United States
Department of
Agriculture

Forest Service
R10-MB-736

October 2012

Big Thorne Project
Thorne Bay Ranger District, Tongass National Forest

Draft Environmental Impact Statement

Volume IV - Unit Cards (Units 121-476)

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Unit 121

Unit Number	121	Alternatives	2, 3, 4, 5	Total Unit Acres:	2, 3 - 50.6 4 - 52.6 5 - 50.7	Prescription:	2, 3, 5 - Clearcut 4 - 50% Removal
VCU Number:	579	Harvest System:	Cable, Helicopter	Net Harvest Volume (MBF):	2, 3 - 1,020 4 - 531 5 - 1,023	LUD:	Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure. The overstory consists primarily of western hemlock in the lower elevations and mountain hemlock in the upper elevations. Alaska-cedar and Sitka spruce are more abundant in the lower elevations. Stem decay is high to moderate occurrence across the unit. In the western and mountain hemlock, defect and damages are high with high to very high stem decay and light mistletoe. Windthrow risk is moderate. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management (Alternatives 2, 3, 5)
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 22 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. The required legacy structure is planned to coincide with areas dropped for soils concerns, as well as isolated areas with difficult yarding. Mapped legacy represents about 22 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Alternative 4)
Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription. The uneven-aged single tree selection regeneration method is being prescribed for this unit in Alternative 4 specifically to maintain intact diverse structure for wildlife needed at this time and place in the landscape to meet the objectives of this alternative. This system is not optimum for promoting timber production but is being prescribed primarily to mitigate the overall effects of the project on wildlife.

No Legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

Alternatives 2, 3: This unit is planned for a combination of helicopter and cable yarding. Cable settings are planned for uphill and downhill yarding to landings on the proposed temporary road. Helicopter settings are planned for yarding to landings on existing NFS road 3015635 and proposed temporary road.

Alternatives 4, 5: This unit is planned for helicopter yarding to the existing NFS road 3015635.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road, totaling 1200 feet, as displayed on the unit card.

BOTANY:

No Concerns

Unit 121

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Gravelly Creek.

Stream#: 1.1L Class: I, II, III Flagging: B/W, O/W C- Type: MMS, HCL, HCD, HCM
Concerns: blowdown and active erosion
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for HCL and HCD and Class II for HCD greater of 100 feet or to the top of the side-slope break. Class III for HCD and HCM to the top of the side-slope break.
Alternatives 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: 1.1L.2R Class: I, IV Flagging: B/W, G/W C- Type: PAB, HCO
Concerns: none
Buffer (RMA): Class I for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCO none.
Alternatives 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: 1.2L.1L Class: I, III, IV Flagging: B/W, O/W, G/W C- Type: MMO, HCO
Concerns: none
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for HCO greater of 100 feet or to the top of the side-slope break. Class III for HCO to the top of the side-slope break. Class IV for HCO none.
Alternatives 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A, B and C

Stream#: 1.2L.1L.2L Class: III, IV Flagging: O/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class III for HCO to the top of the side-slope break. Class IV for HCO none
Alternatives 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B and C

Stream#: 1.2L Class: I, III, IV Flagging: B/W, O/W, G/W C- Type: HCLw, HCM, HCO
Concerns: none
Buffer (RMA): Class I for HCLw greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category A, B and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 121: Alternatives 2 and 3 -- 1 Class III stream crossing . If any additional stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit is Very Low . It is entirely in Timber Production LUD and is considered Not Seen. There are no scenery resource concerns.

Unit 121

RECREATION:

No concerns

SOILS/WETLANDS:

Slopes range from nearly level to greater than 72%. Less than 2 acres of slopes greater than 72% occur near the center of the unit. Partial cut and a minimum of partial suspension are required on these steep slopes. About 15 acres were excluded from harvest due to high landslide potential, present and historic landslides and steep slopes. In the remaining unit, a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

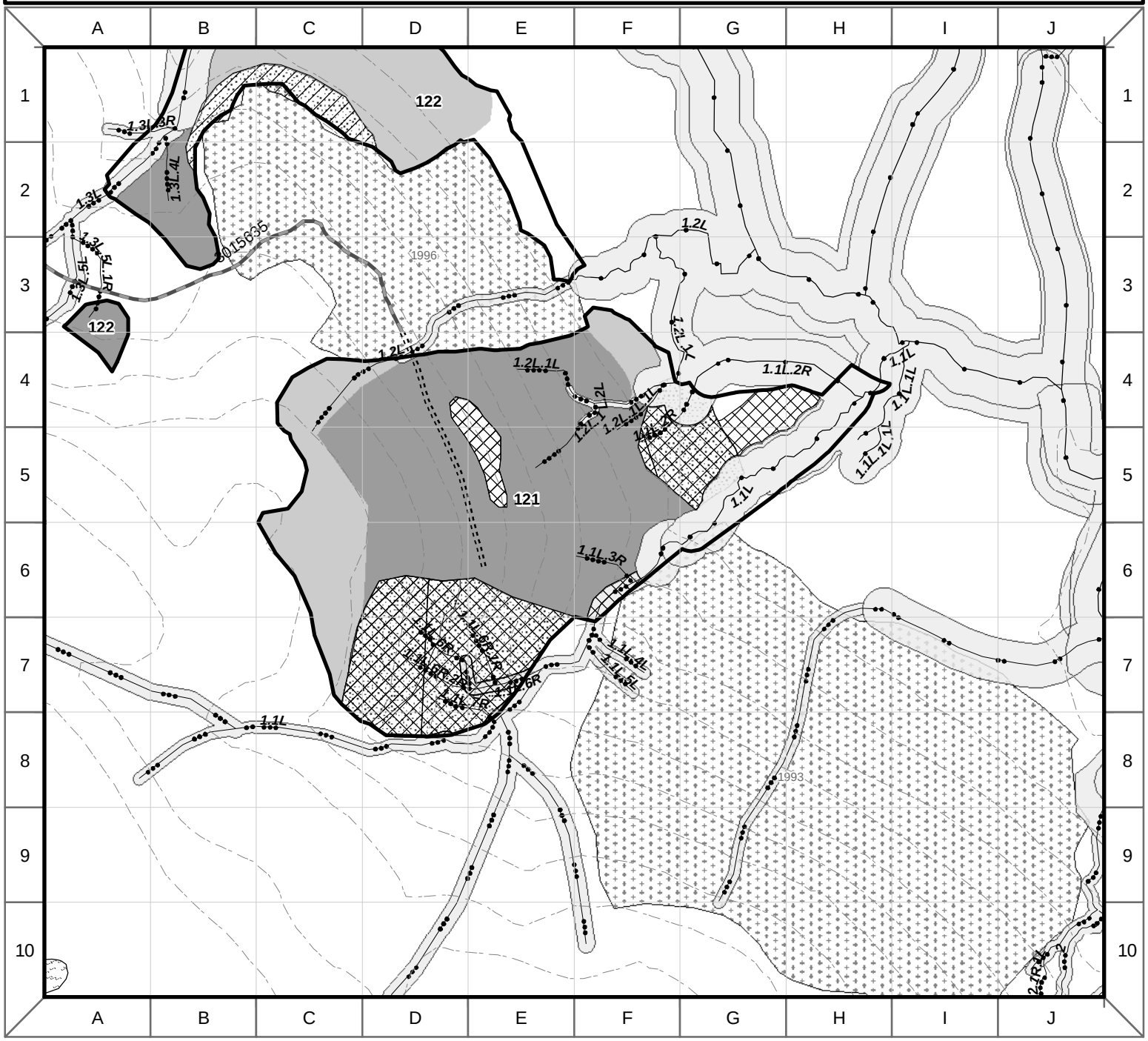
Based GIS analysis, there are approximately 20 acres (40% of the unit) of forested wetland near the center of the western unit boundary and in the eastern portion of the site.

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU; Legacy acres cover some deer winter range.

Alternative 4: Helicopter yarding with 50% basal area removal to maintain connectivity and other habitat values in the Gravelly Creek Drainage. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit Number 121 | **Alternative 2** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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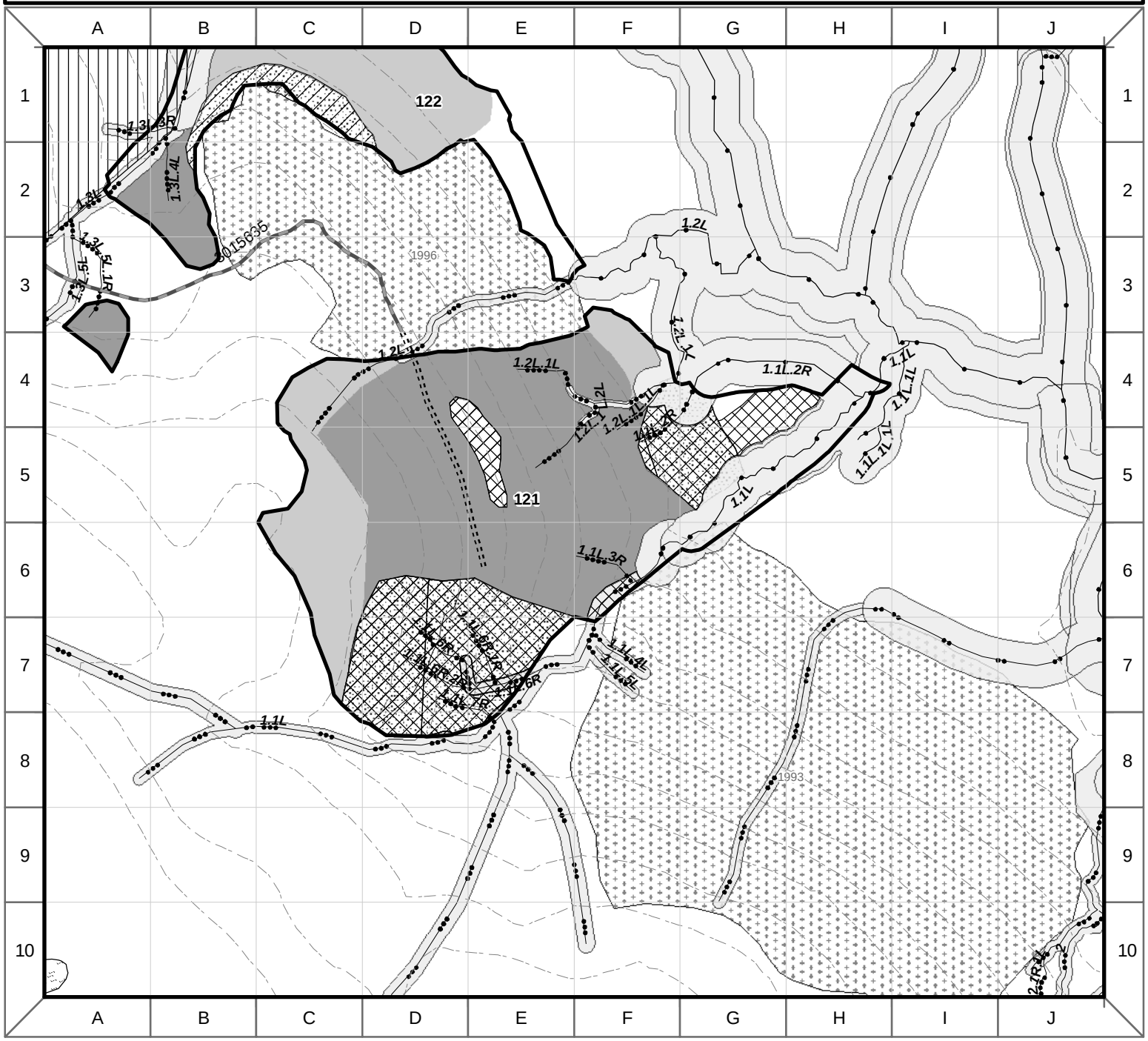
Unit Number 121 | **Alternative 3** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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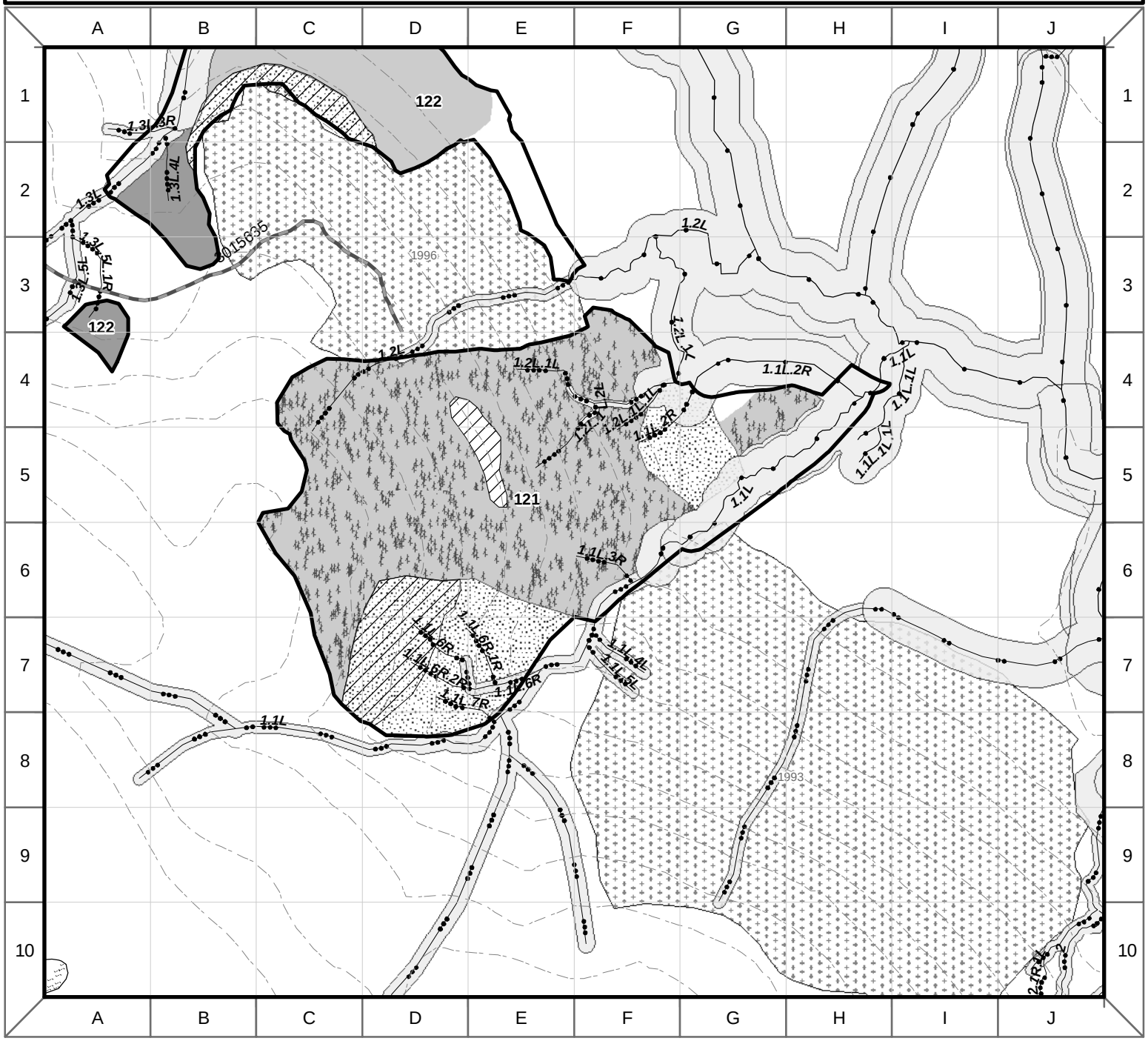
Unit Number 121 | **Alternative 4** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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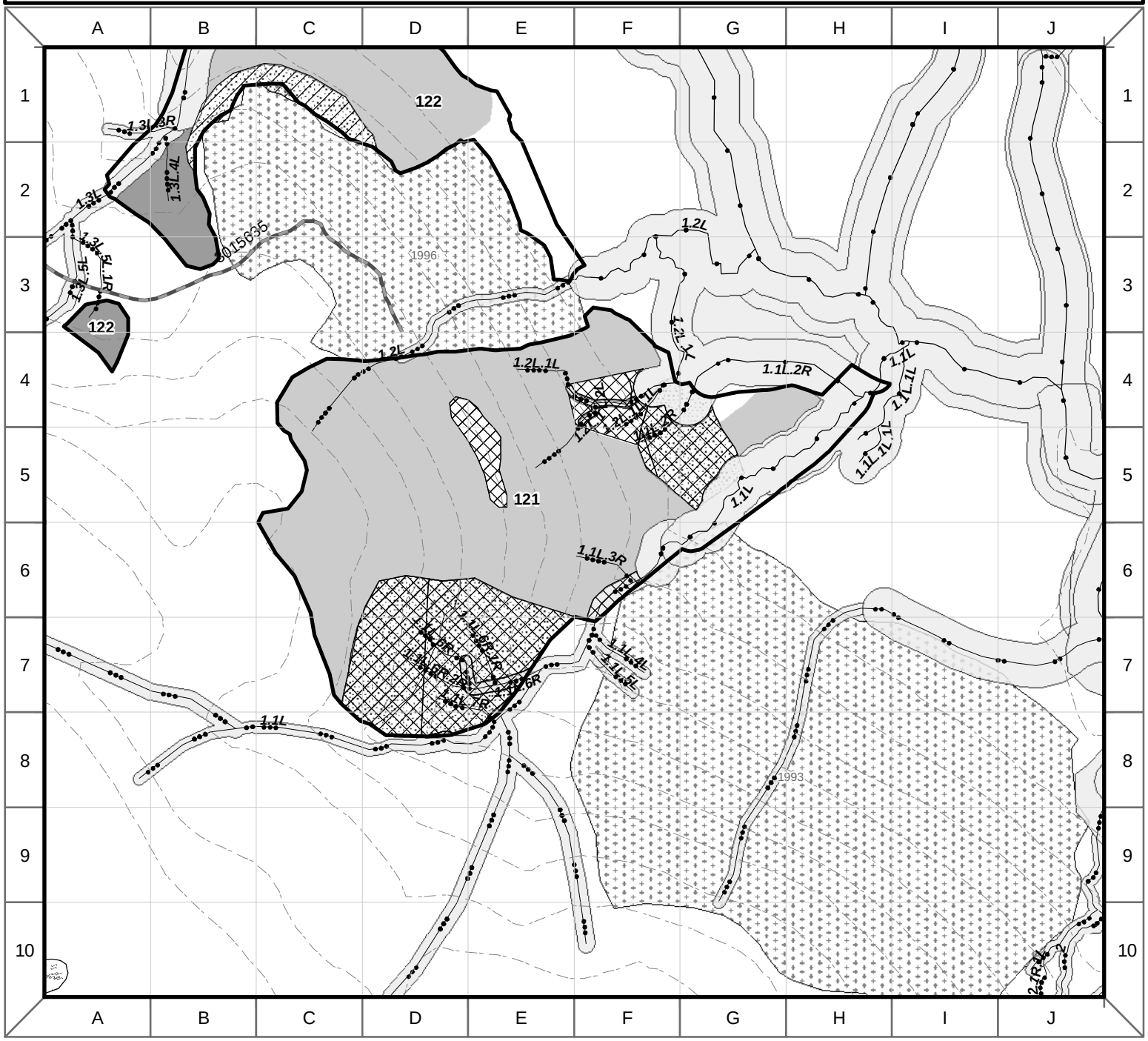
Unit Number 121 | **Alternative 5** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 122

Unit Number 122	Alternatives 2, 3, 4, 5	Total Unit Acres: 18.9	Prescription: Clearcut
VCU Number: 579	Harvest System: Cable, Shovel,	Net Harvest Volume (MBF): 260	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: The unit has old-growth stand structure. The overstory consists primarily of western hemlock with Alaska-cedar and Sitka spruce. Stem decay is high to moderate across the unit. Mistletoe is light. Windthrow risk is moderate. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for a combination of cable, shovel, and helicopter yarding. Cable settings are planned for uphill yarding to landings on the existing NFS road 3015635. Shovel settings are planned for yarding to the existing NFS road 3015635. Helicopter settings are planned for yarding to landings on the existing NFS road 3015635.

For Alternative 3, OGR boundary moved south and adjacent to unit.

ENGINEERING/ROADS:

No proposed road construction

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Gravelly Creek. (Stream 1.2L characteristics do not include project-specific, field-verified, information)

Stream#: 1.2L Class: I, III Flagging: B/W, O/W C- Type: HCLw, HCM
Concerns: none
Buffer (RMA): Class I for HCLw greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: 1 Class: I Flagging: B/W C- Type: FPM, MMM
Concerns: none
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for MMM greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category A

Unit 122

Stream#: 1.3L Class: II, III Flagging: B/W, O/W C- Type: HCM, HCD
Concerns: blowdown, active erosion, and steep side-slopes with mobile fine sediment
Buffer (RMA): Class II for HCM and HCD greater of 100 feet or to the top of the side-slope break. Class III for HCD and HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be determined by IDT during layout.
Protection: Category A and B

Stream#: 1.3L.3L Class: III Flagging: O/W C- Type: HCM
Concerns: active erosion and steep side-slopes with mobile fine sediment.
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: 1.3L.5L Class: III Flagging: O/W C- Type: HCM
Concerns: active erosion and steep side-slopes with mobile fine sediment
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
The Scenic Integrity Objective (SIO) for this unit is Very Low . It is entirely in Timber Production LUD and is considered Not Seen. There are no scenery resource concerns.

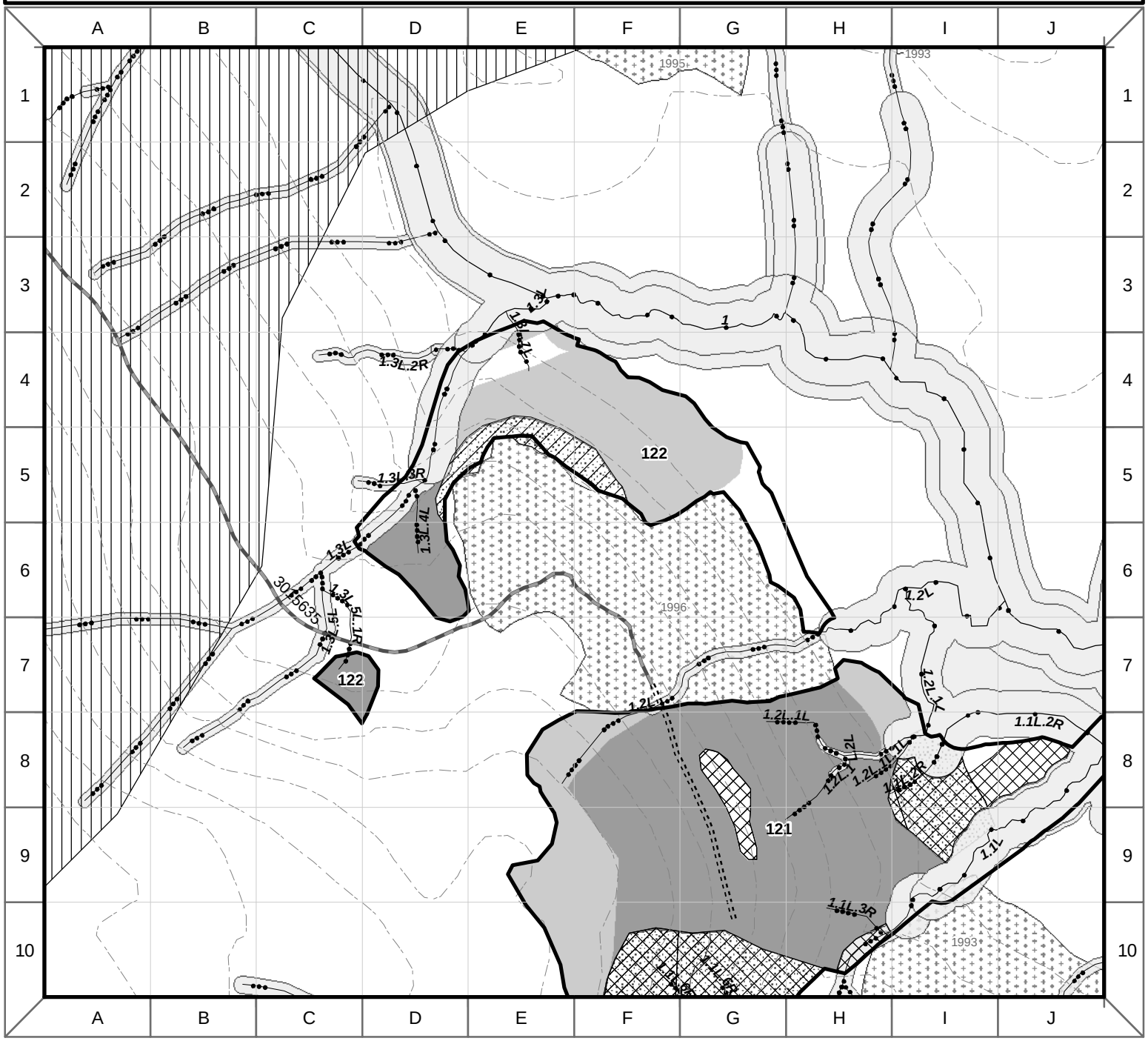
RECREATION:
No concerns

SOILS/WETLANDS:
Slopes range from 25 to greater than 100%. All slopes greater than 72% are located in the soil exclusion area. About 3 acres were excluded due to high landslide potential, active and historic landslides, colluvial activity, very steep slopes. Based on GIS analysis, there are approximately 2 acres of emergent short sedge/forested wetland complex in the southwest corner of the unit (BMP 12.5). In the eastern portion of the unit, there is about 1/4 acre of emergent short sedge wetland and 3 acres of forested wetland (BMP 12.5). The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

WILDLIFE:
Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (eastern 1/2 of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Old-growth Reserve (OGR) Boundary
Alternatives 2, 4, and 5: Current OGR boundary near unit to the north
Alternative 3: OGR boundary moved south and adjacent to unit

Unit Number 122 | **Alternative 2** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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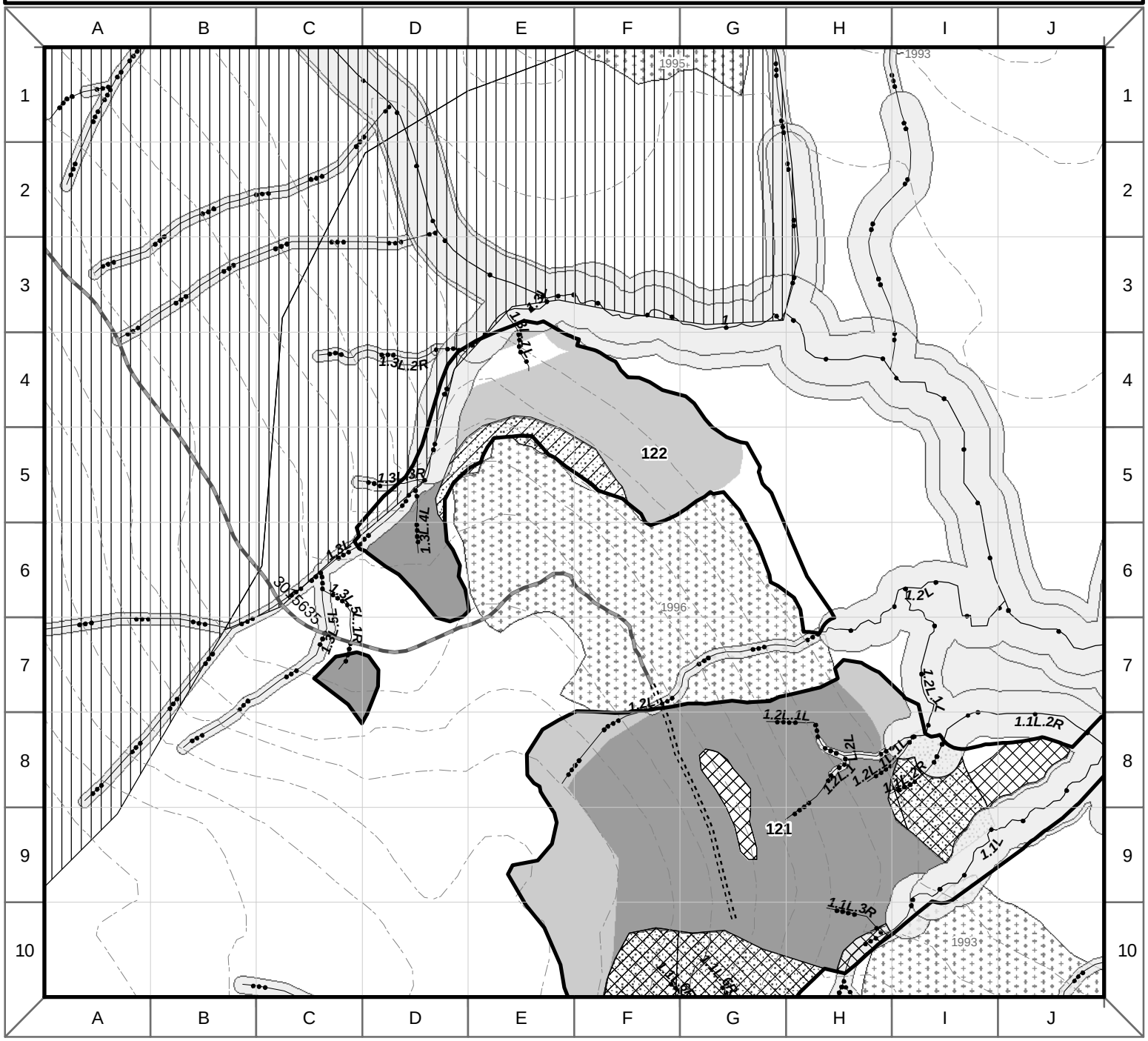
Unit Number 122 | **Alternative 3** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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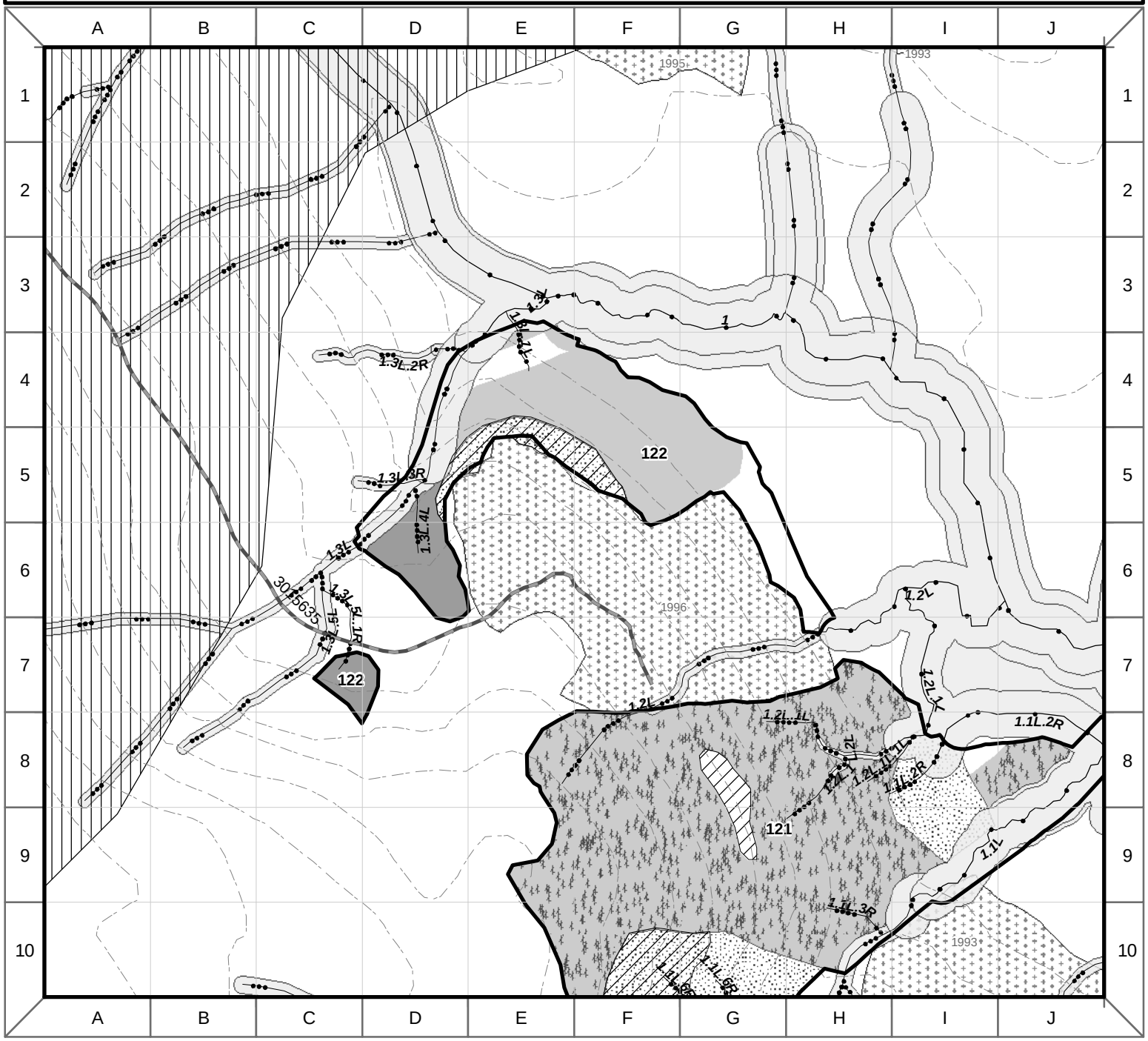
Unit Number 122 | **Alternative 4** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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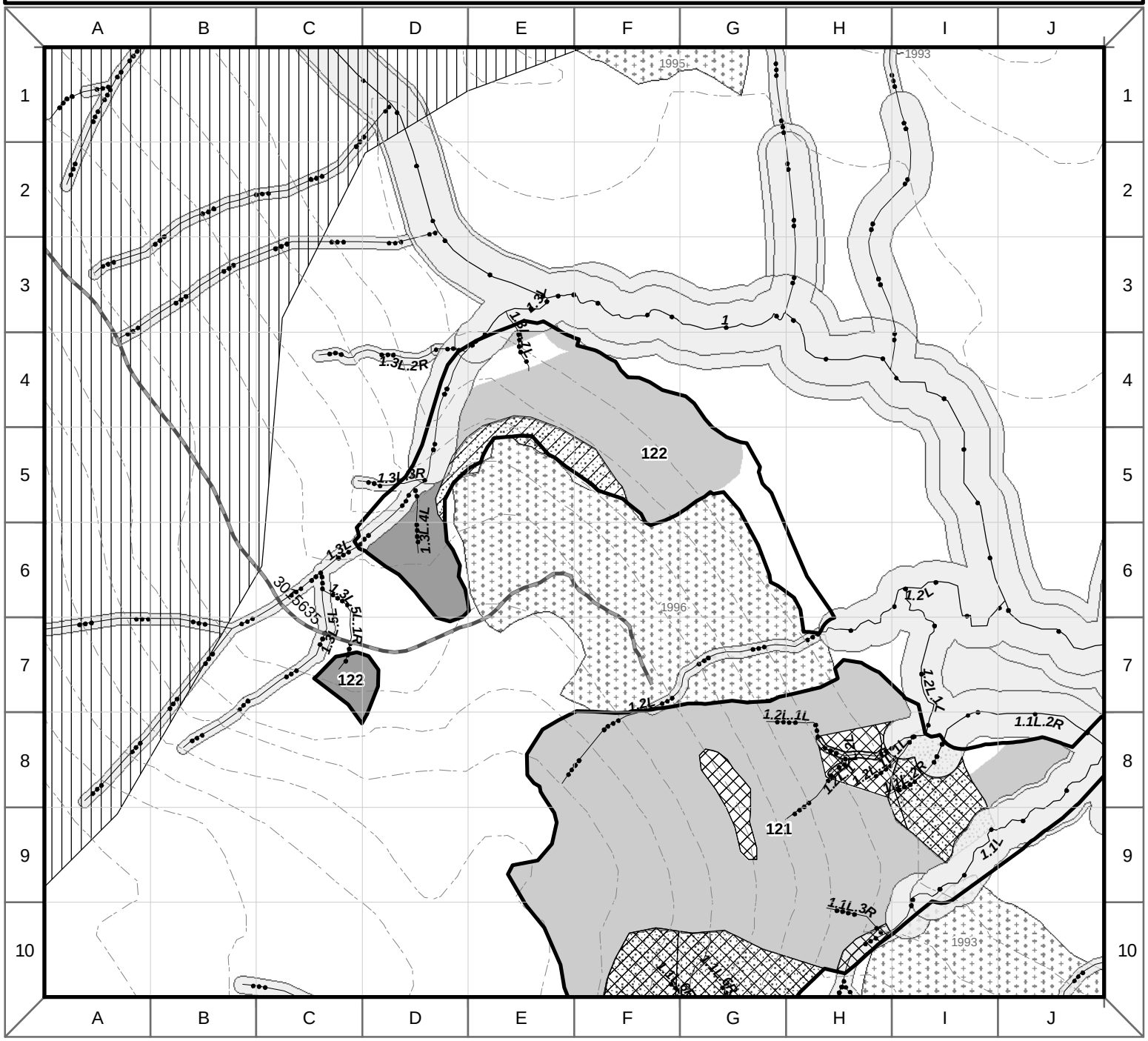
Unit Number 122 | **Alternative 5** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 123

Unit Number	123	Alternatives	2, 3, 5	Total Unit Acres:	20.2	Prescription:	Clearcut
VCU Number:	586	Harvest System:	Shovel, Helicopter	Net Harvest Volume (MBF):	532	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: The unit has old-growth to uneven-age stand characteristics. The overstory consists primarily of a mixture of western hemlock and western redcedar with lesser amounts of Sitka spruce. Overstory distribution is variable due to heavy windthrow. The northern 1/3 of the unit has rough trees due to heavy wind damage. Stem decay and wind are the main damage factors associated with tree health and volume loss. Mistletoe is light. Windthrow risk is high. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 9 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. The required legacy structure is placed to shorten required road length, block up POG, and build of the RMA's to provide RAW buffers. Mapped legacy acres equals about 9. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

Alternatives 2, 3: This unit is planned for shovel yarding. Shovel settings are planned for yarding to the proposed temporary road.

Alternative 5: This unit is planned for helicopter yarding to the existing NFS road 3000120.

ENGINEERING/ROADS:

Unit is accessed by proposed temporary road in Alternatives 2 and 3, totaling 1,500 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

One infestation of white sweet clover located along highway about 1/2 mile west of unit. Population has been treated; monitor and treat again, if plants are observed. This is the only population known in project area.

FISHERIES:

Streams are tributaries to the Thorne River estuary.

Stream#: 2 Class: II Flagging: B/W C- Type: MMO
Concerns: none
Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives 2, 3, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A

Stream#: 2.1R Class: II Flagging: B/W C- Type: HCO
Concerns: none

Unit 123

Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives 2, 3, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A

Stream#: 3 Class: II, III Flagging: B/W, O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class II for HCM greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break
Alternatives 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A and B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 123: Alternatives 2 and 3 -- No known stream crossings . If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit is mostly Very Low, but 5 acres are considered Low . It is entirely in Modified Landscape LUD and is mostly Not Seen. The lower 100 to 700 ft are in legacy, so they will provide some screening from the Control Lake-Thorne Bay highway; the nearest edge of the harvested area is about 2,000 ft away from the highway and there is topographic screening as well. There are no scenery resource concerns.

RECREATION:

No concerns

SOILS/WETLANDS:

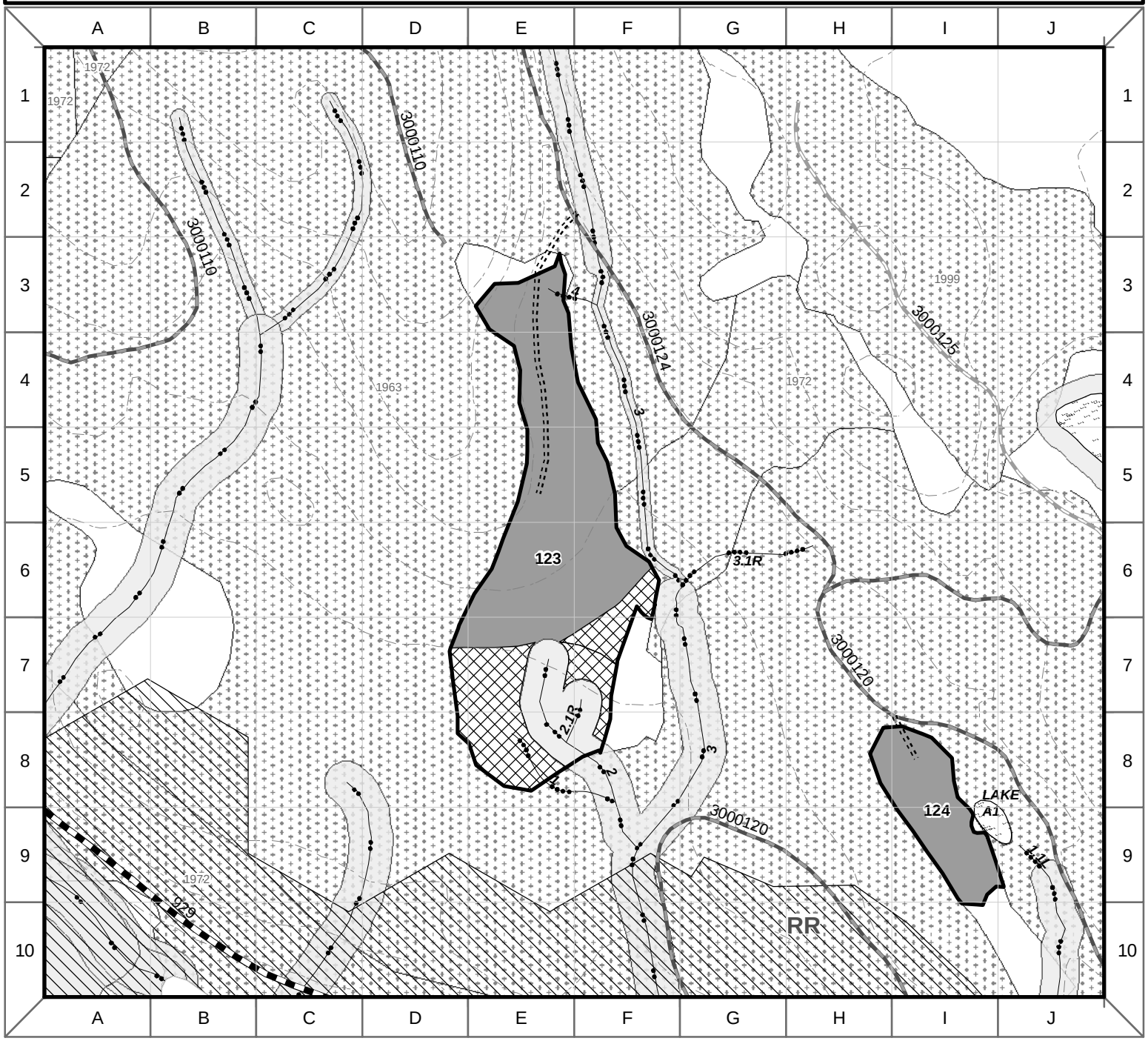
Slopes range from 20 to 45%. Forested wetlands are intermittent throughout the unit. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU; Legacy acres cover some deer winter range.

Alternative 4: Unit dropped because it provides a refugia surrounded by young-growth and to maintain other habitat values and minimize road building.

Unit Number 123 | **Alternative 2** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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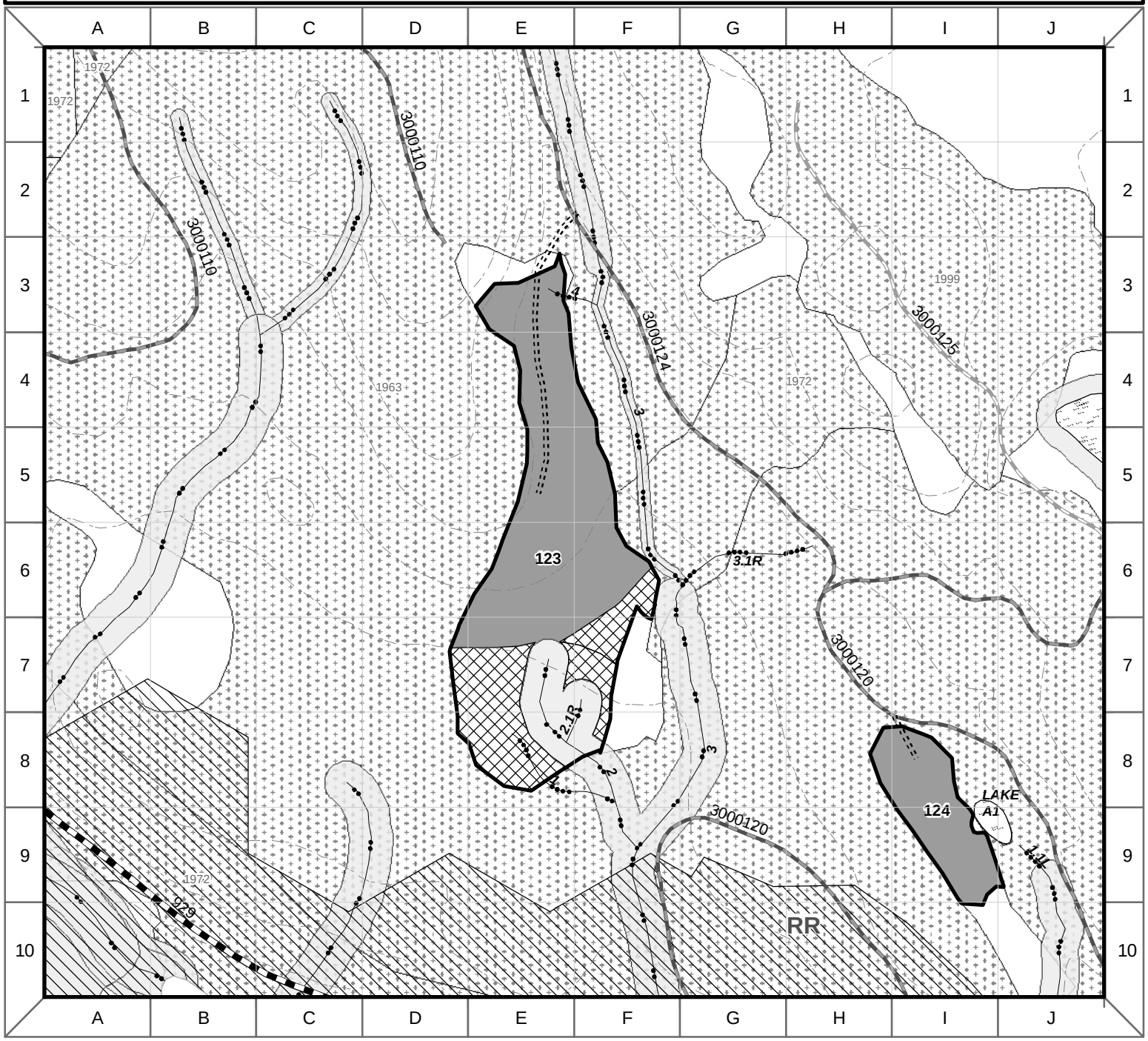
Unit Number 123 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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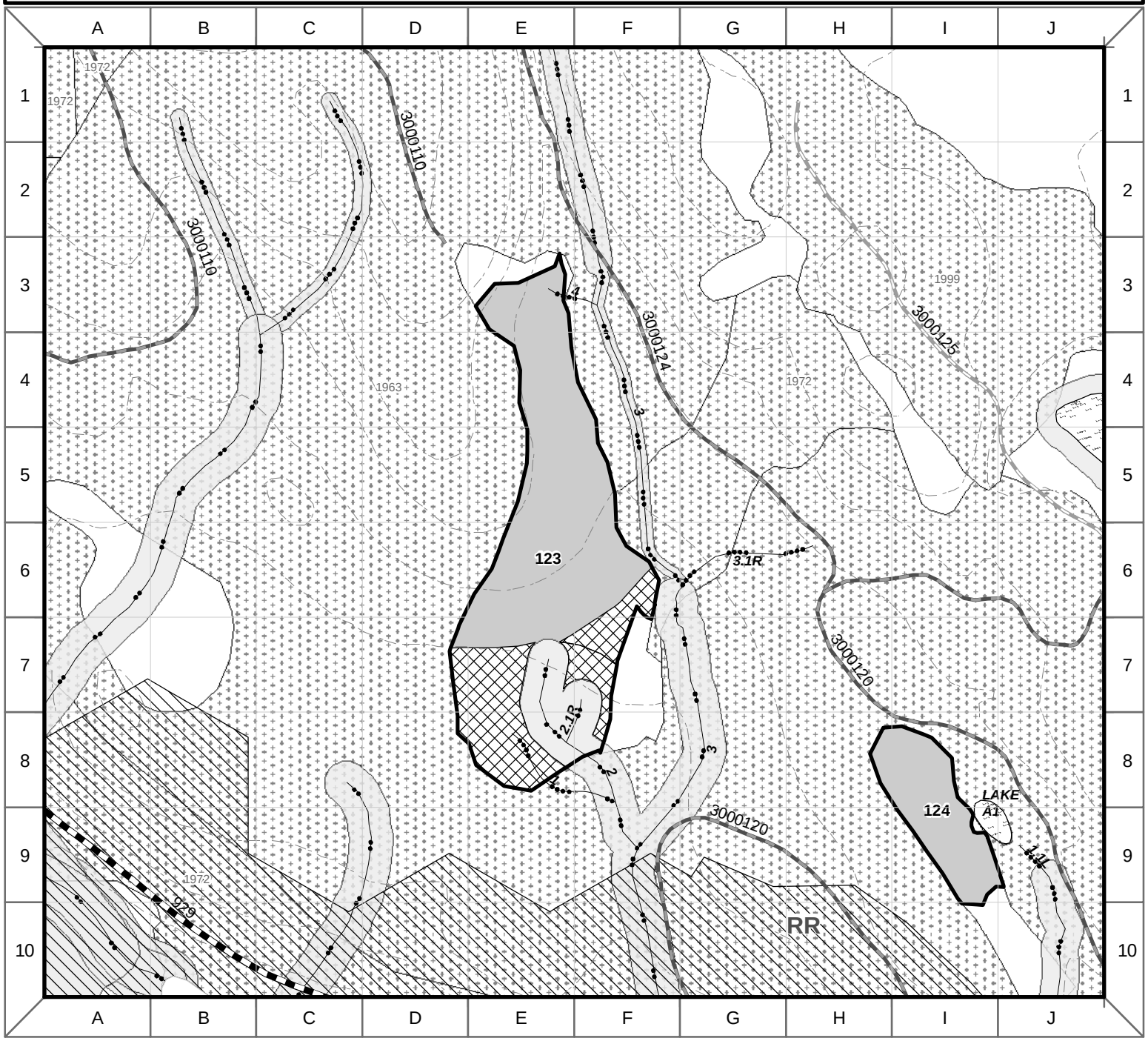
Unit Number 123 | **Alternative 5** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 124

Unit Number 124	Alternatives 2, 3, 5	Total Unit Acres: 6.3	Prescription: Clearcut
VCU Number: 586	Harvest System: Shovel, Helicopter	Net Harvest Volume (MBF): 125	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure. The overstory consists primarily of western hemlock and western redcedar. Sitka spruce is present, but widely scattered. Stem form (top damage) and moderate heart and stem rot in the western hemlock and western redcedar are the main damage agents affecting tree health and volume. The average defect is moderate with patches of high defect particularly where larger diameters trees occur. Numerous dead tops are in the western redcedar. Windthrow risk is moderate. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres therefore no legacy set-aside is required.

TIMBER/LOGGING:

Alternatives 2, 3: This unit is planned for shovel yarding to the proposed temporary road.

Alternative 5: This unit is planned for helicopter yarding to the existing NFS road 3000120.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road in Alternatives 2 and 3, totaling 200 feet, as displayed on the unit card. No road construction is proposed in Alternatives 4 and 5.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne Bay.

Stream#: 1.1L Class: III, IV Flagging: O/W, G/W C- Type: PAS, PAO
Concerns: none
Buffer (RMA): Class III for PAS consider no or limited harvest areas. Class IV for PAO none.
Alternatives 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: Lake-A1 Class: III Flagging: O/W C- Type: L
Concerns: none
Buffer (RMA): Class III for Lake-A1 consider no or limited harvest areas.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category B

Temporary roads for Unit 123: Alternatives 2 and 3 -- No known stream crossings . If any stream crossings are found,

crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit is Very Low . It is entirely in Modified Landscape LUD and is considered Not Seen. There are no scenery resource concerns.

RECREATION:

No concerns

SOILS/WETLANDS:

Slopes are nearly level. Forested wetlands are intermittent throughout the unit. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

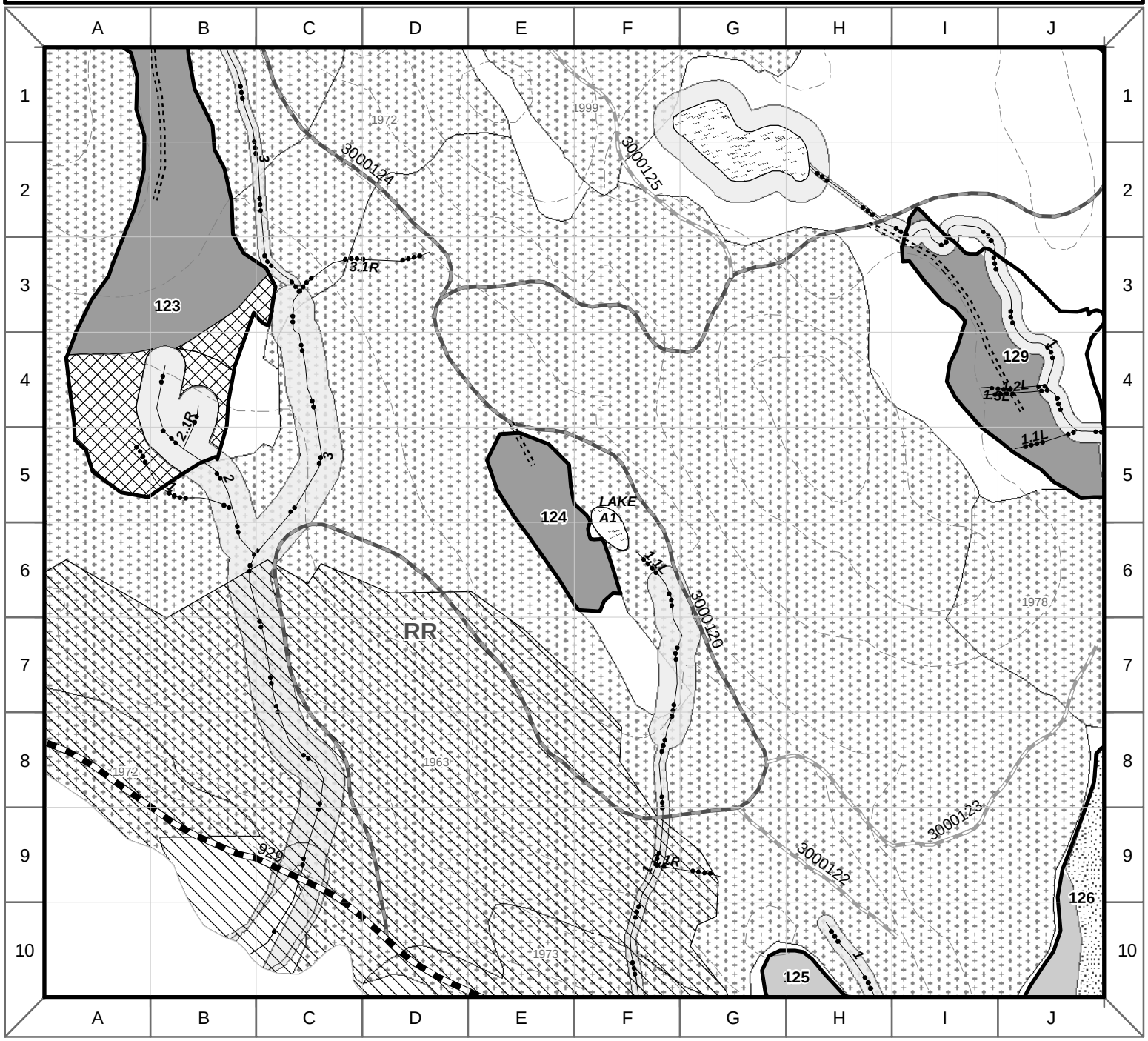
Based on GIS analysis, the proposed temporary road does not traverse any wetlands.

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Alternative 4: Unit dropped because it provides a refugia surrounded by young-growth and to maintain other habitat values and minimize road building.

Unit Number 124 | **Alternative 2** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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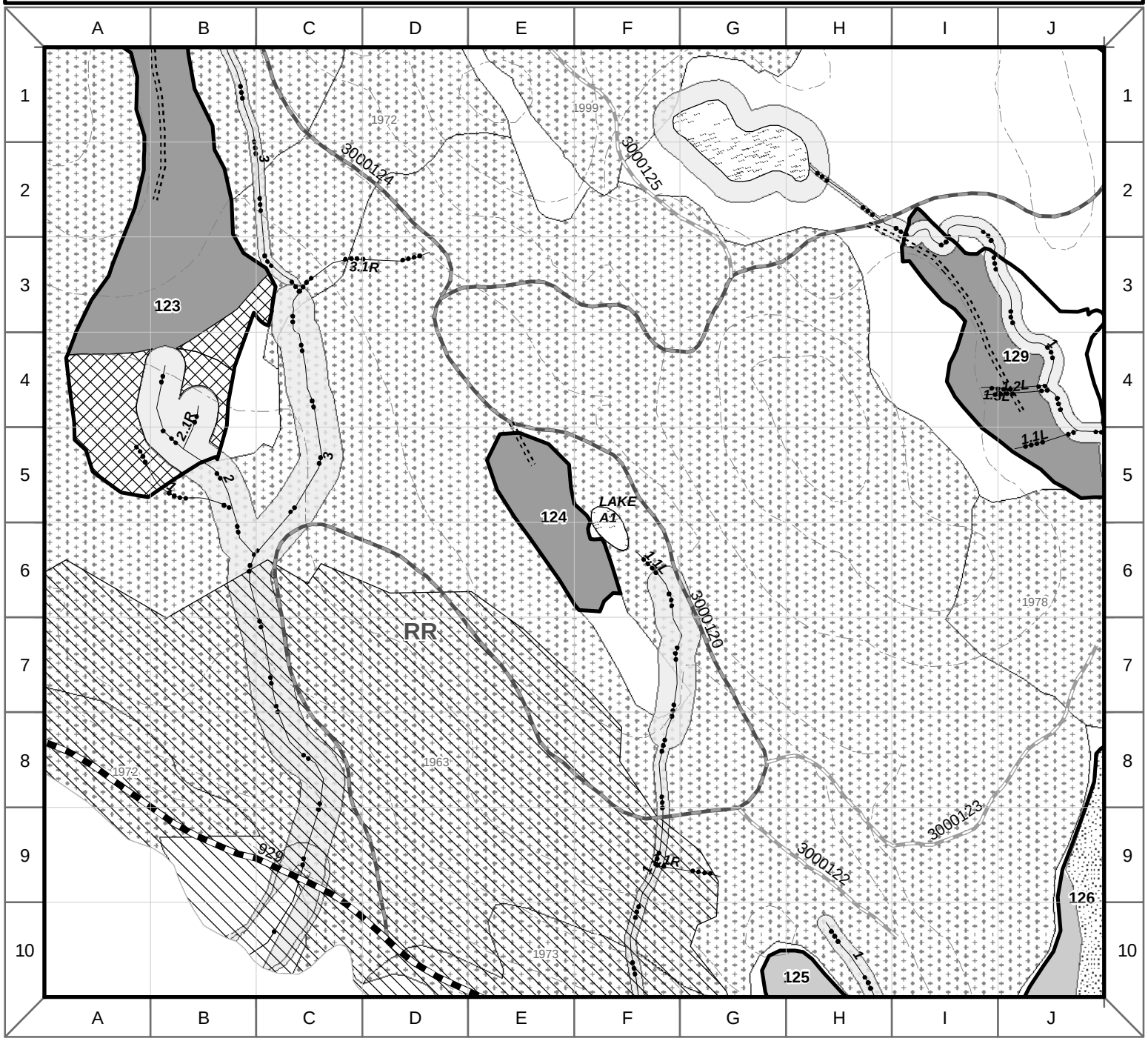
Unit Number 124 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500
Feet

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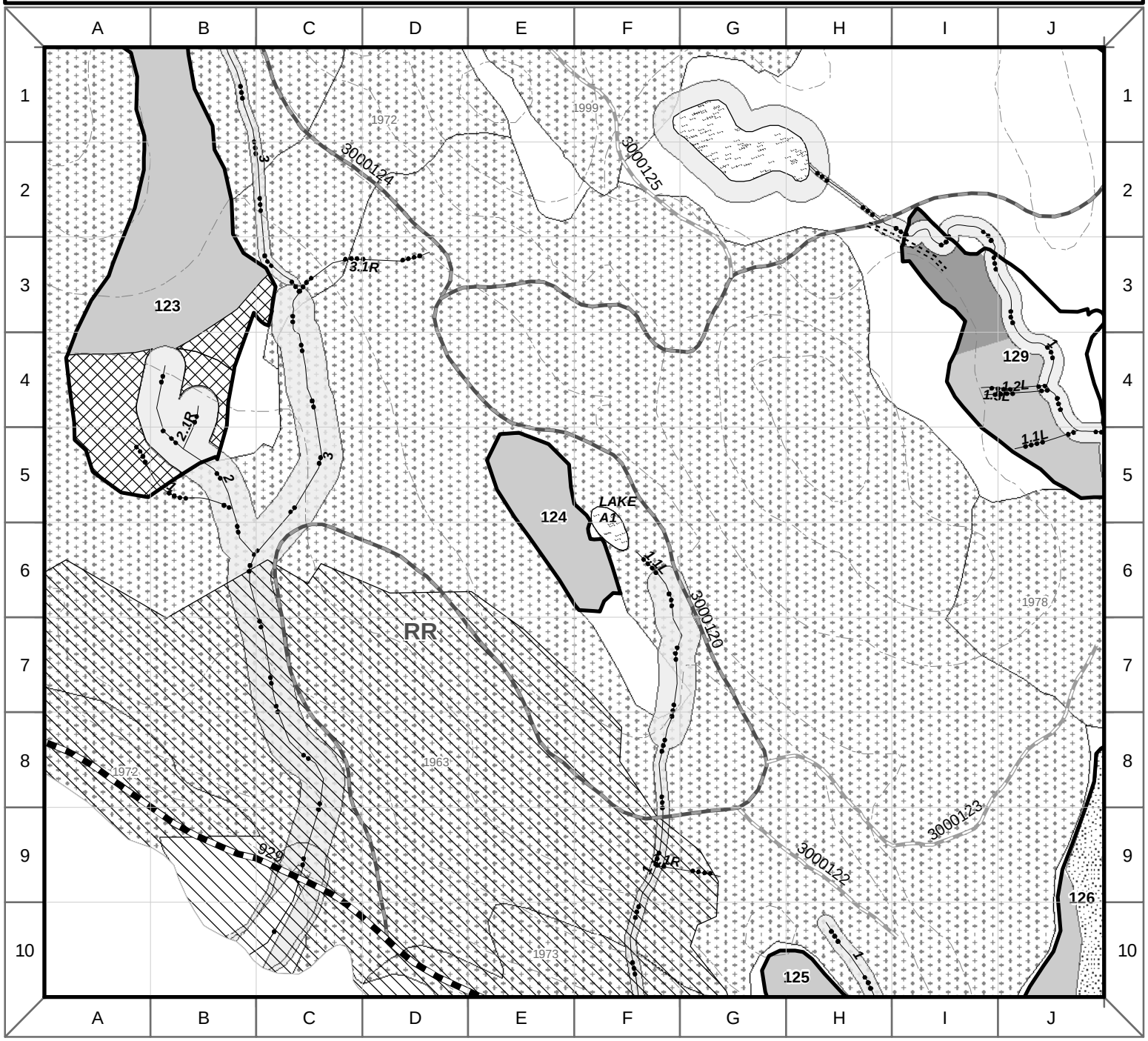
Unit Number 124 | **Alternative 5** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 125

Unit Number 125	Alternatives 2, 3, 5	Total Unit Acres: 6.4	Prescription: Clearcut
VCU Number: 586	Harvest System: Helicopter	Net Harvest Volume (MBF): 75	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure. The overstory consists primarily of western hemlock, along with western redcedar. Sitka spruce is present, but scattered. The main damage agents affecting tree health and volume are moderate mistletoe and moderate heartwood/stem decay. The unit has low volume due to past blowdown, small diameter trees and stem decay. The western redcedar generally has moderate to high defect, except for a clean pocket in the southeast portion of the unit west of the drainage. The northwestern section of the unit has the lowest and least amount of merchantable volume with the understory/midstory more prominent than the overstory, most likely from past blowdown. Windthrow risk is moderate overall. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on existing NFS road 3000120.

ENGINEERING/ROADS:

No proposed road construction

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne Bay.

Stream#: 1 Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

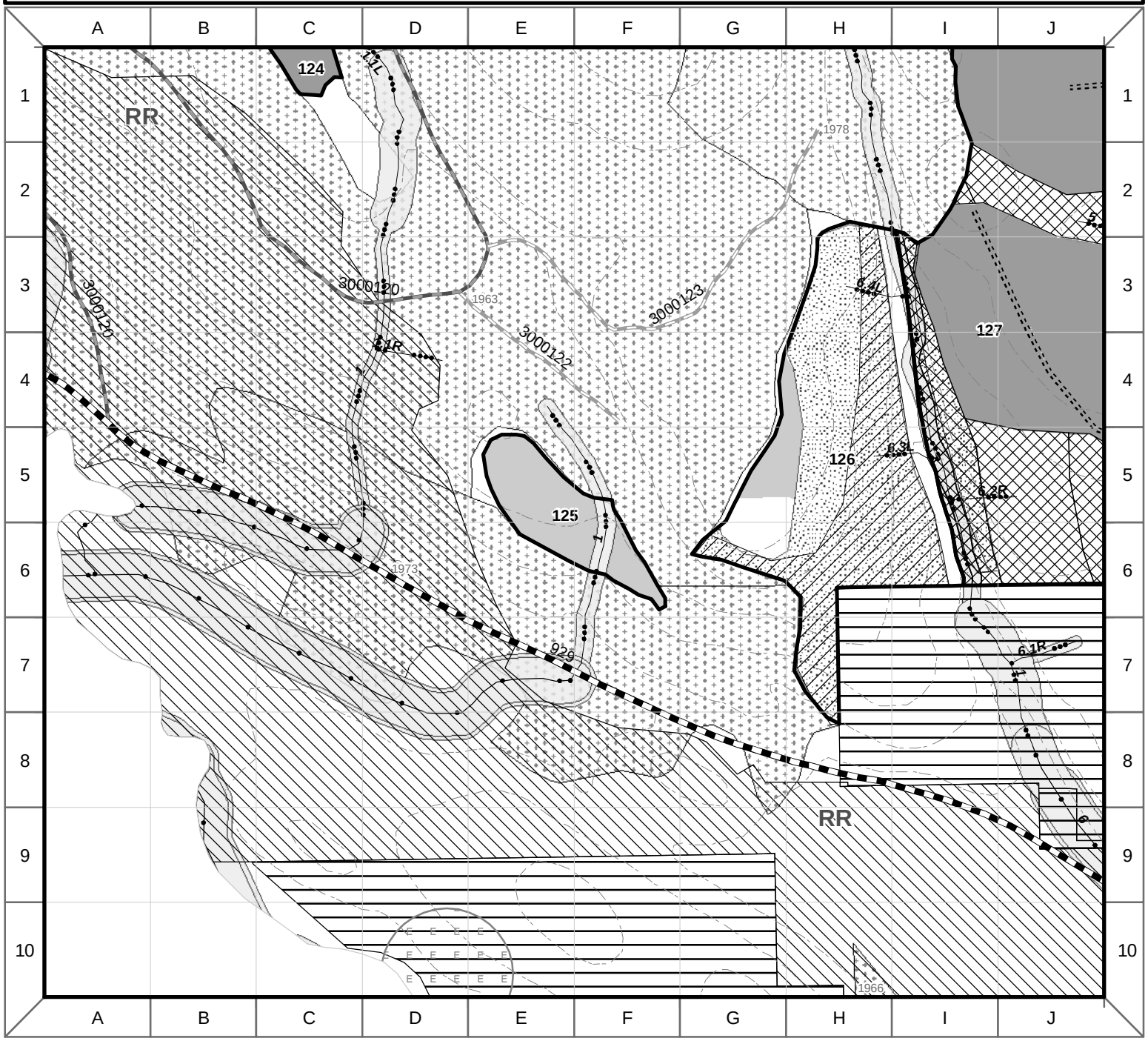
GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

Unit 125
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: The Scenic Integrity Objective (SIO) for this unit is Very Low . It is entirely in Modified Landscape LUD and is considered Not Seen. There are no scenery resource concerns.
RECREATION: No concerns
SOILS/WETLANDS: Slopes range from 20 to 50%. No wetlands have been mapped in the unit. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9)
WILDLIFE: Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres. Alternative 4: Unit dropped because it provides a refugia surrounded by young-growth and to maintain other habitat values.

Unit Number 125 | **Alternative 2** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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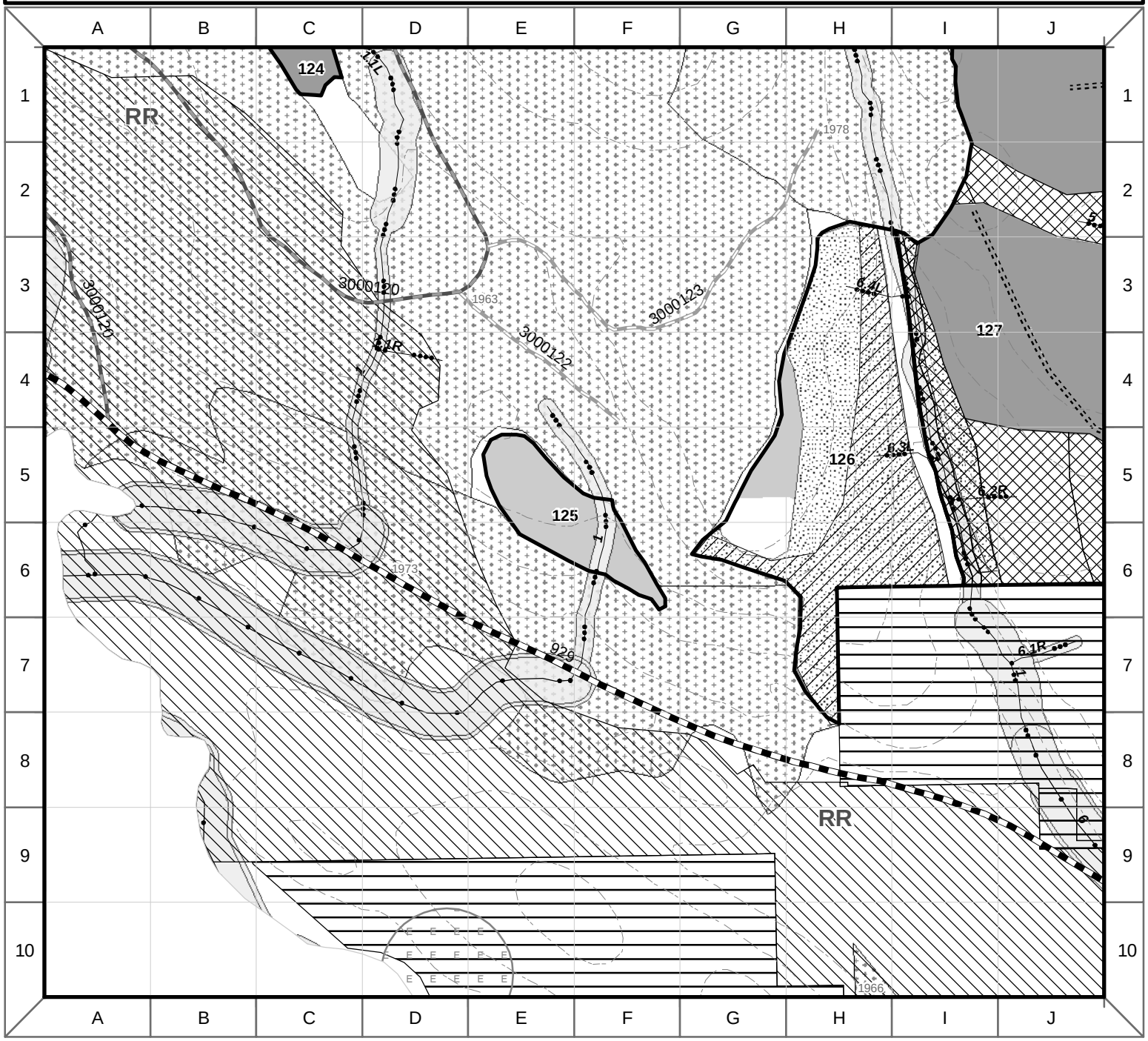
Unit Number 125 **Alternative 3** **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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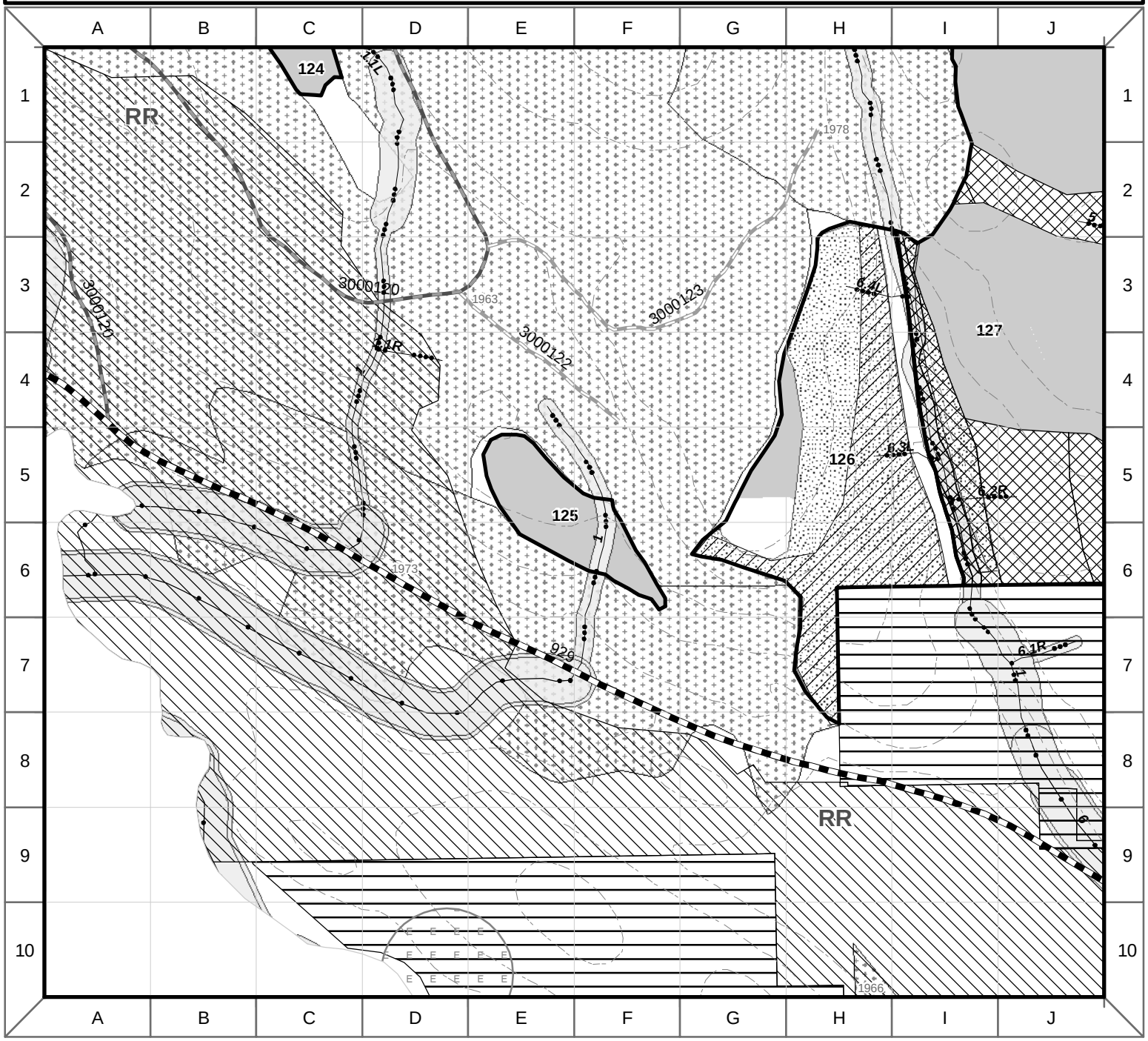
Unit Number 125 **Alternative 5** **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 126

Unit Number 126	Alternatives 2, 3, 5	Total Unit Acres: 2.3	Prescription: Clearcut
VCU Number: 586	Harvest System: Helicopter	Net Harvest Volume (MBF): 56	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit has predominantly old-growth stand structure. The overstory consists of a mixture of western hemlock, western redcedar and Sitka spruce with moderate defect. Stem decay coupled with wind damage are the primary damage agents. Overall the unit has high wind risk with several areas blowdown. Areas of advanced regeneration with variable densities and ages have occupied these openings. Throughout most of the unit scattered pockets of larger, lower defect western redcedar and Sitka spruce are present, especially along benches. Windthrow risk is high. Mistletoe occurrence is low. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objective

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on existing NFS road 3000120.

ENGINEERING/ROADS:

No proposed road construction

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

All streams are tributaries to Thorne Bay.

Stream#: 6 Class: II, III Flagging: B/W, O/W C- Type: HCD
Concerns: none
Buffer (RMA): Class II for HCD greater of 100 feet or to the top of the side-slope break. Class III for HCD to the top of the side-slope break.
Alternatives 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A and B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

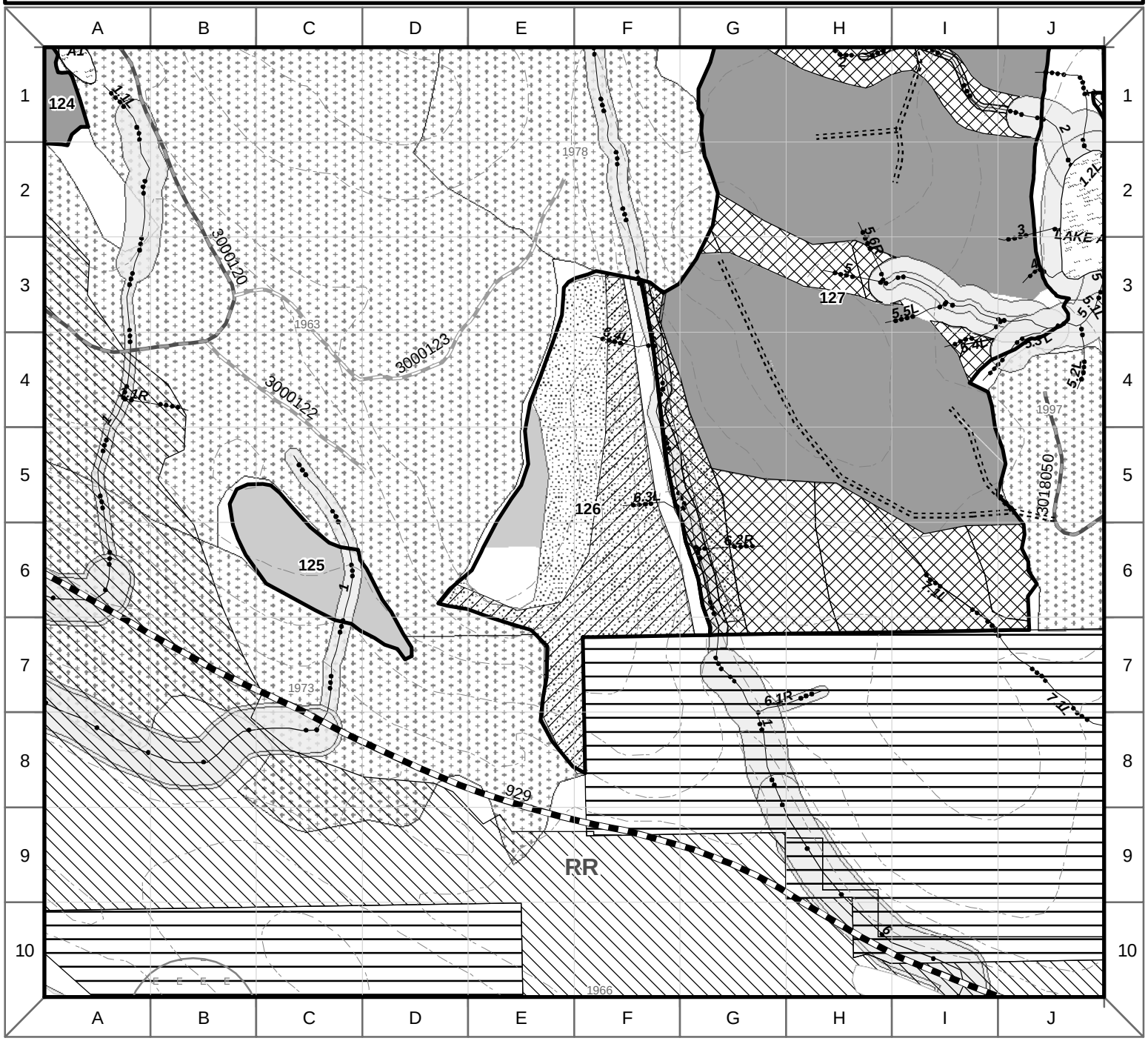
GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

Unit 126
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance. The physical boundaries of the unit are not to be modified without input from a Forest Service heritage specialist.
SCENERY: The Scenic Integrity Objective (SIO) for this unit is Very Low . It is entirely in Modified Landscape LUD and is considered Not Seen. There are no scenery resource concerns.
RECREATION: No concerns
SOILS/WETLANDS: Slopes in the unit range from 12% to 150%. All slopes greater than 60% are located within the soil deferral. About 28 acres were excluded due to unstable soils and steep slopes. Forested wetlands were identified in the field but are within the soil deferral area. In the remainder of the unit, a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern 1/2 of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres. Alternative 4: Unit dropped because it provides a refugia surrounded by young-growth and to maintain other habitat values.

Unit Number 126 | **Alternative 2** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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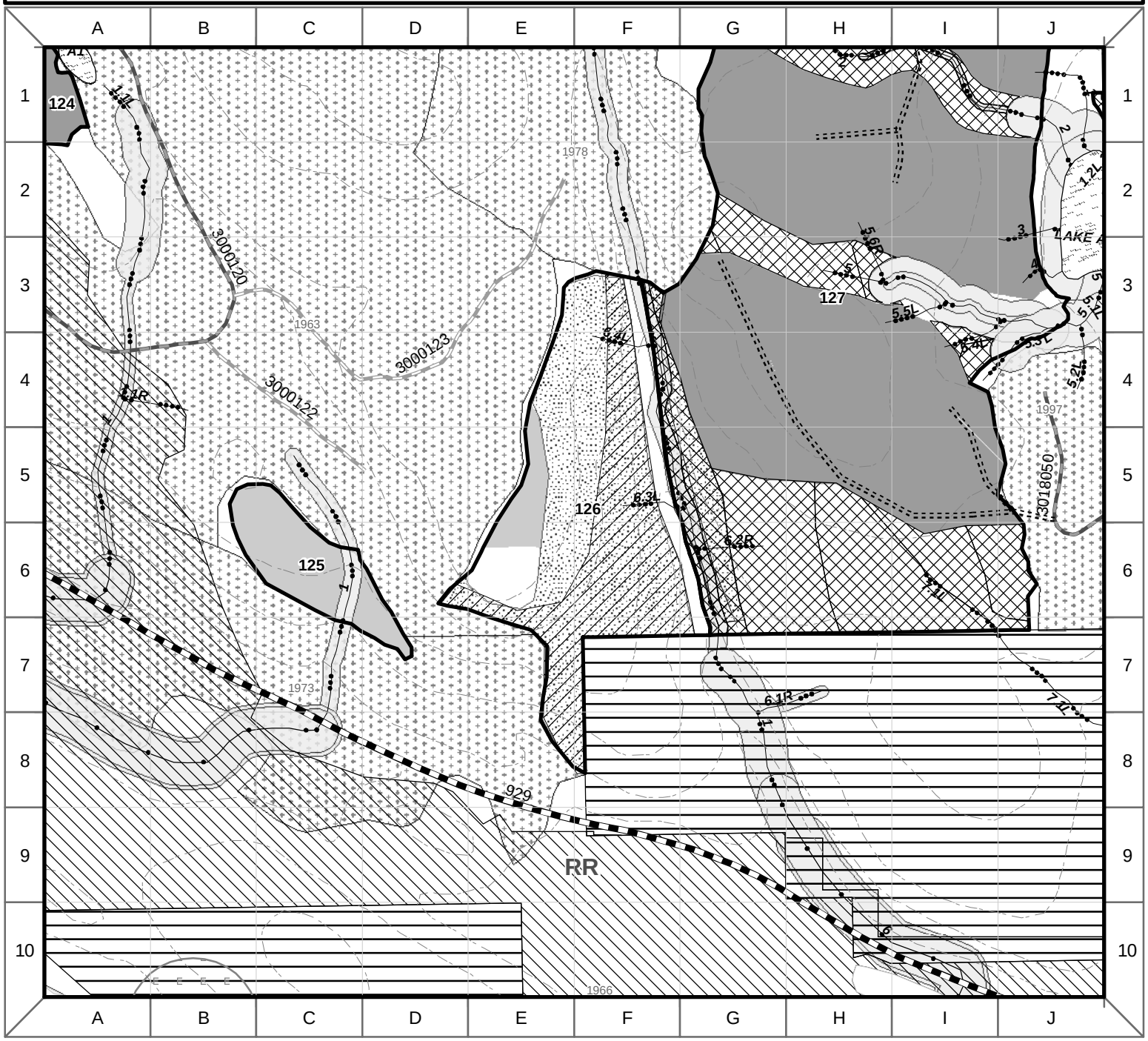
Unit Number 126 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

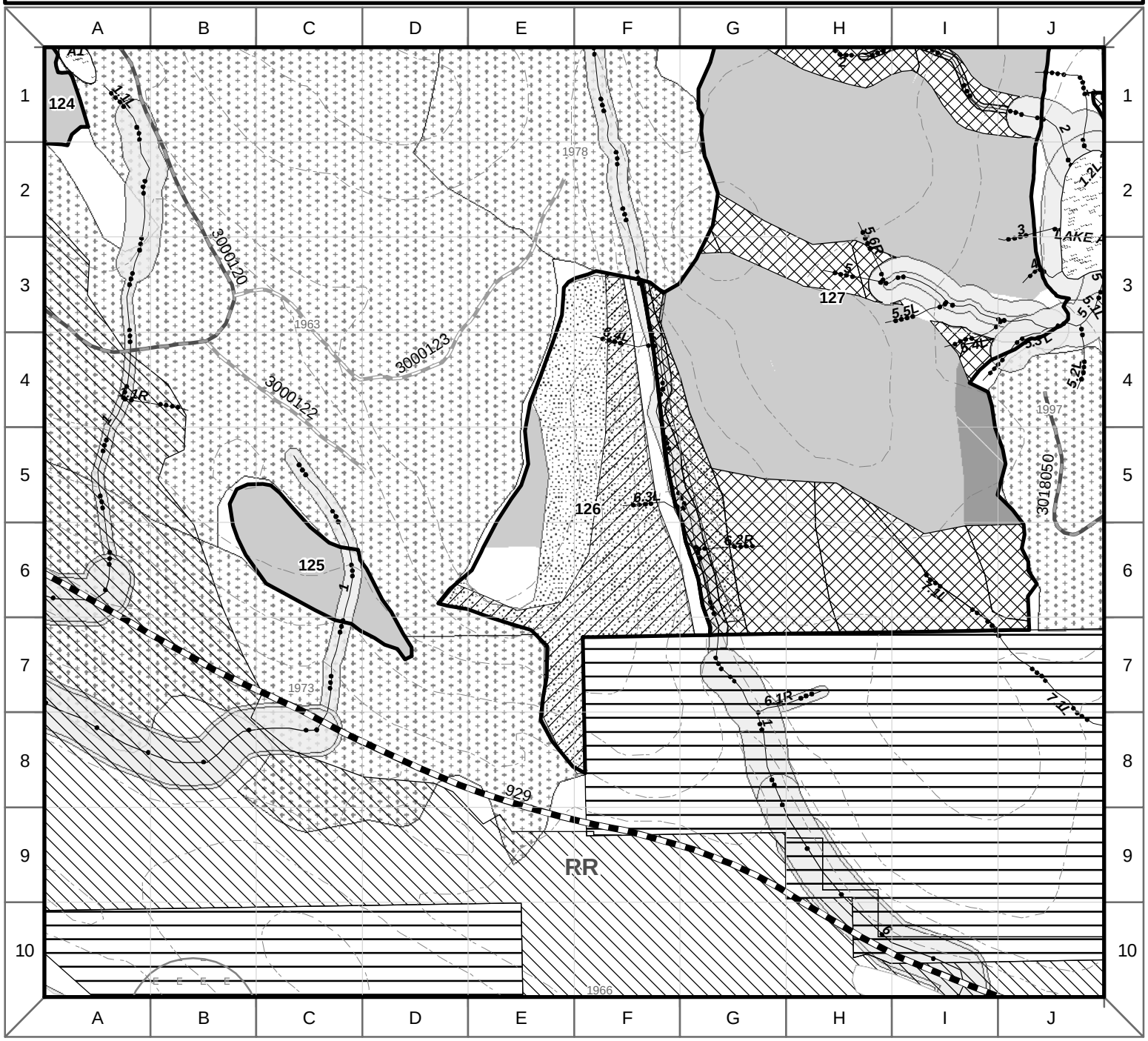
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt3.mxd 14 July 2012

Unit Number 126 | **Alternative 5** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

0 500 Feet

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Unit 127

Unit Number	127	Alternatives	2, 3, 4, 5	Total Unit Acres:	82.8	Prescription:	Clearcut
VCU Number:	586	Harvest System:	Cable, Shovel, Helicopter	Net Harvest Volume (MBF):	2,063	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 127 has predominantly old-growth stand structure. The overstory consists of a mixture of mature western hemlock, western redcedar and Sitka spruce. Volume growth is static. Moderate stem decay coupled with windthrow are the primary damages. Overall the unit has high wind risk with several areas blowdown. Mistletoe is light. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objective.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible. Tongass Wide Young Growth Study (TWYGS) sites (POW Thorne Bay Experiment #1 and POW Overview East Experiment #1) are along the southeastern and northern boundaries. Protection of these sites are required. Contact the Forestry Sciences Lab in Juneau for additional information.

The legacy standard and guide applies in this VCU. This requires that approximately 38 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy in SW placed to create a 60-ac block of POG (together with soils drops to the west in unit 126) surrounding RMA and to reduce visual effects from Thorne Bay. Legacy at NW placed to reduce required roading and create a 6-ac POG patch. Legacy also builds off RMAs, divides the opening into three, and includes some unsuitable soils. Mapped legacy equals about 44 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

Alternatives 2, 3, 4: This unit is planned for a combination of shovel and cable yarding. Cable settings are planned for uphill and downhill yarding to landings on the proposed temporary roads. Shovel settings are planned for yarding to the proposed temporary road.

Alternative 5: This unit is planned for a combination of shovel and helicopter yarding. Shovel settings are planned for yarding to the existing NFS road 3018050. Helicopter yarding is planned to landings on the existing NFS road 3018050.

ENGINEERING/ROADS:

Unit is accessed by four proposed temporary roads in Alternatives 2,3, and 4, totaling 5,000 feet, as displayed on the unit card. Southern temporary road system may need to be adjusted to avoid TWYGS study area.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 127

Streams are tributaries to Deer Creek. Stream 1 characteristics are not based on project specific field verified information.

Stream#: 6 Class: II, III Flagging: B/W, O/W C- Type: HCD
Concerns: none
Buffer (RMA): Class II for HCD greater of 100 feet or to the top of the side-slope break. Class III for HCD to the top of the side-slope break.
Alternatives 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A and B

Stream #: 2 Class: II, III IV Flagging: B/W, O/W, G/W C- Type: HCO, MMO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class III for HCO to the top of the side-slope break. Class IV for MMO.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A, B and C

Stream #: 5 Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A and C

Stream #: 5.1 Class: II Flagging: B/W C- Type: MMO
Concerns: none
Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category A

Stream #: Lake-A1 Class: II Flagging: B/W C- Type: L
Concerns: none
Buffer (RMA): Lake A-1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 127: Alternatives 2, 3, and 4 -- One Class III stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any additional stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit consists of about 55 acres of Low and 33 acres of Very Low . It is entirely in Modified Landscape LUD and is partially in Middleground from the Thorne Bay to Sandy Beach Rd at a distance of at least 3,300 ft and from Thorne Bay Saltwater Use Area at a distance of more than 4,000 ft. Legacy polygons serve to break up the unit into three openings; thus eliminating scenery resource concerns.

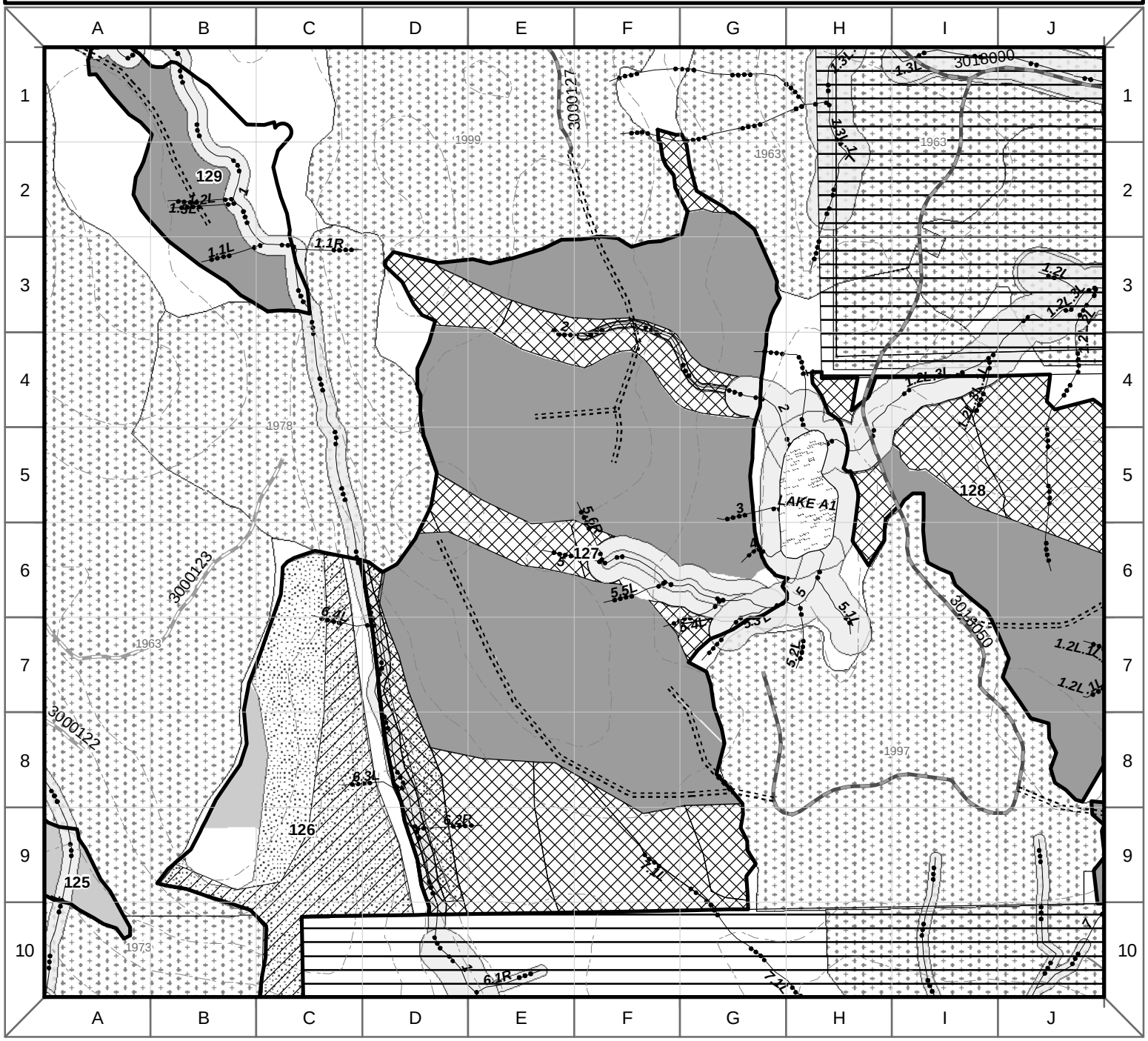
RECREATION:

No concerns

SOILS/WETLANDS:

Unit 127
Slopes range from 20 to greater than 60%. There are steep slopes along the western boundary that are included in an unsuitable soil exclusion area. About 6 acres were excluded due to very high landslide potential, colluvial activity, and steep slopes adjacent to a steep v notch. Forested wetlands are found in the northern half of the unit. In the remaining unit, the soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern lobe and western 1/2 of unit). Legacy standard and guideline applies in this VCU; Legacy acres cover some deer winter range and marten habitat.

Unit Number 127 | **Alternative 2** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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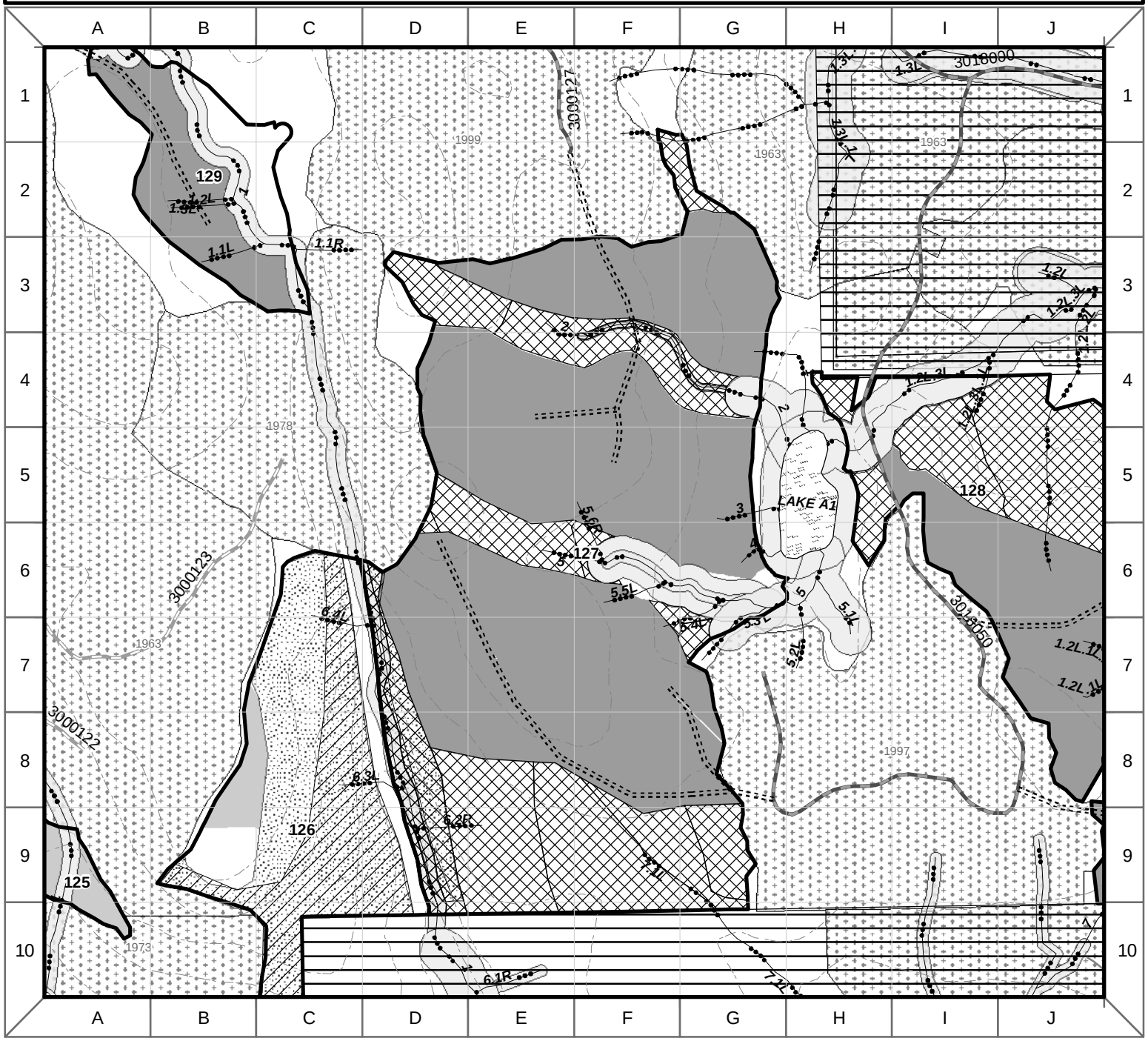
Unit Number 127 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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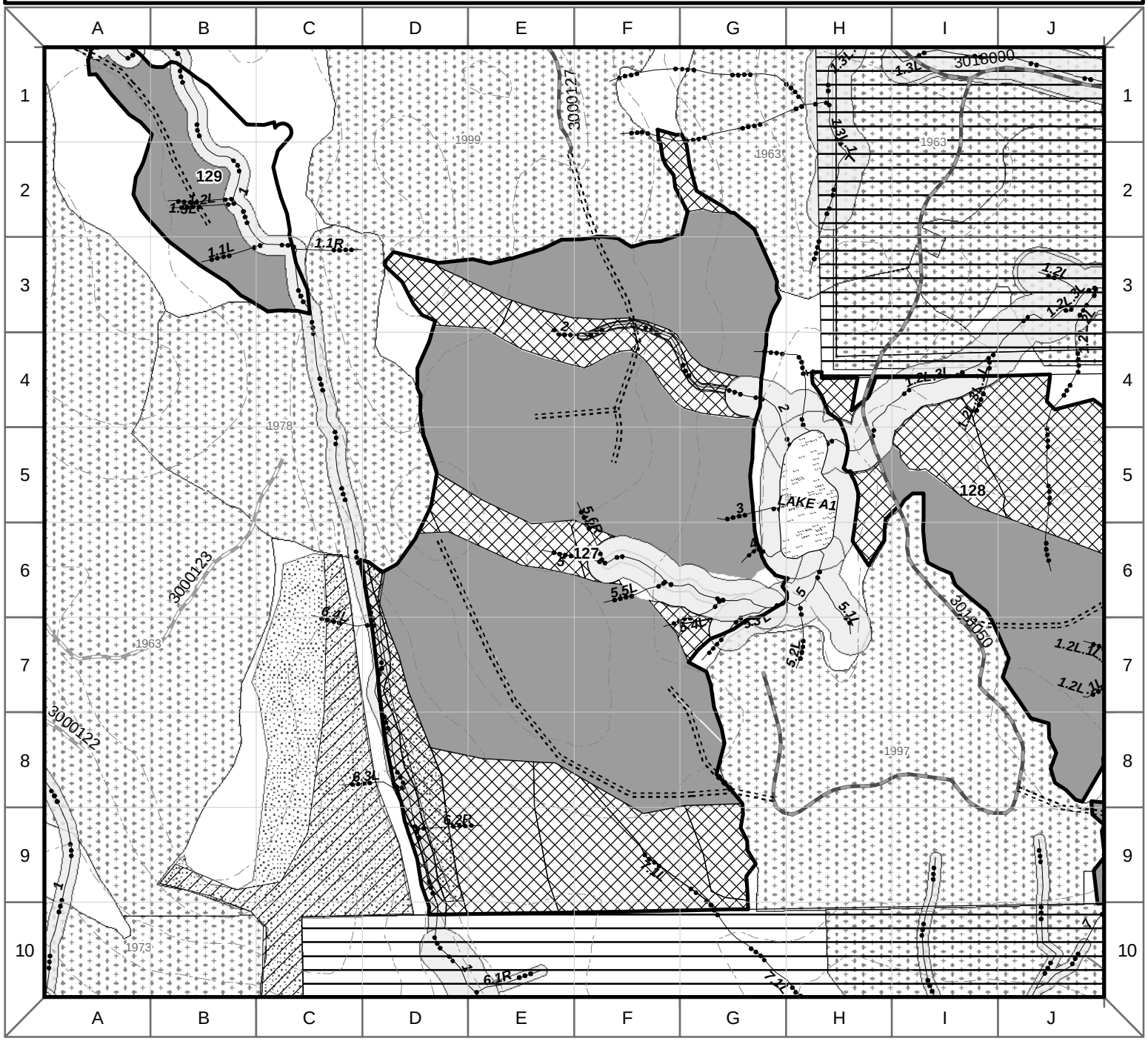
Unit Number 127 | **Alternative 4** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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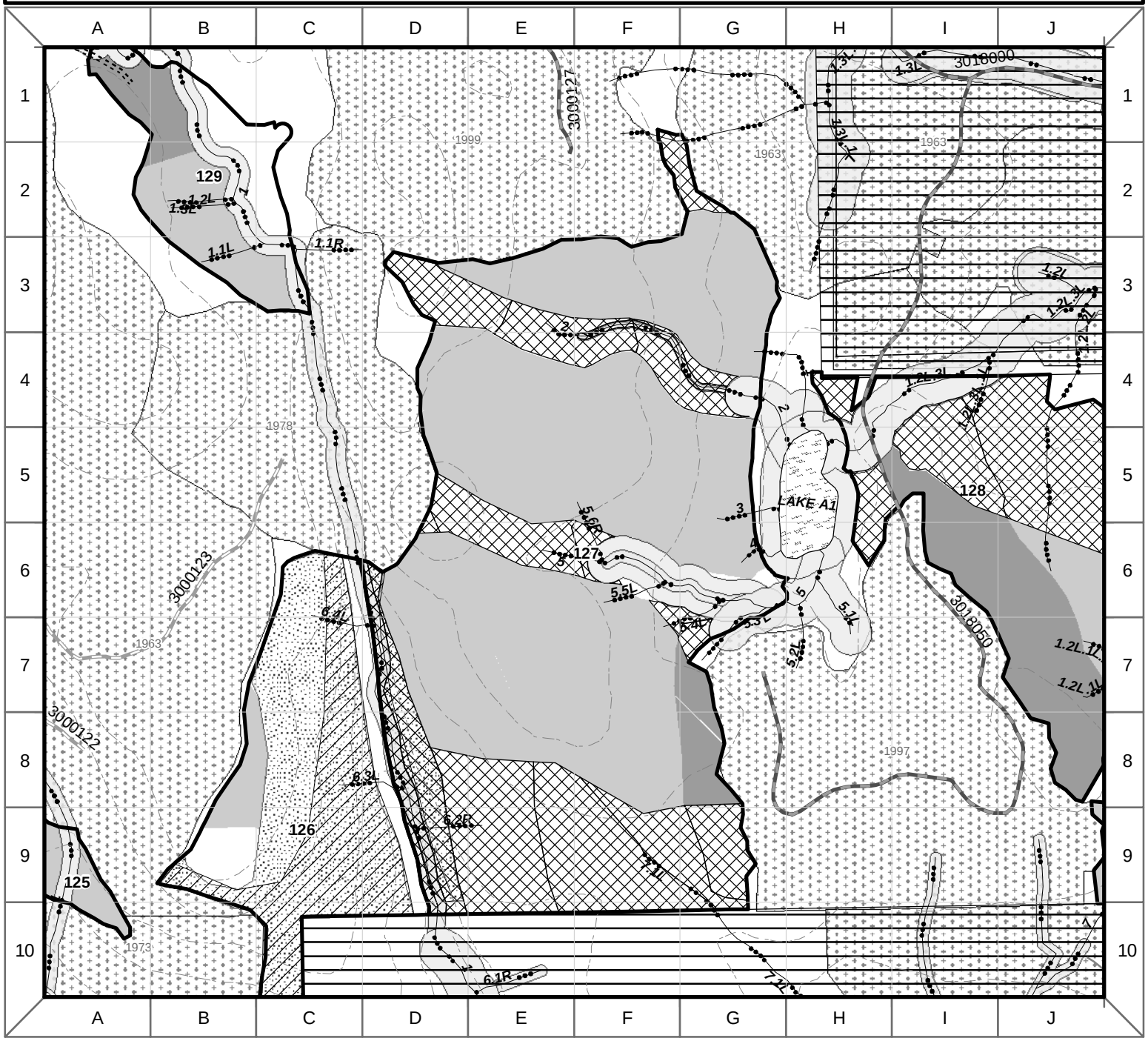
Unit Number 127 | **Alternative 5** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 128

Unit Number	128	Alternatives	2, 3, 4, 5	Total Unit Acres:	54.0	Prescription:	Clearcut
VCU Number:	586 0	Harvest System:	Shovel, Helicopter	Net Harvest Volume (MBF):	1,016	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit varies from old-growth to uneven-age stand structure. The overstory consists of western hemlock with western redcedar and Alaska-cedar mixed in. There is a high abundance of mistletoe and heart rot in the western hemlock. The larger diameter cedars also were high defect. Mid-diameter cedar are generally low defect. Significant older wind damage was noted in the unit resulting in a heavy stocking of western hemlock in the midstory. These areas have an uneven-age appearance. Windthrow risk is high. Mistletoe is high. A past harvest to the west on USFS land has met green-up with regeneration over 5' tall. The harvest areas on state land adjacent to the northern and southern boundaries are more recent and have not yet reached the green-up requirement, but do not count towards USFS opening size restrictions.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

A Tongass Wide Young Growth Study site (POW Thorne Bay Experiment #1) is along the western boundary. Protection of this site is required. Contact the Forestry Sciences Lab in Juneau for additional information.

The legacy standard and guide applies in this VCU. This requires that approximately 23 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy is placed to exclude two sensitive plant populations from harvest, build off RMAs for wind firming and block up POG, maintain east-west and north-south connectivity, and exclude unsuitable soils. Total mapped legacy equals approximately 24 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

Alternatives 2, 3, 4: This unit is planned for shovel yarding. Shovel settings are planned for yarding to the proposed temporary roads and existing NFS road 3018050.

Alternative 5: This unit is planned for a combination of shovel and helicopter yarding. Shovel settings are planned for yarding to the existing NFS road 3018050. Helicopter settings are planned for yarding to landings on the existing NFS road 3018050. Some yarding through young-growth will be necessary. Yarding should be conducted using corridors to reduce impacts on young-growth.

ENGINEERING/ROADS:

Unit is accessed by two proposed temporary roads in Alternatives 2,3, and 4, totaling 2,900 feet, as displayed on the unit card.

BOTANY:

Two lesser round-leaved orchid (sensitive plant) populations (5 and 24 individuals) were entirely incorporated into legacy, while still allowing access to existing road.

This unit indirectly affects the two populations in Legacy, located in the north and central portions of the unit.

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Slide Creek.

