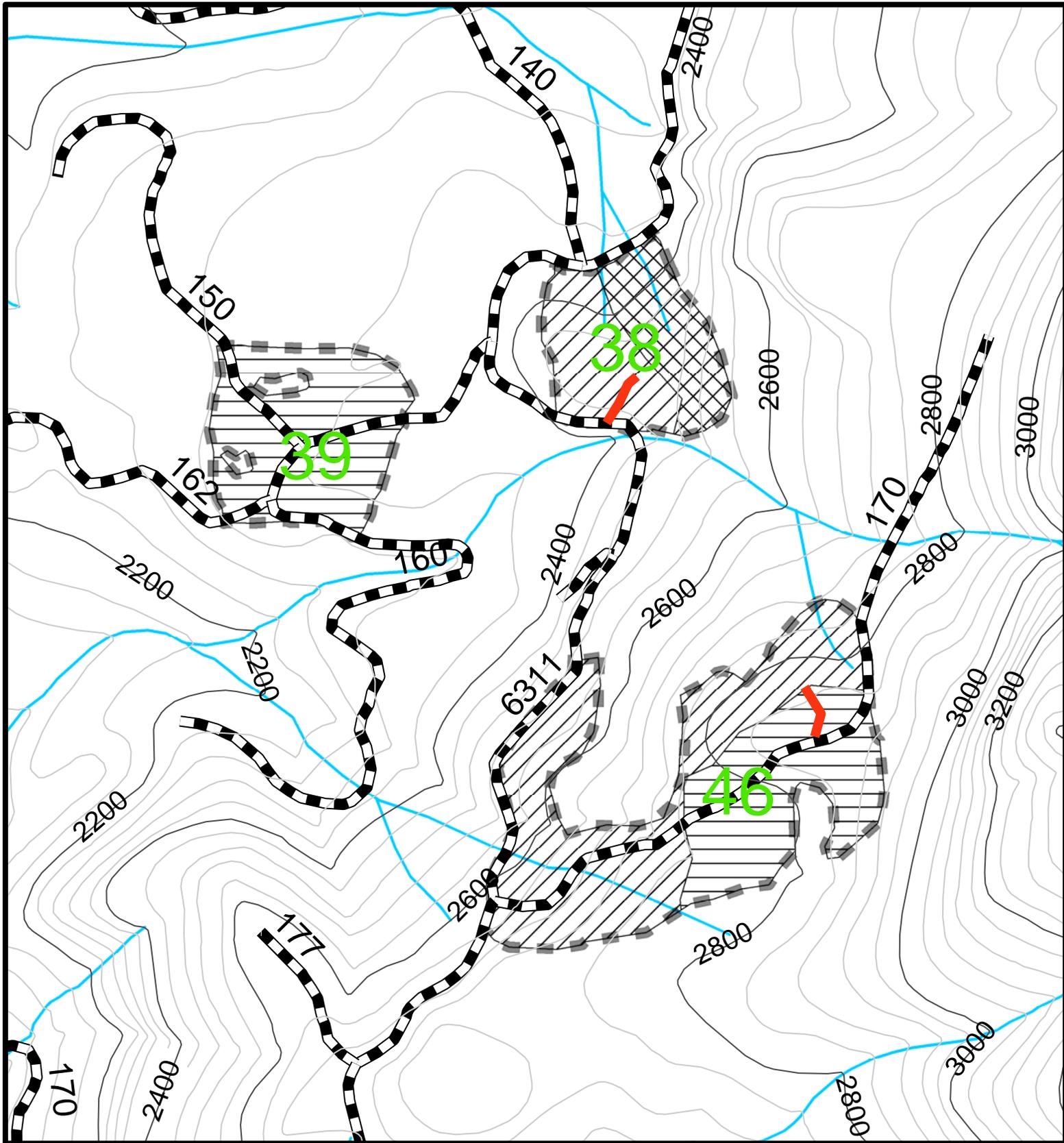
 Skyline

 Helicopter

Appendix E - 20

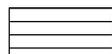
Rethin





Legend

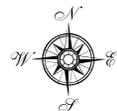
Logging Systems — Existing Temporary Road