Stream#: 1.2L.1L Class: II, IV Flagging: B/W, G/W C- Type: MMO, HCO, HCM
Concerns: blowdown
Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO and HCM greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be determined by IDT during layout.
Protection: Category A and C

Stream#: 1.2L.3L Class: II Flagging: B/W C- Type: MCS, PAB, HCM
Concerns: none
Buffer (RMA): Class II for MCS and HCM greater of 100 feet or to the top of the side-slope break. Class II for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be determined by IDT during layout.
Protection: Category A

Stream#: 5.1L Class: II Flagging: B/W C- Type: MMO
Concerns: none
Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category A

Stream #: Lake-A1 Class: II Flagging: B/W C- Type: L
Concerns: none
Buffer (RMA): Lake A-1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 128: Alternatives - 2, 3, and 4 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit is Very Low . It is entirely in Modified Landscape LUD and is considered Not Seen. There are no scenery resource concerns.

RECREATION:

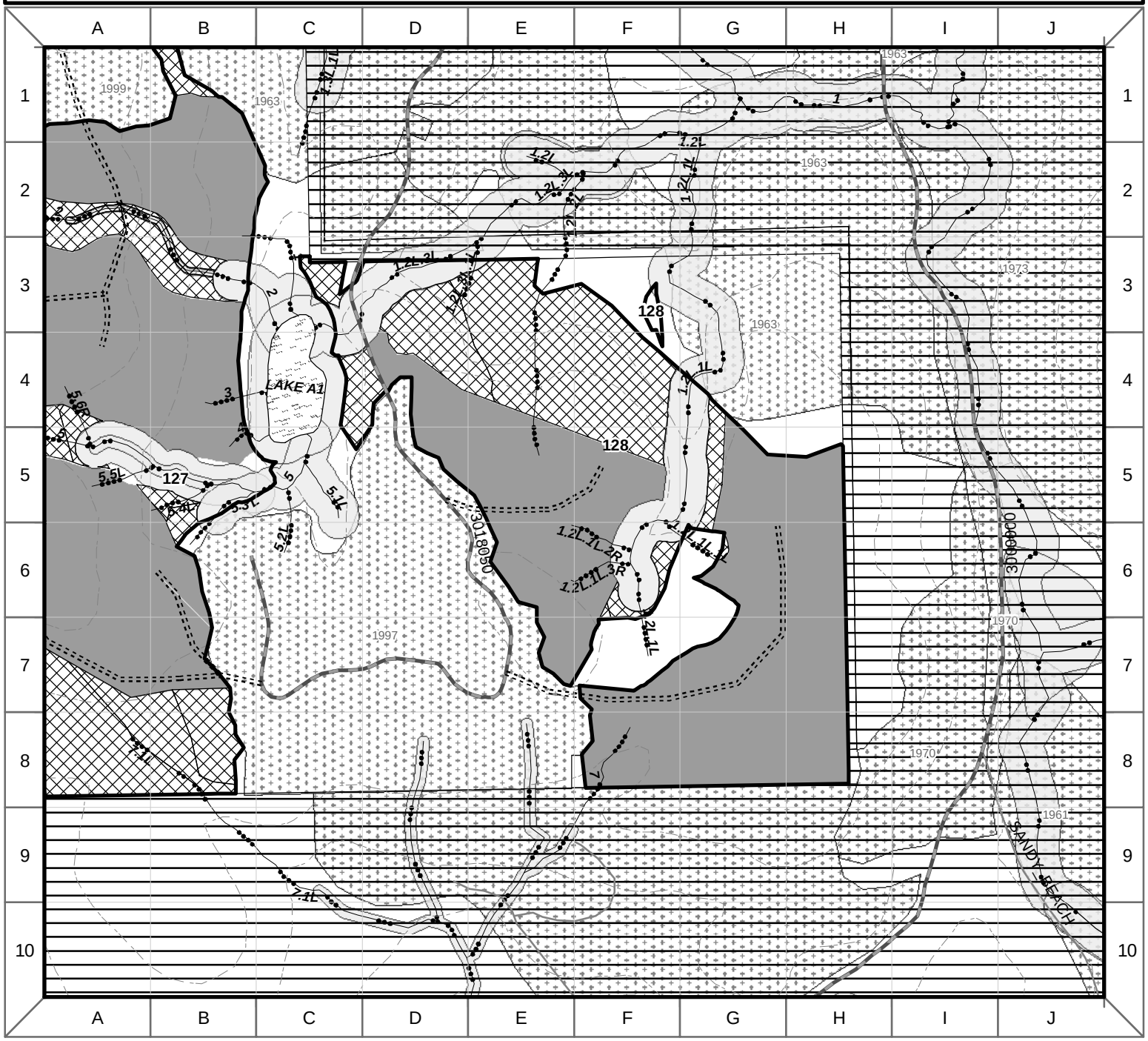
No concerns

SOILS/WETLANDS:

The northwestern portion of the unit has slopes ranging from 15 to 35%. In the southeastern portion of unit, the slopes range from 30 to 55%. In the southwestern area, a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). There are intermittent forested wetlands in the unit. There are about 40% forested wetland along the proposed road line. There is a muskeg located in the central west part of the southeast area. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

Unit 128
Alternatives 2, 3, and 4: A temporary road will impact about 1/4 acre of forested wetland within the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4,5, 6). Alternative 5: No temporary roads.
WILDLIFE: Unit includes average snow deer winter range (nearly all of unit), some of which is also deep snow marten habitat/deer winter range (eastern and western portions of unit). Legacy standard and guideline applies in this VCU; Legacy acres cover some deer winter range and marten habitat, and reduce required road construction.

Unit Number 128 | **Alternative 2** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N S E W

0 500
Feet

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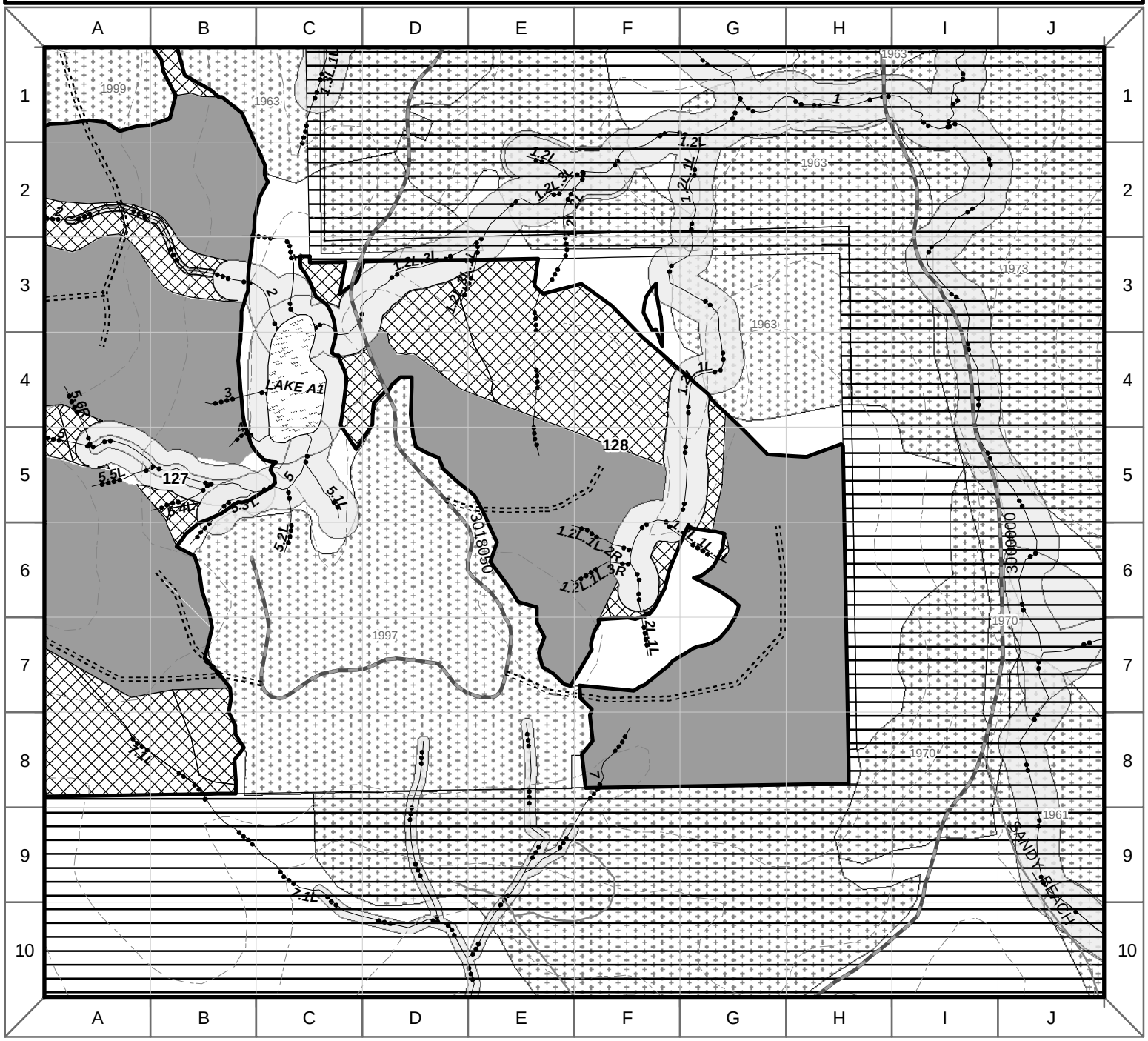
Unit Number 128 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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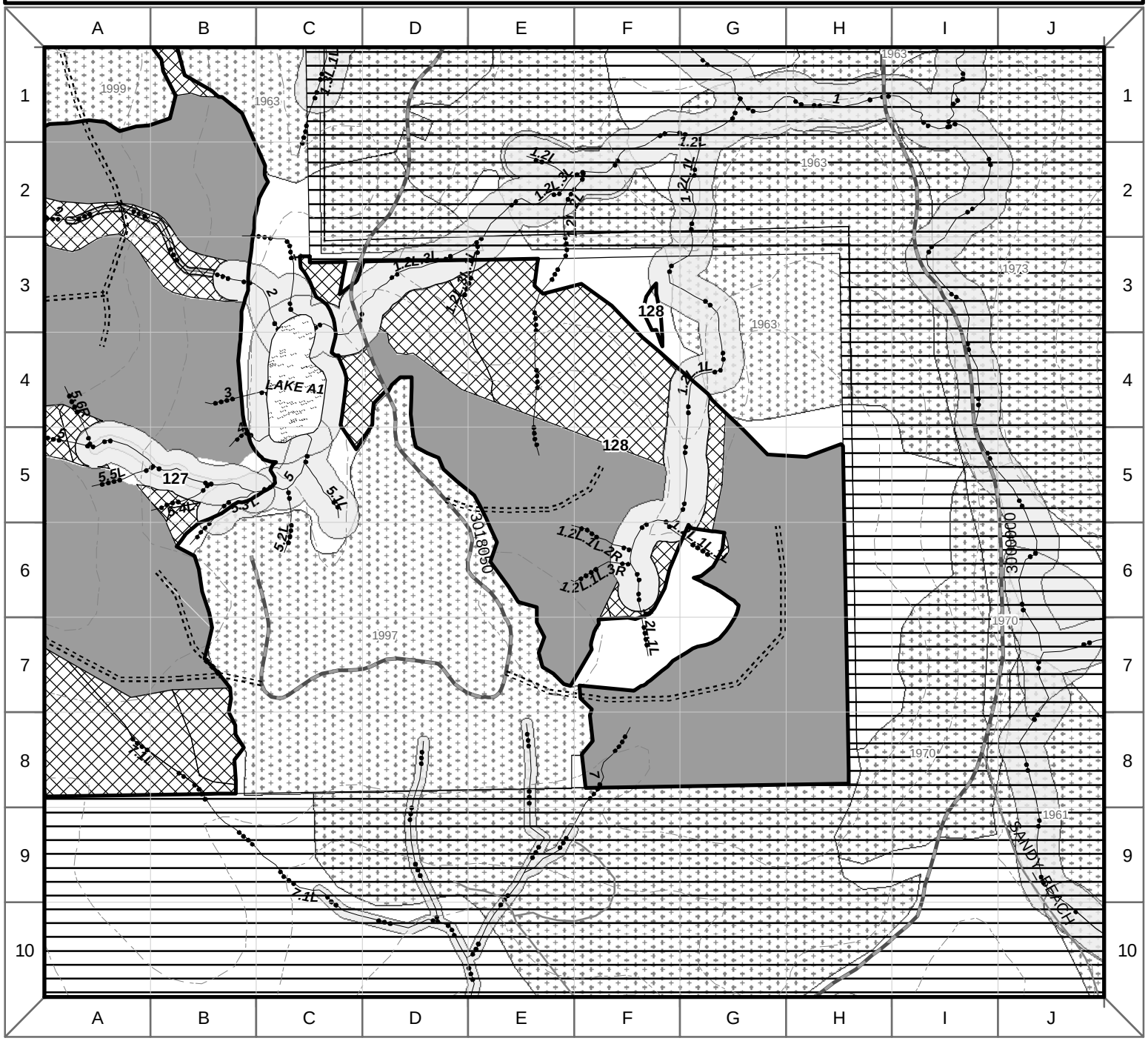
Unit Number 128 | **Alternative 4** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

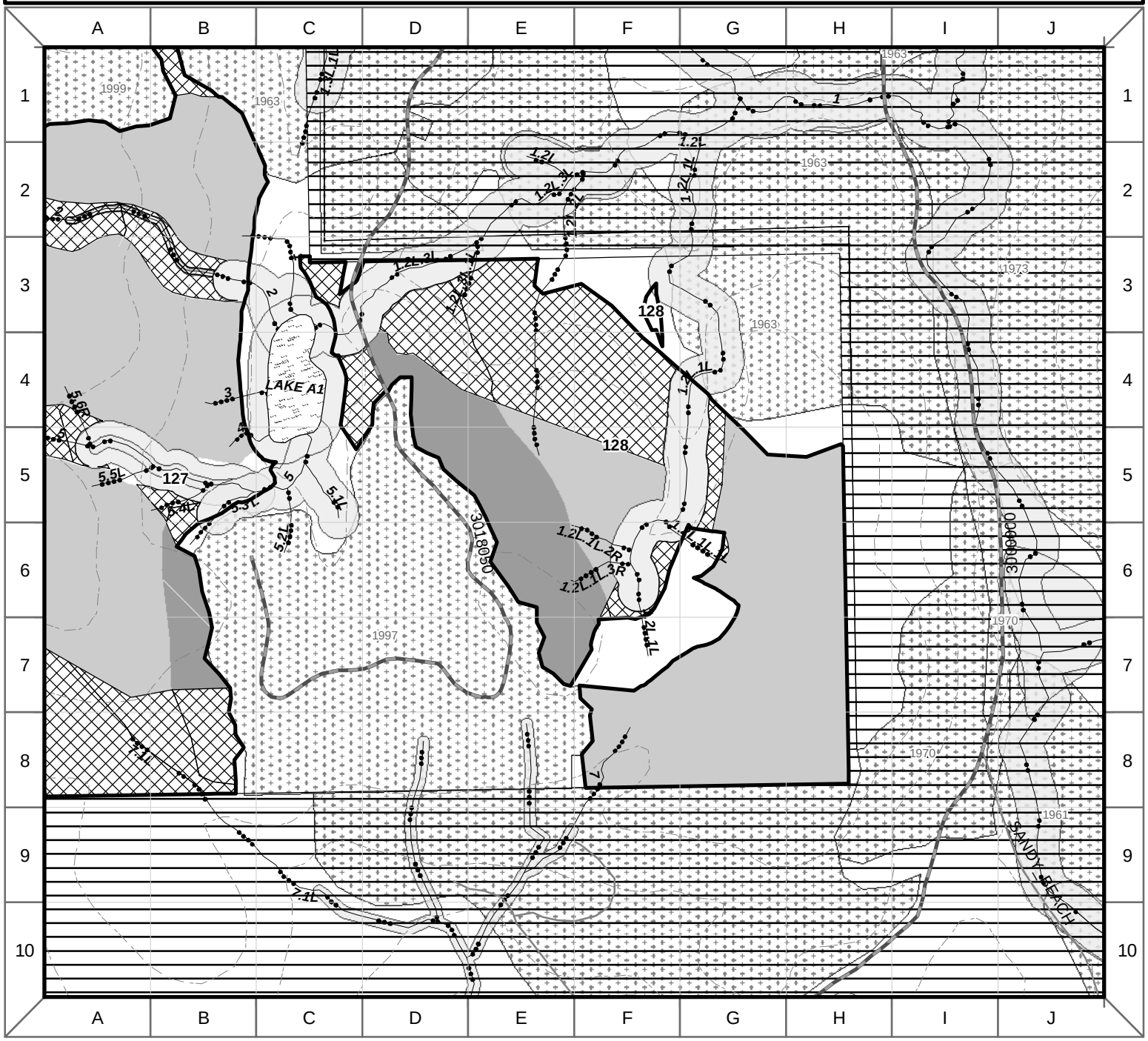
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt4.mxd 20 March 2012

Unit Number 128 | **Alternative 5** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt5.mxd 14 July 2012

Unit 129

Unit Number 129	Alternatives 2, 3, 4, 5	Total Unit Acres: 9.9	Prescription: Clearcut
VCU Number: 586 0	Harvest System: Shovel, Helicopter	Net Harvest Volume (MBF): 248	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old growth stand structure. The overstory consists primarily of western hemlock and redcedar in a mostly even distribution. Sitka Spruce is widely scattered throughout the unit. Normal rates of stem decay and stem form deformity are the main damages. The large diameters cedars tended to have more defect. The majority of the western hemlock are small to medium diameter with moderate to high stem decay and stem form deformity. Windthrow risk is moderate. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres therefore no legacy set-aside is required.

TIMBER/LOGGING:

Alternatives 2, 3, 4: This unit is planned for shovel yarding. Shovel settings are planned for yarding to the proposed temporary road.

Alternative 5: This unit is planned for a combination of shovel and helicopter yarding. Shovel settings are planned to the proposed temporary road. Helicopter settings are planned to the proposed temporary road.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road in Alternatives 2,3, and 4, totaling 1300 feet, as displayed on the unit card.
Unit is accessed by a proposed temporary road in Alternatives 5, totaling 400 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

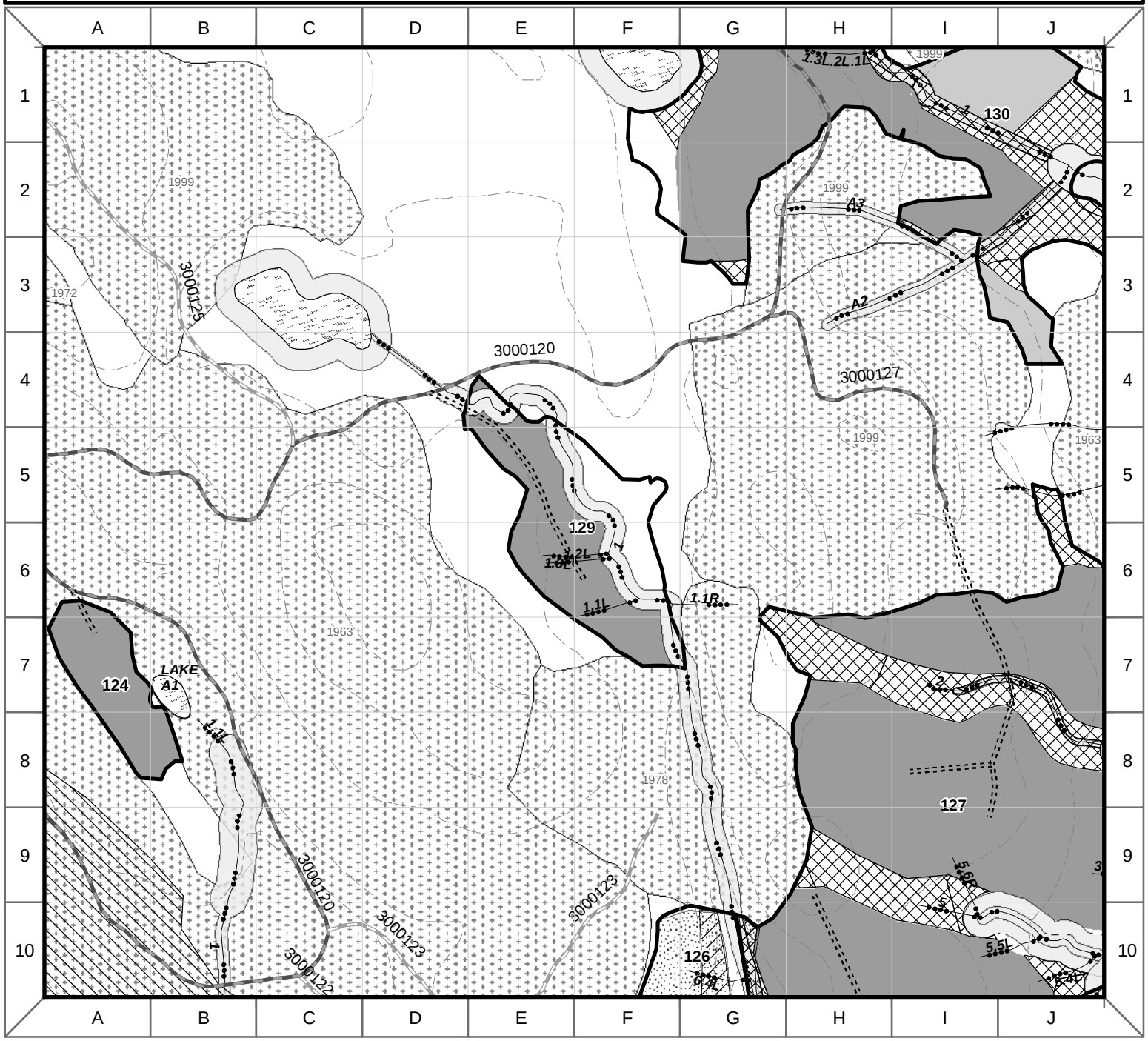
Streams drain to Thorne Bay.

Stream#: 1 Class: III Flagging: O/W C- Type: MCS
Concerns: none
Buffer (RMA): Class III for MCS to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Unit 129
Temporary roads for Unit 129: Alternative 5 -- No known stream crossings. Alternatives 2, 3, and 4 -- Two Class IV stream crossings. The temporary roads for Alternatives 2, 3, and 4 have not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: The Scenic Integrity Objective (SIO) for this unit is Very Low . It is entirely in Modified Landscape LUD and is considered Not Seen. There are no scenery resource concerns.
RECREATION: No concerns
SOILS/WETLANDS: Slopes range from nearly level to 60%. The steep slopes are located in an incised drainage way in the eastern side of the unit within the RMA. The majority of the slopes in this unit are 10 to 35%. No wetlands have been mapped in the unit. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting. The proposed temporary road does not traverse any wetlands.
WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 129 | **Alternative 2** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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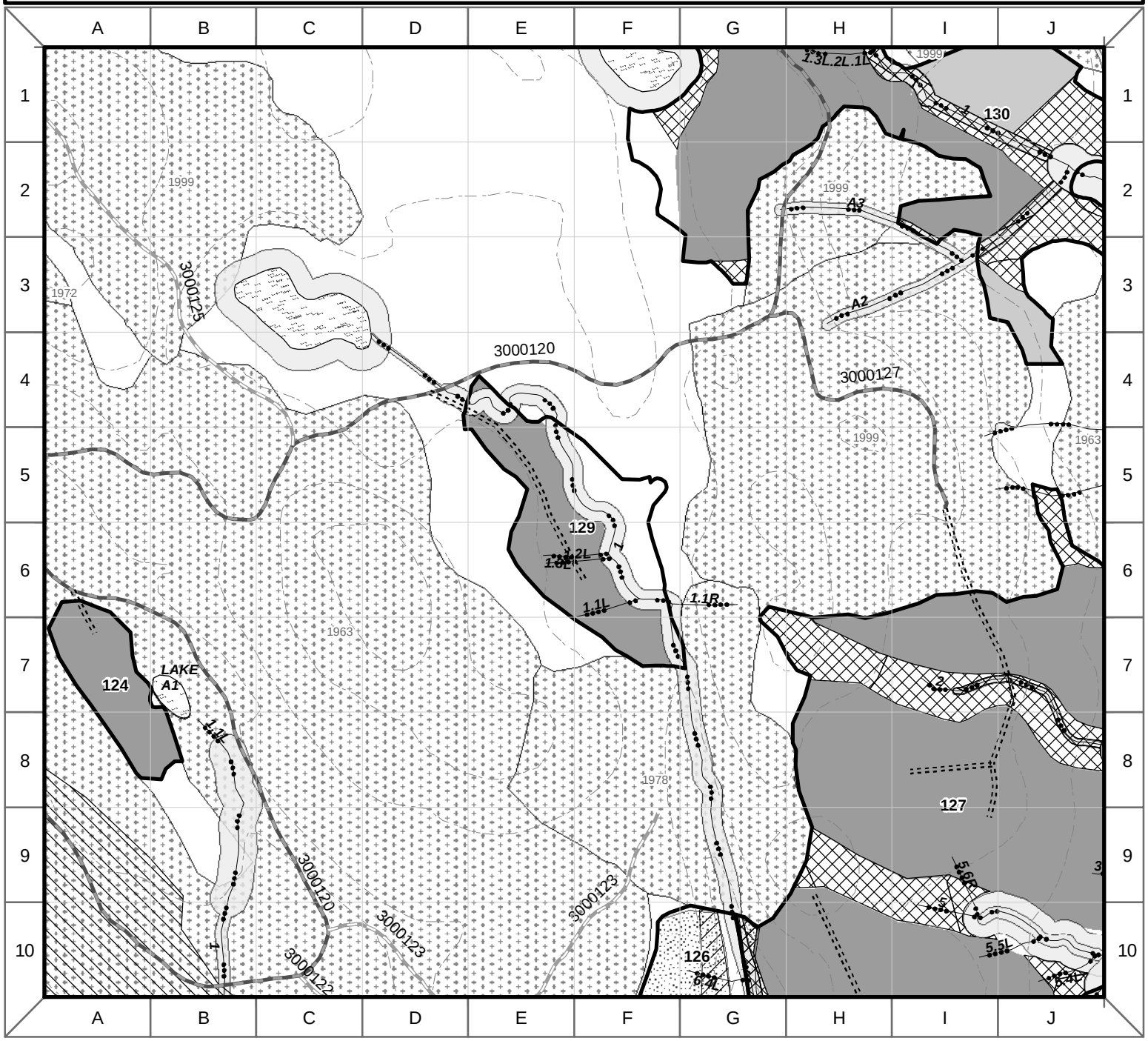
Unit Number 129 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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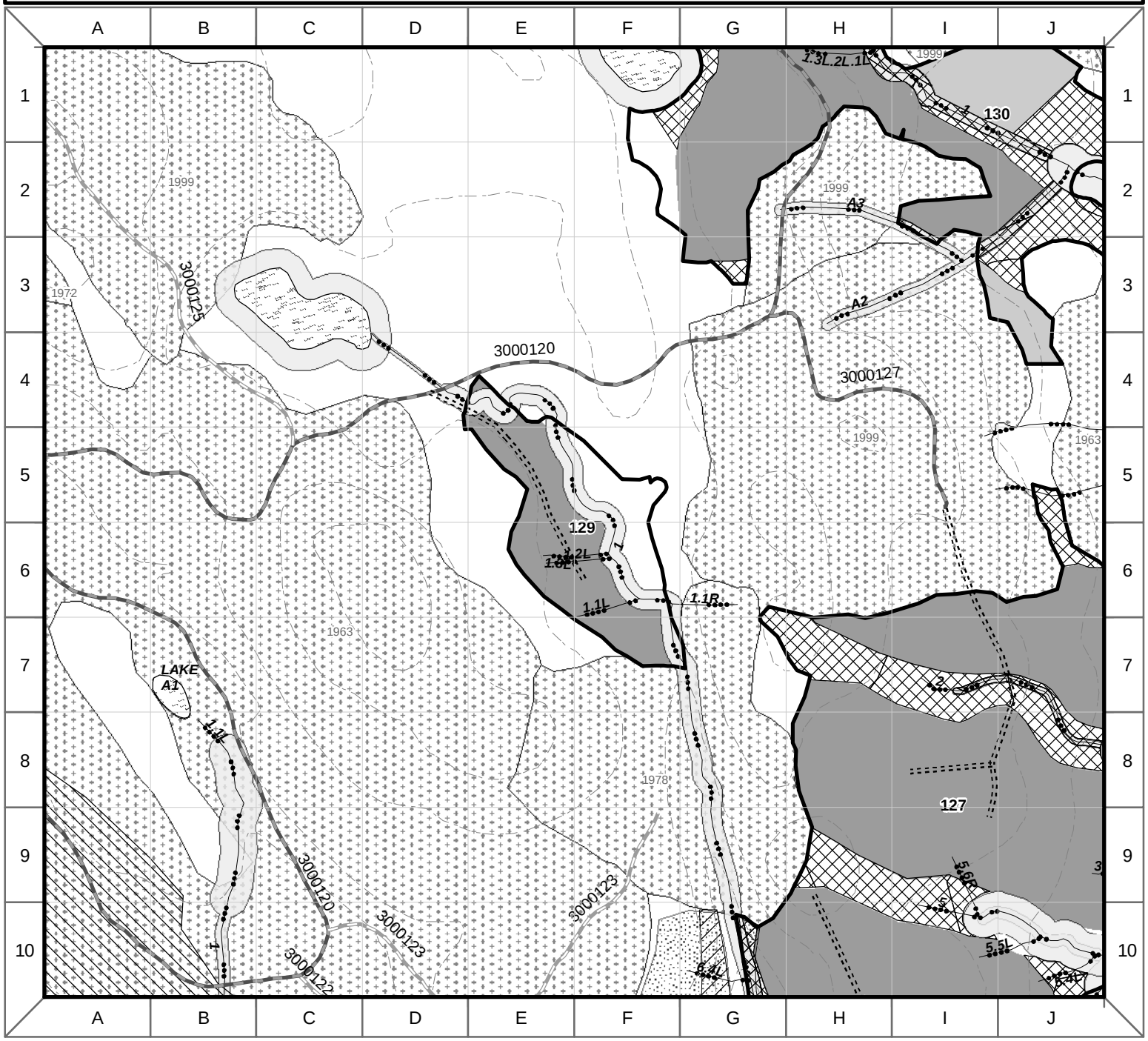
Unit Number 129 | **Alternative 4** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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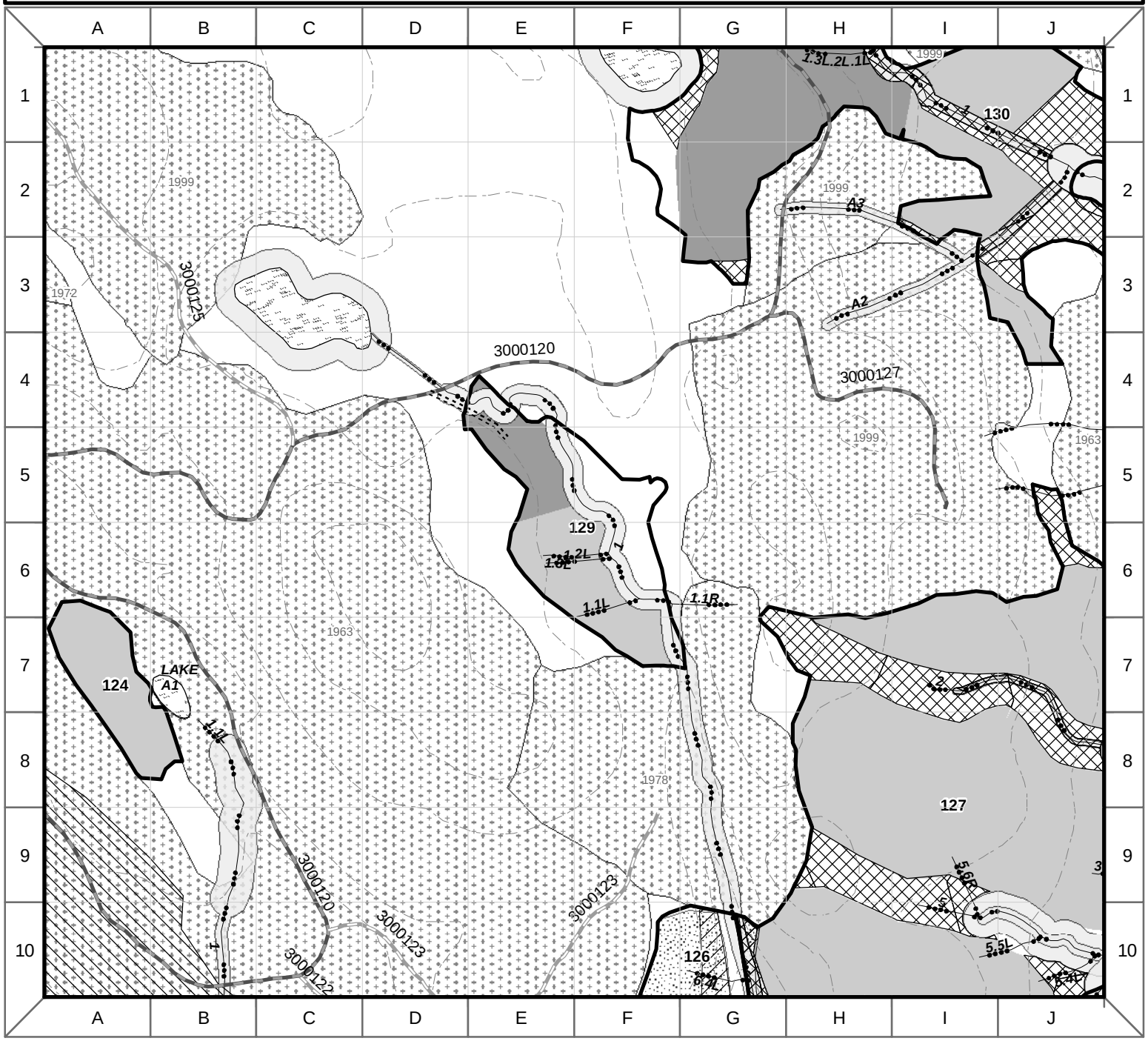
Unit Number 129 | **Alternative 5** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N S E W

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt5.mxd 14 July 2012

Unit 130

Unit Number	130	Alternatives	2, 3, 4, 5	Total Unit Acres:	30.7	Prescription:	Clearcut
VCU Number:	586 0	Harvest System:	Cable, Shovel,	Net Harvest Volume (MBF):	771	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 130 has old-growth stand structure. The overstory is made up of mature western hemlock, western redcedar and Sitka spruce. Past evidence of significant wind disturbance is expressed in the stand structure through the mosaic of age classes that are present. Windthrow risk is high throughout the stand. Mistletoe was observed to be moderate. Defects and damages are moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with light to moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 13 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. The required legacy is planned to coincide with RMAs, and areas on the east end of the unit to expand RMAs and block up POG. Mapped legacy totals about 13 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of shovel, cable, and helicopter yarding. Cable settings are planned for uphill yarding to landings on the existing NFS road 3000120. Shovel settings are planned for yarding to the existing NFS road 3000120. Helicopter settings are planned for yarding to landings on existing NFS roads 3000120 and 3018000.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Slide Creek. Streams 2 and 2.1R characteristics do not contain project specific field verified information.
Stream#: 1.3L.2L Class: III Flagging: O/W C- Type: HCD, HCM
Concerns: Blowdown and active erosion and abundant gravel deposits.
Buffer (RMA): Class III for HCD and HCM to the top of the side-slope break.
Alternatives 2, 3, 4, and 5 Buffer (RAW): Will be determined by IDT during layout
Protection: Category B

Stream#: 2 Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Unit 130

Stream#: 2.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: Lake-A3 Class: III Flagging: O/W C- Type: L
Concerns: none
Buffer (RMA): Class III for Lake-A3 consider no or limited harvest.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

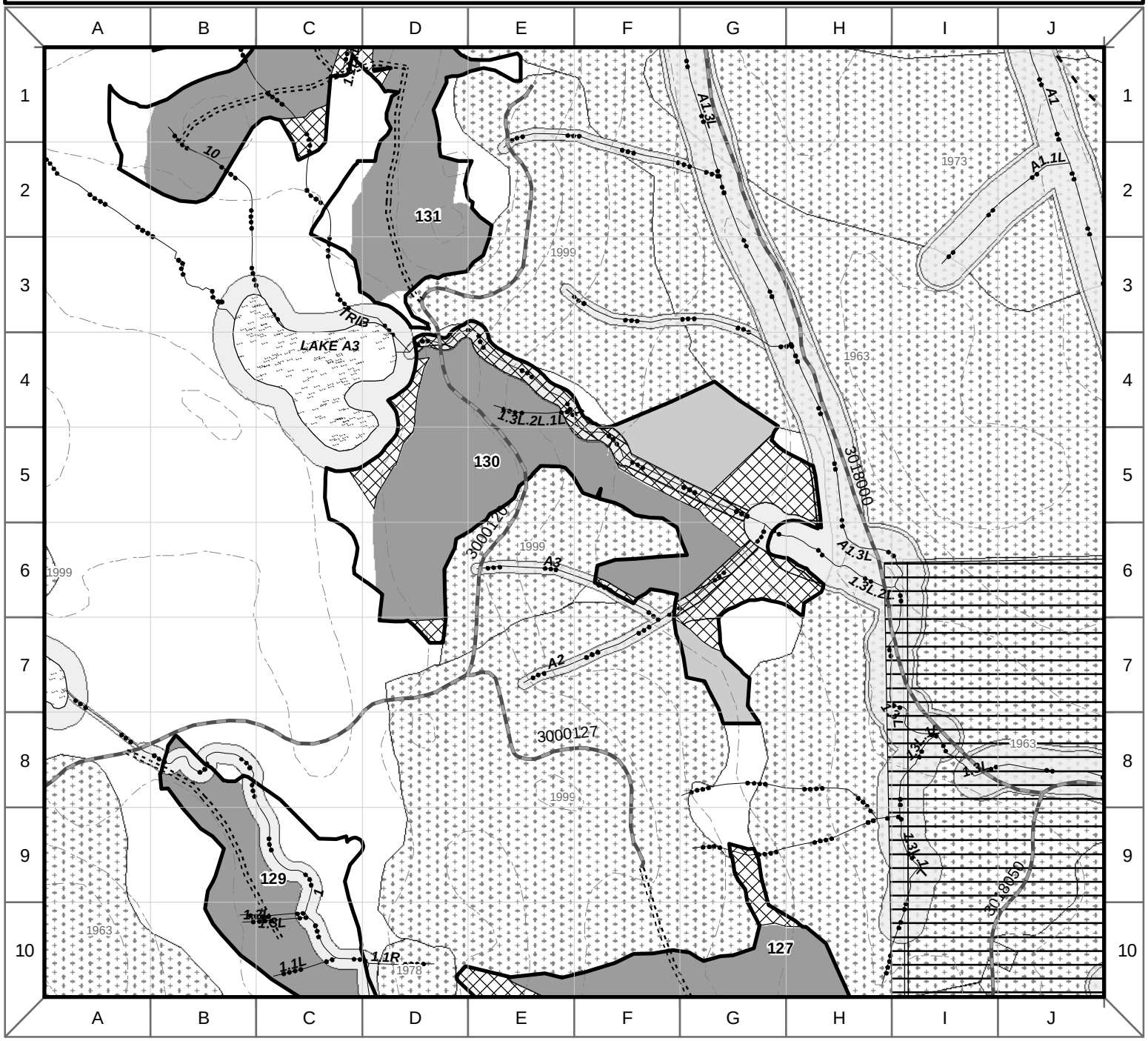
SCENERY:
The Scenic Integrity Objective (SIO) for this unit is Very Low . It is entirely in Modified Landscape LUD and is considered Not Seen. There are no scenery resource concerns.

RECREATION:
No concerns

SOILS/WETLANDS:
Slopes range from 5% to 30%. Forested wetlands are dominant in the unit. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Shovel yarding is not recommended on slopes over 25% gradient due to presence of deep sapric soils. Avoid track slippage and rutting.

WILDLIFE:
Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (southern lobe of unit). Legacy standard and guideline applies in this VCU; Legacy acres cover some deer winter range and marten habitat.

Unit Number 130 | **Alternative 2** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N S E W

0 500
Feet

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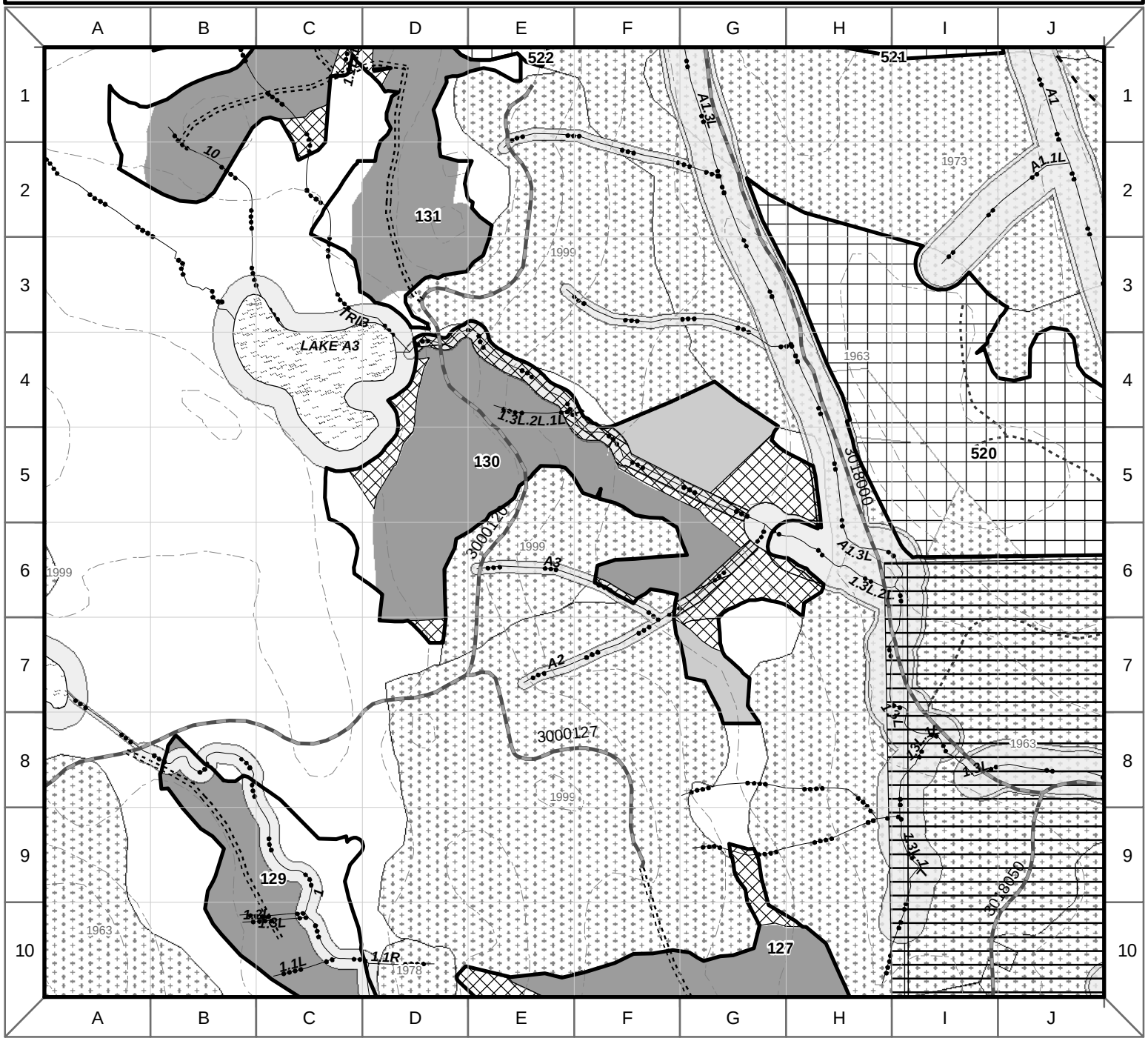
Unit Number 130 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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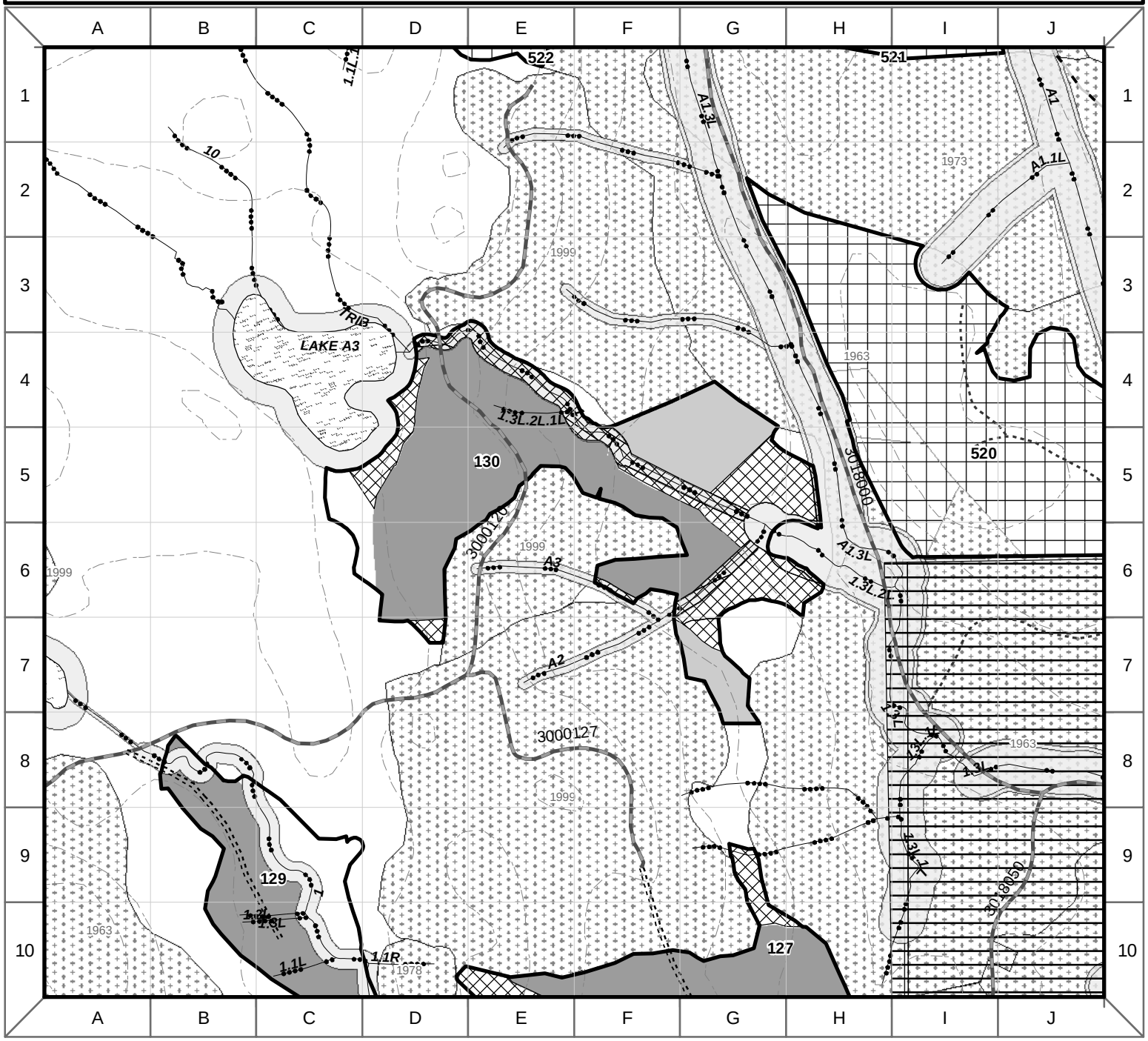
Unit Number 130 | **Alternative 4** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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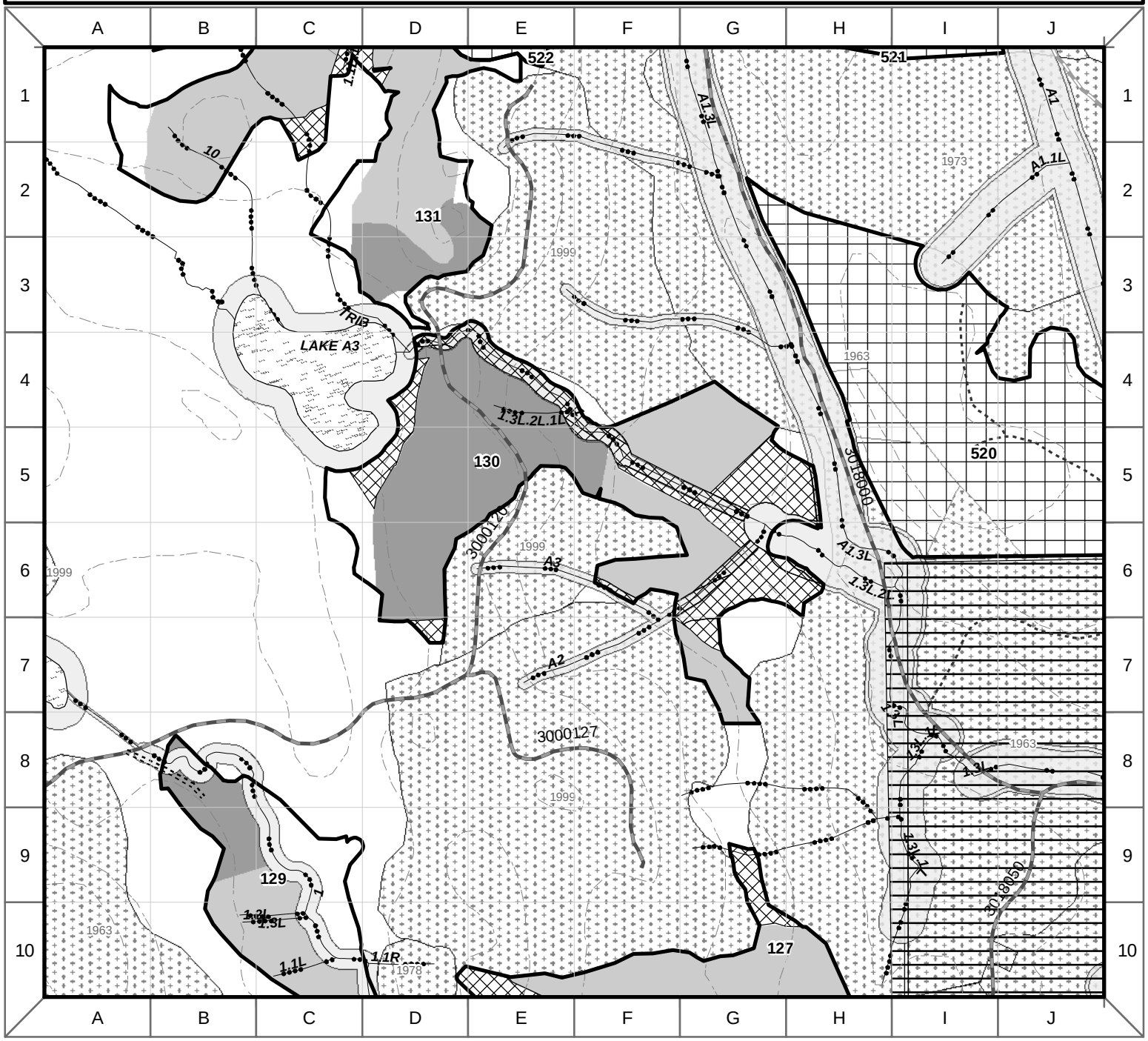
Unit Number 130 | **Alternative 5** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 131

Unit Number	131	Alternatives	2, 3, 5	Total Unit Acres:	25.4	Prescription:	Clearcut
VCU Number:	586	Harvest System:	Cable, Shovel, Helicopter	Net Harvest Volume (MBF):	627	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 131 has old growth stand structure. Trees are generally mature with static growth. The overstory consists primarily of western hemlock and western redcedar in a patchy to even distribution. Sitka spruce are present but in less abundance and as a secondary component in the overstory. Moderate to high Alaska-cedar decline is present in parts of the unit. Live Alaska-cedar is present, but at low numbers. Stem decay is the main damage agent affecting tree health and volume. Windthrow hazard is moderate. Mistletoe infection is light throughout all units. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 11 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. The required legacy is planned to block up POG, while reducing required road length, avoiding areas with longer yarding distances, dividing the unit opening in two, and incorporating RMAs. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy. Total mapped legacy equals about 13 acres.

TIMBER/LOGGING:

Alternative 2, 3: This unit is planned for a combination of shovel and cable yarding. Cable settings are planned for uphill and downhill yarding to landings on the proposed temporary road. Shovel settings are planned for yarding to the proposed temporary road.

Alternative 5: This unit is planned for a combination of helicopter and shovel yarding. Shovel settings are planned for yarding to the proposed temporary road. Helicopter settings are planned for yarding to landings on the existing NFS road 3000120.

ENGINEERING/ROADS:

Unit is accessed by two proposed temporary roads in Alternatives 2 and 3, totaling 2,900 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 131

Streams are tributary to Deer Creek.

Stream#: 1.1L Class: III, IV Flagging: O/W, G/W C- Type: HCM, MMO
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for MMO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 1.3L.2L Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: Lake-A3 Class: III Flagging: O/W C- Type: L
Concerns: none
Buffer (RMA): Class III for Lake-A3 consider no or limited harvest.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category C

All other stream in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

Temporary roads for Unit 131: Alternatives 2 and 3 -- Three Class IV stream crossings. If any additional stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit is Very Low . It is entirely in Modified Landscape LUD and is considered Seldom Seen. There are no scenery resource concerns.

RECREATION:

No concerns

SOILS/WETLANDS:

Slopes range from 10% to 20%. Forested wetlands occur intermittently in the unit. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Use care when approving shovel yarding on slopes. Avoid track slippage and rutting.

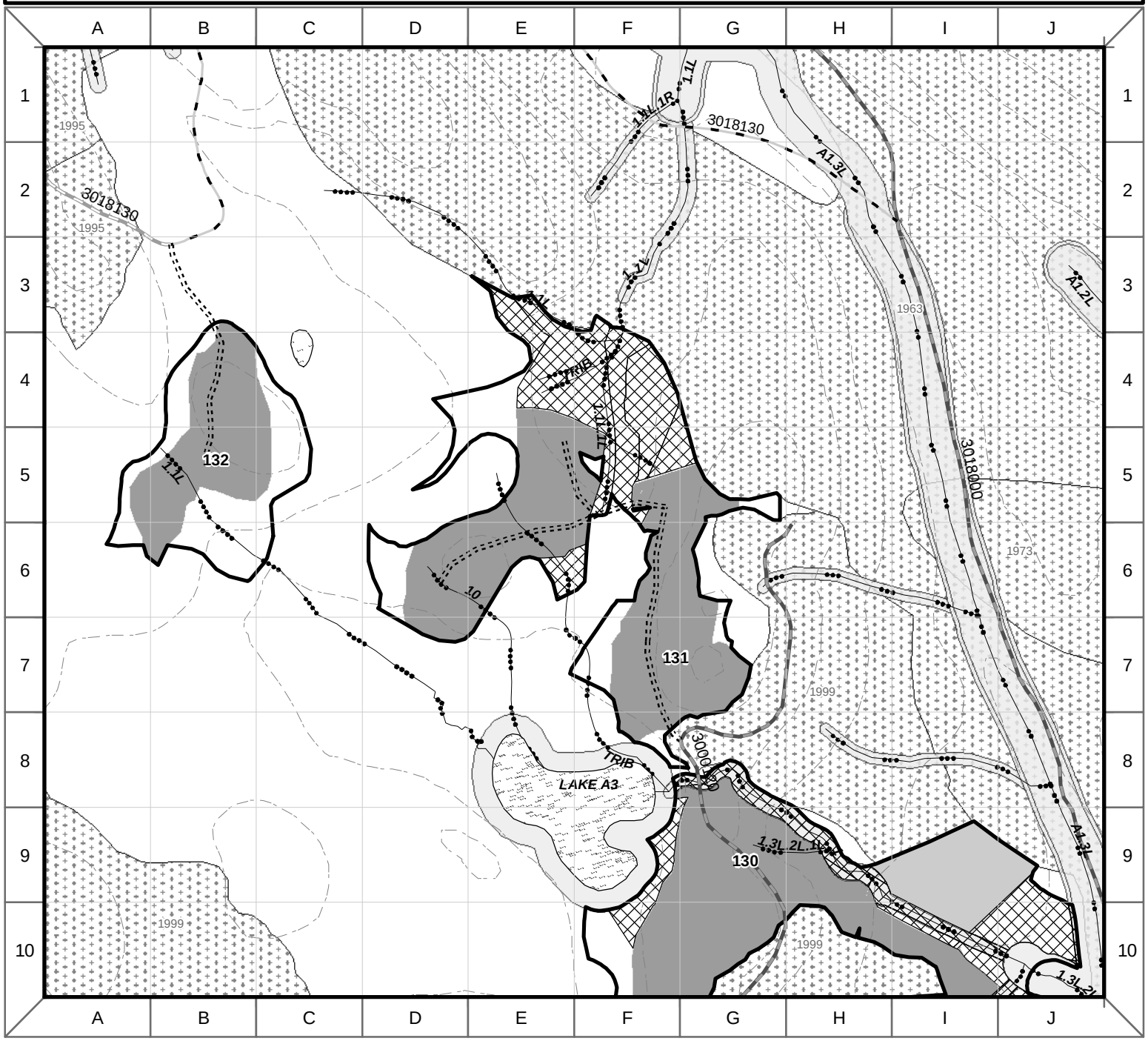
Alternatives 2 and 3: A temporary road will impact about 1/2 acre of forested wetland within the unit and about 1/4 acre outside the unit. Wetland avoidance was not feasible because of the abundance of forested wetlands and the road is needed to access the western portion of the unit and avoid a stream. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes isolated average snow deer winter range (nearly all of unit), most of which is also deep snow marten habitat/deer winter range (northern and southern ends of eastern half of unit). Legacy standard and guideline applies in this VCU; Legacy acres cover some deer winter range and marten habitat.

Alternative 4: Unit dropped to maintain connectivity and minimize road building.

Unit Number 131 | **Alternative 2** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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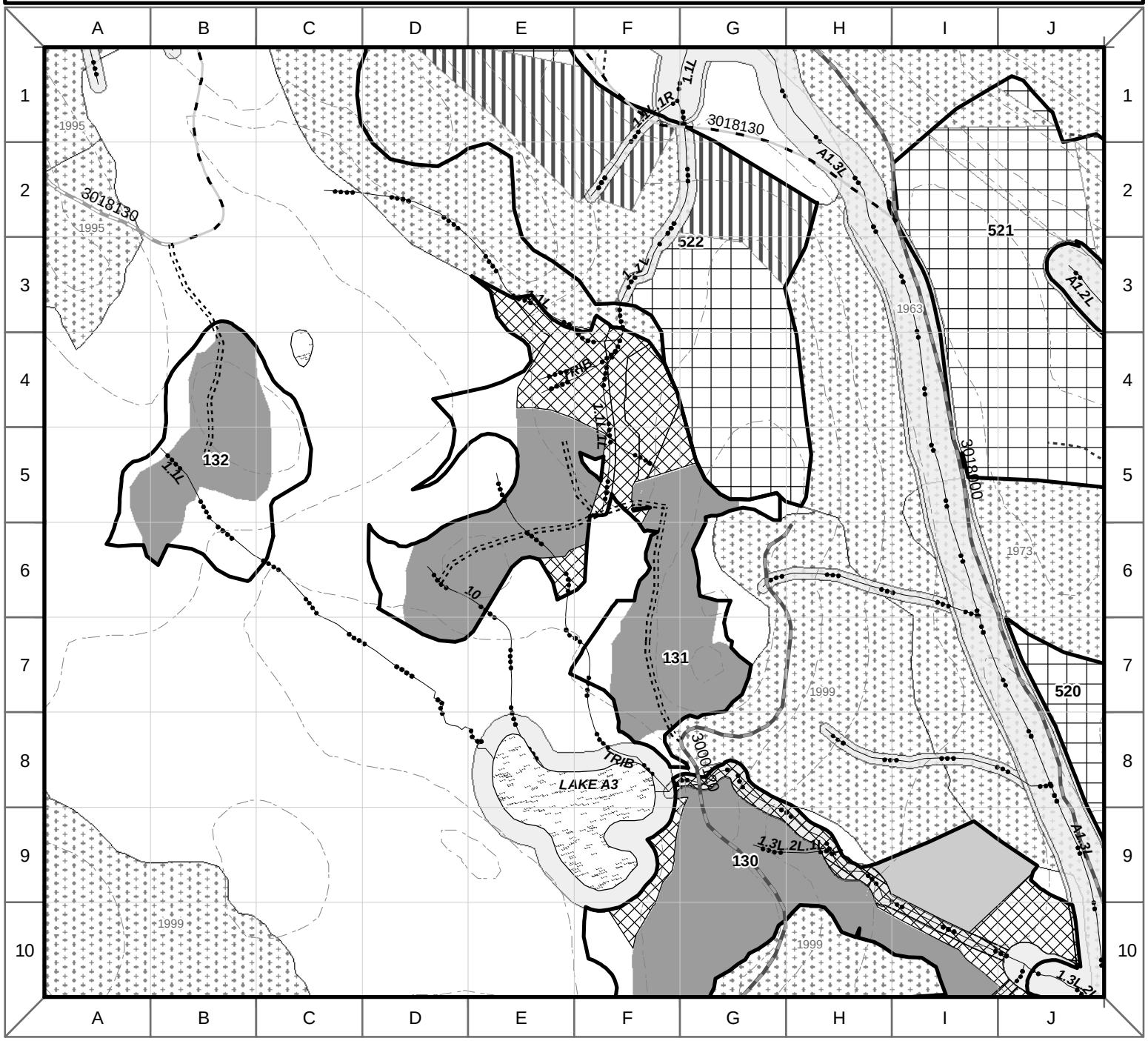
Unit Number 131 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500
Feet

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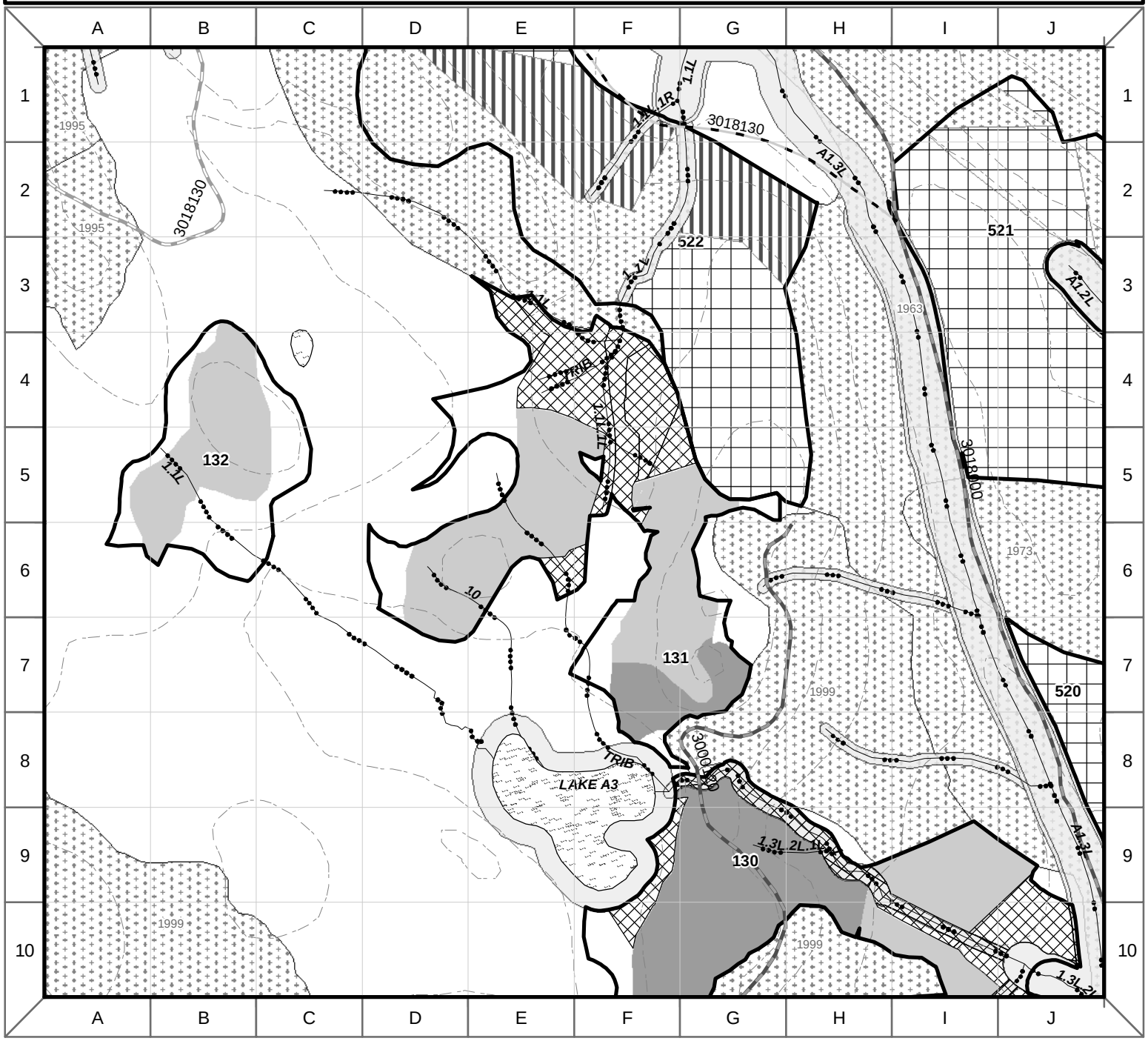
Unit Number 131 | **Alternative 5** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt5.mxd 14 July 2012

Unit 132

Unit Number	132	Alternatives	2, 3, 5	Total Unit Acres:	9.6	Prescription:	Clearcut
VCU Number:	586	Harvest System:	Shovel, Helicopter	Net Harvest Volume (MBF):	221	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure. The overstory composition consists of a mixture of western hemlock, western redcedar, Alaska cedar and Sitka spruce. Overstory distribution is variable with even to patchy areas due to over-maturity. Mortality related to heavy stem and heart decay in the larger hemlock and decline in the Alaska cedar has created an open overstory with growing space being occupied by tall blueberry. Overall stem decay is moderate to high. Windthrow risk is moderate. Mistletoe is light. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres therefore no legacy set-aside is required.

TIMBER/LOGGING:

Alternatives 2, 3: This unit is planned for shovel yarding to the proposed temporary road.

Alternatives 5: This unit is planned for helicopter yarding to a landing on the existing NFS road 3018130.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road in Alternatives 2 and 3, totaling 1100 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Deer Creek.

All streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

Temporary roads for Unit 132: Alternatives 2 and 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

Unit 132

SCENERY:

The Scenic Integrity Objective (SIO) for this unit is Very Low . It is entirely in Modified Landscape LUD and is considered Not Seen. There are no scenery resource concerns.

RECREATION:

No concerns

SOILS/WETLANDS:

Slopes range from nearly level to about 40 percent. Most slopes are under 25%. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

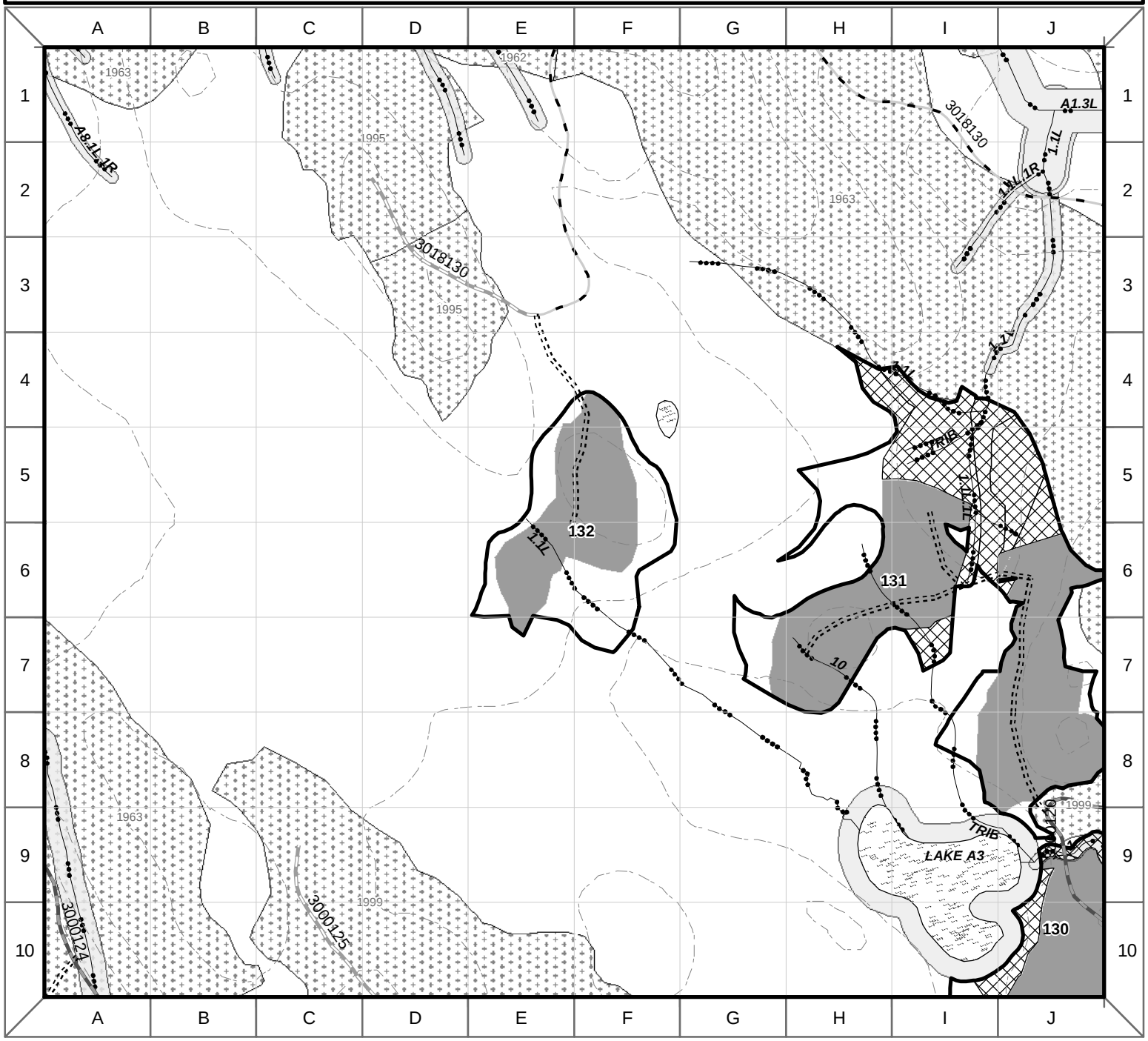
A temporary road will impact about 1/2 acre of emergent sedge/forested wetland complex within the unit and an additional 1/2 acre outside of the unit; wetlands are located between the existing road and the unit and are needed for access by road (BMP 12.5, 13.2).Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes isolated average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU; however there are no requirements for this unit because it is less than 20 acres.

Alternative 4: Unit dropped to provide refugia, though unit is surrounded by muskeg, and reduce road building.

Unit Number 132 | **Alternative 2** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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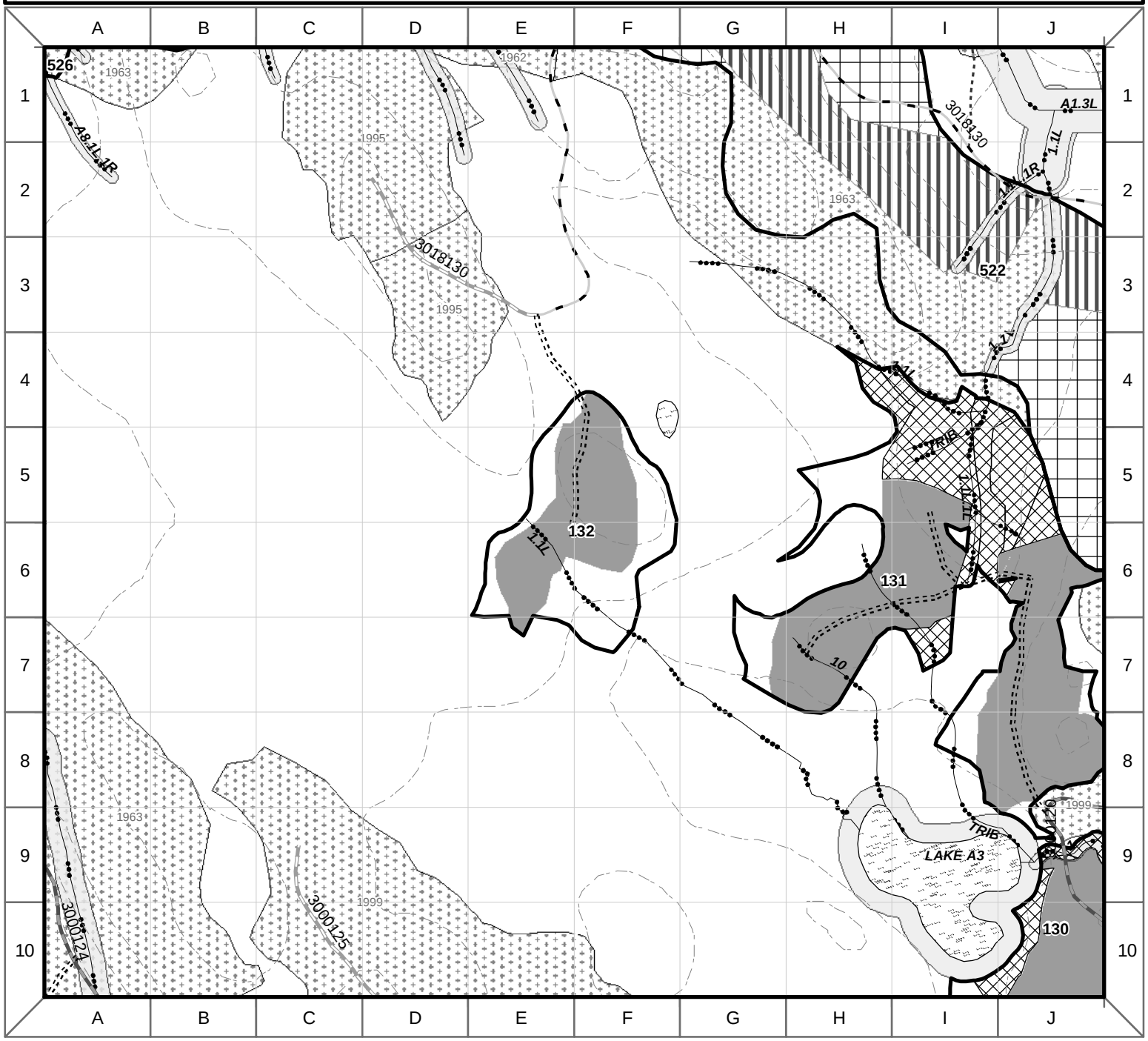
Unit Number 132 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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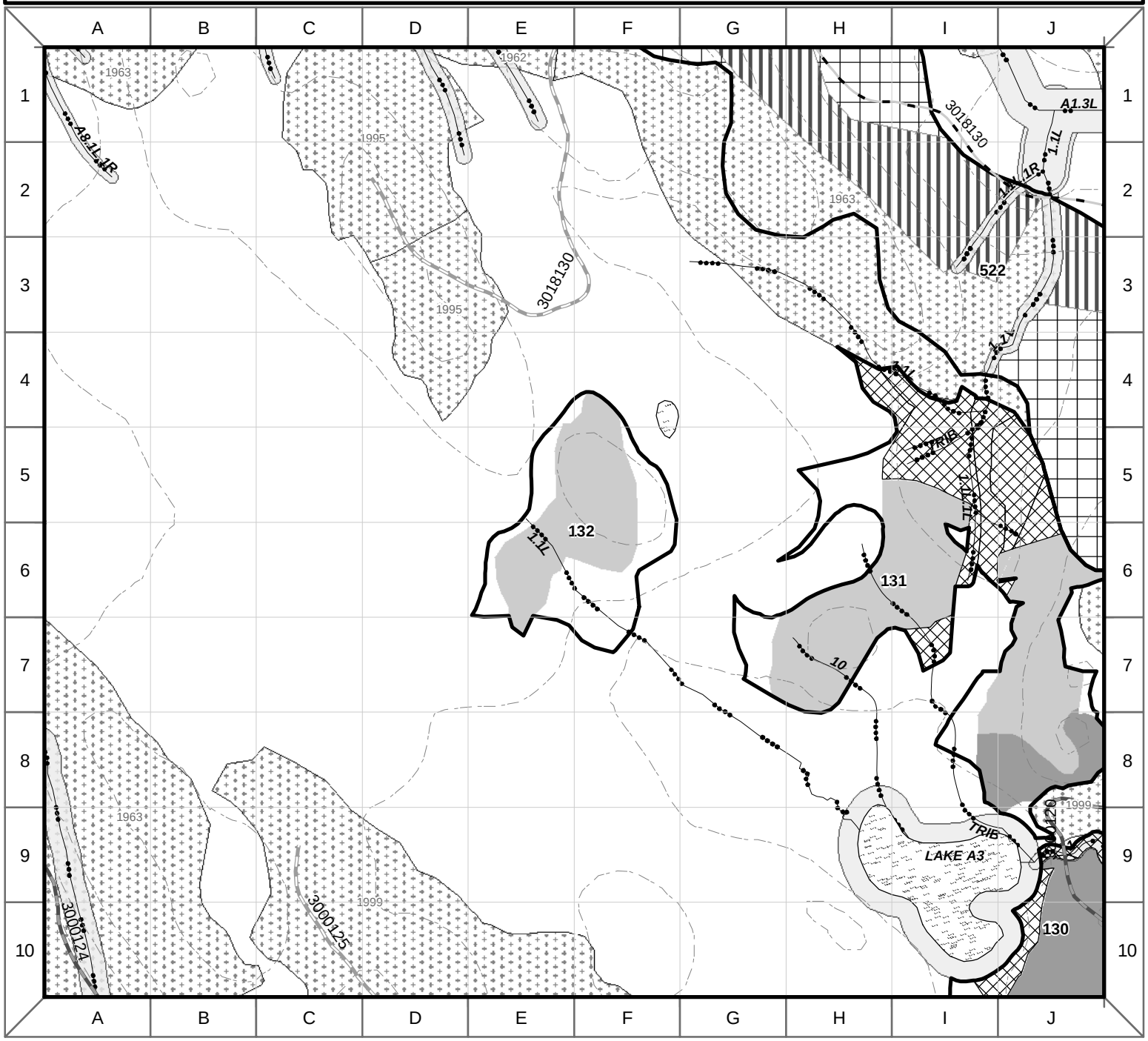
Unit Number 132 | **Alternative 5** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 133

Unit Number	133	Alternatives	2, 3, 5	Total Unit Acres:	42.1	Prescription:	Clearcut
VCU Number:	586	Harvest System:	Shovel, Helicopter	Net Harvest Volume (MBF):	961	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old growth stand structure. The overstory is generally an uneven distribution of western hemlock and western redcedar with patches of Alaska-cedar and scattered Sitka spruce. The overstory is typically moderate defect with stem rot, dead tops and mistletoe being of concern. Mistletoe infection rating was high in the eastern portions, while non-evident in the north lobe. Alaska-cedar decline is evident in the stand where drainage is poor. Windthrow risk is low. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 18 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to block up POG and reduce required road length. Mapped legacy equals about 19 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

Alternatives 2, 3: This unit is planned for shovel yarding to the proposed temporary roads.

Alternative 5: This unit is planned for helicopter yarding to a landing on the existing NFS road 3018122.

ENGINEERING/ROADS:

Unit is accessed by two proposed temporary roads in Alternatives 2 and 3, totaling 2,400 feet, as displayed on the unit card. Unit is also accessed by existing NFS road 3018122 in Alternatives 2 and 3. See road card for detailed information on existing NFS road.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait. Streams A2 and Lake-A1 characteristics do not include project-specific, field-verified, information.

Stream#: A1 Class: II Flagging: B/W C- Type: HCL
Concerns: none known
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category A

Stream#: Lake-A1 Class: II Flagging: B/W C- Type: L
Concerns: none known.
Buffer (RMA): Class II for Lake-A1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils,

riparian associated wetland fens, or height of one site potential tree.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A

All other stream in unit: Class: IV Flagging: G/W C- Type: HC, MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

Temporary roads for Unit 133: Alternatives 2 and 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit is Very Low, except for 1 acre of Low. It is entirely in Modified Landscape LUD and is mostly considered Not Seen. There are no scenery resource concerns.

RECREATION:

No concerns

SOILS/WETLANDS:

Slopes in this unit range from 10% to 80%. The slopes over 72% occupy less than 1/4 acre within the legacy area; they are suitable for harvest. Forested wetlands are located in isolated spots on gentle low-lying slopes in the unit (BMP 12.5). The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

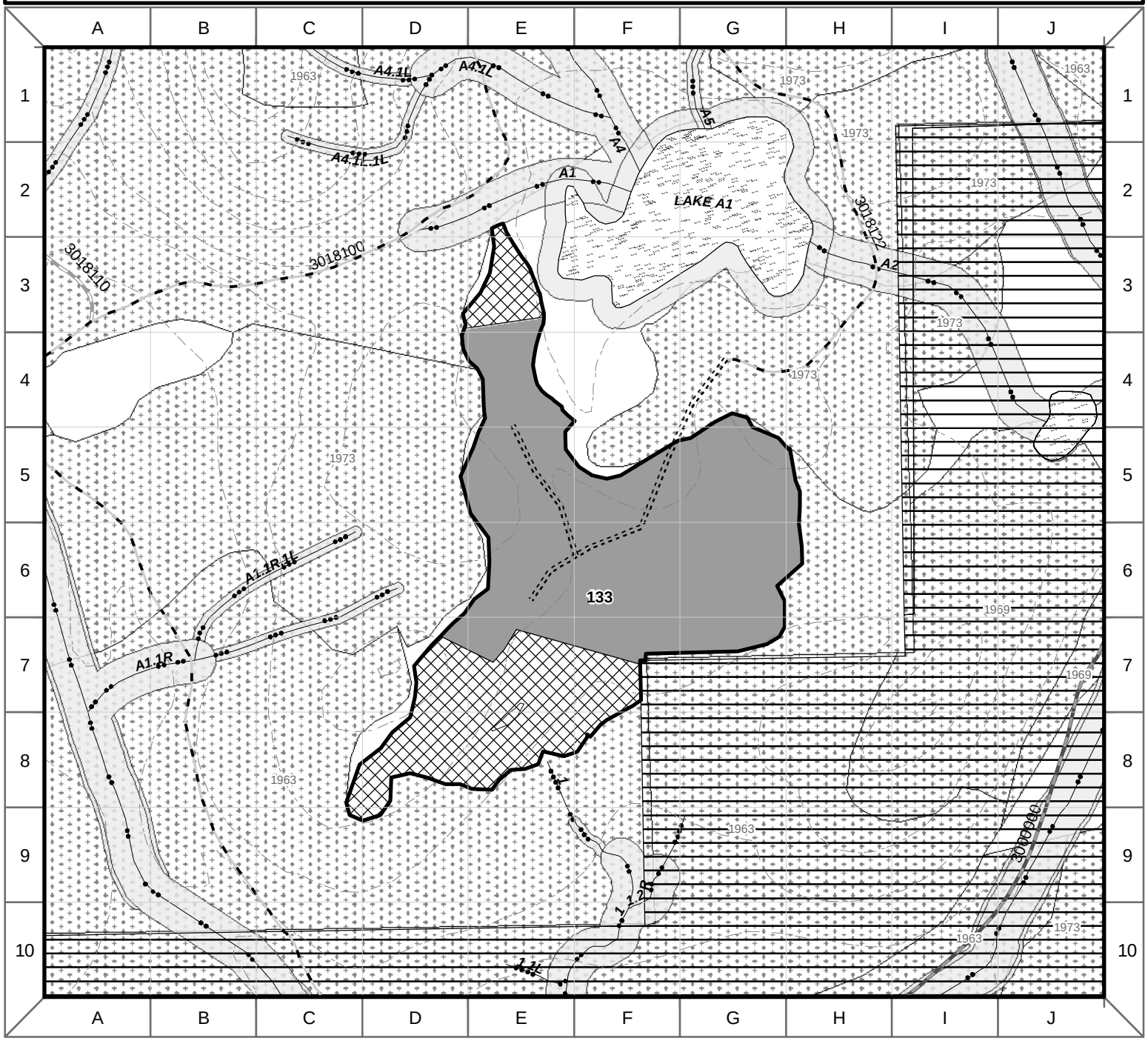
Based on GIS analysis, the proposed temporary road does not traverse any wetlands.

WILDLIFE:

Unit includes isolate average snow deer winter range (all of unit except eastern edge). Legacy standard and guideline applies in this VCU; Legacy acres cover some deer winter range.

Alternative 4: Unit dropped to provide refugia and reduce road building.

Unit Number 133 | **Alternative 2** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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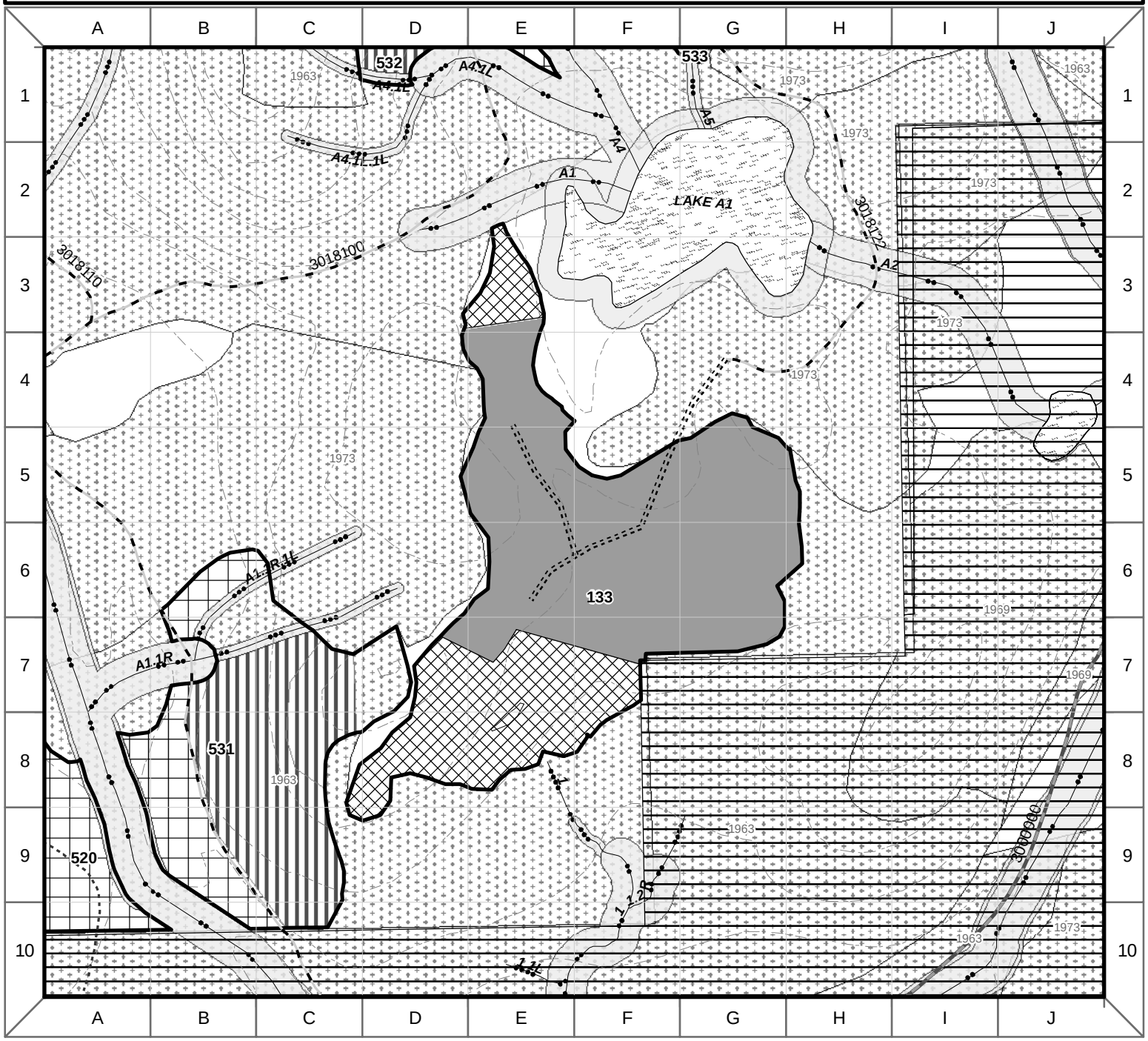
Unit Number 133 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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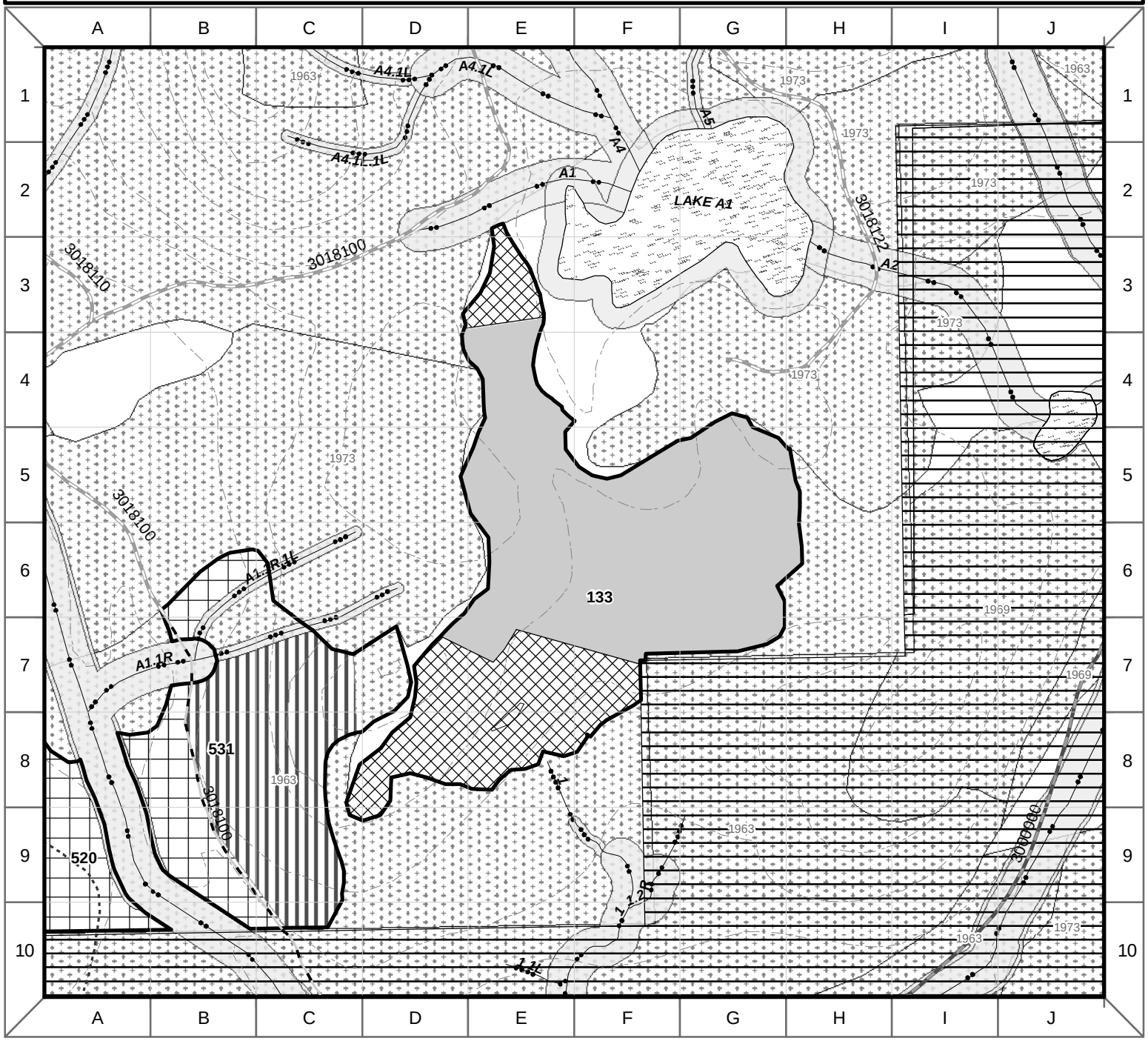
Unit Number 133 | **Alternative 5** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 135

Unit Number 135	Alternatives 2, 3, 5	Total Unit Acres: 18.8	Prescription: Clearcut
VCU Number: 585	Harvest System: Cable, Shovel,	Net Harvest Volume (MBF): 259	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure and marginal volume for harvest. The overstory consists primarily of western hemlock, western redcedar and Sitka spruce. The main damage agent affecting tree health and volume loss in the overstory is moderate to high amounts of stem decay. Windthrow risk is moderate. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

A Tongass Wide Young Growth Study (TWYGS) site (POW Slide Creek Experiment #4) is along the western boundary. Protection of this site is required. Contact the Forestry Sciences Lab in Juneau for additional information.

The legacy standard and guide applies in this VCU. Original unit opening size was 27 acres; this requires that approximately 8 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to block up POG and reduce required road length. Mapped legacy equals about 8 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

Alternatives 2, 3: This unit is planned for a combination of shovel and cable yarding. Cable settings are planned for uphill yarding to landings on the proposed temporary road. Shovel settings are planned for yarding to the proposed temporary road.

Alternative 5: This unit is planned for helicopter yarding to landings on the existing NFS road 3018200.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road in Alternatives 2 and 3, totaling 2,900 feet, as displayed on the unit card. Approximately 1,400 feet of this road will be constructed across decommissioned road bed. Road may need to be moved slightly to avoid the TWYGS site.

BOTANY:

No Concerns

INVASIVE SPECIES:

One infestation of common tansy located along road 3018200 about 1/4 mile southwest of unit. Population has been treated; monitoring has not observed continued infestations. This location should be monitored and treated if plants are observed.

FISHERIES:

Unit 135

FISHERIES:

Streams are tributaries to Slide Creek.

Stream#: A1 Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

All streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): none
Protection: Category C

Temporary roads for Unit 135: Alternatives 2 and 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit is Very Low . It is entirely in Timber Production LUD and is considered Not Seen. There are no scenery resource concerns.

RECREATION:

No concerns

SOILS/WETLANDS:

Slopes range from about nearly level to about 50%. There are approximately 12 acres (63% of the unit) of forested wetland located in the central portion of the unit (BMP 12.5). The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

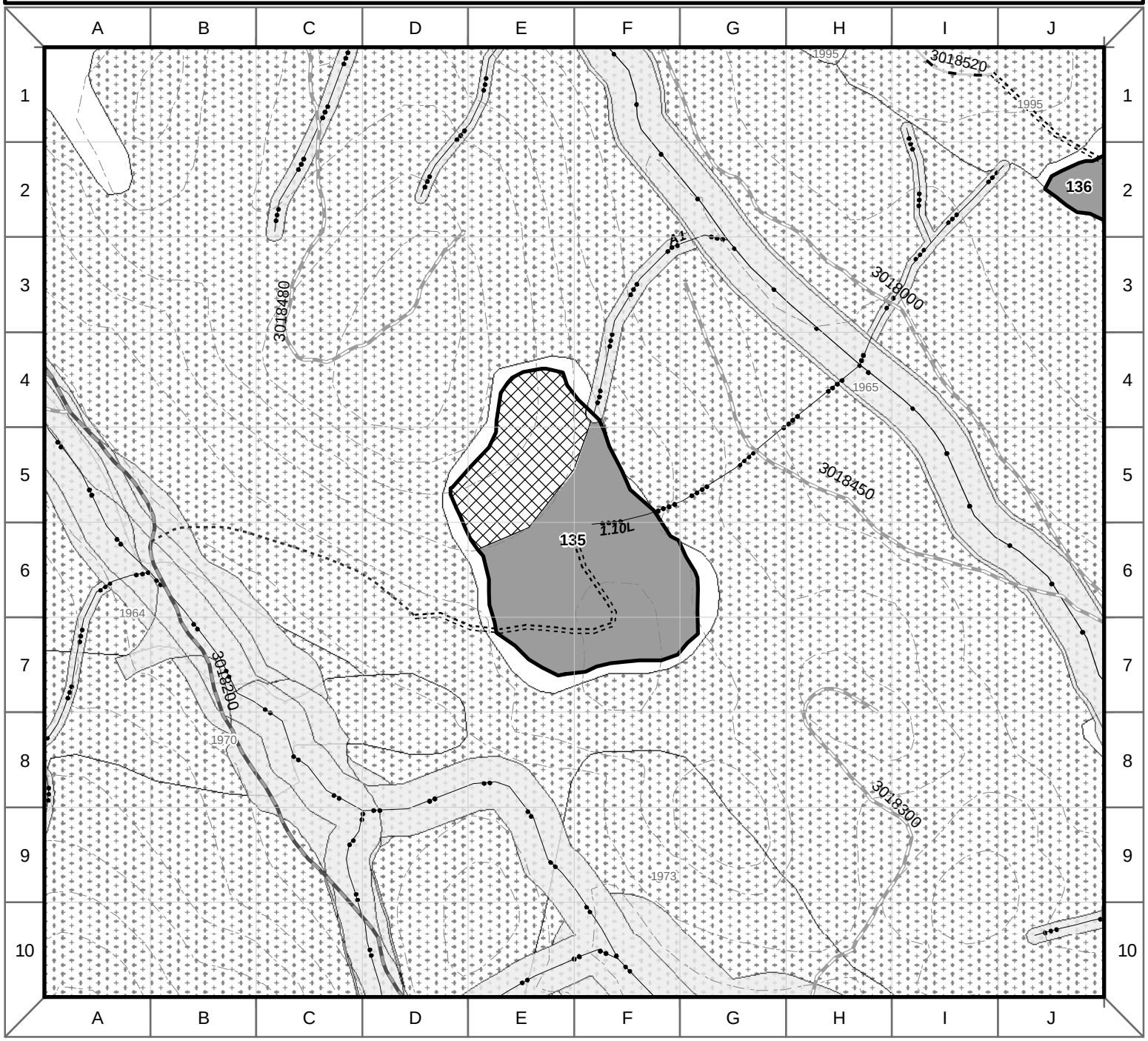
The temporary road will impact less about 1/3 acre of forested wetlands (BMP 12.5, 13.2). Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes isolated average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (southern half of unit). Legacy standard and guideline applies in this VCU; Legacy acres cover some deer winter range and marten habitat.

Alternative 4: Unit dropped to provide refugia and reduce road building.

Unit Number 135 | **Alternative 2** | **VCU: 585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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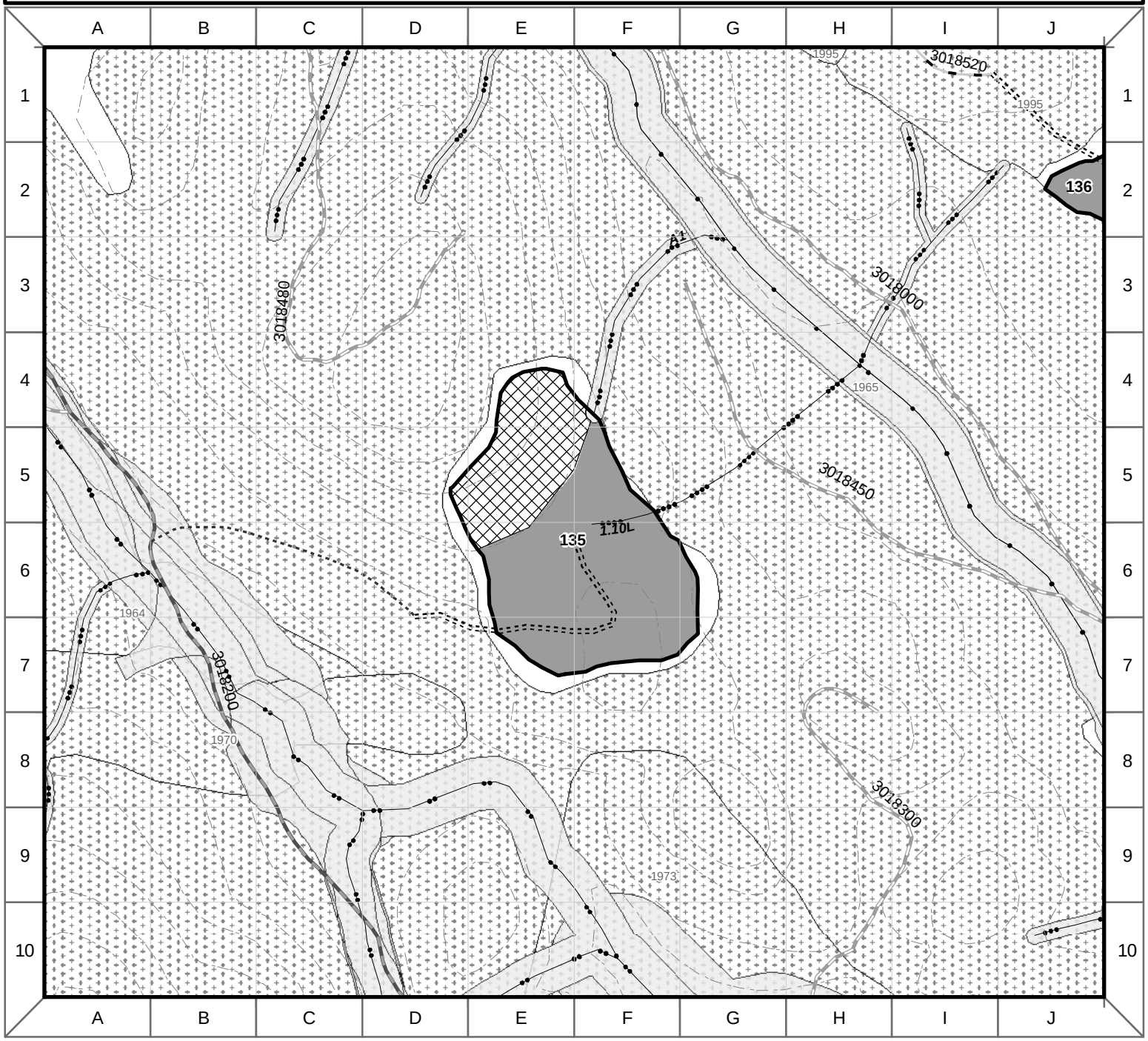
Unit Number 135 | **Alternative 3** | **VCU: 585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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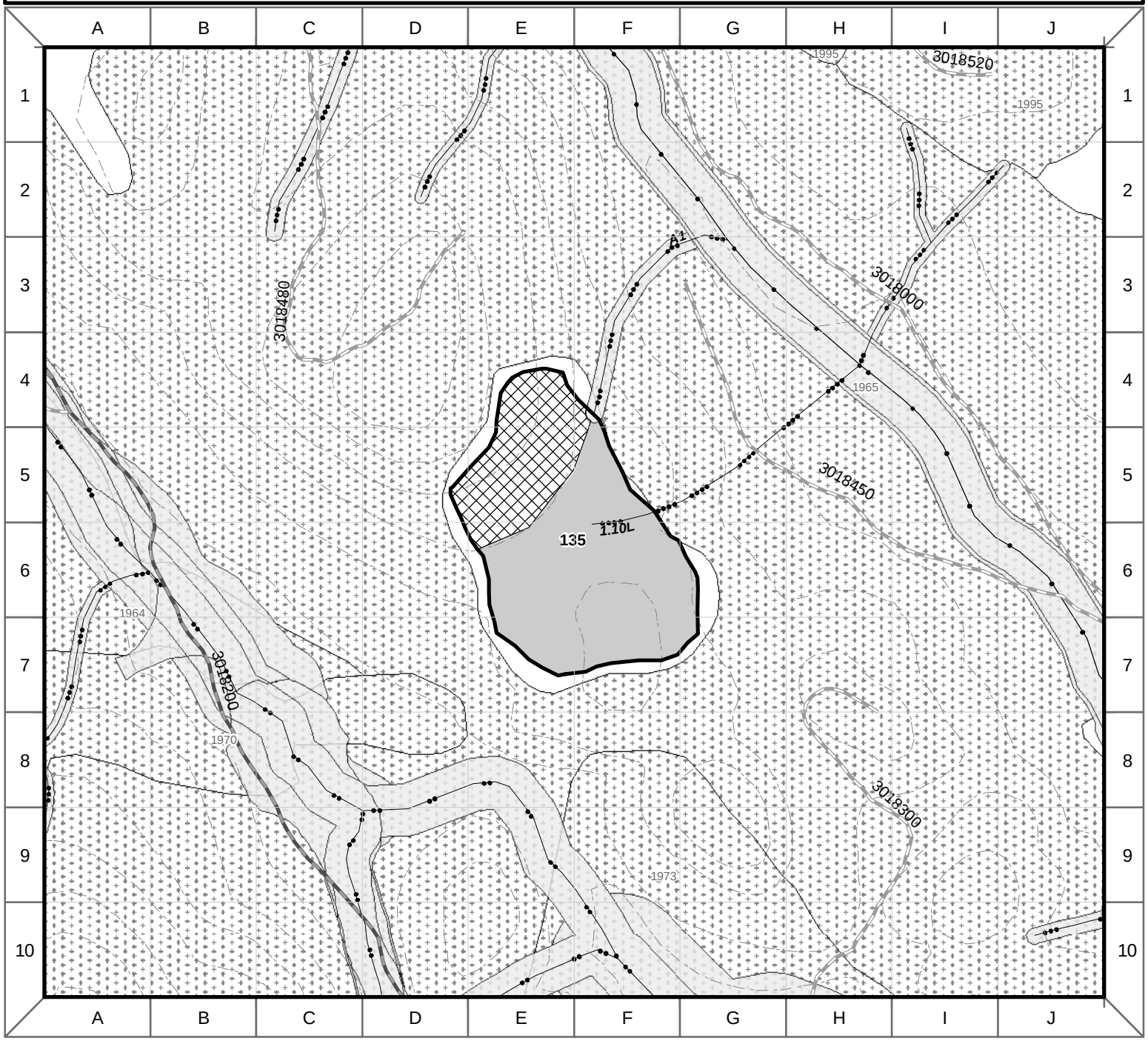
Unit Number 135 | **Alternative 5** | **VCU: 585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 136

Unit Number 136	Alternatives 2, 3, 4	Total Unit Acres: 11.4	Prescription: Clearcut
VCU Number: 585	Harvest System: Shovel	Net Harvest Volume (MBF): 207	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 136 has old-growth stand structure. The overstory consists of western hemlock, Sitka spruce and western redcedar. Stem decay is the main damage. Scattered dead or dying tops are common in all species. The average defect rating is high. Mistletoe was rated as low. The unit has a high windthrow risk. All adjacent past harvest units meet NFMA requirements for green-up.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the proposed temporary road.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road in Alternatives 2, 3, and 4, totaling 900 feet, as displayed on the unit card. Existing NFS roads 3018500 and 3018520 will require reconstruction, totaling 4100 feet, to provide access to the unit. Existing NFS road 3018500 will also be used to access Unit 139.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait. Stream Lake-A1 characteristics do not contain project specific field verified information.

Stream#: Lake-A1 Class: I Flagging: B/W C- Type: L
Concerns: none known
Buffer (RMA): Class I for Lake-A1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A

All streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): none
Protection: Category C

Temporary roads for Unit 132: Alternatives 2, 3, and 4 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

Unit 136

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit is Very Low . It is entirely in Timber Production LUD and is considered Not Seen. There are no scenery resource concerns.

RECREATION:

No concerns

SOILS/WETLANDS:

Slopes range from nearly level to about 30%. Most slopes are under 25%. There are approximately 2 acres (16% of the unit) of forested wetland near the central portion of the western unit boundary and 2 acres (13% of the unit) of emergent short sedge/forested wetland complex near the southern unit boundary (BMP 12.5). The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

A temporary road will impact less than 1/4 acre of forested wetland within the unit. About an additional 1/2 acre of forested wetland outside of the unit will be impacted by a temporary road needed to access the unit. The existing road is located in a wetland and extending the road through wetland was necessary to access the unit (BMP 12.5, 13.2). Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (central portion of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 136 | **Alternative 2** | **VCU: 585**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit Number 136 | **Alternative 3** | **VCU: 585**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500
Feet

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Unit Number 136 | **Alternative 4** | **VCU: 585**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 138

Unit Number	138	Alternatives	2, 3, 5	Total Unit Acres:	35.7	Prescription:	Clearcut
VCU Number:	585	Harvest System:	Cable, Shovel, Helicopter	Net Harvest Volume (MBF):	797	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Old-Growth stand structure with a mixed western hemlock and western redcedar overstory with mostly even distribution. Sitka spruce are widely spaced in the overstory. Mistletoe rating varies across the unit; the rating overall, is moderate to heavy. Overstory is typically moderate to high defect with stem rot, stem form and mistletoe being of concern. Windthrow risk is low. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
Approximately 15 acres of this unit has a Moderate SIO and lies partially in the Foreground, and partially Seldom Seen. Legacy was placed to serve as a visual screen for the unit.

This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 15 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to reduce the size of the opening created by Units 138 and 139 and to include a sensitive plant population at the SW end of the boundary between these two units. Legacy on the east side of unit was placed to reduce required road length and reduce visibility of openings from Sandy Beach and the Sandy Beach Rd. Legacy in the SW lobe of unit was placed to block up POG adjacent to Slide Cr. RMA. Mapped legacy totals approximately 15 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

Alternatives 2, 3: This unit is planned for a combination of shovel and cable yarding. Cable settings are planned for uphill yarding to landings on the proposed temporary road. Shovel settings are planned for yarding to the proposed temporary road.

Alternative 5: This unit is planned for helicopter yarding to the existing NFS road 3000170.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road in Alternatives 2 and 3, totaling 2,800 feet, as displayed on the unit card.

BOTANY:

Alternatives 2, 3, and 5
One population (20 individuals) of Platanthera (sensitive plant) and one population (49 individuals) of Piperia (sensitive plant) were partially in the original unit; these areas were entirely incorporated into legacy or deferred.

This unit indirectly affects the above populations in Legacy and outside the unit to the northeast.

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 138

Streams drain to Slide Creek and to Clarence Strait.

Stream#: 1 Class: I Flagging: B/W C- Type: MMM, MCS
Concerns: blowdown, active erosion and steep side-slopes with mobile sediment
Buffer (RMA): Class I for MMM greater of 120 feet, flood plain, riparian vegetation or soils, riparian associated wetland fens. Class I for MCS greater of 100 feet or to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A

All streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): none
Protection: Category C

Temporary roads for Unit 138: Alternatives 2 and 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit consists of about 15 acres of Moderate and 20 acres of Very Low . It is entirely in Modified Landscape LUD and is partially considered Foreground; however, over half of the unit is on the back side of the ridge and is Seldom Seen. Legacy patches have reduced the visibility of the unit so that it meets the SIO. Most views from Sandy Beach are screened by trees along the road. Opening size allowable by the Forest Plan for Intermediate VAC is 15 to 40 acres.

RECREATION:

Harvest in this unit would be heard from Sandy Beach Picnic Area. There are often 10 vehicles at this picnic area in the summer. This impact would be short-term and limited to the duration of harvest activities.

SOILS/WETLANDS:

Slopes average 30 to 50%. Wetlands were not identified in the field. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

Alternatives 2 and 3: The proposed temporary road does not traverse any wetlands.

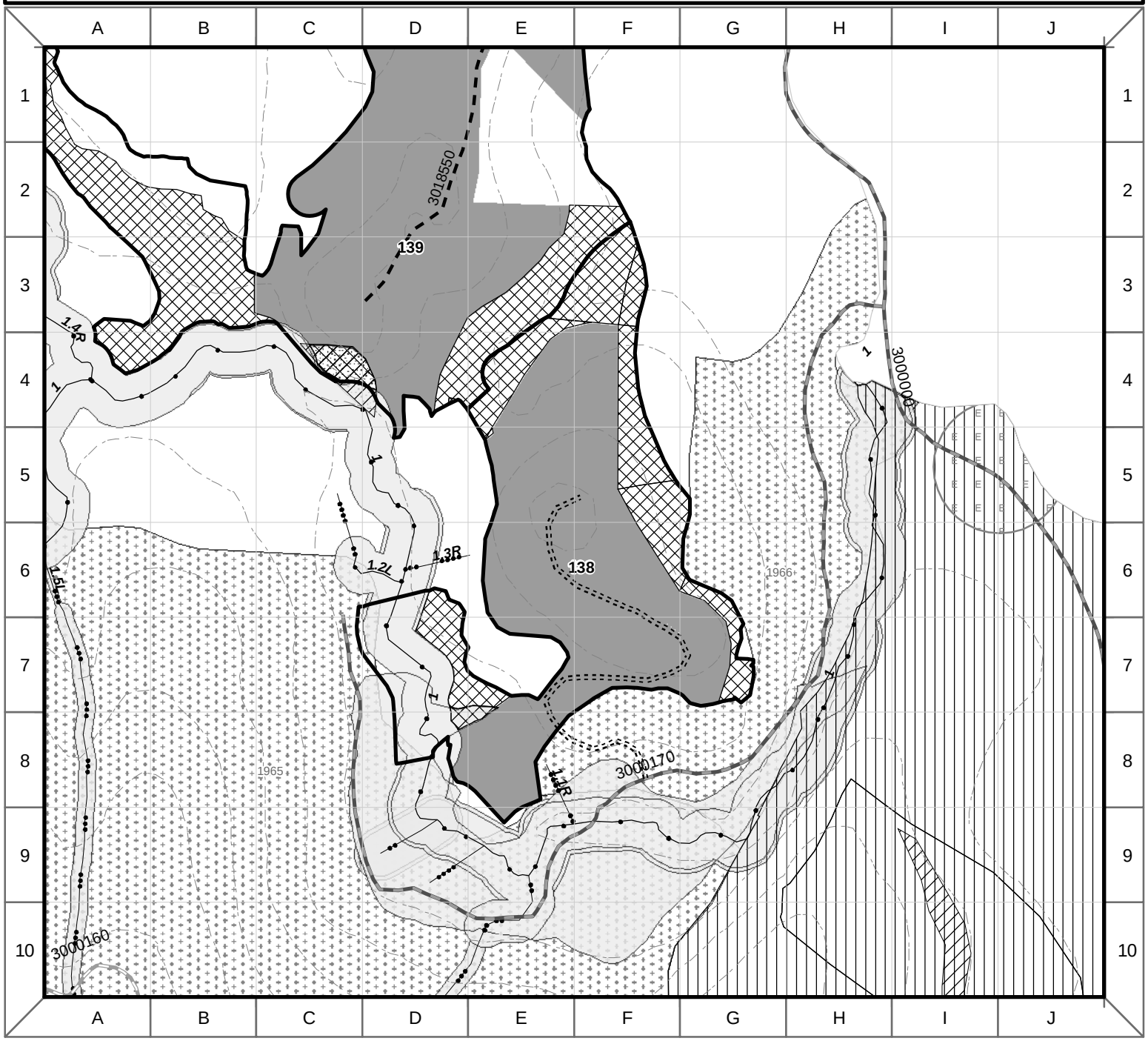
WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (southern half of unit). Legacy standard and guideline applies in this VCU; Legacy acres cover some deer winter range and marten habitat.

Alternative 4: Unit dropped because location coincides with the biologically preferred small OGR.

Old-growth Reserve (OGR) Boundary
Alternatives 2, 3, and 5: Current OGR boundary adjacent to unit to the east
Alternative 4: Unit dropped because it coincides with biologically preferred small OGR

Unit Number 138 | **Alternative 2** | **VCU: 585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

0 500 Feet

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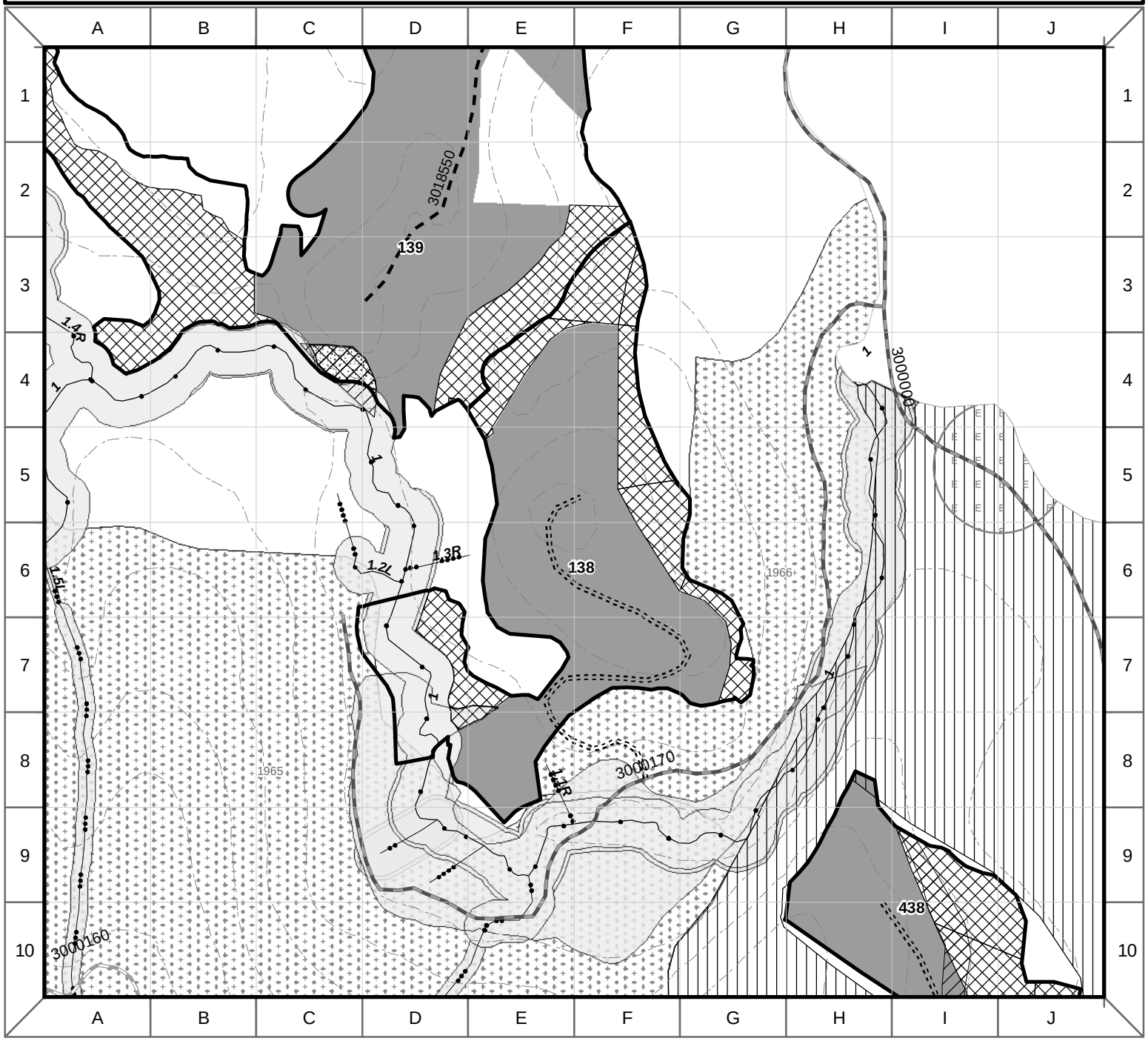
Unit Number 138 | **Alternative 3** | **VCU: 585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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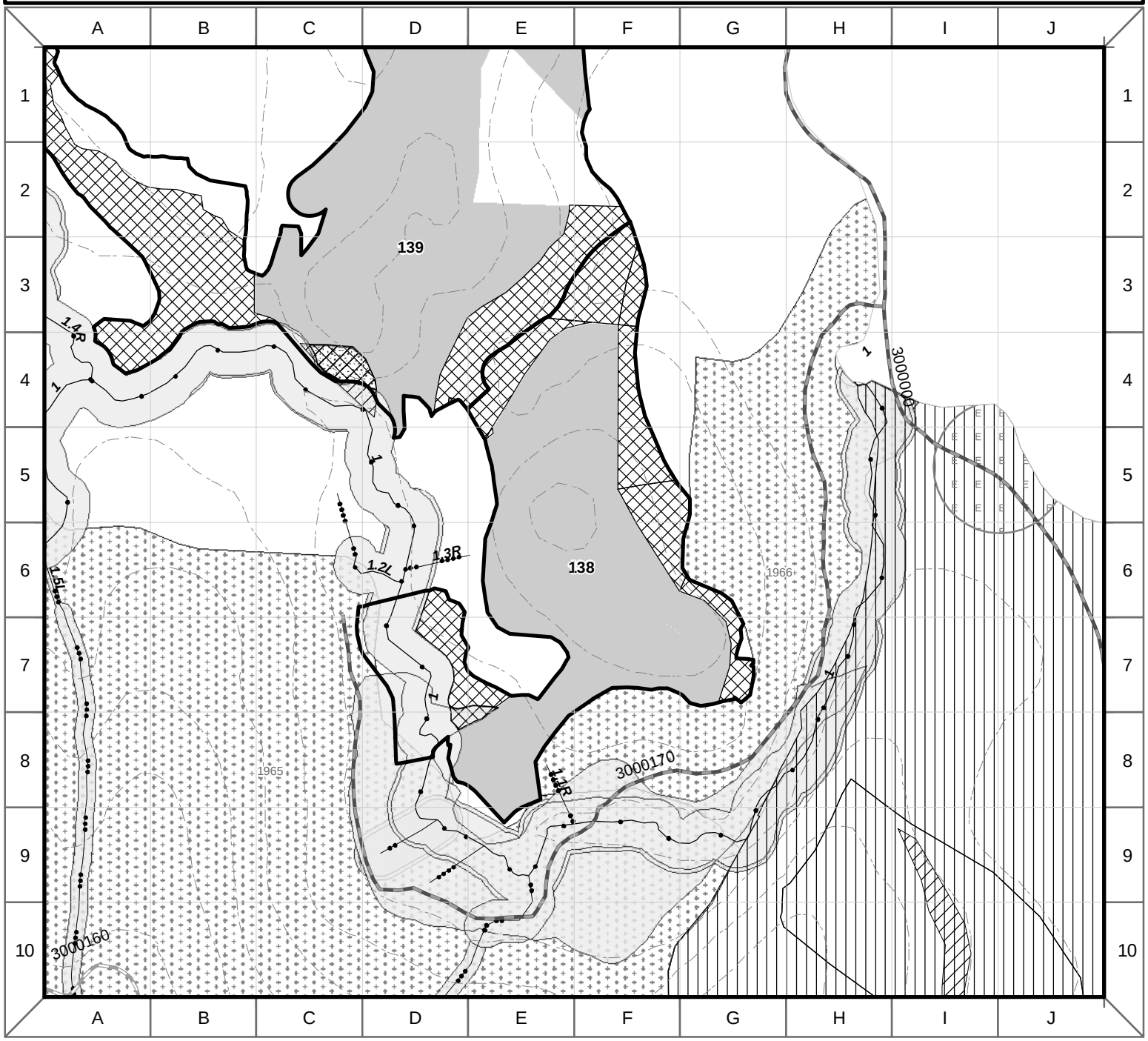
Unit Number 138 | **Alternative 5** | **VCU: 585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
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0 500
Feet

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Unit 139

Unit Number	139	Alternatives	2, 3, 4, 5	Total Unit Acres:	2, 3, 5 - 56.8 4 - 17.3	Prescription:	Clearcut
VCU Number:	585	Harvest System:	Cable, Shovel,	Net Harvest Volume (MBF):	2, 3, 5 - 1,574 4 - 481	LUD:	Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing condition: This unit has old growth stand structure with a mixed western hemlock and western redcedar overstory. Sitka spruce are widely spaced. The mistletoe rating is moderate to heavy. Overstory trees typically moderate to high defect with stem decay stem form and mistletoe being of concern. Windthrow risk is moderate. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
Approximately 25 acres of this unit are within a Moderate SIO. Placement of legacy was used to serve as a visual screen for most of the unit. Deferral of two settings to a future entry was done to reduce the size of openings.

This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 28 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to reduce the size of the opening created by Units 138 and 139 to meet NFMA opening size requirements and to include a sensitive plant population at the SW end of the boundary between these two units. Legacy at north lobe of unit was placed to avoid impacting another sensitive plant, to reduce visibility of unit, and to reduce required road length. Legacy in the SW lobe of unit was placed to avoid impacting another sensitive plant population and block up POG adjacent to Slide Cr. RMA. Legacy in north-center of unit partially avoids a fourth sensitve plant population. Mapped legacy equals about 36 acres, but is under review. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy. Because of the OGR modification, the planned unit in Alternative 4 is less than 20 acres and therefore doesn't require legacy.

TIMBER/LOGGING:

Alternatives 2, 3: This unit is planned for a combination of shovel and cable yarding. Cable settings are planned for uphill and downhill yarding to landings on the proposed temporary road and proposed NFS road 3018550. Shovel settings are planned for yarding to the proposed NFS road 3018550.

Alternatives 4, 5: This unit is planned for helicopter yarding to the existing NFS road 3000170.

ENGINEERING/ROADS:

Unit is accessed by a proposed NFS road 3018500 in Alternatives 2 and 3, totaling 5500 feet, as displayed on the unit card. See road card for detailed information on the proposed NFS road. Unit is also accessed by construction of proposed NFS road 3018550 in Alternatives 2 and 3, totaling 600 feet. All of this road will be constructed across a decommissioned road bed. Unit is also accessed by a proposed temporary road in Alternatives 2 and 3, totaling 500 feet, as displayed on the unit card.

BOTANY:

Alternatives 2, 3, and 5
Four populations of lesser round-leaved orchid (sensitive plant) were at least partially within the original unit and two populations of Alaska rein orchid (sensitive plant) were inside or adjacent to the original unit; three populations of the lesser round-leaved orchid and both populations of Alaska rein orchid were entirely incorporated into legacy or excluded from the unit and the remaining population of lesser round-leaved orchid was partially incorporated into legacy. This protection was provided because few other populations are present in this area. Altogether, the four populations of lesser round-leaved

orchid contain approximately 124 plants, of which about 55 plants overlapped with the unit. Approximately 25 of these 55 plants were incorporated into legacy; so about 99 of the plants in these four populations are in legacy or outside the unit. Similarly, only about 1 or 2 of the 115 Alaska rein orchid plants in the two populations were inside the original unit boundary and these have been incorporated into legacy.

This unit indirectly affects the Alaska rein orchid population located south of the unit and the lesser round-leaved orchid populations located to the north and south, either outside the unit or in Legacy.

Alternative 4
Most of the unit was dropped due to OGR modification, including all areas occupied by sensitive plant populations. However, indirect effects may occur to the two northern populations of lesser round-leaved orchid.

INVASIVE SPECIES:
No Concerns

FISHERIES:
Streams are tributaries to Slide Creek and to Clarence Strait.

Stream#: 1 Class: I Flagging: B/W C- Type: MCM, HCV, LCM
Concerns: active erosion, steep side-slopes with exposed bedrock
Buffer (RMA): Class I for MCM, HCV and LCM greater of 100 feet or to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A

Stream#: 1.4R Class: I, II Flagging: B/W C- Type: HCM, MMS, MMO
Concerns: none
Buffer (RMA): Class I for HCM greater of 100 feet or to the top of the side-slope break. Class I for MMS and Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A

Stream#: 3 Class: II, III, IV Flagging: O/W, G/W C- Type: MMS, HCD, HCM
Concerns: blowdown and active erosion
Buffer (RMA): Class II for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCD and HCM to the top of the side-slope break. Class IV for UC none.
Alternatives: 2, 3, 4 and 5 Buffer (RAW): Will be determined by IDT during layout.
Protection: Category A, B and C

Temporary roads for Unit 139: Alternatives 2 and 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
The Scenic Integrity Objective (SIO) for this unit consists of about 25 acres of Moderate and 22 acres of Low and 12 acres of Very Low . It is mostly in Modified Landscape LUD and is partially considered Foreground, partially Middleground, and partially Seldom Seen. About 16 acres of the original unit was deferred so that opening sizes would be reduced and the unit could meet the SIO. Legacy patches have further reduced the visibility of the unit. Opening size allowable by the Forest Plan for Intermediate VAC is 15 to 40 acres.

RECREATION:
Harvest in this unit would be heard from Sandy Beach Picnic Area. There are often 10 vehicles at this picnic area in the summer. This impact would be short-term and limited to the duration of harvest activities.

Unit 139

SOILS/WETLANDS:

Slopes range from 20 to 80% in this unit. Approximately 1.5 acres in the unit are unsuitable for harvest due to colluvial activity on the soil surface, high landslide potential to the Class 1 stream, and MMI4 soils. There is a small area of slopes greater than 72% the unit on bedrock knobs. This area outside the unsuitable soil exclusion is suitable for harvest with minimum partial suspension. Wetlands were not identified in the field. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

Alternatives 2 and 3: The proposed temporary road does not traverse any wetlands.

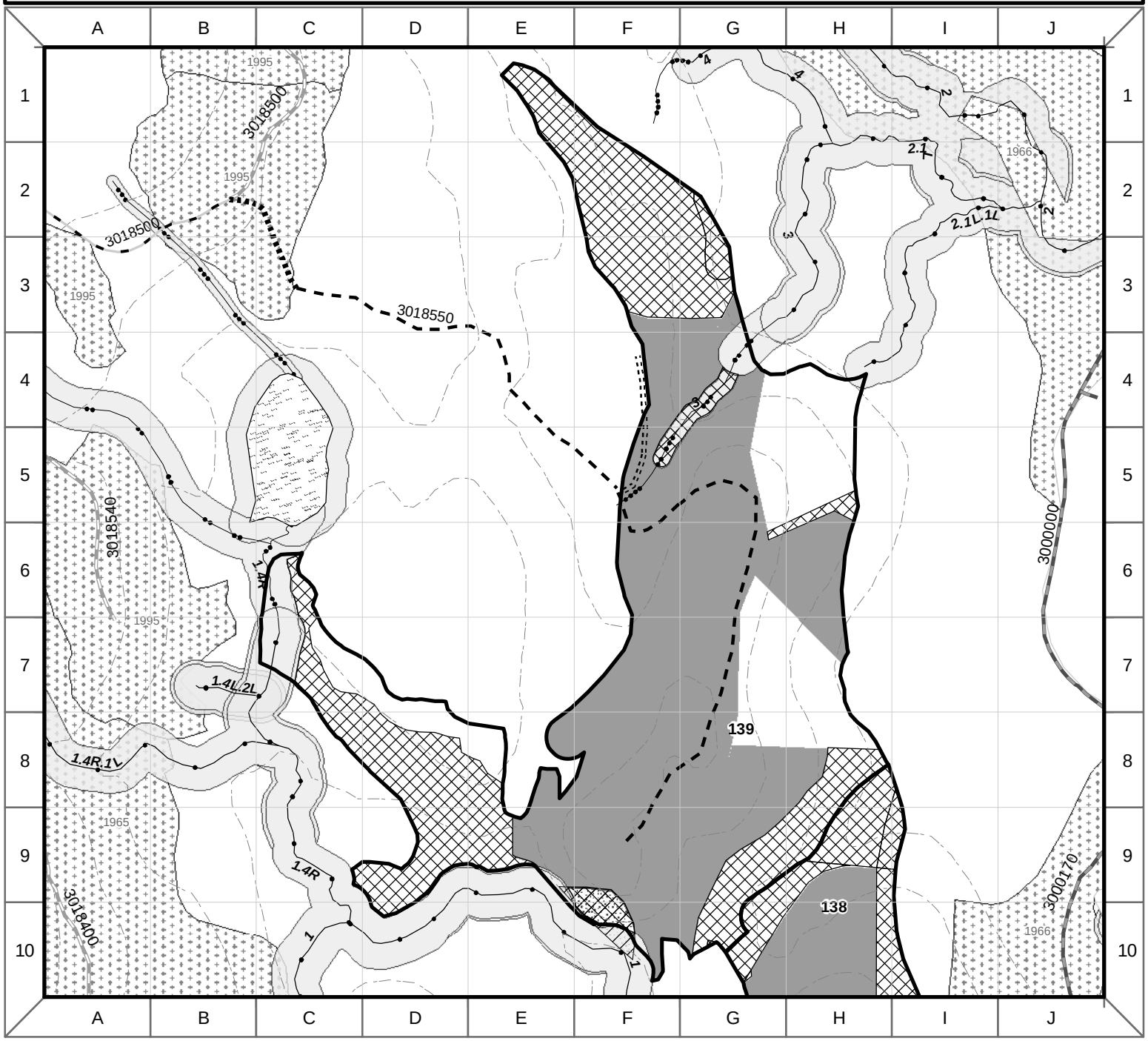
WILDLIFE:

Unit includes average snow deer winter range (northern half of unit), some of which is also deep snow marten habitat/deer winter range (southern half of unit). Legacy standard and guideline applies in this VCU; Legacy acres cover some deer winter range and marten habitat.

Alternative 4: Only small northern portion of unit included under Alternative 4 because location coincides with the biologically preferred small OGR at Sandy Beach. There are no requirements for Legacy acres in this unit because it is less than 20 acres.

Old-growth Reserve (OGR) Boundary
Alternatives 2, 3, and 5: Current OGR boundary adjacent to unit boundary to the south.
Alternative 4: OGR boundary moved to the north, adjacent to unit (covering a portionof the originally planned unit).

Unit Number 139 | **Alternative 2** | **VCU: 585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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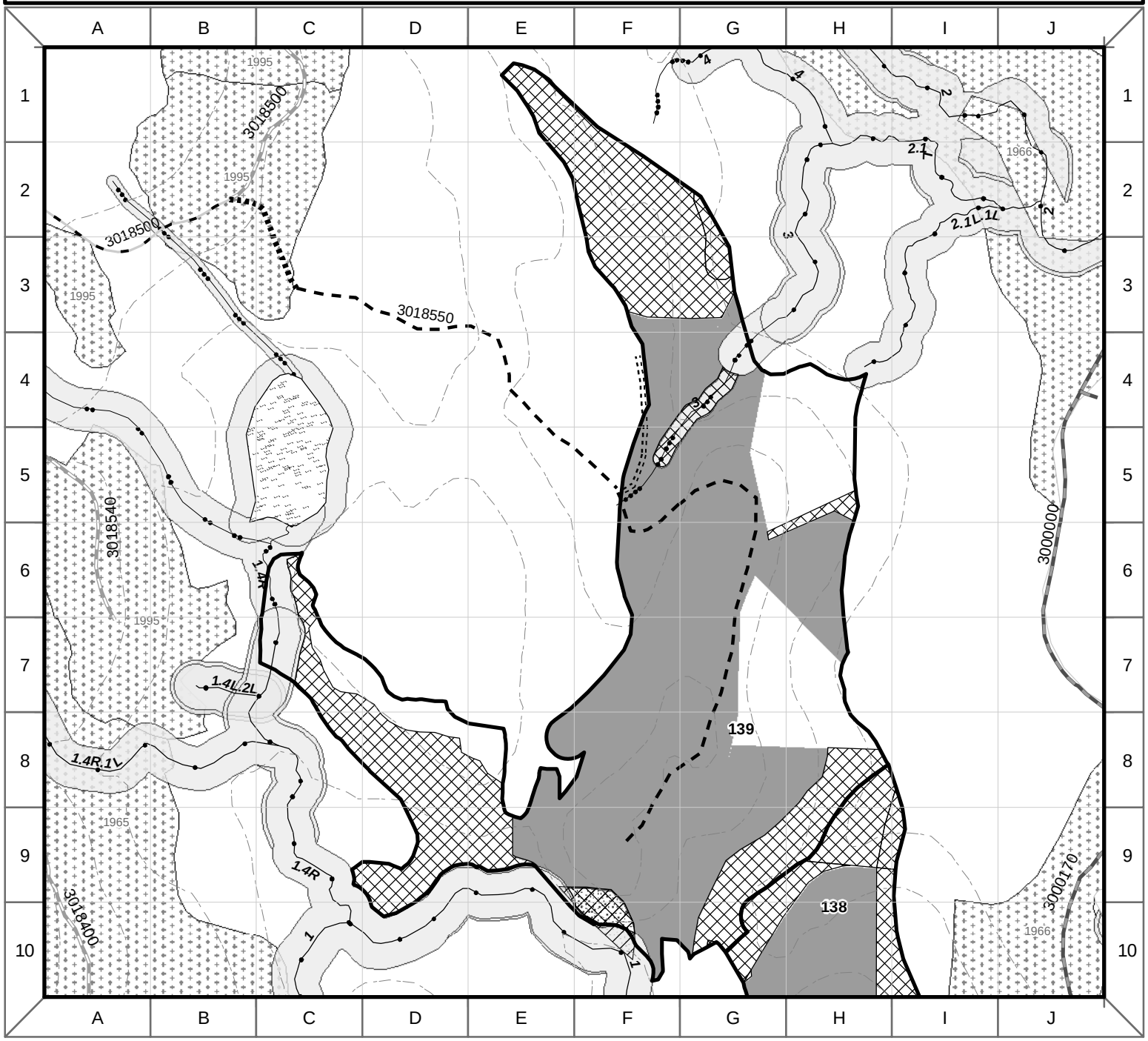
Unit Number 139 | **Alternative 3** | **VCU: 585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500
Feet

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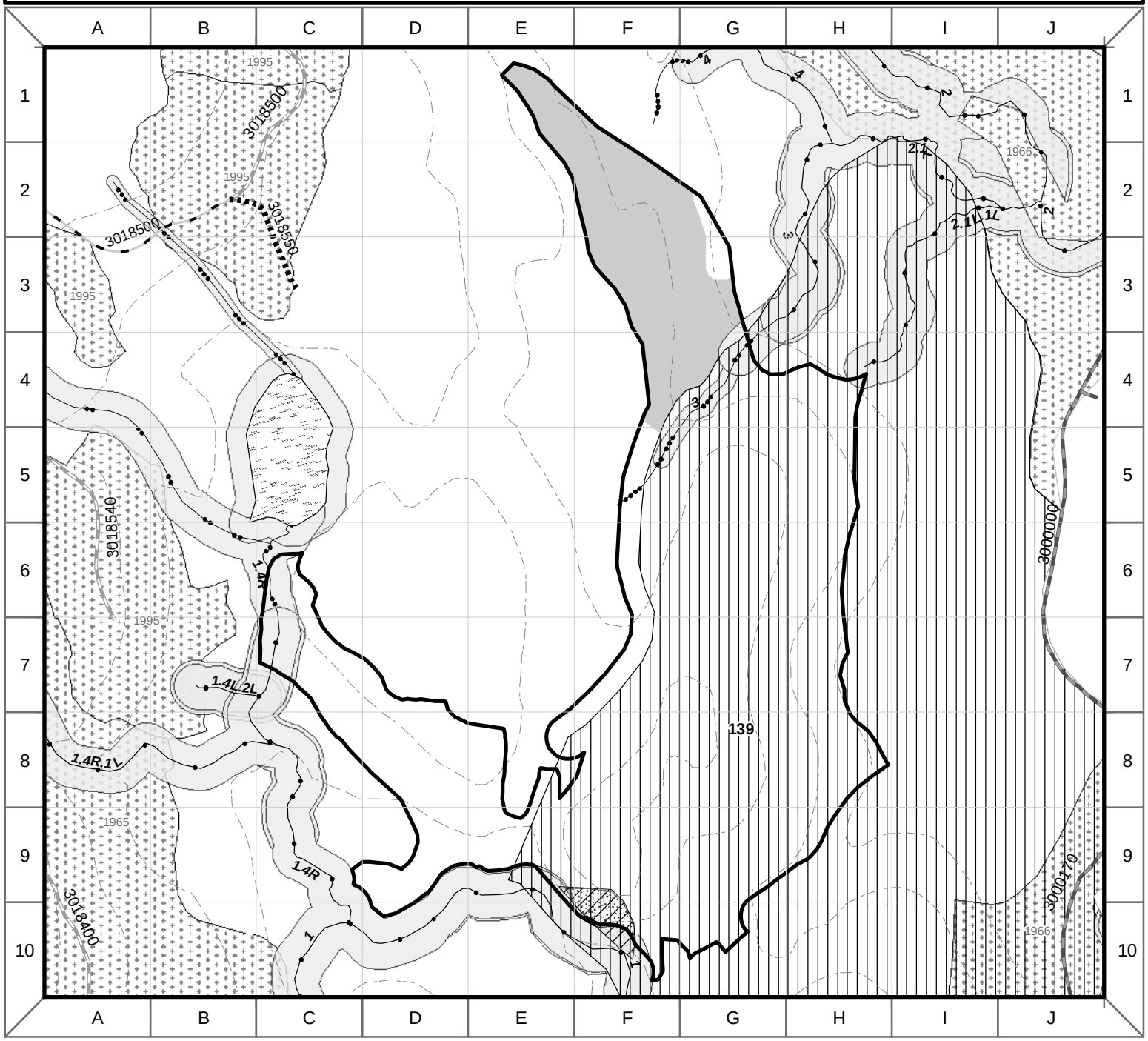
Unit Number 139 | **Alternative 4** | **VCU: 585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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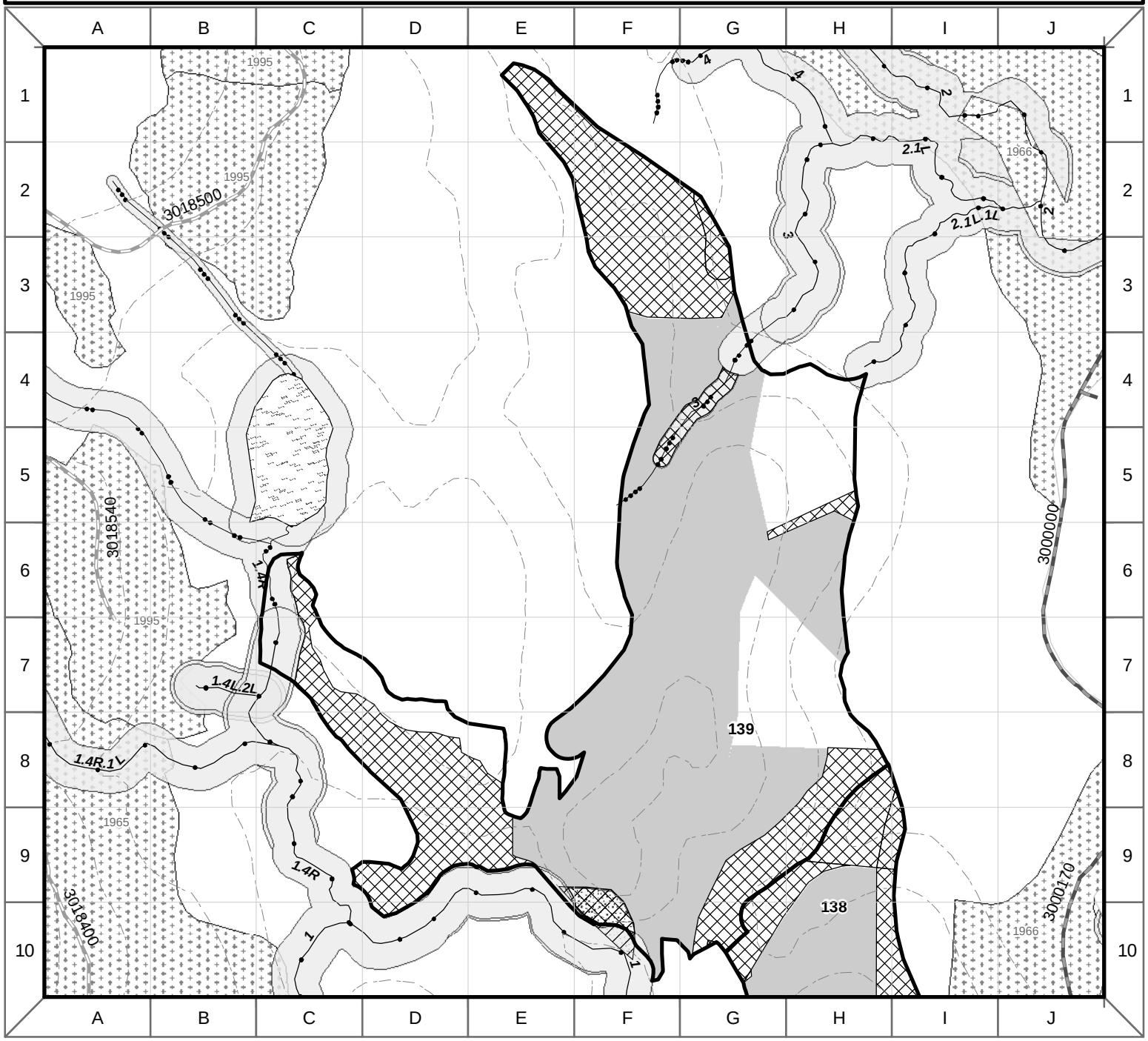
Unit Number 139 | **Alternative 5** | **VCU: 585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 140

Unit Number	140	Alternatives	2, 3, 4	Total Unit Acres:	83.5	Prescription:	Clearcut and 25% Removal
VCU Number:	585	Harvest System:	Cable, Shovel,	Net Harvest Volume (MBF):	1,084	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has uneven-aged stand structure due to repeated windthrow events. The overstory consists primarily of western hemlock as the dominant species along with scattered western redcedar. The main damage agents affecting tree health and volume loss is stem decay in the western redcedar and a mixture of stem decay and mistletoe in the western hemlock. Overall the average defect rating is high, mostly due to heavy mistletoe. Past windthrow areas are concentrated on the bench in the north central part of the area and along the upper portions of the eastern slope break. Windthrow risk is high. Overall defect is high, with marginal individual tree value. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management (Shovel and Cable Settings)
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with heavy stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. Based on the size of the original opening, this requires that approximately 21 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to reduce the size of the opening created by units 140 and 141 by building off of and providing RAW to the RMA that partially separates the units. The southern lobe of legacy reduces visibility of the opening to Sandy Beach and Sandy Beach Rd. and builds off the RMA, blocking up POG. Similarly, small patches of POG on the east of CC setting build off of soils legacy to produce a 15-ac block and reduce visibility to Sandy Beach and Sandy Beach Rd. Remainder of unit to the NE is partial harvest. A total of about 26 acres is currently mapped as legacy. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Helicopter Settings)
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction for how to implement this prescription. Due to the proximity and visibility from Sandy Beach, this prescription was used in helicopter settings to reduce the visual impacts of harvest.

TIMBER/LOGGING:

This unit is planned for a combination of shovel, cable, and helicopter yarding. Cable settings are planned for uphill yarding to landings on the proposed temporary roads. Shovel settings are planned for yarding to the proposed temporary roads and proposed NFS roads 3000195 and 3000197. Helicopter settings are planned for yarding to landings on the proposed temporary roads. Even-age management is planned in the shovel and cable settings. Uneven-age management single tree selection with 75% retention is planned in the helicopter settings.

ENGINEERING/ROADS:

Unit is accessed by proposed NFS road 3000195, totaling 5400 feet, as displayed on the unit card. Approximately 2400 feet of this road will be constructed across decommissioned road bed. This road is also used to access Units 141 and 142. See road card for detailed information about the proposed NFS road. This unit is also accessed by two proposed temporary roads, totaling 800 feet, as displayed on the unit card.

BOTANY:

Unit 140

BOTANY:
No Concerns

INVASIVE SPECIES:
No Concerns

FISHERIES:
Streams drain to Clarence Strait.

Stream#: 2.2R.1R Class: I, II Flagging: B/W C- Type: HCO, MMS, MMO
Concerns: none
Buffer (RMA): Class I and II for HCO greater of 100 feet or o the top of the side-slope break. Class II for MMS and MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 2, 3, and 4 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A

Stream#: 2.4R Class: II, III, IV Flagging: B/W, O/W, G/W C- Type: HCM, HCO
Concerns: none
Buffer (RMA): Class II for HCM greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 4 Buffer (RAW): Will be identified by IDT during layout
Protection: Category A, B and C

Stream#: 4 Class: I, II, III, IV Flagging: B/W, O/W, G/W C- Type: MMS, MMO, HCO, HCL
Concerns: blowdown
Buffer (RMA): Class I for MMS and MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break. Class II for HCL to the top of the side-slope break. Class IV MMO none.
Alternatives: 2, 3, and 4 Buffer (RAW): no review needed.
Protection: Category A, B, and C

Stream#: 4.4L Class: III, IV Flagging: O/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class III for HCO to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 4 Buffer (RAW): Will be identified by IDT during layout
Protection: Category B and C

Stream#: 4.6L Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the the side-slope break. Class IV for HCO none.
Alternatives: 2, , and 4 Buffer (RAW): no review needed
Protection: Category A and C

All other stream in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

Temporary roads for Unit 140: Alternatives 2, 3, and 4 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16 14.3, and 14.5.

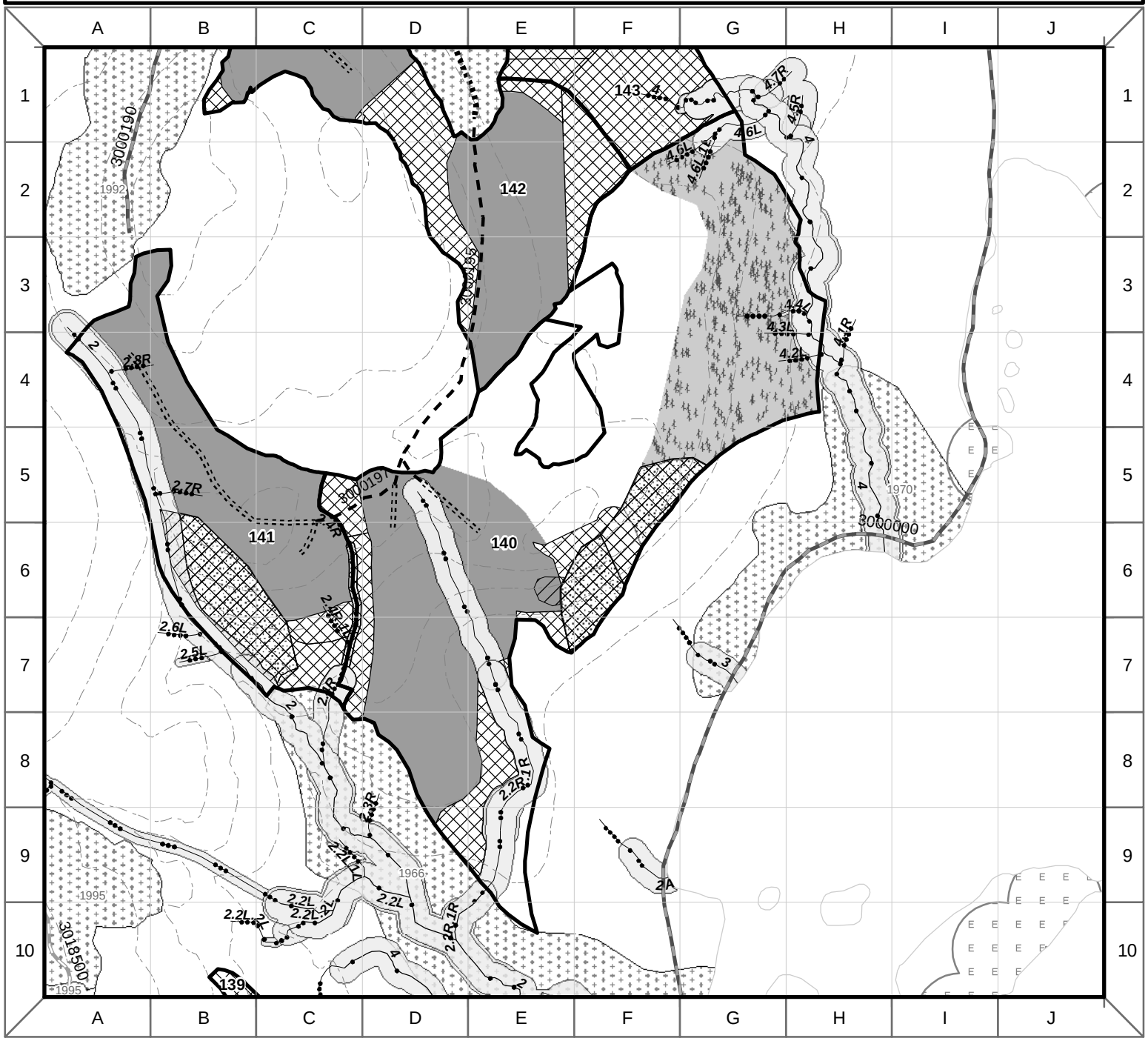
GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit 140
The Scenic Integrity Objective (SIO) for this unit consists of about 88 acres of Low and 6 acres of Very Low. It is in Modified Landscape LUD and is partially considered Foreground, but mostly in Middleground. The most visible portions of the unit are in uneven-aged management and legacy patches screen part of the unit and reduce the size of openings so that the SIO can be met.
RECREATION: Harvest in this unit would be heard from Sandy Beach Picnic Area. There are often 10 vehicles at this picnic area in the summer. This impact would be short-term and limited to the duration of harvest activities.
SOILS/WETLANDS: Slopes range from nearly level to about 83%.There less than 3/4 acre of slopes greater than 72% that are suitable for harvest with minimum partial suspension. About 9 acres were excluded due to very high landslide potential, colluvial activity, and very steep wet slopes adjacent to a steep v notch. Forested wetlands range from 15 to 60% of the unit. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting. Two temporary road will impact about 2/3 acre within the unit, and less than 1/4 acre outside of the unit. Wetland avoidance was not practicable due to the abundance of forested wetland and the need for access. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern lobes of unit). Legacy standard and guideline applies in this VCU; Legacy acres cover some deer winter range and marten habitat.

Unit Number 140 | **Alternative 2** | **VCU: 585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N S E W

0 500 Feet

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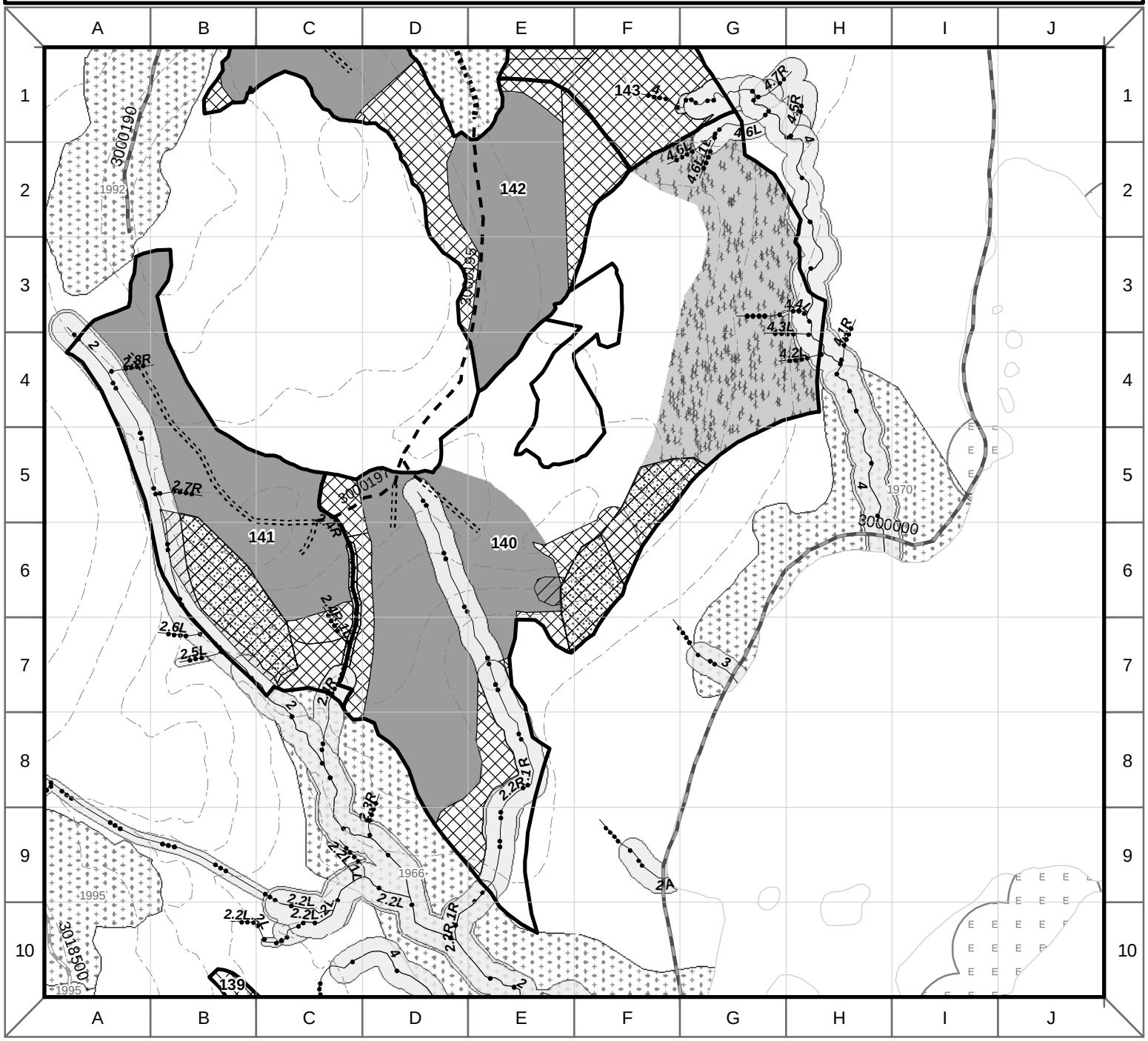
Unit Number 140 | **Alternative 3** | **VCU: 585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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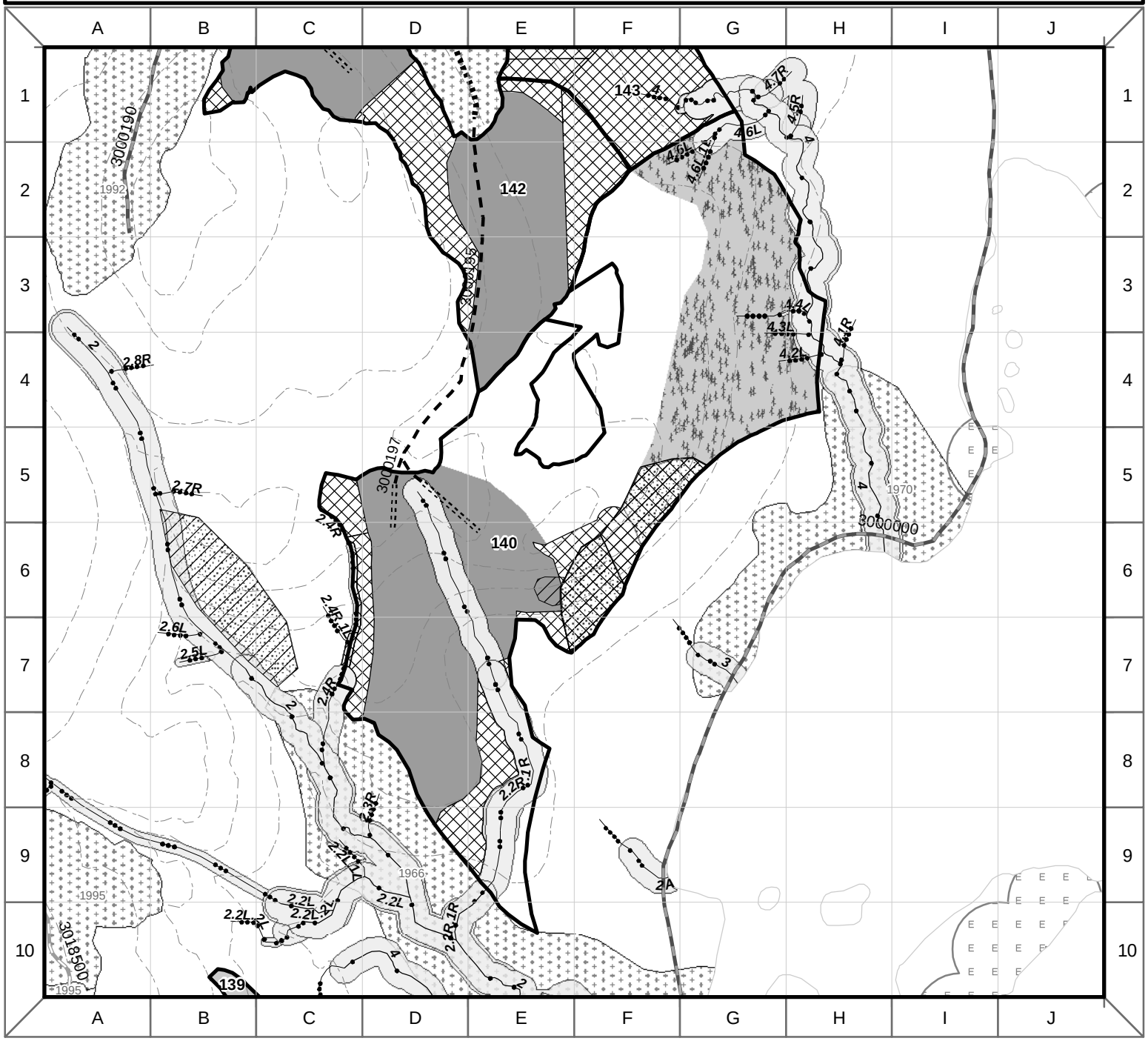
Unit Number 140 | **Alternative 4** | **VCU: 585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 141

Unit Number	141	Alternatives	2, 3	Total Unit Acres:	33.9	Prescription:	Clearcut
VCU Number:	585	Harvest System:	Cable, Shovel	Net Harvest Volume (MBF):	740	LUD:	Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 141 has mostly old-growth structure with areas in the northeast tending toward uneven-age. The overstory is composed of mostly western redcedar with western hemlock, Sitka spruce and some patches of Alaska-cedar. Heart rot, bole cracks, shake, mistletoe and broken and dead tops are common. The overall average defect rating is moderate. Mistletoe infections are considered to be moderate. Windthrow risk is high. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 15 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Part of the required legacy was placed to coincide with areas dropped for soils concerns. The remaining legacy was placed to reduce the size of the opening created by units 140 and 141, to reduce visibility from the Sandy Beach Rd. A total of about 15 acres are mapped as legacy. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of shovel and cable yarding. Cable settings are planned for uphill yarding to landings on the proposed temporary road. Shovel settings are planned for yarding to the proposed temporary road.

ENGINEERING/ROADS:

Unit is accessed by proposed NFS road 3000195, totaling 5,200 feet, and proposed NFS road 3000197, totaling 900 feet, as displayed on the unit card. This road is also used to access Units 140 and 142. See road card for detailed information about the proposed NFS road. Approximately 2,400 feet of NFS road 3000195 will be constructed across decommissioned road bed. This unit is also accessed by two proposed temporary roads, totaling 2,200 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait.

Stream#: 2.4R Class: II, III, IV Flagging: B/W, O/W, G/W C- Type: HCM, HCO
Concerns: steep side-slopes with mobile fine sediment, active erosion
Buffer (RMA): Class II for HCM greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2 and 3 Buffer (RAW): no review needed.
Protection: Category A, B and C

Stream#: 2 Class: I, II Flagging: B/W C- Type: HCM, HCD, MMS
Concerns: blowdown and active erosion; road influencing channel
Buffer (RMA): Class I for HCM and Class II for HCD greater of 100 feet or to the top of the side-slope break. Class II for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 2 and 3 Buffer (RAW): no review needed.
Protection: Category A, B and C

All other stream in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

Temporary roads for Unit 141: Alternatives 2, 3, and 4 -- 2 Class IV stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit consists of about 28 acres of Low and 15 acres of Very Low. It is in Modified Landscape LUD and is mostly considered Middleground, but some is Seldom Seen. Much of the visible portions of the unit are in legacy patches, which screen part of the unit and reduce the size of the opening so that the SIO can be met. Typical opening sizes allowed by the Forest Plan in areas with Low SIO and Intermediate VAC are 40 to 60 acres.

RECREATION:

Harvest in this unit would be heard from Sandy Beach Picnic Area. There are often 10 vehicles at this picnic area in the summer. This impact would be short-term and limited to the duration of harvest activities.

SOILS/WETLANDS:

In the northern portion of the unit, slopes average 5 to 40%. The southern portion of the unit has slopes from 40 to 75%. All slopes greater than 72% in this unit have been excluded from harvest consideration. About 11 acres were excluded due to steep slopes and soil concerns. Forested wetlands are intermittent throughout the unit. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

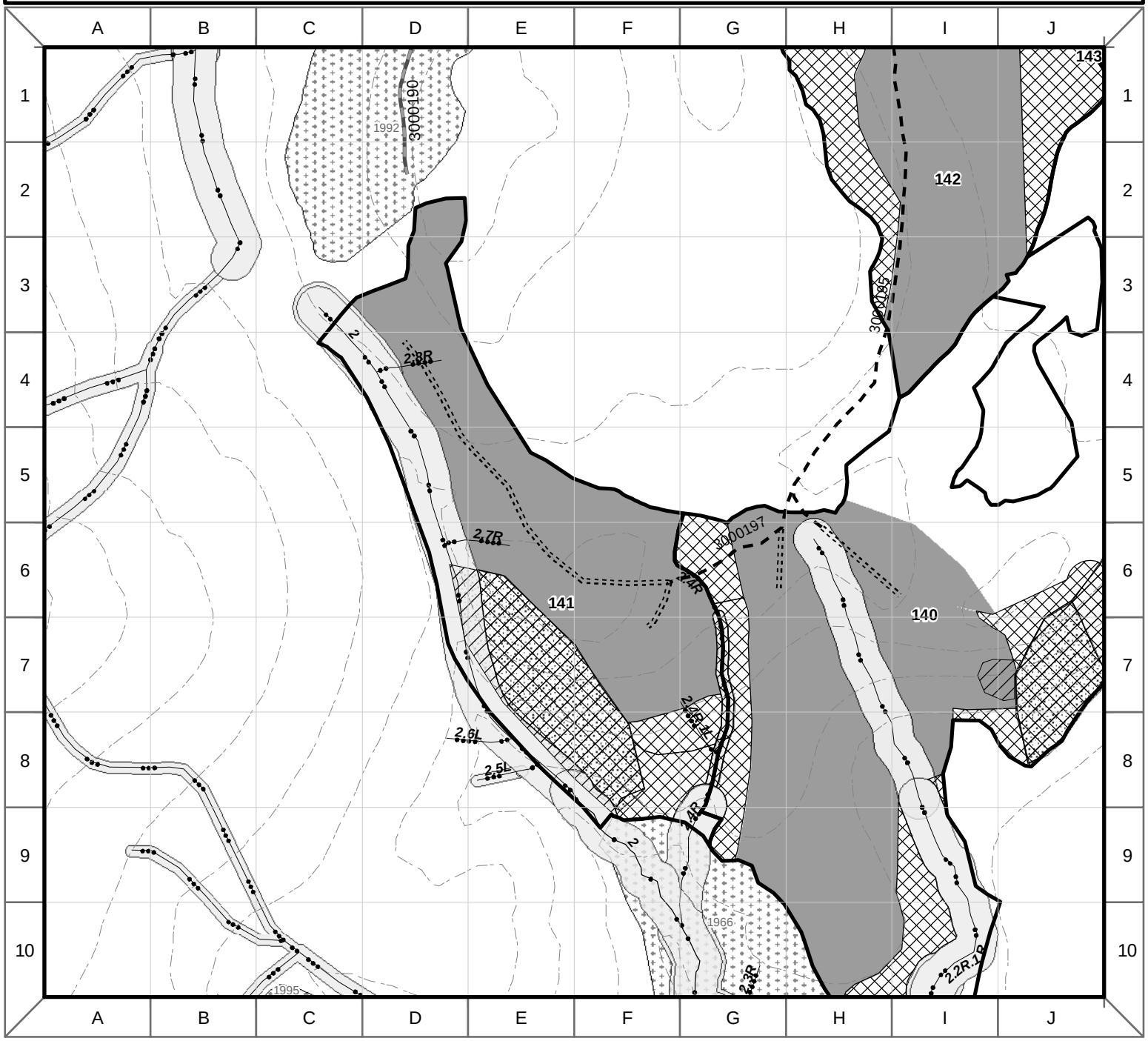
A temporary road will impact approximately 2 acres of forested wetland and about 1/4 acre of emergent short sedge/forested wetland complex within the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (nearly entire unit), some of which is also deep snow marten habitat/deer winter range (northern end of unit). Legacy standard and guideline applies in this VCU; Legacy acres cover some deer winter range and marten habitat.

Alternative 4: Unit dropped to maintain habitat values.

Unit Number 141 | **Alternative 2** | **VCU: 584,585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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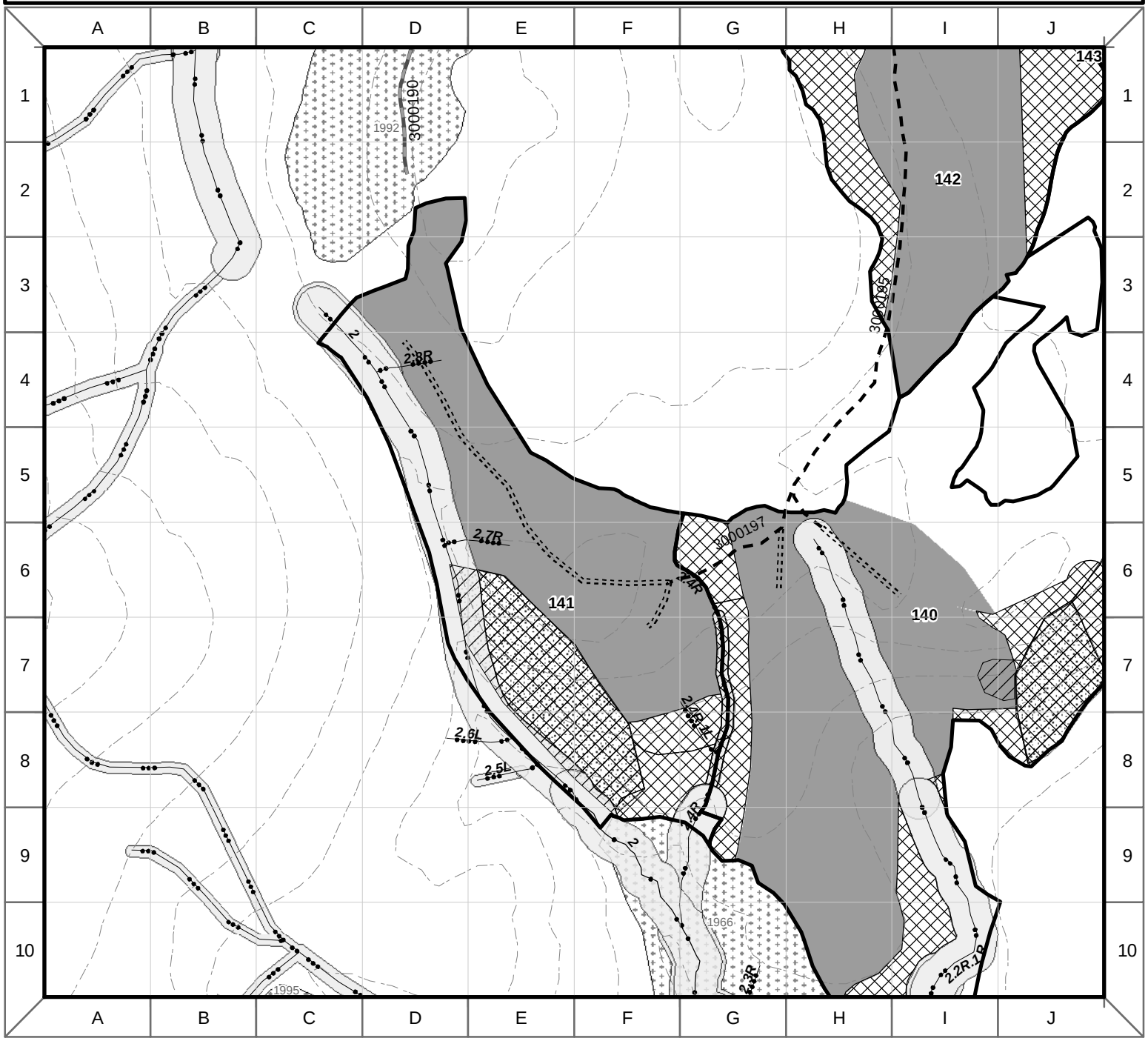
Unit Number 141 | **Alternative 3** | **VCU: 584,585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit 142

Unit Number 142	Alternatives 2, 3, 4, 5	Total Unit Acres: 53.4	Prescription: Clearcut
VCU Number: 585, 584	Harvest System: Cable, Shovel,	Net Harvest Volume (MBF): 1,300	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This area displays uneven-aged stand structure due to extensive repeated windthrow. The overstory consists primarily of western hemlock in an even distribution with multi-age cohorts. Overstory Sitka spruce and western redcedar are found in clumps primarily where windthrow has been less intense. Overall stand damages are moderate to high for all species. In the western hemlock stem decay is heavy to very heavy, while mistletoe is light to moderate. The average defect rating is moderate to high. Windthrow risk is high. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 22 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to divide the opening created by units 142 and 143 into 3 openings, block up POG, and reduce required road length. Mapped legacy is currently about 20 acres and will be increased to at least 22 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

Alternatives 2, 3, 4: This unit is planned for a combination of shovel and cable yarding. Cable settings are planned for uphill yarding to landings on the proposed temporary road, and proposed NFS road 3000195. Shovel settings are planned for yarding to the proposed temporary road.

Alternative 5: This unit is planned for helicopter yarding to landings on existing NFS 3000190.

ENGINEERING/ROADS:

Unit is accessed by proposed NFS road 3000195 in Alternatives 2,3 and 4, totaling 3800 feet, as displayed on the unit card. This road is also used to access Units 140 and 141. See road card for detailed information on the proposed NFS road. This unit is also accessed by a proposed temporary road in Alternatives 2,3, and 4, totaling 1300 feet, as displayed on the unit card.

BOTANY:

No Concerns

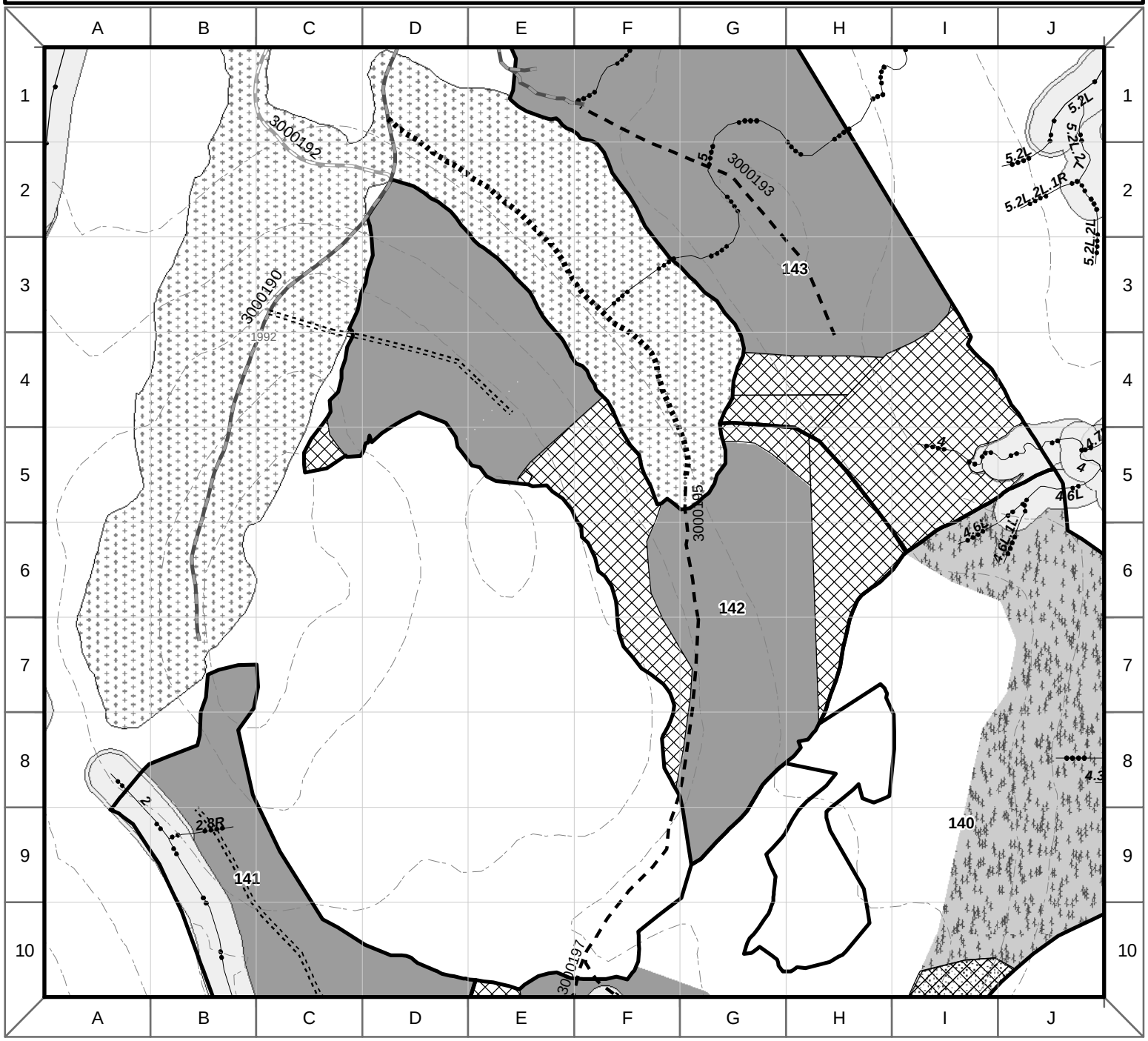
INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 142
No streams found in unit at time of survey. If streams are found during implementations, a fish biologist would be notified and appropriate protections would be applied. Temporary roads for Unit 142: Alternatives 2, 3, and 4 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: The Scenic Integrity Objective (SIO) for this unit is Low. It is in Modified Landscape LUD and is considered Middleground, but not readily seen from the Road 30000000. Much of the visible portions of the unit are in legacy patches, which screen part of the unit and reduce the size of the opening so the SIO can be met. Typical opening sizes allowed by the Forest Plan in areas with Low SIO and Intermediate VAC are 40 to 60 acres.
RECREATION: No concerns
SOILS/WETLANDS: The slopes range from less than 10 to 72%. Slopes are 10 to 35% in the southern half of the northern polygon. Forested wetlands are range from intermittent to dominant throughout the unit. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting. Alternatives 2, 3, and 4: A temporary road will impact about 0.25 acre of forested wetland within the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6). Alternative 5: No road construction.
WILDLIFE: Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in these VCUs; Legacy acres cover some deer winter range.

Unit Number 142 | **Alternative 2** | **VCU: 584,585**



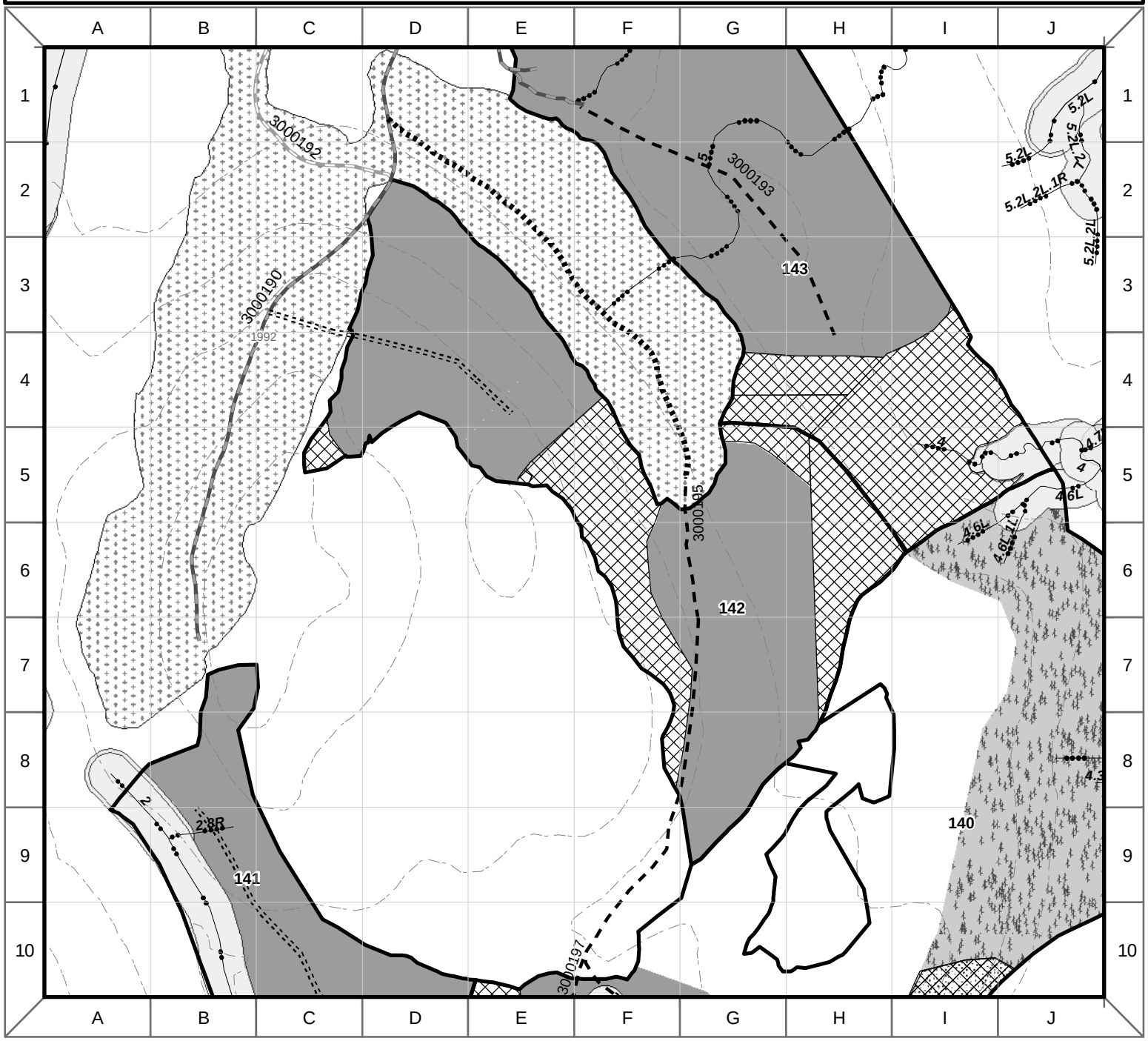
Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt2.mxd 14 July 2012

Unit Number 142 | **Alternative 3** | **VCU: 584,585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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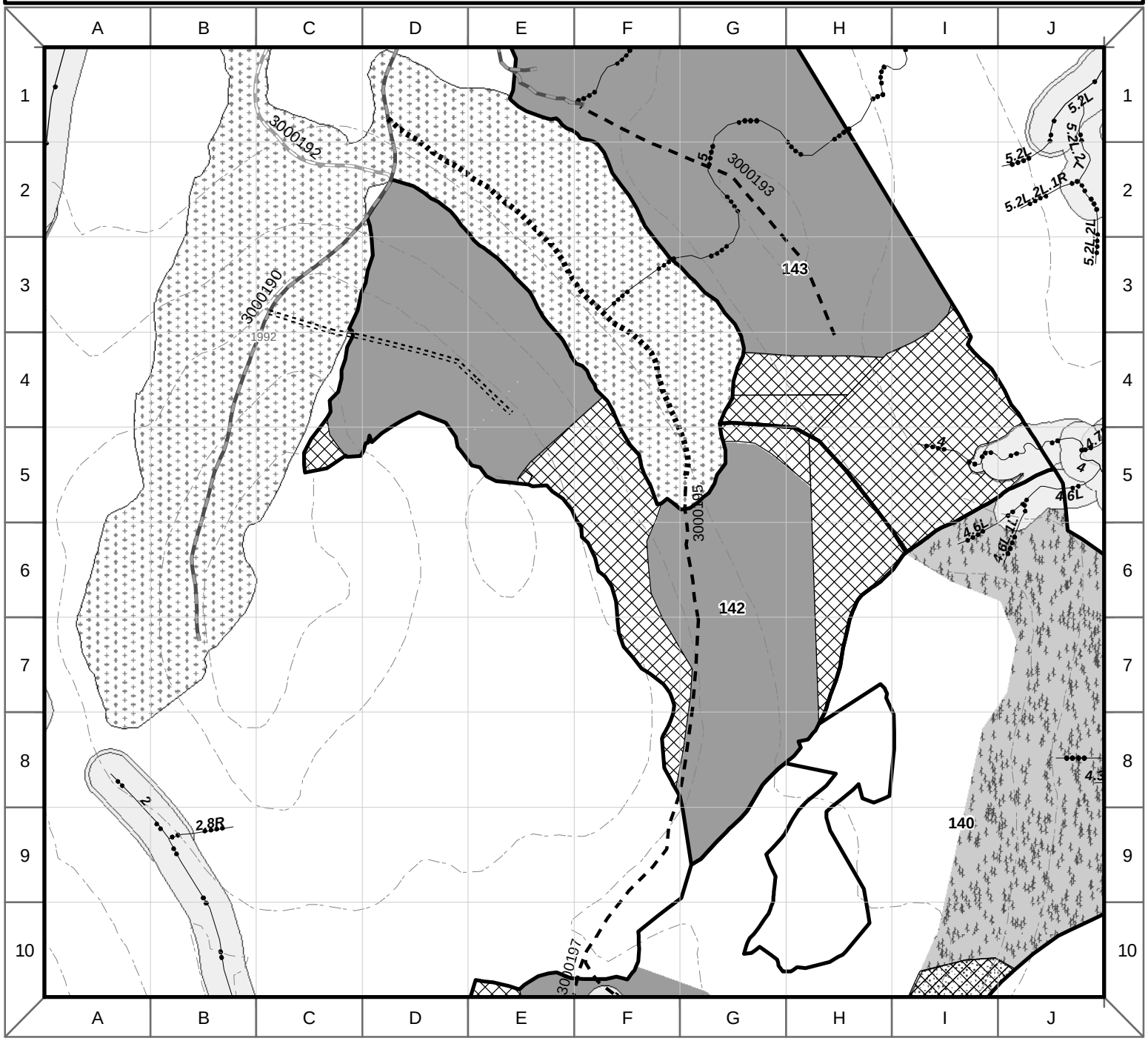
Unit Number 142 | **Alternative 4** | **VCU: 584,585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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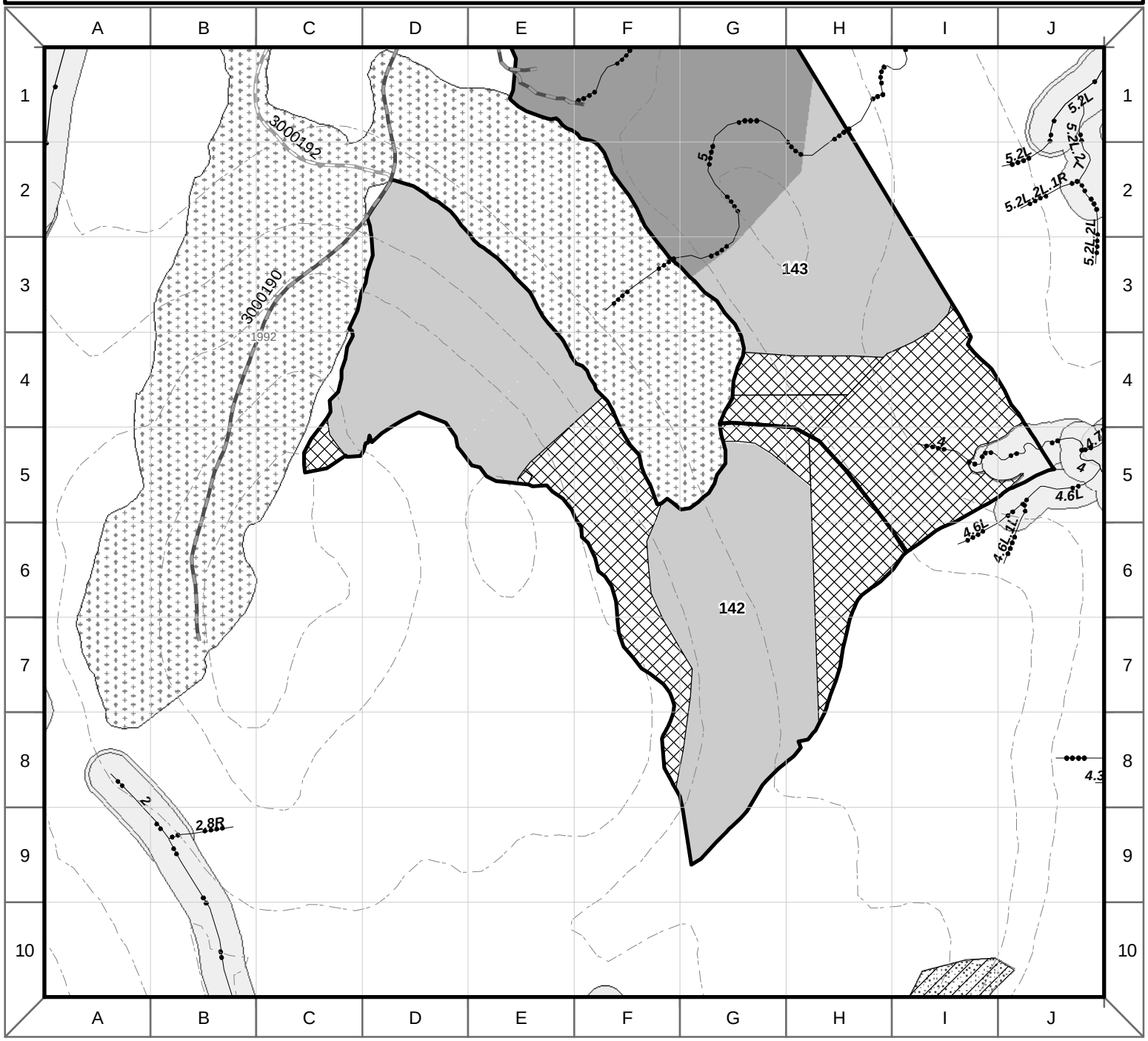
Unit Number 142 | **Alternative 5** | **VCU: 584,585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 143

Unit Number	143	Alternatives	2, 3, 4, 5	Total Unit Acres:	59.0	Prescription:	Clearcut
VCU Number:	584, 585	Harvest System:	Shovel, Helicopter	Net Harvest Volume (MBF):	1,112	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: The unit has old-growth structure. The overstory consists of primarily western hemlock and western redcedar with a minor component of Sitka spruce and Alaska-cedar. The dominant damage affecting tree health and volume loss is stem form (broken, dying or dead tops) and heavy patches of heart and stem decay. The overall defect rating for the entire unit is high/moderate. Overall the unit has marginal timber with generally high defect and many over mature trees that are exhibiting dead or dying tops. Windthrow risk is high. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Unit includes small patch cuts (each about 1 to 2 acres in size) from a previous timber sale that is currently under contract (La Brea timber sale)

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to heavy stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 27 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to divide the opening created by units 142 and 143 into 3 openings, block up POG by building off RMAs, and reduce required road length. A total of about 31 acres of legacy are currently mapped in unit. Adjustments may need to be made because unit includes patch cuts (under contract) from a past timber sale. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

Alternatives 2, 3, 4: This unit is planned for shovel yarding. Shovel settings are planned for yarding to NFS road 3000193 (both the existing and proposed portions).

Alternative 5: This unit is planned for helicopter yarding to the existing NFS road 3000190 and shovel yarding to existing NFS road 3000193.

ENGINEERING/ROADS:

Unit is accessed by existing NFS road 3000193 and proposed NFS road 3000193 (1,800 feet of new construction) as displayed on the unit card. See road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait.

Stream#: 5.3R Class: I, II, IV Flagging: B/W, G/W C- Type: HCO, MMO
Concerns: none
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break. Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A and C

Stream#: 5.1R Class: I, II Flagging: B/W C- Type: MMS, HCM
Concerns: none
Buffer (RMA): Class I and II for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A

All other stream in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

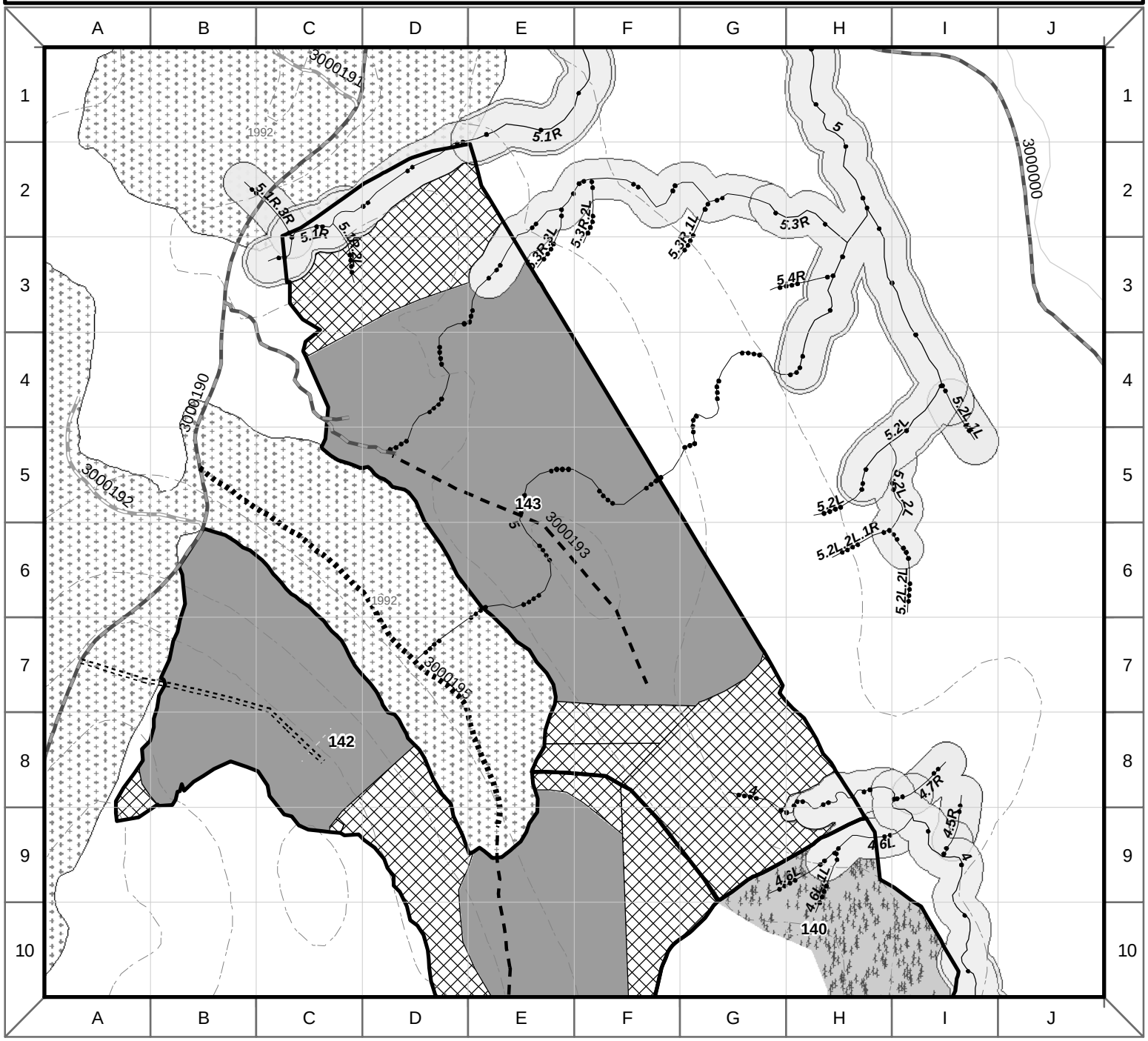
SCENERY:
The Scenic Integrity Objective (SIO) for this unit is Low. It is in Modified Landscape LUD and is considered Middleground, but not readily seen from the 30 Road. Much of the visible portions of the unit are in legacy patches, which screen part of the unit and reduce the size of the opening so the SIO can be met. Typical opening sizes allowed by the Forest Plan in areas with Low SIO and Intermediate VAC are 40 to 60 acres.

RECREATION:
No concerns

SOILS/WETLANDS:
Slopes average less than 26%. The entire unit is forested wetland (BMP 12.5). The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting. For shovel yarding, ensure puncheon or a slash mattress provides adequate bearing strength to prevent rutting on deep sapric soils. The puncheon trails should be scattered upon completion of yarding activities. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9).

WILDLIFE:
Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (very northern end of unit). Legacy standard and guideline applies in these VCUs; Legacy acres cover reduce opening size, block up POG by building off RMAs, reduce required road length, and include some deer winter range and marten habitat.

Unit Number 143 | **Alternative 2** | **VCU: 584,585**



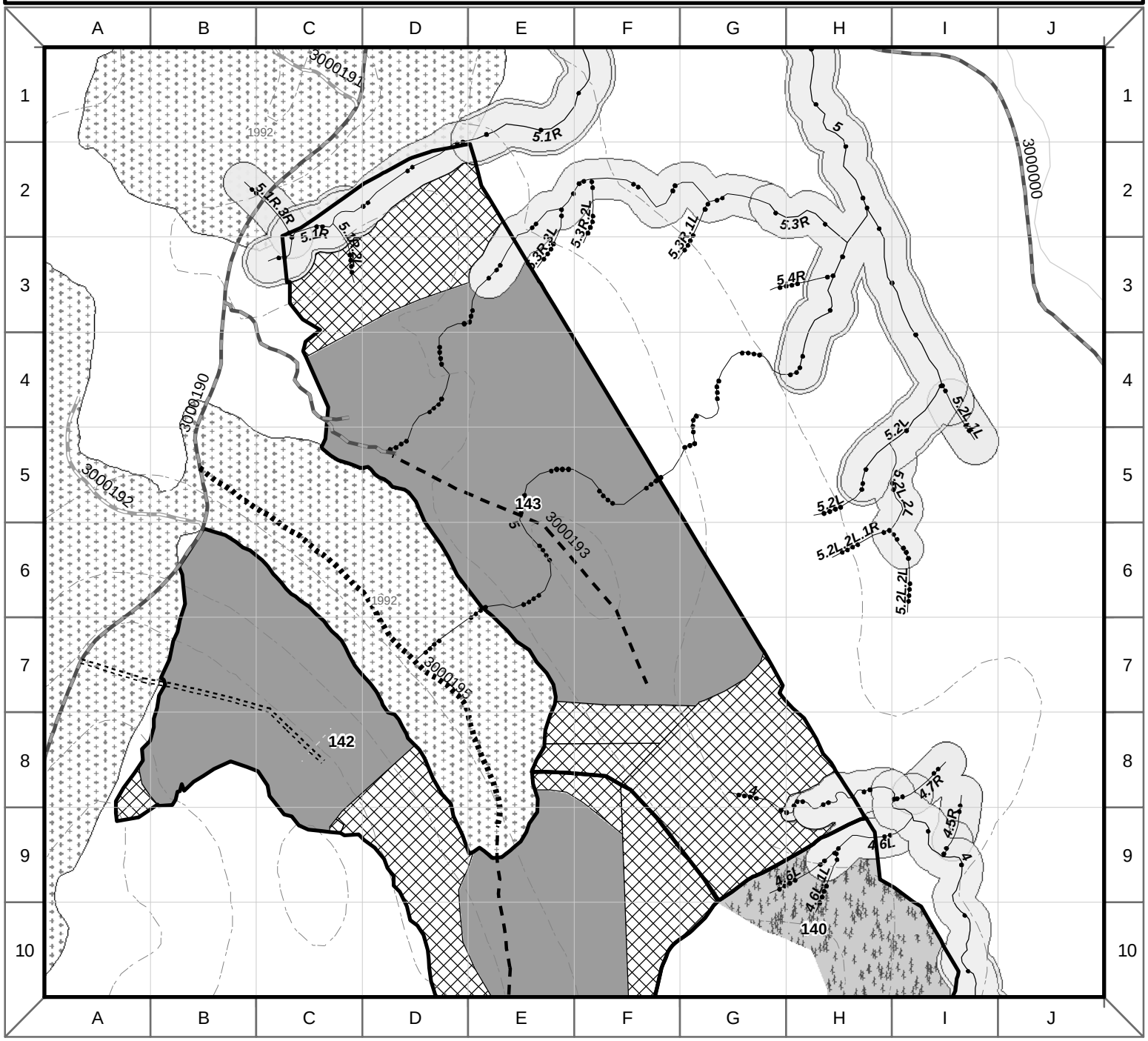
Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt2.mxd 14 July 2012

Unit Number 143 | **Alternative 3** | **VCU: 584,585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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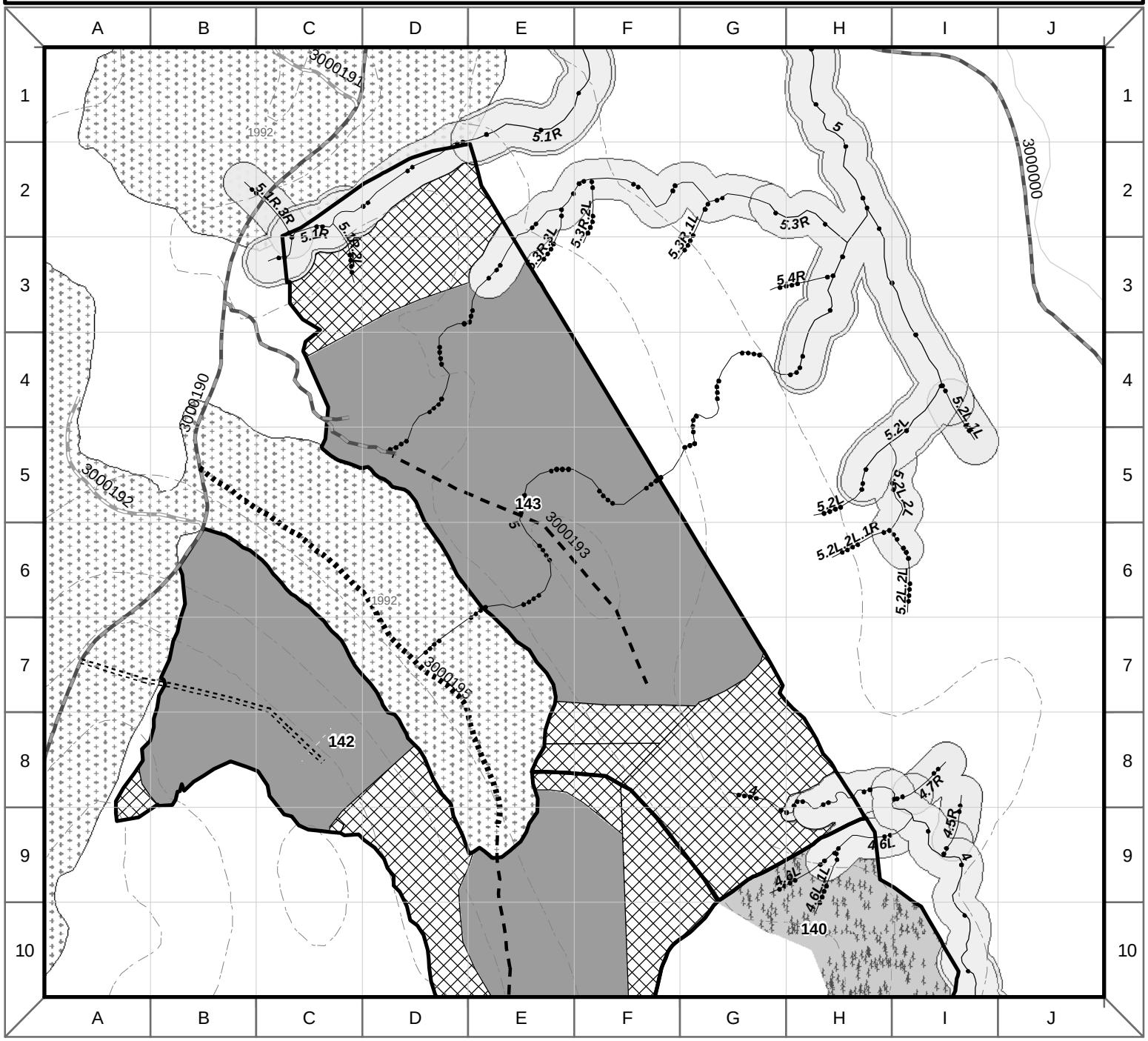
Unit Number 143 | **Alternative 4** | **VCU: 584,585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

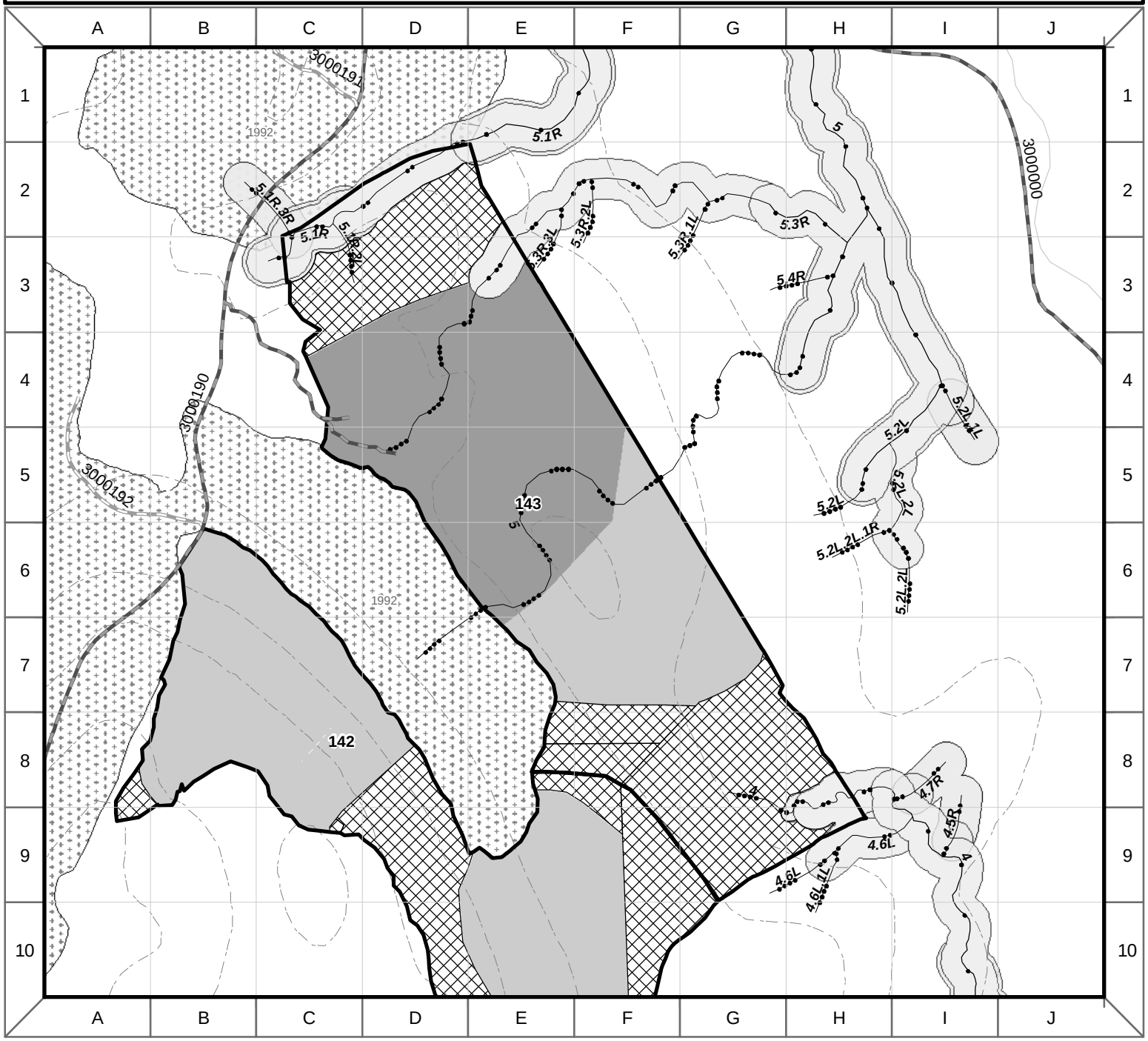
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt4.mxd 20 March 2012

Unit Number 143 | **Alternative 5** | **VCU: 584,585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt5.mxd 14 July 2012

Unit 145

Unit Number	145	Alternatives	2, 3, 4, 5	Total Unit Acres:	2, 3, 5 - 28.9 4 - 40.2	Prescription:	2, 3, 5 - Clearcut 4 - 25% Removal
VCU Number:	584	Harvest System:	Shovel, Helicopter	Net Harvest Volume (MBF):	2, 3, 5 - 678 4 - 236	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure. The over story consists of a western hemlock and western redcedar mixture. Sitka spruce and Alaska-Cedar are lightly scattered. Damages and defects are moderate to high for all species, but especially high in the western Hemlock, which exhibit heavy stem decay, but rather light mistletoe infections. Windthrow risk is moderate. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut (Alternatives 2, 3, 5)
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to heavy stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 13 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to block up POG, reduce required road length, and reduce visibility of unit. Total mapped legacy equals about 13 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Alternative 4)
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription. The uneven-aged single tree selection regeneration method is being prescribed for this unit in Alternative 4 specifically to maintain intact diverse structure for wildlife needed at this time and place in the landscape to meet the objectives of this alternative. This system is not optimum for promoting timber production but is being prescribed primarily to mitigate the overall effects of the project on wildlife.

No Legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

Alternatives 2, 3: This unit is planned for shovel yarding. Shovel settings are planned for yarding to the proposed temporary road.

Alternatives 4, 5: This unit is planned for helicopter yarding to landings on the existing NFS road 3000190.

ENGINEERING/ROADS:

Unit is accessed by two proposed temporary roads in Alternatives 2 and 3, totaling 2,200 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

Unit 145

FISHERIES:

Streams drain to Cobble Creek.

Stream#: 1 Class: I Flagging: B/W C- Type: MCM
Concerns: Blowdown and active erosion
Buffer (RMA): Class I for MCM greater of 100 feet or to the top of the side-slope break
Alternatives: 2, 3, and 5 Buffer (RAW): Will be identified by IDT during layout.
Alternative: 4 Buffer (RAW): no review needed.
Protection: Category A

Stream#: 1.1L Class: I, II Flagging: B/W C- Type: MMO, MCO, HCO
Concerns: none
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I and II for MCO and HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category A

Stream#: 1.1L.2L Class: II Flagging: B/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category A

All other stream in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

Temporary roads for Unit 142: Alternatives 2 and 3 -- One Class I stream crossing and one Class II stream crossing. The temporary roads have not been field verified and will be surveyed before implementation. Crossing structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). The Class I and II stream crossings will be designed to provide fish passage, using a log culvert or bridge, will be installed under current timing constrictions and concurrence from the State will be solicited prior to starting the work. During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit is Very Low. It is in Modified Landscape LUD but is considered Seldom Seen. There are no scenery resource concerns.

RECREATION:

No concerns.

SOILS/WETLANDS:

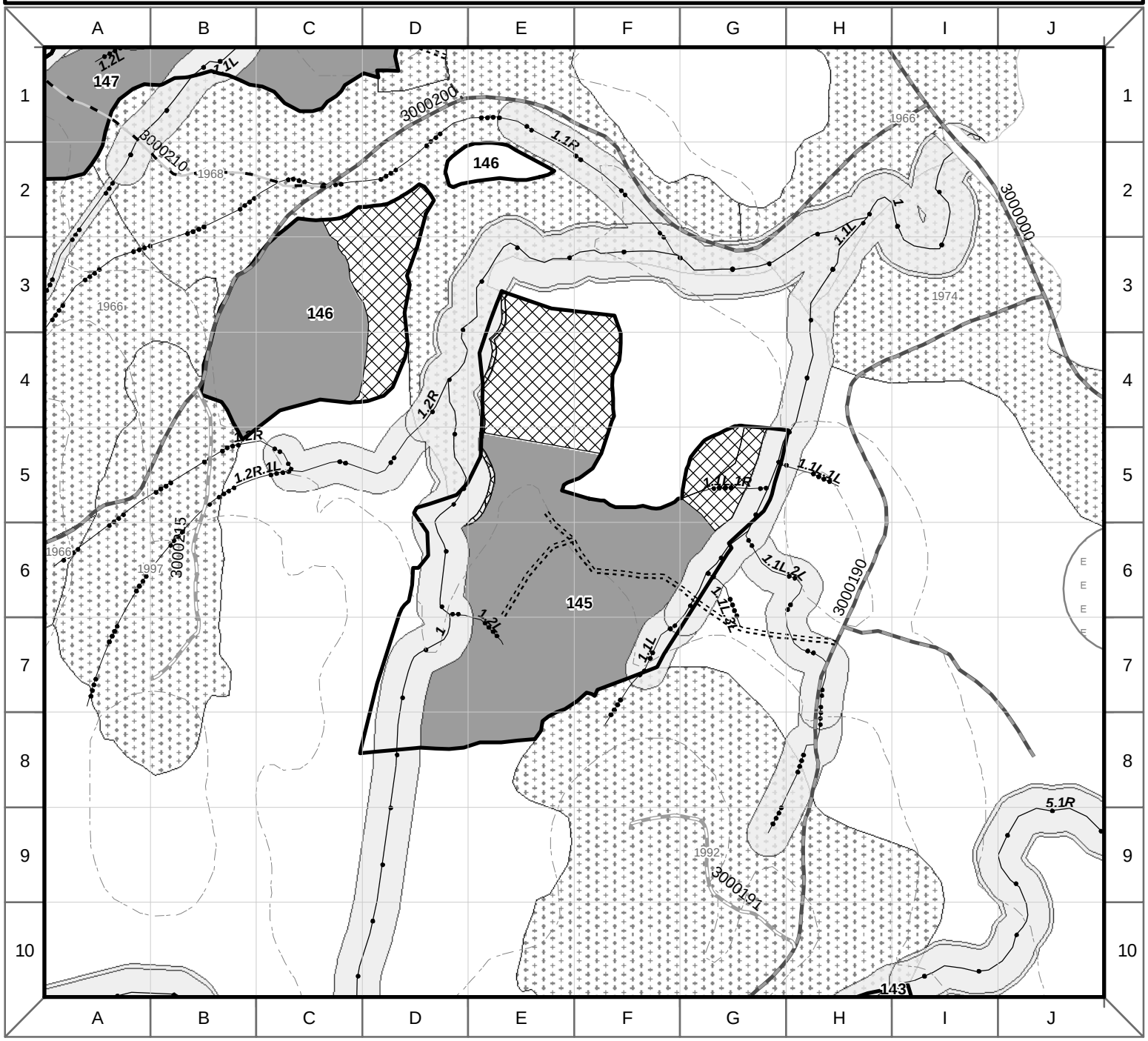
Slopes range from 10 to 50%. The steep slopes are located near southern boundary. Forested wetlands generally occupy 15 to 40% of the unit.

Alternatives 2 and 3: The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting. For shovel yarding, the use of puncheon or a slash mattress would be required to provide adequate bearing strength and prevent rutting on poorly drained soils in the unit. The puncheon trails should be scattered upon completion of yarding activities. Areas of poorly drained soils should be avoided where possible. Do not operate the shovel in muskeg or fen wetlands (BMPs 13.2 and 13.9).

Alternatives 2 and 3: A temporary road will impact 1 acre of forested wetland within the unit and about 1/2 acre outside the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

Unit 145
Alternatives 4 and 5: A minimum of partial suspension will meet soil and wetland concerns (BMPs 12.5, 13.5, and 13.9). No road construction is planned.
WILDLIFE: Unit includes average snow deer winter range (entire unit), most of which is also deep snow marten habitat/deer winter range (southern 3/4 of unit). Legacy standard and guideline applies in this VCU; Legacy acres serve to block up POG, reduce required road length, and cover some deer winter range and marten habitat. Alternative 4: Prescription is 25% basal area removal to maintain habitat values and connectivity. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit Number 145 | **Alternative 2** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit Number 145 | **Alternative 3** | **VCU: 584**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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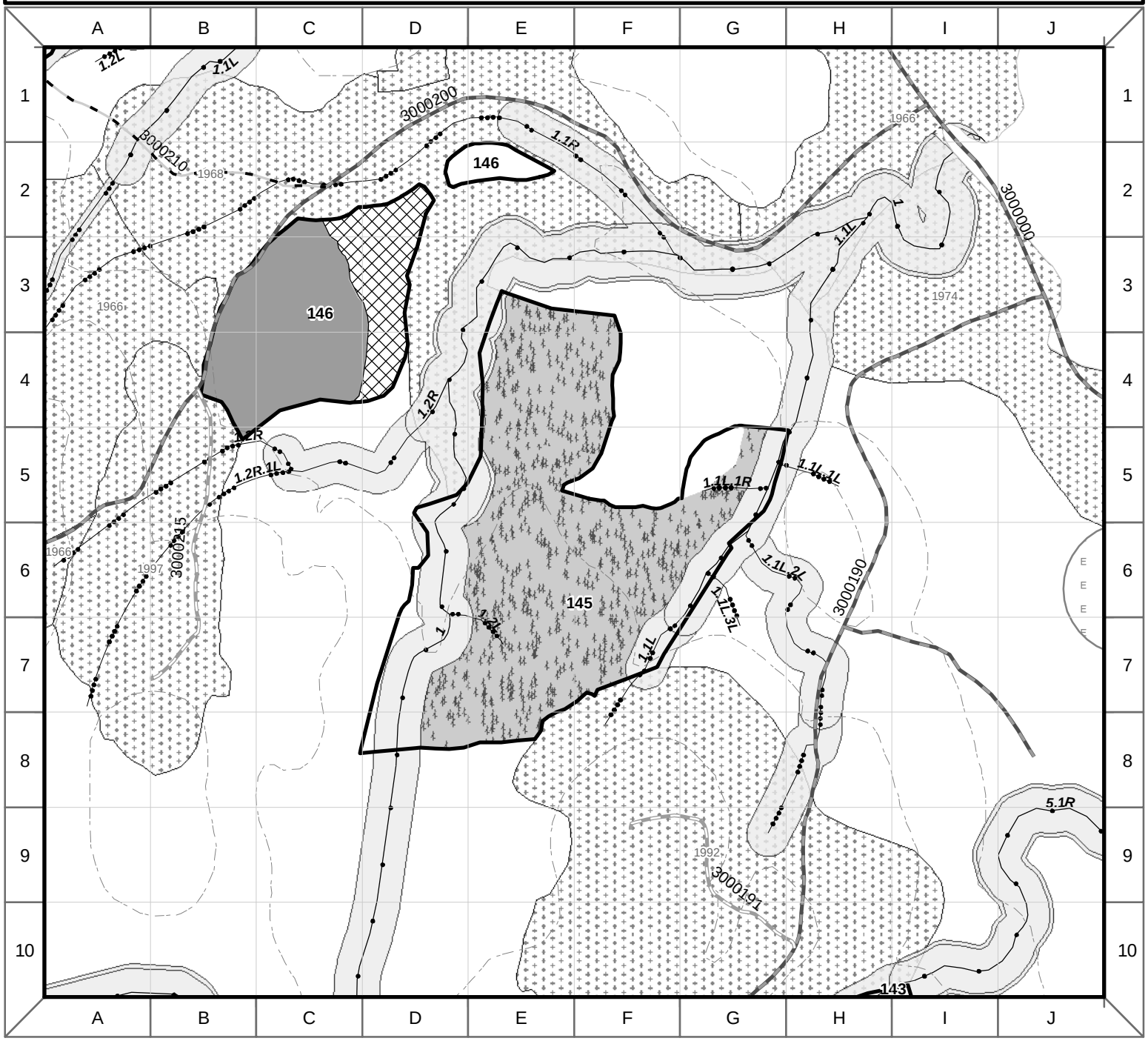
Unit Number 145 | **Alternative 4** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500 Feet

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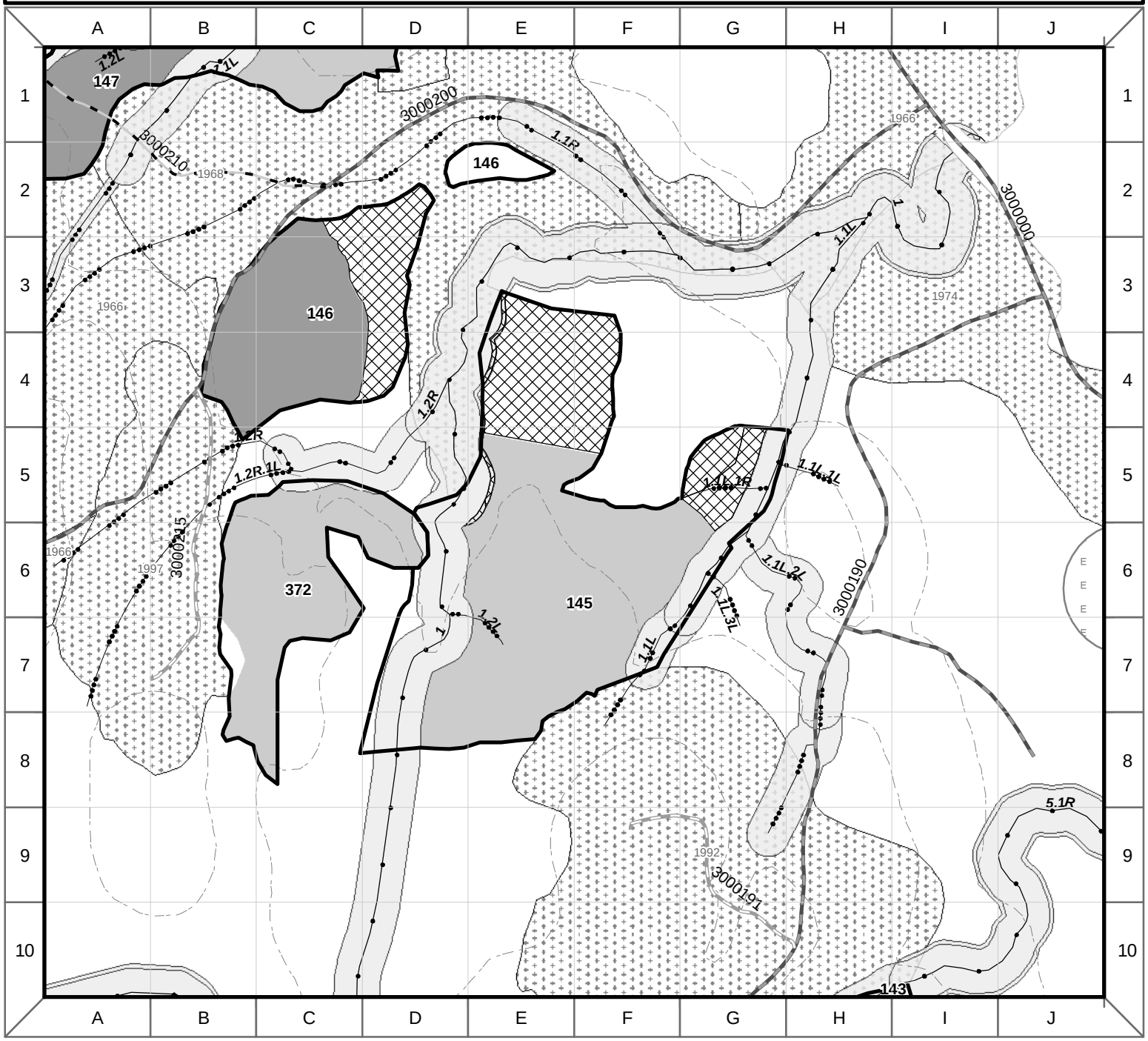
Unit Number 145 | **Alternative 5** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 146

Unit Number 146	Alternatives 2, 3, 4, 5	Total Unit Acres: 13.7	Prescription: Clearcut
VCU Number: 584	Harvest System: Shovel	Net Harvest Volume (MBF): 301	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure. The overstory species composition consists primarily of western redcedar and western hemlock. There is moderate to high stem decay. Damages are generally moderate, but high in larger trees of both species. Mistletoe is light to moderate. Windthrow risk is moderate. All of the past harvests around the unit have met green-up with regeneration over 5' tall.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to heavy stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 6 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to block up POG and reduce need for a road. Total mapped legacy equals about 6 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the existing NFS road 3000200.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Cobble Creek.