 Ground Base

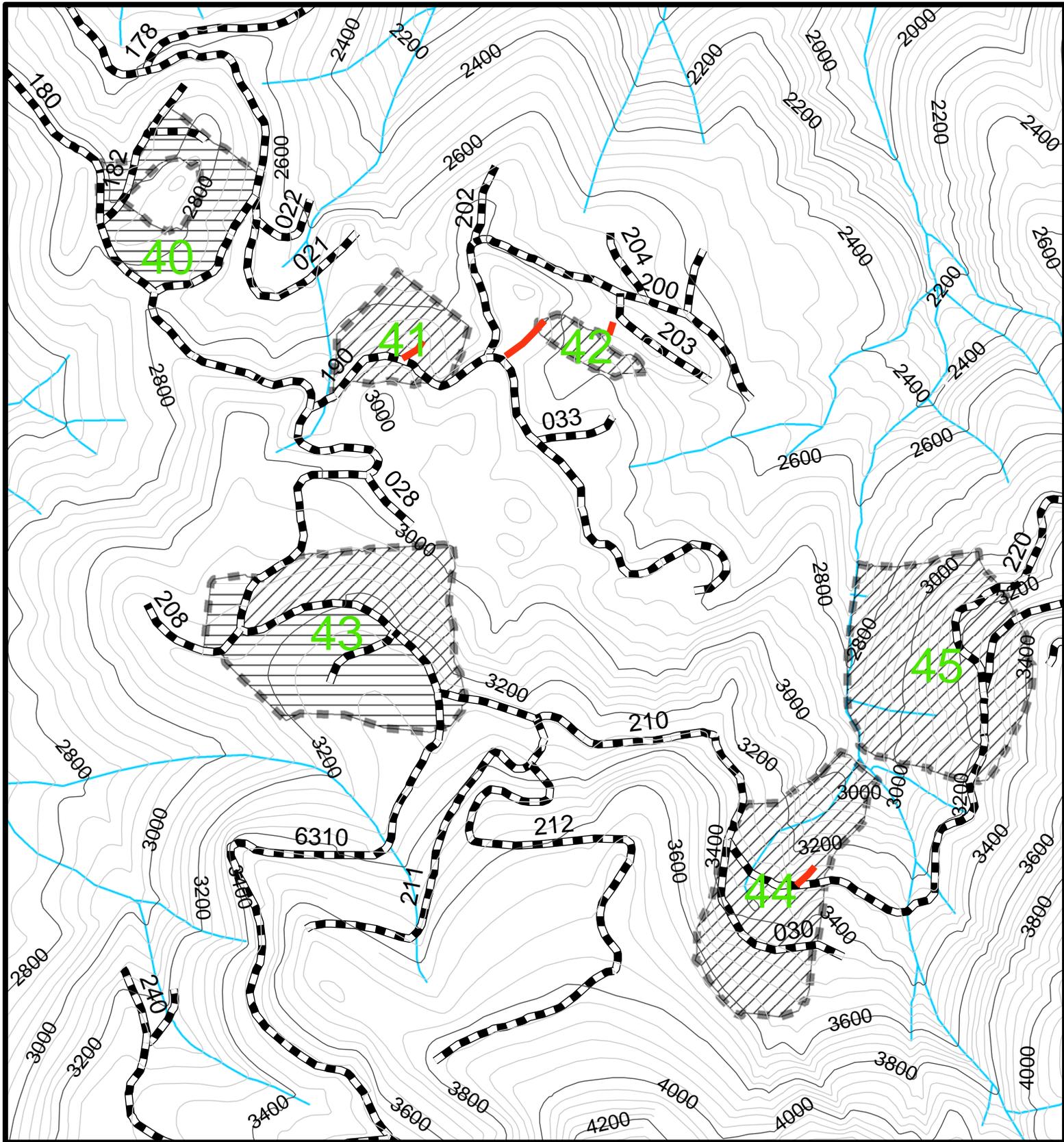
 Skyline

 Helicopter

Rethin

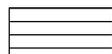


0 500 1,000 2,000 Feet



Legend

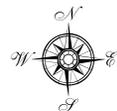
Logging Systems — Existing Temporary Road