Stream#: 1.2R Class: I, IV Flagging: B/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break. Class IV HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category A and C

All other stream in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

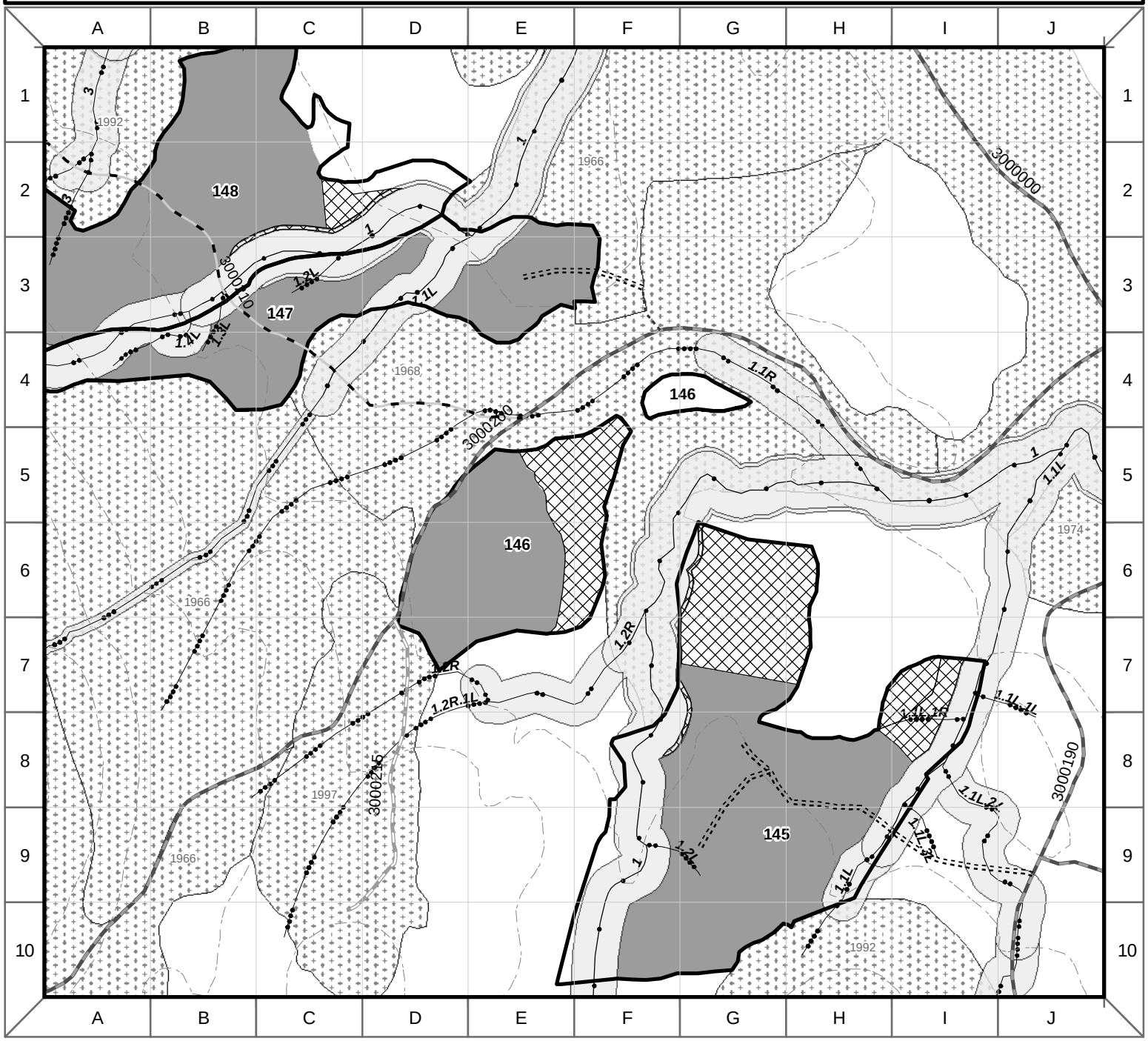
GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

Unit 146
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: The Scenic Integrity Objectives (SIOs) for this unit are Very Low and Low. It is in Modified Landscape LUD and is mostly considered Seldom Seen (5 acres are Middleground). There are no scenery resource concerns.
RECREATION: No concerns.
SOILS/WETLANDS: Slopes average 5 to 20%. Forested wetlands generally occupy 15 to 40% of the unit (BMP 12.5). The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.
WILDLIFE: Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU; Legacy acres block up POG, eliminate need for a road, and cover some deer winter range.

Unit Number 146 | **Alternative 2** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit Number 146 | **Alternative 3** | **VCU: 584**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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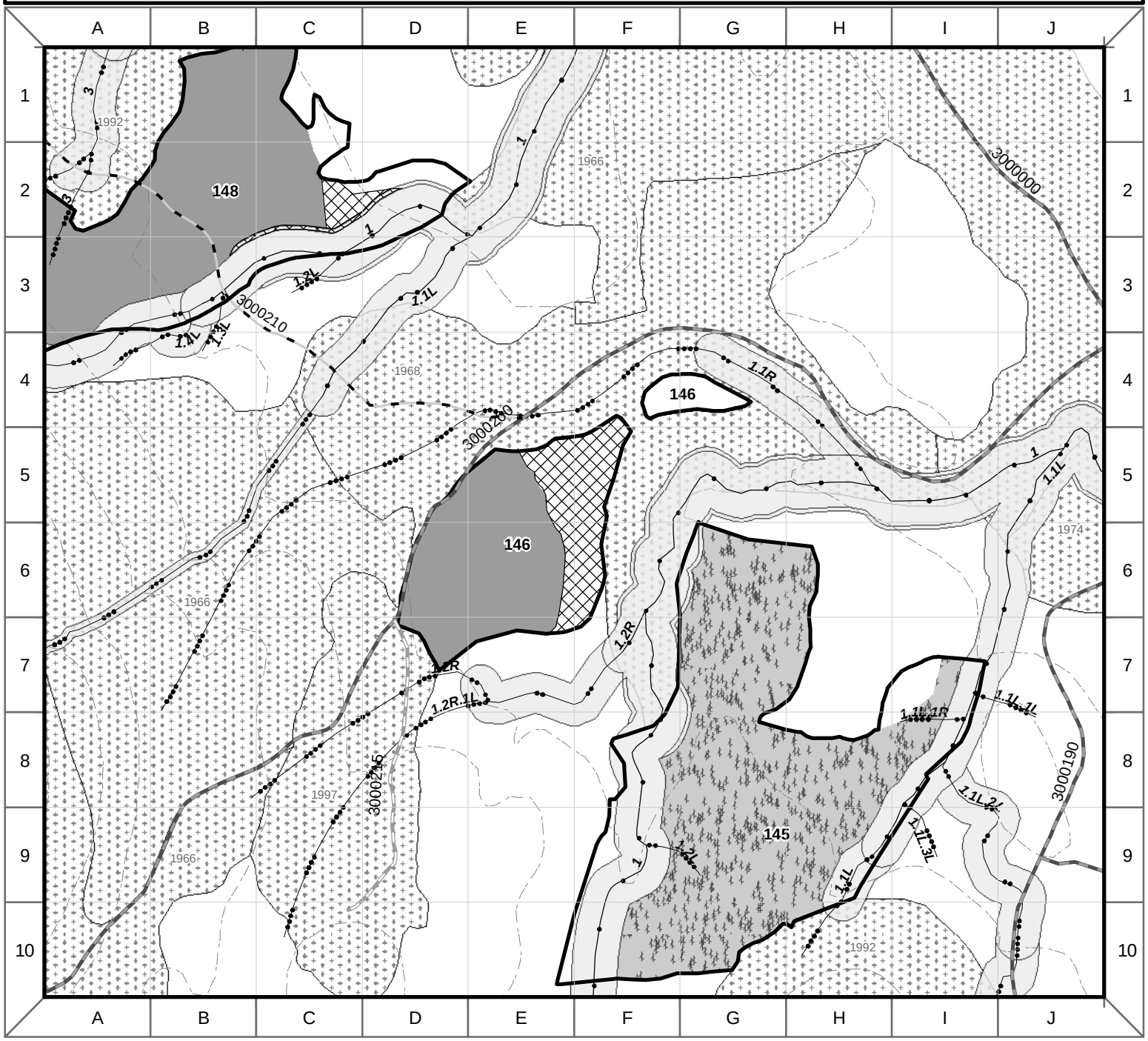
Unit Number 146 | **Alternative 4** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

0 500 Feet

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Unit Number 146 | **Alternative 5** | **VCU: 584**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 147

Unit Number	147	Alternatives	2, 3, 5	Total Unit Acres:	16.6	Prescription:	Clearcut
VCU Number:	584	Harvest System:	Shovel, Helicopter	Net Harvest Volume (MBF):	205	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit is predominantly old-growth stand structure with areas of uneven-age structure. The overstory consists primarily of a mixture of western redcedar and lesser amounts of western hemlock found in a patchy distribution. The unit has high defect resulting from over-maturity. The main damage agents affecting tree health and volume loss is stem decay and dead/dying tops particularly in the western redcedar. Overall the overstory is very marginal value due to low stocking and high defect. The largest diameter trees of most species have high defect and many are cull. Windthrow risk is moderate. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the original unit is less than 20 acres therefore no legacy set-aside is required.

TIMBER/LOGGING:

Alternatives 2, 3: This unit is planned for shovel yarding to the proposed temporary road and existing NFS road 3000210.

Alternative 5: This unit is planned for a combination of helicopter and shovel yarding in Alternative 5. Shovel settings are planned for yarding to the existing NFS road 3000120. Helicopter settings are planned for yarding to landings on the existing NFS road 3000210.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road in Alternatives 2, and 3, totaling 900 feet, as displayed on the unit card. Approximately 200 feet of this road will be constructed across decommissioned road bed. Reconstruction of existing NFS road 3000210, totaling 1400 feet, will be required to provide access to the unit. This road is also used to access Unit 148. See road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Sal Creek.

Stream#: 1 Class: I, II, III Flagging: B/W, O/W C- Type: MMS, HCL, HCM
Concerns: none
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for HCL and Class II for HCM greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A and B

Stream#: 1.1L Class: I, III Flagging: B/W, O/W C- Type: MMO, HCM
Concerns: none
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCM to the top of the side-slope break
Alternatives: 2, 3, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A and B

Stream#: 1.4L Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A and C

All other stream in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 147: Alternatives 2 and 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. The new temporary road will include reopening a decommissioned road. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit is Very Low and Low. It is in Modified Landscape LUD and is mostly considered Not Seen (5 acres are Middleground). There are no scenery resource concerns.

RECREATION:

No concern.

SOILS/WETLANDS:

Slopes range from nearly level to about 65%. Intermittent forested wetlands are located in the unit. The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

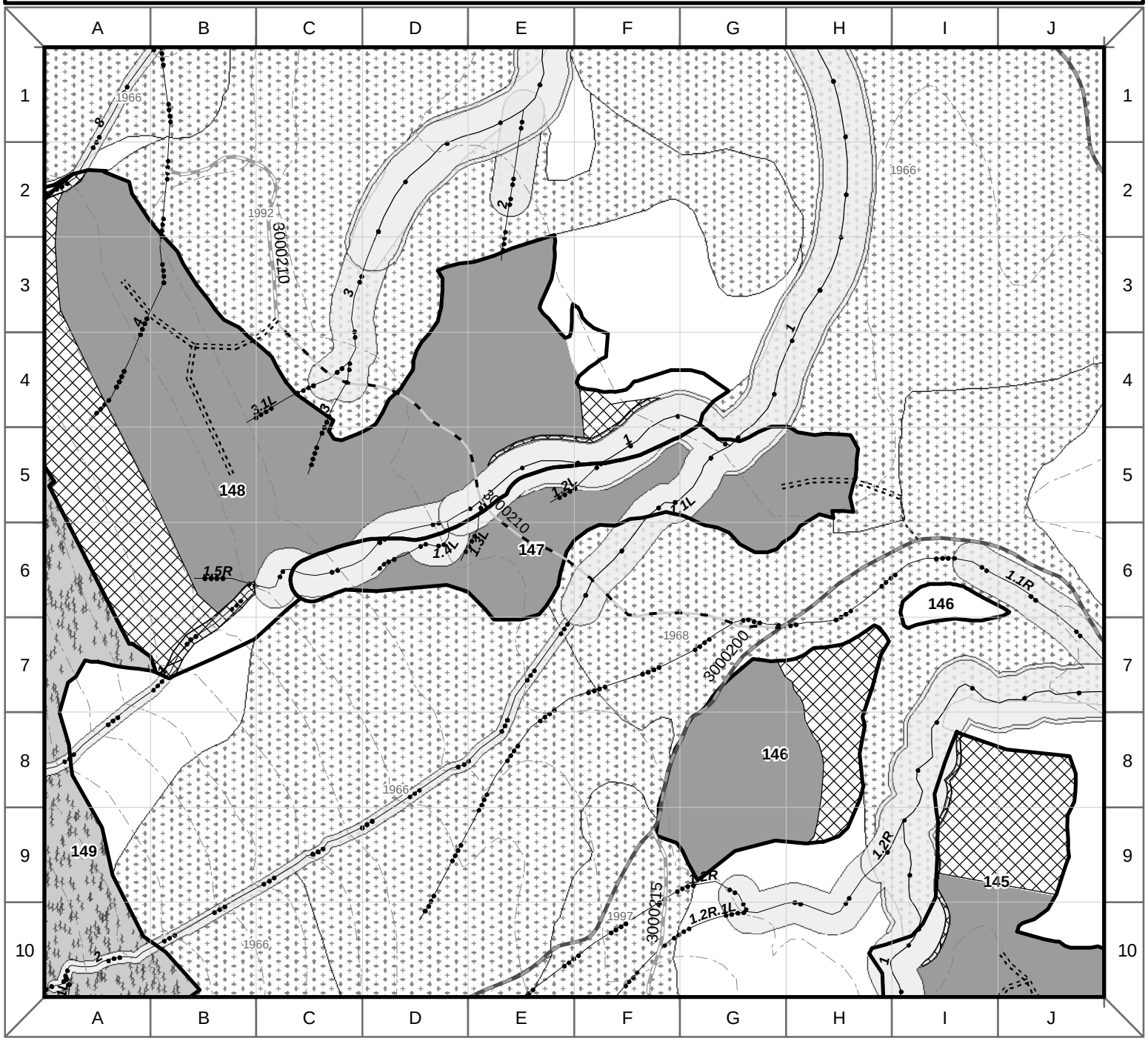
A temporary road will impact about 0.5 acres of forested wetland within the unit. About an additional 0.25 acres of forested wetland outside of the unit will be impacted by a temporary road needed to access the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

Alternative 5:
A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:

Unit 147
Unit includes average snow deer winter range (northern half of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres. Alternative 4: Unit dropped to maintain habitat values and reduce road building.

Unit Number 147 | **Alternative 2** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500 Feet

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Unit Number 147 | **Alternative 3** | **VCU: 584**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit Number 147 | **Alternative 5** | **VCU: 584**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 148

Unit Number 148	Alternatives 2, 3, 4, 5	Total Unit Acres: 57.9	Prescription: Clearcut
VCU Number: 584	Harvest System: Cable, Shovel	Net Harvest Volume (MBF): 886	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure. The overstory consists of western redcedar, western hemlock and Alaska-cedar. Sitka spruce are more scattered and considered to be secondary species in the unit. Major damages that are affecting tree health and volume loss are heart rot, stem decay, broken and dead tops and active Alaska-cedar decline. This unit has low volume, open canopy, higher than normal defect and lower value timber. Windthrow risk is moderate. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 25 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to block up POG, reduce visibility of unit in low VAC area from 30 road, and improve economics. Total mapped legacy is approximately 26 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of shovel and cable yarding. Cable settings are planned for uphill and downhill yarding to landings on the proposed temporary roads. Shovel settings are planned for yarding to the proposed temporary roads and existing NFS road 3000210.

ENGINEERING/ROADS:

Unit is accessed by two proposed temporary roads, totaling 1,600 feet, as displayed on the unit card. Unit is also accessed by reconstruction of existing NFS road 3000210, totaling 3,200 feet. This road is also used to access Unit 147. See road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Sal Creek.

Stream#: 1 Class: I, II, III Flagging: B/W, O/W C- Type: MMS, HCL, HCM
Concerns: blowdown and active erosion
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetlands. Class I for HCL and Class II for HCM greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: 3 Class: II , IV Flagging: B/W, G/W C- Type: HCO

Unit 148

Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to thet op of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: 3.1L Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: 8 Class: III , IV Flagging: B/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class III for HCO to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category B and C

All other stream in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 148: All Alternatives -- One Class IV stream crossing. The temporary roads have not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit consists of 40 acres of Low and 18 acres of Very Low. It is in Modified Landscape LUD and is partially Not Seen but mostly in Middleground. The upper, more visible slopes of the original unit were desginated as legacy. There are no scenery resource concerns.

RECREATION:

No concern.

SOILS/WETLANDS:

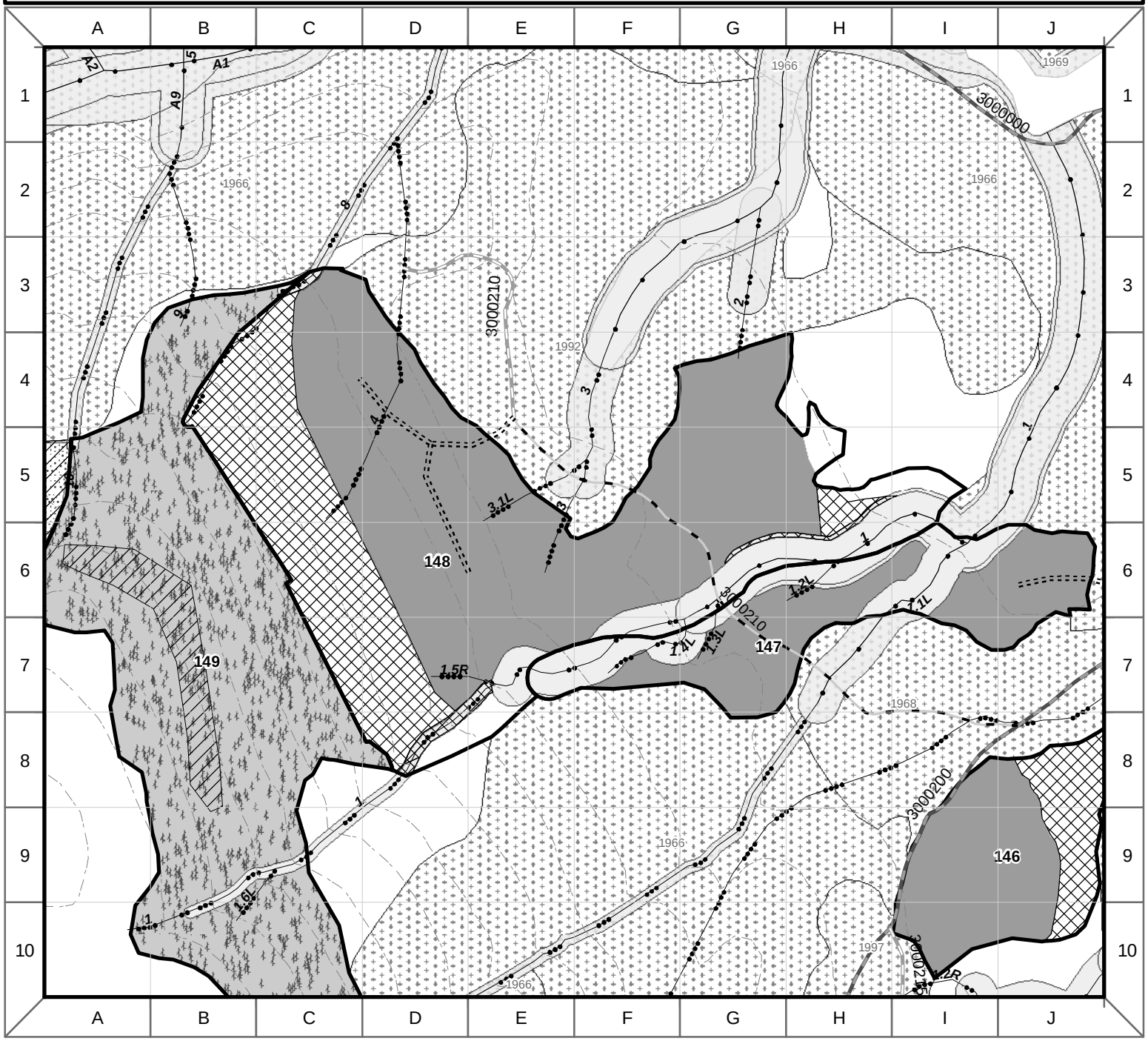
Slopes range from 15 to 65%. Intermittent forested wetlands occur within the unit. The soils and wetlands are suitable for minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

Based on GIS analysis, the proposed temporary roads do not traverse any wetlands.

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU. Legacy acres block up POG and cover some deer winter range.

Unit Number 148 | **Alternative 2** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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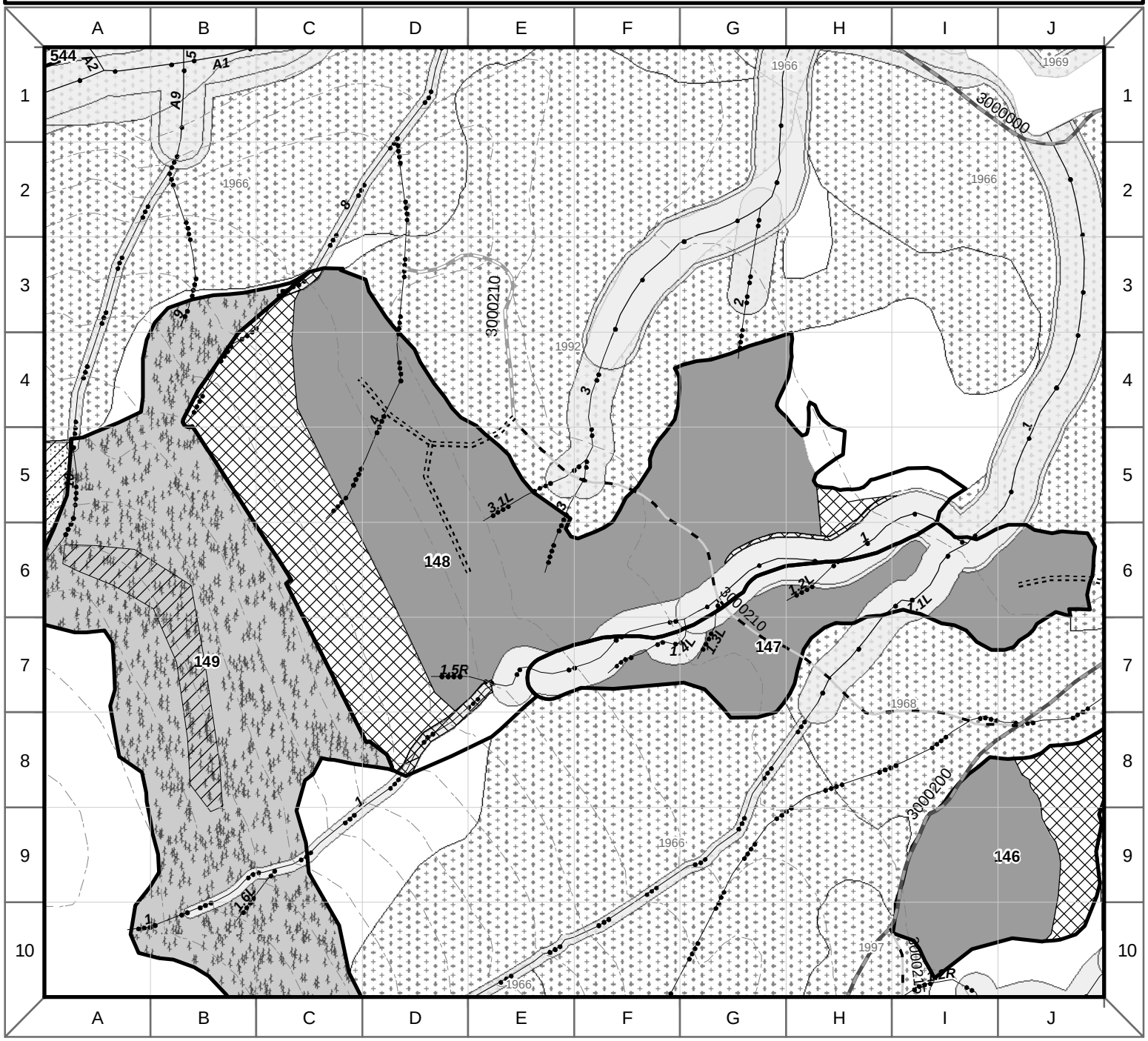
Unit Number 148 | **Alternative 3** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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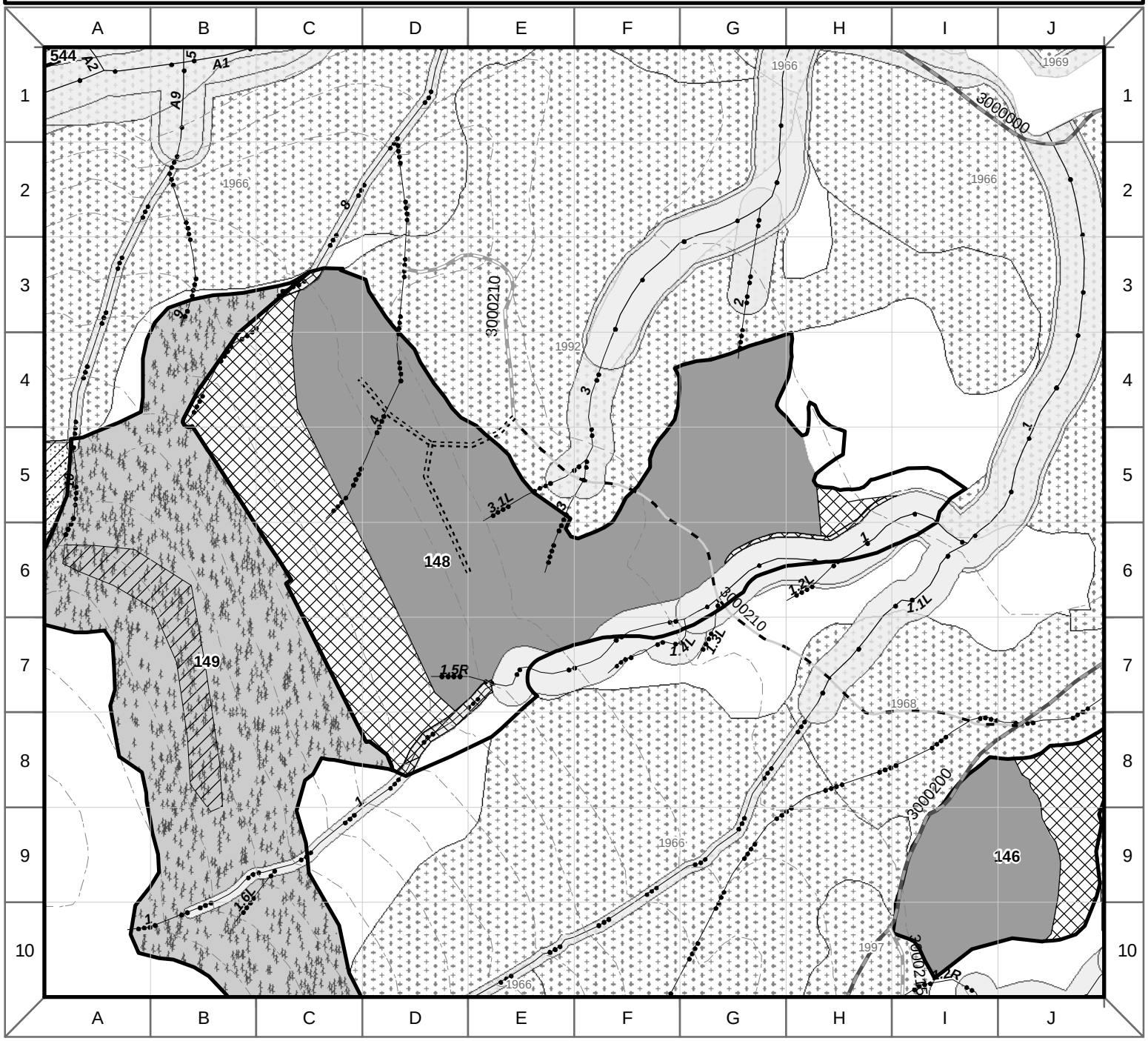
Unit Number 148 | **Alternative 4** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N S E W

0 500
Feet

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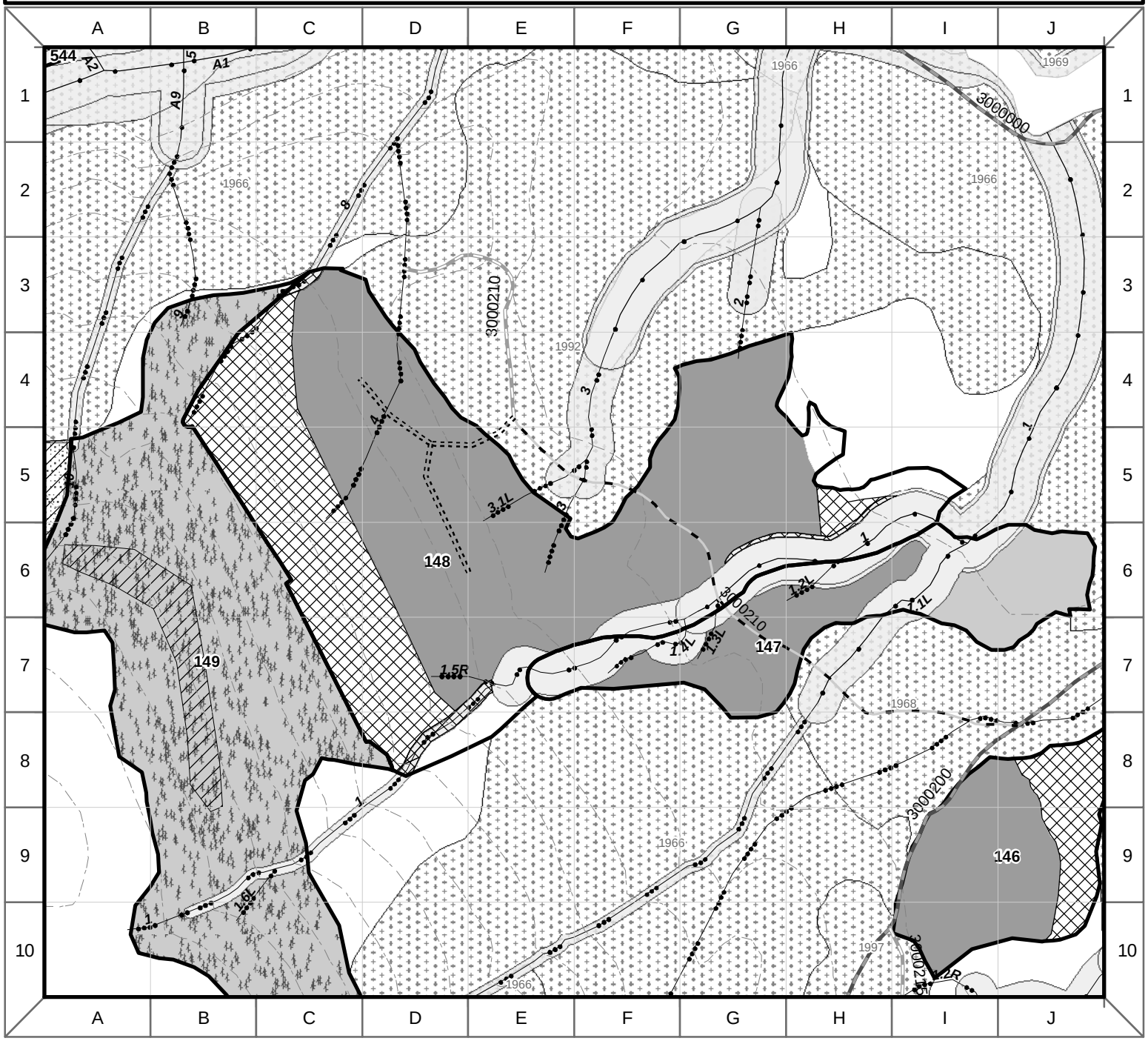
Unit Number 148 | **Alternative 5** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 149

Unit Number 149	Alternatives 2, 3, 4, 5	Total Unit Acres: 110.8	Prescription: 25% Removal
VCU Number: 584 0	Harvest System: Helicopter	Net Harvest Volume (MBF): 483	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: The unit has uneven-aged structure. The overstory consists of western hemlock mixed with Sitka spruce and mountain hemlock. Alaska-cedar and western redcedar are also present as lessor components. The dominant damage agent is stem decay and stem form deformities. Exposure to heavy weather is evident in the overstory tree crowns and expressed as stunted foliage and spike tops. Mistletoe was generally not a concern. Portions of the unit with south and east aspect have the appearance of being even-aged with western hemlock being the dominate overstory component. Windthrow risk is high. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Because of the large size and visibility of the unit, uneven-age management was selected as the silvicultural system to eliminate moderate to large openings and reduce the visibility of harvest. 75 percent retention was selected because of high windthrow risk. Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than 1 acre but may occasionally go up to 2 acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

Legacy is required in this VCU. However, no legacy acres are required for uneven-aged management because adequate structure is retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on existing NFS roads 3000200 and 3000210.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Sal Creek and Cobble Creek. Stream A1 characteristics do not contain project specific, field verified information.

Stream#: 2 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: blowdown
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none
Alternatives: 2, 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 1 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none

Unit 149

Alternatives: 2, 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 8 Class: III , IV Flagging: O/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class III for HCO to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 10 Class: III , IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 3 Class: III , IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: A1 Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4 and 5 Buffer (RAW): no review needed
Mitigation/Protection: Category B

All other stream in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit consists of 95 acres of Low and 16 acres of Very Low. It is in Modified Landscape LUD and is mostly in Middleground. The uneven-aged management prescription for this unit eliminates any scenery resource concerns.

RECREATION:

No concern.

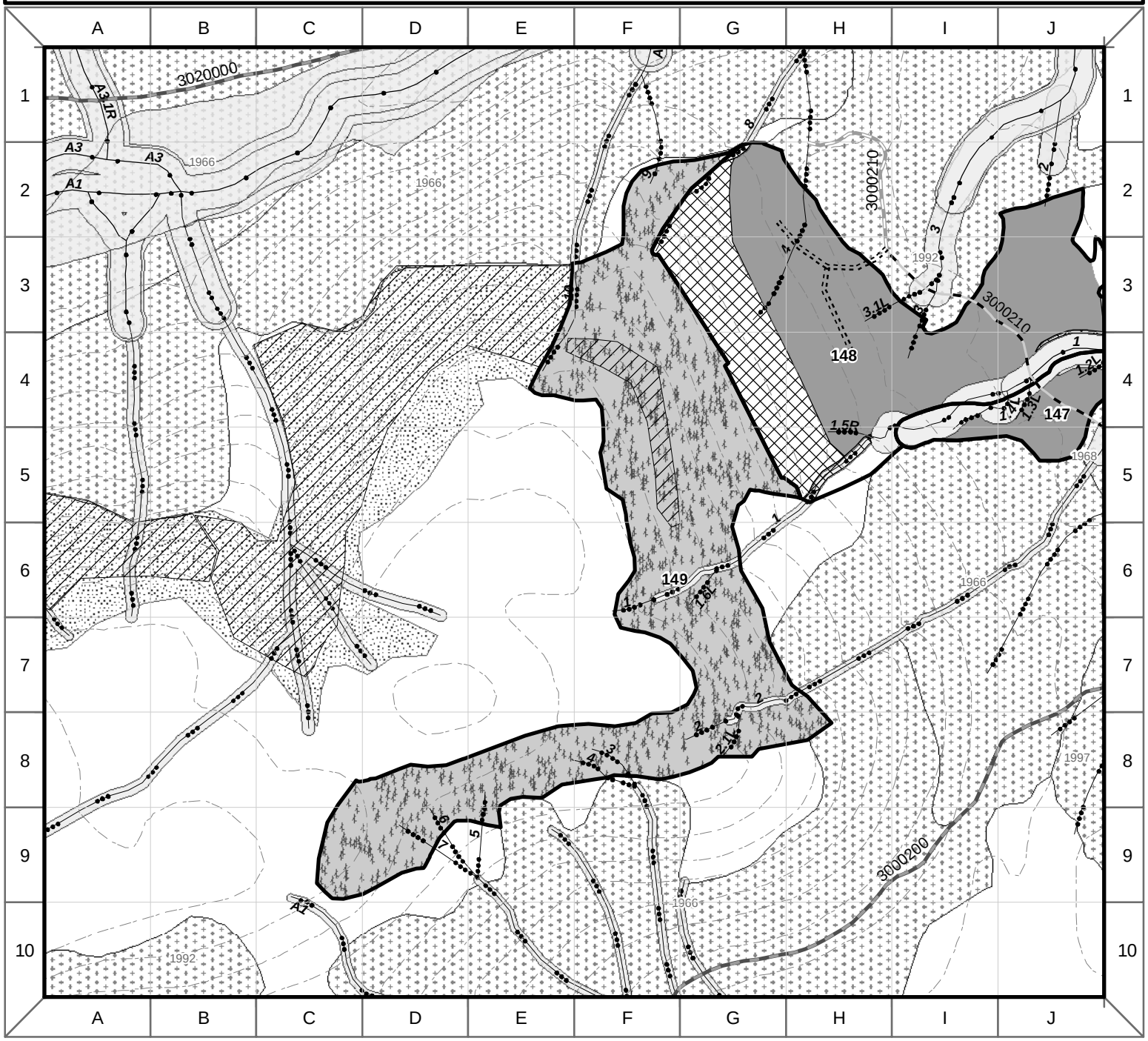
SOILS/WETLANDS:

Slopes range from 25 to greater than 90%. About 71 acres were excluded from harvest consideration due to very high landslide potential, MMI4 soils, high colluvial activity, active and historic landslides, and extremely steep wet slopes adjacent to a steep v notches. There are about 6 acres of slopes greater than 72% that are still suitable for harvest with full suspension. Intermittent sub-alpine muskegs occur along the fringe of the upper unit boundaries (BMP 12.5). Full suspension and partial harvest would be required in the units to protect soils and wetlands (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (sliver in northern portion of unit). Legacy standard and guideline applies in this VCU; however no legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit Number 149 | **Alternative 2** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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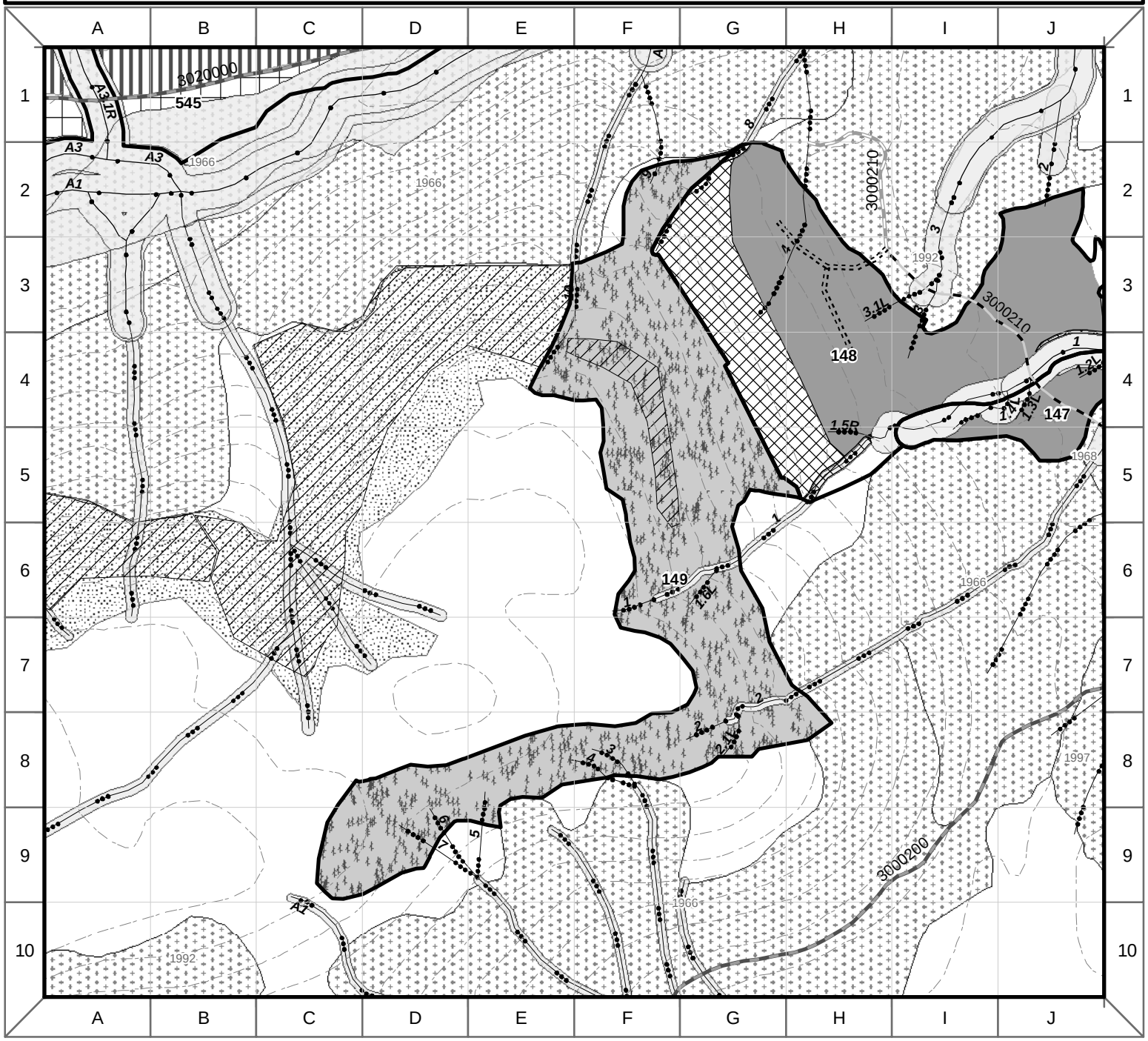
Unit Number 149 | **Alternative 3** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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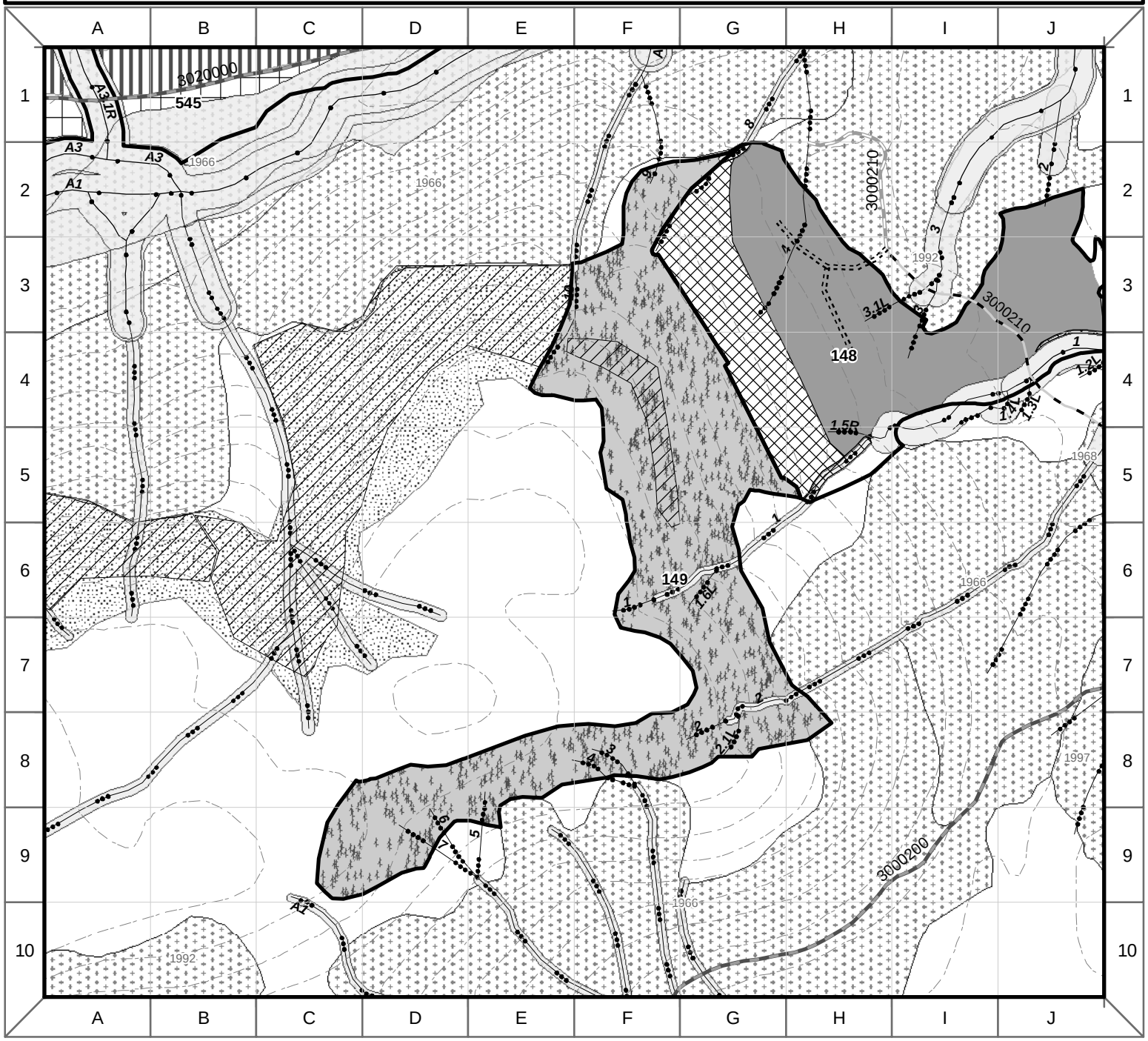
Unit Number 149 | **Alternative 4** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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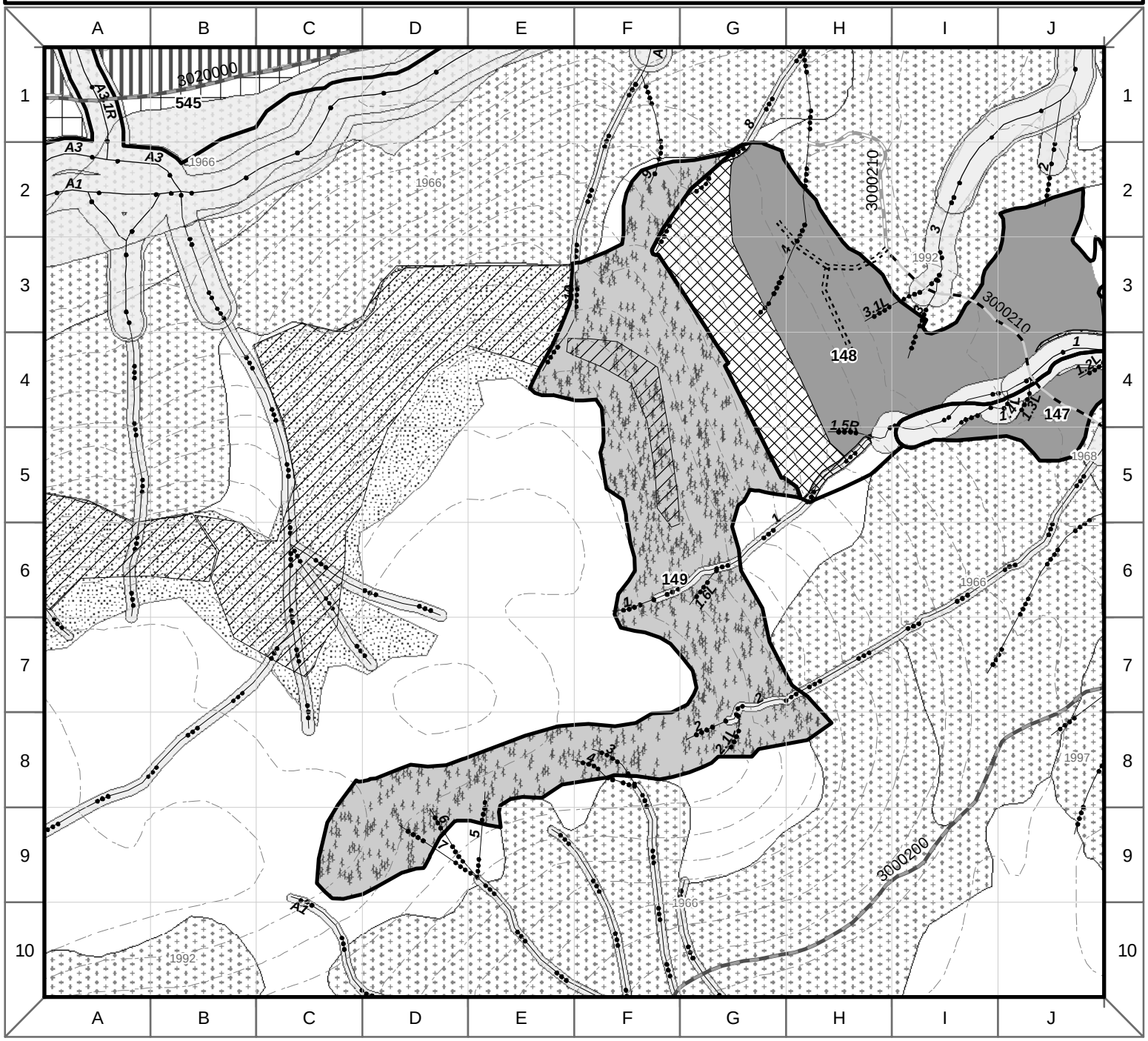
Unit Number 149 | **Alternative 5** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt5.mxd 14 July 2012

Unit 153

Unit Number	153	Alternatives	2, 3, 5	Total Unit Acres:	46.9	Prescription:	Clearcut
VCU Number:	584	Harvest System:	Cable, Shovel,	Net Harvest Volume (MBF):	930	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure. The overstory is mostly western hemlock and western redcedar. Sitka spruce are scattered. Moderate to high stem form defects and stem decay are present. Mistletoe was rated as moderate. Windthrow risk is moderate. The unit has over-mature timber with declining growth. All adjacent past harvest areas meet NFMA requirements for green-up.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 20 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Upper legacy was placed to block up POG, reduce visibility of higher slopes, and improve economics. Lower legacy was placed to reduce visibility, build off Class 2 RMA complex, and block up POG. Total mapped legacy equals about 20 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

Alternatives 2, 3: This unit is planned for a combination of cable and shovel yarding. Shovel settings are planned for yarding to the existing NFS road 3000270. Cable settings are planned for uphill yarding to landings on the proposed NFS road 3000273 and proposed temporary road.

Alternative 5: This unit is planned for a combination of shovel and helicopter yarding. Shovel settings are planned for yarding to the existing NFS road 3000270. Helicopter yarding is planned to landings on the existing NFS roads 3000272 & 3000270.

ENGINEERING/ROADS:

Unit is accessed by proposed NFS road 3000273 in Alternatives 2 and 3, totaling 1400 feet, as displayed on the unit card. See road card for detailed information. Unit is also accessed by a proposed temporary road in Alternatives 2 and 3, totaling 300 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 153

FISHERIES:

Streams drain to Clarence Strait.

Stream#: 1 Class: I, II Flagging: B/W C- Type: MMM, HCM
Concerns: blowdown, and heavy braiding
Buffer (RMA): Class I for MMM greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCM greater of 100 feet or to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A

All other stream in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 153: Alternatives 2 and 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit consists of 5 acres of Moderate, 18 acres of Low and 24 acres of Very Low. It is in Modified Landscape LUD and is in Foreground, Middleground, and Not Seen. Legacy polygons have substantially reduced the harvest in Moderate and Low SIOs relative to the original unit. No addtiional scenery resource concerns.

RECREATION:

No concerns.

SOILS/WETLANDS:

Slopes average 55%. There is about ½ acre of slopes greater than 72% that is suitable to for partial suspension.
Forested wetlands cover nearly the entire 47-acre unit (BMP 12.5). Forested wetlands occur through most of the unit. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

A temporary road would impact about 1/3 acre of forested wetlands. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

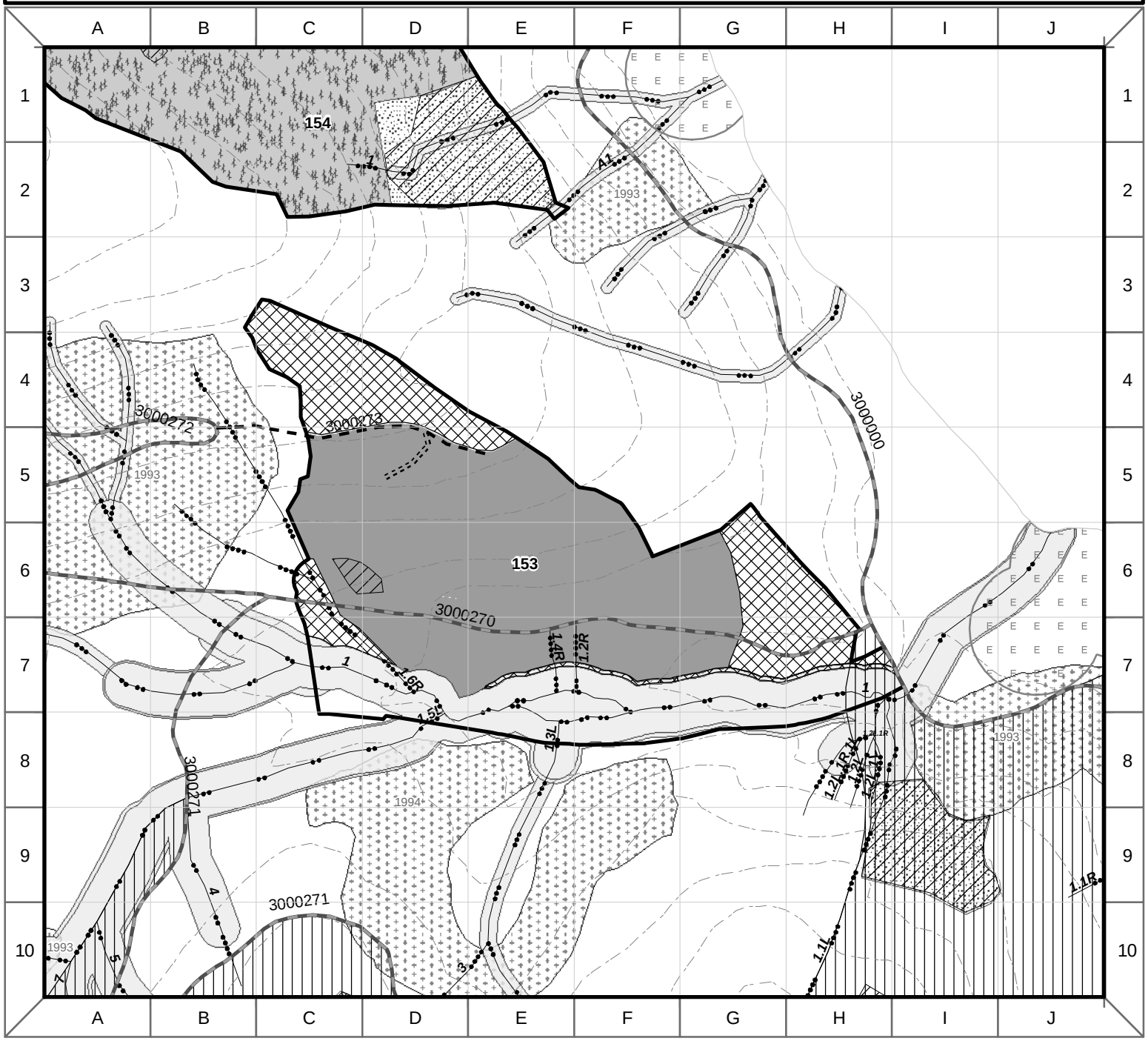
WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (western/northern portion of unit).

Alternatives 2, 3, and 5: Legacy standard and guideline applies in this VCU. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Alternative 4: Unit dropped to maintain habitat values.

Unit Number 153 | **Alternative 2** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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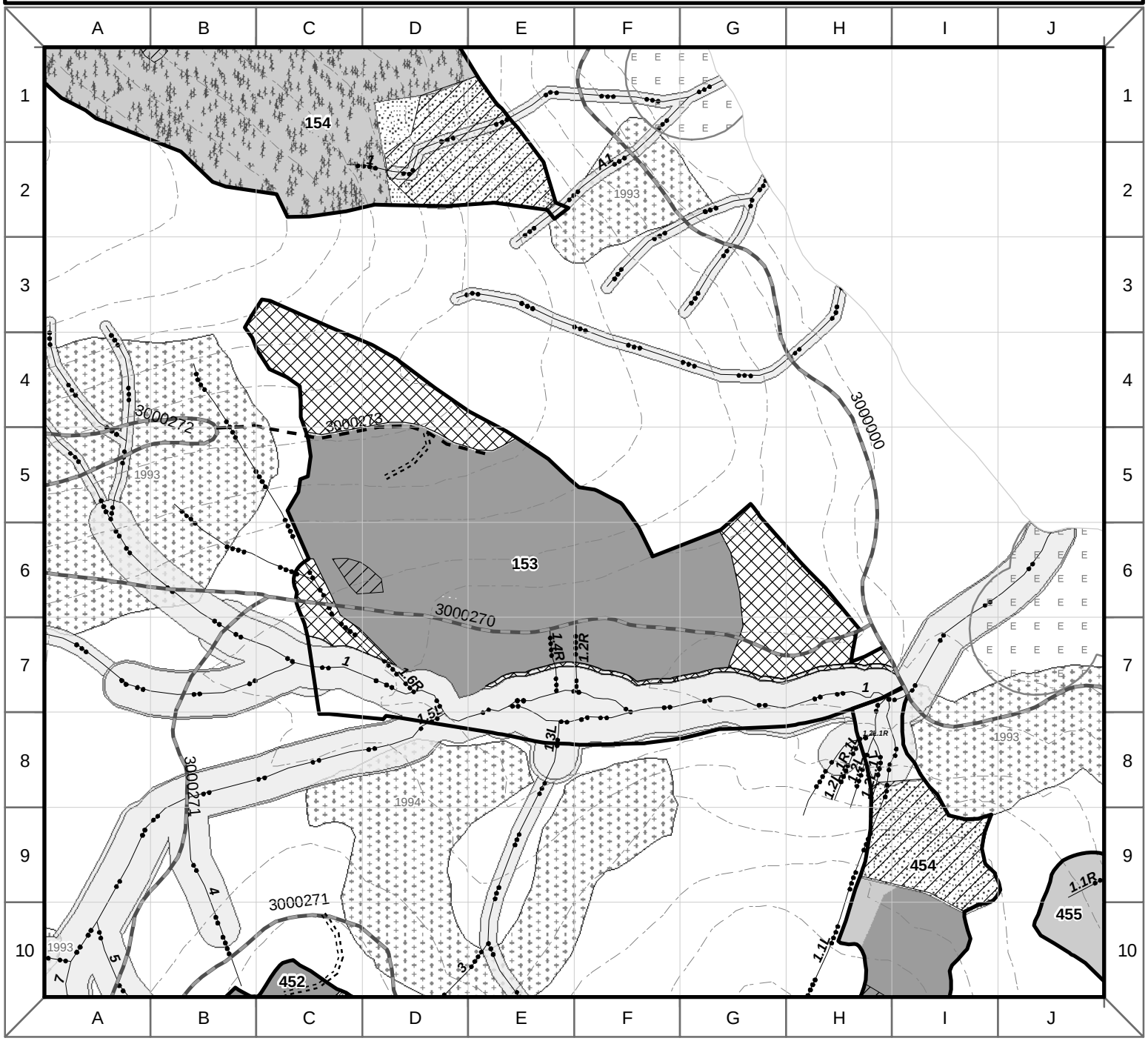
Unit Number 153 | **Alternative 3** | **VCU: 584**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153
454
455
452
3000272
3000273
3000270
3000271
3000000
1993
1994
A1
1.6R
1.5L
1.4R
1.2R
1.3L
1.1L
1.1R
1.2L
1.2L.1R
1.2L.1R.1L
1.2L.1L
1.2L.1L.1L
1.2L.1L.1R
1.2L.1L.1R.1L
1.2L.1L.1R.1L.1L
1.2L.1L.1R.1L.1L.1L
1.2L.1L.1R.1L.1L.1R
1.2L.1L.1R.1L.1L.1R.1L
1.2L.1L.1R.1L.1L.1R.1L.1L
1.2L.1L.1R.1L.1L.1R.1L.1L.1L
1.2L.1L.1R.1L.1L.1R.1L.1L.1L.1L
1.2L.1L.1R.1L.1L.1R.1L.1L.1L.1L.1L
1.2L.1L.1R.1L.1L.1R.1L.1L.1L.1L.1L.1L
1.2L.1L.1R.1L.1L.1R.1L.1L.1L.1L.1L.1L.1L
1.2L.1L.1R.1L.1L.1R.1L.1L.1L.1L.1L.1L.1L.1L
1.2L.1L.1R.1L.1L.1R.1L.1L.1L.1L.1L.1L.1L.1L.1L
1.2L.1L.1R.1L.1L.1R.1L.1L.1L.1L.1L.1L.1L.1L.1L.1L
1.2L.1L.1R.1L.1L.1R.1L.1L.1L.1L.1L.1L.1L.1L.1L.1L.1L
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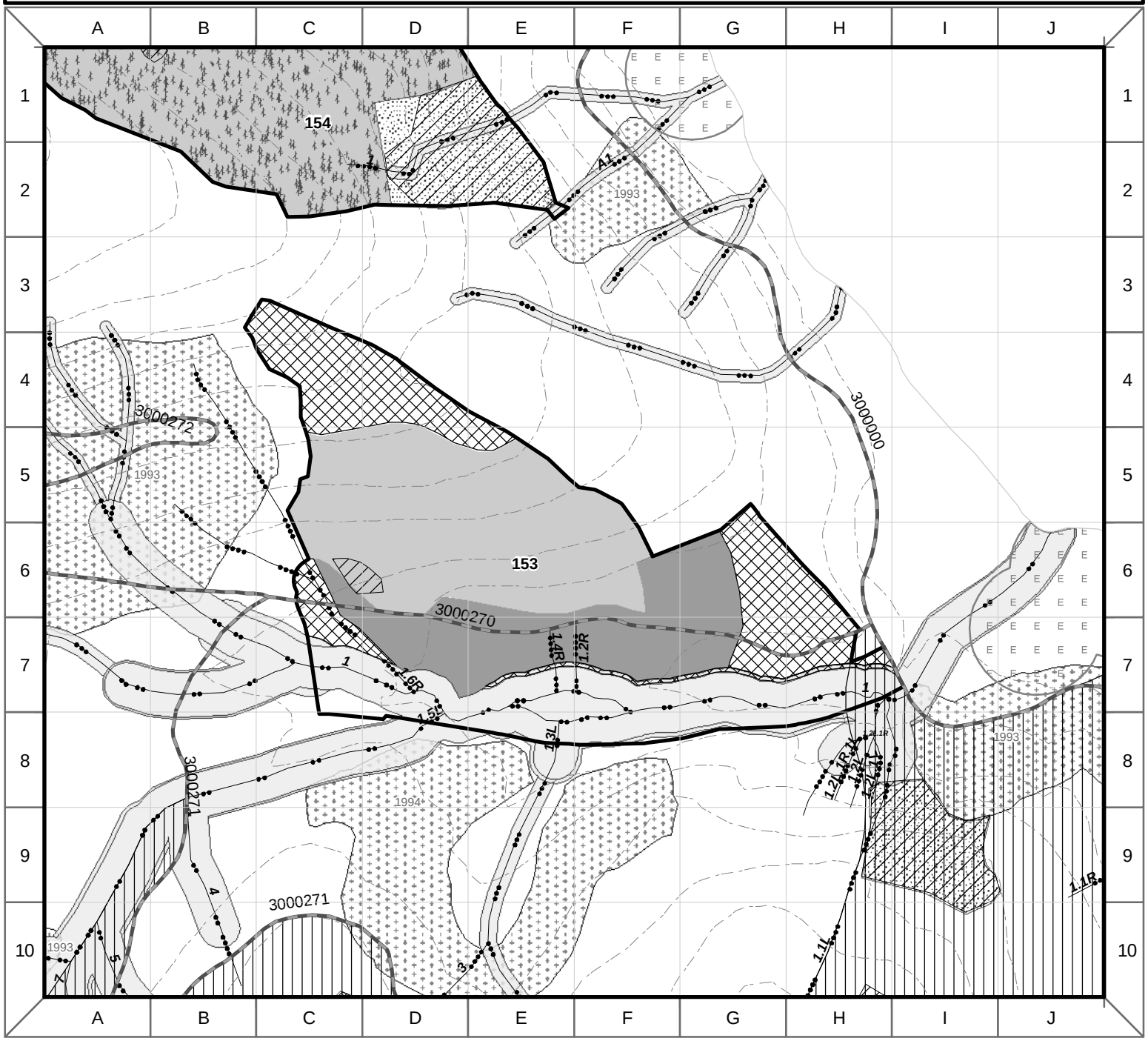
Unit Number 153 | **Alternative 5** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

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Feet

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Unit 154

Unit Number	154	Alternatives	2, 3, 4, 5	Total Unit Acres:	90.3	Prescription:	2, 3, 5 - 50% Removal 4 - 25% Removal
VCU Number:	584	Harvest System:	Helicopter	Net Harvest Volume (MBF):	2, 3, 5 - 898 4 - 449	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 154 has old-growth stand structure. Western hemlock is the dominant overstory species. Sitka spruce and western redcedar are lesser components. Overall the average defect rating is moderate. The main damage agent affecting tree health and volume is stem form and stem rot. Spotty mistletoe occurs across the unit. Windthrow risk is moderate. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Because of the large size and visibility of the unit, uneven-age management was selected as the silvicultural system to eliminate moderate to large openings and reduce the visibility of harvest. Maintain at least 50 percent in Alternatives 2, 3, and 5, and 75 percent in Alternative 4 of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. 50 percent retention was selected for Alternative 2, 3, and 5 because windthrow risk is moderate and 75 percent retention was selected for Alternative 4 because of wildlife concerns. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

Legacy is required in this VCU. However, no legacy acres are required for uneven-aged management because adequate structure is retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 3000272.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait. Stream A1 characteristics do not contain project specific field verified information.

Stream#: 4 Class: III, IV Flagging: O/W, G/W C- Type: HCL, HCO
Concerns: blowdown, active erosion, heavy scouring with abundant substrate piles
Buffer (RMA): Class III for HCL to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category B and C

Stream#: 3 Class: III, IV Flagging: O/W, G/W C- Type: HCL, HCO
Concerns: blowdown and active erosion
Buffer (RMA): III for HCL to the top of side-slope break. Class IV for HCO none
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Unit 154

Stream#: 2 Class: III, IV Flagging: O/W, G/W C- Type: MCS, MMO
Concerns: none
Buffer (RMA): Class III for MCS to the top of the side-slope break. Class IV for MMO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 1 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: A1 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

All other stream in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit is Low. It is in Modified Landscape LUD and is in Middleground. The uneven-aged management prescription for this unit eliminates any scenery resource concerns.

RECREATION:

No concerns.

SOILS/WETLANDS:

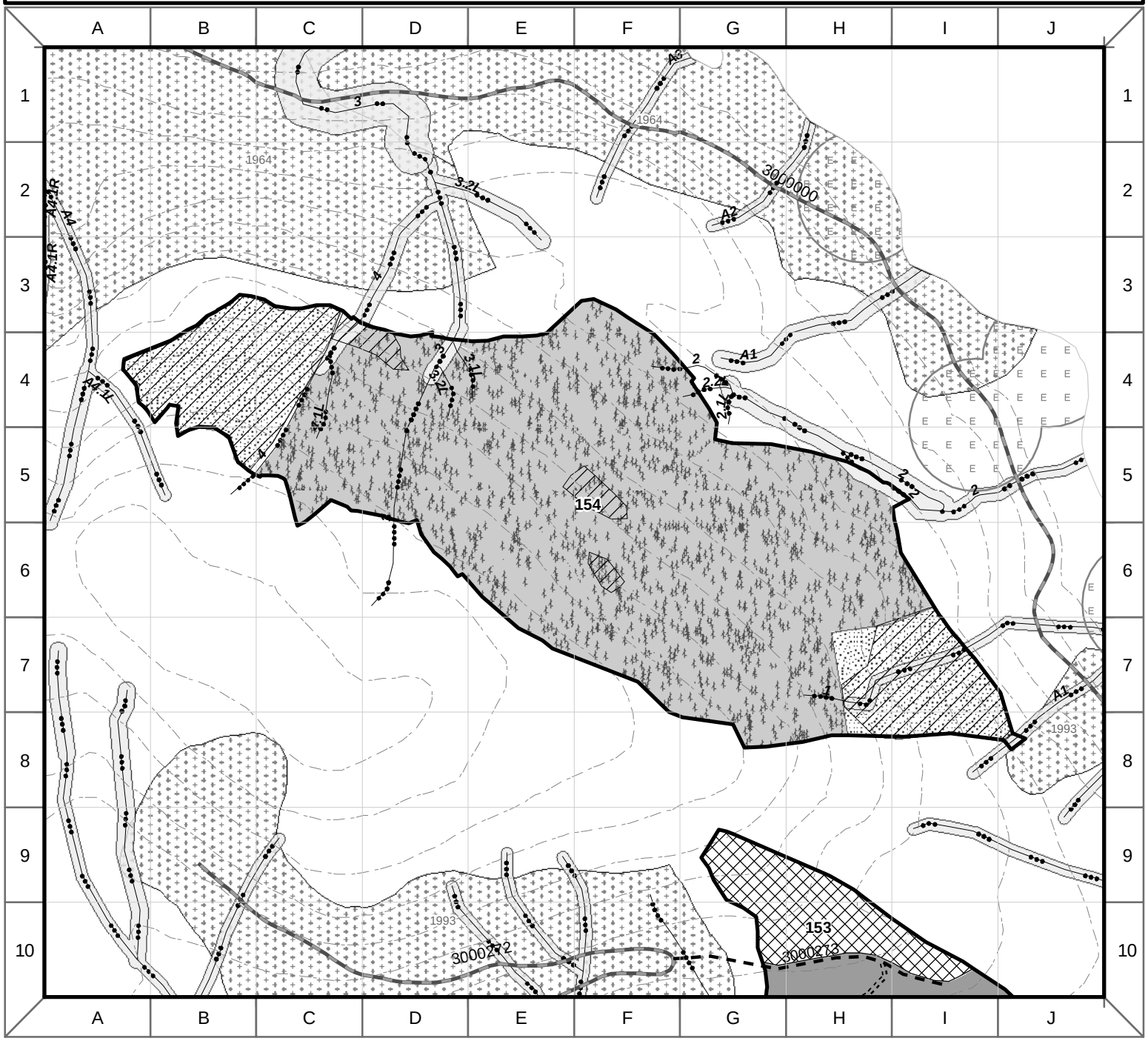
Slopes range from 10 to about 80%. About 2 acres of slopes greater than 72% are included in the unit that are suitable for harvest with full suspension. Retain trees around the perimeter and the headwall of the landslide in the central-south area of the unit to prevent further erosion. About 21 acres were excluded due to due to colluvial activity on the soil surface, extremely steep slopes, steep wet slopes, multiple incisions, and MMI4 soils. No wetlands were identified in the unit. Full suspension is required for about 90 acres through the center of the unit. In the remainder of the unit, a minimum of partial suspension is required to meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northeastern half of unit). Legacy standard and guideline applies in this VCU. No legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Alternative 4: Prescription is 25% basal area removal to maintain connectivity and other habitat values.

Unit Number 154 | **Alternative 2** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500 Feet

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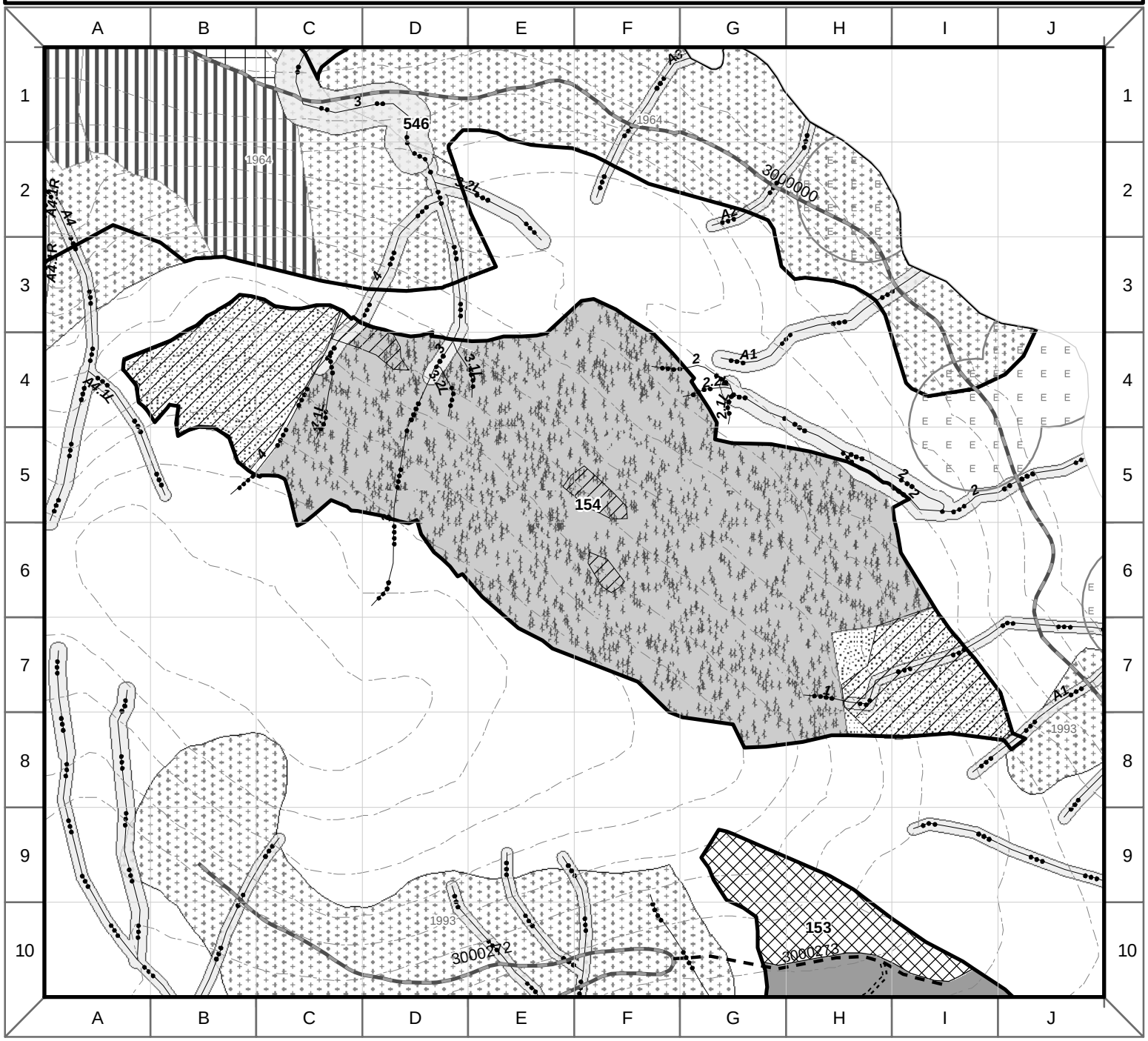
Unit Number 154 | **Alternative 3** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

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Feet

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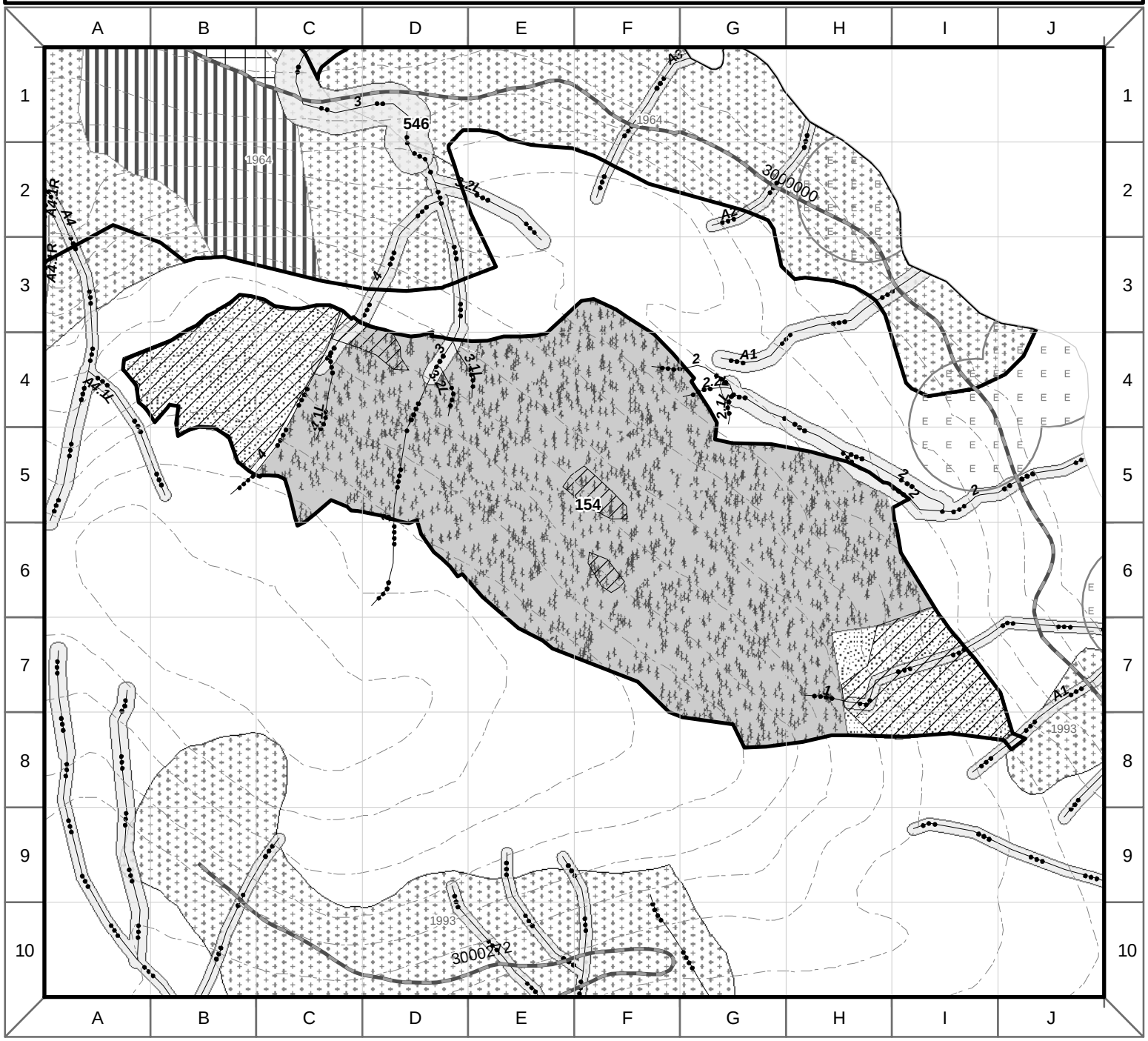
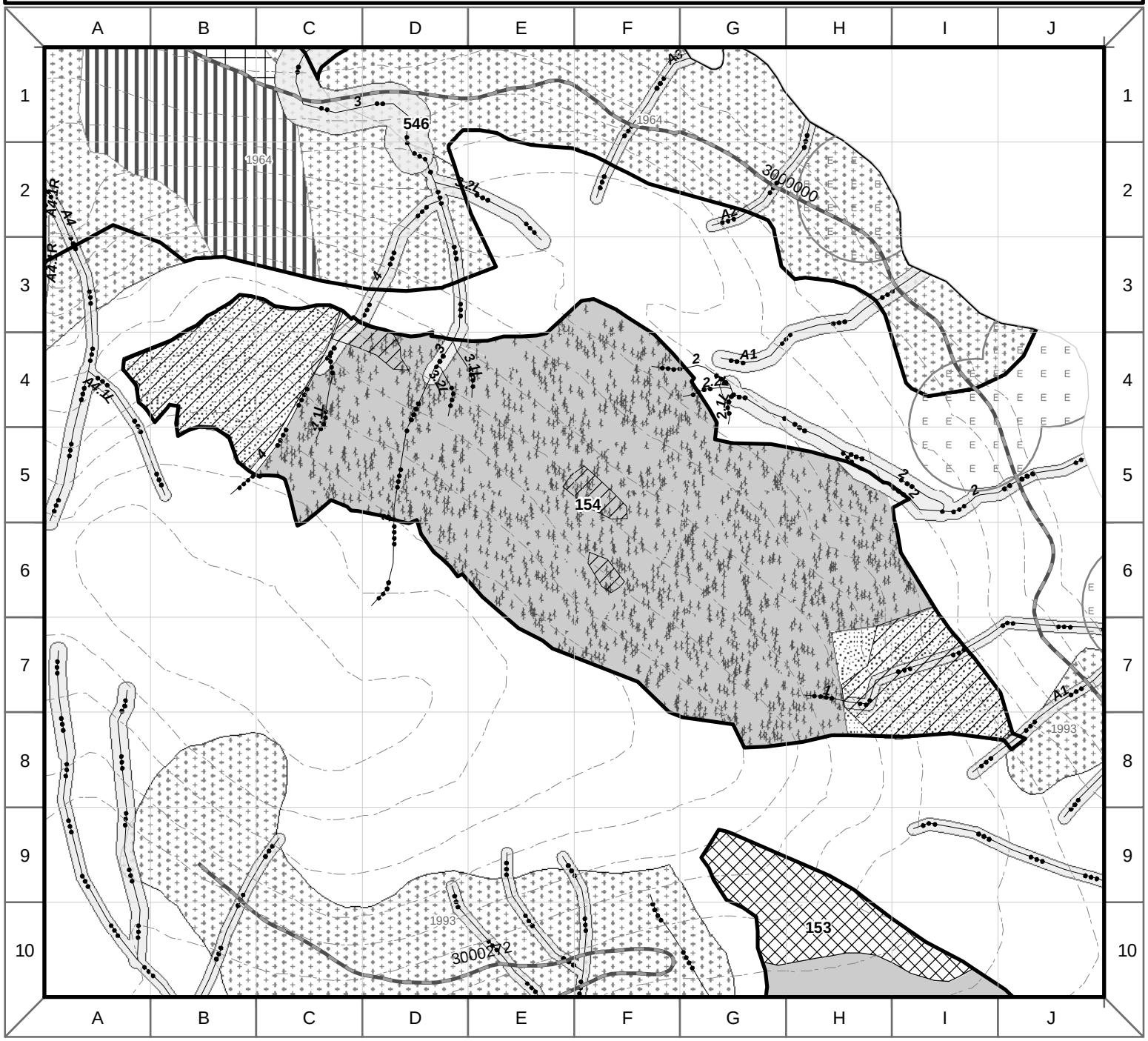
Unit Number 154 | **Alternative 4** | **VCU: 584**



Unit Number 154 | **Alternative 5** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

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Feet

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Unit 158

Unit Number 158	Alternatives 2, 3, 4, 5	Total Unit Acres: 37.9	Prescription: 25% Removal
VCU Number: 583, 584	Harvest System: Helicopter	Net Harvest Volume (MBF): 223	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: The unit predominantly old-growth stand structure. The overstory consists of western hemlock, western redcedar and Sitka spruce with some areas of Alaska-cedar. Stem decay is moderate on average. Mistletoe is light. Windthrow risk is high. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Because of the moderate size and visibility of the unit, as well as timber economics/silviculture concerns, uneven-age management was selected as the silvicultural system to eliminate moderate to large openings and reduce the visibility of harvest. 75 percent retention was selected because of high windthrow risk.

Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

The legacy standard and guide applies in this VCU. No legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

Alternatives 3, 4: This unit is planned for helicopter yarding to landings on existing NFS road 3023000.

Alternatives 2, 5: This unit is planned for helicopter yarding to landings on existing NFS road 3000300.

ENGINEERING/ROADS:

This unit is accessed by reconstruction of existing NFS road 3023000 in Alternatives 3 and 4, totaling 10,200 feet. See road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 158

Streams are tributaries to Little Ratz Creek.

Stream#: 10 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: none
Buffer (RMA): Class III for HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 13 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: none
Buffer (RMA): Class III for HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 16 Class: III, IV Flagging: O/W, G/W C- Type: HCL, HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCL to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

All other stream in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

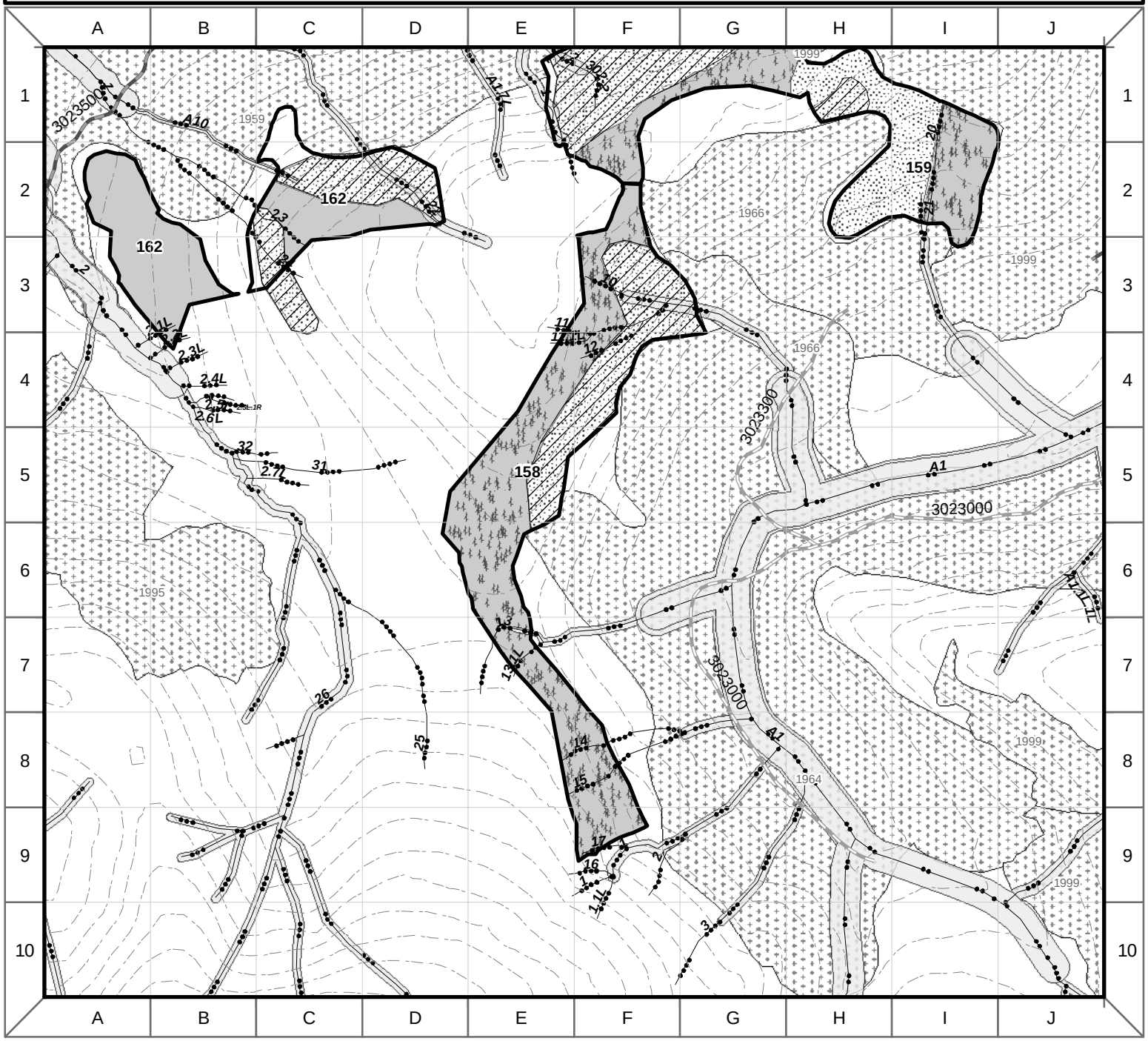
SCENERY:
The Scenic Integrity Objective (SIO) for this unit consists of 10 acres of Low and 27 acres of Very Low. It is in Modified Landscape LUD and is partially in Middleground, but mostly Seldom Seen. The uneven-aged management prescription for this unit eliminates any scenery resource concerns.

RECREATION:
No concern.

SOILS/WETLANDS:
Slopes range from about 35 to 100%. All slopes over 72% are located in the soil exclusion area. About 15 acres were excluded due colluvial activity on the soil surface, active and historic landslides, extremely steep and wet slopes, and MMI4 soils. The remainder the unit is suitable for harvest with full suspension. Forested wetlands were identified throughout the units but do not exceed 15% of the area. Full suspension would be required in the unit to protect soils and wetlands (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:
Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in these VCUs; however, no legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit Number 158 | **Alternative 2** | **VCU: 583,584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500 Feet

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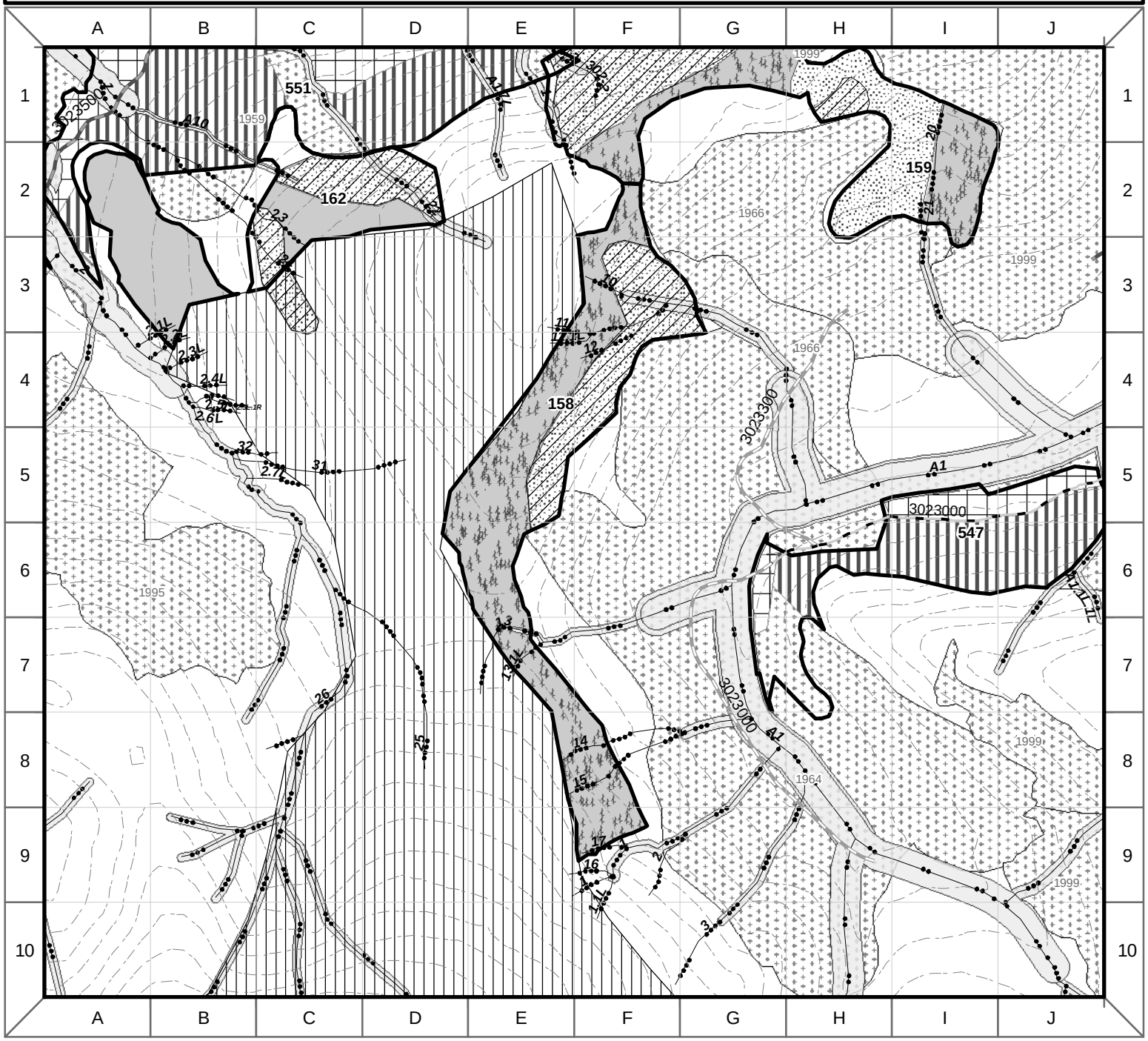
Unit Number 158 | **Alternative 3** | **VCU: 583,584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500 Feet

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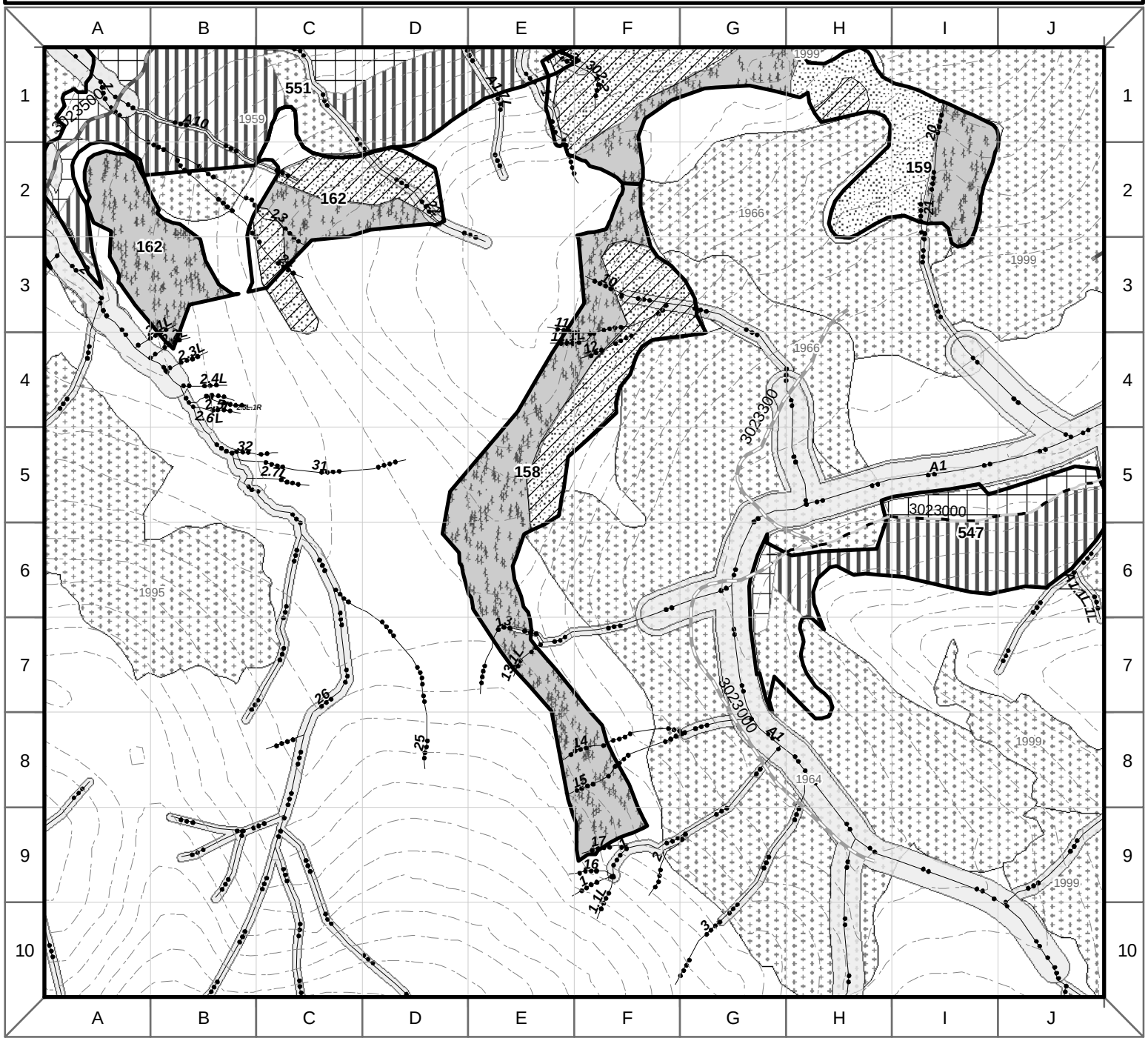
Unit Number 158 | **Alternative 4** | **VCU: 583,584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500 Feet

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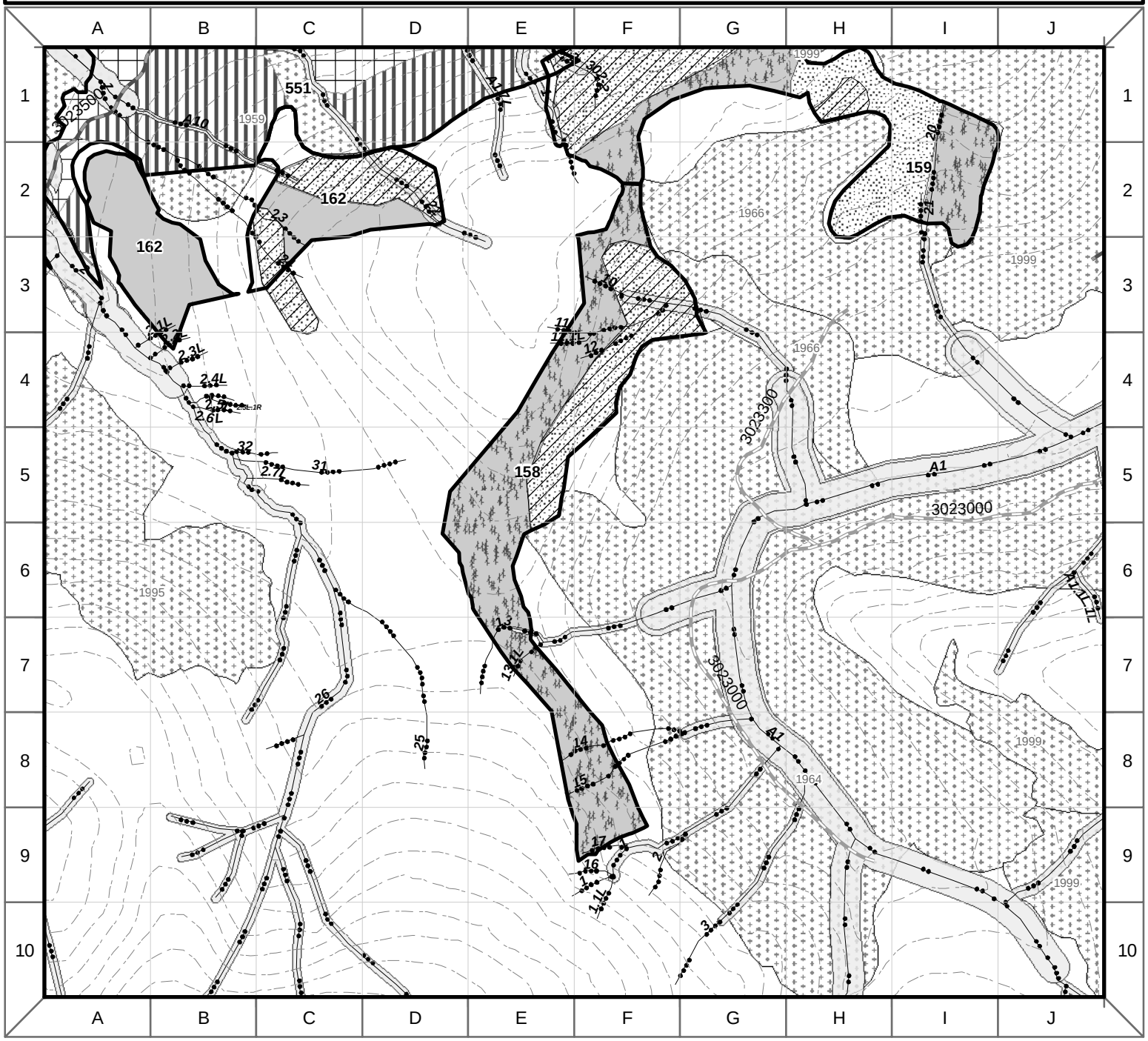
Unit Number 158 | **Alternative 5** | **VCU: 583,584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 159

Unit Number 159	Alternatives 2, 3, 4, 5	Total Unit Acres: 53.5	Prescription: 25% Removal
VCU Number: 583, 584	Harvest System: Helicopter	Net Harvest Volume (MBF): 450	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: The unit has varying stand structure with predominantly old-growth characteristics. The overstory consists primarily of western hemlock and Sitka spruce with areas of western redcedar and Alaska-cedar. Stem decay and butt rot are the main concerns. Overall average defect rating for all plots combined is high with moderate patches. Windthrow risk is high. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Uneven-age Management Single Tree Selection:
Because of the moderate size and visibility of the unit, as well as timber economics/silviculture and wildlife concerns, uneven-age management was selected as the silvicultural system to eliminate moderate to large openings and reduce the visibility of harvest. Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. 75 percent retention was selected because of high windthrow risk.Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

This is a legacy VCU. However, no legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on existing NFS roads 3000300 & 3023500.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Ratz Creek. Stream A1.3L, 3, A1.5L characteristics do not contain project specific field verified information.

Stream#: A1.3L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category B

Stream#: 3 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Unit 159

Stream#: A1.5L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: 2 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCD, HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCM and HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 1 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 20 Class: III , IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

All other stream in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

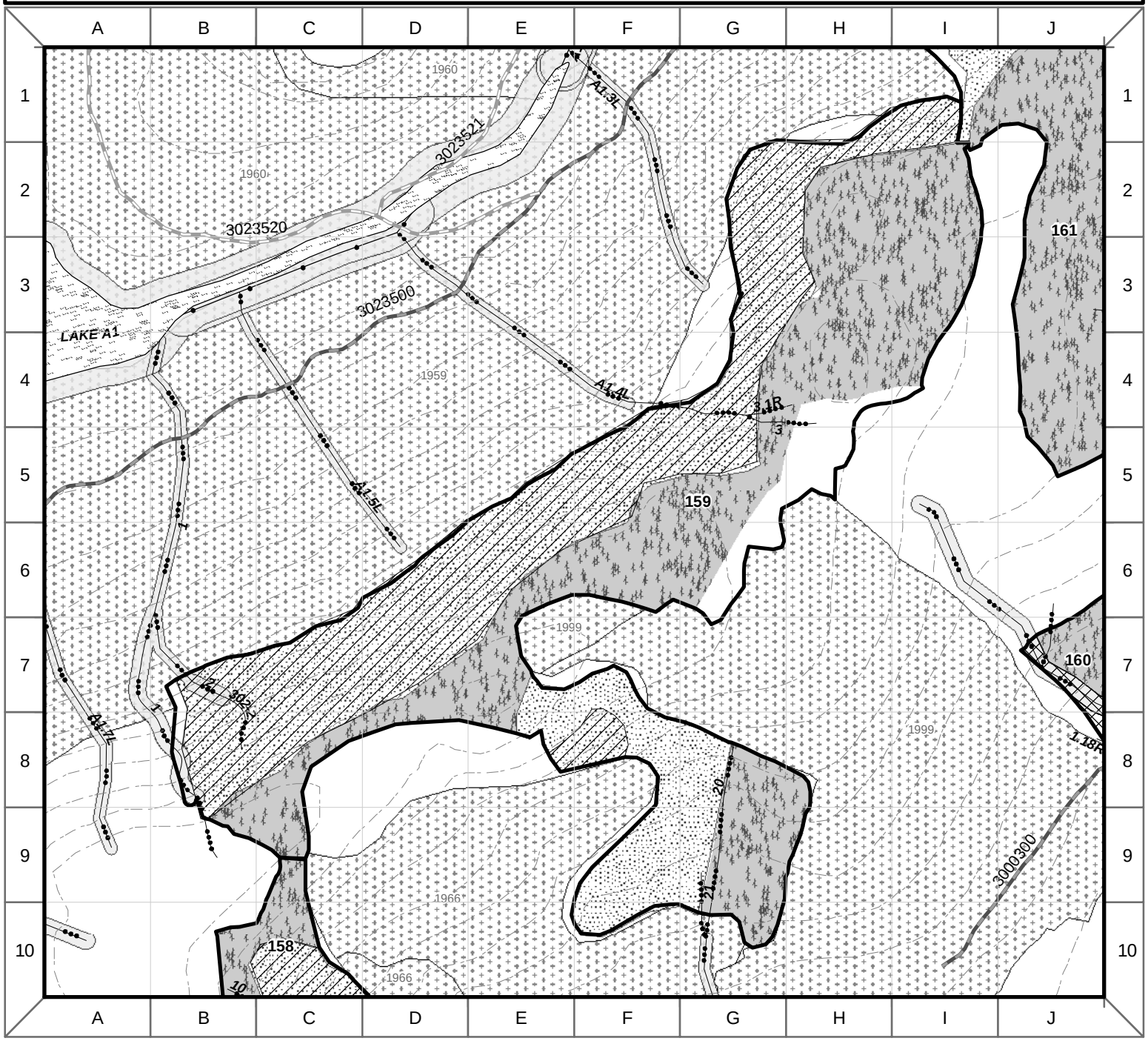
SCENERY:
The Scenic Integrity Objective (SIO) for this unit is Low. It is in Modified Landscape LUD and is in Middleground. The uneven-aged management prescription for this unit eliminates any scenery resource concerns.

RECREATION:
No concern.

SOILS/WETLANDS:
Slopes range from nearly level to about 100%. The steep slopes are located in the soil exclusion area. About 61 acres were excluded due to steep slopes, slope failures, and soil concerns. The remainder the unit is suitable for harvest with full suspension. Forested wetlands were identified throughout the units but do not exceed 15% of the area. Full suspension would be required in the unit to protect soils and wetlands (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:
Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern end of unit). Legacy standard and guideline applies in these VCUs. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres.