 Ground Base

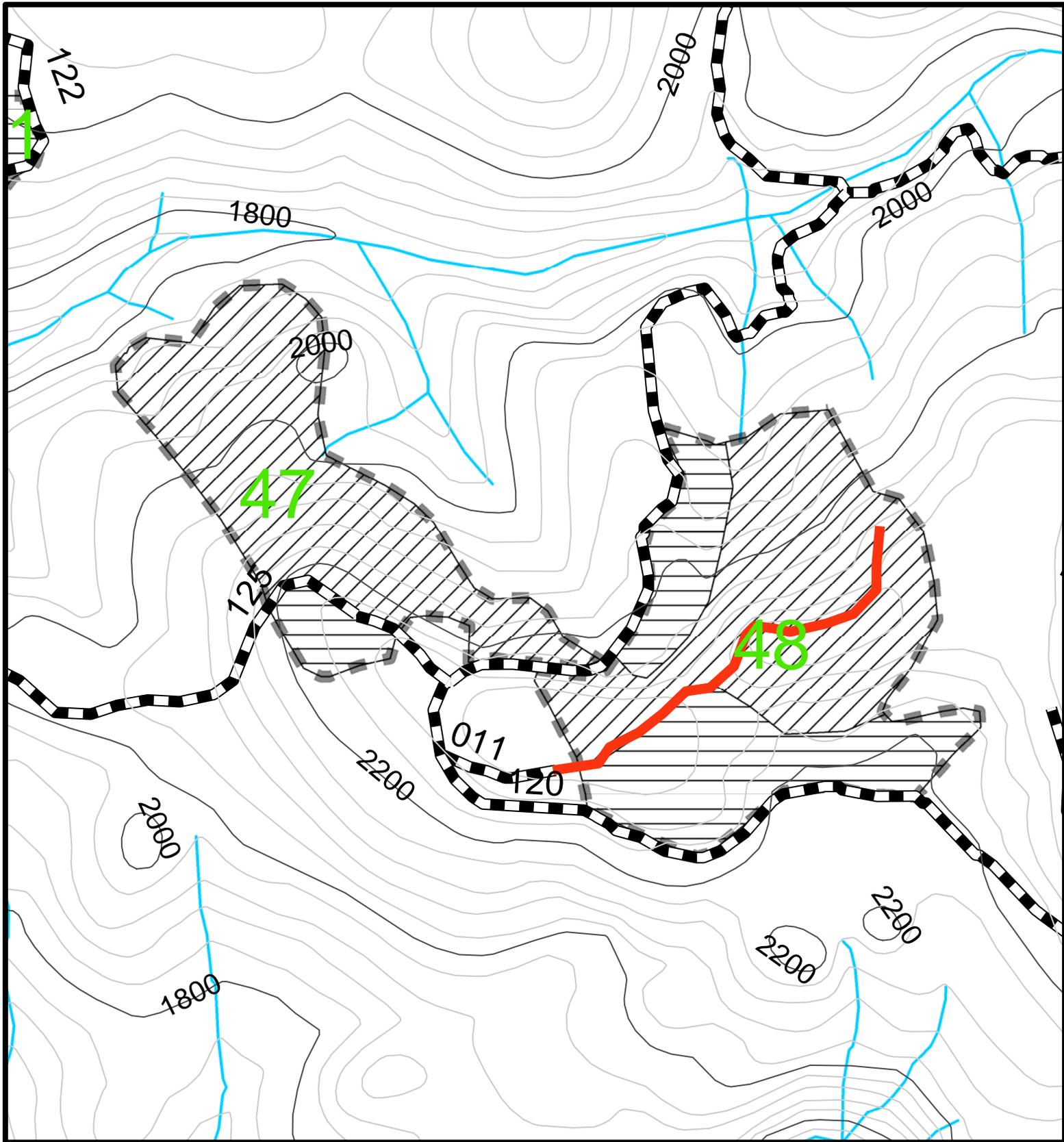
 Skyline

 Helicopter

Rethin

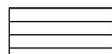


0 500 1,000 2,000 3,000 Feet



Legend

Logging Systems — Existing Temporary Road

 Ground Base

 Skyline

 Helicopter

Rethin



0 500 1,000 2,000 Feet

Appendix E - 25