Unit Number 159 | **Alternative 2** | **VCU: 583,584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N S E W

0 500
Feet

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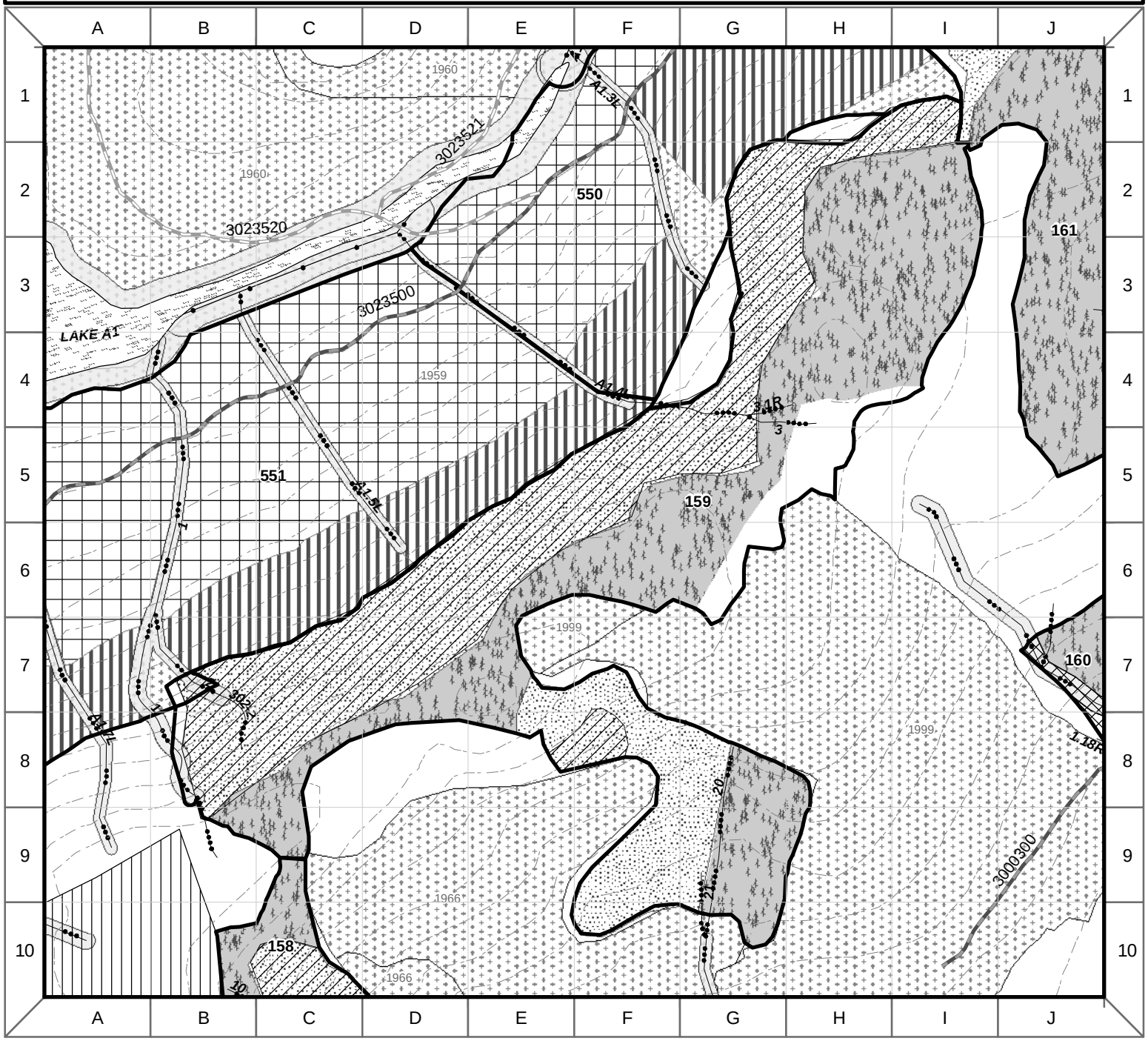
Unit Number 159 | **Alternative 3** | **VCU: 583,584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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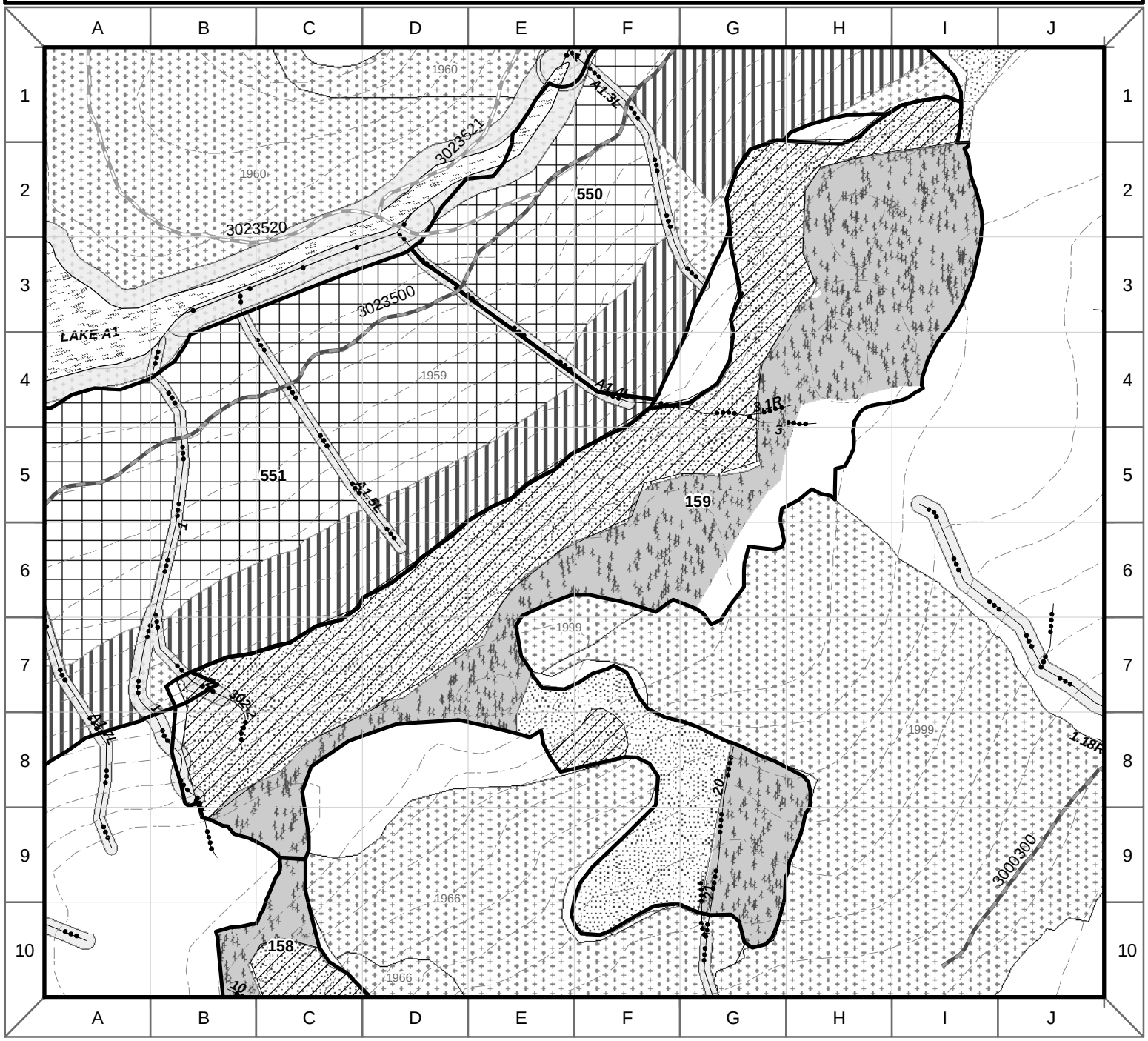
Unit Number 159 | **Alternative 4** | **VCU: 583,584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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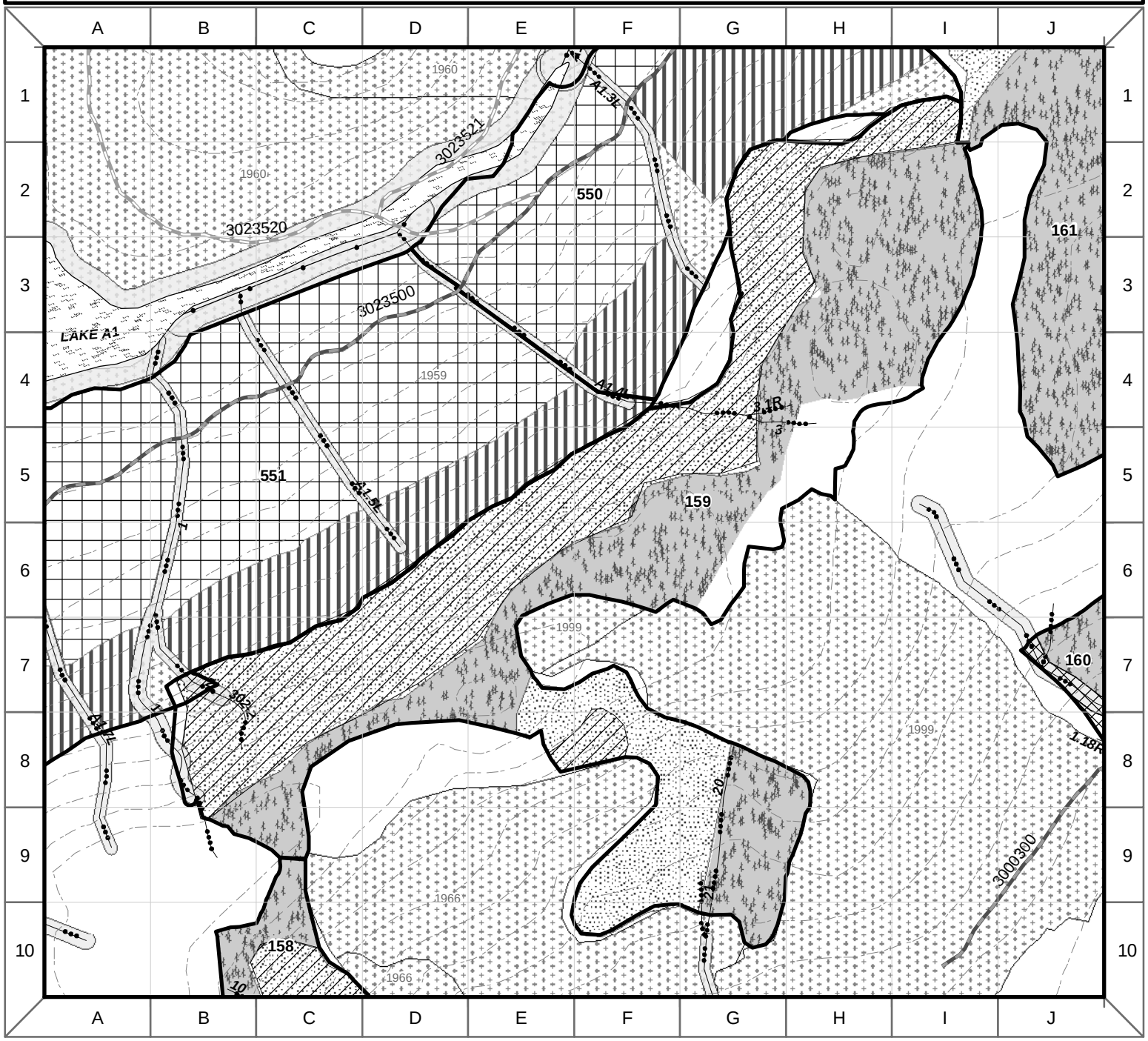
Unit Number 159 | **Alternative 5** | **VCU: 583,584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 160

Unit Number	160	Alternatives	2, 3, 5	Total Unit Acres:	49.3	Prescription:	Clearcut and 50% Removal
VCU Number:	584	Harvest System:	Cable, Shovel,	Net Harvest Volume (MBF):	845	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 160 has old-growth stand structure. The overstory consists of a mixture of western hemlock, western red and Alaska-cedar and Sitka spruce. Sitka spruce are widely spaced throughout. The main damage agent affecting tree health and volume is moderate stem decay. Stem form defects are also common. Overall the average defect rating is moderate. Windthrow risk is low. All previous harvest areas adjacent to or near this unit have met green-up with regeneration over 5 feet tall. This meets NFMA requirements for no longer being considered openings.

A Tongass Wide Young Growth Study site (POW Little Ratz Experiment #4) is along the northern boundary of this unit. Protection of this site is required. Contact the Forestry Sciences Lab in Juneau for additional information.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management (Shovel and Cable Settings)
The lower portions of the unit are being recommended for harvest at this time because this stand is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. Based on the size of clearcut opening, this requires that approximately 9 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to build off RMAs, divide the opening in two, and incorporate unsuitable soils. The upper portion of unit is to have partial harvest. A total of about 11 acres is currently mapped as legacy. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Helicopter Settings)
Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription. Uneven-age management single tree selection was prescribed in the helicopter settings, which were located upslope, to reduce the visual impacts of harvest in those areas.

TIMBER/LOGGING:

This unit is planned for a combination of cable, shovel and helicopter yarding. Cable settings are planned for uphill and downhill yarding to landings on the existiing NFS road 3000300. Shovel settings are planned for yarding to the existing NFS road 3000300. Helicopter settings are planned for yarding to landings on the existing NFS road 3000300.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 160

FISHERIES:

Streams are tributaries to Ratz Creek.

Stream#: 1 Class: II Flagging: B/W C- Type: MCM, FPLr
Concerns: blowdown
Buffer (RMA): Class II for MCM greater of 100 feet or to the top of the side-slope break. Class II for FPLr greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed.
Protection: Category A

Stream#: 1.14R Class: II, IV Flagging: B/W, G/W C- Type: MMO, HCO
Concerns: blowdown
Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCO none.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed.
Protection: Category A and C

Stream#: 1.15R Class: II , IV Flagging: B/W, G/W C- Type: MMO, HCO
Concerns: blowdown
Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCO none.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: 1.15R Class: II , IV Flagging: B/W, G/W C- Type: MMO, HCO
Concerns: blowdown
Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCO none.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: 1.18R Class: II , III Flagging: B/W, O/W C- Type: HCL, HCD
Concerns: blowdown
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCL and HCD greater of 100 feet or to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A and B

All other stream in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The Scenic Integrity Objective (SIO) for this unit consists of 25 acres of Low and 24 acres of Very Low. It is in Modified Landscape LUD and is partially in Middleground and partially Seldom Seen. The uneven-aged management prescription for the upper slopes and the small opening size in visible areas eliminates any scenery resource concerns.

RECREATION:

No concern.

SOILS/WETLANDS:

In the southern portion of the unit, slopes range from 50 to 100%. All slopes exceeding 72% are located in the soil exclusion area. About 4 acres were excluded due to colluvial activity on the soil surface, historic landslides, steep slopes, and MMI4 soils. There is a partially revegetated debris avalanche along the eastern boundary of the soil exclusion area. No wetlands were observed in the unit. Shovel yarding is only suitable below the road. In the remainder of the unit, a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

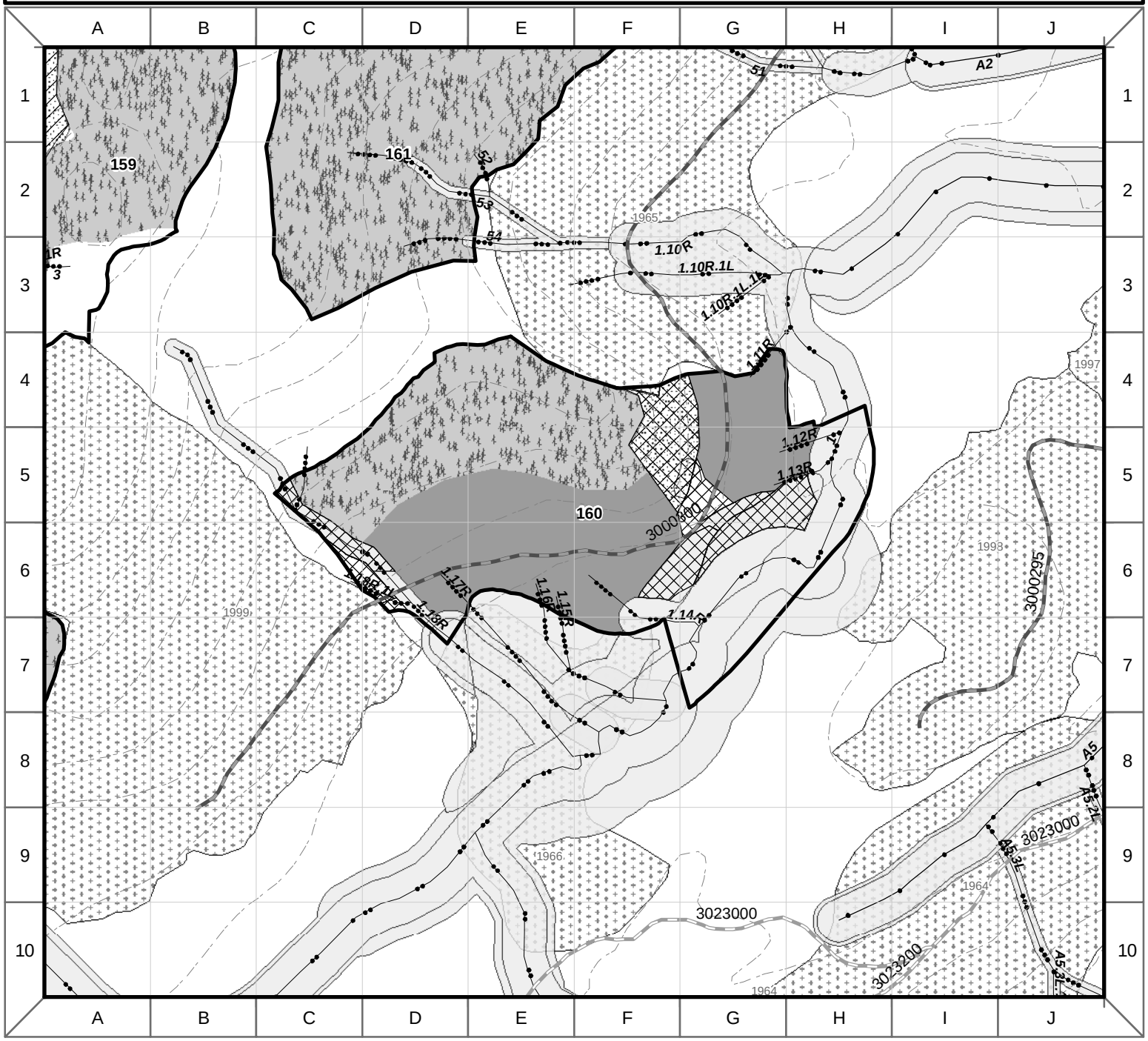
Unit 160

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU to clearcut portion of unit . Positioning of Legacy acres covers some deer winter range.

Alternative 4: Unit dropped to help maintain connectivity to POG near the beach and other habitat values.

Unit Number 160 | **Alternative 2** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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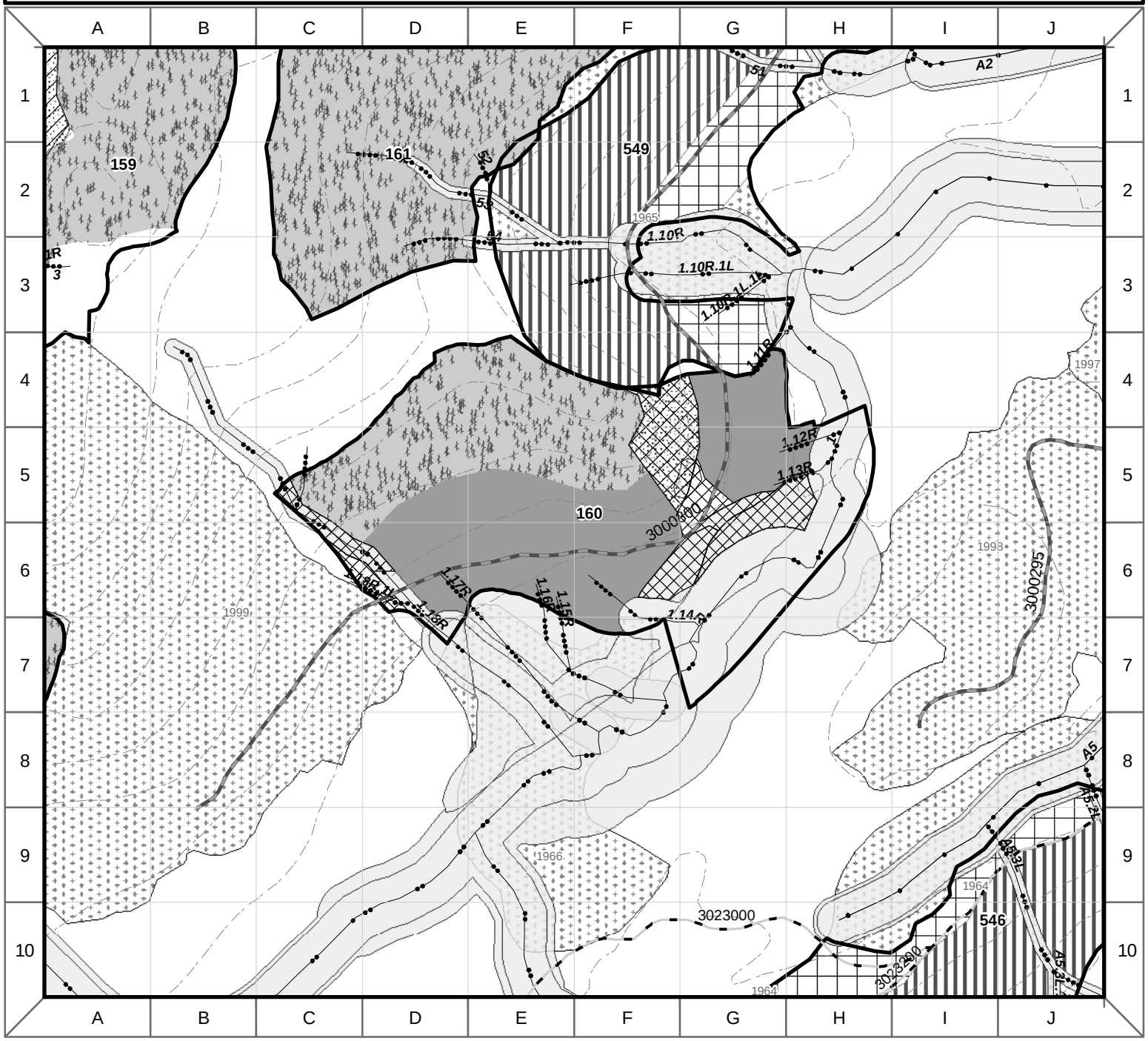
Unit Number 160 | **Alternative 3** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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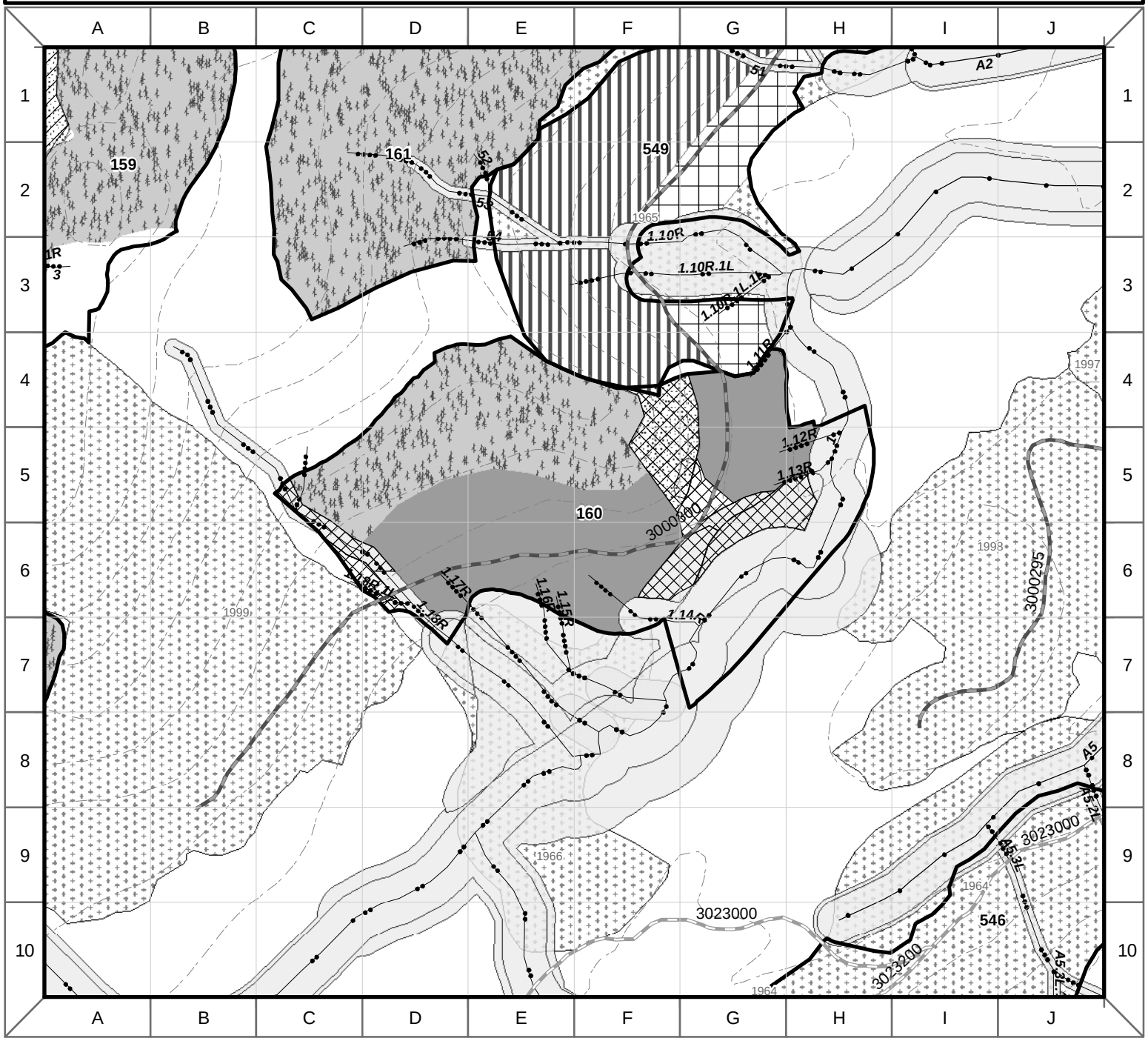
Unit Number 160 | **Alternative 5** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 161

Unit Number 161	Alternatives 2, 3, 5	Total Unit Acres: 99.1	Prescription: 25% Removal
VCU Number: 583, 584	Harvest System: Helicopter	Net Harvest Volume (MBF): 873	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit has varying stand structure with predominantly old-growth characteristics. The overstory consists primarily of western hemlock and Sitka spruce with areas of western redcedar and Alaska-cedar. Stem decay, butt rot, light mistletoe and some stem form issues are the main concerns. Overall average defect rating is high with moderate patches. Trees are over-mature to mature with static to declining growth. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

A Tongass Wide Young Growth Study site (POW Little Ratz Experiment #4) is along the the southeastern boundary. Protection of this site is required. Contact the Forestry Sciences Lab in Juneau for additional information.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. 75 percent retention was selected because of high windthrow risk. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

This is a legacy VCU. However, no Legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on existing NFS roads 3000300 & 3023500.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Ratz Creek. Streams 12.1R, A1.1L.2R, A1.1L.1R, A1.1L.1R.1R, A1.2L characteristics do not contain project specific field verified information.

Stream#: 54 Class: III , IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 53 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed

Protection: Category B and C

Stream#: 51 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 50 Class: III, IV Flagging: O/W, G/W C- Type: HCL, HCO
Concerns: none
Buffer (RMA): Class III for HCL to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 12.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1.1L.2R Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1.1L.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1.1L.1R.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1.2L Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCM to top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category B

All other stream in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

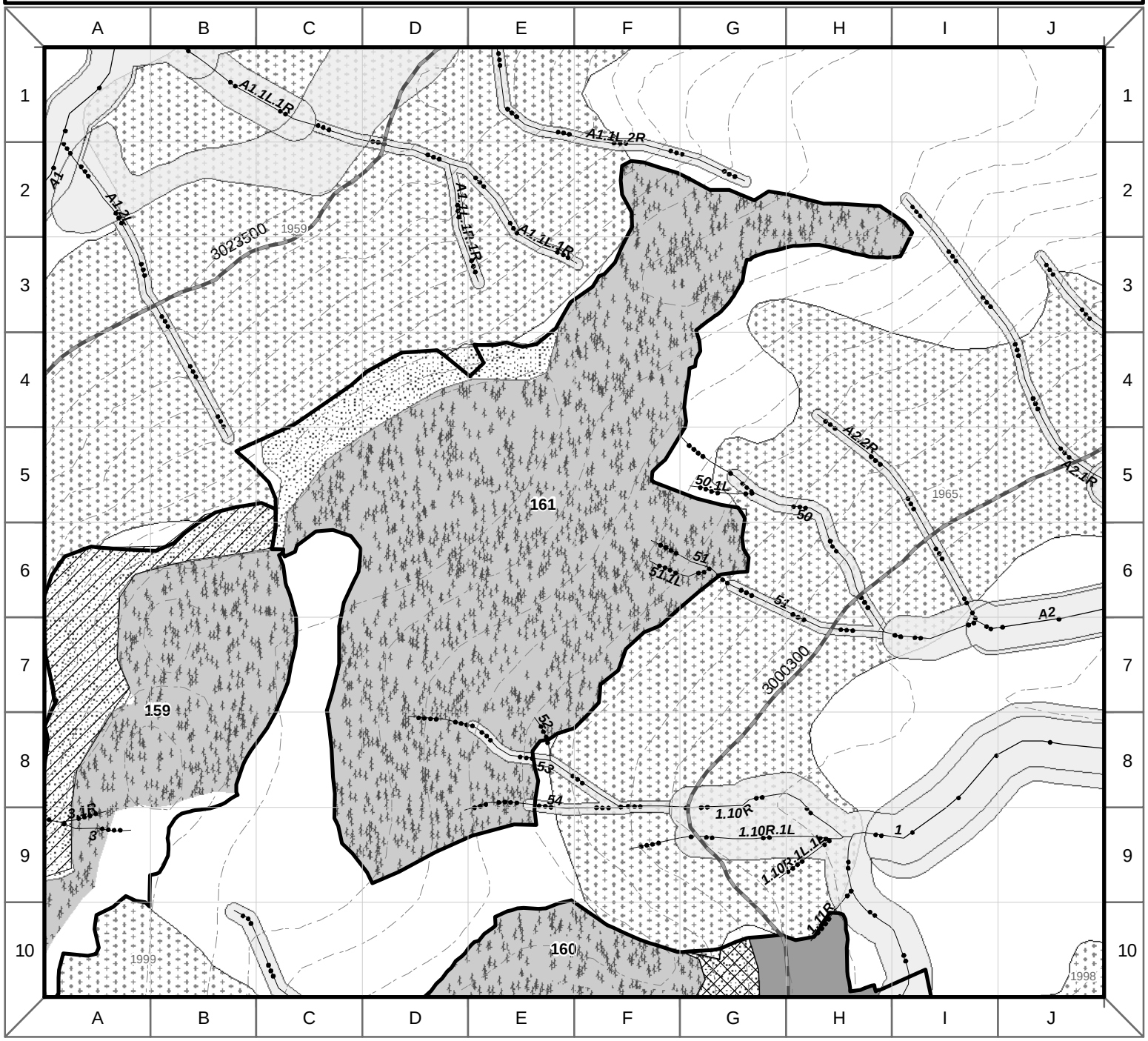
SCENERY:
SIO is low. No concerns because of uneven-age management.

RECREATION:
No Concerns

SOILS/WETLANDS:

Unit 161
Slopes range from 35 to greater than 100%. All slopes over 72% are within the soil exclusion area. About 8 acres were excluded due to colluvial activity on the soil surface, active and historic landslides, extremely steep and wet slopes, and MMI4 soils. Forested wetlands were identified throughout the unit but didn't exceed 15% of the given area. In the remaining unit, full suspension is required to meet soil and wetland concerns (BMPs 12.5, 13.5, and 13.9).
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (along southern edge unit). Legacy standard and guideline applies in these VCUs. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres). Alternative 4: Unit dropped to maintain habitat value and connectivity to the Clarence Strait shoreline in an area bordered on both sides by past harvest.

Unit Number 161 | **Alternative 2** | **VCU: 583,584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

0 500 Feet

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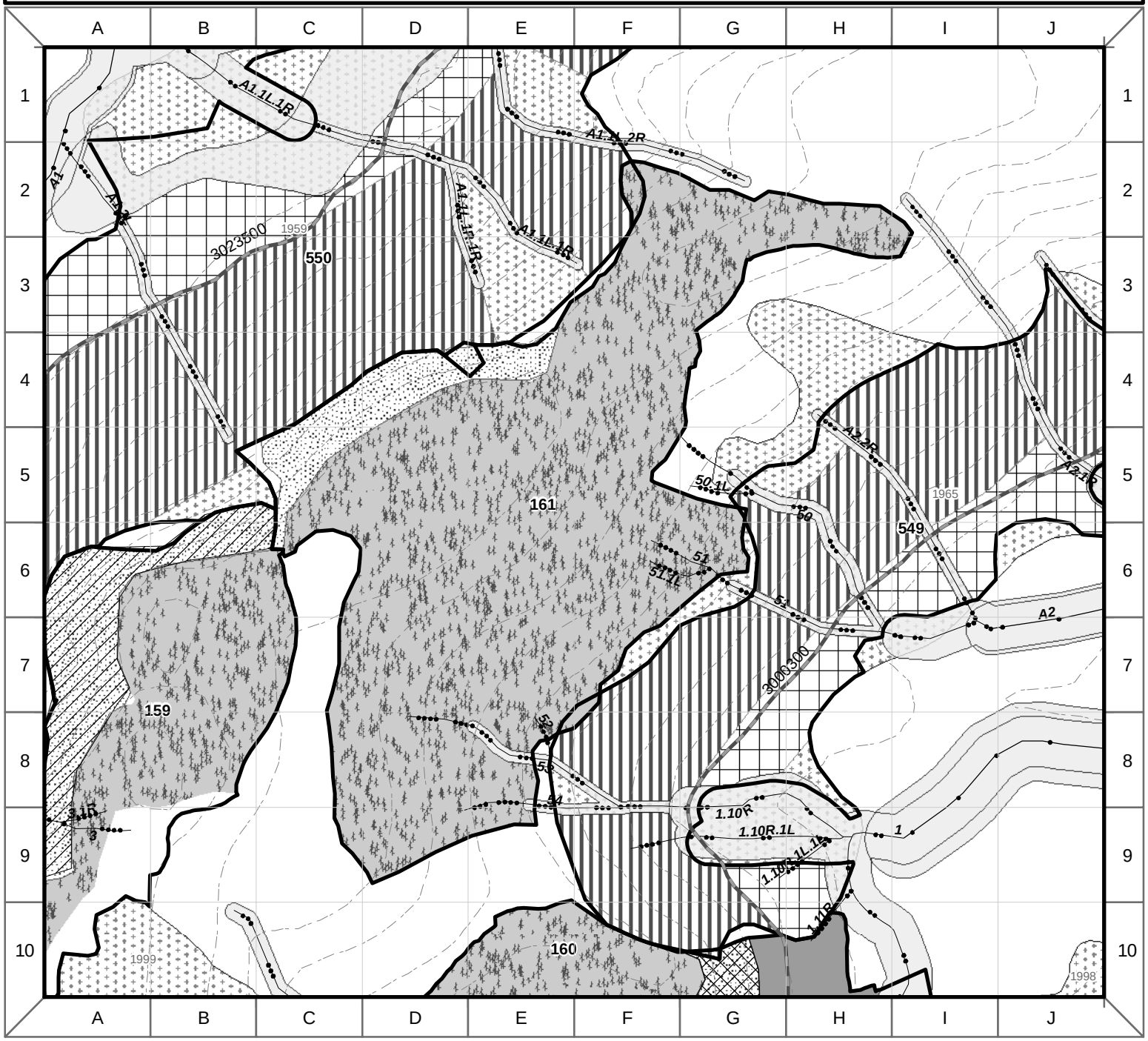
Unit Number 161 | **Alternative 3** | **VCU: 583,584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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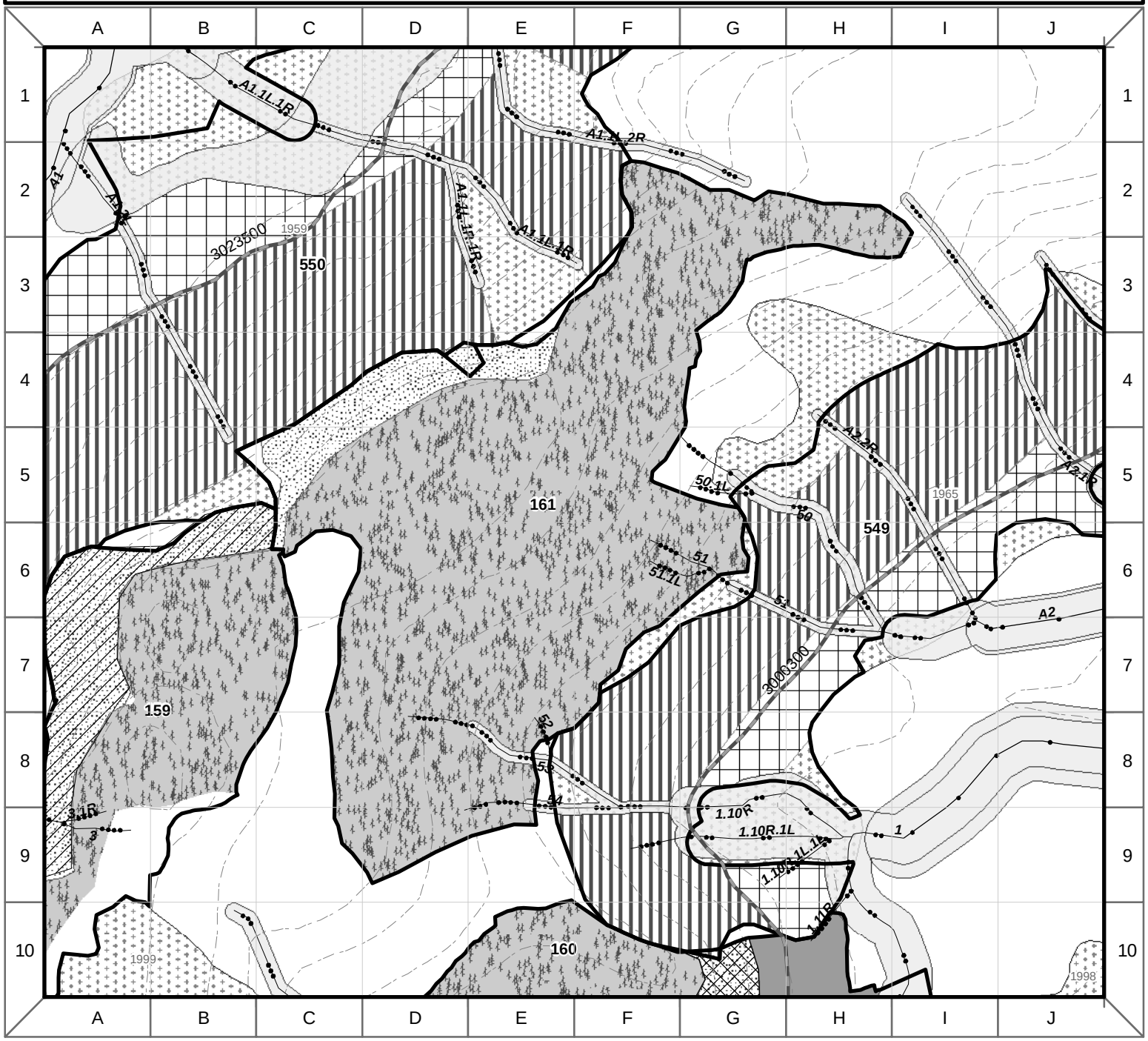
Unit Number 161 | **Alternative 5** | **VCU: 583,584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

0 500 Feet

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Unit 162

Unit Number	162	Alternatives	2, 3, 4, 5	Total Unit Acres:	21.2	Prescription:	2, 3, 5 - Clearcut 4 - 25% Removal
VCU Number:	583	Harvest System:	Helicopter	Net Harvest Volume (MBF):	2, 3, 5 - 443 4 - 111	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 162 has predominantly old-growth characteristics. The overstory consists of western hemlock and Sitka spruce with areas of western redcedar and Alaska-cedar. Stem decay, butt rot and light mistletoe are the main concerns. Overall average defect rating is high to moderate. Trees are over-mature to mature with static to declining growth. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management (Alternatives 2,3,5)
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit consists of separate settings that are less than 20 acres; therefore, no legacy set-aside is required.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Alternative 4)
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription. The uneven-aged single tree selection regeneration method is being prescribed for this unit in Alternative 4 because windtrhrow risk is high and also to maintain intact diverse structure for wildlife needed at this time and place in the landscape to meet the objectives of this alternative. This system is not optimum for promoting timber production but is being prescribed primarily to mitigate the overall effects of the project on wildlife.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on existing NFS road 3023500. Unit borders the Thorne River Roadless Area on the south.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 162

Streams are tributaries to Ratz Creek. Stream A10 characteristics do not contain project specific field verified information.

Stream#: 2 Class: I, II, III Flagging: B/W, O/W C- Type: AFH, HCV, HCD
Concerns: blowdown and active erosion
Buffer (RMA): Class I for AFH greater of 140 feet or active portion of alluvial fan. Class II for HCV greater of 100 feet or to the top of the side-slope break. Class III for HCD to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: A10 Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: 22 Class: III Flagging: O/W C- Type: HCD
Concerns: active erosion
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

All other stream in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
No Concerns

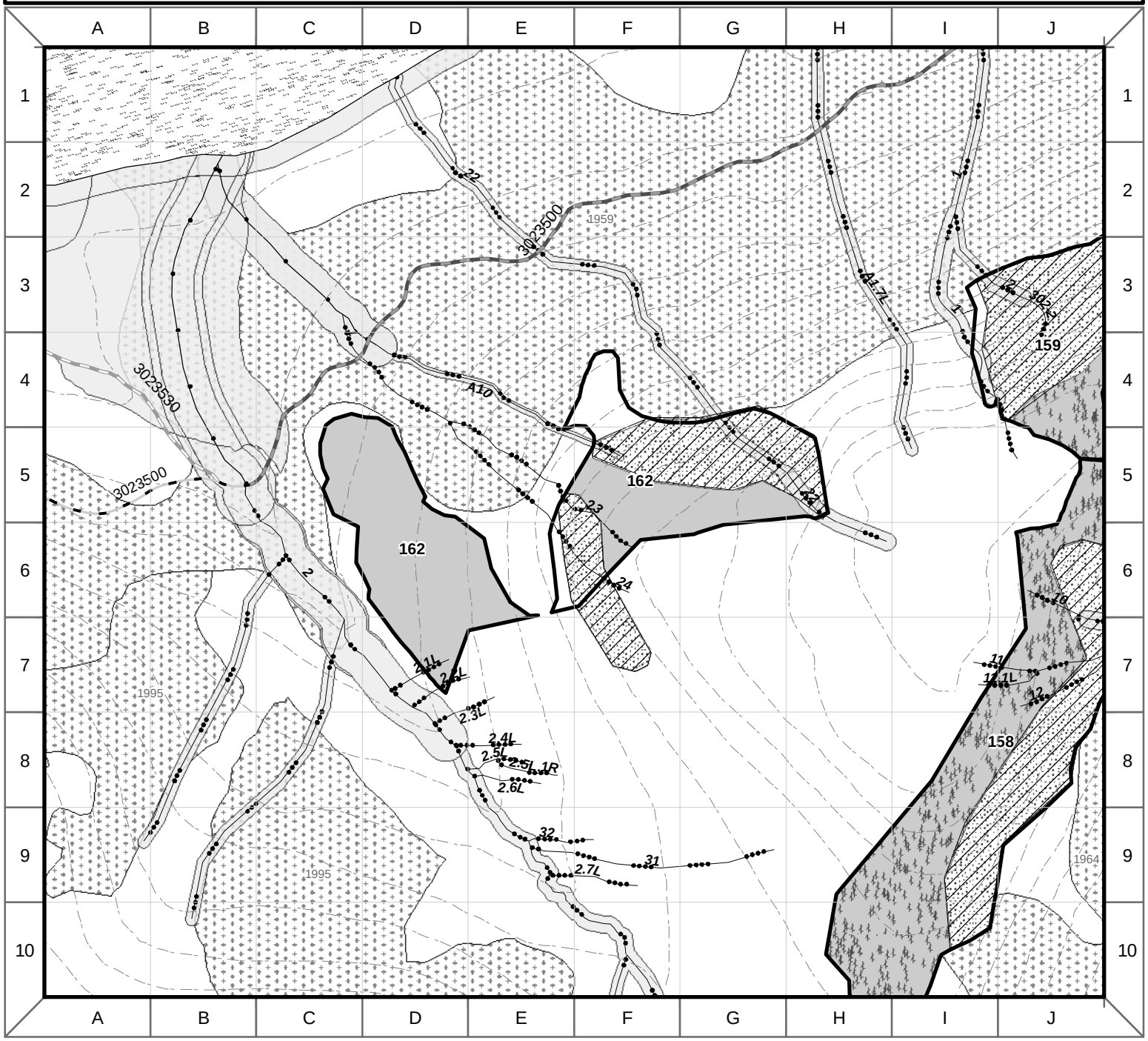
RECREATION:
No Concerns, but Unit borders the Thorne River Roadless Area on the south.

SOILS/WETLANDS:
Slopes range from 35 to greater than 100%. All slopes over 72% are within the soil exclusion area. About 10 acres were excluded due to colluvial activity on the soil surface, active and historic landslides, extremely steep and wet slopes, and MMI4 soils. Two revegetated debris avalanches have been mapped near the center of the unit. Forested wetlands were identified throughout the unit but didn't exceed 15% of the given area. In the remaining unit, full suspension is required to meet soil and wetland concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:
Unit includes average snow deer winter range (western portion of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because all settings are less than 20 acres.

Alternative 4: Prescription is 25% basal area removal to maintain connectivity and other habitat values.

Unit Number 162 | **Alternative 2** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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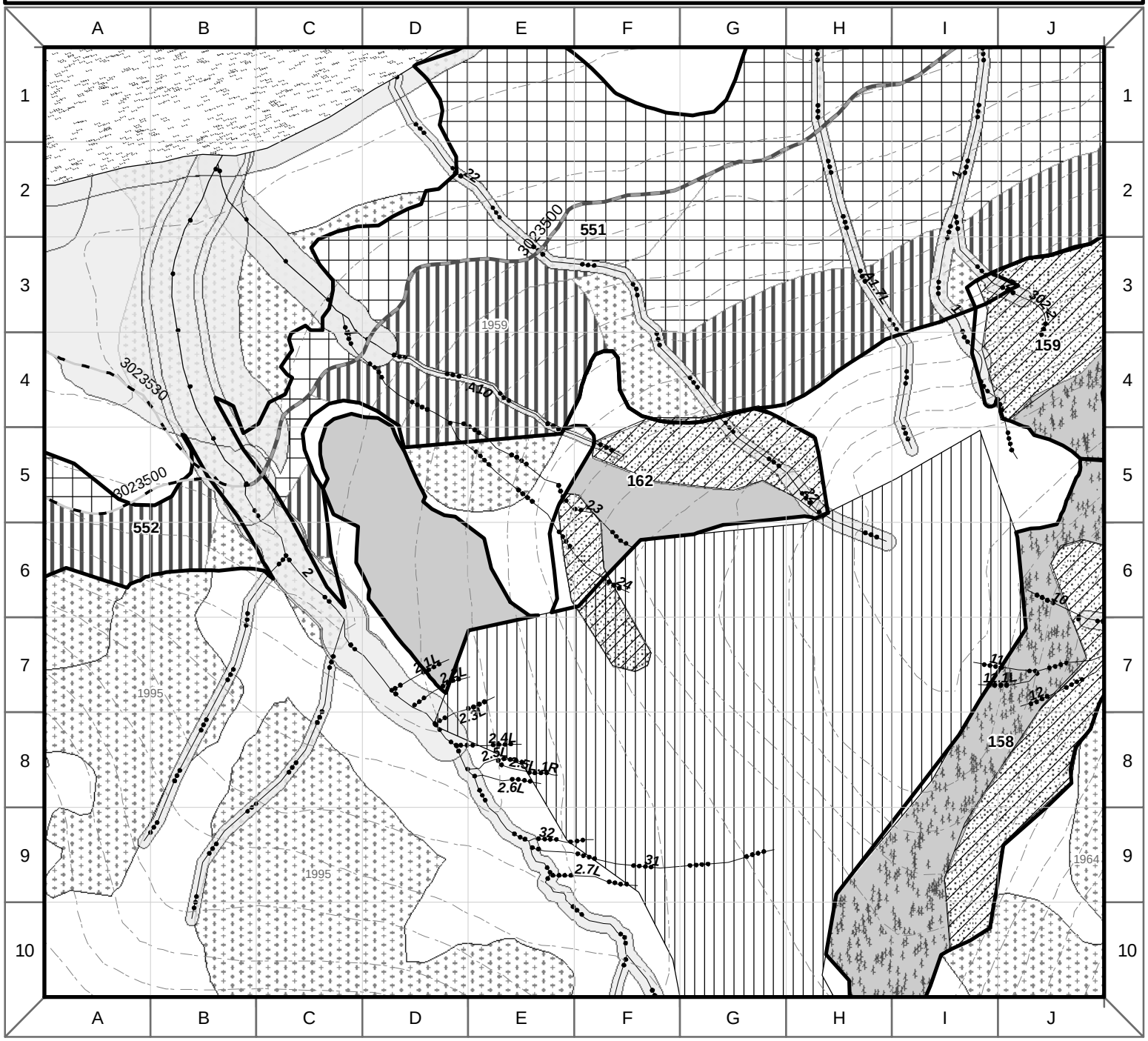
Unit Number 162 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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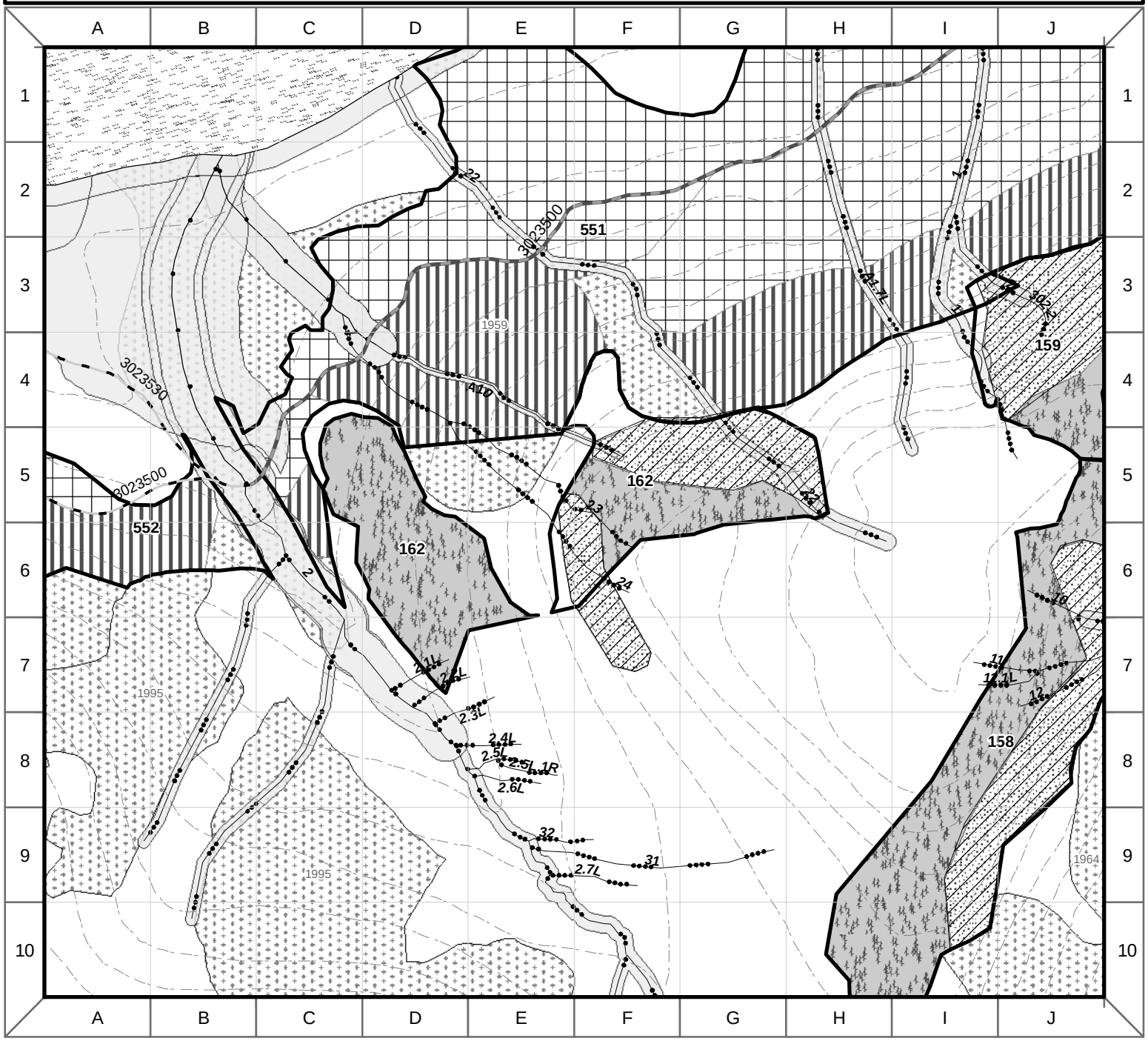
Unit Number 162 | **Alternative 4** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500 Feet

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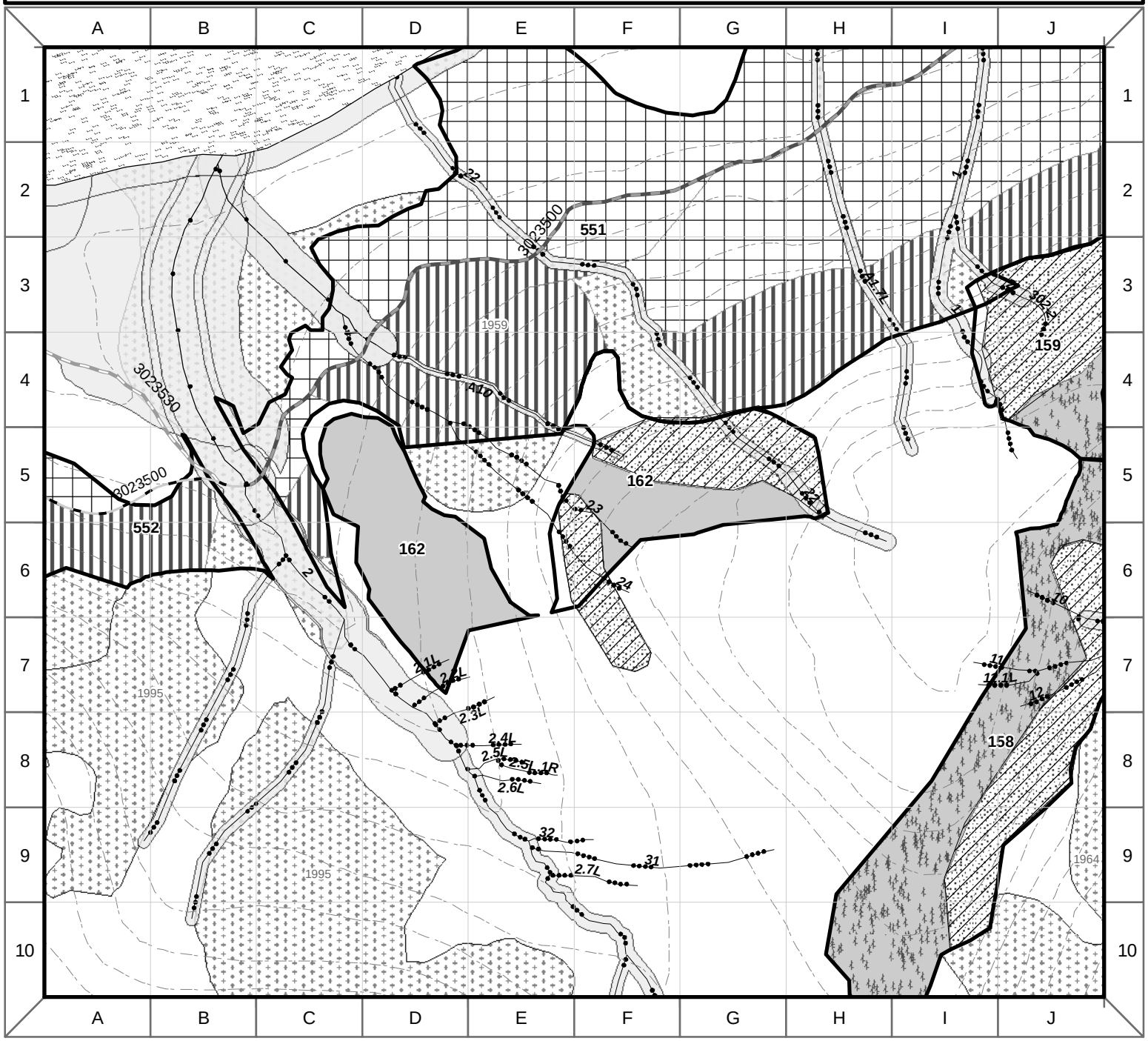
Unit Number 162 | **Alternative 5** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 167

Unit Number	167	Alternatives	2, 3, 5	Total Unit Acres:	14.0	Prescription:	2, 3 - Clearcut 5 - 25% Removal
VCU Number:	583	Harvest System:	Cable, Helicopter	Net Harvest Volume (MBF):	2, 3 - 421 5 - 105	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This area has old-growth stand structure with mature overstory timber consisting of a western hemlock and Alaska-cedar mixture. Western redcedar and Sitka spruce are present, but as secondary components. Overall the average defect rating for all plots is moderate. Windthrow risk is rated moderate due to elevation, topography (ridgeline stand) and higher risk tree characteristics. Trees are generally mature with static growth. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management (Alternatives 2, 3)
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Alternative 5)
Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription. The uneven-aged single tree selection regeneration method is being prescribed for this unit in Alternative 5 specifically to maintain significant vegetative cover post-harvest in this watershed, even though this system is not optimum for promoting timber production.

No legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

Alternative 3: This unit is planned for downhill cable yarding to landings on the two proposed temporary roads.

Alternatives 2, 5: This unit is planned for helicopter yarding to landings on existing NFS road 3023500.

ENGINEERING/ROADS:

Unit is accessed by two proposed temporary roads in Alternative 3, totaling 600 feet, as displayed on the unit card. Existing NFS roads 3023500, 3023530, and 3023535, totaling 6,200 feet, will be reconstructed in Alternative 3 to provide access. These roads are also used to access Units 552, 555-558, 168, 169, and 177. See road card for detailed information.

Existing NFS road 3023500 will be reconstructed in Alternatives 2 and 5, totaling 2,300 feet. This road is also used to access Units 552, 167, and 168. See road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

Unit 167

FISHERIES:

Streams are tributaries to Big Ratz Lake.

Stream#: 2 C lass: II, III Flagging: B/W, O/W C- Type: HCL, HCD
Concerns: Active erosion, steep side-slopes and unstable soils.
Buffer (RMA): Class II for HCL and HCD greater of 100 feet or to the top of the side-slope break. Class III for HCD to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A and B

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

Slopes in this unit do not exceed 55%. Unit is dominant forested wetland. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

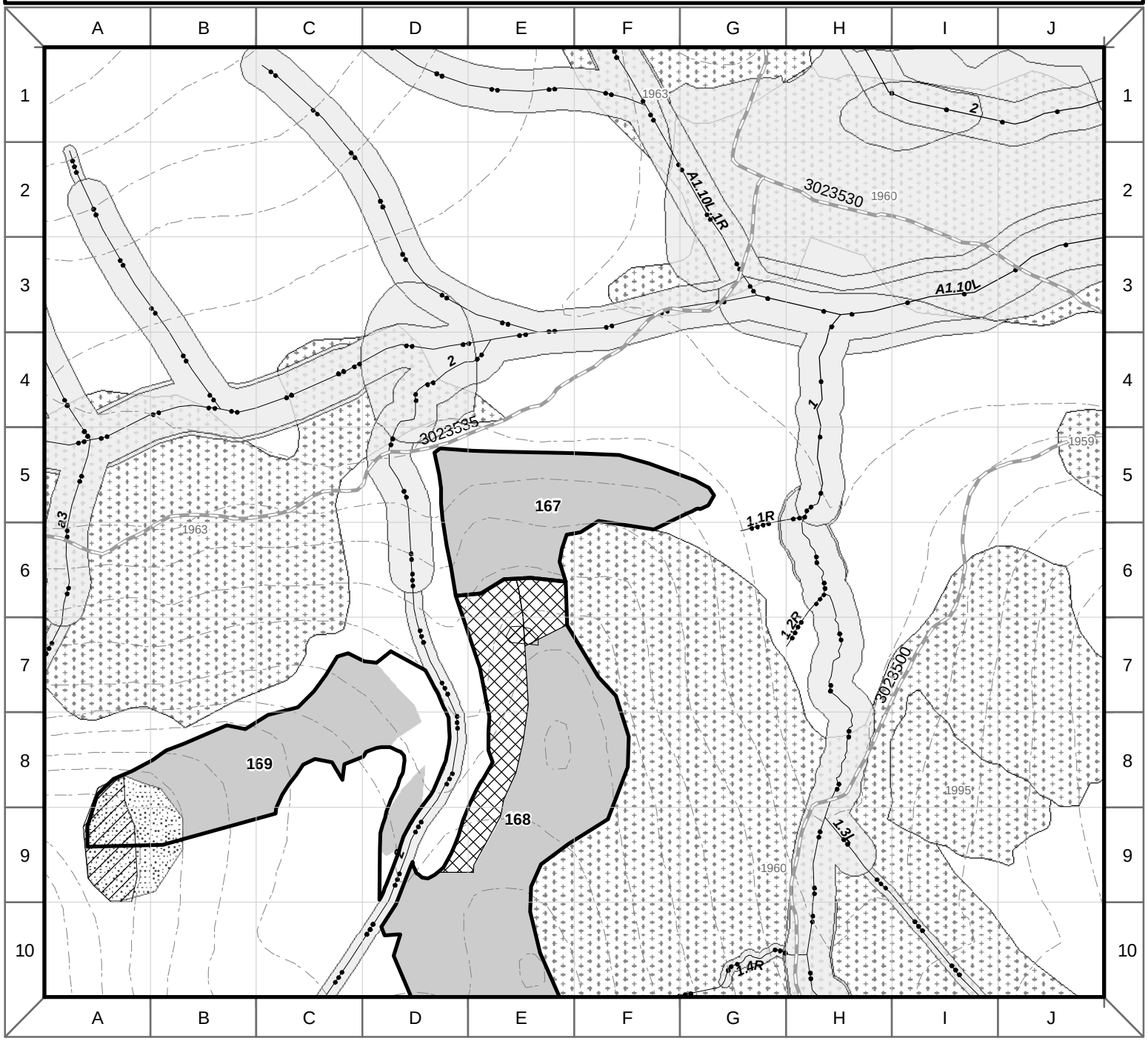
Alternative 3: Based on GIS analysis, a temporary road will impact about 1/4 acre of forested wetland and 1/4 acre of emergent sedge/forested wetland complex within the unit, and less than 1/4 acre of forested wetland and about 1/4 acre of emergent sedge/forested wetland complex outside the unit. Wetland avoidance was not feasible due to need for unit access, extent of wetlands in the area and engineering constraints (BMP 12.5, 13.2). Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4,5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit except along southern border). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Alternative 4: Unit dropped to maintain connectivity near Ratz Creek (Ratz Creek to Big Lake, and then down Big Creek to Ratz Harbor) and other habitat values.

Unit Number 167 | **Alternative 2** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N S E W

0 500
Feet

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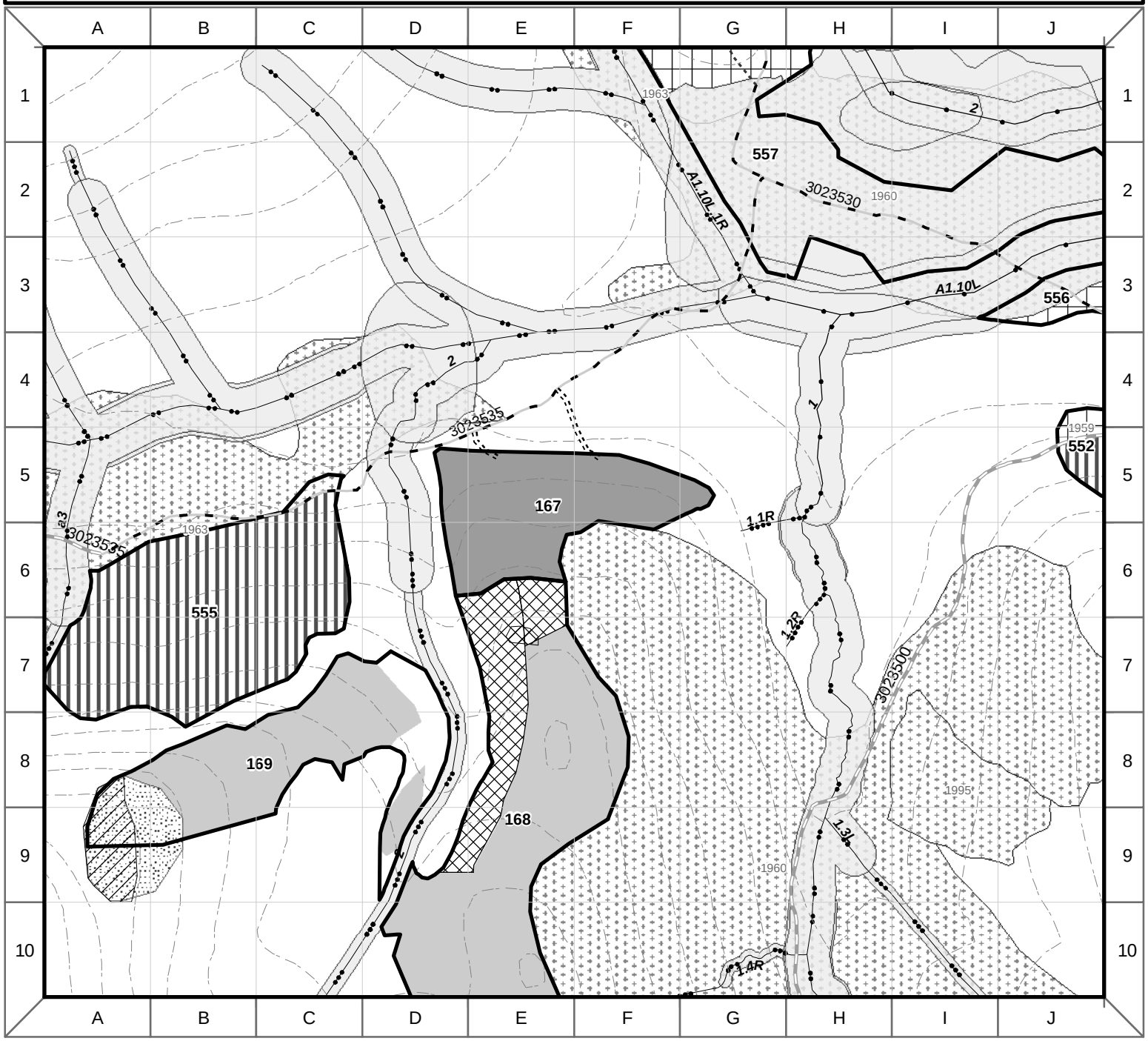
Unit Number 167 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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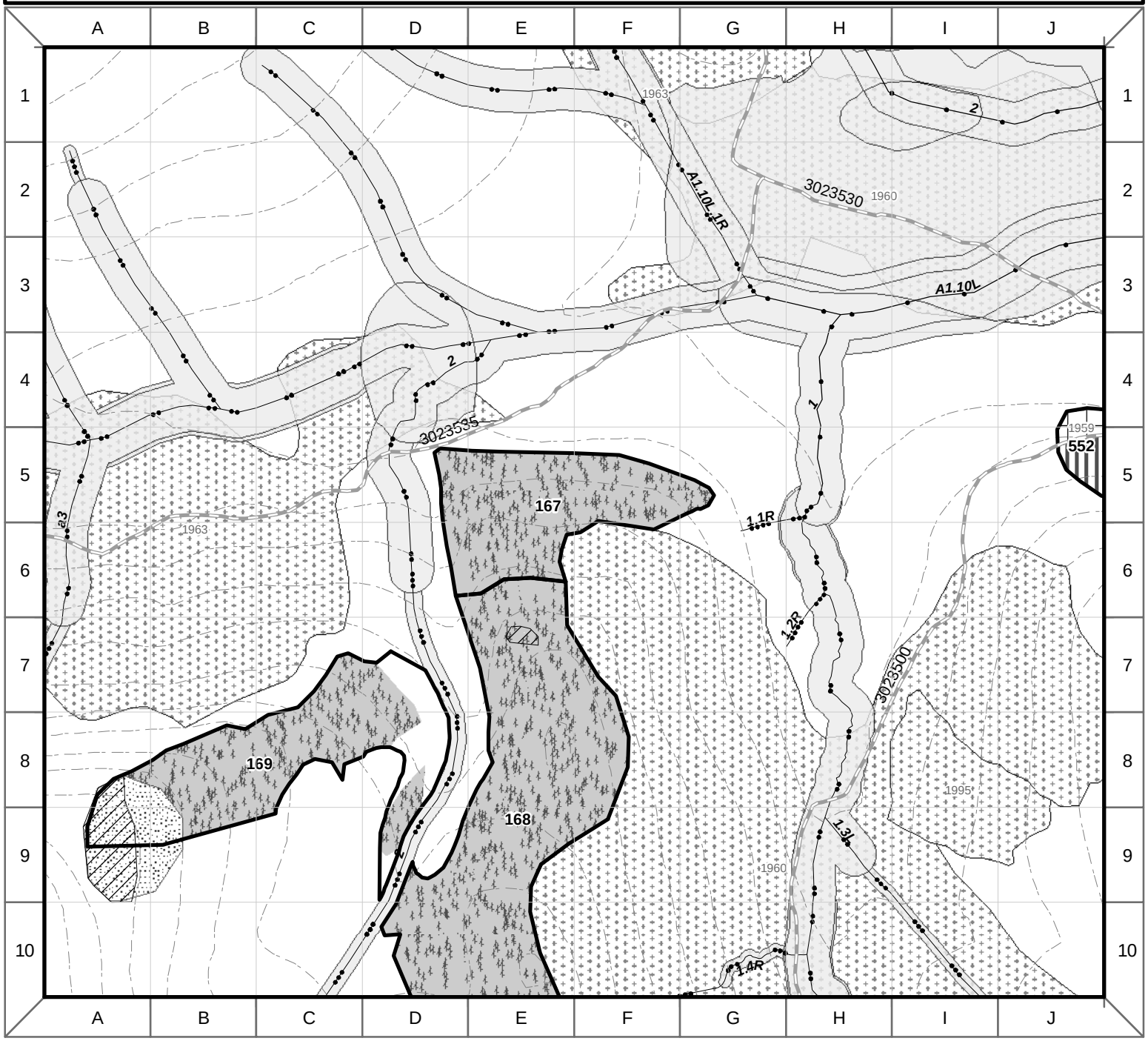
Unit Number 167 | **Alternative 5** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 168

Unit Number	168	Alternatives	2, 3, 4, 5	Total Unit Acres:	2, 3 - 42.8 4, 5 - 55.7	Prescription:	2, 3 - Clearcut 4, 5 - 25% Removal
VCU Number:	583	Harvest System:	Helicopter	Net Harvest Volume (MBF):	2, 3 - 1,001 4, 5 - 326	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This area has old-growth stand structure with mature overstory timber consisting of a western hemlock and Alaska-cedar mixture. Western redcedar and Sitka spruce are present, but as secondary components. The main concerns in the stand are moderate stem decay and stem form defects. The mistletoe rating was low. The windthrow rating was moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management (Alternatives 2,3)
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 19 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to block up POG and reduce the size of openings, dividing the original unit into two smaller openings. Helicopter yarding economics was also considered. Total mapped legacy is approximately 19 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Alternatives 4, 5)
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription. The uneven-aged single tree selection regeneration method is being prescribed for this unit in Alternative 4 specifically to maintain intact diverse structure for wildlife needed at this time and place in the landscape to meet the objectives of this alternative. This system is not optimum for promoting timber production but is being prescribed primarily to mitigate the overall effects of the project on wildlife. The uneven-aged single tree selection regeneration method is being prescribed for this unit in Alternative 5 specifically to maintain significant vegetative cover post-harvest in this watershed, although this system is not optimum for promoting timber production but is being prescribed primarily to mitigate the overall effects of the project on watersheds and fish.

Existing Condition: This area has old-growth stand structure with mature overstory timber consisting of a western hemlock and Alaska-cedar mixture. Western redcedar and Sitka spruce are present, but as secondary components. Overall the average defect rating for all plots is moderate. Windthrow risk is rated moderate due to elevation, topography (ridgeline stand) and higher risk tree characteristics. Trees are generally mature with static growth. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management (Alternatives 2, 3)
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow

post harvest, promote natural regeneration by opening up the canopy, improve site productivity through increased soil temperature and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Alternative 5)
Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription. The uneven-aged single tree selection regeneration method is being prescribed for this unit in Alternative 5 specifically to maintain significant vegetative cover post-harvest in this watershed, even though this system is not optimum for promoting timber production.

No legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:
This unit is planned for helicopter yarding to a landing on existing NFS road 3023500.

ENGINEERING/ROADS:
Existing NFS road 3023500 will be reconstructed in all alternatives, totaling 2300 feet. This road is also used to access Units 552, 167, and 168. See road card for detailed information.

BOTANY:
No Concerns

INVASIVE SPECIES:
No Concerns

FISHERIES:
Streams are tributaries to Ratz Creek.

Stream#: 2 Class: III Flagging: O/W C- Type: HCD, HCL
Concerns: active erosion and unstable soils
Buffer (RMA): Class III for HCD and HCL to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
No Concerns

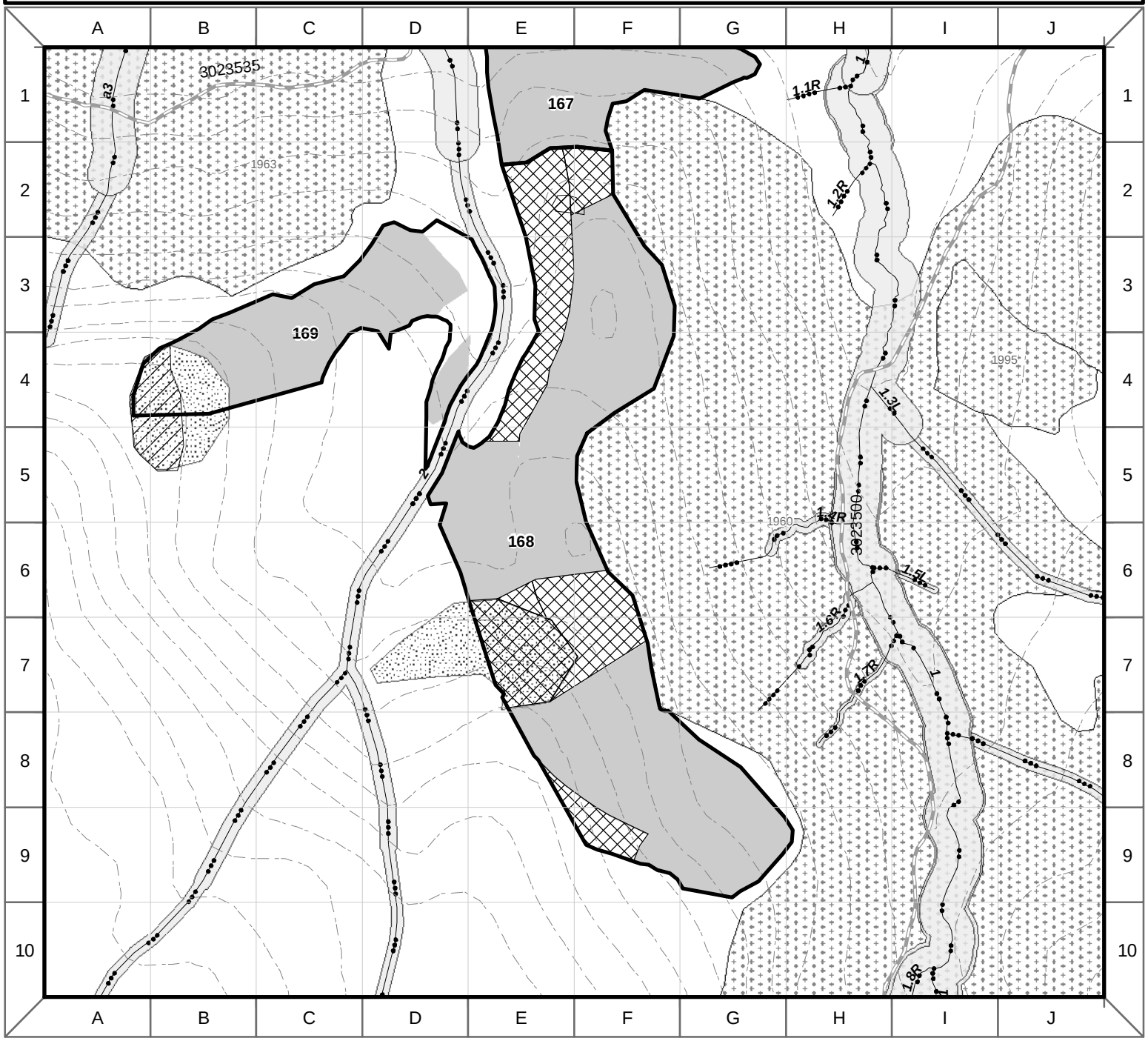
RECREATION:
No Concerns, but unit borders the Thorne River Roadless Area on the west.

SOILS/WETLANDS:
Slopes range from 15 to 70%. About 8 acres of the unit were excluded due to colluvial activity on the soil surface, historic landslides, steep slopes, and MMI4 soils. The unit is 40 to 60% forested wetlands. In the remaining unit, full suspension is required to meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:

Unit 168
Unit includes average snow deer winter range (entire unit except along eastern border). Legacy standard and guideline applies in this VCU. Positioning of legacy acres blocks up POG and reduces the size of openings, dividing the original unit into two smaller openings. It also covers some deer winter range. Alternatives 4 and 5: Prescription is 25% basal area removal to maintain connectivity near Ratz Creek (Ratz Creek to Big Lake, and then down Big Creek to Ratz Harbor) and other habitat values. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit Number 168 | **Alternative 2** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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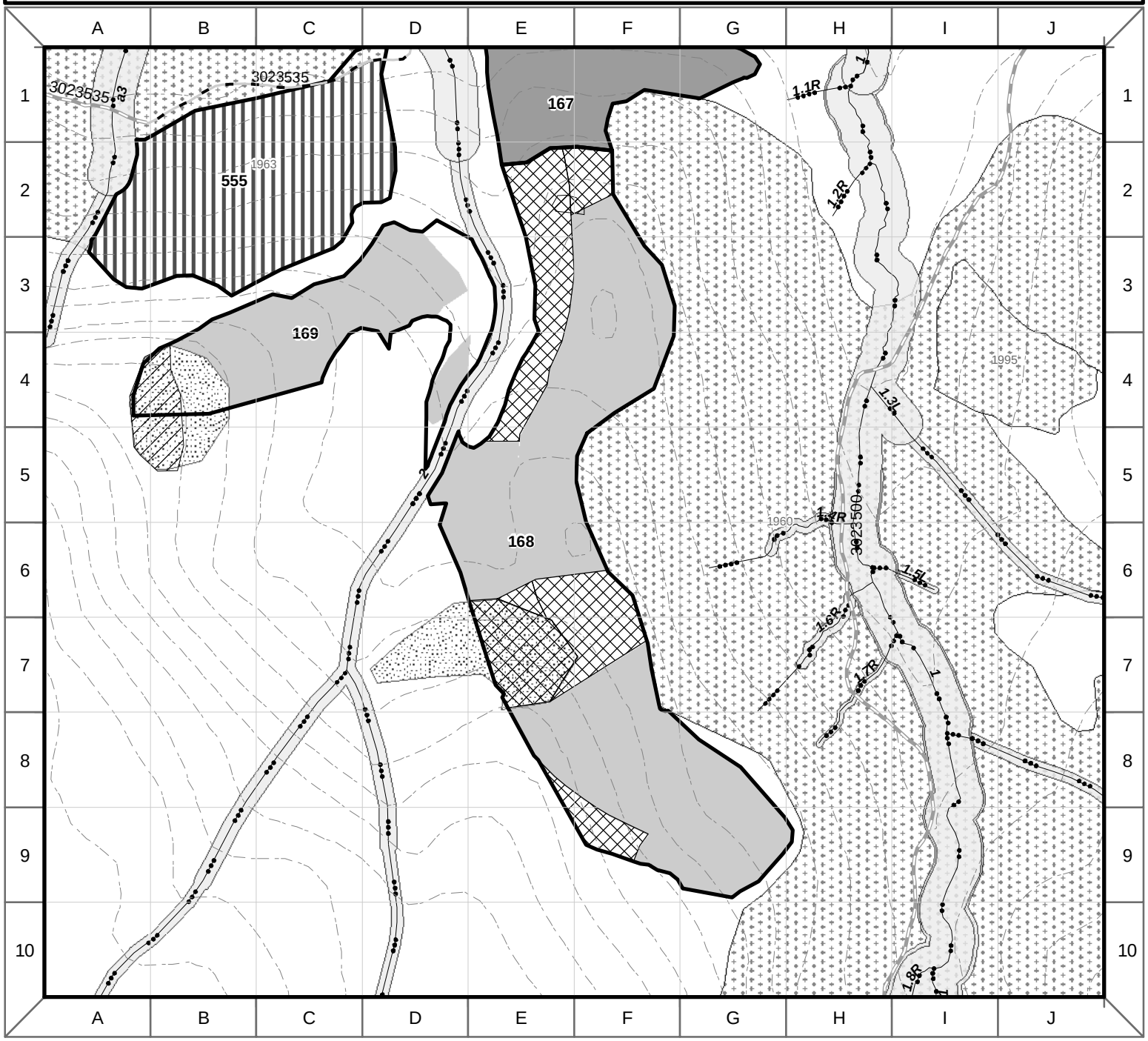
Unit Number 168 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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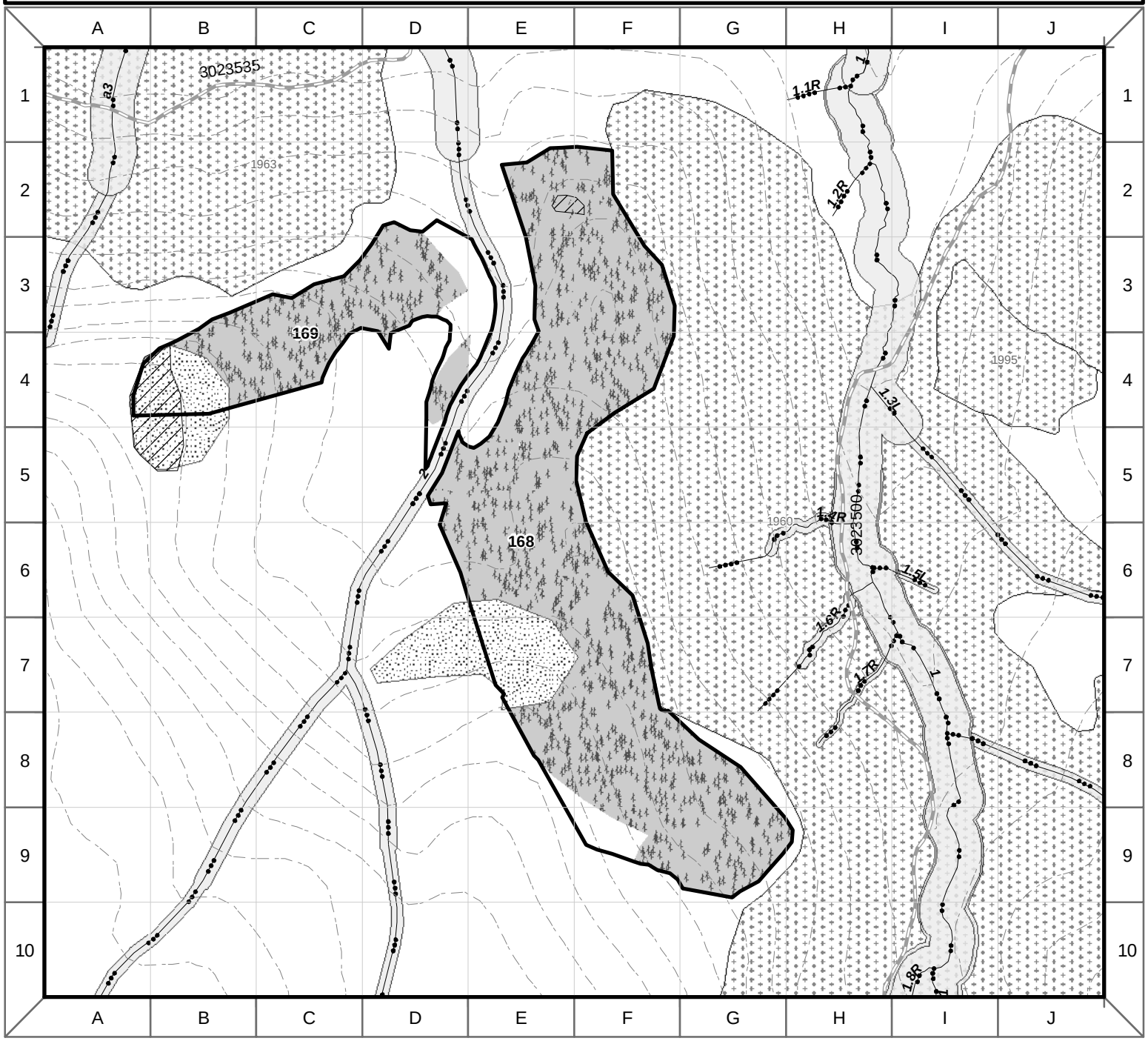
Unit Number 168 | **Alternative 4** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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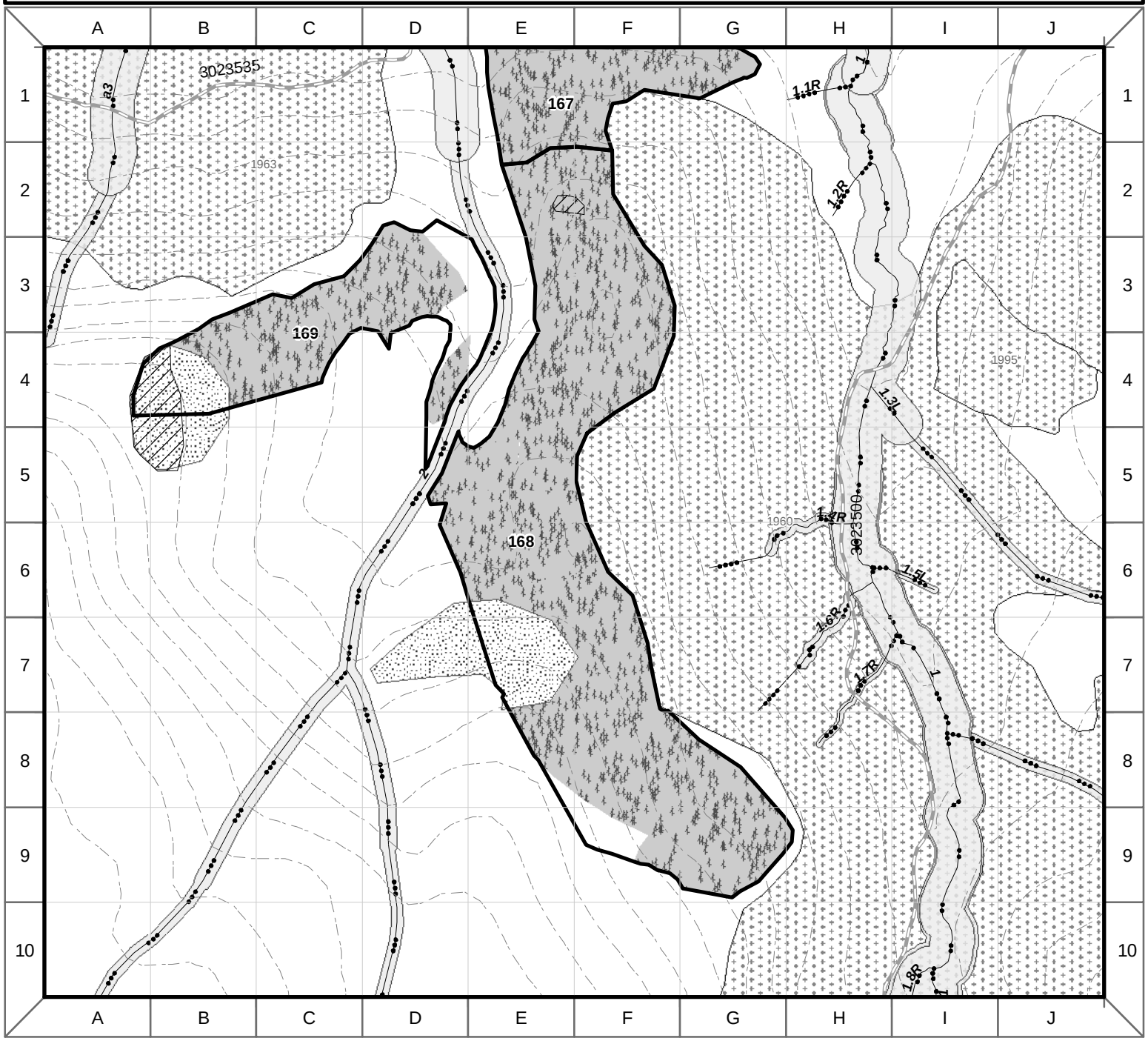
Unit Number 168 | **Alternative 5** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 169

Unit Number	169	Alternatives	2, 3, 4, 5	Total Unit Acres:	13.5	Prescription:	2, 3 - Clearcut 4, 5 - 25% Removal
VCU Number:	583	Harvest System:	Helicopter	Net Harvest Volume (MBF):	2, 3 - 262 4, 5 - 65	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 169 has old-growth stand structure with mature overstory timber consisting of a western hemlock and Alaska-cedar mixture. Western redcedar and Sitka spruce are present, but as secondary components. The main concerns in the stand are moderate stem decay and stem form defects. The mistletoe rating was low. The windthrow rating was moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management (Alternatives 2, 3)
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Alternatives 4, 5)
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription. The uneven-aged single tree selection regeneration method is being prescribed for this unit in Alternative 4 specifically to maintain intact diverse structure for wildlife needed at this time and place in the landscape to meet the objectives of this alternative. This system is not optimum for promoting timber production but is being prescribed primarily to mitigate the overall effects of the project on wildlife. The uneven-aged single tree selection regeneration method is being prescribed for this unit in Alternative 5 specifically to maintain significant vegetative cover post-harvest in this watershed, although this system is not optimum for promoting timber production.

TIMBER/LOGGING:

Alternatives 2, 4, 5: This unit is planned for helicopter yarding to a landing on existing NFS road 3023500.

Alternative 3: This unit is planned for helicopter yarding to a landing on existing NFS road 3023535.

ENGINEERING/ROADS:

Alternative 3: Existing NFS roads 3023500, 3023530, and 3023535, totaling 6200 feet, will be reconstructed to provide access. These roads are also used to access Units 552, 555-558, 168, 169, and 177. See road card for detailed information.

Alternatives 2, 4, and 5: Existing NFS roads 3023530, and 3023500 will be reconstructed, totaling 2300 feet. This road is also used to access Units 552, 167, and 168. See road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

Unit 169

No Concerns

FISHERIES:

Streams are tributaries to Ratz Creek.

Stream#: 2 Class: III Flagging: O/W C- Type: HCD, HCL
Concerns: Active erosion and unstable soils
Buffer (RMA): Class III for HCD and HCL to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns; however, note that the unit borders the Thorne River Roadless Area on the south.

SOILS/WETLANDS:

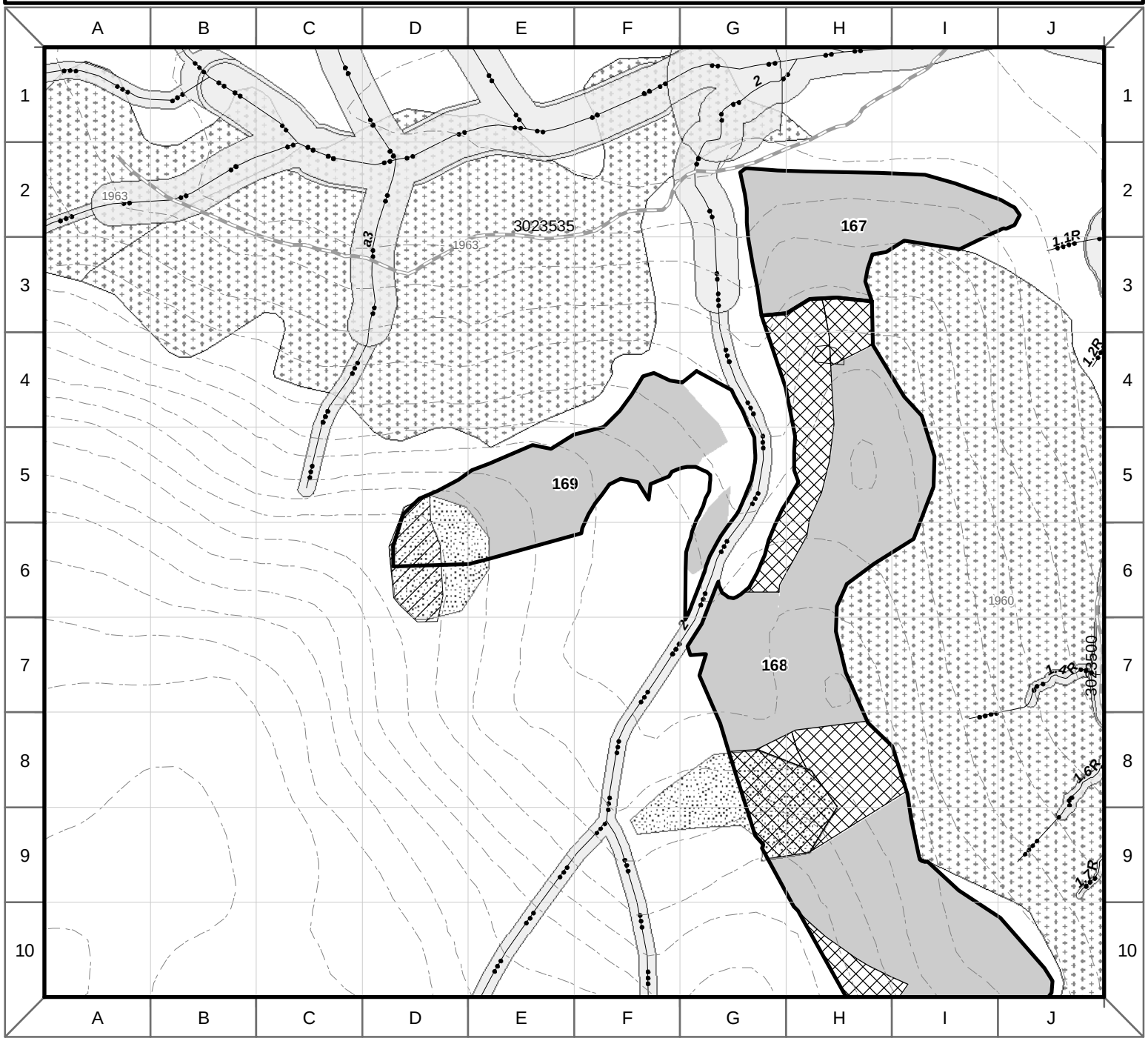
Slopes range from 15 to 90%. About 2 1/2 acres of steep slopes are within the soil exclusion area. About 5 acres of the unit were excluded due to colluvial activity on the soil surface, historic landslides, steep slopes, and MMI4 soils. The unit is 40 to 60% forested wetlands. A debris avalanche that is less than 1/4 acre in size is located within the soil exclusion. In the remaining unit, full suspension is required to meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Alternatives 4 and 5: Prescription is 25% basal area removal and maintains connectivity near Ratz Creek.

Unit Number 169 | **Alternative 2** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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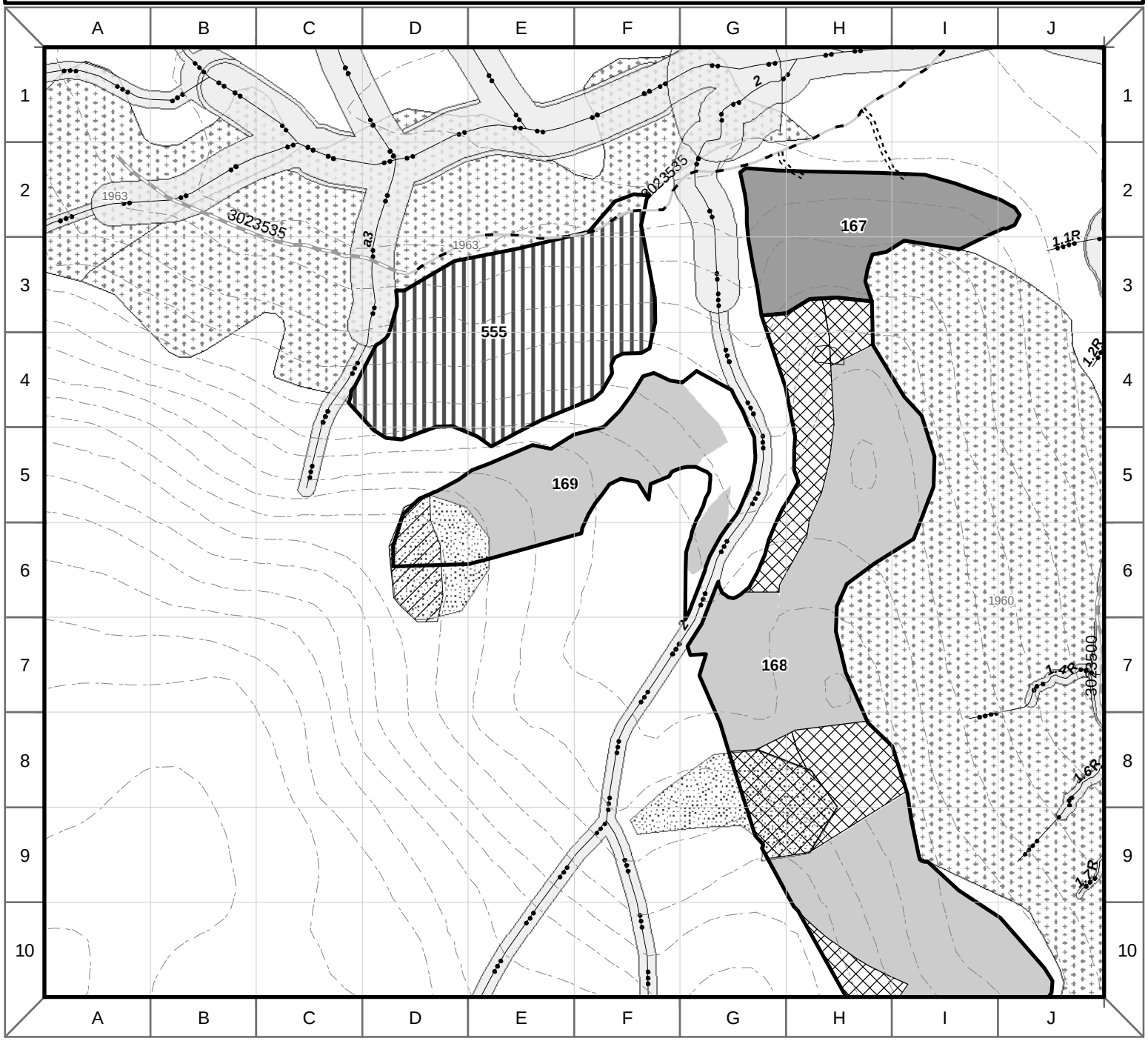
Unit Number 169 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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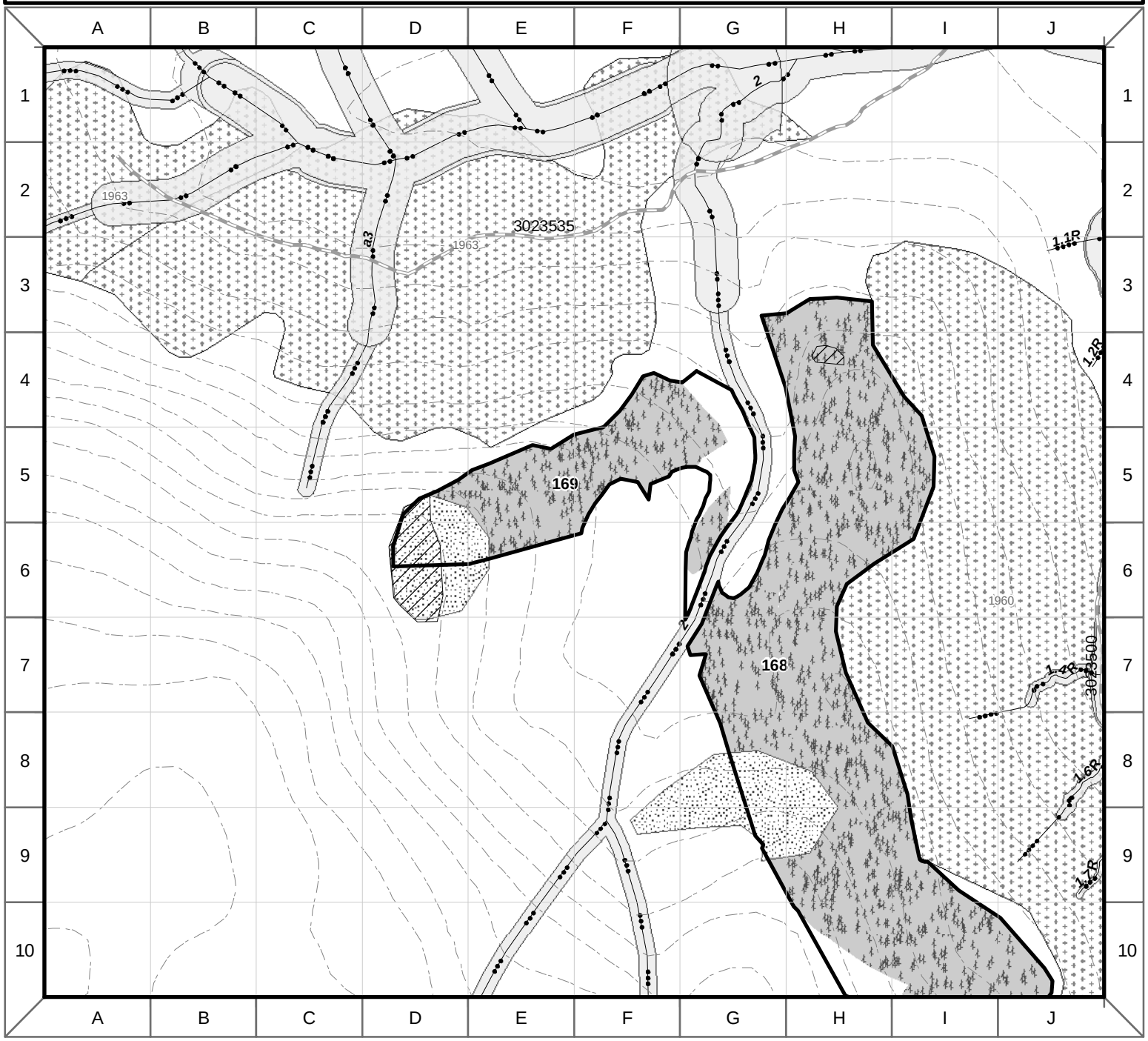
Unit Number 169 | **Alternative 4** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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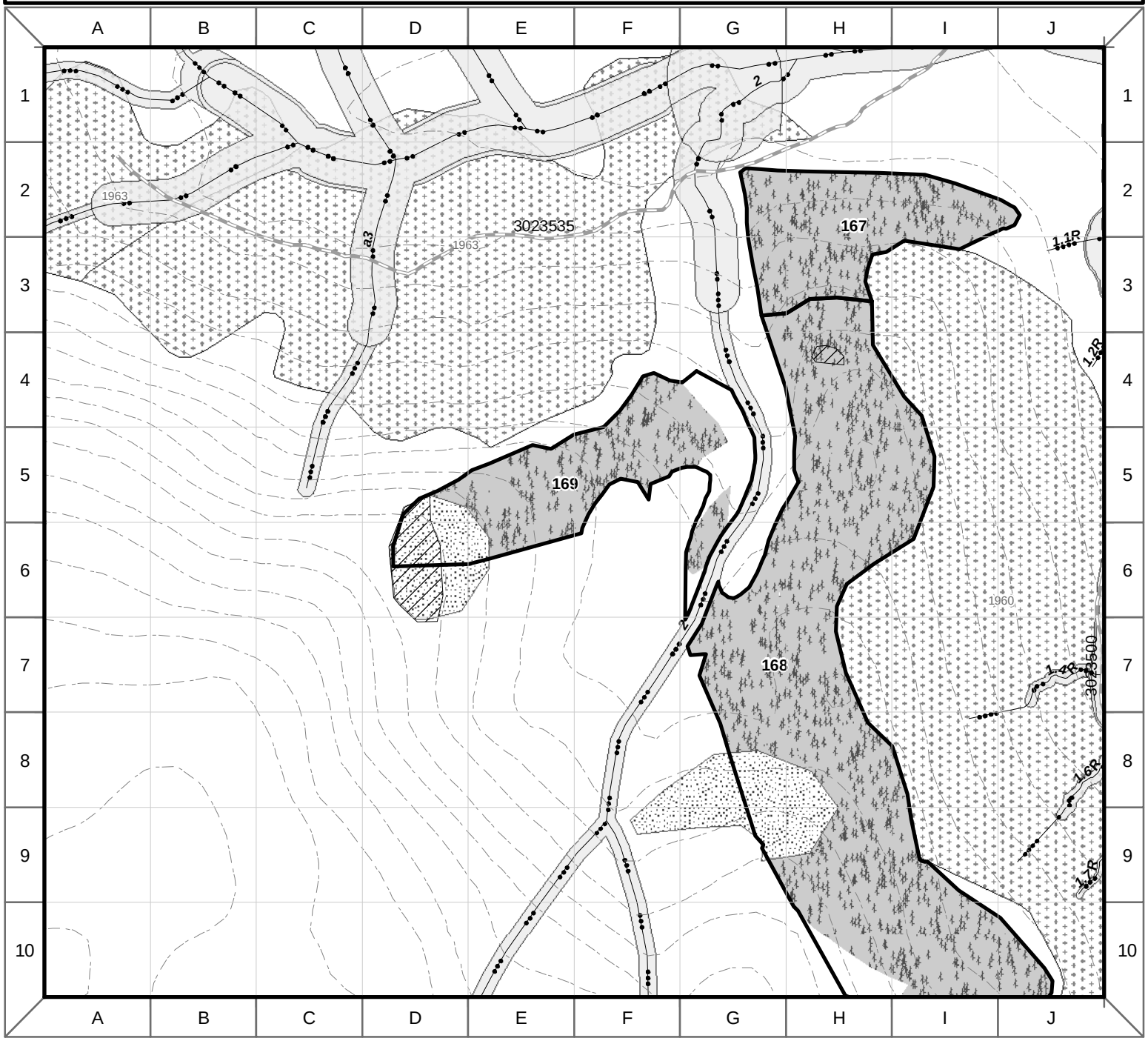
Unit Number 169 | **Alternative 5** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 171

Unit Number	171	Alternatives	2, 3, 4, 5	Total Unit Acres:	14.0	Prescription:	25% Removal
VCU Number:	583, 584	Harvest System:	Helicopter	Net Harvest Volume (MBF):	96	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure. Overstory trees are primarily western hemlock and Sitka spruce with moderate defect. Mistletoe was rated as heavy but patchy. Windthrow risk is high. There are no adjacent past harvest areas.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

TIMBER/LOGGING:

Alternatives 3, 4, and 5: This unit is planned for helicopter yarding to landings on existing NFS road 302351.

Alternative 2: This unit is planned for helicopter yarding to landings on existing NFS road 3000300.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

No streams found in unit at time of survey. If streams are found during implementations, a fish biologist would be notified and appropriate protections would be applied.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

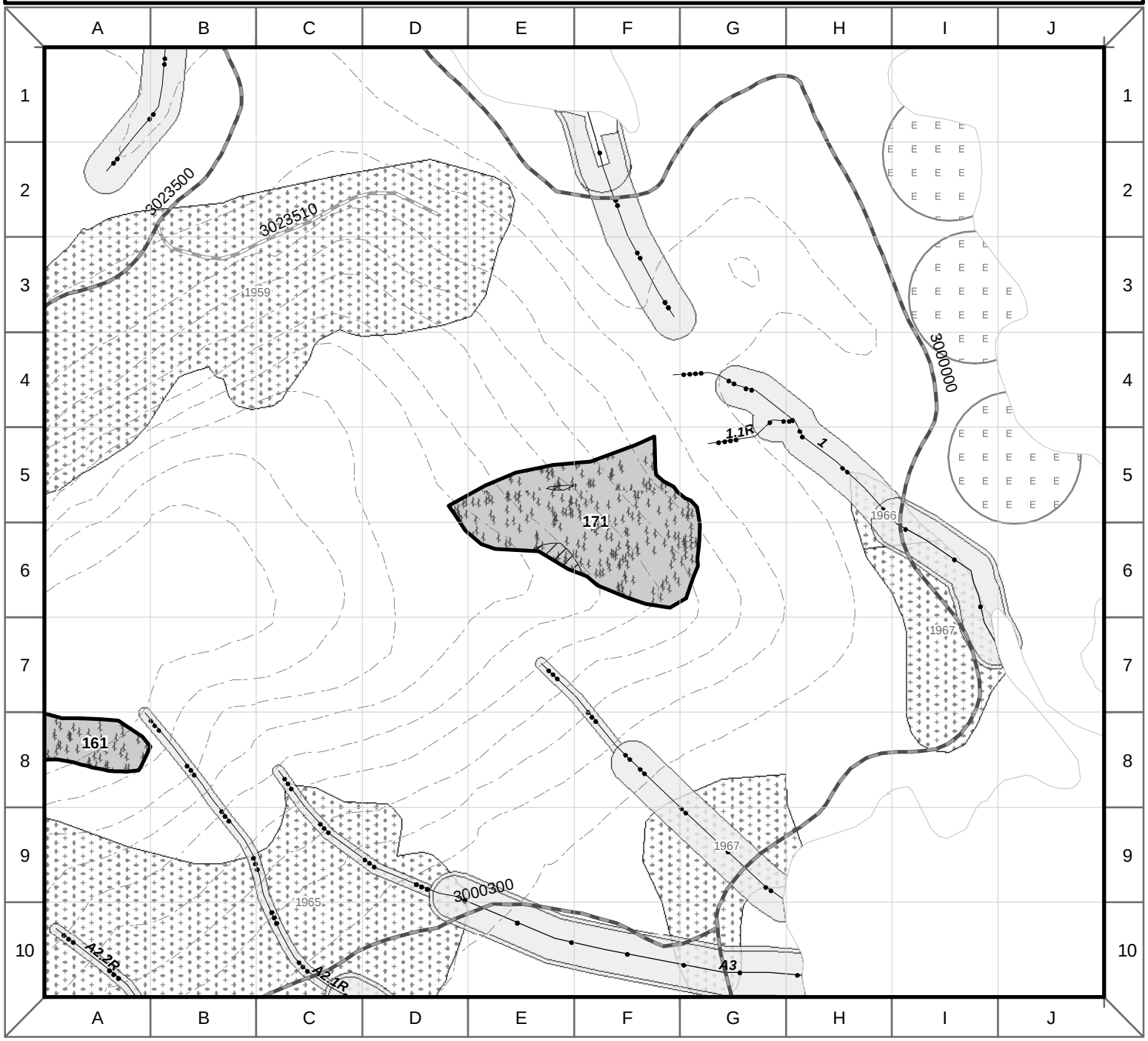
RECREATION:

No Concerns

SOILS/WETLANDS:

Unit 171
Slopes range from 30 to 75%. There are about ½ acre of slopes over 72% that are suitable for harvest with full suspension Forested wetlands were identified throughout the units but do not exceed 15% of the given area. Full suspension is required to meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern 1/2 of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 171 | **Alternative 2** | **VCU: 583,584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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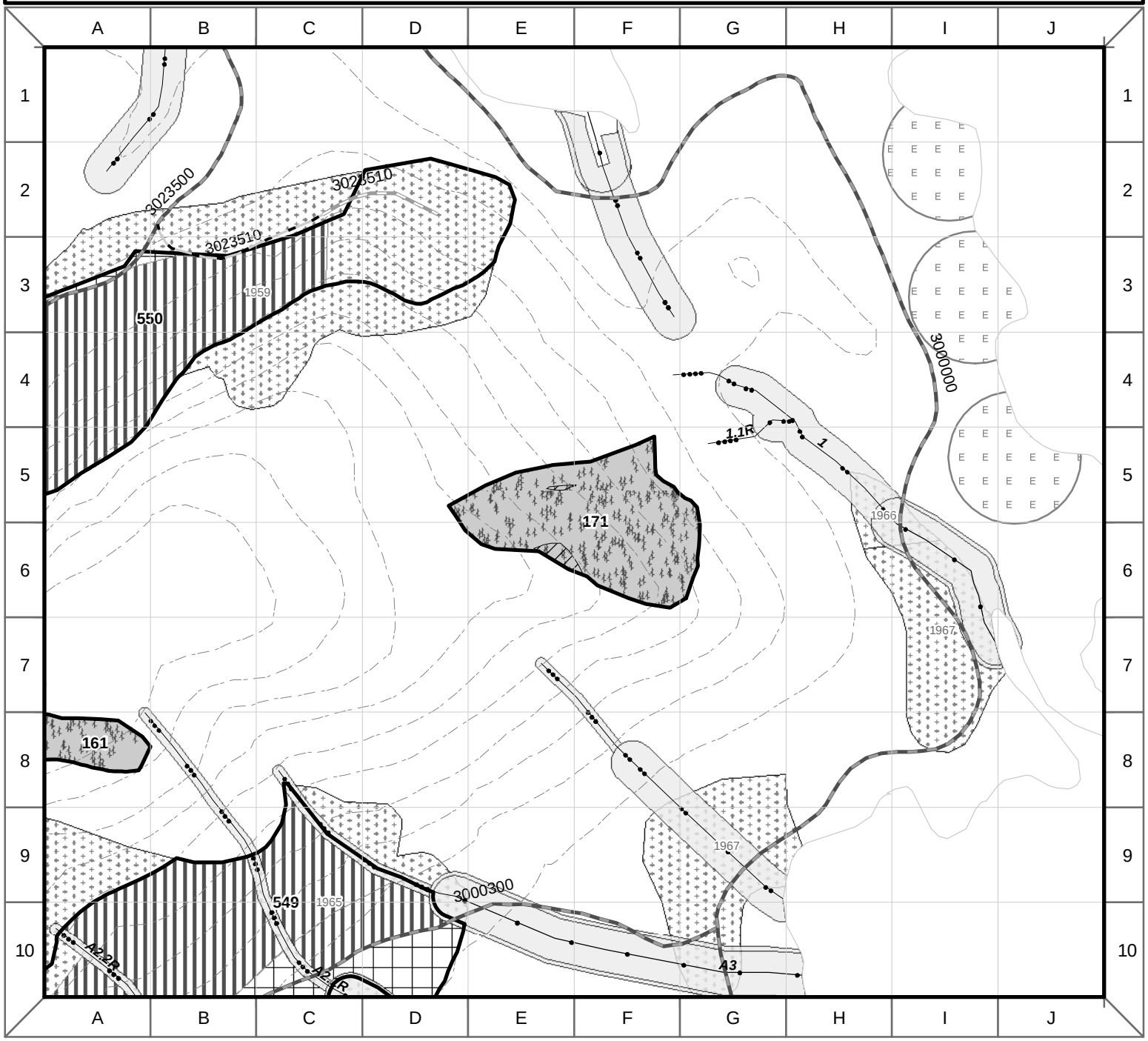
Unit Number 171 | **Alternative 3** | **VCU: 583,584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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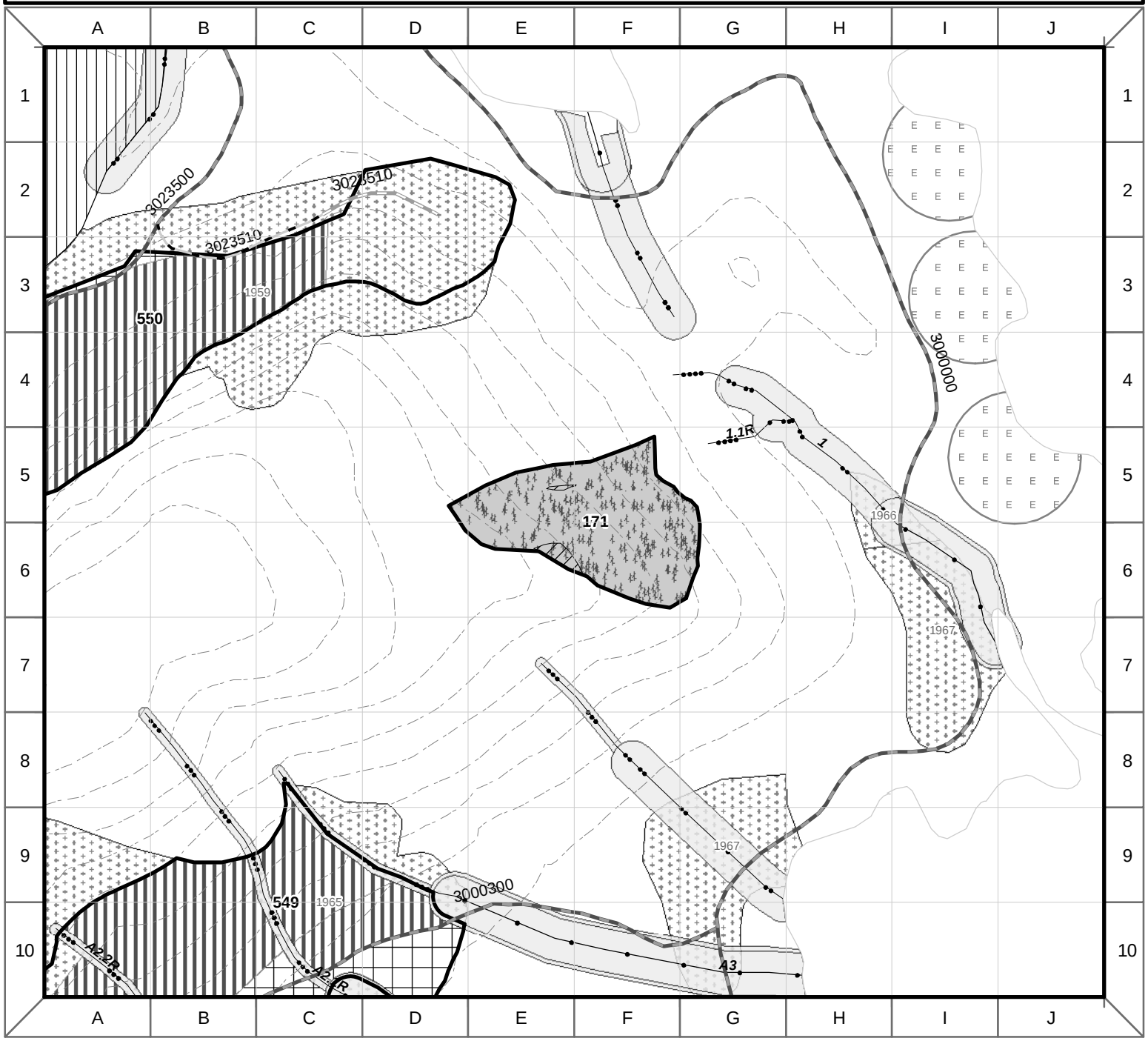
Unit Number 171 | **Alternative 4** | **VCU: 583,584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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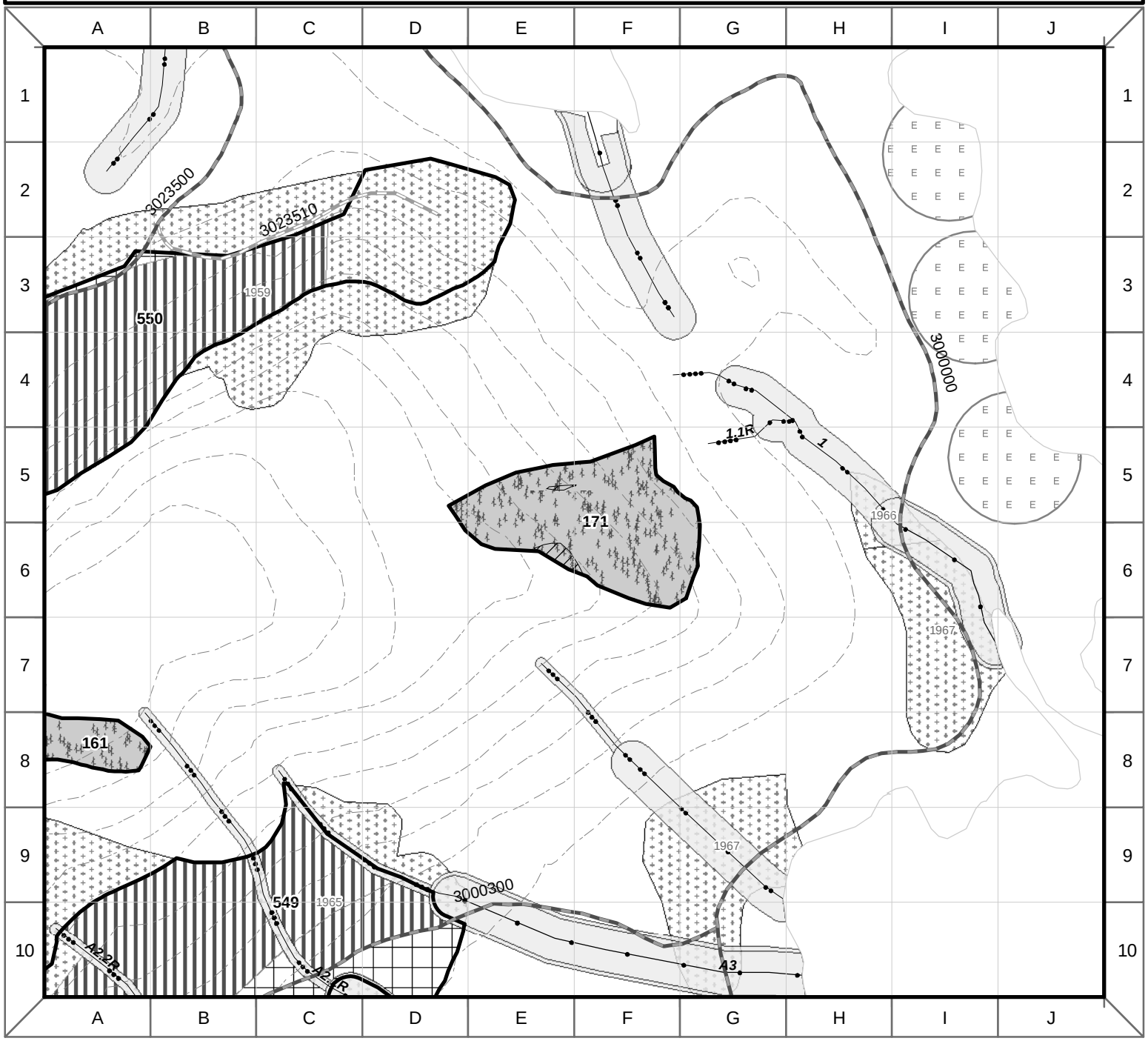
Unit Number 171 | **Alternative 5** | **VCU: 583,584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

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W
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S

0 500
Feet

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Unit 172

Unit Number	172	Alternatives	2, 3, 5	Total Unit Acres:	46.3	Prescription:	Clearcut
VCU Number:	583	Harvest System:	Cable, Shovel,	Net Harvest Volume (MBF):	1,269	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure. The overstory consists primarily of small diameter western hemlock under western redcedar dominants. Scattered Sitka spruce and Alaska-cedar are also in the overstory but less common. The main damages and defects are stem form defects and mistletoe. Mistletoe is reported as moderate rating. The windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 22 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to block up POG, reduce road length, and reduce visibility of unit from NFS road 3000000 and the Clarence Strait. Total mapped legacy is approximately 24 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

Alternatives 2, 3; This unit is planned for a combination of cable, and shovel yarding. Cable settings are planned for uphill and downhill yarding to landings on the proposed temporary road and proposed NFS road 3000301. Shovel settings are planned for yarding to the proposed temporary road and proposed NFS road 3000301.

Alternative 5; This unit is planned for helicopter yarding. Helicopter yarding is planned to landings on existing NFS roads 3000302 and 3023500.

ENGINEERING/ROADS:

Unit is accessed by proposed NFS road 3000307 in Alternatives 2 and 3, totaling 2,200 feet. See road card for detailed information. Unit is also accessed by a proposed temporary road in Alternatives 2 and 3, totaling 1,100 feet, as displayed on the unit card. Unit is also accessed by reconstructed NFS road 3000301, totaling 2,900 feet. This road is also used to access Unit 559. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 172

FISHERIES:

Streams are tributaries to Ratz Harbor.

Stream#: 1.6L Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: 1 Class: II, IV Flagging: B/W, G/W C- Type: MMO, HCO
Concerns: blowdown
Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category A and C

All other stream in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 172: Alternatives 2 and 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance. The physical boundaries of this unit are not to be modified without input from a Forest Service Heritage specialist.

SCENERY:

SIO for this unit is mostly Low, with 5 acres of Very Low. Because of distance and partial screening from the 30 Road, the relatively gentle topography, and legacy, there are no scenery concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

Slopes average 10 to 85%. Forested wetlands are found along the eastern three quarters of the unit and occur intermittently along the proposed roadline. Less than 2 acres of slopes greater than 72% occur in the southwest corner of the unit. Full suspension is required on these slopes, which range from 70 to 85%. All slopes greater than 72% are located within the full suspension area. In the remainder of the unit, the soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

Alternatives 2 & 3
A proposed temporary road will impact about 1 acre of forested wetland within the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range.

Alternative 4: Unit dropped because location coincides with biologically preferred small OGR.

Old-growth Reserve (OGR) Boundary
Alternatives 2, 3, and 5: Current OGR boundary adjacent to unit to the north.

Unit 172

Alternative 4: OGR boundary moved to the south, coinciding with unit location.

Unit Number 173	Alternatives DROPPED	Total Unit Acres:	Prescription:
VCU Number:	Harvest System:	Net Harvest Volume (MBF):	LUD:

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:
DROPPED

TIMBER/LOGGING:

ENGINEERING/ROADS:

BOTANY:
No Concerns

INVASIVE SPECIES:
No Concerns

FISHERIES:
Streams are tributaries to Ratz Creek. (Location is depicted from confluence to headwaters)

Stream#: 583-173-1.9R Location: E3, E4, E5, E6
Class: III Flagging: O/W C- Type: HCM, MMO
Concerns: none
Buffer (RMA): Class II for HCM greater of 100 feet or the side-slope break. Class II for MMO greater 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Buffer (RAW): none
Mitigation/Protection: Category B (See below)

All other stream in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none
Buffer (RAW): none
Mitigation/Protection: Category C (See below)

GEOLOGY/KARST:

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

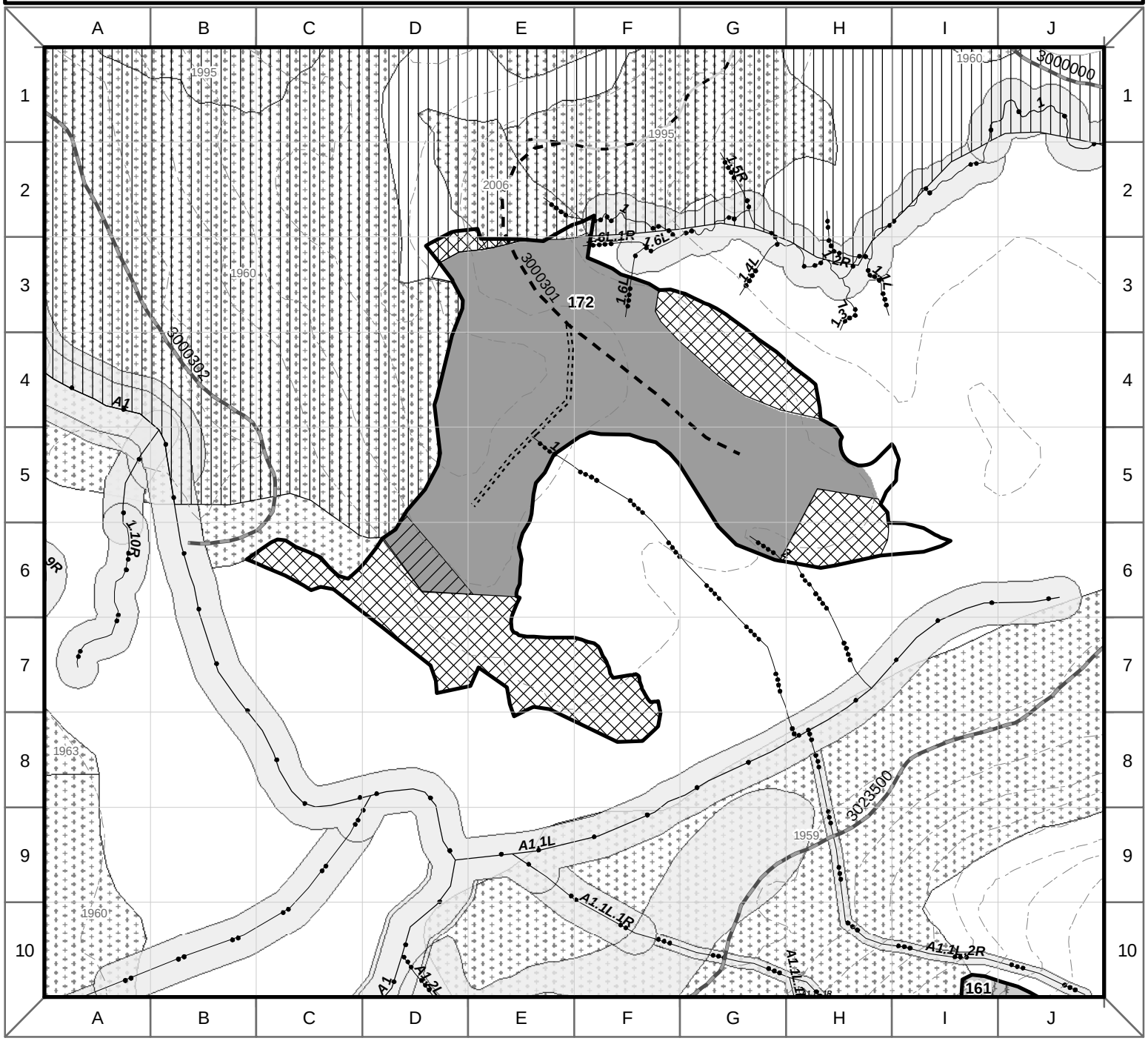
SCENERY:

RECREATION:

SOILS/WETLANDS:

WILDLIFE:

Unit Number 172 | **Alternative 2** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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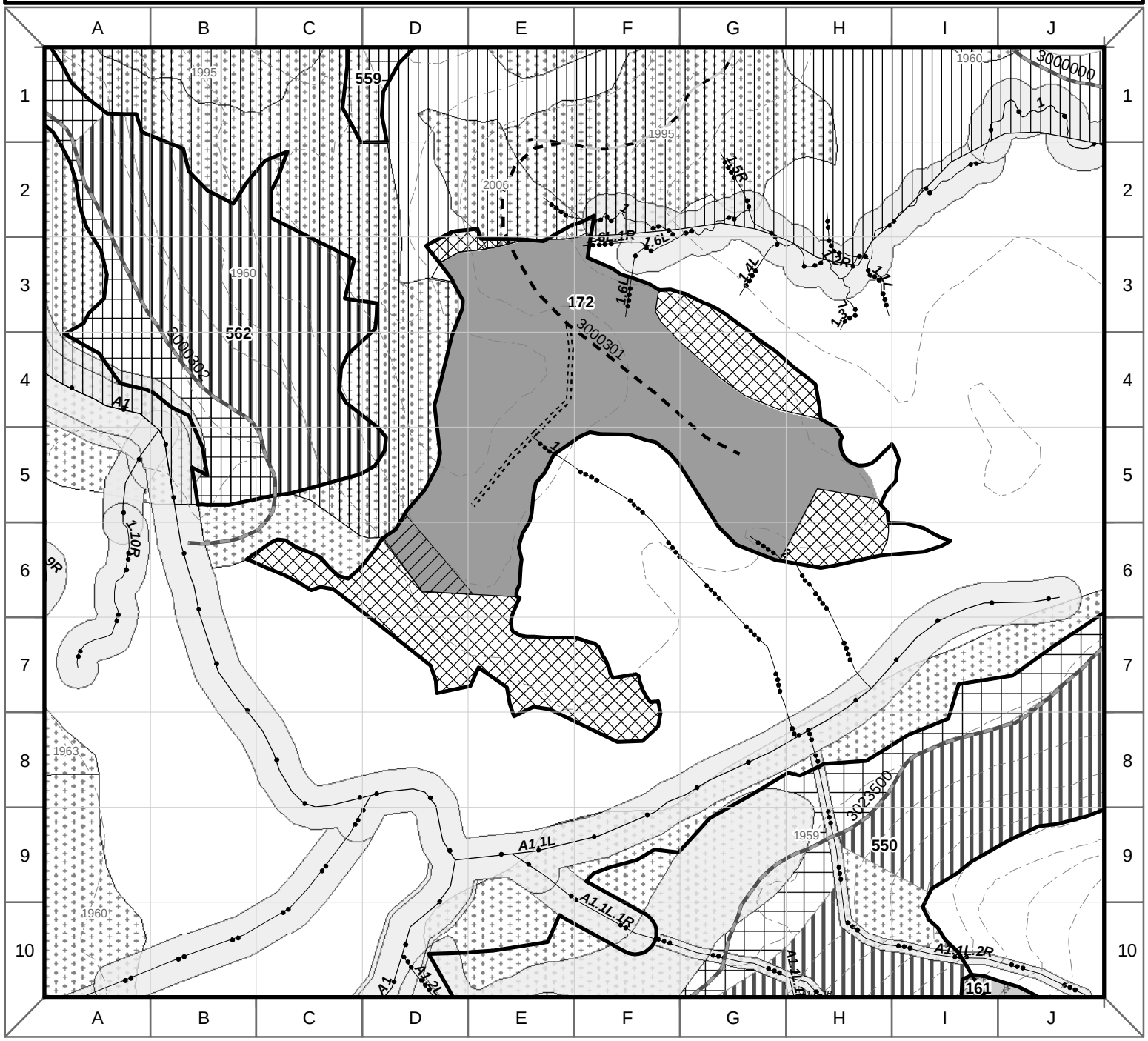
Unit Number 172 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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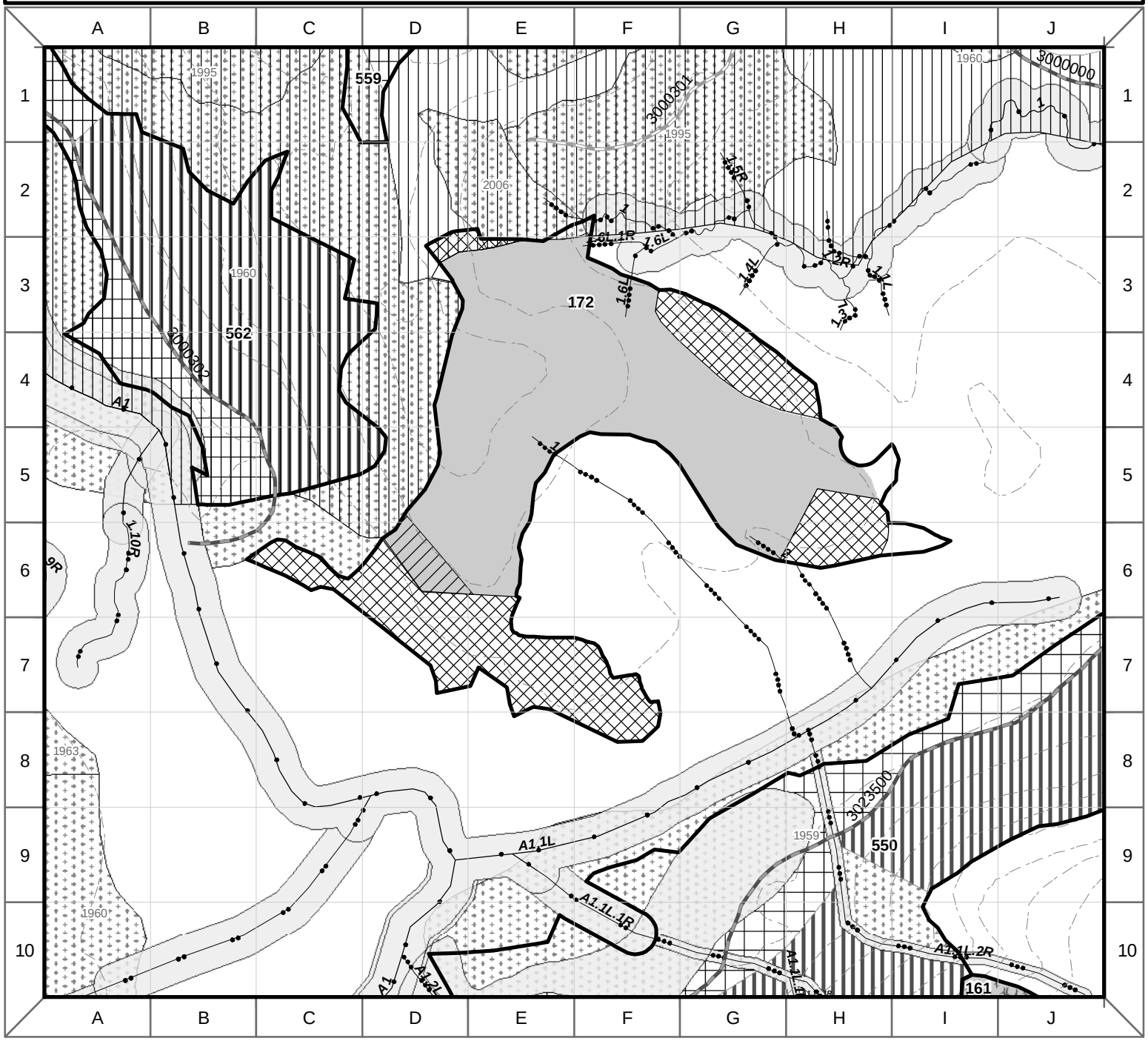
Unit Number 172 | **Alternative 5** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 174

Unit Number 174	Alternatives 2, 3, 4, 5	Total Unit Acres: 23.5	Prescription: 2, 3, 5 - 50% Removal 4 - 25% Removal
VCU Number: 583	Harvest System: Helicopter	Net Harvest Volume (MBF): 2, 3, 5 - 288 4 - 144	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 174 has old-growth stand structure with over-mature timber. The overstory consists primarily of western hemlock along with a fairly equal mix of Alaska-cedar and Sitka spruce. Many dead western hemlock are also present throughout the unit. Western redcedar occurs only in isolated patches. Physical defects and stem decay were rated high. Mistletoe and windthrow risk are moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 50 percent in Alternatives 2, 3, and 5, and 75 percent in Alternative 4 of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on existing NFS road 3000306.

ENGINEERING/ROADS:

Unit is accessed by reconstructed NFS road 3000306, totaling 1,700 feet. This road is also used to access Units 563 and 175. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Ratz Harbor.

All streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

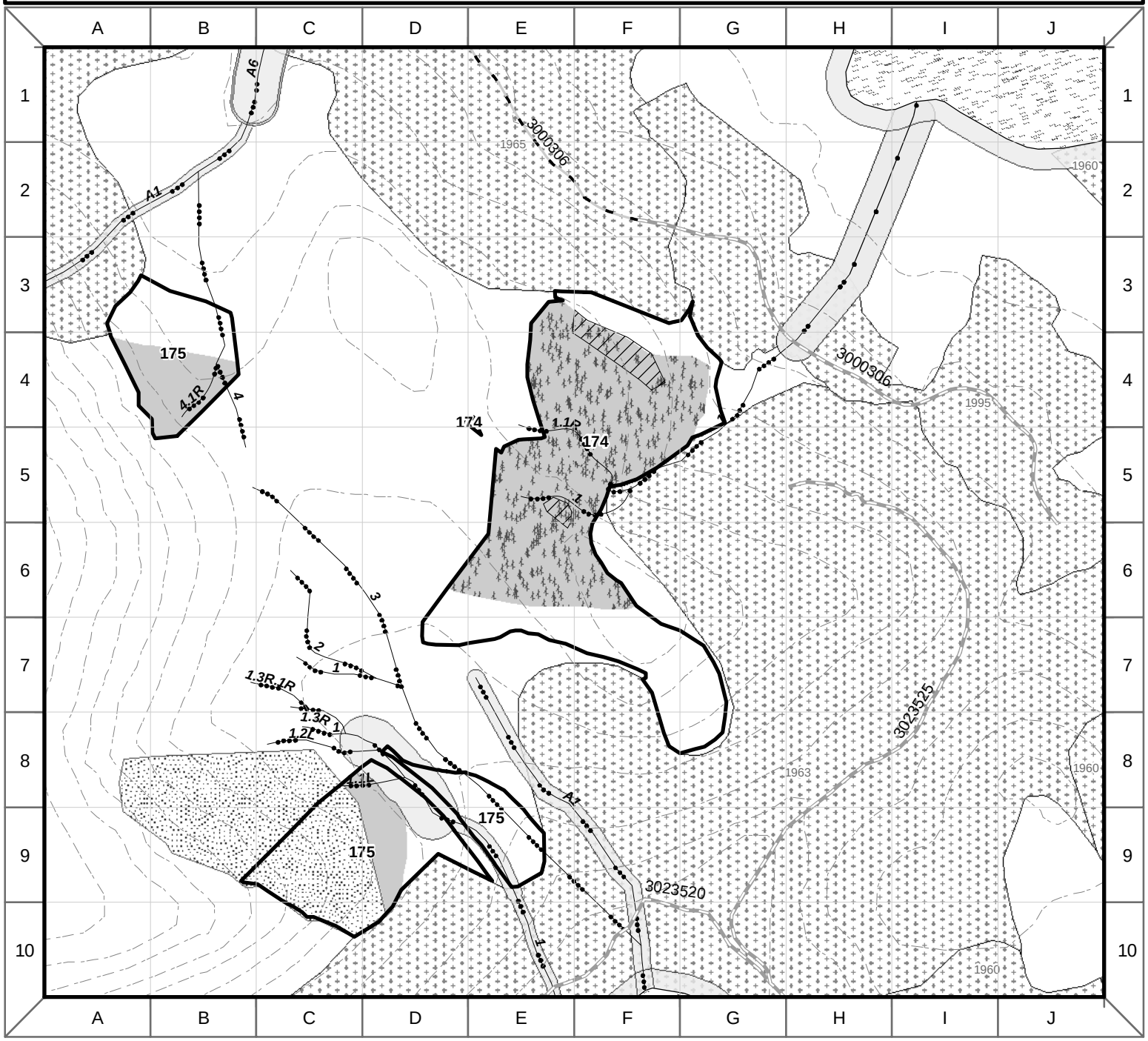
SCENERY:

No concerns because of uneven-aged management and distance from NFS Road 3000000.

RECREATION:

Unit 174
No concerns; however, note that the unit borders the Thorne River Roadless Area.
SOILS/WETLANDS: Slopes range from 10 to 110%. There are intermittent forested wetland areas on the western side of the unit on slopes less than 35%.There is a small cliff with slopes greater than 72% near the center of the unit. There is also a well drained cliff band with slopes ranging from 70 to 90% along the northern boundary of the unit. Both of these cliff areas are suitable for harvest with full suspension. Full suspension is required to meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern and southern ends unit). Legacy standard and guideline applies in this VCU. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres). Alternative 4: Prescription is 25% basal area removal to maintain connectivity to Ratz Harbor (unit is bordered mostly by past harvest) and other habitat values.

Unit Number 174 | **Alternative 2** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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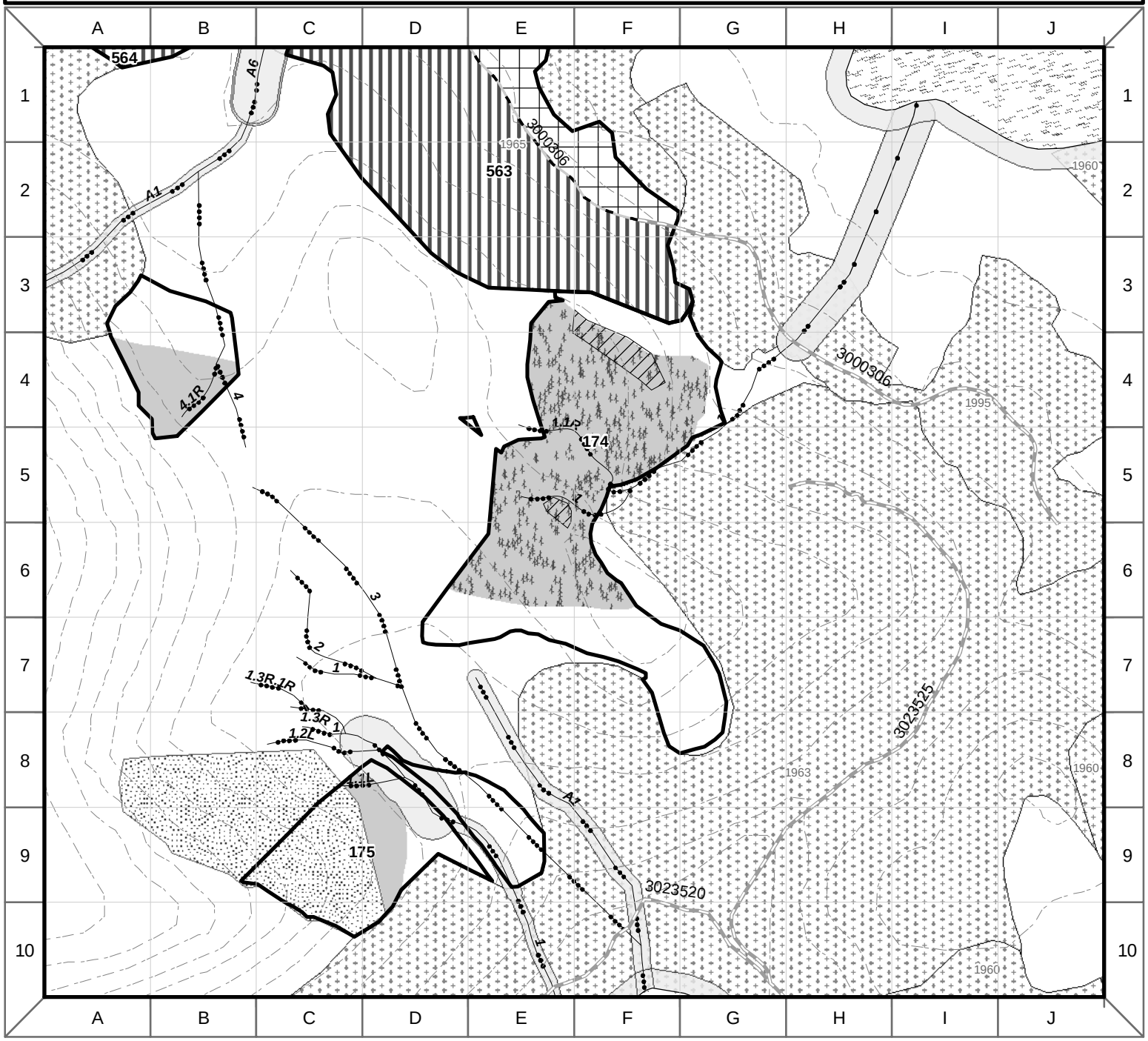
Unit Number 174 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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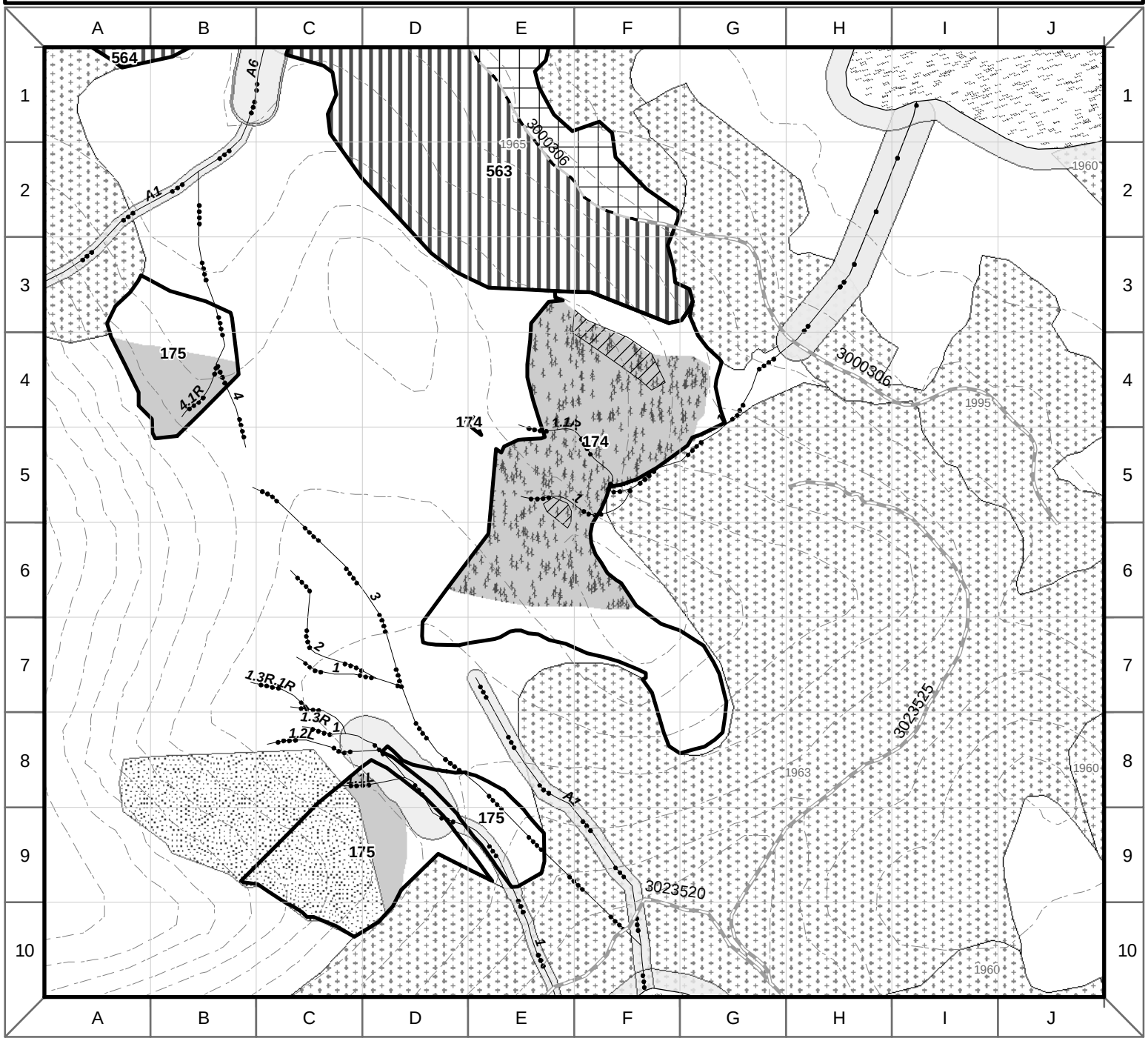
Unit Number 174 | **Alternative 4** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

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Feet

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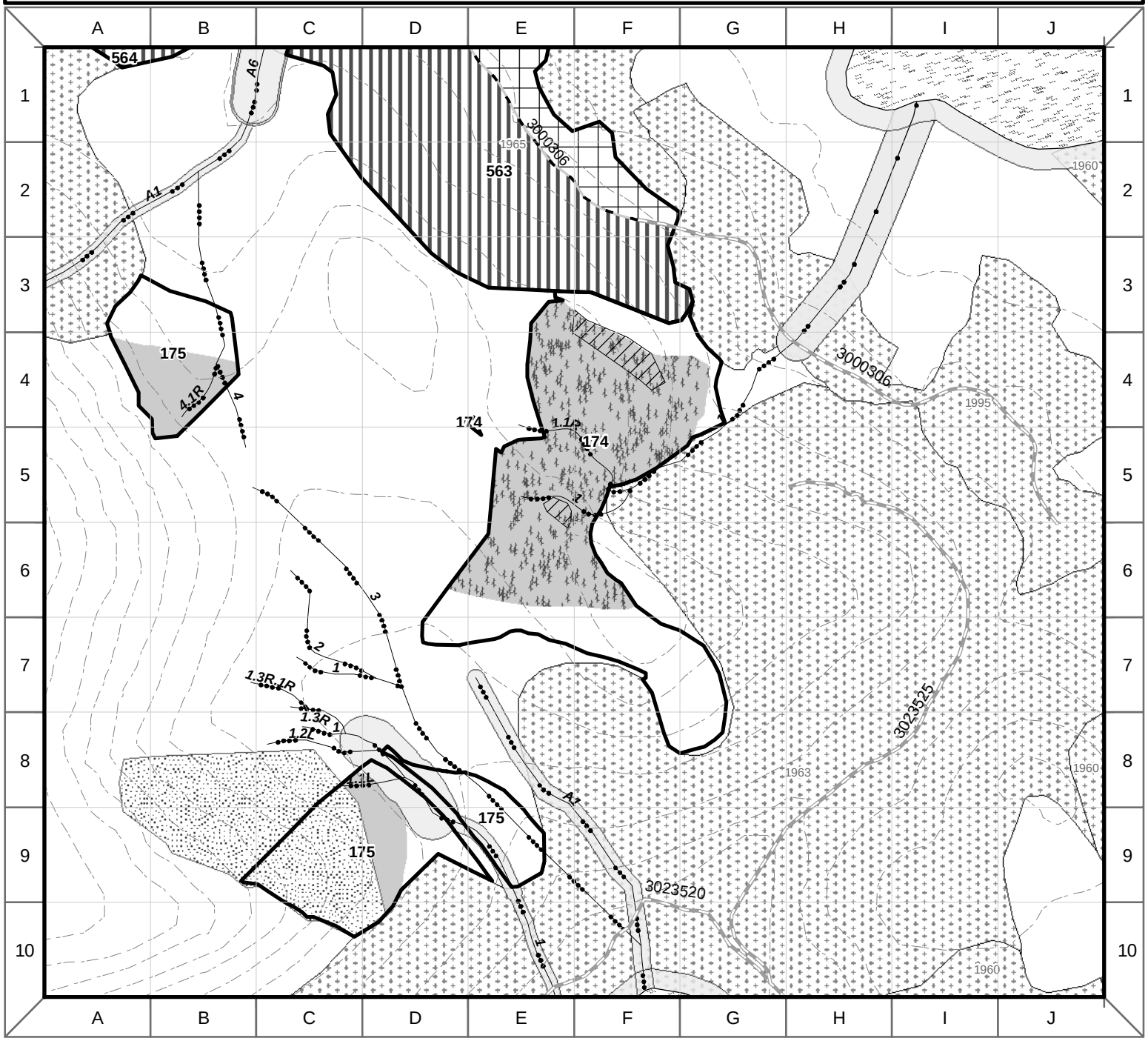
Unit Number 174 | **Alternative 5** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 175

Unit Number 175	Alternatives 2, 3, 4, 5	Total Unit Acres: 6.4	Prescription: Clearcut
VCU Number: 583	Harvest System: Helicopter	Net Harvest Volume (MBF): 175	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure with over-mature timber. The overstory consists primarily of western hemlock along with Alaska-cedar and Sitka spruce. Many dead western hemlock are also present throughout the unit. Western redcedar occurs in isolated patches. Physical defects and stem decay were rated high. Mistletoe is moderate and windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on existing NFS road 3000306. The two polygons of the unit are on opposite sides of and border a finger of the Thorne River inventoried roadless area.

ENGINEERING/ROADS:

Unit is accessed by reconstructed NFS road 3000306, totaling 1,700 feet. This road is also used to access Units 563 and 174. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Ratz Harbor.

All streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

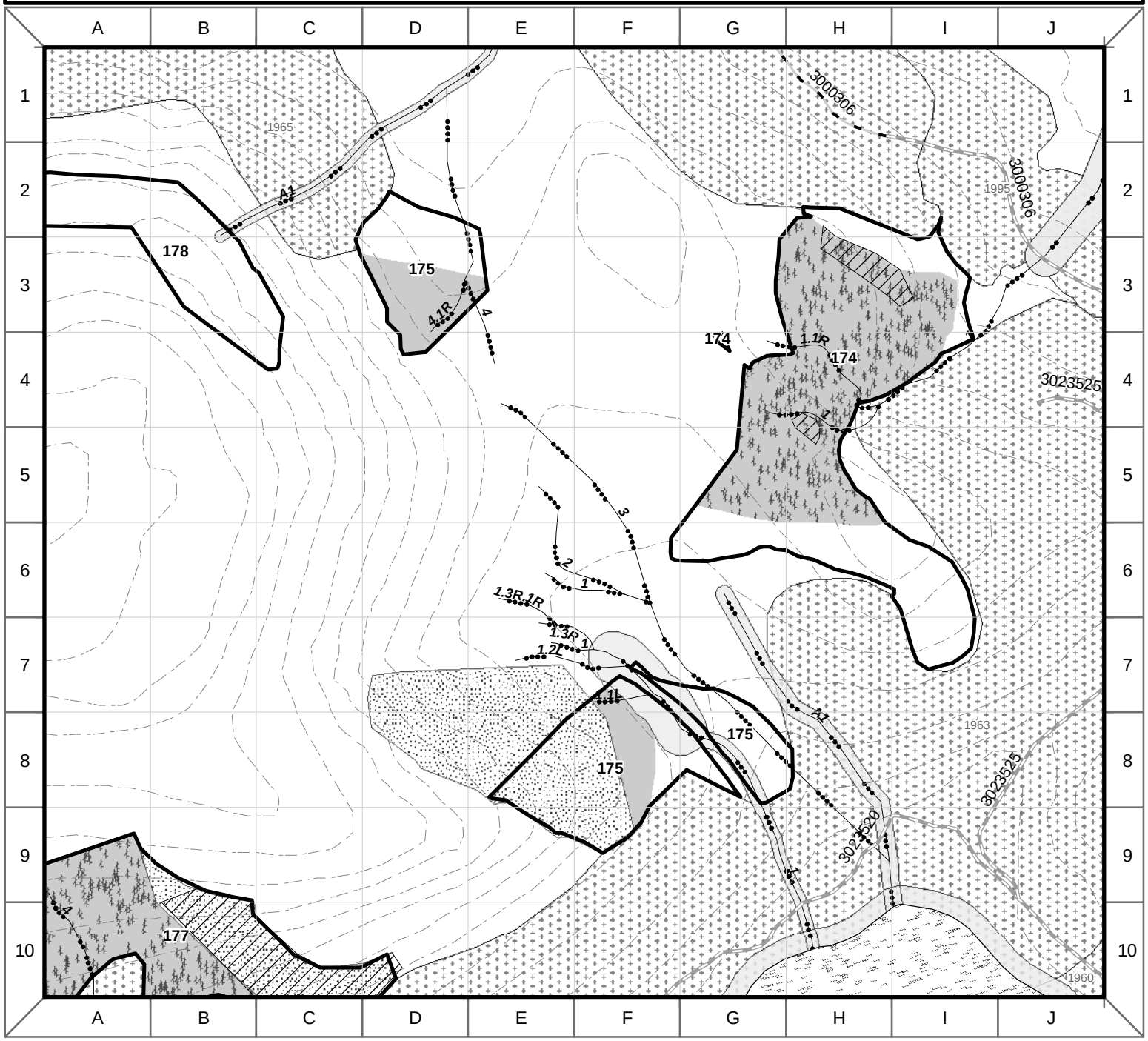
SCENERY:

No Concerns

RECREATION:

Unit 175
No concerns, but note that the two polygons of the unit are on opposite sides of and border a finger of the Thorne River inventoried roadless area.
SOILS/WETLANDS: In the northern portion of the unit, slopes range from 10 to 30%. In the southern portion of the unit, slopes range from 35 to 65%. Forested wetlands occupy approximately 40% of the unit. About 18 acres were excluded due to colluvial activity on the soil surface, active and historic landslides, and steep wet slopes. A partially revegetated debris avalanche that is less than 1/4 acre in size is located within the soil exclusion area. A 4 acres debris avalanche is also mapped between the proposed harvest areas. In the remainder of the unit, a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).
WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 175 | **Alternative 2** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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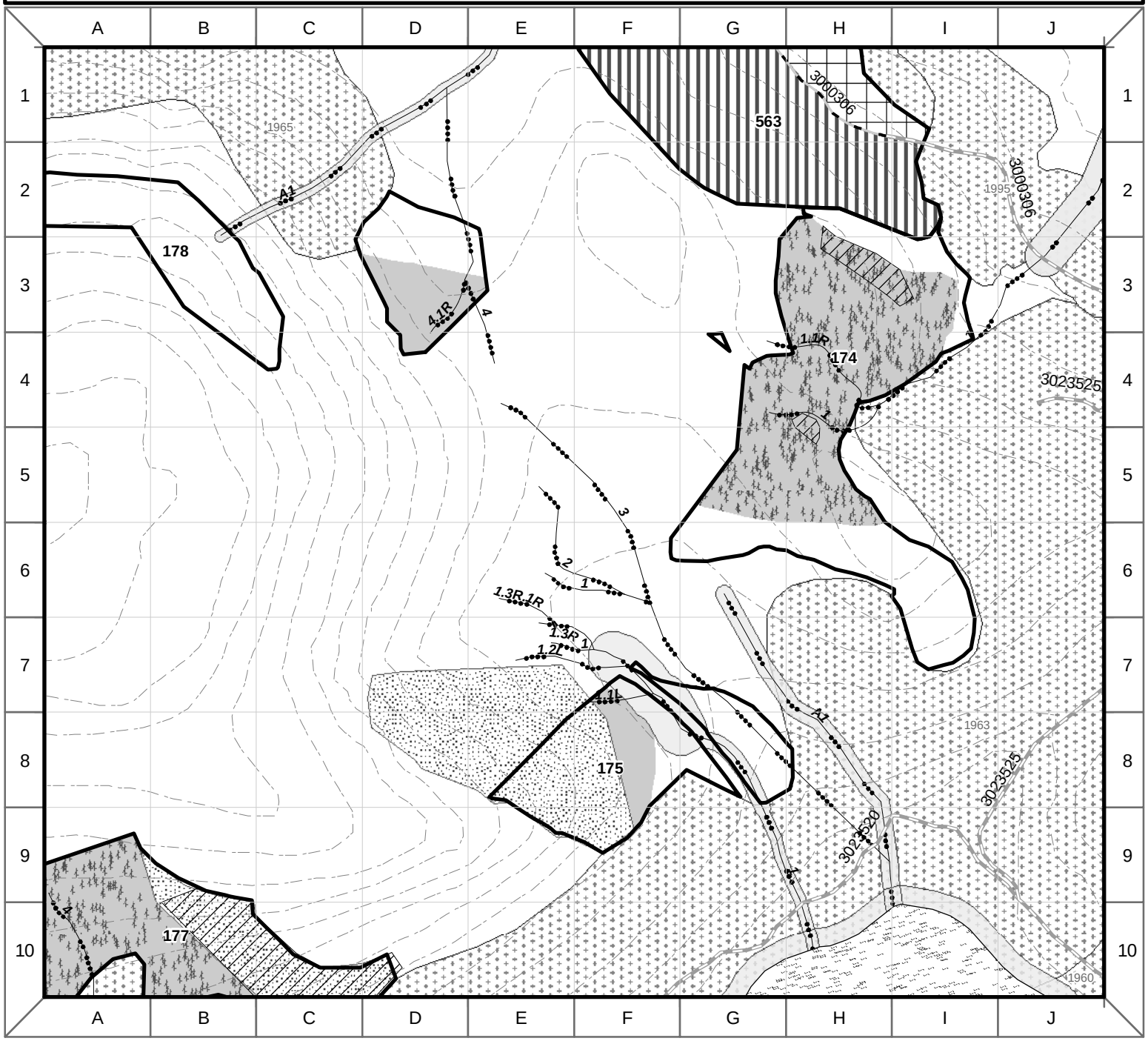
Unit Number 175 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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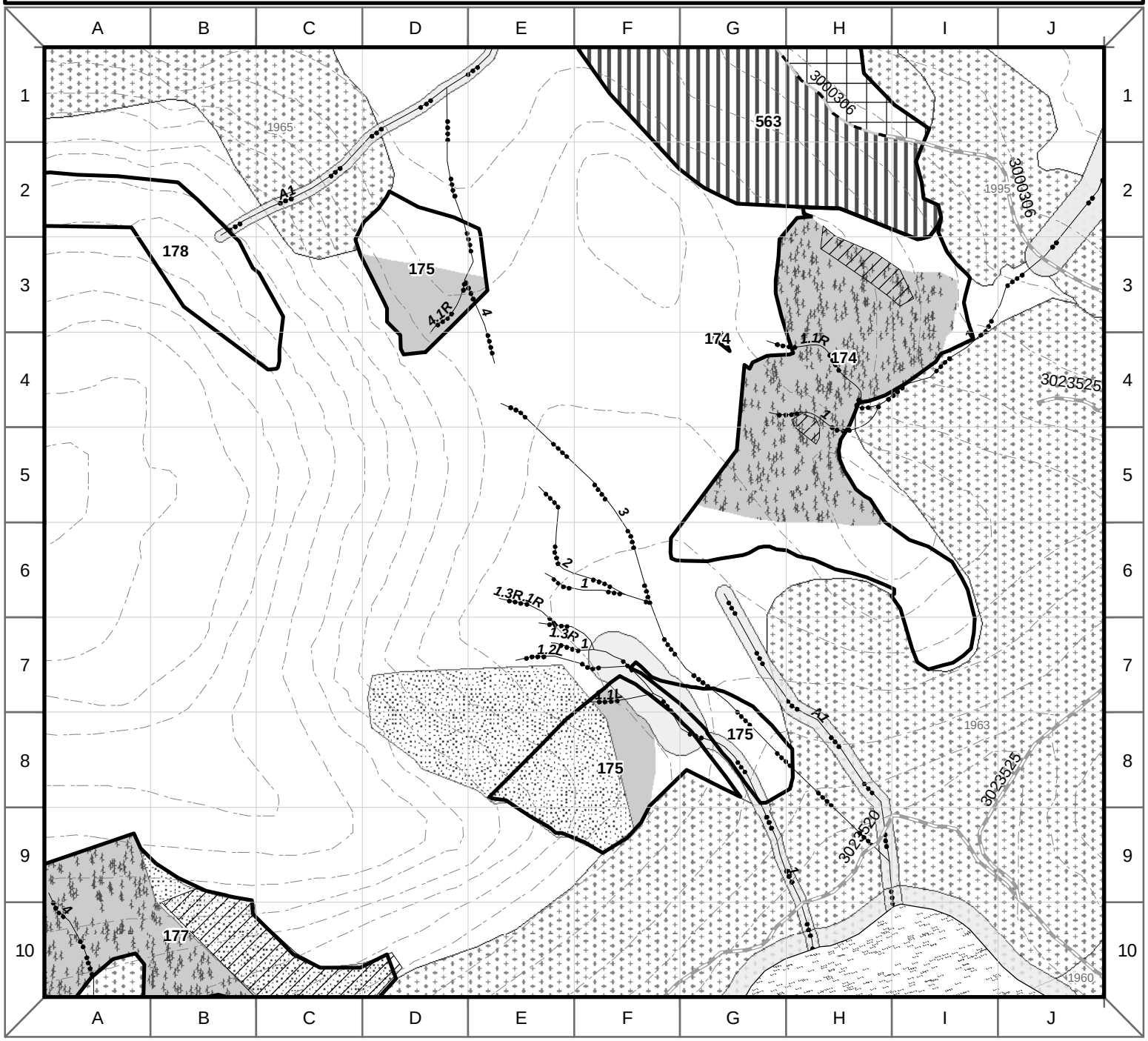
Unit Number 175 | **Alternative 4** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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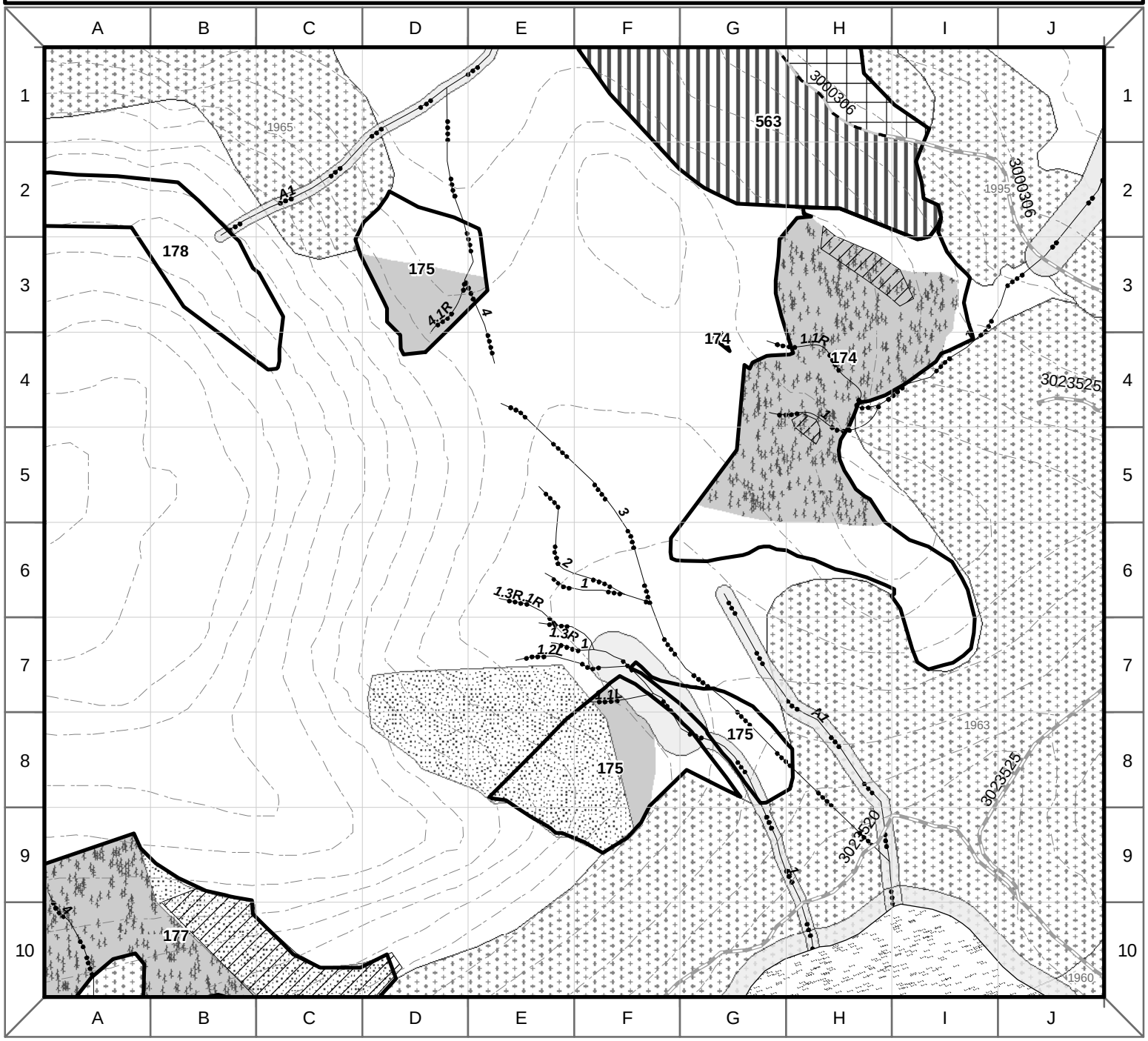
Unit Number 175 | **Alternative 5** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt5.mxd 14 July 2012

Unit 177

Unit Number	177	Alternatives	2, 3, 4, 5	Total Unit Acres:	58.6	Prescription:	2, 3, 4 - 50% Removal 5 - 25% Removal
VCU Number:	583 0	Harvest System:	Helicopter	Net Harvest Volume (MBF):	2, 3, 4 - 781 5 - 391	LUD:	Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 177 has old-growth stand structure. Overstory is western hemlock, Sitka spruce and Alaska-cedar with some scattered western redcedar. The stand is high defect due to heavy stem decay and poor stem form. Mistletoe is light and windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

A Tongass Wide Young Growth Study site (POW Ratz Experiment #4) is to the southeast of this unit. Protection of this site is required. Contact the Forest Science Lab in Juneau for additional information.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 50 percent in Alternatives 2, 3, and 4, and 75 percent in Alternative 5 (due to watershed concerns) of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

No Legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

Alternative 2, 5: This unit is planned for helicopter yarding to landings on the existing NFS road 3023500

Alternatives 3, 4: This unit is planned for helicopter yarding to landings on the proposed temporary road in Unit 557.

ENGINEERING/ROADS:

This unit utilizes the proposed temporary road constructed into Unit 557 in Alternatives 3 and 4, totaling 2,800 feet, as displayed on the unit card for Unit 557. This entire road will be constructed across decommissioned road bed.

Unit is accessed by reconstructed existing NFS road 3023500 in Alternatives 2 and 5, totaling 2,300 feet. This road is also utilized by Units 167-169, and 552. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 177

Streams are tributaries to Ratz Creek. Stream 1, A1, 5 characteristics do not contain project specific field verified information.

Stream#: 1 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: none known
Buffer (RMA): Class III for HCM to the top of side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category B and C

Stream#: 2 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: blowdown, active erosion, mobile particles and bedrock side-slopes
Buffer (RMA): Class III for HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category B and C

Stream#: 3 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: blowdown, active erosion, mobile particles and bedrock side-slopes
Buffer (RMA): Class III for HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category B and C

Stream#: 3.1R Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: blowdown, active erosion, mobile particles and bedrock side-slopes
Buffer (RMA): Class III for HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category B and C

Stream#: 3.3R Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: blowdown, active erosion, mobile particles and bedrock side-slopes
Buffer (RMA): Class III for HCD to the top of the side-slope break, Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category B and C

Stream#: A1 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category B

Stream#: 5 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

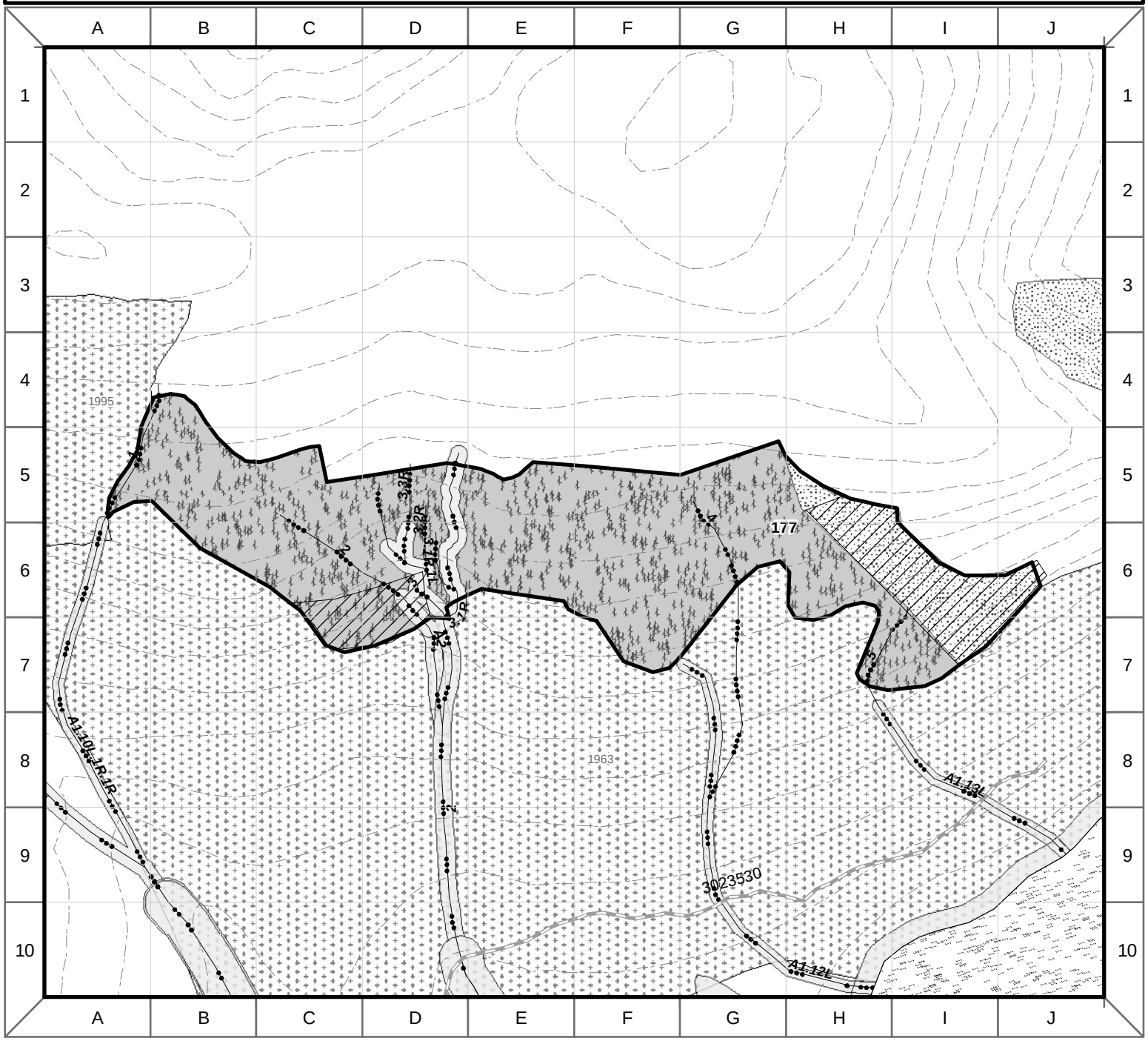
SCENERY:
No Concerns

RECREATION:
No Concerns, but unit borders the Thorne River roadless area on its northern border.

SOILS/WETLANDS:

Unit 177
Slopes in this unit range from 30 to greater than 90%. The majority of the slopes average 55 to 70%. There is a small area in the middle of the unit that contains forested wetlands. An alder vegetated debris avalanche initiated near the southwester boundary and continues out of the unit. There are about 4 acres of slopes greater than 72% in the southwest corner of the unit that are suitable for harvest with full suspension. About 9 acres were excluded due to very high landslide potential, colluvial activity, MMI4 soils, steep slopes, and unstable drainages. In the remainder of the unit, full suspension is required to meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).
WILDLIFE: Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit Number 177 | **Alternative 2** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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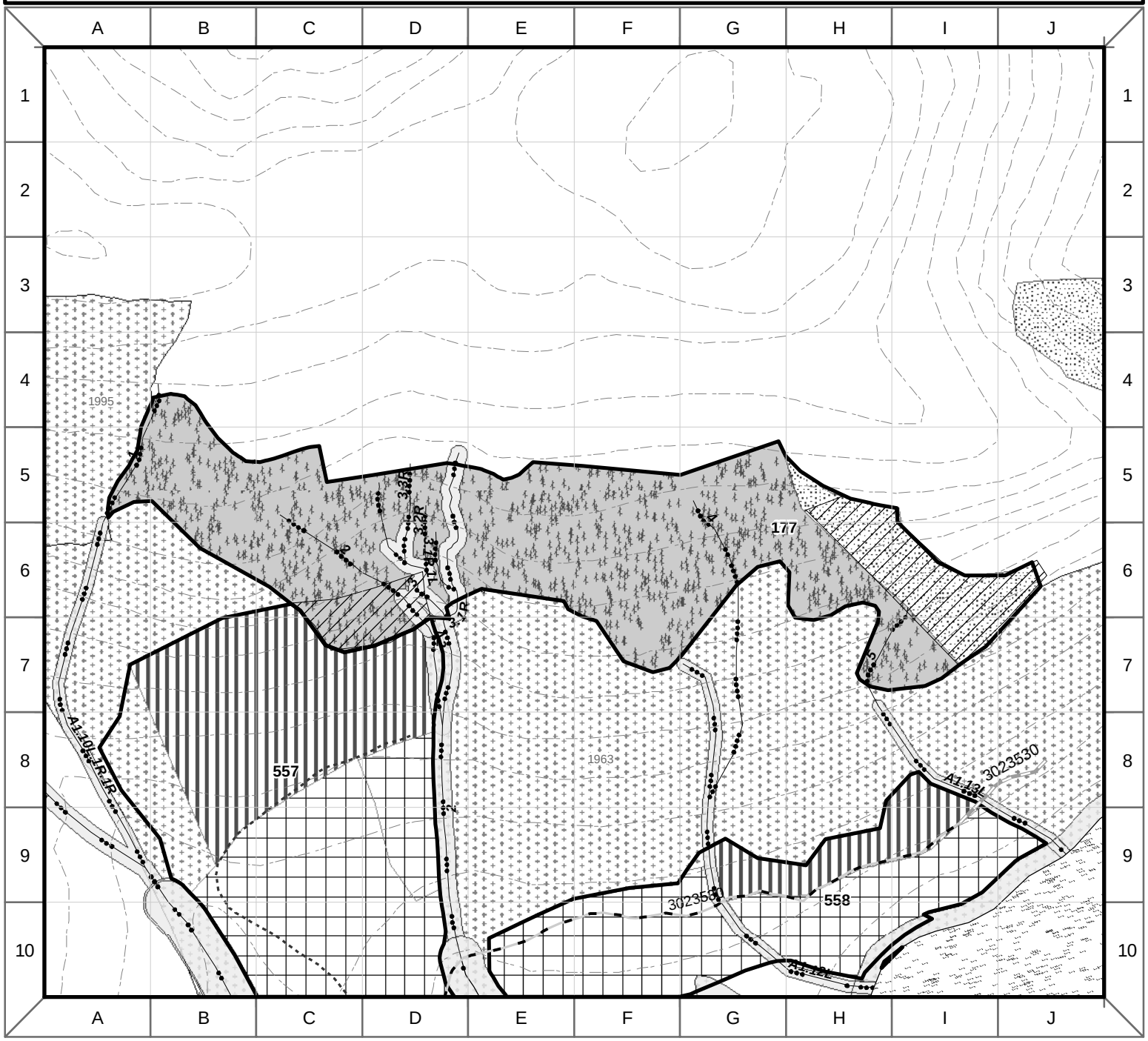
Unit Number 177 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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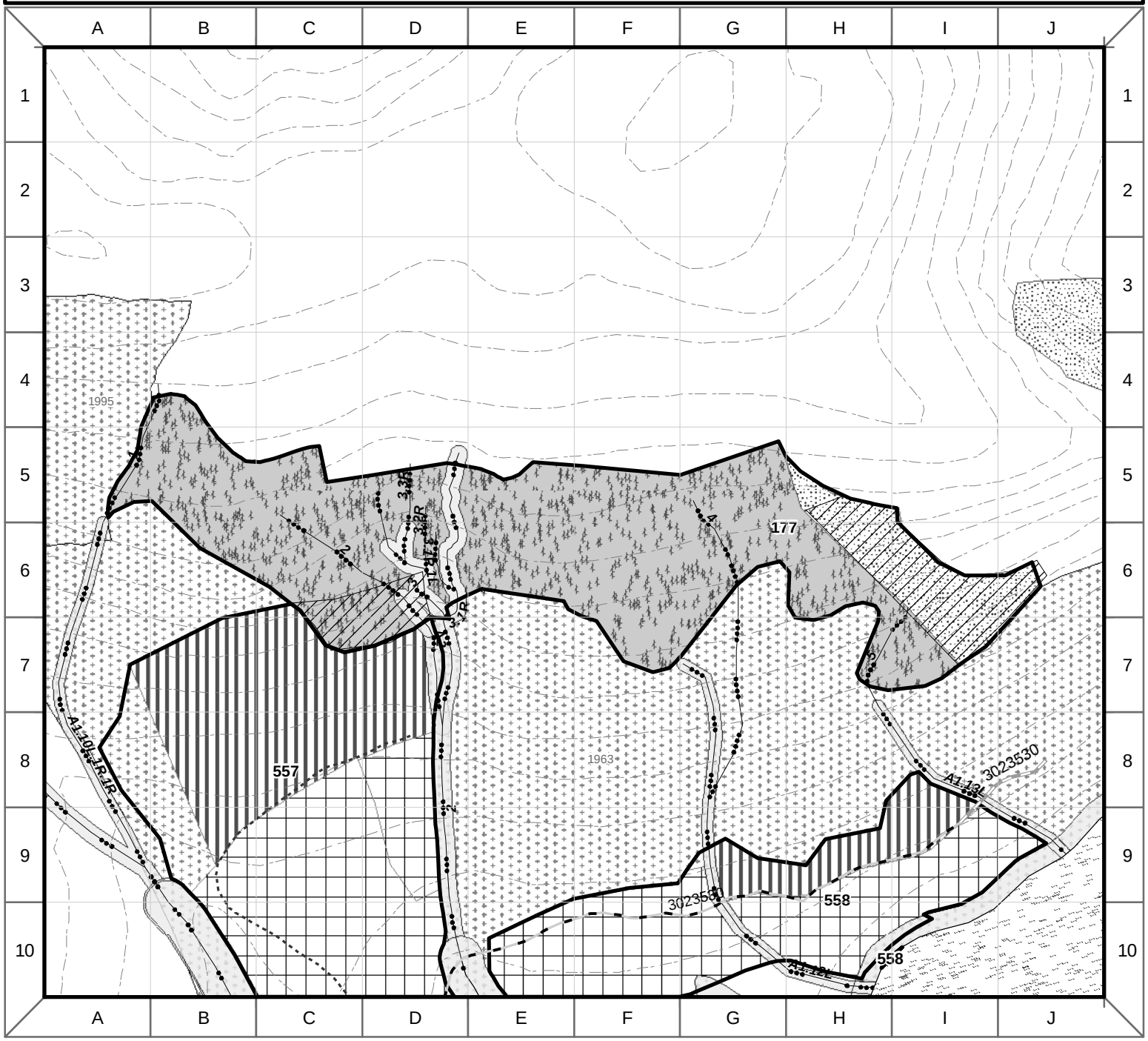
Unit Number 177 | **Alternative 4** | **VCU: 583**



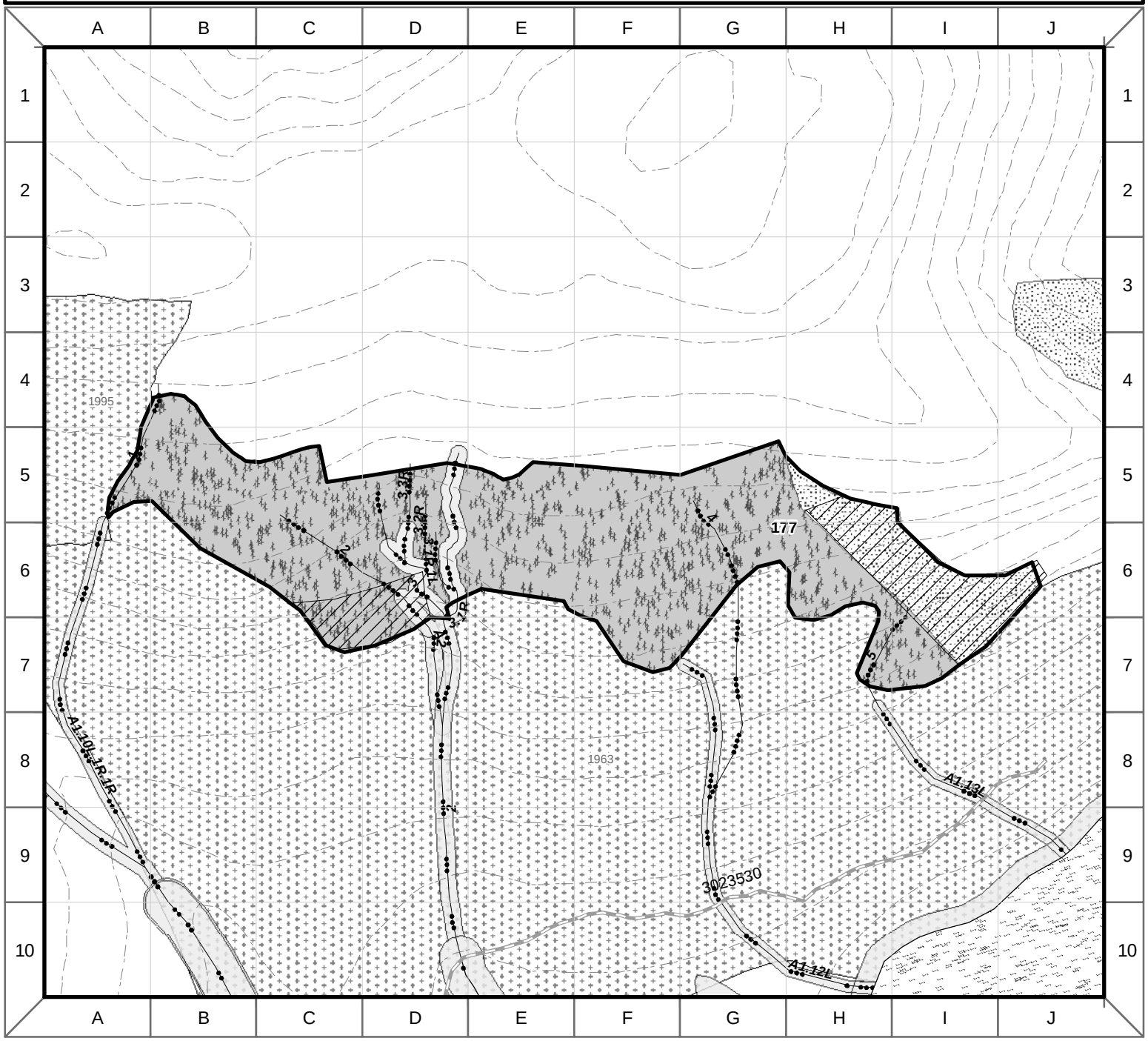
Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt4.mxd 20 March 2012

Unit Number 177 | **Alternative 5** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 178

Unit Number 178	Alternatives 2, 3, 4, 5	Total Unit Acres: 8.6	Prescription: Clearcut
VCU Number: 583	Harvest System: Cable, Helicopter	Net Harvest Volume (MBF): 128	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure with a western hemlock overstory. Sitka spruce, western redcedar and Alaska-cedar are intermixed in the overstory. The dominant damage agents are heart rot, stem decay and patches of stem deformity (pistol butts). Alaska-cedar are generally poor quality and over-mature with high defect. Mistletoe is light and windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

Alternatives 2, 3, 4: This unit is planned for uphill and downhill cable yarding to landings on the proposed temporary road.

Alternative 4: This unit is planned for helicopter yarding to landings on the existing NFS road 3000000.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road in Alternatives 2, 3, and 4, totaling 1,600 feet, as displayed on the unit card. Approximately 1,200 feet of this road will be constructed across decommissioned road bed.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Ratz Creek.

Stream#: 2 Class: II, III Flagging: B/W, O/W C- Type: HCL, HCM
Concerns: Blowdown and active erosion
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: 2.1R Class: II, III Flagging: B/W, O/W C- Type: HCL, HCM
Concerns: Blowdown and active erosion
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category A and B

Unit 178

Stream#: 1 Class: III Flagging: O/W C- Type: HCD
Concerns: Blowdown
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

Temporary roads (new and reopened decommissioned) for Unit 178: Alternatives 2, 3, and 4 -- One Class III stream crossing. The new temporary road will reopen a decommissioned road. The temporary roads have not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns, but unit abuts the Thorne River inventoried roadless area on the south.

SOILS/WETLANDS:

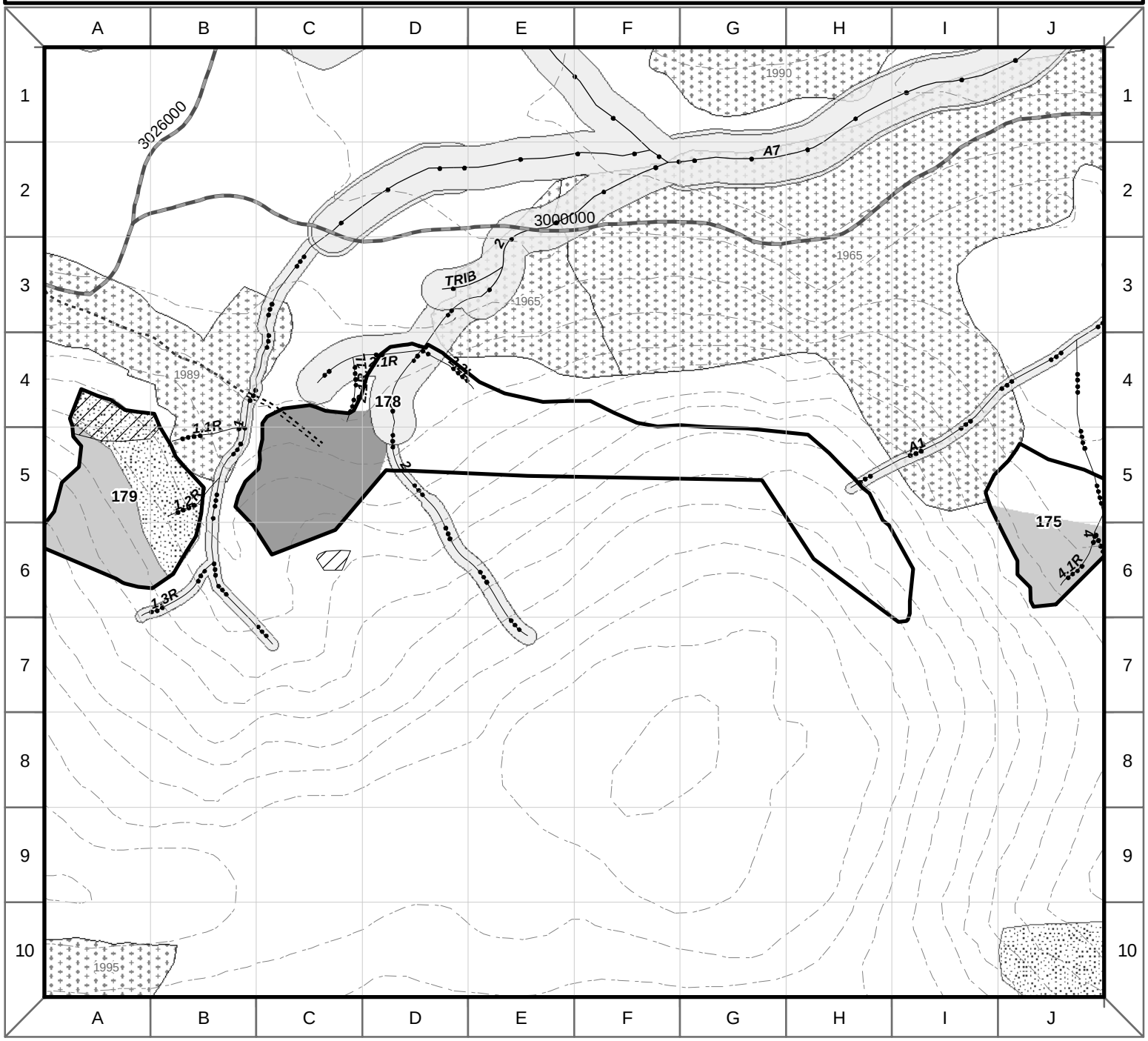
Slopes range from 30 to 65%. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

Alternatives 2, 3, and 4: A temporary road will impact about 1/4 acre of emergent sedge/forested wetland complex within the unit and 1/4 acre outside the unit. Wetland avoidance was not practicable due to the extent of wetlands in the area, engineering constraints and risk to downstream resources. (BMP 12.5, 13.2). Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern 1/2 of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 178 | **Alternative 2** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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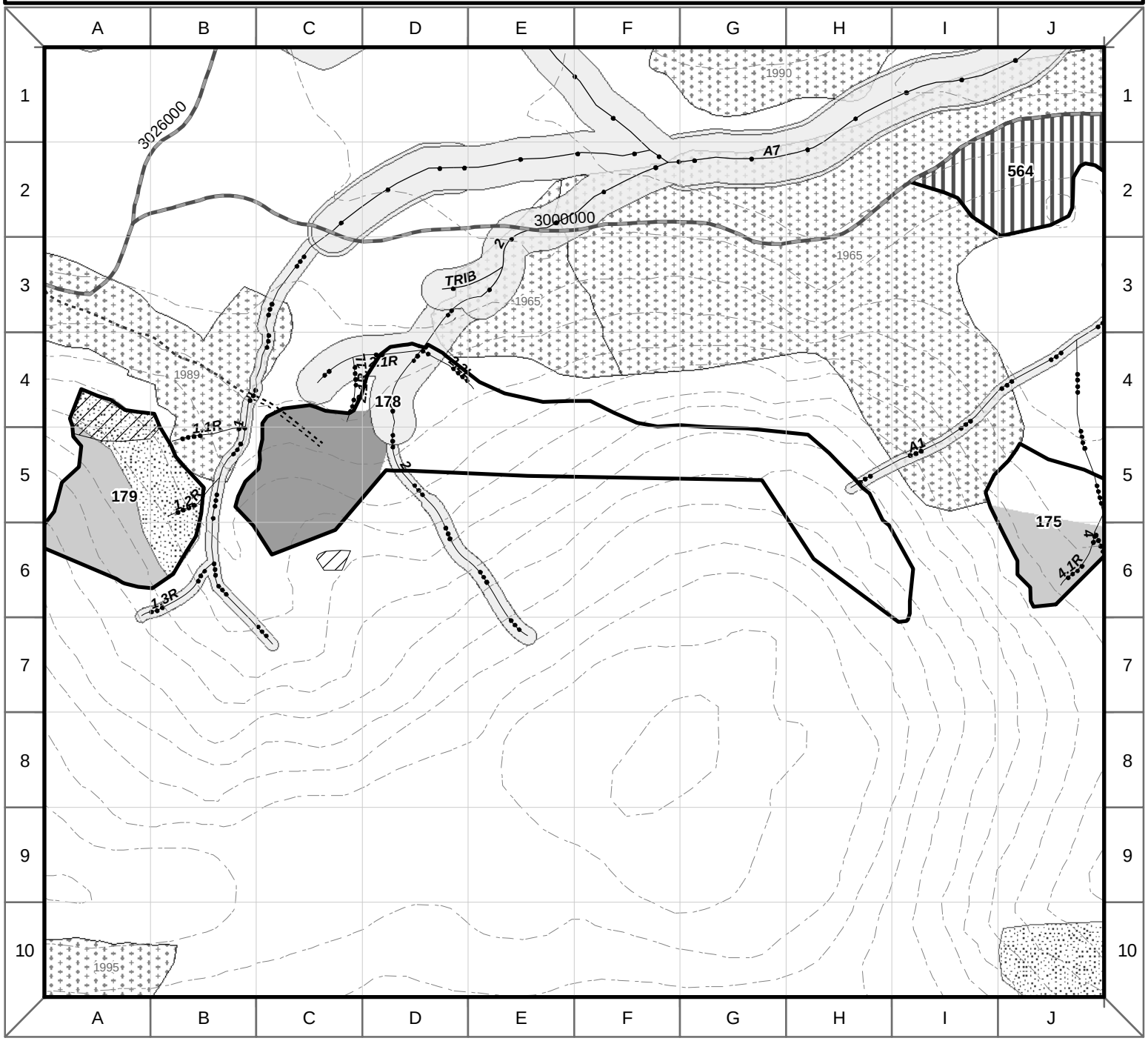
Unit Number 178 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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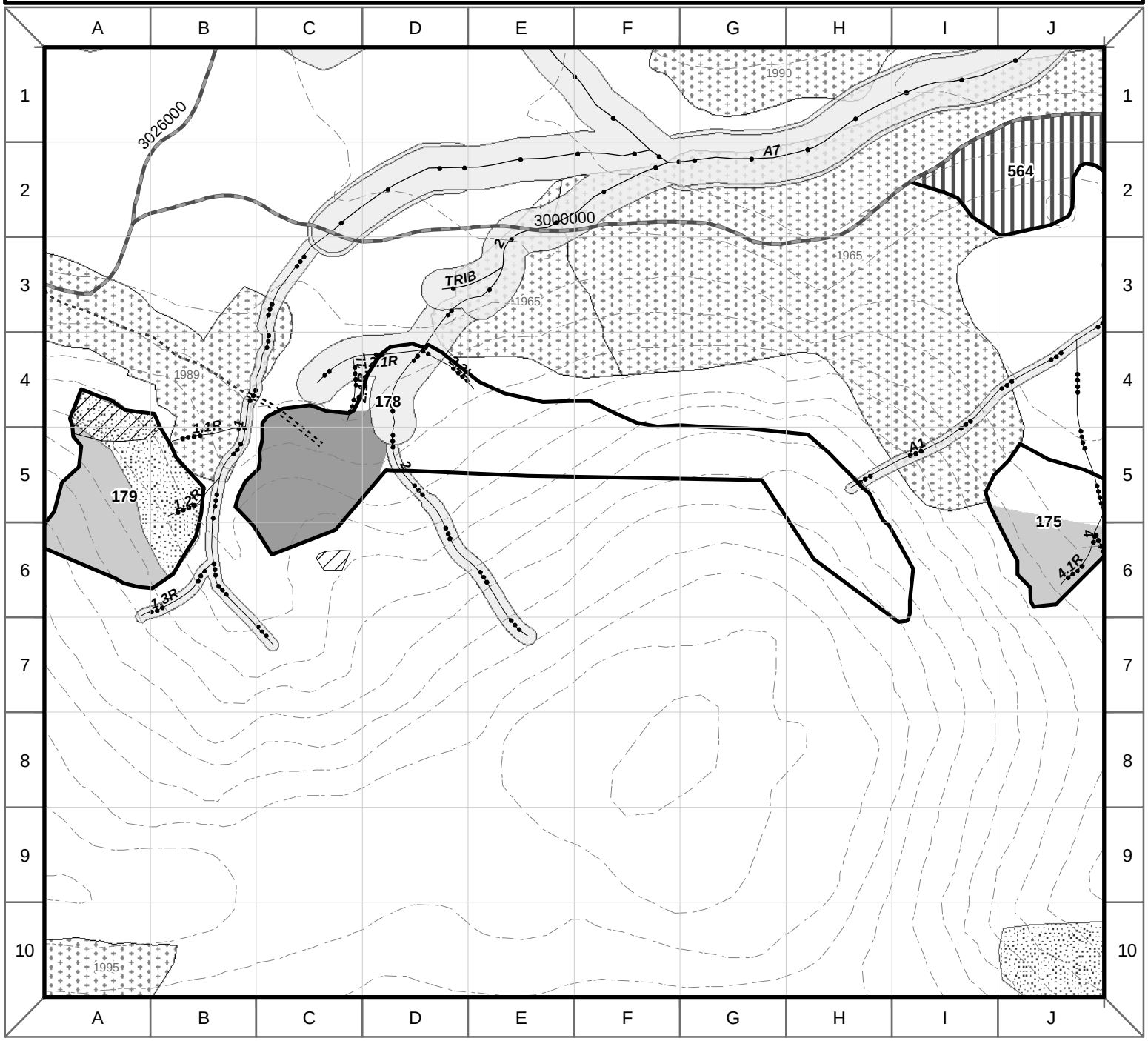
Unit Number 178 | **Alternative 4** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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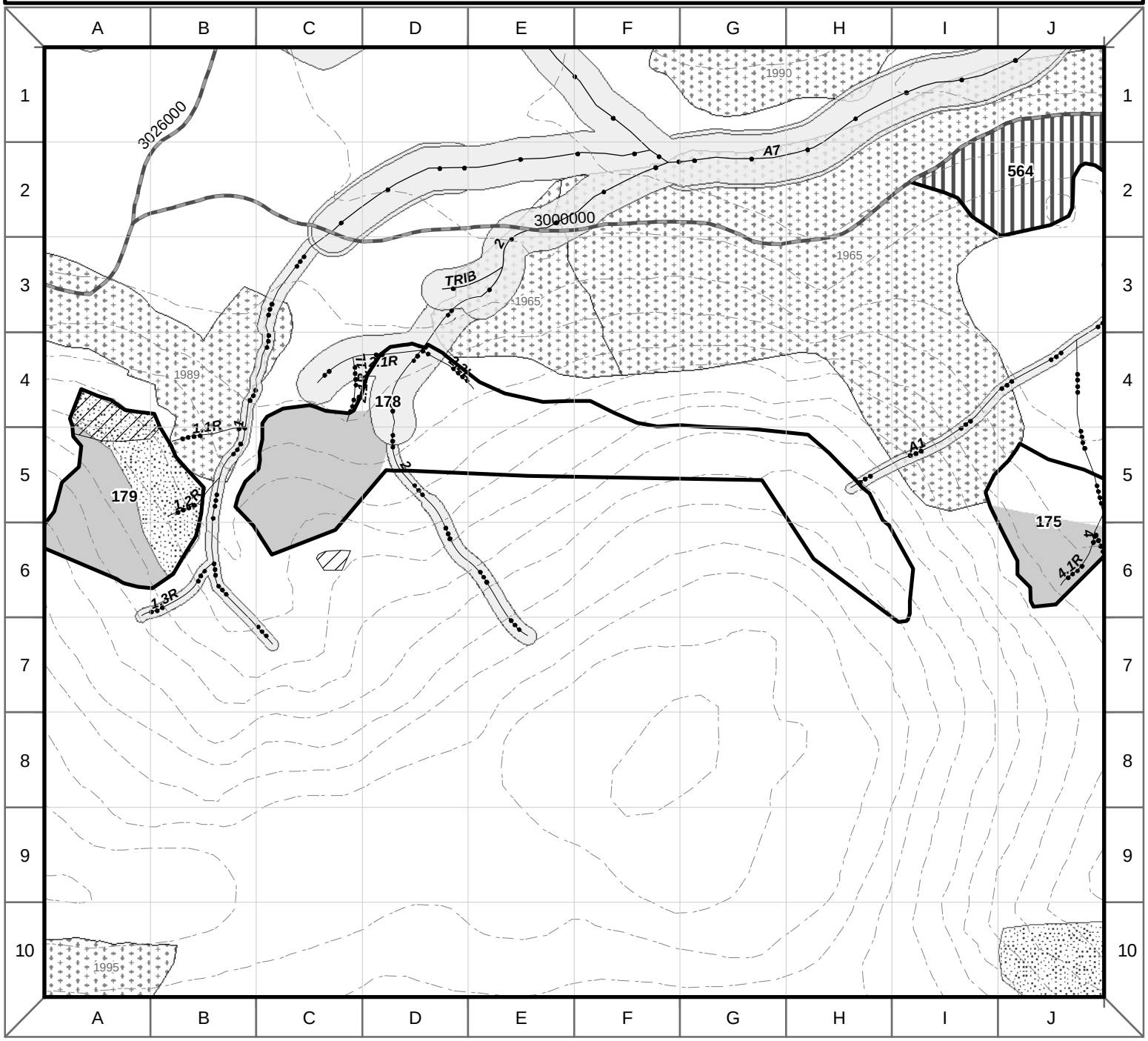
Unit Number 178 | **Alternative 5** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt5.mxd 14 July 2012

Unit 179

Unit Number 179	Alternatives 2, 3, 4, 5	Total Unit Acres: 6.1	Prescription: Clearcut
VCU Number: 583	Harvest System: Helicopter	Net Harvest Volume (MBF): 190	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 179 has old-growth stand structure with a western hemlock overstory with Sitka spruce, western redcedar and Alaska-cedar intermixed. The dominant damage agents are heart rot, stem decay and patches of stem deformity (pistol butts). Alaska-cedar is generally poor quality and over-mature with high defect. Mistletoe is light and windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

Alternatives 2, 3, 4: This unit is planned for helicopter yarding to landings on the proposed temporary road accessing Unit 178.

Alternative 5: This unit is planned for helicopter yarding to landings on existing NFS road 3000000.

ENGINEERING/ROADS:

This unit is utilizing the proposed temporary road accessing Unit 178 in Alternatives 2, 3, and 4, totaling 1,600 feet. Approximately 1,200 feet of this road will be constructed across decommissioned road bed.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Ratz Creek. Stream 1.3 characteristics do not contain project specific field verified information.

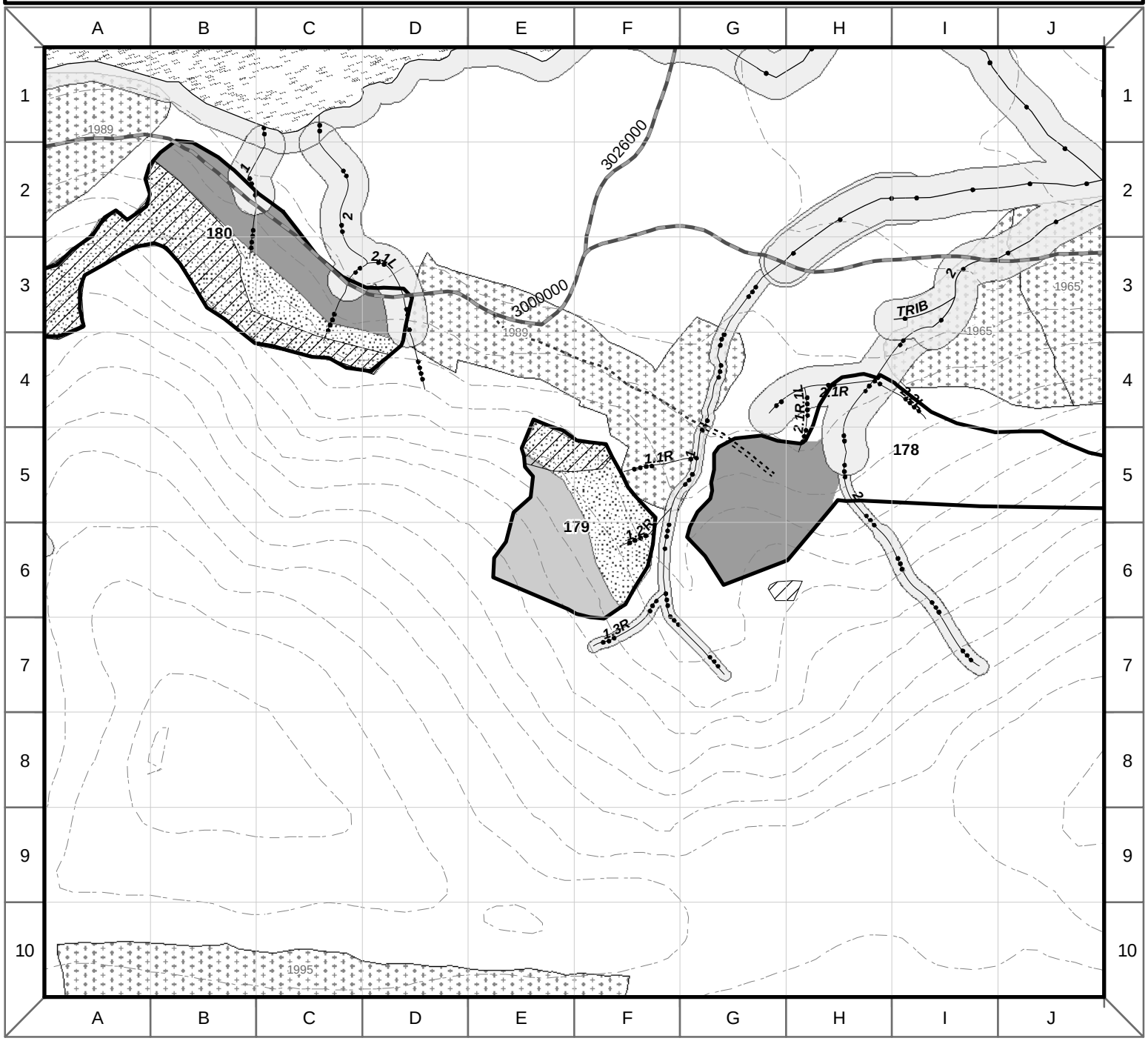
Stream#: 1 Class: III Flagging: O/W C- Type: HCD
Concerns: none
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category B

Stream#: 1.3 Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM

Unit 179
Buffer (RMA): none Buffer (RAW): no review needed. Protection: Category C
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No Concerns
RECREATION: No Concerns, but unit abuts the Thorne River inventoried roadless area on the south.
SOILS/WETLANDS: Slopes range from 50 to 105%. There are intermittent forested wetland areas located within the unit. Most slopes greater than 72% are located within the unsuitable soil exclusion area, except for the northern corner of unit, which is also over 72% and should be excluded from harvest as well. About 6 acres were excluded due to colluvial activity on the soil surface, active and historic landslides, extremely steep slopes, and MMI4 soils. In the remainder of the unit, a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).
WILDLIFE: Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 179 | **Alternative 2** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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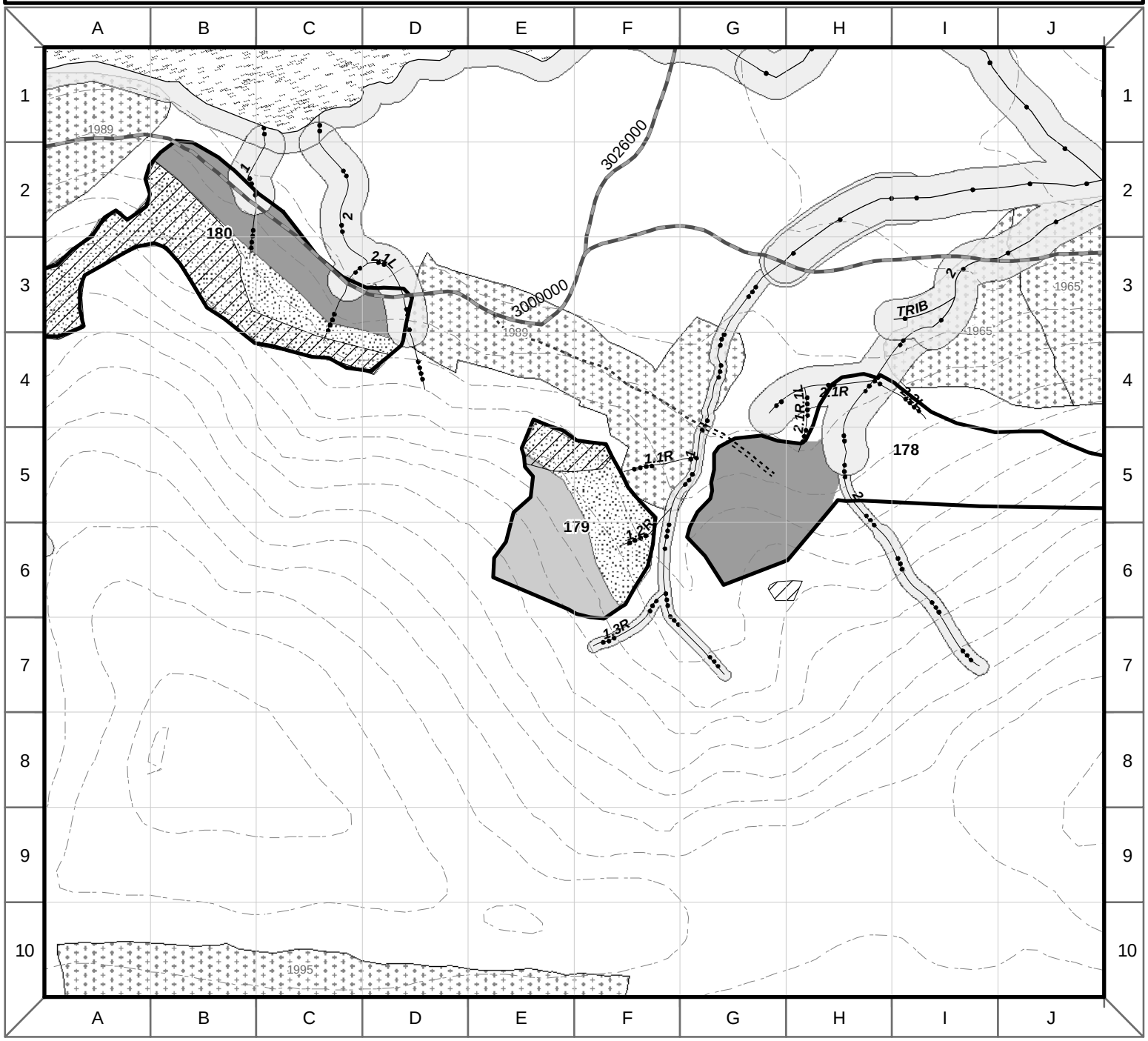
Unit Number 179 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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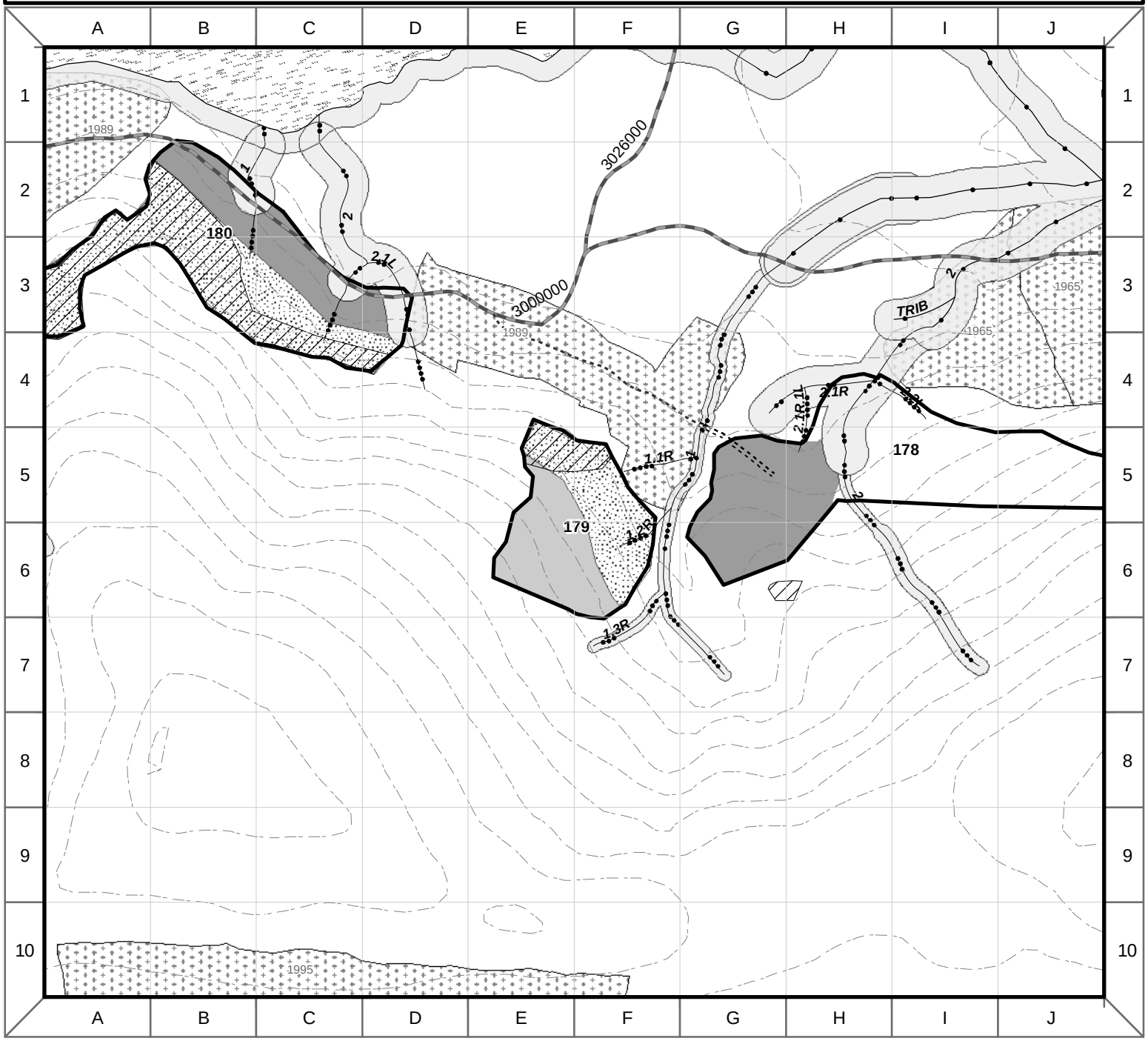
Unit Number 179 | **Alternative 4** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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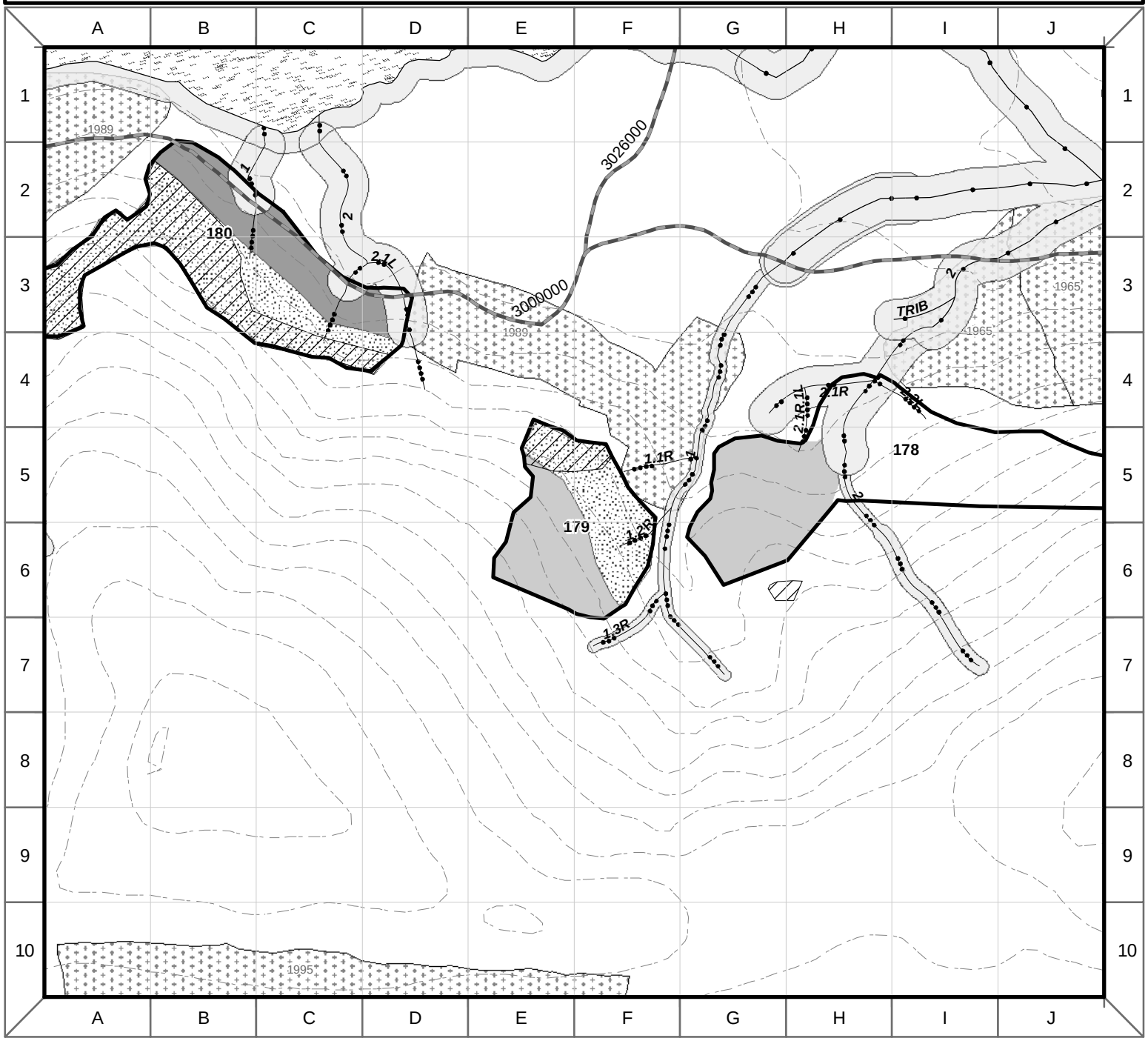
Unit Number 179 | **Alternative 5** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 180

Unit Number 180	Alternatives 2, 3, 4, 5	Total Unit Acres: 5.9	Prescription: Clearcut
VCU Number: 583	Harvest System: Cable	Net Harvest Volume (MBF): 120	LUD: Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 180 has old-growth stand structure with western hemlock, Sitka spruce, western redcedar and Alaska-cedar common in the overstory. The dominant defects are stem decay and stem deformity (pistol butts). Lower bole damage is common. Mistletoe is light and windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is partially within the moderate SIO foreground area; however, this area only covers approximately 1 acre and is therefore not a concern. The rest of the unit has a low SIO. This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for uphill and downhill cable yarding to landings on the existing NFS road 3000000.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Ratz Creek.

Stream#: 1 Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category A and C

Stream#: 2 Class: II, IV Flagging: B/W, G/W C- Type: MMO, HCO
Concerns: none
Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated with wetland fens. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category A and C

Stream#: 2.1L Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or the side-slope break, Class IV for HCO none
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.

Unit 180

Protection: Category A and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is only 6 acres in size, but does occur along NFS Road 3000000. It consists mostly of Low SIO but includes 1 acre of Moderate SIO as well. Views are partially screened by riparian buffers which overlap road. Moderate SIO with Intermediate VAC have a typical opening size allowed by the Forest Plan of 15 to 40 acres. No concerns.

RECREATION:

No Concerns; however, yarding activities will need to coordinate with recreational and other use of the mainline NFS Road 3000000.

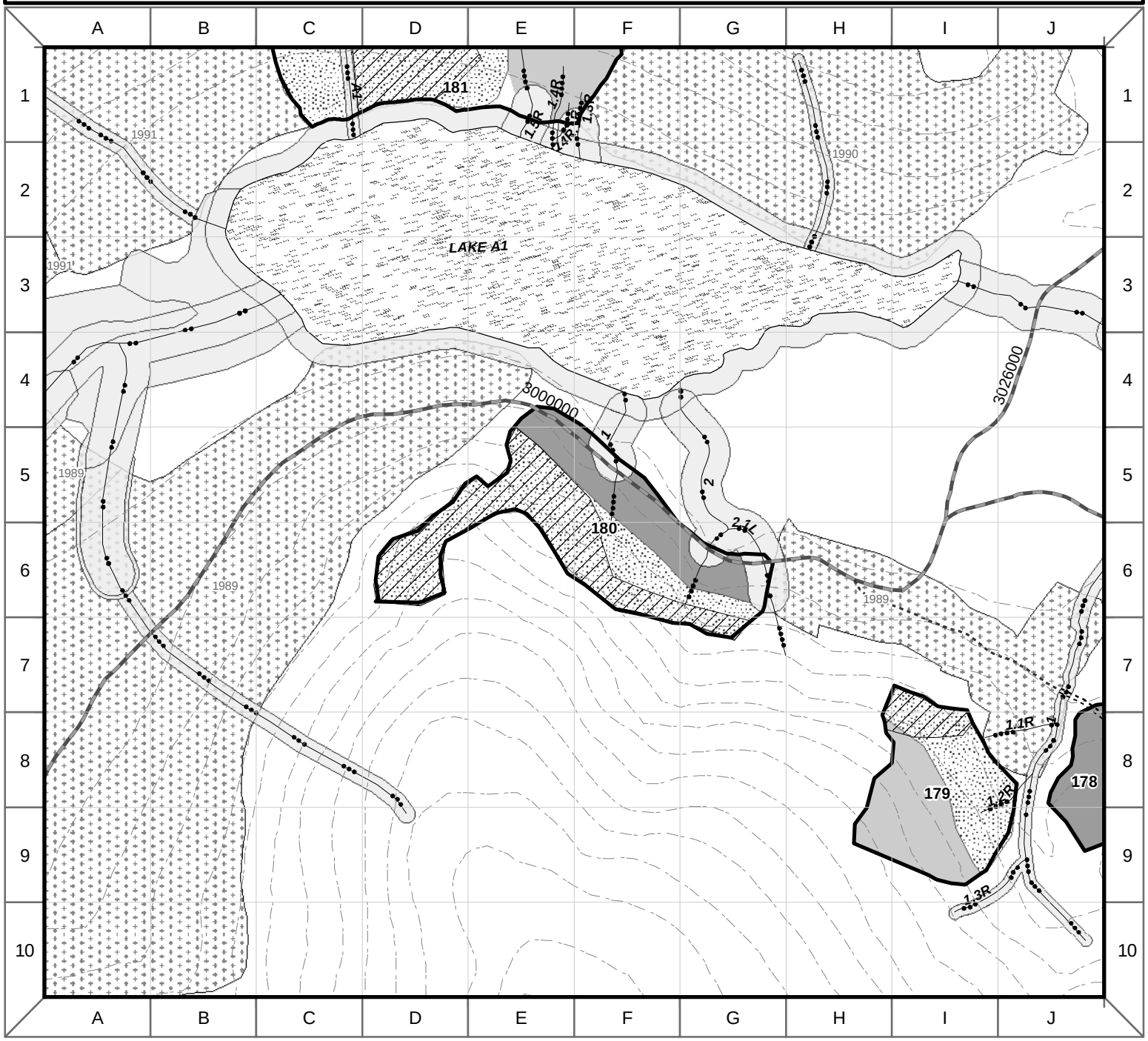
SOILS/WETLANDS:

Slopes range from 50 to 85%. No wetlands have been mapped in the unit. All slopes greater than 72% are located within the soil exclusion area. About 14 acres were excluded due to colluvial activity on the soil surface, active and historic landslides, extremely steep slopes, and MMI4 soils. In the remainder of the unit a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 180 | **Alternative 2** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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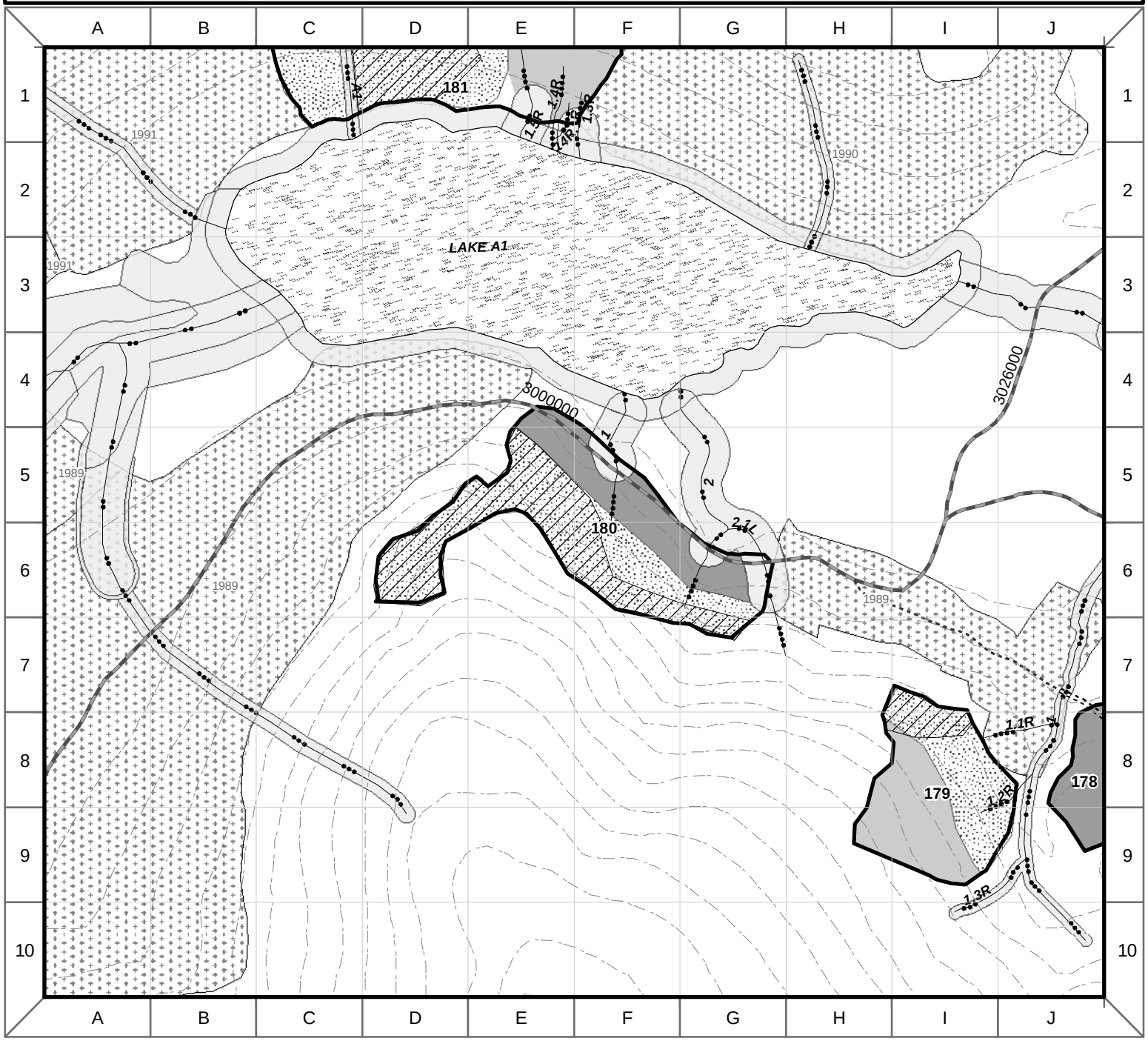
Unit Number 180 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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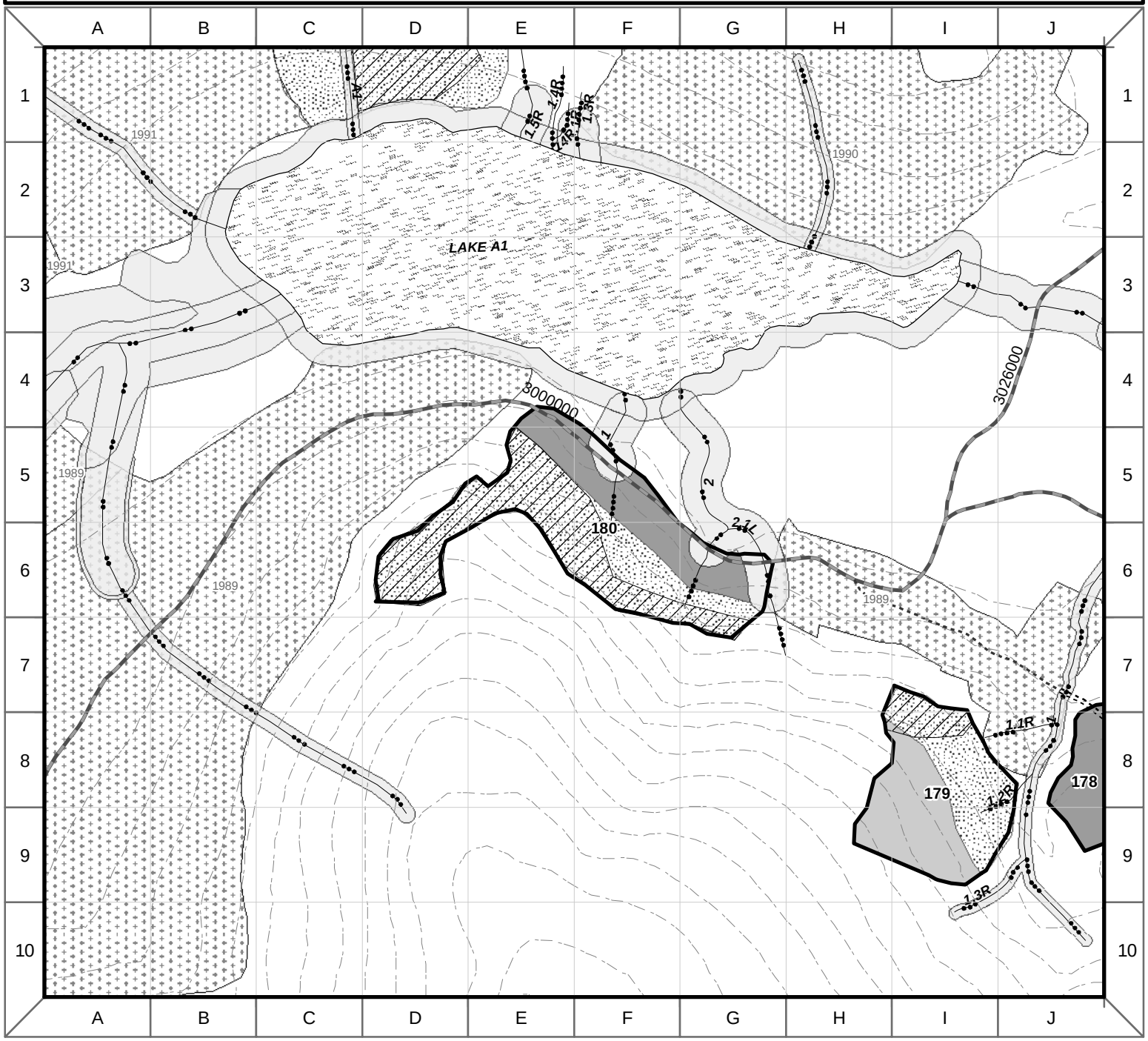
Unit Number 180 | **Alternative 4** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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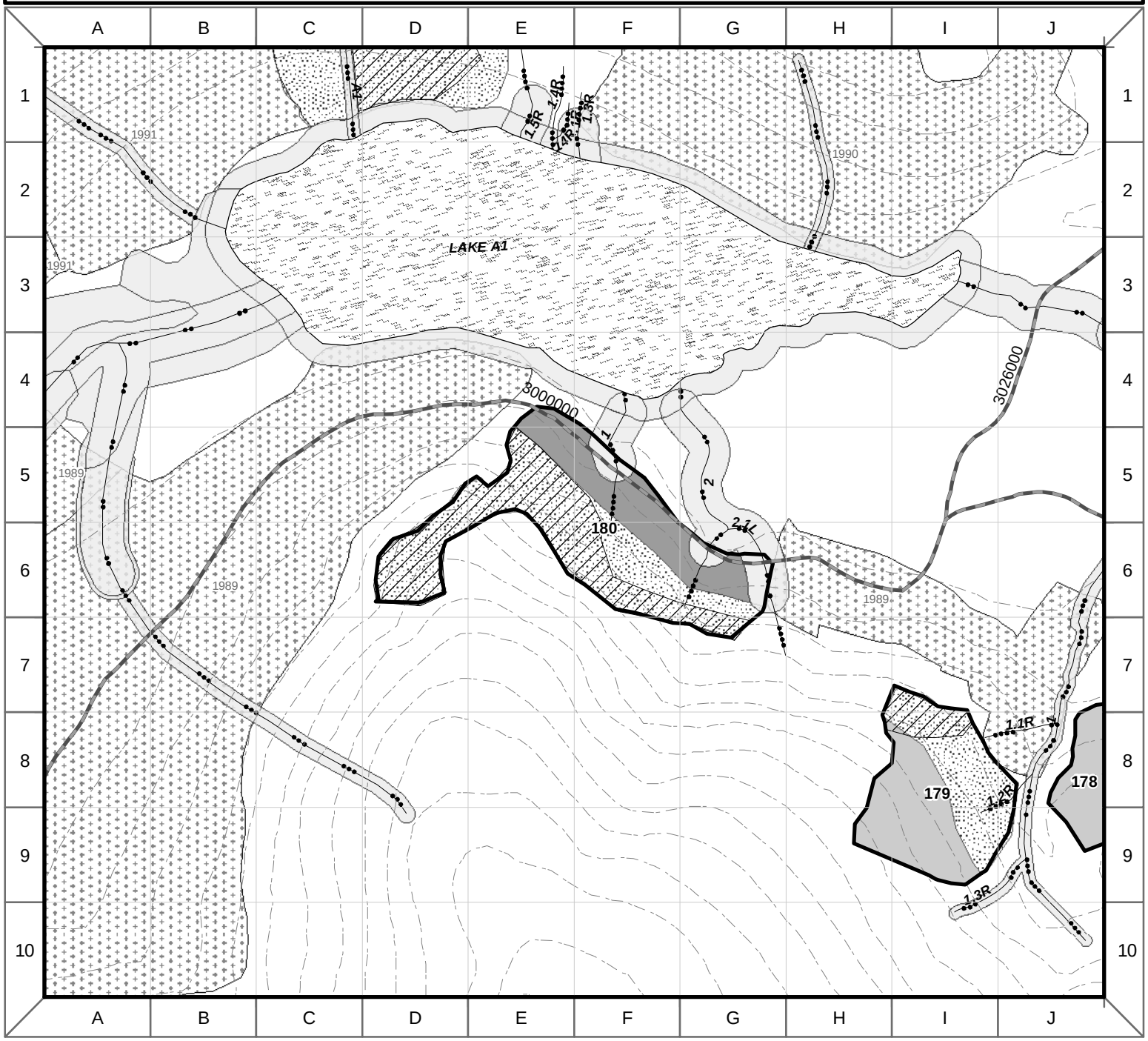
Unit Number 180 | **Alternative 5** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 181

Unit Number 181	Alternatives 2, 3	Total Unit Acres: 5.8	Prescription: Clearcut
VCU Number: 583	Harvest System: Helicopter	Net Harvest Volume (MBF): 155	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 181 has old-growth stand structure with significant recent windthrow. The overstory consists of western hemlock, Sitka spruce and Alaska-cedar. Distribution is patchy due to windthrow. The dominant defect agent is weather related breakage. Light mistletoe infection is throughout. There are standing Sitka spruce and salvable Alaska-cedar in the unit that would carry logging costs. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on existing NFS road 3026000.

ENGINEERING/ROADS:

Np proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Little Lake. Stream A1 characteristics do not contain project specific field verified information.

Stream#: 1.3R Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: blowdown
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category A and C

Stream#: 1.5R Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category A and C

Stream#: A1 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category A and C

Unit 181

Stream#: Lake-A1 (Little Lake) Class: 1 Flagging: B/W C- Type: L
Concerns: none known.
Buffer (RMA): Class I for Lake-1 greater of 100 horizontal feet or to the extent of the flood plain, riparian vegetation or soils, riparian associated wetland fens, or one site-potential tree height.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
Unit contains 6 acres of Low SIO. Even with Low VAC, typical unit openings allowed by the Forest Plan are 15 to 40 acres. No concerns.

RECREATION:
No Concerns

SOILS/WETLANDS:
Slopes range from 40 to 100%. All slopes exceeding 72% are located within the soil exclusion area. About 43 acres were excluded due to colluvial activity on the soil surface, active and historic landslides, extremely steep slopes, and MMI4 soils. Wetlands were not observed during field review. In the remainder of the unit, a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:
Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (southern 1/2 of unit). Eagles and loons observed at Little Lake. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Alternative 4: Unit dropped to minimize impacts to marten habitat and deer winter range.

Unit Number 181 | **Alternative 2** | **VCU: 583**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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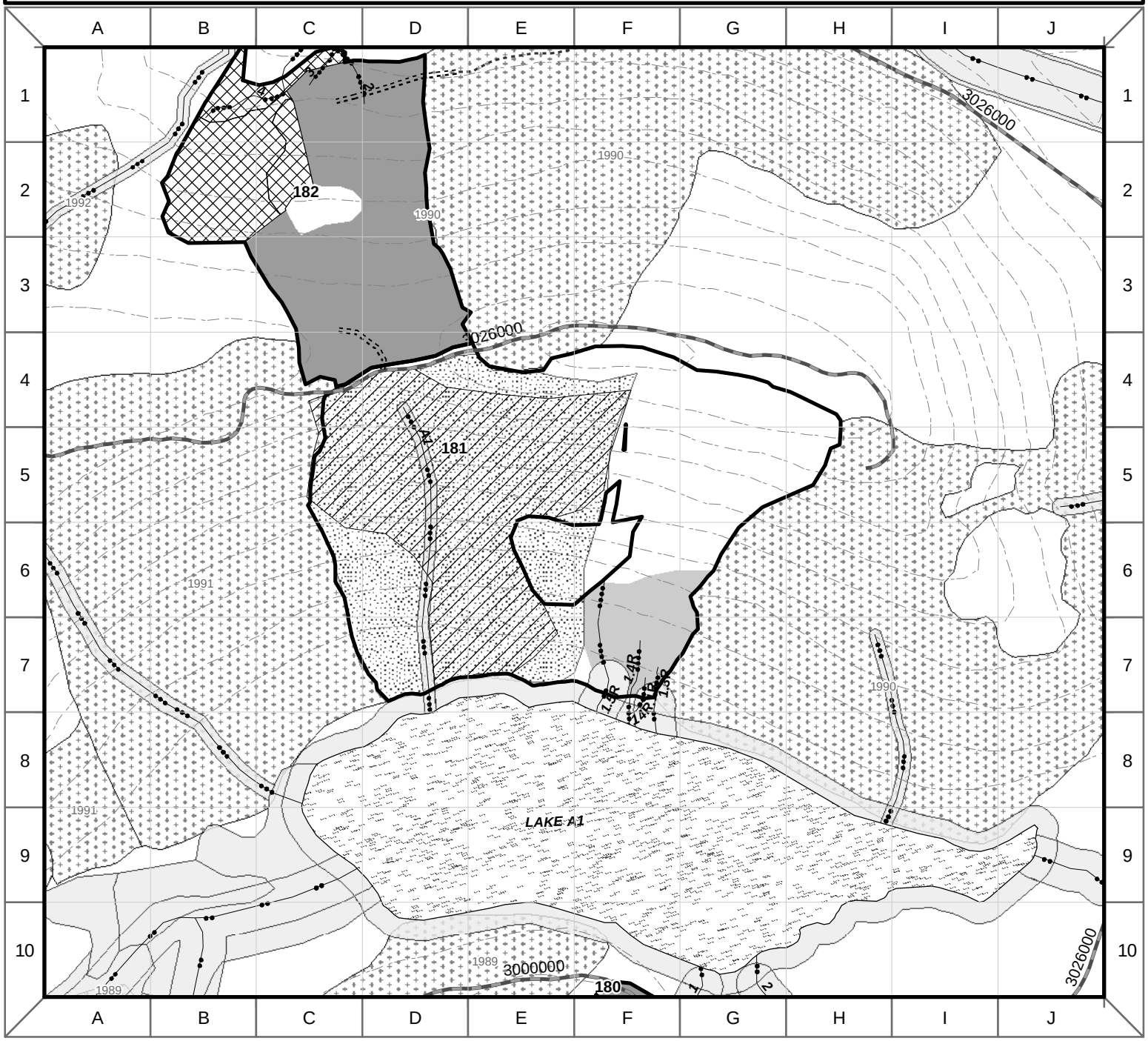
Unit Number 181 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Unit 182

Unit Number 182	Alternatives 2, 3, 4, 5	Total Unit Acres: 24.9	Prescription: Clearcut
VCU Number: 583	Harvest System: Cable, Shovel	Net Harvest Volume (MBF): 514	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 182 has old-growth stand structure comprised of western hemlock, Sitka spruce and Alaska-cedar. The dominant defect is stem decay with an overall average defect rating of moderate. Windthrow risk is high. The unit rated low for mistletoe. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 11 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to reduce road requirements and block up POG above stream on NW side of unit. Total mapped legacy is approximately 11 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of shovel, and cable yarding. Cable settings are planned for uphill and downhill yarding to landings on the proposed temporary roads and the existing NFS road 3026000. Shovel settings are planned for yarding to the south proposed temporary road and existing NFS road 3026000.

ENGINEERING/ROADS:

Unit is accessed by two proposed temporary roads, totaling 2,500 feet, as displayed on the unit card. Approximately 1,500 feet of this road will be constructed across decommissioned road bed.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Ratz Creek.

Stream#: 1.1L Class: II, III Flagging: B/W, O/W C- Type: MMS, HCM
Concerns: none known
Buffer (RMA): Class II for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category A and B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

Temporary roads for Unit 182: All Alternatives -- One Class IV stream crossing. The new temporary road stream crossing

would be on a new temporary road that is an extension of an existing decommissioned road that would be reopened. The temporary roads have not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

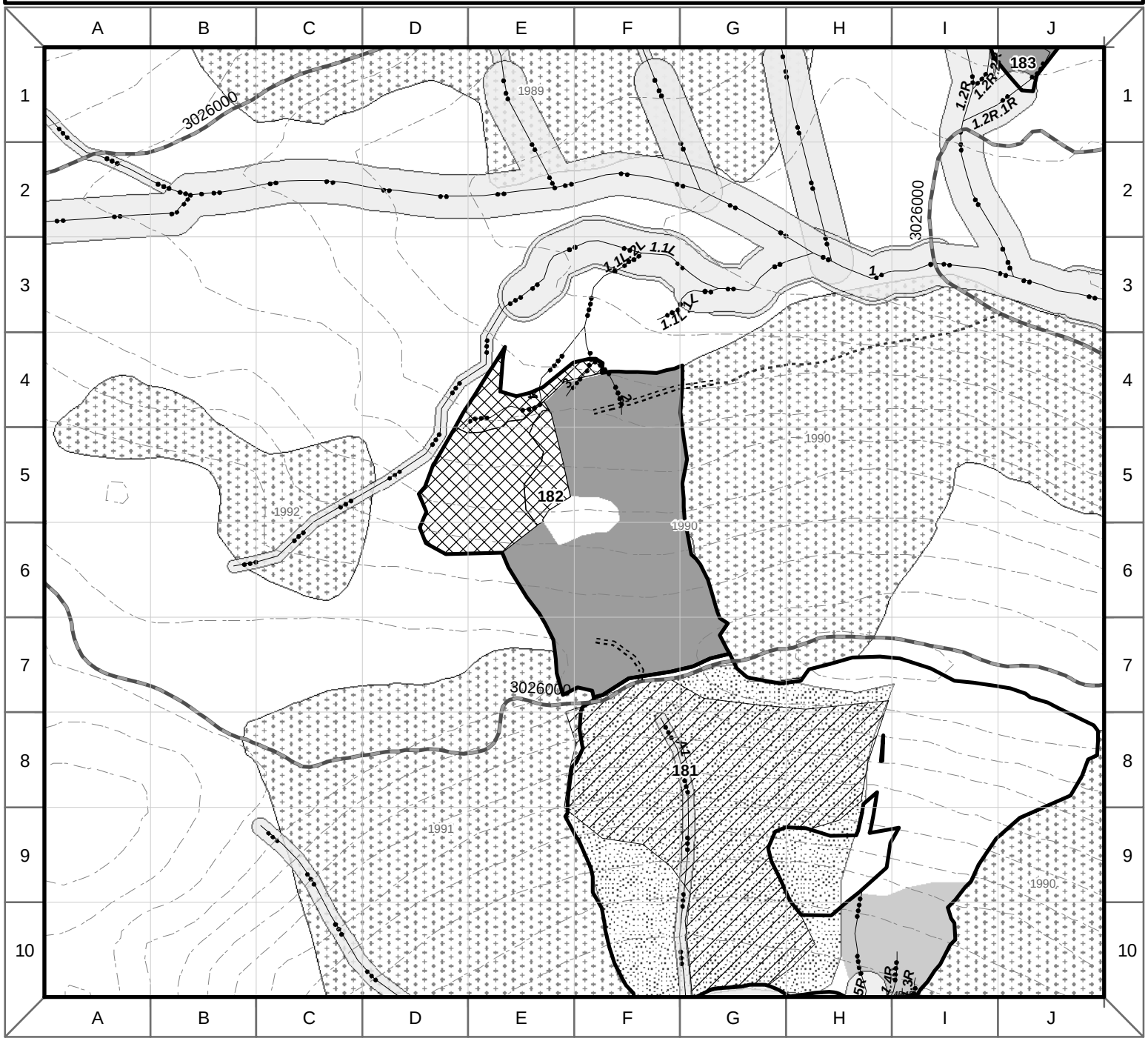
Slopes range from 55 to 100%. Wetlands were not observed during field review. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Shovel yarding should only occur on the more gentle slopes on the lower portion of the unit. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

A temporary road will impact about 1/4 acre of emergent short sedge/forested wetland complex and about 1/4 acre of forested wetland. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (northern and southern ends of unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres protects some deer winter range.

Unit Number 182 | **Alternative 2** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N S E W

0 500
Feet

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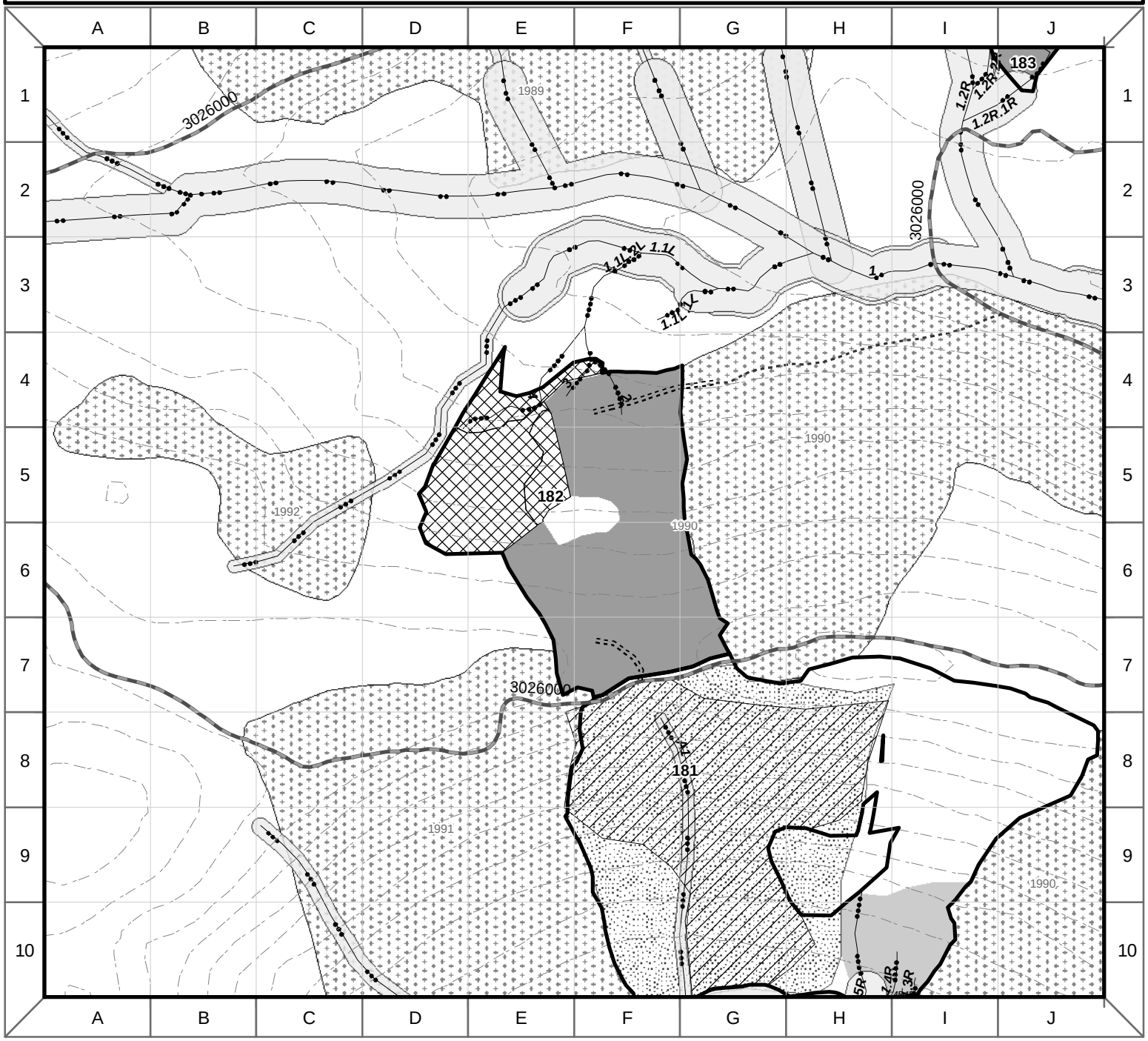
Unit Number 182 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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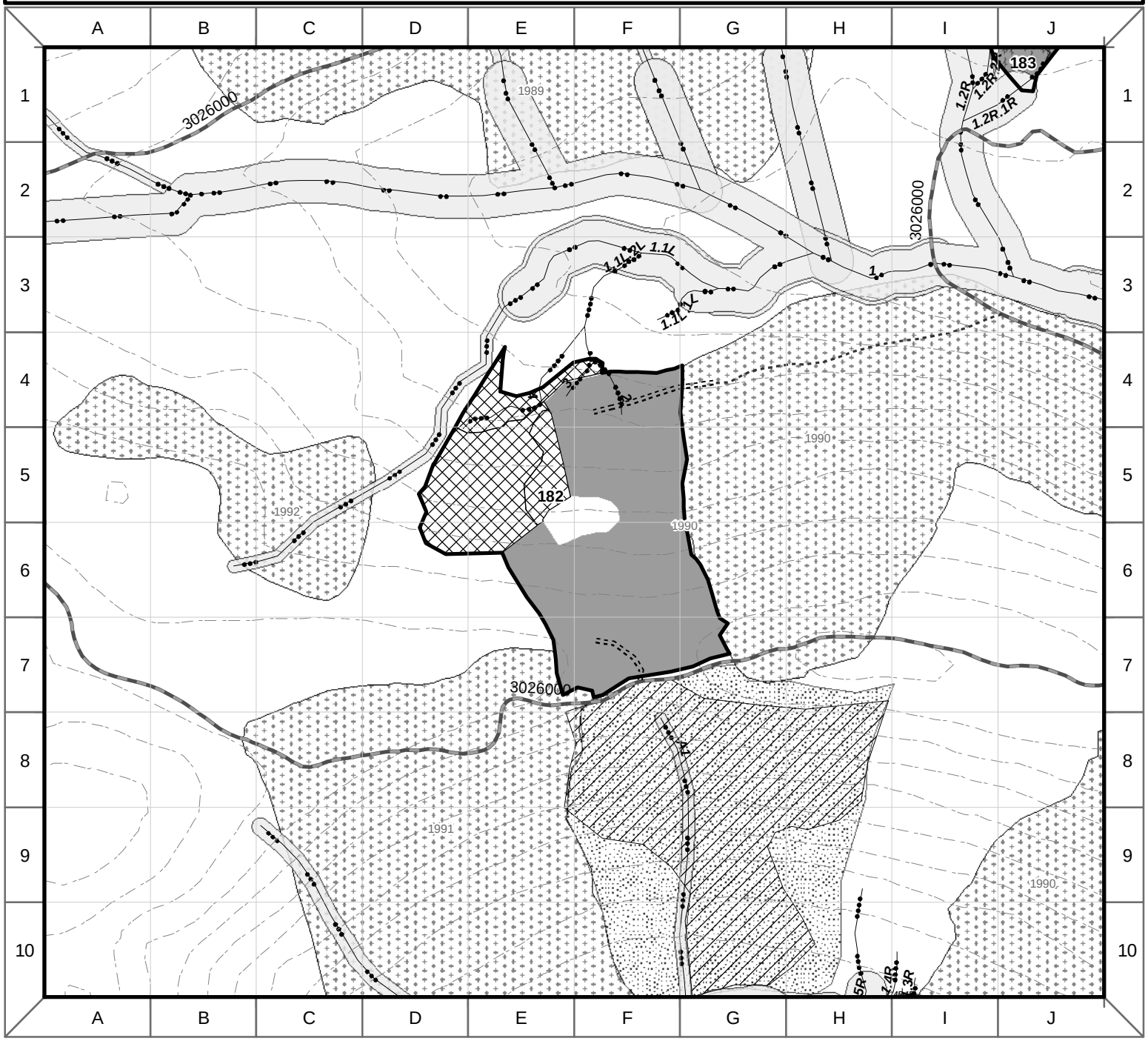
Unit Number 182 | **Alternative 4** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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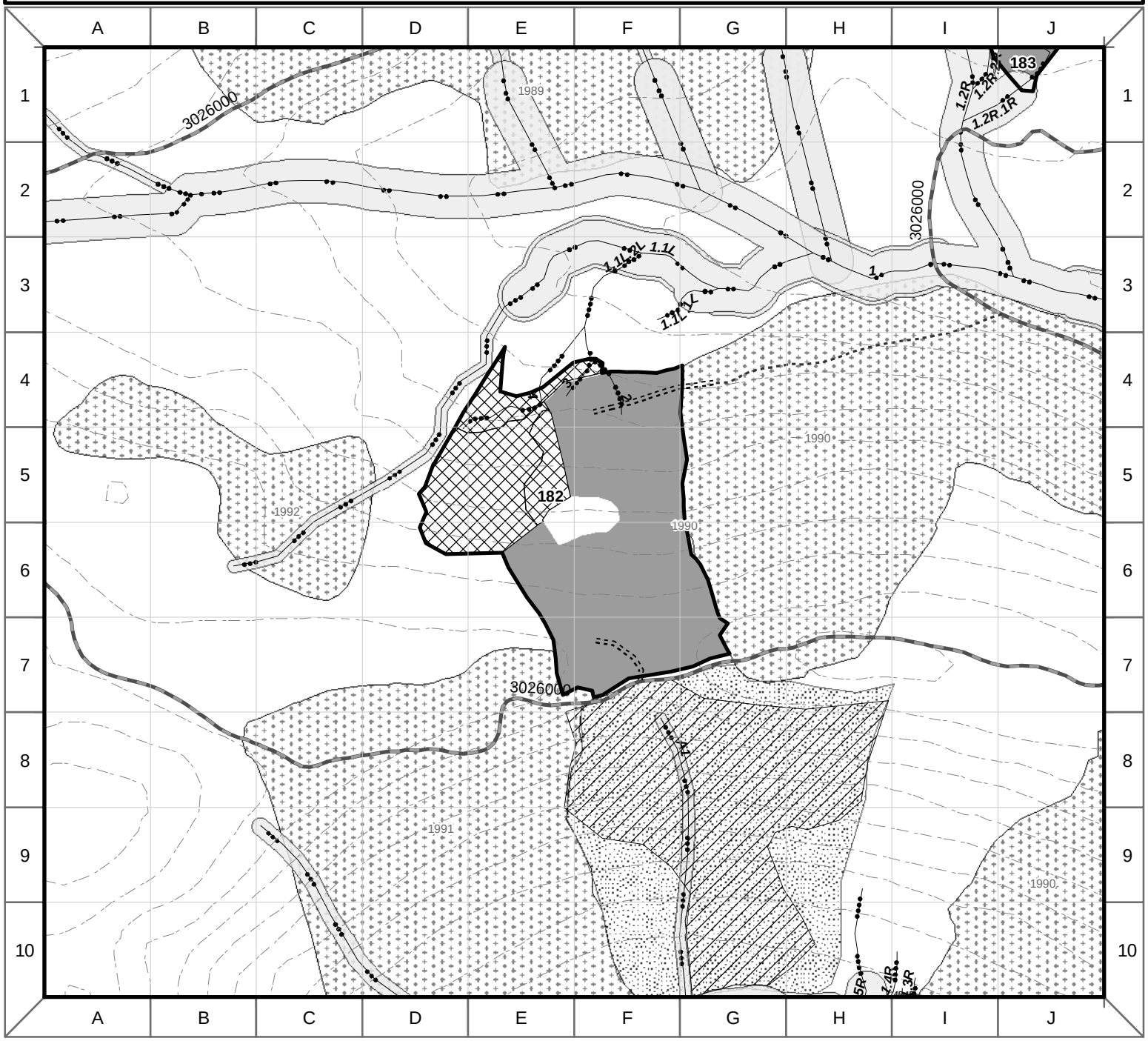
Unit Number 182 | **Alternative 5** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 183

Unit Number	183	Alternatives	2, 3, 4, 5	Total Unit Acres:	26.1	Prescription:	2, 3, 5 - Clearcut 4 - 25% and 33% Removal
VCU Number:	583	Harvest System:	Shovel, Helicopter	Net Harvest Volume (MBF):	2, 3, 5 - 569 4 - 155	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure with overstory species composition consisting of a mix between western hemlock, Alaska-cedar and mountain hemlock. The dominant defects are stem decay and weather breakage. The overall average defect rating is high. In general there are mixed values in over-mature timber of overall low quality. Mistletoe is light. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management (Alternatives 2, 3, 5)
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit consists of polygons that are less than 20 acres; therefore no legacy set-aside is required.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Alternative 4 Helicopter Settings)
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription. The uneven-aged single tree selection regeneration method is being prescribed for this unit in Alternative 4 specifically to maintain intact diverse structure for wildlife needed at this time and place in the landscape to meet the objectives of this alternative. This system is not optimum for promoting timber production but is being prescribed primarily to mitigate the overall effects of the project on wildlife.

Silvicultural Prescription: Uneven-age Management Group Selection (Alternative 4 Shovel Settings)
Harvest up to 33% of the planned setting acreage in groups of trees up to two acres in size. Group selections should be well distributed across the stand. Locate groups to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species where possible. Locate group selections to maintain wildlife travel ways and important habitat while maximizing the economics of this entry and also maintaining the feasibility of future harvest entries in the remaining old growth portions of the unit. The uneven-aged group selection regeneration method is being prescribed for the unit or portions of the unit as a means to maintain large amounts of diverse structure to benefit wildlife in perpetuity.

TIMBER/LOGGING:

This unit is planned for a combination of shovel and helicopter yarding. Shovel settings are planned for yarding to the existing NFS road 3026000. The helicopter yarding is planned to landings on the existing NFS road 3026000.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

Unit 183

No Concerns

FISHERIES:

Streams are tributaries to Ratz Creek.

Stream#: 1.3R Class: III Flagging: O/W C- Type: HCV
Concerns: blowdown, active erosion, very steep side-lopes, very shallow soils, and exposed bedrock.
Buffer (RMA): Class III for HCV to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be determined by IDT during layout.
Protection: Category B

Stream#: 1.2R Class: II, III Flagging: B/W, O/W C- Type: HCL
Concerns: blowdown and active erosion
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCL to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed .
Protection: Category A and B

Stream#: 1.2R.1R Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: blowdown, active erosion, very steep side-lopes, very shallow soils, and exposed bedrock.
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 1.2R.2R Class: III Flagging: O/W, G/W C- Type: HCL, AFH, HCD
Concerns: blowdown, active erosion, very steep side-lopes, very shallow soils, and exposed bedrock.
Buffer (RMA): Class III for HCL and HCD to the top of the side-slope break. Class III for AFH greater of 140 feet or active portion of the alluvial fan.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be determined by IDT during layout.
Protection: Category B

Stream#: 1.1R Class: II, III Flagging: B/W, O/W C- Type: HCL, HCM, AFH, HCD
Concerns: blowdown and active erosion
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCL, HCM, and HCD to the top of the side-slope break. Class III for AFH greater of 140 feet or active portion of the alluvial fan.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Buffer (RAW): no review needed
Protection: Category A and B

Stream#: 1.3R Class: III Flagging: O/W C- Type: HCV
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCV to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Buffer (RAW): no review needed
Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

Th northern portions of the unit are within about 150 ft of the Ratz inventoried roadless area.

SOILS/WETLANDS:

Unit 183

Slopes range from 25% to greater than 120%. Wetlands were not noted during field review. Most of the slopes greater than 72% are located within the soil exclusion areas. Approximately 24 acres were excluded due to very high landslide potential, colluvial activity, MMI4 soils, steep slopes, and unstable drainages. Approximately 5 acres of steep slopes located on the southern half of the western polygon of the unit are suitable for harvest with full suspension requirements. The full suspension area includes two small, revegetated debris avalanches that total less than 1/4 acre in size. In the remainder of the unit, soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

WILDLIFE:

Unit includes average snow deer winter range (northern 1/2 of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because all settings are less than 20 acres.

Alternative 4: Ground-based yarding of group selection with 33% basal area removal and helicopter yarding with 25% basal area removal to maintain connectivity and deer winter range.

Old-growth Reserve (OGR) Boundary
Alternatives 2, 4, and 5: Current OGR boundary not adjacent to unit.
Alternative 3: OGR acres added along northern boundary of VCU to the north of unit.

Unit Number 183 | **Alternative 2** | **VCU: 583**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N S E W

0 500
Feet

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Unit Number 183 | **Alternative 3** | **VCU: 583**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit Number 183 | **Alternative 4** | **VCU: 583**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit Number 183 | **Alternative 5** | **VCU: 583**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 184

Unit Number 184	Alternatives 2, 3, 4, 5	Total Unit Acres: 15.3	Prescription: Clearcut
VCU Number: 583	Harvest System: Cable	Net Harvest Volume (MBF): 518	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure with overstory species composition consisting of a mix between western hemlock, Alaska-cedar and mountain hemlock. The dominant defects are stem decay and weather breakage. The overall average defect rating is moderate. Mistletoe is light. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the planned unit opening is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for downhill cable yarding to landings on the existing NFS road 3026100.

ENGINEERING/ROADS:

Unit is accessed by reconstructed existing NFS road 3026100, totaling 1800 feet.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Ratz Creek.

Stream#: 1.1R Class: III Flagging: O/W C- Type: HCM
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Buffer (RAW): no review needed
Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit 184

No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

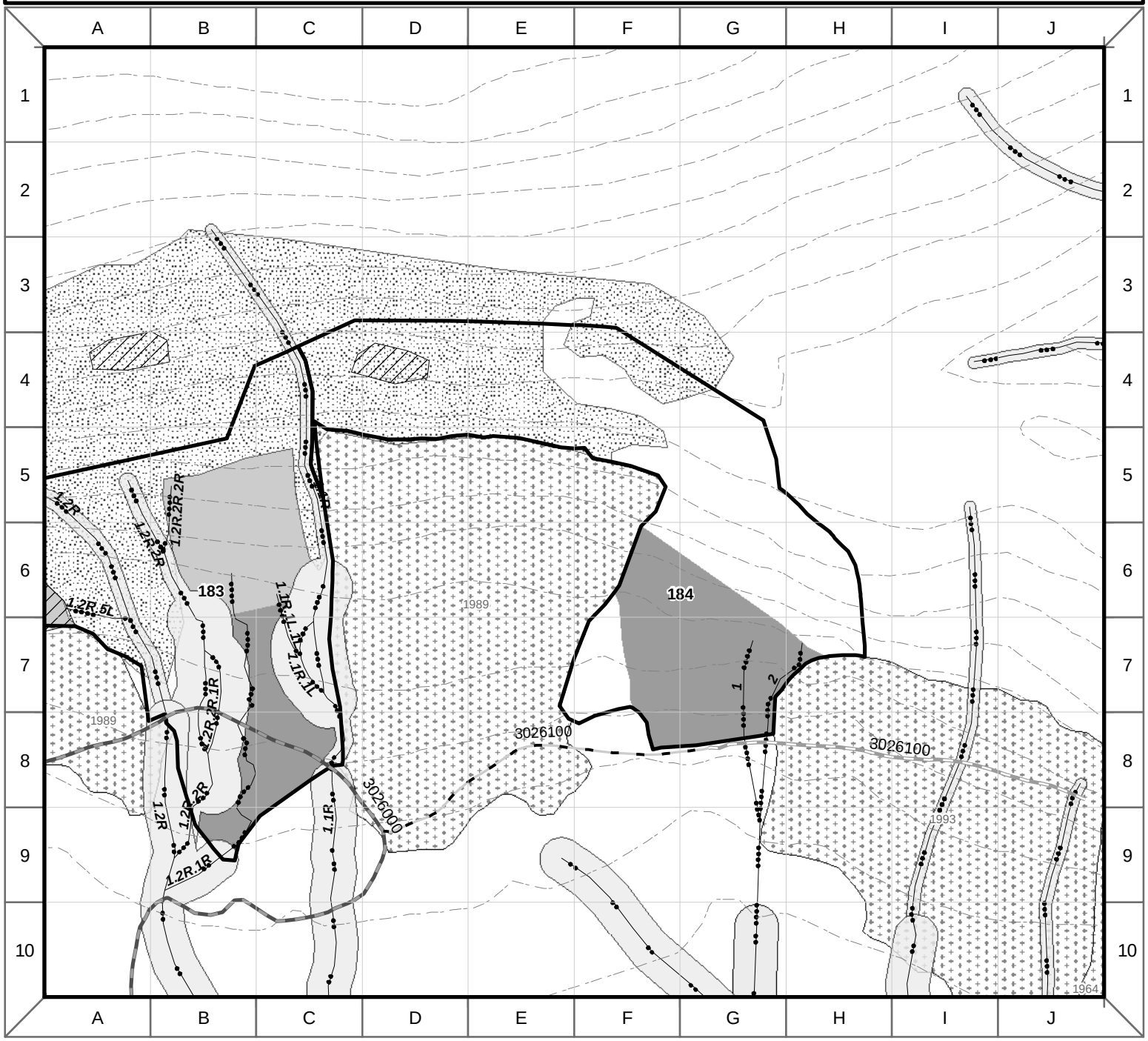
Slopes range from 25% to greater than 120%. No wetlands were noted during field observations. About 24 acres were excluded due to very high landslide potential, colluvial activity, MMI4 soils, steep slopes, and unstable drainages. All slopes over 72% are located in the soil exclusion area. In the remainder of the unit, the soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

WILDLIFE:

Unit includes average snow deer winter range (entire unit except southern edge). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Old-growth Reserve (OGR) Boundary
Alternatives 2, 4, and 5: Current OGR boundary not adjacent to unit.
Alternative 3: OGR acres added along northern boundary of VCU to the north of unit.

Unit Number 184 | **Alternative 2** | **VCU: 583**



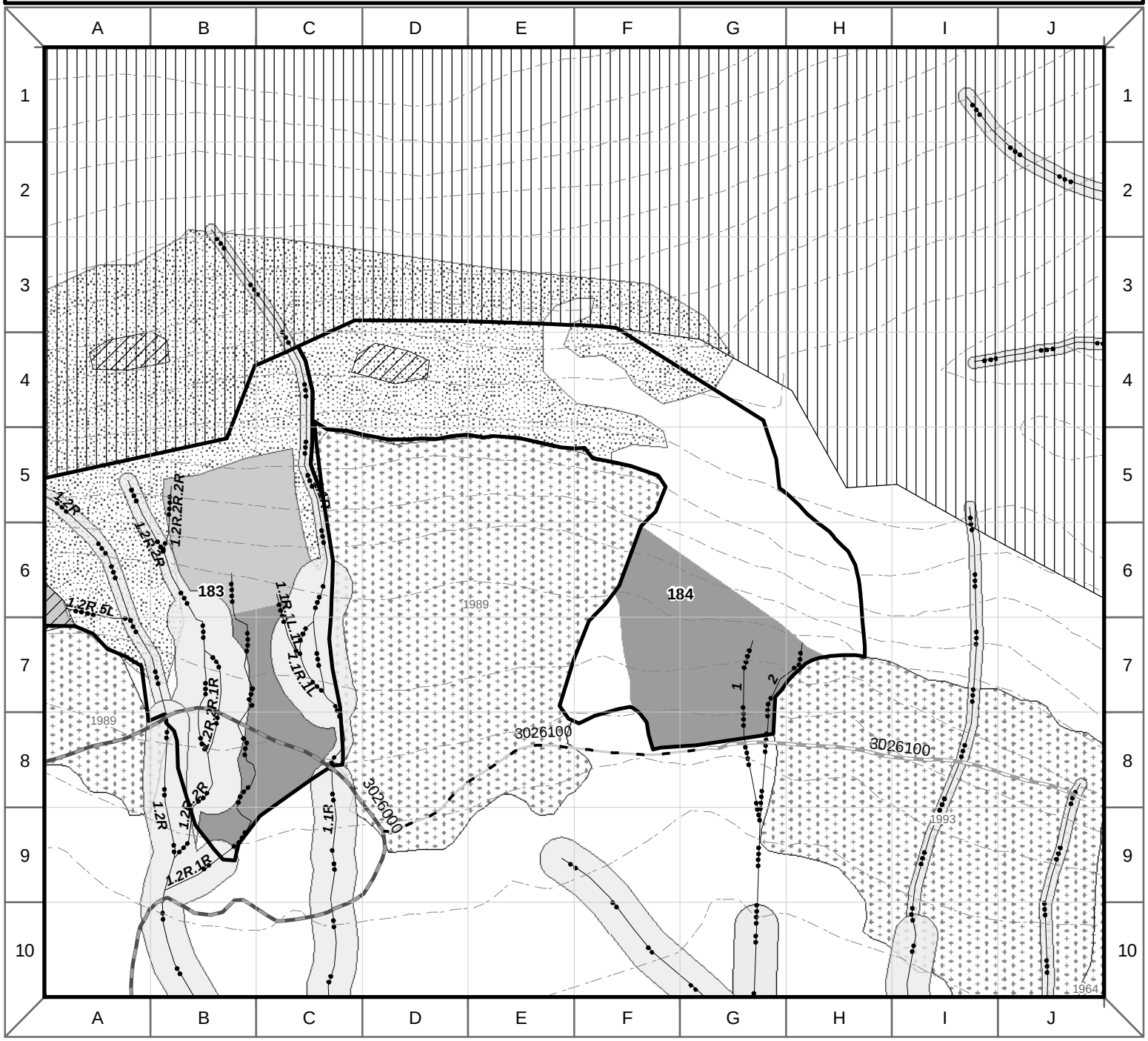
Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt2.mxd 14 July 2012

Unit Number 184 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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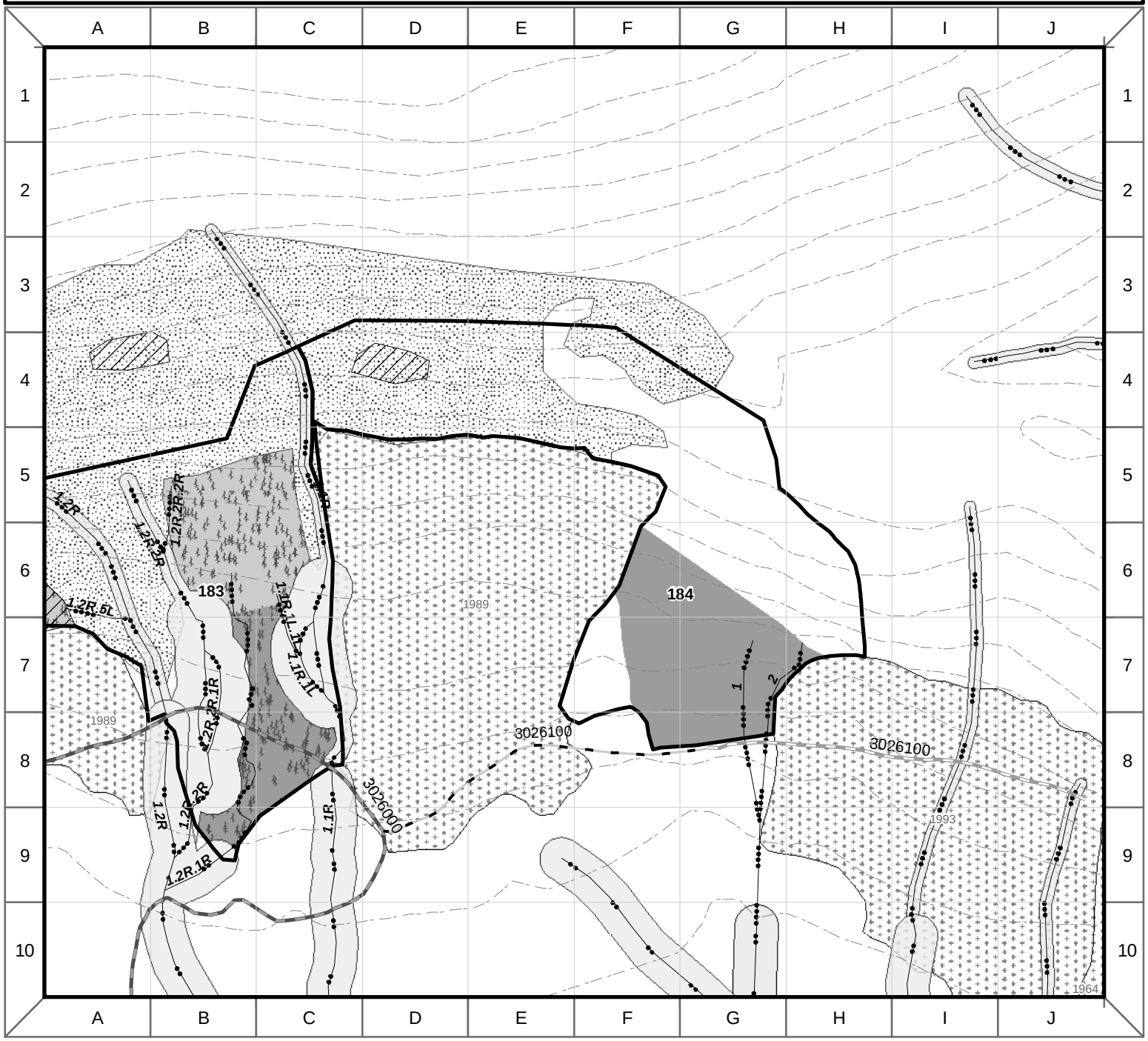
Unit Number 184 | **Alternative 4** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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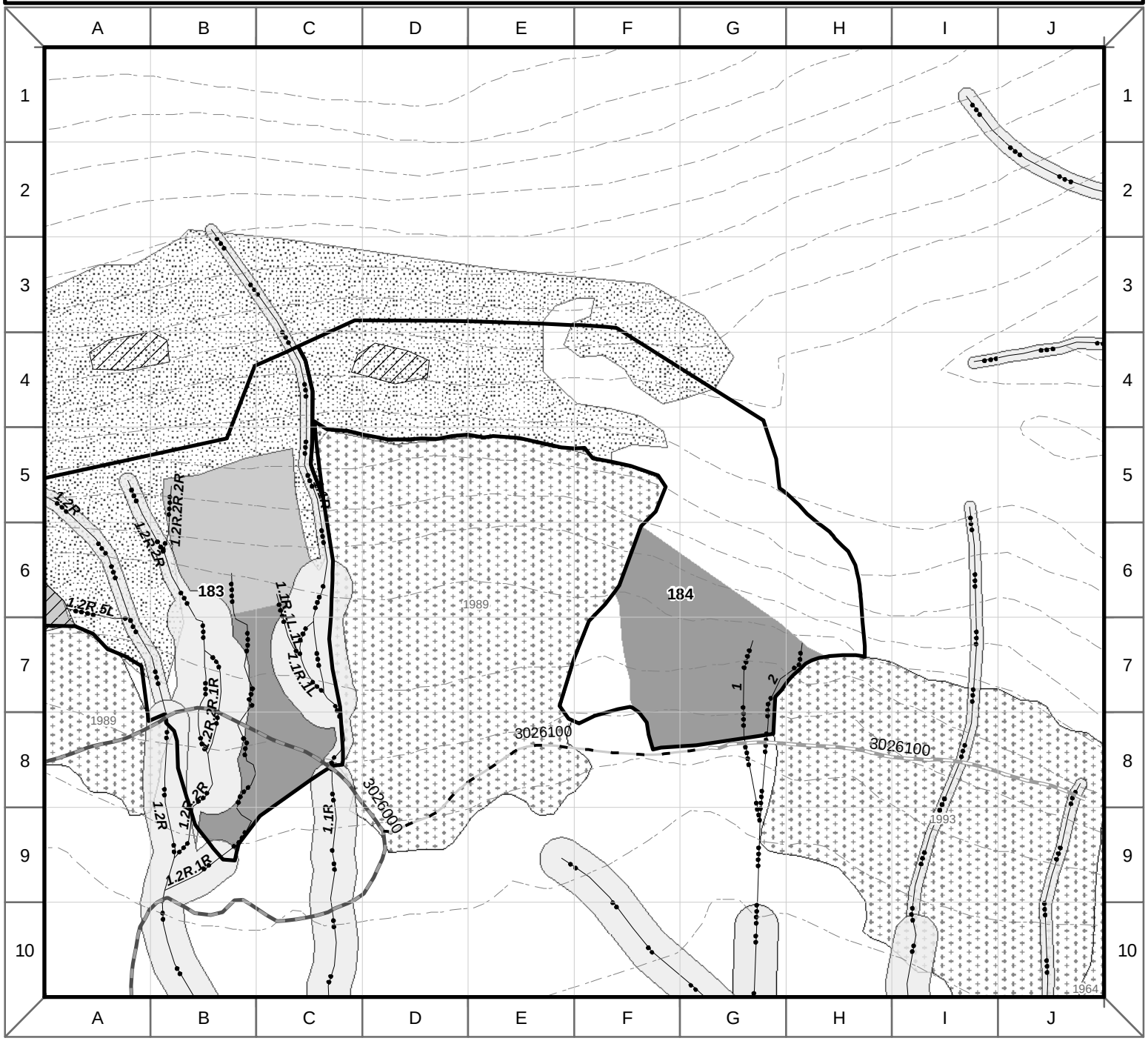
Unit Number 184 | **Alternative 5** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt5.mxd 14 July 2012

Unit 185

Unit Number 185	Alternatives 2, 3, 4, 5	Total Unit Acres: 20.4	Prescription: Clearcut
VCU Number: 583	Harvest System: Cable, Shovel,	Net Harvest Volume (MBF): 333	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure. The overstory consists primarily of western hemlock, mountain hemlock, Sitka spruce and western redcedar. The dominant defects are stem form and stem decay. Mistletoe is light. Windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 9 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy is planned to coincide with areas that were dropped from the unit due to soils concerns. Total mapped legacy is approximately 10 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

Alternatives: 2, 3, 4: This unit is planned for a combination of shovel and cable yarding. Cable settings are planned for uphill yarding to landings on the proposed NFS road 3025550. Shovel settings are planned for yarding to the proposed NFS road 3025550.

Alternative 5: This unit is planned for helicopter yarding to landings on the existing NFS road 3025500.

ENGINEERING/ROADS:

Unit is accessed by proposed NFS road 3025550, totaling 2,300 feet, as displayed on the unit card. See road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Ratz Creek.

Stream#: 1.1R Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category B and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:

Unit 185

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns, but the Ratz inventoried roadless area is within about 250 ft of the northwest border.

SOILS/WETLANDS:

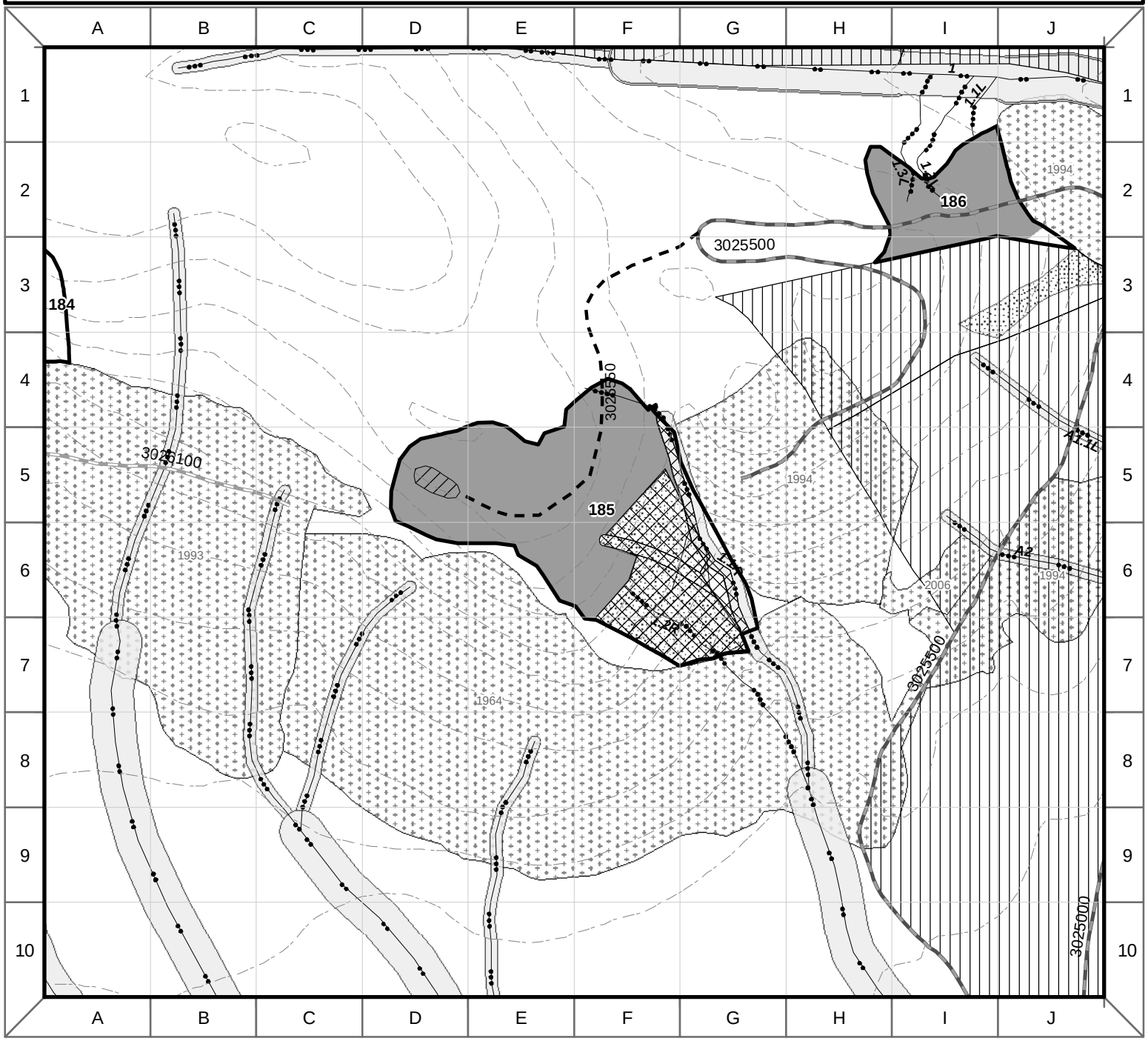
Slopes range from about 35 to greater than 72%. No wetlands were identified during field surveys. About 1/2 acre of slopes greater than 72% are suitable for harvest with partial suspension. About 8 acres were excluded due to steep slopes, MMI 4 soils, and unstable drainages. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

WILDLIFE:

Unit includes average snow deer winter range (entire unit except western edge). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range.

Old-growth Reserve (OGR) Boundary
Alternatives 2, 4, and 5: Current OGR boundary near unit to the east.
Alternative 3: OGR acres added along northern boundary of VCU to the north of unit.

Unit Number 185 | **Alternative 2** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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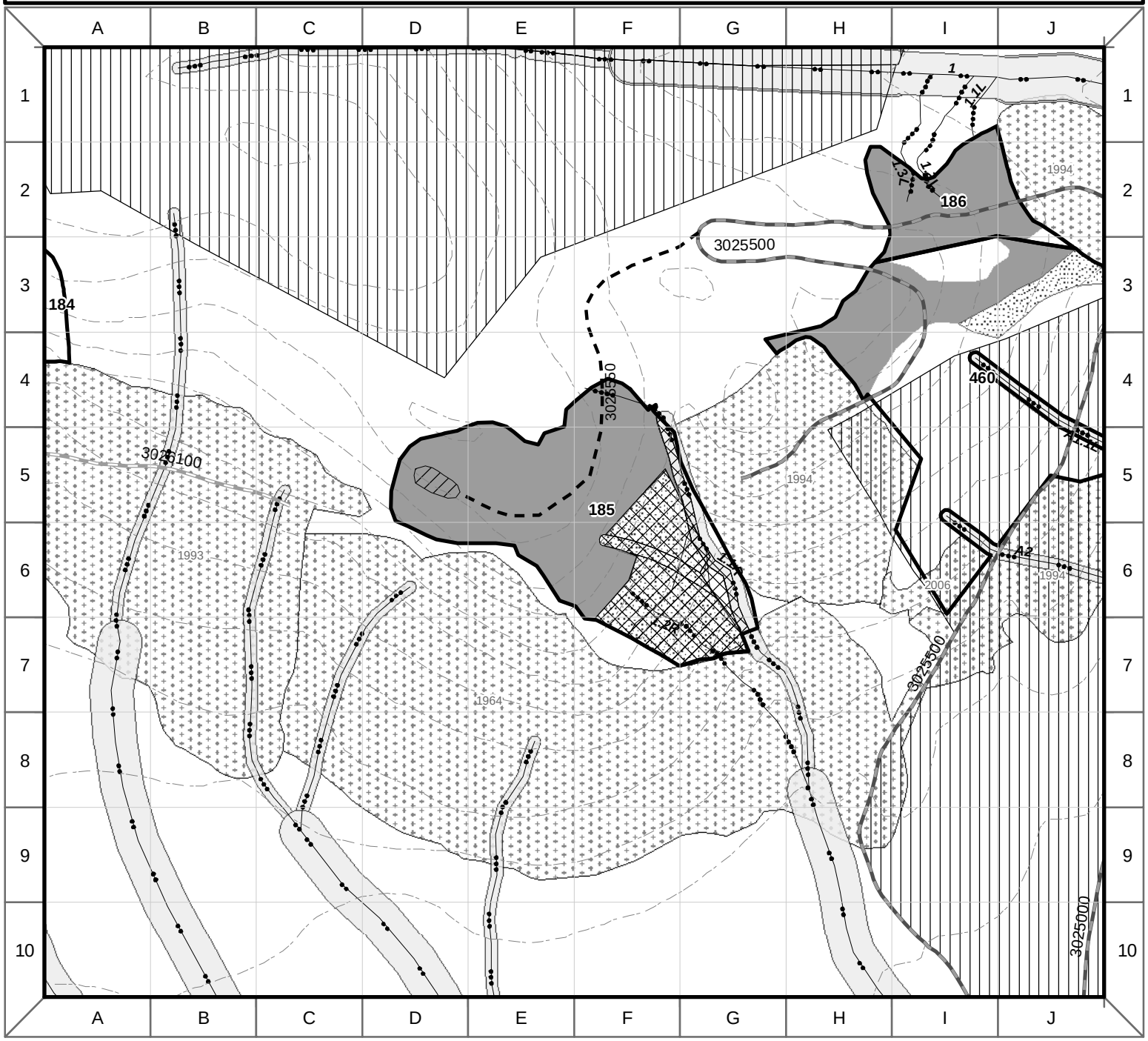
Unit Number 185 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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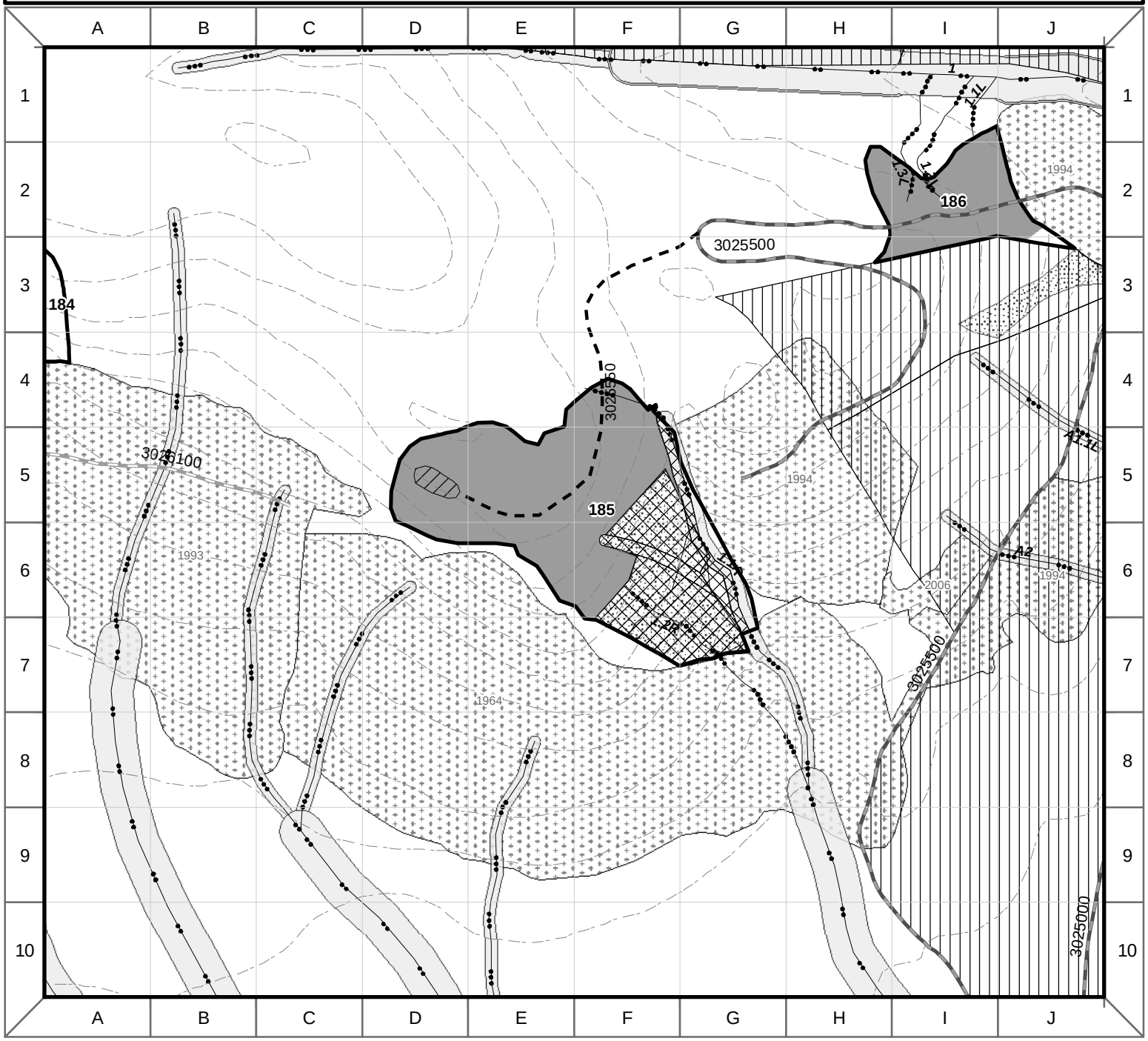
Unit Number 185 | **Alternative 4** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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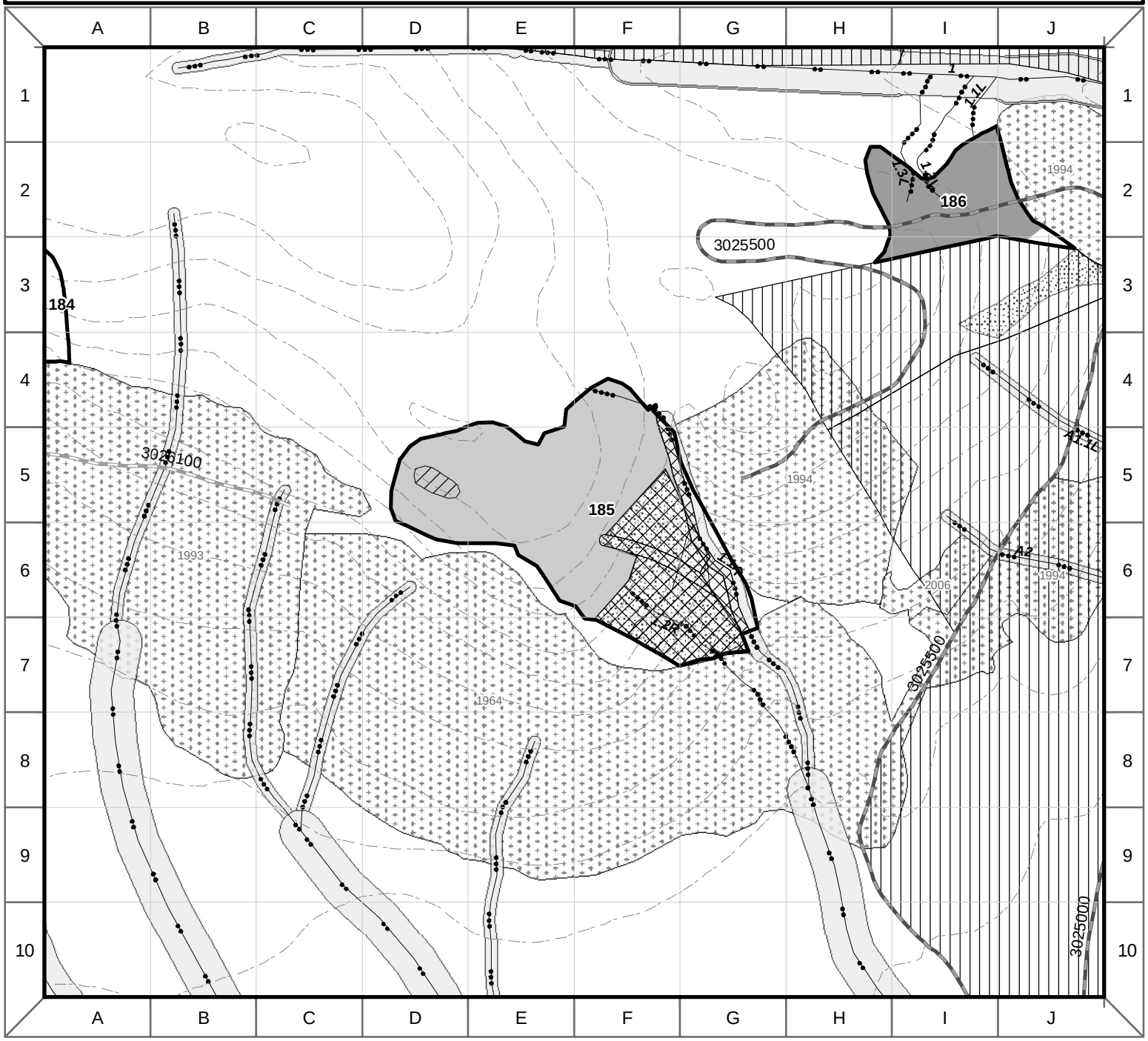
Unit Number 185 | **Alternative 5** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 186

Unit Number 186	Alternatives 2, 3, 4, 5	Total Unit Acres: 7.5	Prescription: Clearcut
VCU Number: 583	Harvest System: Cable	Net Harvest Volume (MBF): 175	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This old growth structured unit consists of western hemlock and scattered Sitka spruce with mountain hemlock and Alaska-cedar in the southwest. The average defect rating is light to moderate. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit consists of settings that are less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for uphill and downhill cable yarding to landings on the existing NFS road 3025500. OGR adjacent to or near unit in all alternatives.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Ratz Harbor.

All streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns

Unit 186

SOILS/WETLANDS:

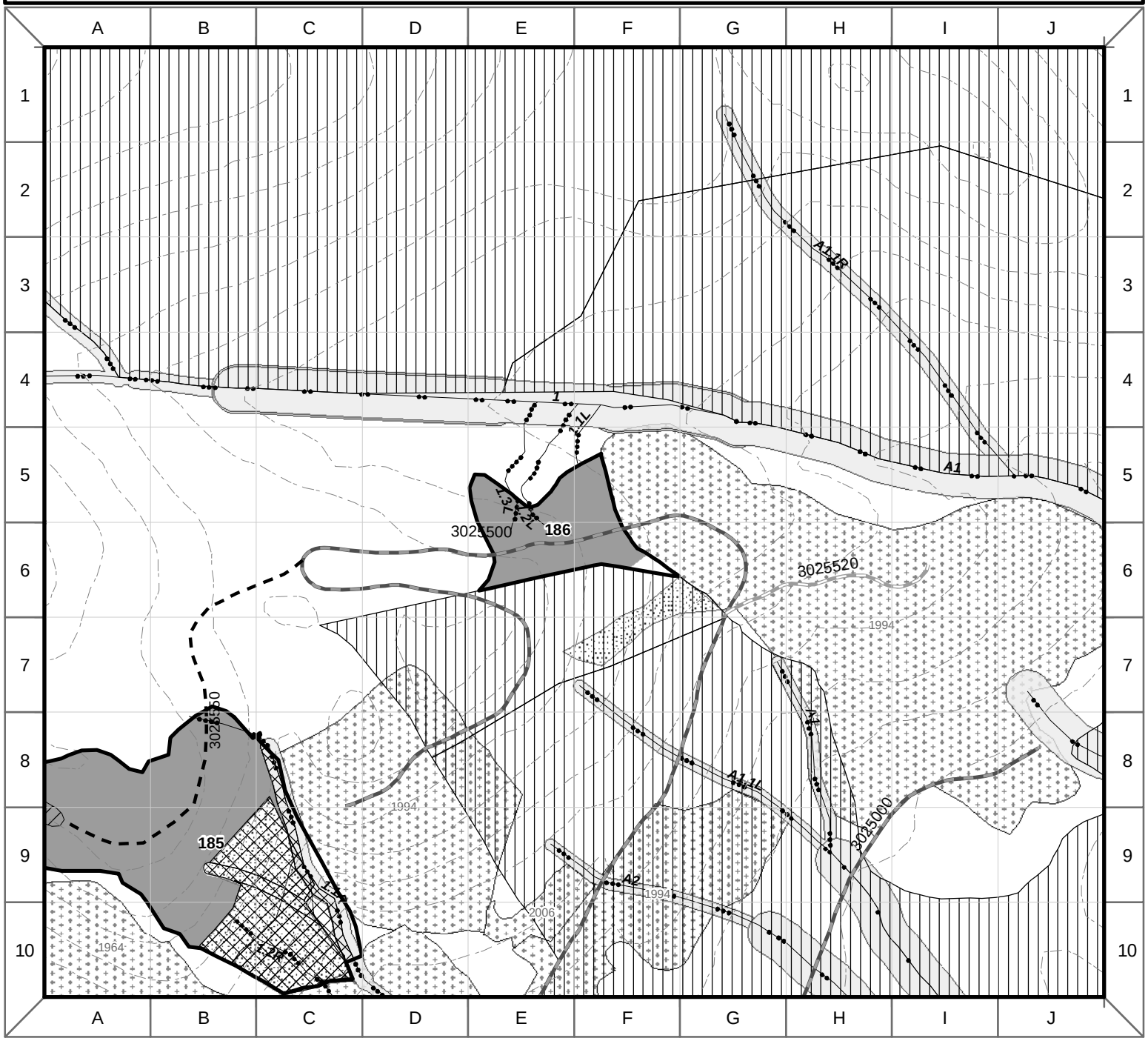
Slopes range from about 17 to 40%. No wetlands were identified during field surveys. Partial suspension yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Old-growth Reserve (OGR) Boundary
Alternatives 2, 4, and 5: Current OGR boundary adjacent to unit to south.
Alternative 3: OGR acres added along northern boundary of VCU so OGR acres adjacent to unit to the north.

Unit Number 186 | **Alternative 2** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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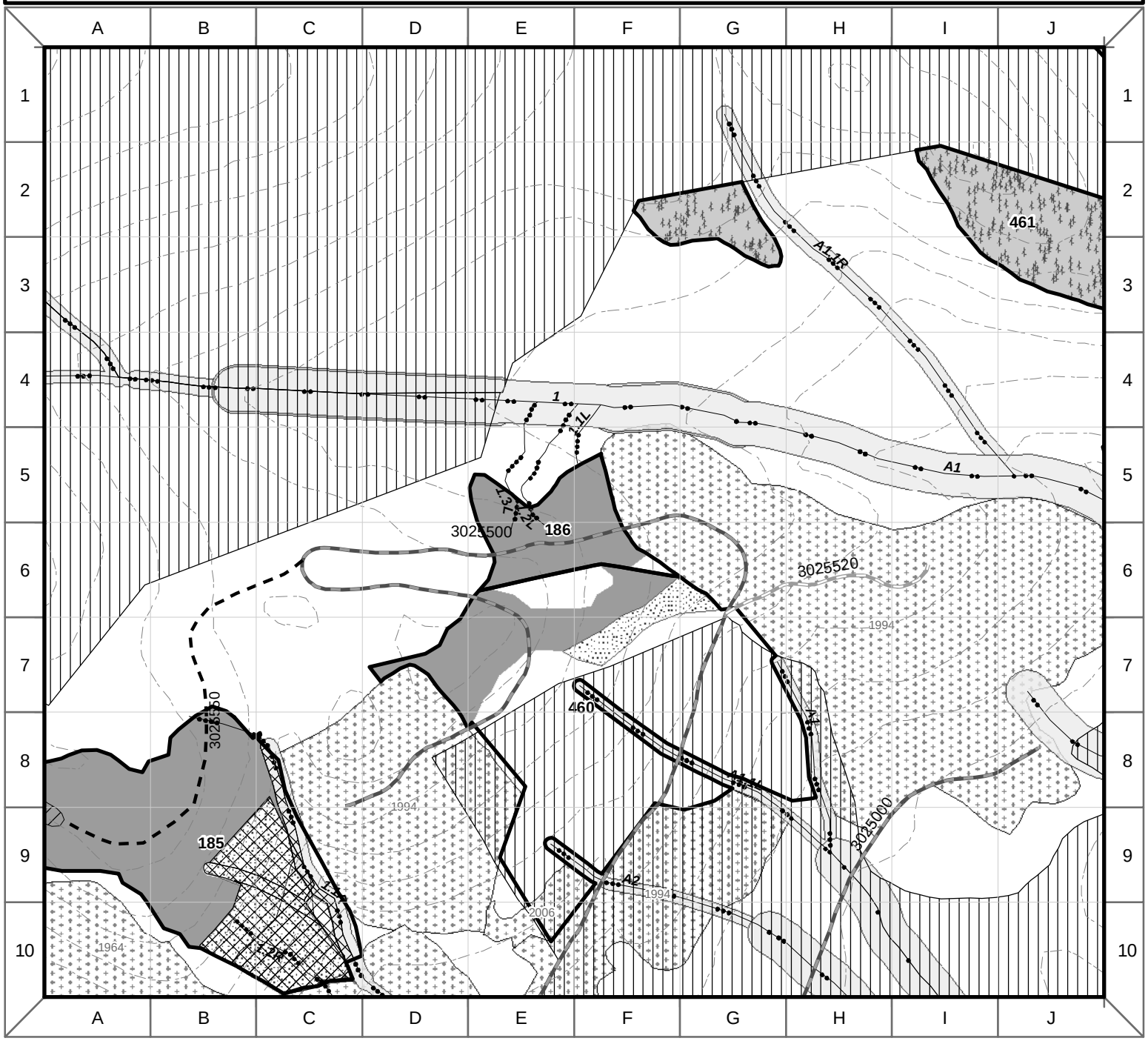
Unit Number 186 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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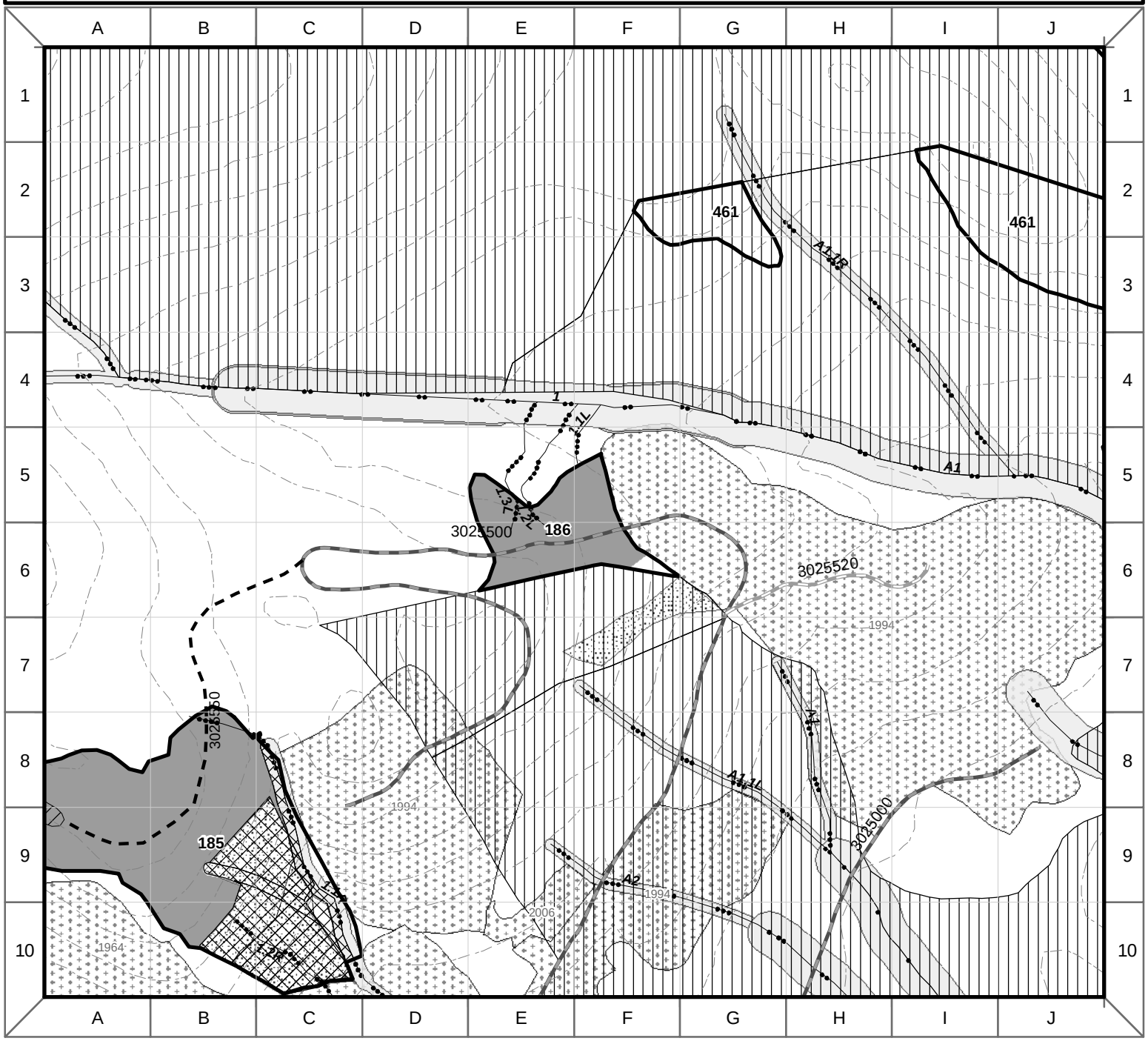
Unit Number 186 | **Alternative 4** | **VCU: 583**

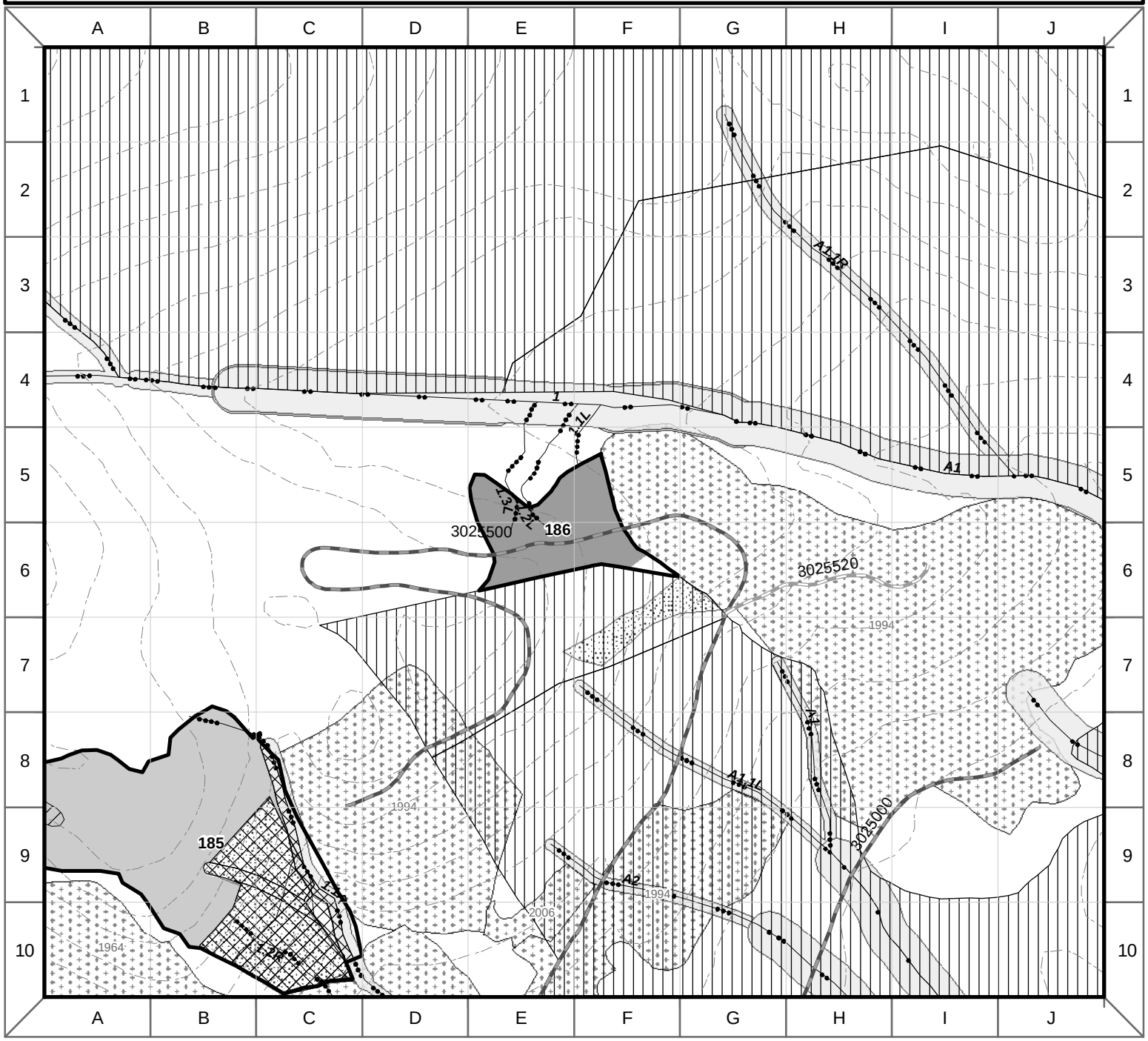


Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt4.mxd 20 March 2012

Unit Number 186 | **Alternative 5** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

0 500
Feet

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Unit 187

Unit Number	187	Alternatives	2, 3, 4	Total Unit Acres:	3.2	Prescription:	Clearcut
VCU Number:	581, 583	Harvest System:	Cable	Net Harvest Volume (MBF):	92	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure with mature timber exhibiting static growth. The overstory consists of Alaska-cedar and western hemlock along with scattered Sitka spruce. The dominant damage is mainly crook and sweep. The overall defect rating for the entire unit is moderate. Smaller diameter Alaska-cedar dominate the entire unit. Mistletoe is light. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in these VCU's; however, the planned unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for downhill cable yarding to landings on the proposed NFS road 3026500.

ENGINEERING/ROADS:

Unit is accessed by proposed NFS road 3026500, totaling 600 feet, as displayed on the unit card. See road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

No streams found in unit at time of survey. If streams found during implementations a fish biologist would be notified and appropriate protections would be applied.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

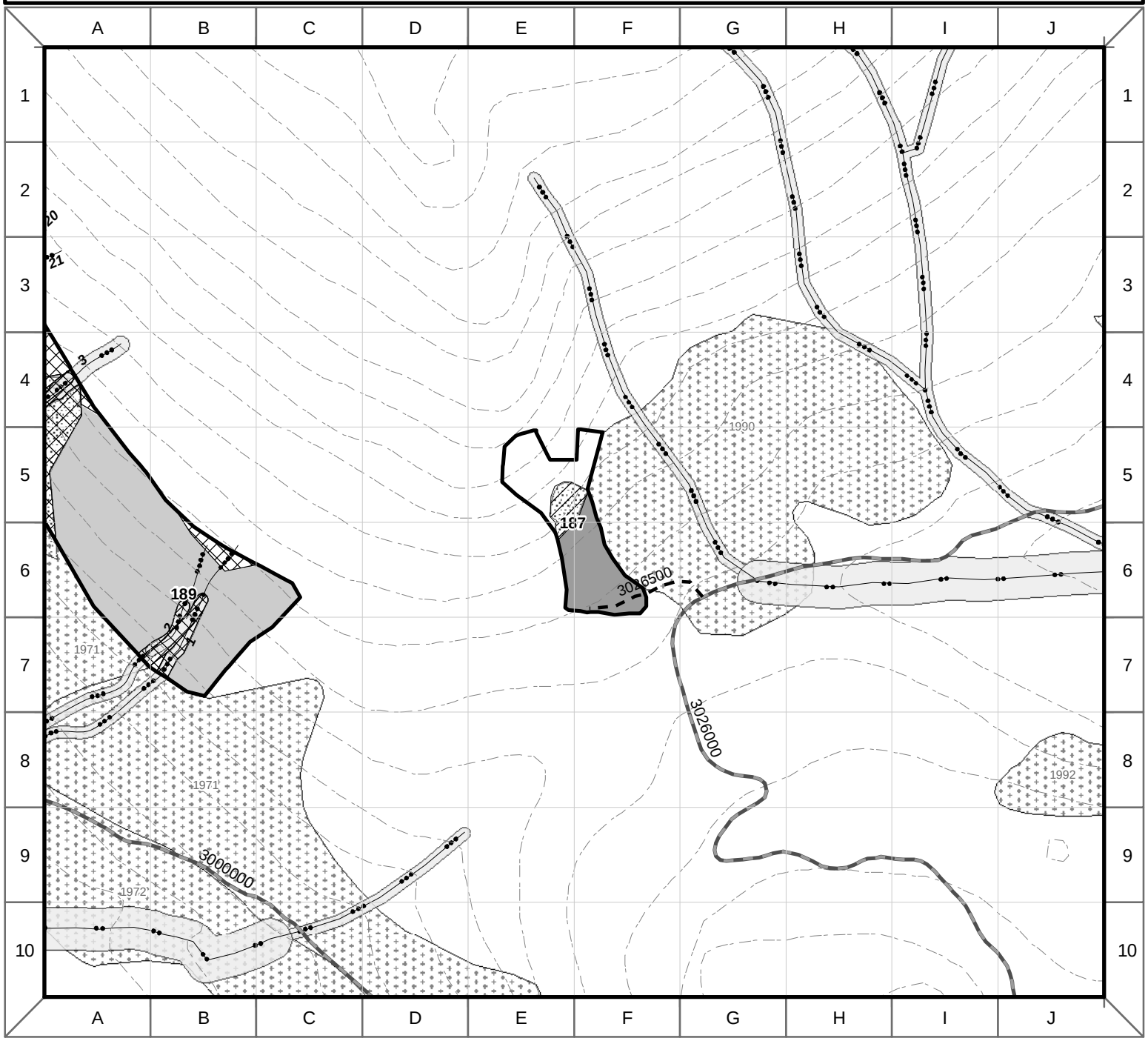
RECREATION:

No Concerns

SOILS/WETLANDS:

Unit 187
Slopes range from about 40 to 100%. There is approximately 20% forested wetlands in the southeast corner of the unit. All slopes over 72% are in the soil exclusion area. Less than 1 acre was excluded due to high landslide potential, colluvial activity, and steep slopes. In the remainder of the unit, a minimum of partial suspension yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).
WILDLIFE: Unit includes average snow deer winter range (southern 1/2 of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 187 | **Alternative 2** | **VCU: 581,583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N S E W

0 500
Feet

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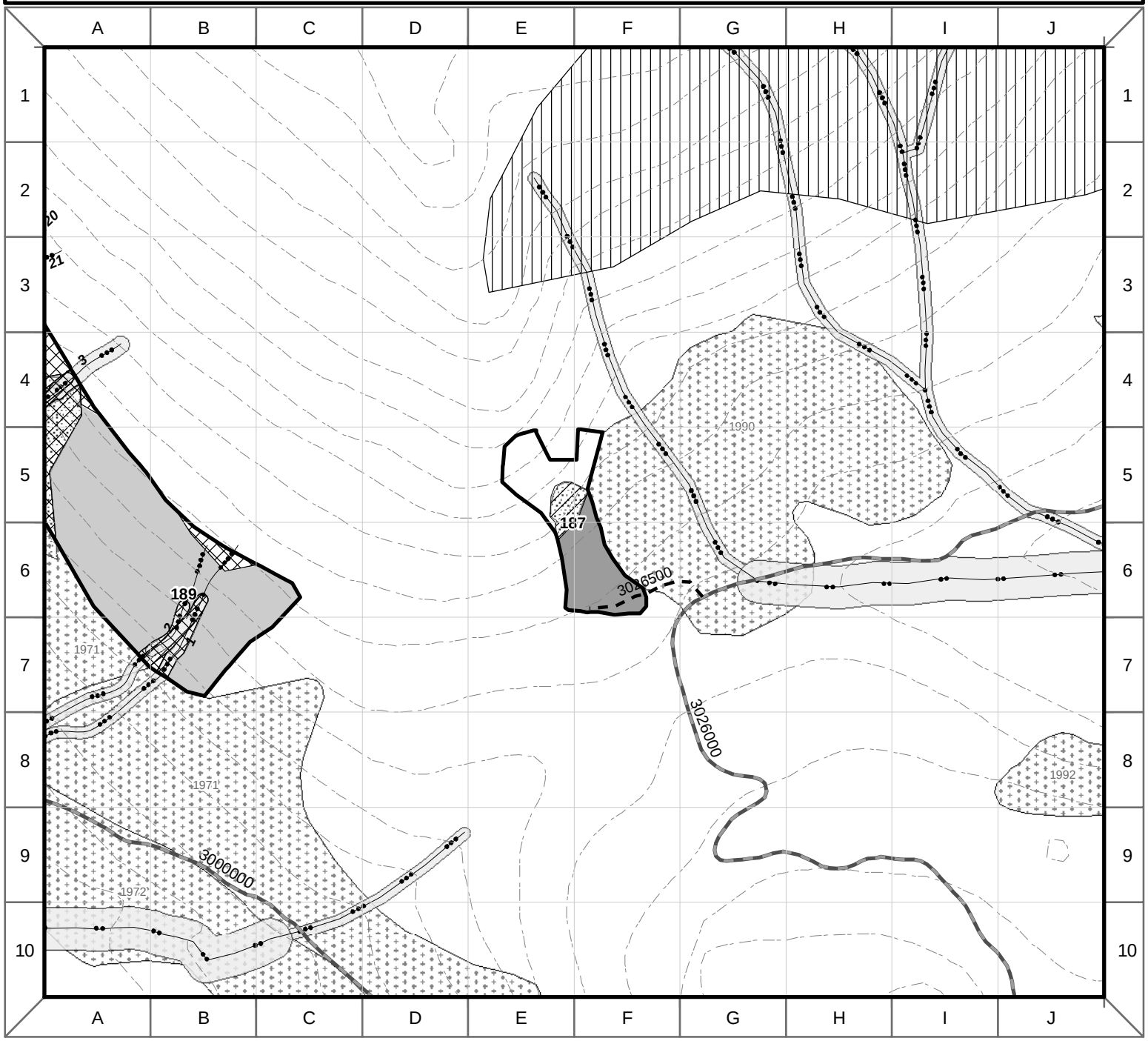
Unit Number 187 | **Alternative 3** | **VCU: 581,583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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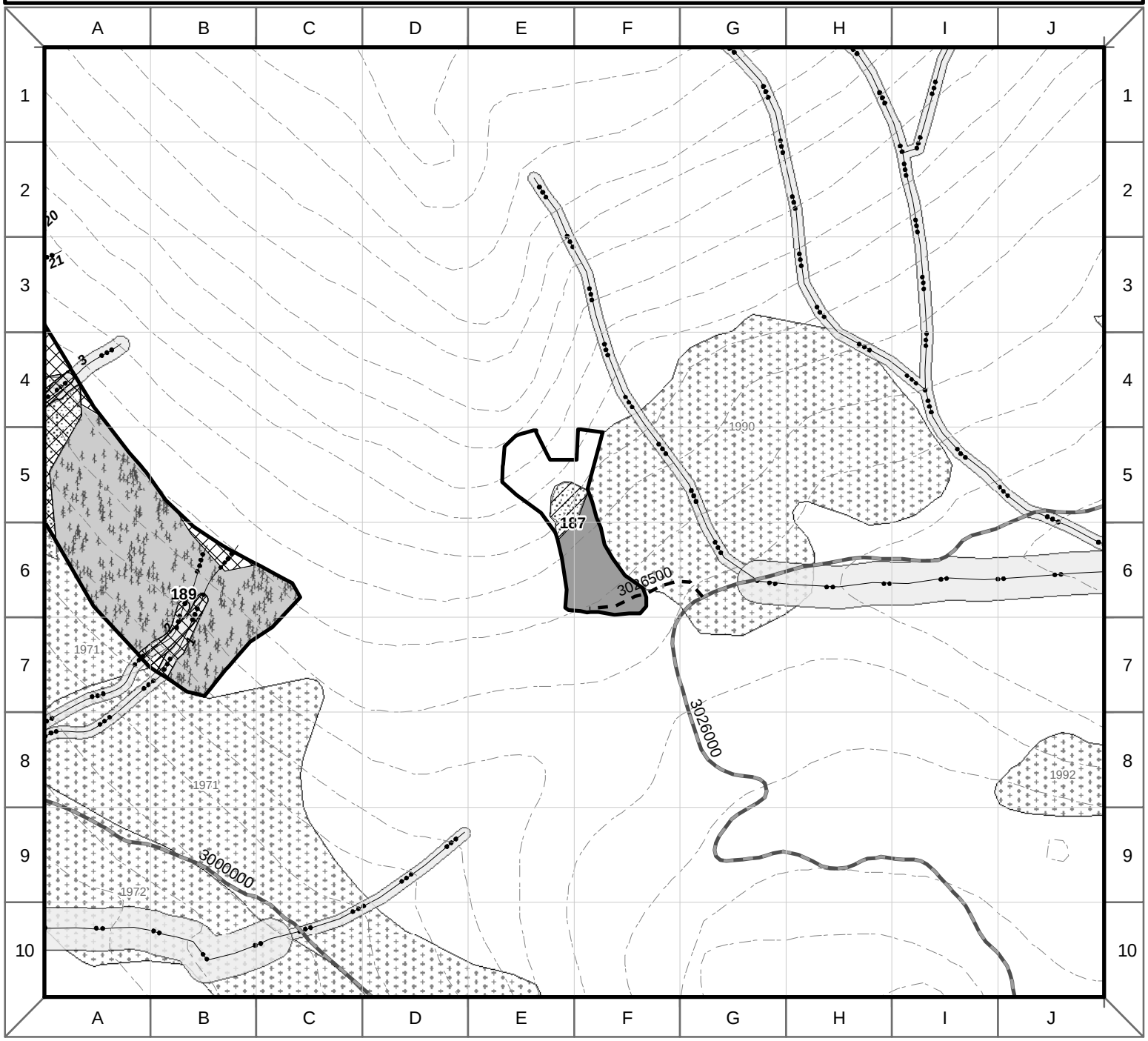
Unit Number 187 | **Alternative 4** | **VCU: 581,583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 189

Unit Number	189	Alternatives	2, 3, 4	Total Unit Acres:	28.7	Prescription:	2, 3 - Clearcut 4 - 25% Removal
VCU Number:	581	Harvest System:	Helicopter	Net Harvest Volume (MBF):	2, 3 - 1,105 4 - 276	LUD:	Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 189 is old growth consisting primarily of western hemlock as the dominant species along with Sitka spruce as a secondary component. Alaska-cedar is present in lesser amounts more so at the highest elevations. The average defect rating is considered to be moderate. Weather related damage is the main issue affecting the stand (stem breakage, checks, cracks, black seams, pistol butts). Mistletoe is light. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut (Alternatives 2, 3)
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 36 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy is planned to coincide with areas that were dropped from the unit due to soils concerns. Total mapped legacy is approximately 90 acres due entirely to soils drops. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Alternative 4)
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription. The uneven-aged single tree selection regeneration method is being prescribed for this unit in Alternative 4 specifically to maintain intact diverse structure for wildlife needed at this time and place in the landscape to meet the objectives of this alternative. This system is not optimum for promoting timber production but is being prescribed primarily to mitigate the overall effects of the project on wildlife.

No Legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on proposed NFS road 3026500 and existing NFS road 3000000.

ENGINEERING/ROADS:

This unit is utilizing new landings on the proposed NFS road 3026500 being constructed for Unit 187 in Alternatives 2, 3, and 4, totaling 600 feet. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 189

Streams are tributaries to Luck Creek. (Stream A5, A6, A7, and A8 characteristics do not contain project specific field verified information.)

Stream#: 1 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 4 Buffer (RAW): no review needed.
Protection: Category B and C

Stream#: 2 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none
Alternatives: 2, 3, and 4 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B and C

Stream#: 3 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 4 Buffer (RAW): Will be identified by IDT during layout
Protection: Category B and C

Stream#: 21 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: active erosion and unstable banks
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 4 Buffer (RAW): Will be identified by IDT during layout
Protection: Category B and C

Stream#: 18 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 4 Buffer (RAW): no review needed.
Protection: Category B and C

Stream#: 17 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: none
Buffer (RMA): Class III for HCM to the top fo the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 4 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 15 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 4 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: A5 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break
Alternatives: 2, 3, and 4 Buffer (RAW): no review needed.
Protection: Category B

Stream#: A6 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, and 4 Buffer (RAW): no review needed
Protection: Category B

Stream#: A7 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, and 4 Buffer (RAW): no review needed
Protection: Category B

Stream#: A8 Class: III Flagging: O/W C- Type: HCM

Unit 189

Concerns: none known
Buffer (RMA): Class III for HCM to the topp of the side-slope break.
Alternatives: 2, 3, and 4 Buffer (RAW): no review needed
Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

Most of the northeast border of unit borders the Ratz inventoried roadless area.

SOILS/WETLANDS:

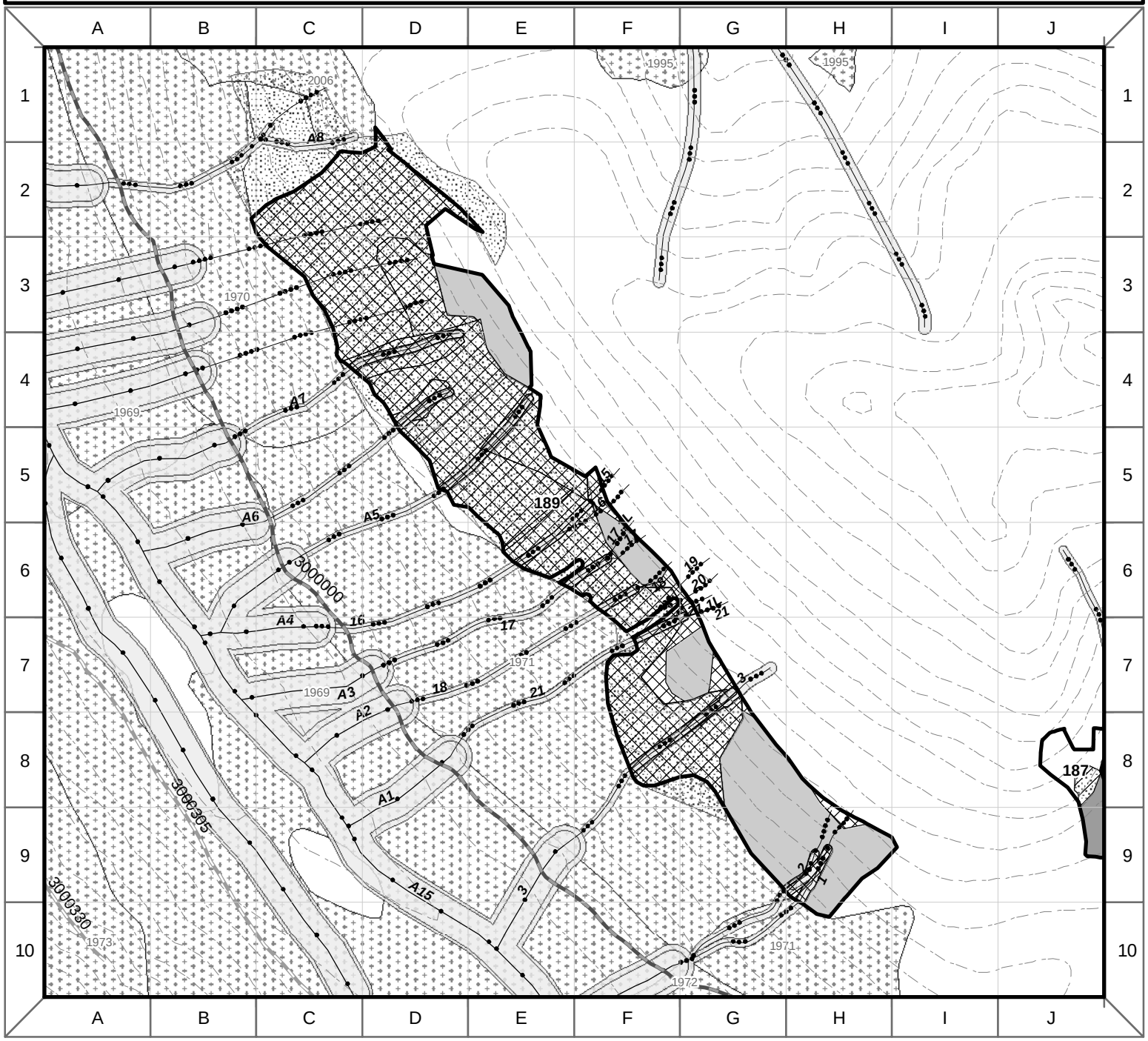
Slopes range from 30 to 105%. Forested wetlands occur on the shoulder slope in places. There are areas of slopes greater than 72% that are suitable for harvest with full suspension requirements. About 81 acres were excluded due to very high landslide potential, colluvial activity, MMI4 soils, steep slopes, and unstable drainages. In the remaining unit, full suspension yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). Full suspension would be required in the unit to protect soils and wetlands (BMPs 12.5, 13.5, and 13.9)

WILDLIFE:

Unit includes average snow deer winter range (southern 1/2 of unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range.

Alternative 4: Prescription is 25% basal area removal to minimize impacts to deer winter range. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit Number 189 | **Alternative 2** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit Number 189 | **Alternative 3** | **VCU: 581**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit Number 189 | **Alternative 4** | **VCU: 581**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

0 500 Feet

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Unit 190

Unit Number	190	Alternatives	2, 3, 4, 5	Total Unit Acres:	22.7	Prescription:	Clearcut
VCU Number:	581	Harvest System:	Cable, Helicopter	Net Harvest Volume (MBF):	742	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 190 is old-growth with the overstory consisting of western hemlock with variable amounts of Sitka spruce, western redcedar and Alaska-cedar. Stem decay is the primary damage. Alaska-cedar are experiencing decline in the area. Mistletoe is light. Windthrow risk is high. An even-age harvest with origin in 2000 is along the northern edge of these units, this past harvest marginally meets green-up requirements (14 acres). A two-aged clearcut with origin in 2006 is adjacent to the southwest boundary (56 acres). There has been heavy blowdown in this unit since harvest. This blowdown has continued across the boundary into unit 190. A partial cut timber harvest was conducted in the setting along the northwestern corner of this unit in 2010. No modifications to the size of unit 190 are needed to meet NFMA requirements for opening size. The combined acreage of these past harvest openings with the planned acreage of this harvest will not exceed 100 acres.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 11 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy is planned to coincide with areas that were dropped from the unit due to karst and RMA's. Total mapped legacy is approximately 12 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

Alternatives 2, 3, 4: This unit is planned for a combination of cable and helicopter yarding. Cable settings are planned for uphill and downhill yarding to landings on the proposed temporary road and existing NFS road 3030110. Helicopter settings are planned for yarding to landings on the existing NFS road 3030110.

Alternative 5: This unit is planned for a combination of cable and helicopter yarding. Cable settings are planned for downhill yarding to landings on existing NFS road 3030110. Helicopter settings are planned for yarding to landings on the existing NFS road 3030110.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road in Alternatives 2, 3, and 4, totaling 2100 feet, as displayed on the unit card. Approximately 500 feet of this road will be constructed across decommissioned road bed.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 190

Streams are tributaries to Luck Lake.

Stream#: LR1 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 1 Class: I Flagging: B/W C- Type: FPM
Concerns: none
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

Temporary roads for Unit 190: Alternatives 2, 3, and 4 -- No known stream crossings. The new temporary road stream crossing would be on a new temporary road that is an extension of an existing decommissioned road 3030110_3.53R that would be reopened. The temporary roads have not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

Although this unit is adjacent to significant karst resources to the north and east, there are no known karst or cave resource concerns with the harvest areas as currently mapped. Karst rock is mapped within the northeastern edge of the unit. Any adjustments to the planned unit during implementation must consider the adjacent karst.

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

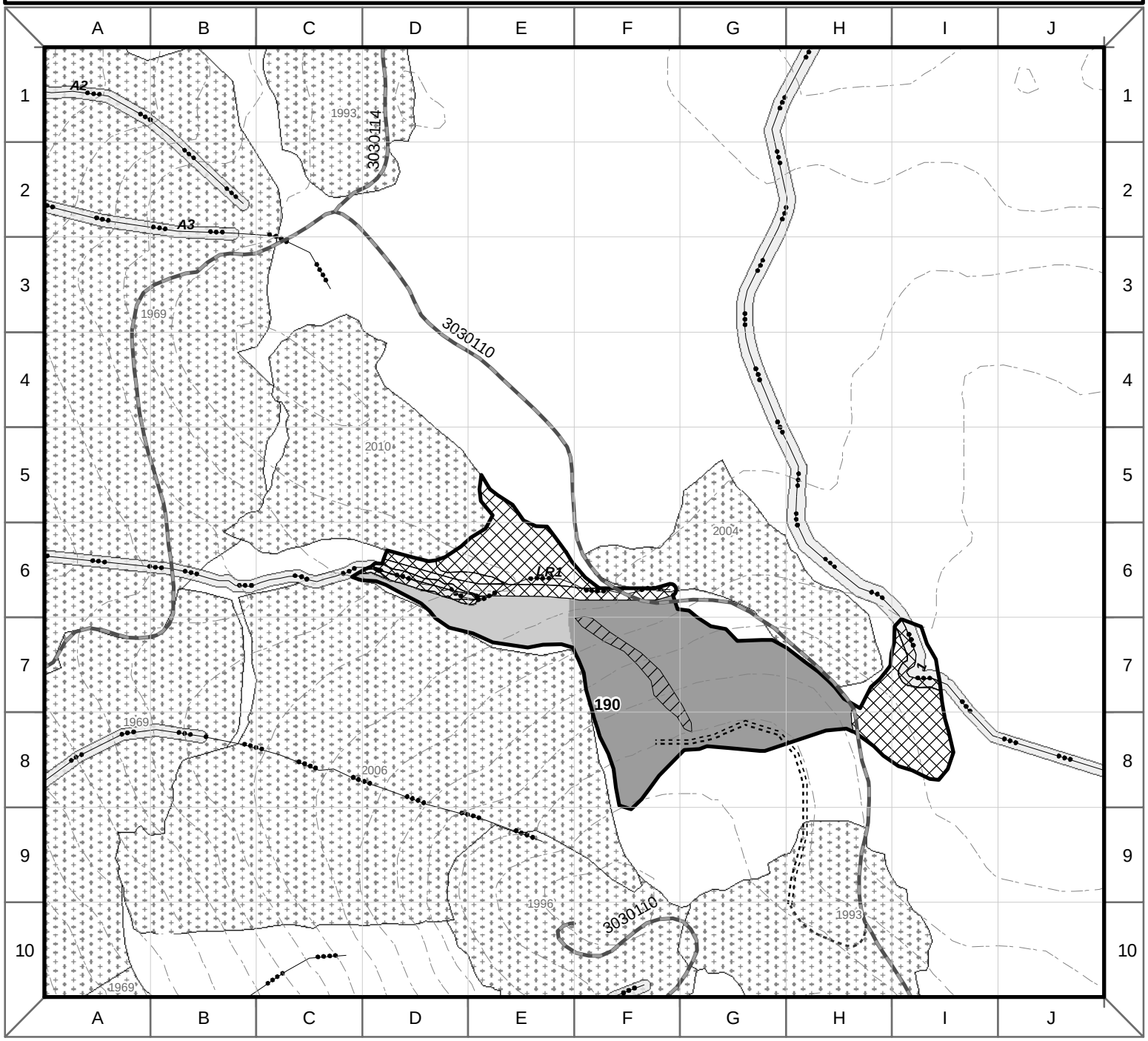
Slopes range from gentle to 75%. All slopes greater than 72% are suitable for harvest with partial suspension. There are about 5 acres of slopes greater than 72% that are suitable for harvest with partial suspension. No wetlands were identified during field investigation. .A minimum of partial suspension yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

Alternatives 2, 3, and 4: The proposed temp road will not traverse wetlands.

WILDLIFE:

Unit includes average snow deer winter range (entire unit except southern edge). Legacy standard and guideline applies in this VCU; positioning of legacy acres covers some deer winter range.

Unit Number 190 | **Alternative 2** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

0 500
Feet

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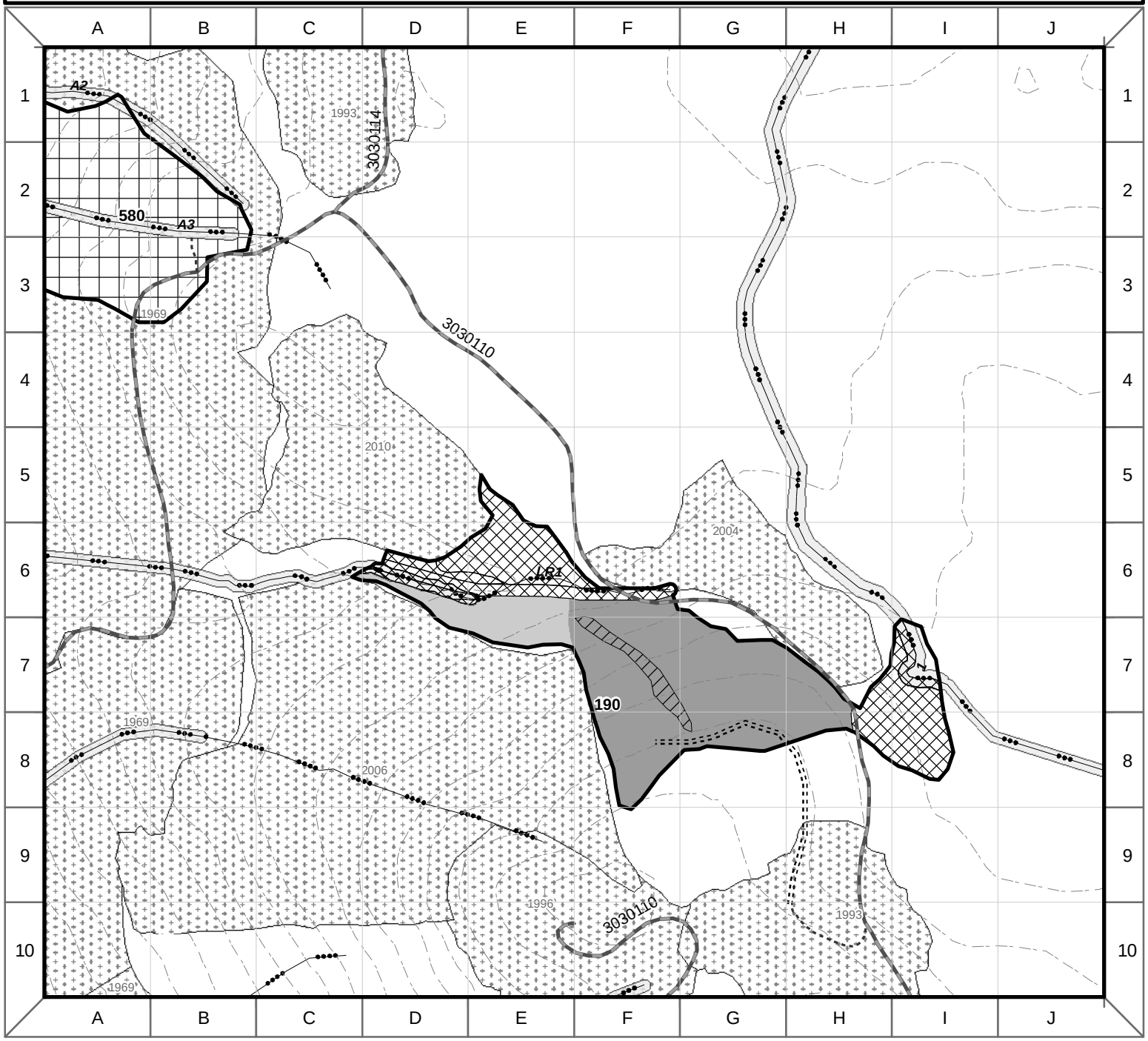
Unit Number 190 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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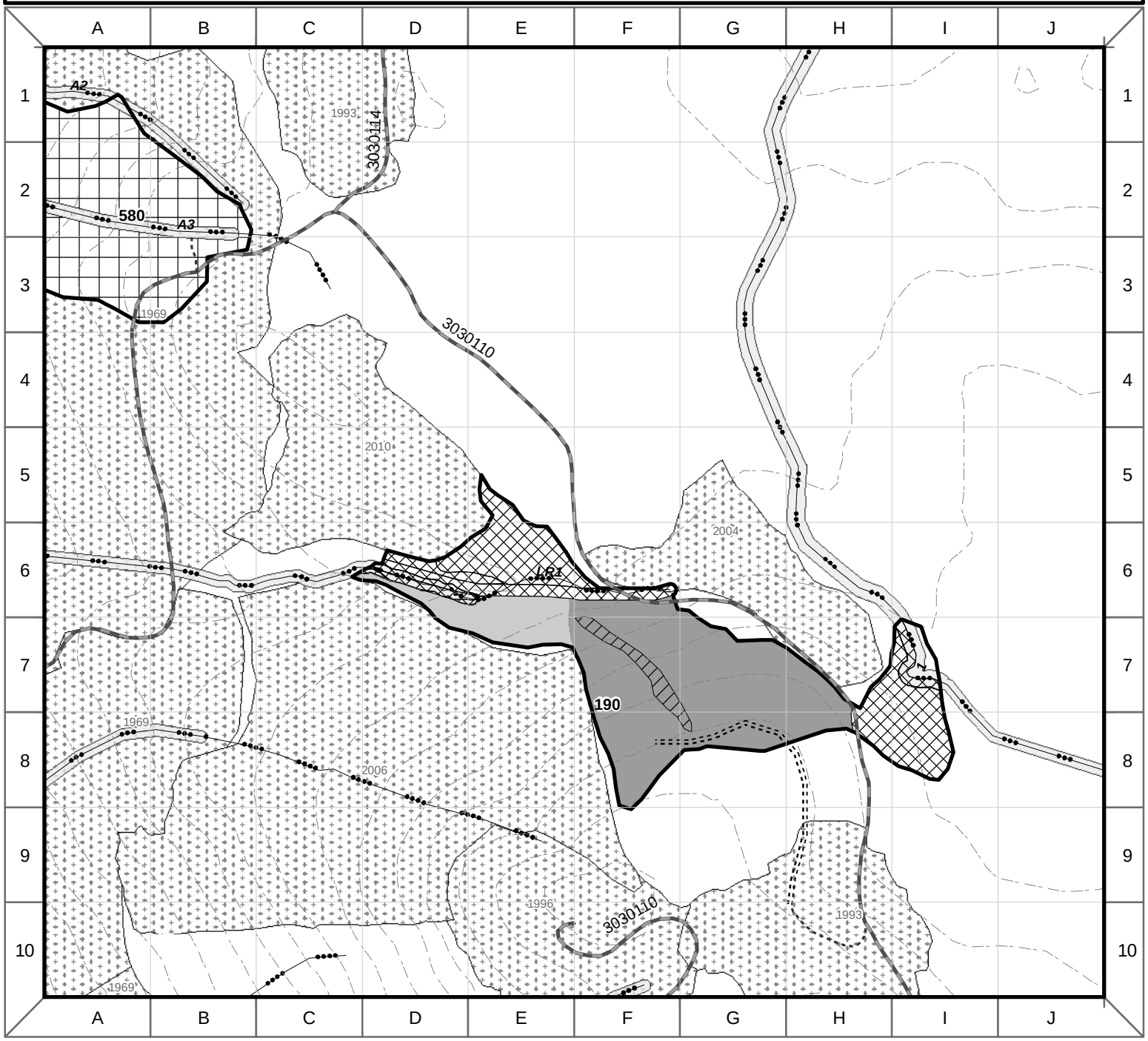
Unit Number 190 | **Alternative 4** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

0 500 Feet

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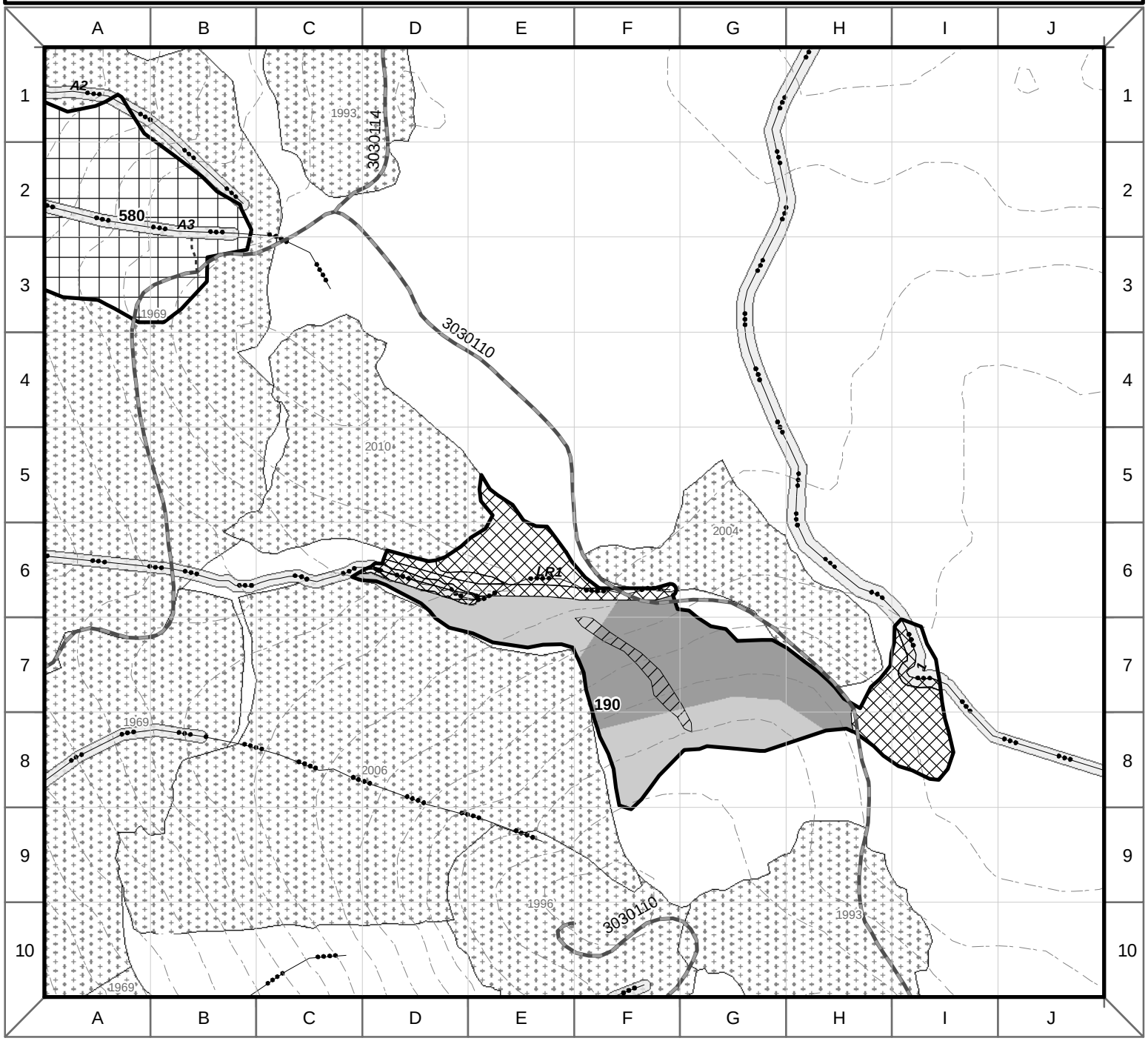
Unit Number 190 | **Alternative 5** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 191

Unit Number	191	Alternatives	2, 3, 5	Total Unit Acres:	14.1	Prescription:	Clearcut
VCU Number:	581	Harvest System:	Cable, Shovel	Net Harvest Volume (MBF):	275	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old growth structure consisting primarily of western hemlock. Sitka spruce and western redcedar are present, but as secondary components. Most of the stand has experienced heavy windthrow. This windthrow has created two distinct cohorts consisting of old growth western hemlock and Sitka spruce over young intermediate Sitka spruce and western hemlock. In the old growth western hemlock, heart rot and stem decay are high, while mistletoe is moderate. Defect and damages are also high in the oldest Sitka spruce. The western redcedar has moderate defect. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This unit is adjacent to the Coffman Cove Loop road and due to the combination of moderate SIO and foreground distance zone, requires minimal visibility of harvest openings from this road. In order to meet this requirement a screen of trees is being prescribed to be maintained to block the harvest area from view. Design this screen approximately as shown on the unit card map. Evaluate the effectiveness and windthrow risk of the planned screen at the time of layout and adjust as needed.

This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for a combination of shovel and cable yarding. Cable settings are planned for downhill yarding to landings on the proposed temporary roads. Shovel settings are also planned for yarding to the proposed temporary roads.

ENGINEERING/ROADS:

Unit is accessed by proposed temporary roads, totaling 700 feet, as displayed on the unit card.

BOTANY:

One large population (565 individuals) of lesser round-leaved orchid (sensitive species) adjacent to unit on the northeast. No concerns.

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Eagle Creek.

Stream#: 7 Class: II, III Flagging: B/W, O/W C- Type: HCM
Concerns: exposed bedrock
Buffer (RMA): Class II for HCM greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed.
Protection: Category A and B

Stream#: 4 Class: II, III Flagging: B/W, O/W C- Type: AFH, HCM, HCD
Concerns: blowdown, active erosion, steep side-slopes with loose soils and exposed bedrock, bedload storage.
Buffer (RMA): Class II for AFH greater of 140 feet or active portion of alluvial fan. Class II for HCM greater of 100 feet or to the top of the side-slope break. Class III for HCM and HCD to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed.
Protection: Category A and B

Stream#: 4.1L Class: II, III Flagging: B/W, O/W C- Type: HCL
Concerns: blowdown
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCL to the top of the side-slope break
Alternatives: 2, 3, and 5 Buffer (RAW): Will be determined by IDT during layout
Protection: Category A and B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
Most of the unit has a Moderate SIO and unit is along the 3030000 Road. A visual buffer is prescribed along the road to screen most views into unit. This screen will be designed for windfirmness. See silviculture section. With the screen, VAC is expected to be Intermediate and 15 to 40 acre openings are considered typical by the Forest Plan.

RECREATION:
No Concerns

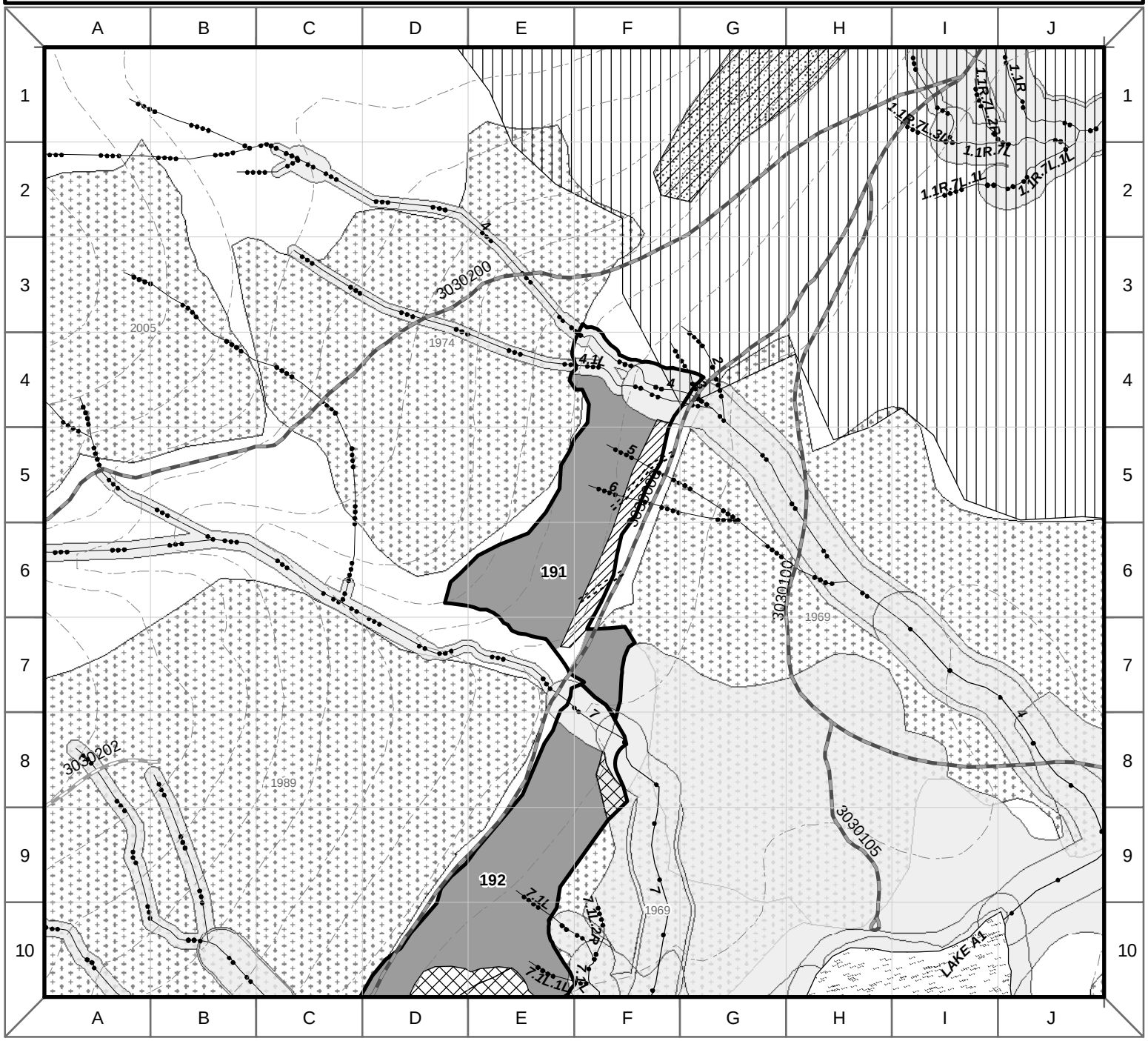
SOILS/WETLANDS:
Slopes range from 30 to 50%. No wetlands have been identified in the unit. The area above the 3030000 road is suitable for harvest with partial suspension requirements. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

The proposed temporary roads do not traverse any wetlands.

WILDLIFE:
Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres .

Alternative 4: Unit dropped to maintain connectivity in the corridor from the Luck Lake area to the small OGR at the mouth of Eagle Creek in VCU 5810, and maintain deer winter range and marten habitat.

Unit Number 191 | **Alternative 2** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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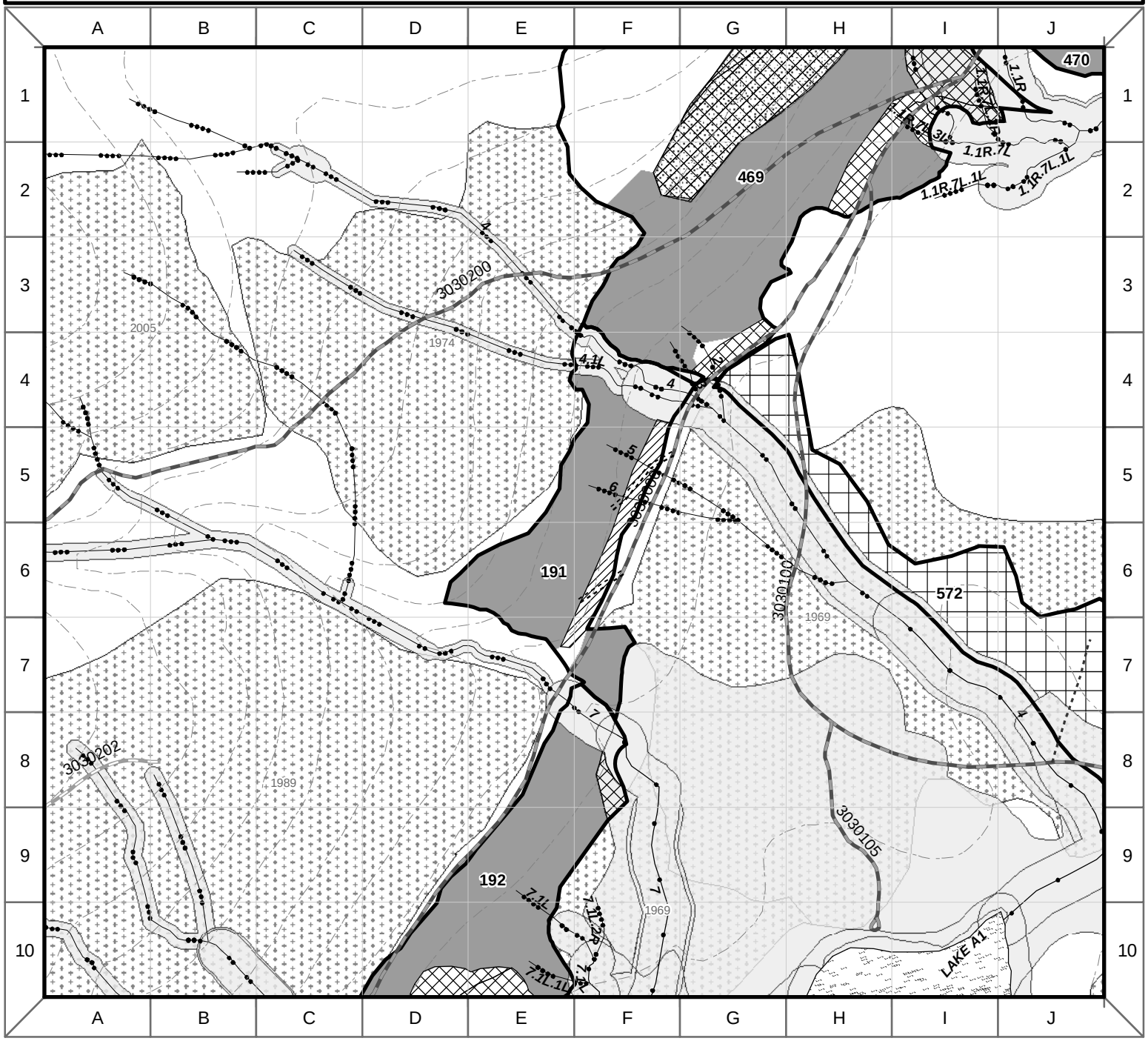
Unit Number 191 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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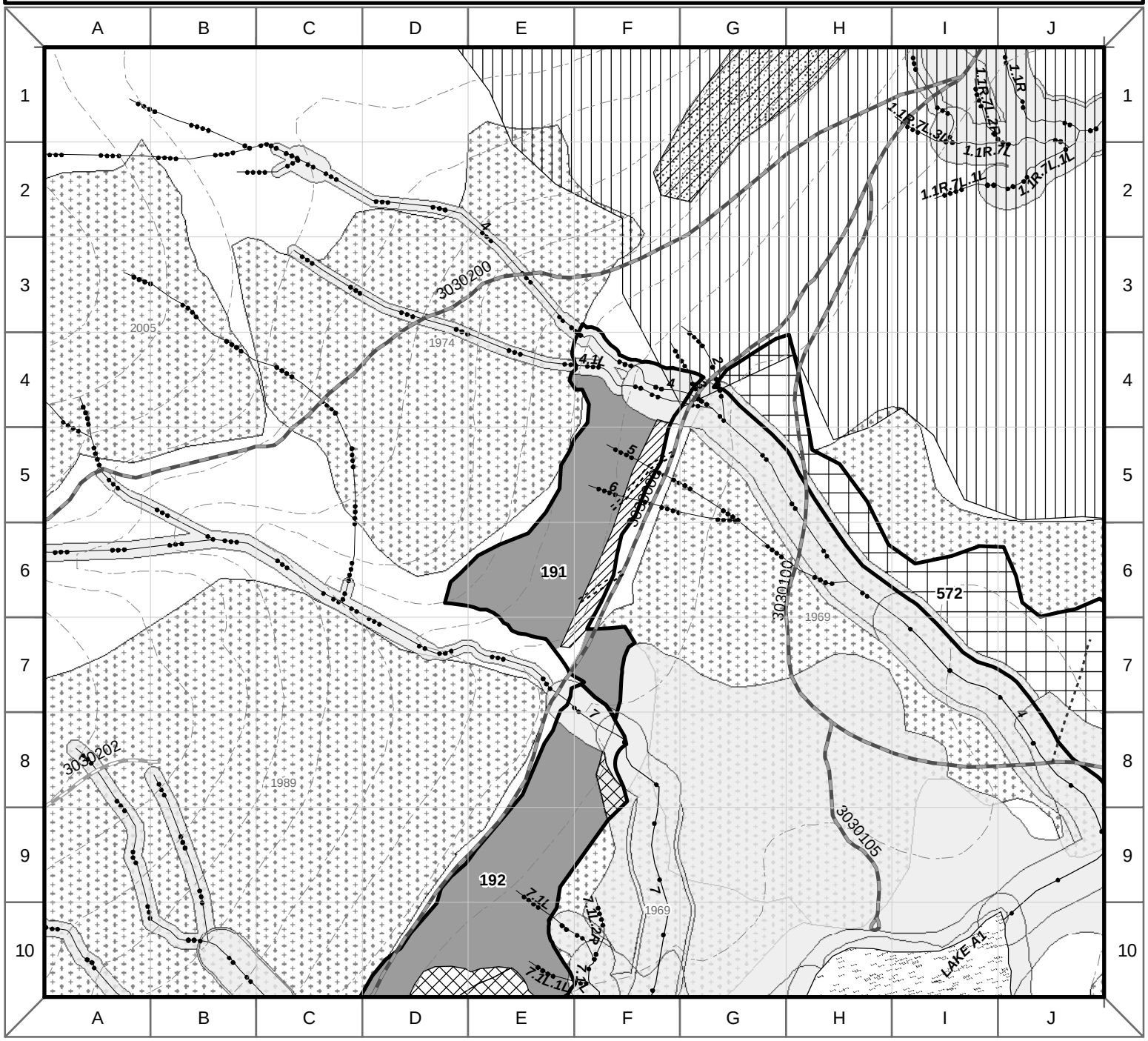
Unit Number 191 | **Alternative 5** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 192

Unit Number 192	Alternatives 2, 3, 5	Total Unit Acres: 19.1	Prescription: Clearcut
VCU Number: 581	Harvest System: Cable, Shovel	Net Harvest Volume (MBF): 401	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure. The stand is mostly western hemlock with scattered western redcedar. Defect and damages are moderate for most species, but high in the larger western hemlock. The incidence of mistletoe is light to moderate. Little past windthrow is found within the stand, however exposure and timber type combine to increase risk. Moderate risk is estimated. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 8 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Part of the legacy is planned to coincide with areas that were dropped from the unit due to RMA's. The remaining required legacy was placed to block up POG, incorporate sensitive/rare plants, and reduce visibility from Luck Lake. Total mapped legacy is approximately 8 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of shovel and cable yarding. Cable settings are planned for uphill yarding to landings on the existing NFS road 3030000. Shovel settings are planned for yarding to the existing NFS road 3030000.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

One population (7 plants) of lesser round-leaved orchid (sensitive plant) and one population (3 plants) of lance-leaf grapefern (rare plant) were entirely incorporated into legacy with a buffer, where they overalapped this unit. The lance-leaf grapefern population is the only known population of this species in the project area. Because of legacy, including the buffer, no direct or indirect effects to these populations are expected.

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Eagle Creek.

Stream#: 7 Class: I, II, III Flagging: B/W, O/W C- Type: HCM
Concerns: heavy braiding with exposed roots; steep side-slopes, shallow soils, bedrock
Buffer (RMA): Class I and II for HCM greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A and B

Stream#: 7.1L Class: I, II, IV Flagging: B/W, G/W C- Type: MMO, HCO
Concerns: none

Buffer (RMA): Class I and II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCO none.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: 8 Class: I, II Flagging: B/W C- Type: FPL, HCO
Concerns: blowdown
Buffer (RMA): Class I for FPL greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I and II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A

Stream#: 9 Class: I, IV Flagging: B/W, G/W C- Type: MMO, HCO
Concerns: none
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCO none.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: Lake-A1 (Luck Lake) Class: 1 Flagging: B/W C- Type: L
Concerns: none known.
Buffer (RMA): Class I for Lake-1 greater of 100 horizontal feet or to the extent of the flood plain, riparian vegetation or soils, riparian associated wetland fens, or one site-potential tree height.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The unit is along the 3030000 road and is Moderate SIO. Some screening occurs due to trees along the road, but much of the unit is visible. However, the unit is long and relatively narrow and it is not all visible at the same time. The unit is mostly screened from view from Luck Lake. Typical opening size given in the Forest Plan for Moderate SIO with Intermediate VAC is 15 to 40 acrrs.

RECREATION:

No Concerns

SOILS/WETLANDS:

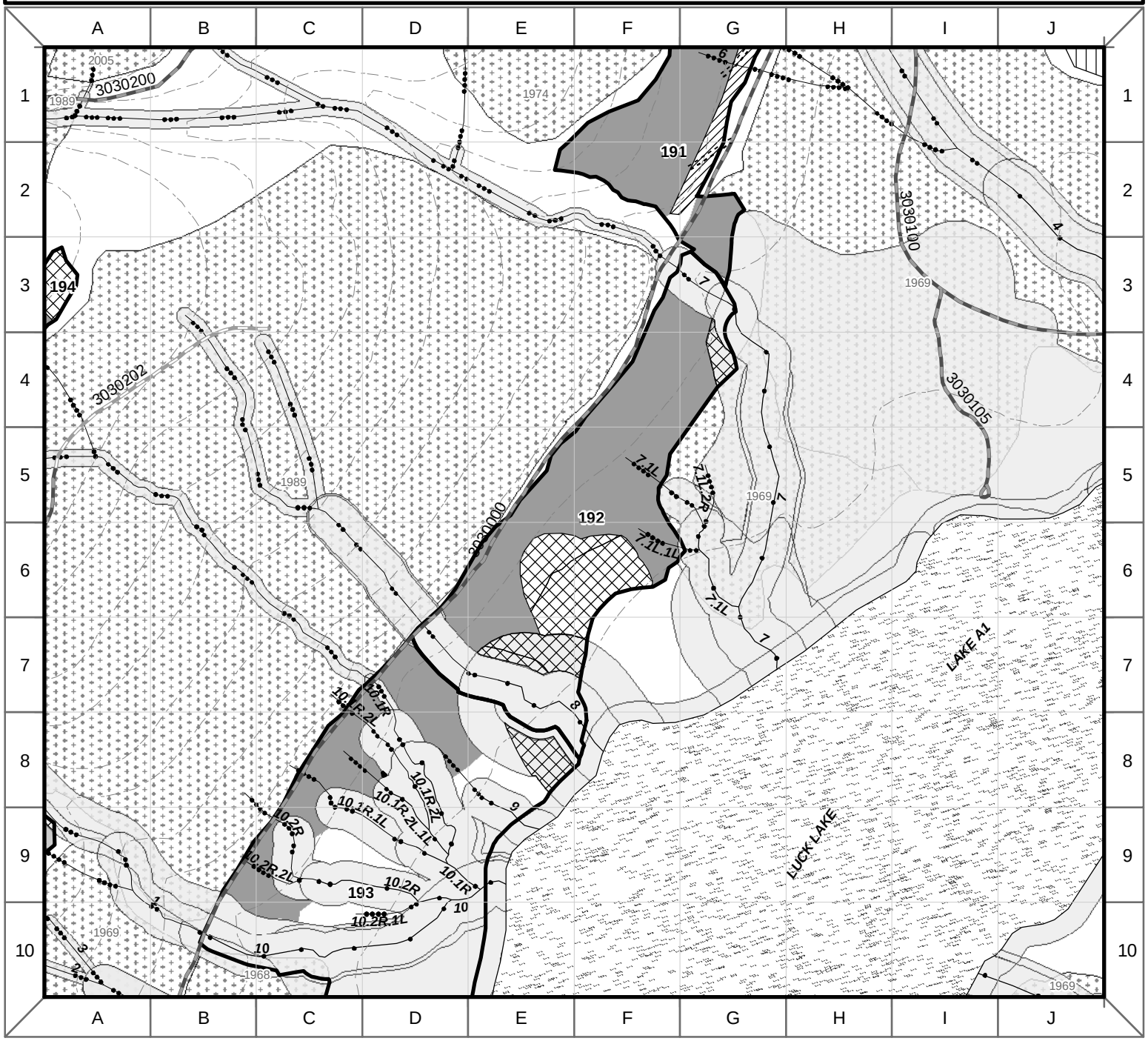
Slopes range from nearly level to 35%. Forested wetlands occur in the western tip of the unit and the center-southeast tip of the unit. The soils and wetlands are suitable for partial suspension cable yarding or shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient are not recommended for shovel yarding due to wet conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

WILDLIFE:

Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range and marten habitat and blocks up POG creating larger patch with adjacent Class I stream RMA and Luck Lake shore RMA.

Alternative 4: Unit dropped to maintain connectivity in the corridor from the small OGR in VCU 5810 to the Luck Lake area and to maintain more marten habitat and deer winter range around Luck Lake.

Unit Number 192 | **Alternative 2** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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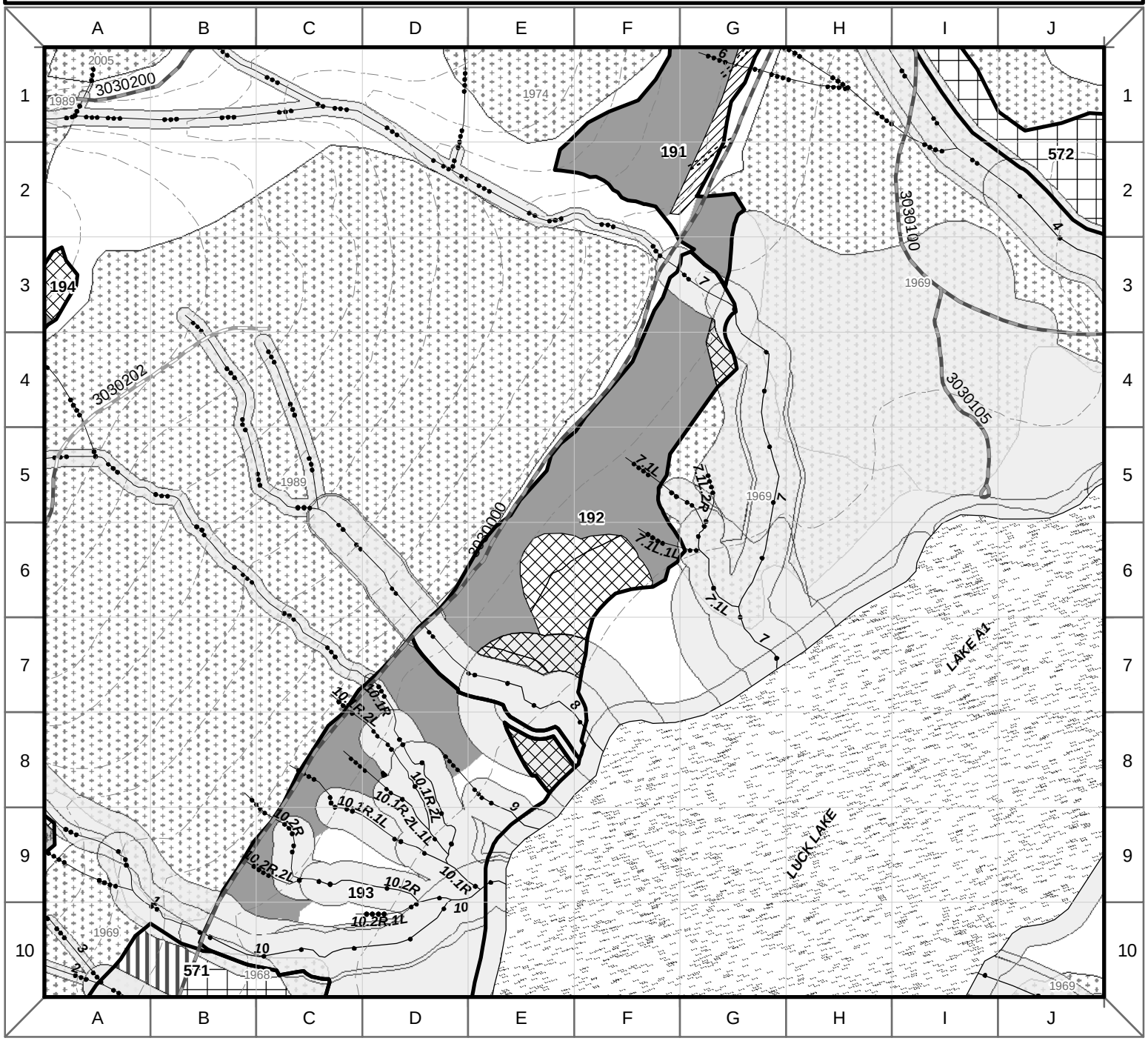
Unit Number 192 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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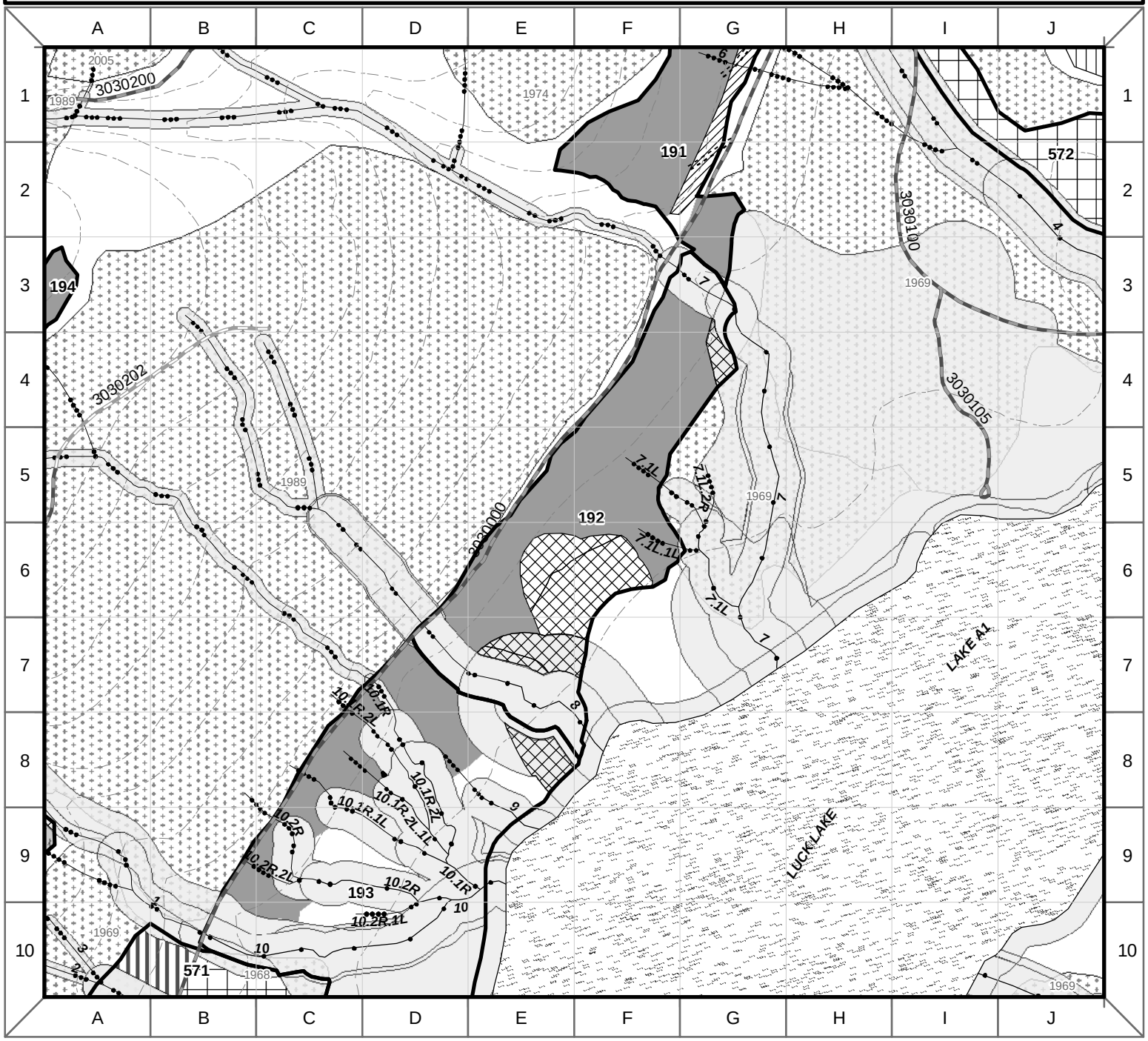
Unit Number 192 | **Alternative 5** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N S E W

0 500
Feet

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Unit 193

Unit Number	193	Alternatives	2, 3, 5	Total Unit Acres:	8.9	Prescription:	Clearcut
VCU Number:	581	Harvest System:	Cable	Net Harvest Volume (MBF):	307	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 193 has old-growth stand structure with overstory species consisting of western hemlock, Sitka spruce and western redcedar. The average defect for the unit is light to moderate with stem decay as the dominant defect. Overall this unit has mature timber that is high volume, high quality and relatively healthy. Growth is static. Mistletoe is light. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
Due to this unit being in a moderate SIO and foreground distance zone, harvest opening of 5 to 10 acres are allowed. The unit is currently slightly less than this as designed. This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with low to moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for uphill cable yarding to landings on existing NFS road 3030000.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Eagle Creek.

Stream#: 8 Class: I, II Flagging: B/W C- Type: FPL, HCO
Concerns: blowdown
Buffer (RMA): Class I for FPL greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I and II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed.
Protection: Category A

Stream#: 9 Class: I, IV Flagging: B/W, G/W C- Type: MMO, HCO
Concerns: none
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCO none.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed.
Protection: Category A and C

Stream#: 10 Class: I Flagging: B/W C- Type: AFM, MMS, HCL
Concerns: blowdown

Buffer (RMA): Class I for AFM greater of 140 feet or active portion of alluvial fan. Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed.
Protection: Category A and C

Stream#: 10.1R Class: I, II, III Flagging: B/W, O/W C- Type: AFM, HCM
Concerns: blowdown
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of alluvial fan. Class I and II for HCM greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed.
Protection: Category A and B

Stream#: 10.1R.1L Class: I, II, IV Flagging: B/W, G/W C- Type: MMO, HCO
Concerns: blowdown
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed.
Protection: Category A and C

Stream#: 10.1R.2L Class: I, II, IV Flagging: B/W, G/W C- Type: MMO, HCO
Concerns: blowdown
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens side-slope break. Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed.
Protection: Category A and C

Stream#: 10.1R.2L.1L Class: I, IV Flagging: B/W, G/W C- Type: HCO
Concerns: blowdown
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed.
Protection: Category A and C

Stream#: 10.2R Class: I, II, IV Flagging: B/W, G/W C- Type: MMO, HCO
Concerns: blowdown
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens side-slope break. Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed.
Protection: Category A and C

Stream#: Lake-A1 (Luck Lake) Class: 1 Flagging: B/W C- Type: L
Concerns: none known.
Buffer (RMA): Class I for Lake-1 greater of 100 horizontal feet or to the extent of the flood plain, riparian vegetation or soils, riparian associated wetland fens, or one site-potential tree height.
Alternatives: 2, 3, and 5 Buffer (RAW): no review needed
Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

The unit is along the 3030000 road and is in Moderate SIO. Screening occurs due to riparian buffers that cross the unit, so that only small portions of the unit are visible at a time. Also, the unit is long and relatively narrow. The unit is mostly screened from view from Luck Lake. Typical opening size given in the Forest Plan for Moderate SIO with Intermediate VAC is 15 to 40 acrrs.

Unit 193

RECREATION:

No Concerns

SOILS/WETLANDS:

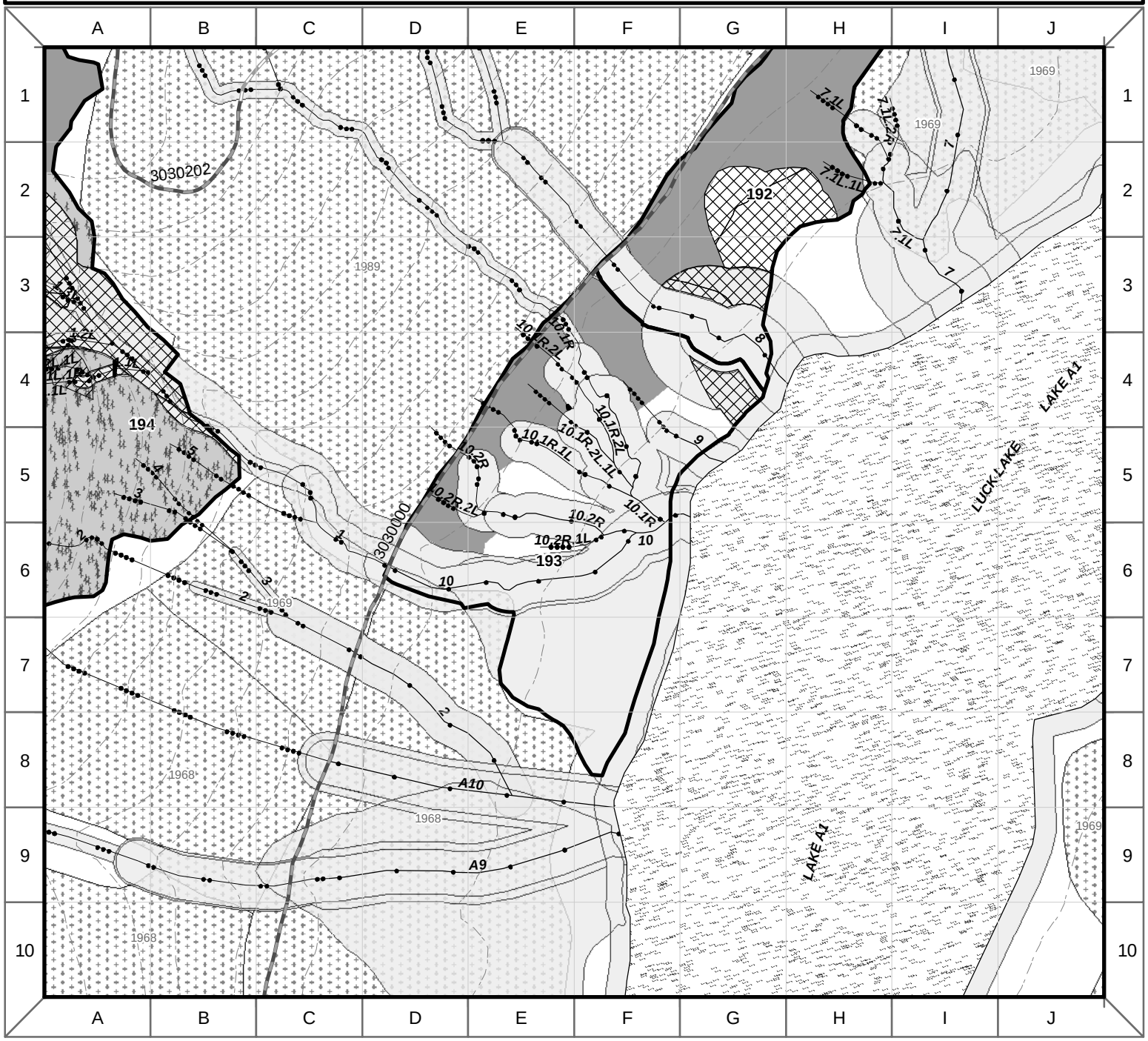
Slopes range from 15 to 35%. Forested wetlands are dominant in the unit. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres .

Alternative 4: Unit dropped to maintain connectivity in the corridor from the small OGR in VCU 5810 to the Luck Lake area, to maintain a greater buffer around Luck Lake, and maintain marten habitat and deer winter range.

Unit Number 193 | **Alternative 2** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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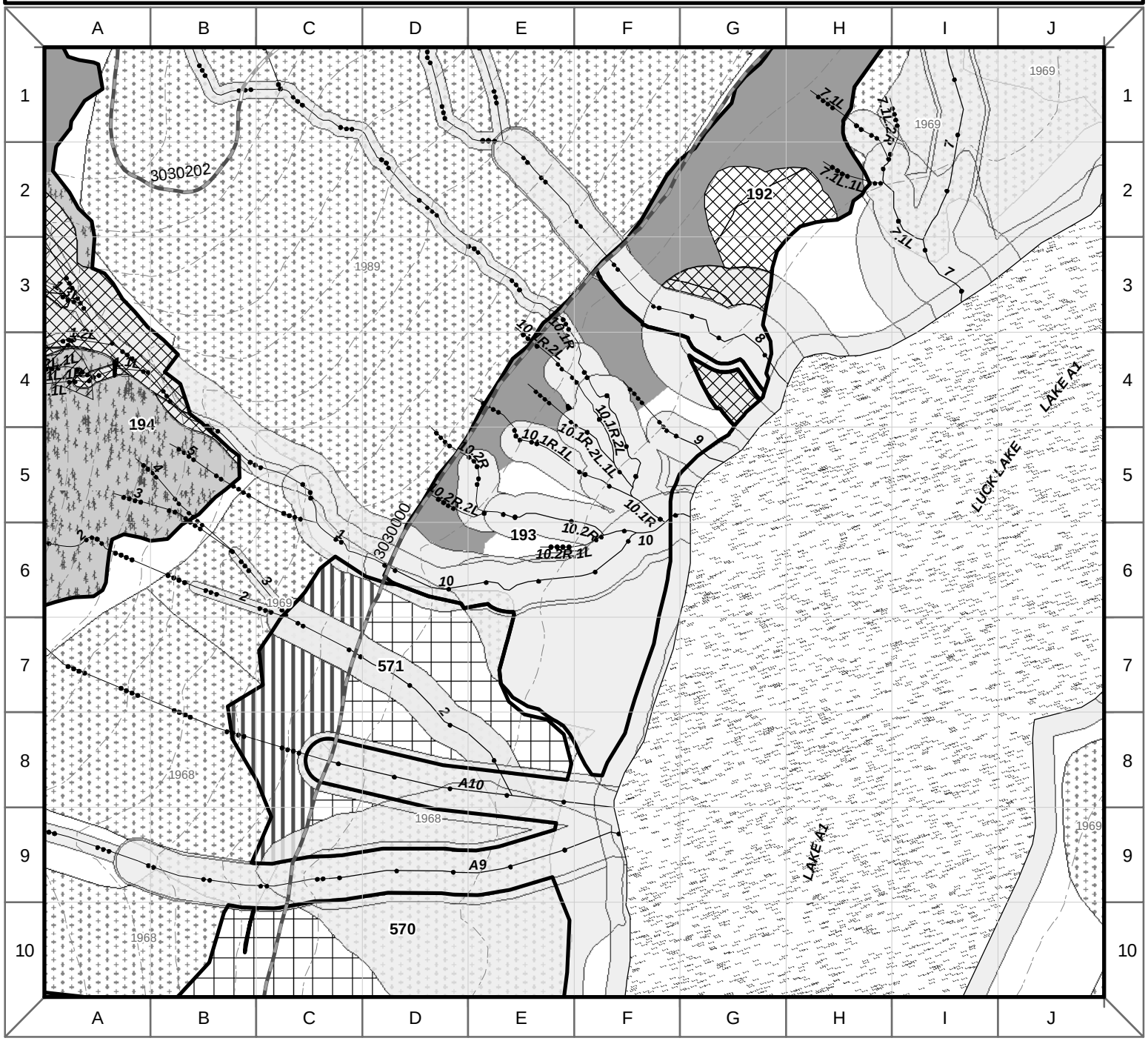
Unit Number 193 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit Number 193 | **Alternative 5** | **VCU: 581**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 194

Unit Number	194	Alternatives	2, 3, 4, 5	Total Unit Acres:	2, 3 - 76.2 4, 5 - 81.7	Prescription:	25% & 33% Removal, Clearcut
VCU Number:	581	Harvest System:	Cable, Shovel, Helicopter	Net Harvest Volume (MBF):	2, 3 - 1,650 4 - 708 5 - 1,181	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure. The overstory consists primarily of western hemlock with Sitka spruce, western redcedar and Alaska-cedar mixed. Overall the unit rated high for wind risk and has light mistletoe. There is evidence of high defect, primarily stem decay, in the western hemlock and Sitka spruce overstory. The average damage and defect rating is moderate to high. The Alaska-cedar had evidence of decline along the transition to muskeg on the northwest boundary. A two-age stand adjacent to the boundary south has lost 25% of residual trees since harvest in 2005. The combined acreage of this past harvest and the maximum proposed clear cut acreage for unit 194 is approximately 77 acres. No adjustments to unit 194 are required to meet NFMA opening size requirements under any alternative.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management (Alternatives 2, 3, 5 Cable and Shovel Settings)
This unit has a low SIO and is primarily in the middleground. This classification allows for harvest openings of 40 to 60 acres. The unit as currently desined will have 51 acres of clearcut in Alternatives 2 and 3. This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. Alternatives 2 and 3 consist of 52 acres of even-age management, and require approximately 23 acres of legacy. Alternative 5 has 28 acres of even-age management and requires 14 acres of legacy. Alternative 4 consists entirely of uneven-age management and doesn't require any legacy retention. Required legacy should consist of productive old growth representative of the overall composition of the planned harvest area, and will be maintained indefinitely. A large portion of the original unit prescribed partial harvest. Legacy to cover remaining opening is provided by RMA complex and connecting polygons of legacy, which blocks up POG and is adjacent to partial harvest. Total mapped legacy is approximately 23 acres in Alternatives 2 and 3 and 17 acres in Alternative 5. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Alternative 2, 3, 4, 5 Helicopter Settings)
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

No Legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Silvicultural Prescription: Uneven-age Management Group Selection (Alternative 4 Cable and Shovel Settings)
Harvest up to 33% of the planned setting acreage in groups of trees up to two acres in size. Group selections should be well distributed across the stand. Locate groups to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species where possible. In general, locate group selections to maintain wildlife travel ways and important habitat while maximizing the economics of this entry and also maintaining the feasibility of future harvest entries in the remaining old growth portions of the unit. The uneven-aged group selection regeneration method is being prescribed for the unit or portions of the unit as a means to maintain large amounts of diverse structure to benefit wildlife in perpetuity.

No Legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit 194

TIMBER/LOGGING:

Alternatives 2, 3, 5: This unit is planned for a combination of cable, shovel and helicopter yarding. Cable settings are planned for uphill and downhill yarding to landings on the proposed temporary roads. Shovel settings are planned for yarding to the proposed temporary roads and existing NFS roads 3030200 & 30302022. Helicopter settings are planned for yarding to landings on existing NFS road 3030202.

Alternative 4: This unit is planned for a combination of shovel and helicopter yarding. Shovel settings are planned for yarding to the existing NFS roads 3030200 & 30302022. Helicopter settings are planned for yarding to landings on the existing NFS road 3030202.

Alternatives 2 and 3 propose even-age management on cable and shovel settings, and uneven-age management single tree selection with 75% retention on helicopter settings. Alternative 4 proposes uneven-age management group selection with 67% retention on cable and shovel settings, and uneven-age management single tree selection with 75% retention on helicopter settings. Alternative 5 proposes even-age management on shovel settings, and uneven-age management single tree selection with either 75% or 50% retention on helicopter settings.

ENGINEERING/ROADS:

Unit is accessed by two proposed temporary roads in Alternatives 2, 3, and 4, totaling 2,400 feet, as displayed on the unit card. Approximately 2,000 feet of this road will be constructed across previously decommissioned road bed.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Eagle Creek.

Stream#: 7 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: blowdown and active erosion, unstable side-slopes
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): none
Protection: Category B and C

Stream#: 1 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCM
Concerns: blowdown and active erosiont
Buffer (RMA): Class III for HCD to the top of the side-slope break. Class IV for HCM none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B and C

Stream#: 1.3L Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: none
Buffer (RMA): Class III for HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B and C

Stream#: 1.2L Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: none
Buffer (RMA): Class III for HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B and C

Stream#: 1.1L Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category B and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC and MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

Unit 194

Temporary roads for Unit 194: Alternatives 2, 3, and 4 -- Two Class III crossings and two Class IV crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is entirely in Low SIO. Legacy screens much of the harvest. No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

Slopes range from about 15 to 75%. There is about 1 acre of slopes greater than 72% that are suitable for harvest with full suspension; these slopes are in the area to be logged by helicopter. Forested wetlands are intermittent in the unit. Full suspension yarding is required in the southern quarter of the unit in order to meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). In the remainder of the unit, a minimum of partial suspension yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). In the north part of the unit, soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

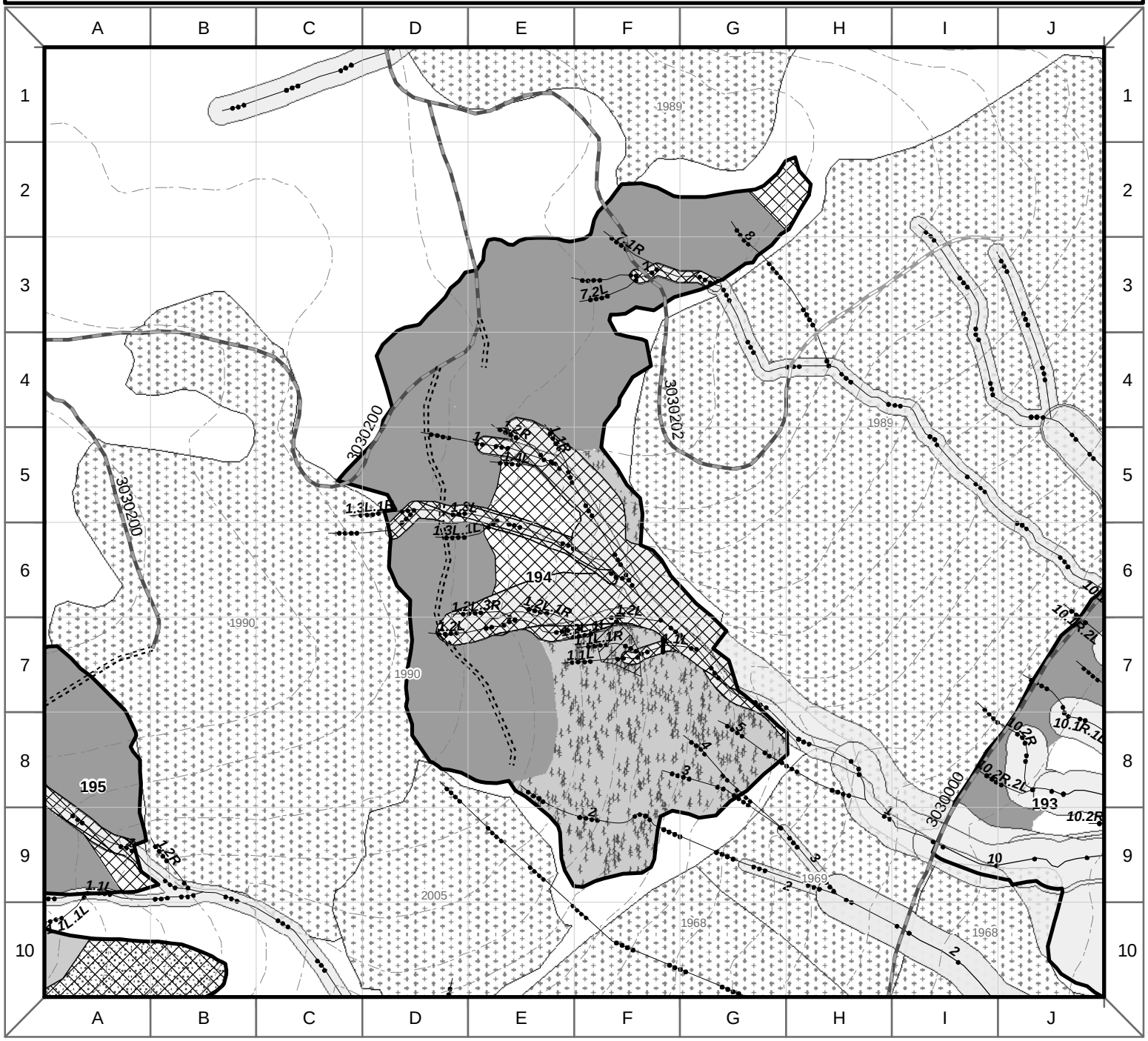
Alternatives 2-4: A temporary road will impact 2 acres of forested wetland within the unit and less than 1/4 acre outside of the unit, necessary to provide road access the southern half of the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (southeastern lobe of unit). Bald eagles observed in unit. Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range and martenhabitat.

Alternative 4: Includes settings with 25% basal area removal and small patch cuts with 33% removal by acreage to maintain habitat values in the vicintiy of Luck Lake. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit Number 194 | **Alternative 2** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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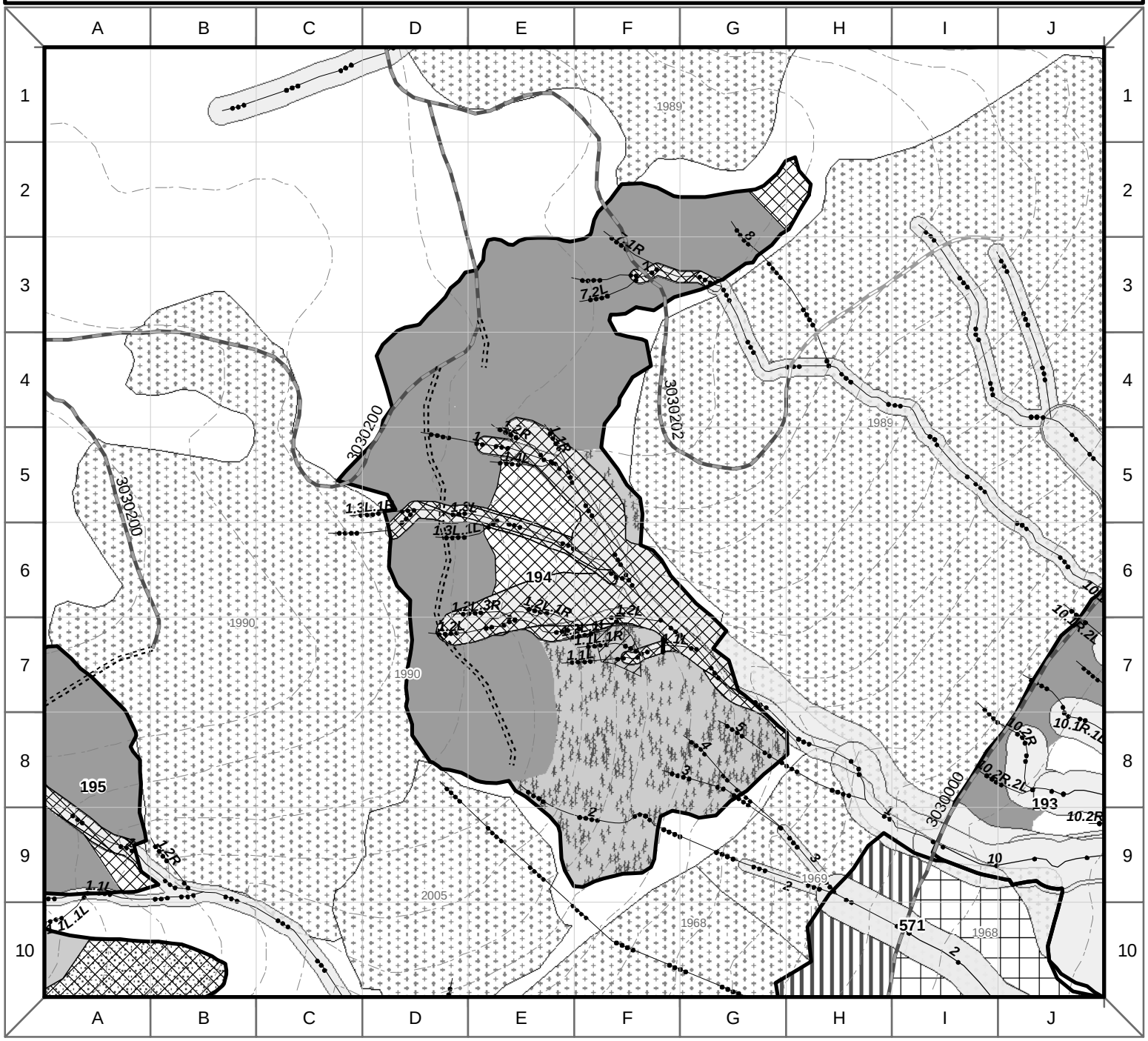
Unit Number 194 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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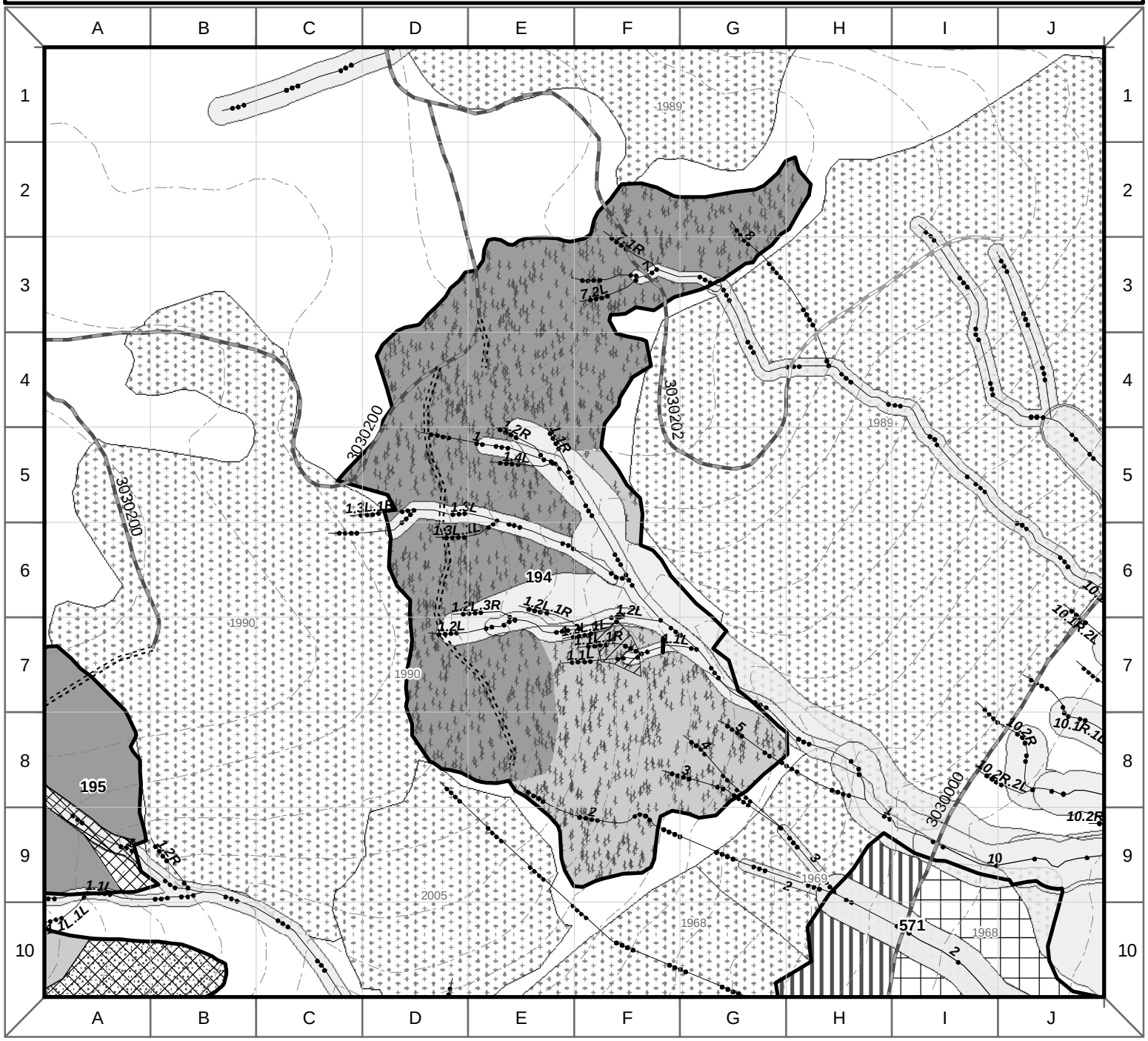
Unit Number 194 | **Alternative 4** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500 Feet

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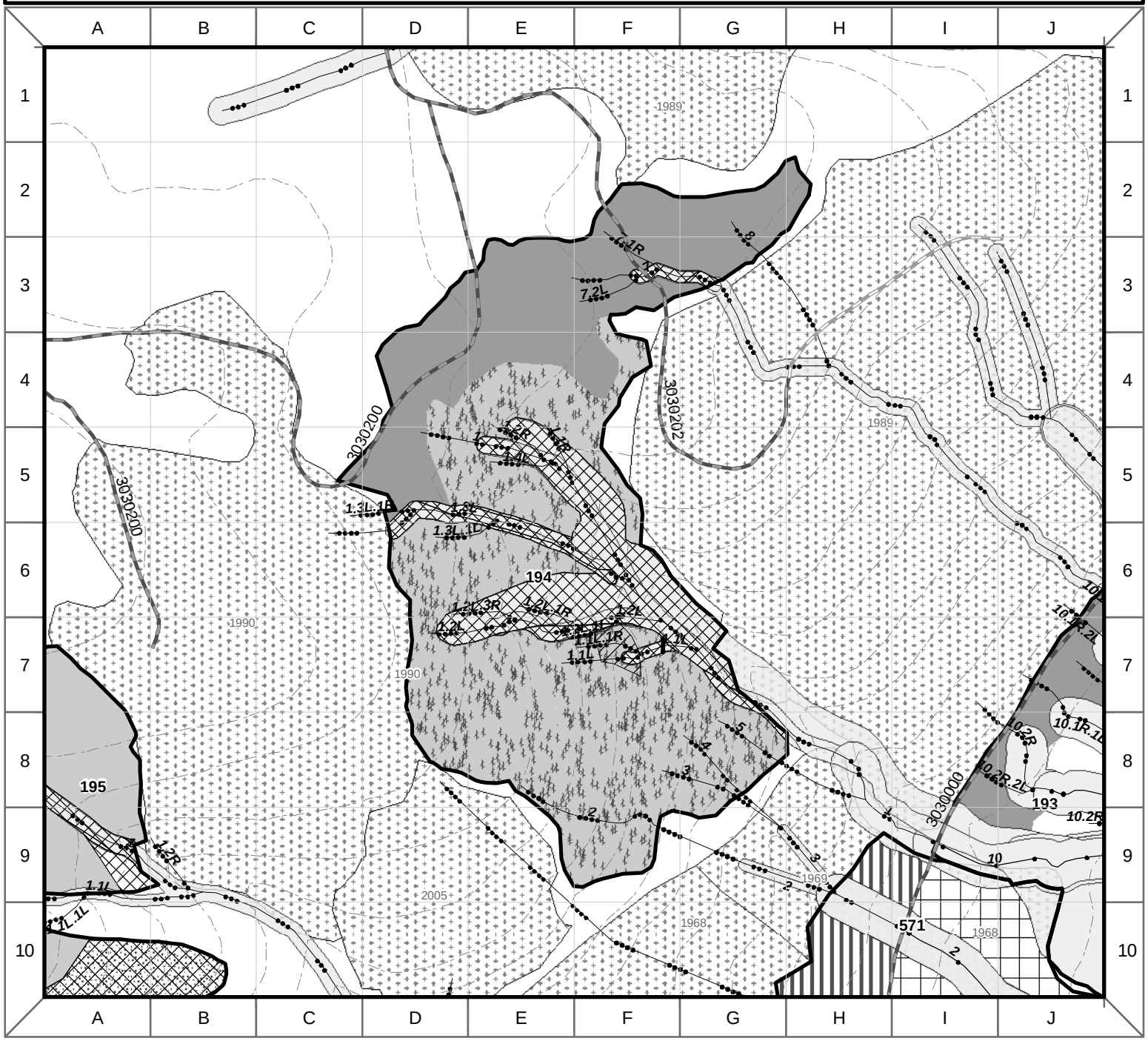
Unit Number 194 | **Alternative 5** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 195

Unit Number	195	Alternatives	2, 3, 4, 5	Total Unit Acres:	39.6	Prescription:	Clearcut
VCU Number:	581	Harvest System:	Cable, Shovel,	Net Harvest Volume (MBF):	1,297	LUD:	Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure. Windthrow risk is moderate throughout the stand. Mistletoe was rated low. The overstory is made of widely-spaced mature western hemlock and Alaska-cedar with scattered Sitka spruce and western redcedar. The primary defect in the overstory is stem decay. Alaska cedar decline was also evident in the upper elevations where drainage is restricted. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 17 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. The largest portion of legacy was placed to coincide with areas dropped due to soils and RMA. 2.7 ac of legacy was added adjacent to RMAs to divide unit into two openings and for RAW. Total mapped legacy is approximately 17 acres.

TIMBER/LOGGING:

Alternatives 2, 3, 4: This unit is planned for a combination of shovel, helicopter, and cable yarding. Cable settings are planned for uphill yarding to landings on the proposed temporary road. Shovel settings are planned for yarding to the proposed temporary road. Helicopter settings are planned for yarding to landings on the proposed temporary road.

Alternative 5: This unit is planned for helicopter yarding to landings on existing NFS road 3030200.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road in Alternatives 2, 3, and 4, totaling 2100 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Eagle Creek.

Stream#: 1 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCM, HCO
Concerns: active erosion, unstable side-slopes
Buffer (RMA): Class III for HCD and HCM to the top of the side-slope break. Class IV for HCM none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B and C

Stream#: 1.1L Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCM, HCO
Concerns: blowdown, active erosion, and unstable side-slopes
Buffer (RMA): Class III for HCD and HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B and C

Unit 195

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

Temporary roads for Unit 195: Alternatives 2, 3, and 4 -- Two Class III crossings and two Class IV crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is almost entirely in Very Low SIO, with 4 acres of Low. No concerns.

RECREATION:

No Concerns

SOILS/WETLANDS:

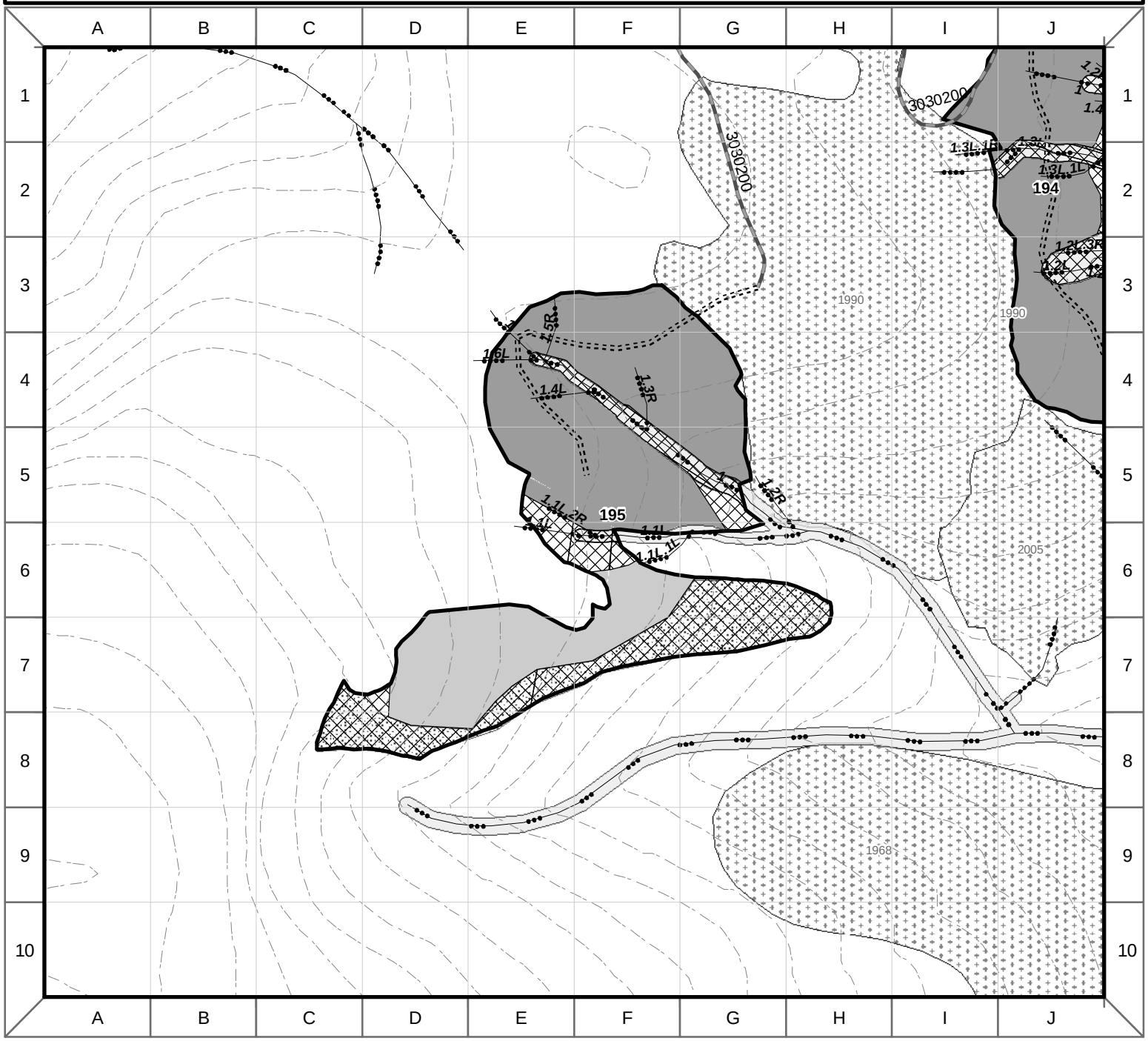
Slopes range from nearly level to 45% in the area proposed for harvest. About 8 acres outside of the unit were excluded due to steep slopes and soil concerns. A minimum of partial suspension yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). Forested wetlands are located throughout the unit, especially in the upper elevations of the unit.

Alternatives 2-4: A temporary road will impact about 2 acres of forested wetland and about 1/4 acre of emergent short sedge wetland to access the southern portion of the unit. About an additional 1/4 acre of forested wetland outside of the unit will be impacted by a temporary road needed to access the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (southeastern edge of northern portion of unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range.

Unit Number 195 | **Alternative 2** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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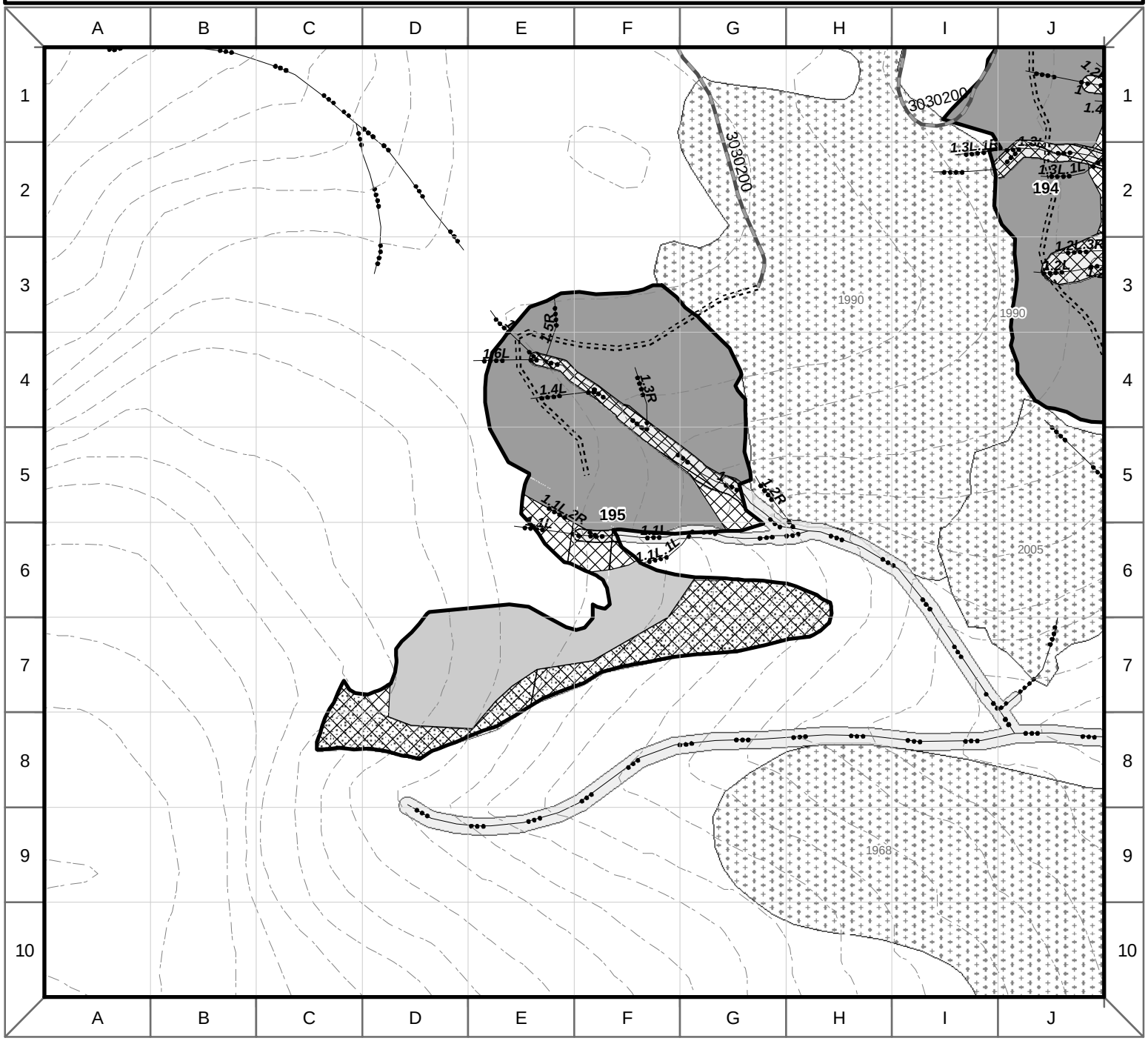
Unit Number 195 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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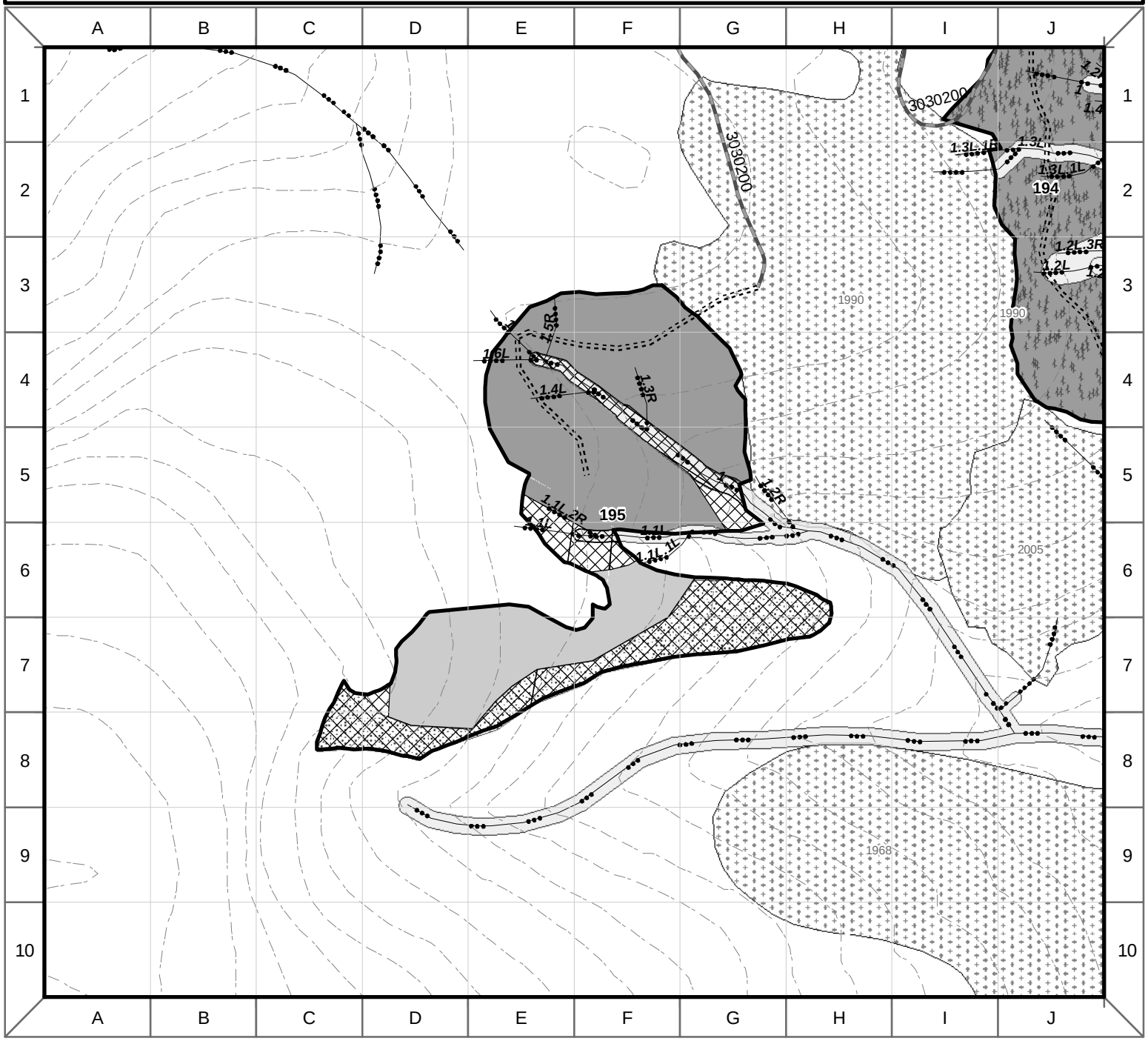
Unit Number 195 | **Alternative 4** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N S E W

0 500
Feet

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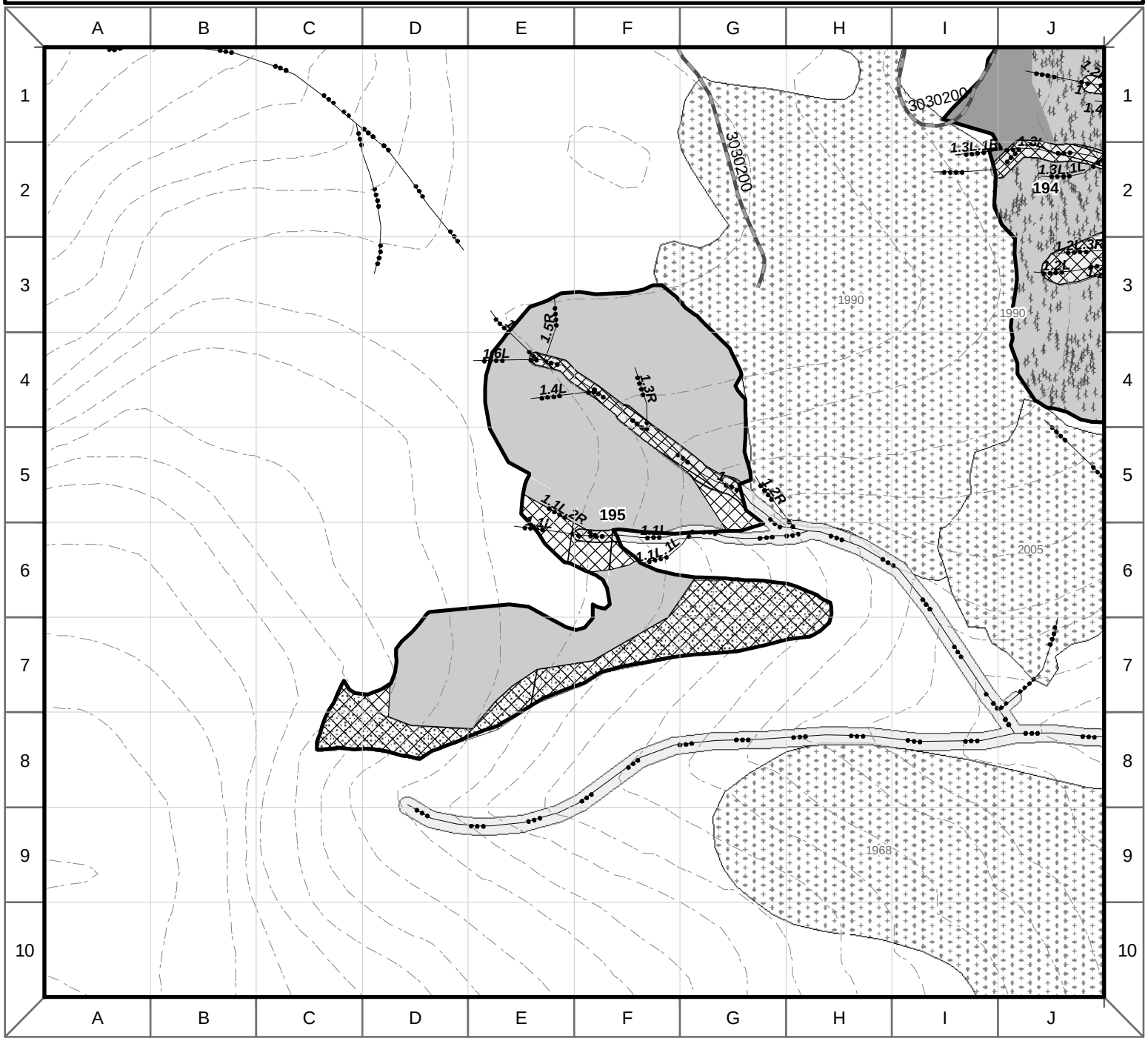
Unit Number 195 | **Alternative 5** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 197

Unit Number 197	Alternatives 2, 3, 4, 5	Total Unit Acres: 13.3	Prescription: 25% Removal
VCU Number: 581	Harvest System: Helicopter	Net Harvest Volume (MBF): 54	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure with overstory consisting of western hemlock and Alaska-cedar with a minor component of Sitka spruce and western redcedar. This is a high elevation stand of mature timber with declining growth. The main damage is stem decay with moderate rating. Mistletoe was rated low. Windthrow risk is moderate. An adjacent past harvest to the east has regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species.Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

No Legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on existing NFS road 3030000.

ENGINEERING/ROADS:

Np proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Eagle Creek. Streams A8, A8.1R, and A8.2R characteristics do not contain project specific field verified information.

Stream#: A8 Class: III, IV Flagging: O/W, G/W C- Type: HCDw, HCLw
Concerns: none known
Buffer (RMA): Class III for HCDw to the top of the side-slope break. Class IV for HCLw none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review required
Protection: Category B and C

Stream#: A8.1R Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review required
Protection: Category B

Stream#: A8.2R Class: III Flagging: O/W C- Type: HCDw
Concerns: none known
Buffer (RMA): Class III for HCDw to the top of the side-slope break.

Unit 197

Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review required
Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

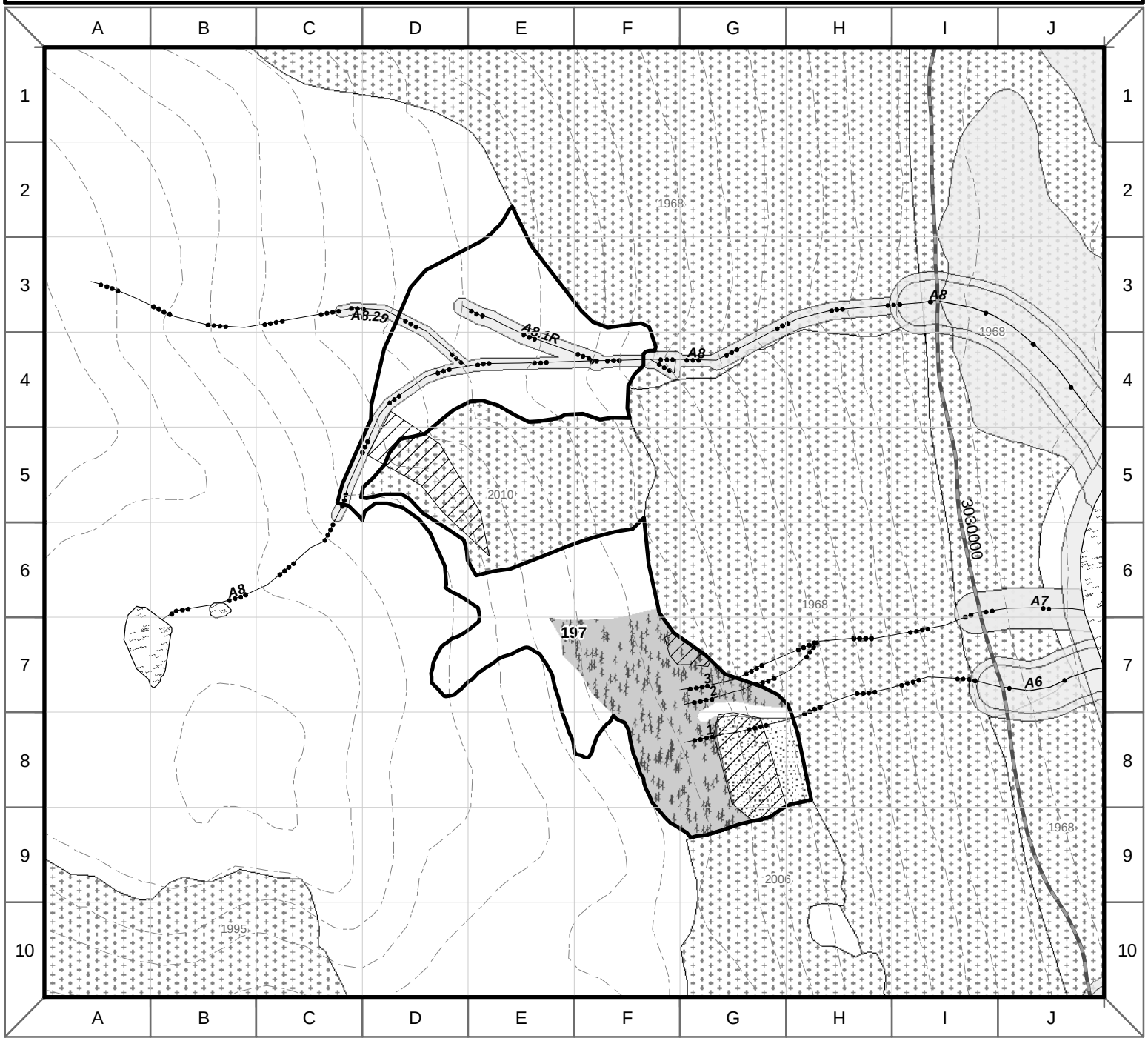
SCENERY:
SIO is Low and VAC is also Low because of steepness. With uneven-aged management there are no concerns

RECREATION:
No Concerns

SOILS/WETLANDS:
Slopes range from 30 to 85%. There is a ½ acre of slopes greater than 72% that is suitable for harvest with partial cut and full suspension. There are isolated pockets of forested wetland in the unit. These areas are located in the southwestern boundary of the unit between 30 to 55%. In the remainder of the unit, about 15% of the unit is forested wetlands. About 4 acres were excluded due to very high landslide potential, colluvial activity, steep slopes, and unstable drainages. The remainder of the unit is suitable for harvest with full suspension and partial harvest. (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:
Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit Number 197 | **Alternative 2** | **VCU: 581**



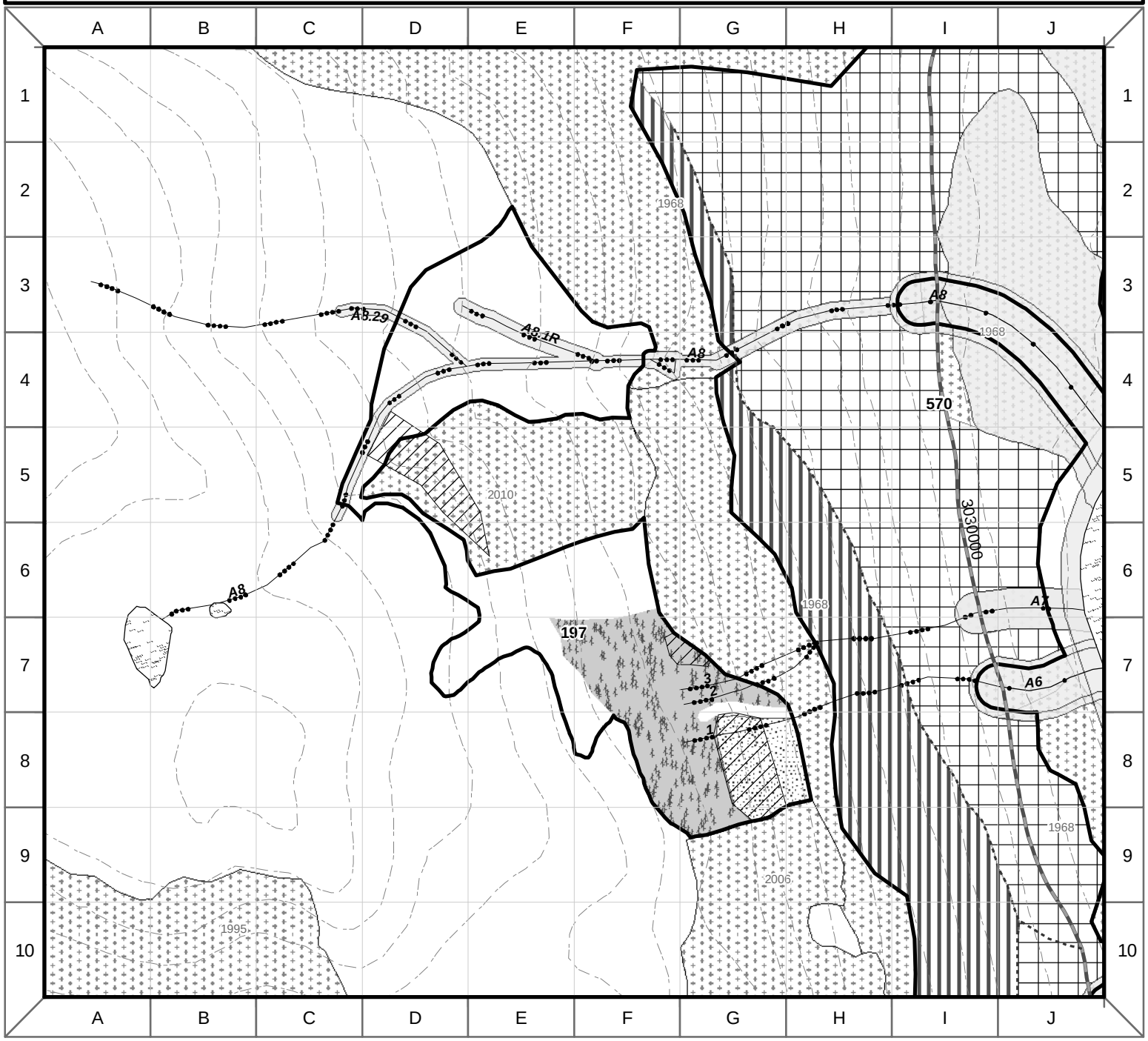
Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt2.mxd 14 July 2012

Unit Number 197 | **Alternative 3** | **VCU: 581**



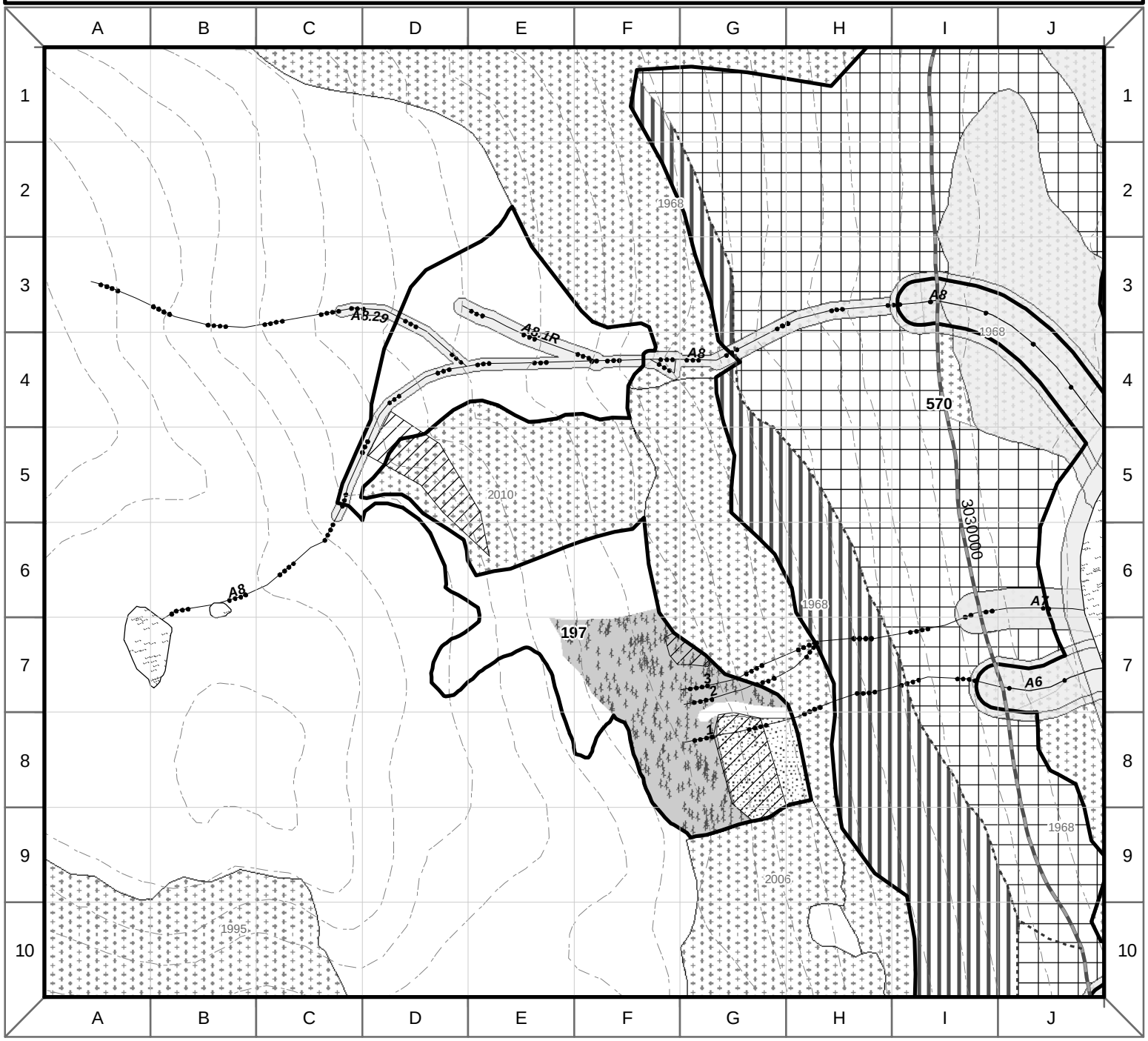
Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt3.mxd 14 July 2012

Unit Number 197 | **Alternative 4** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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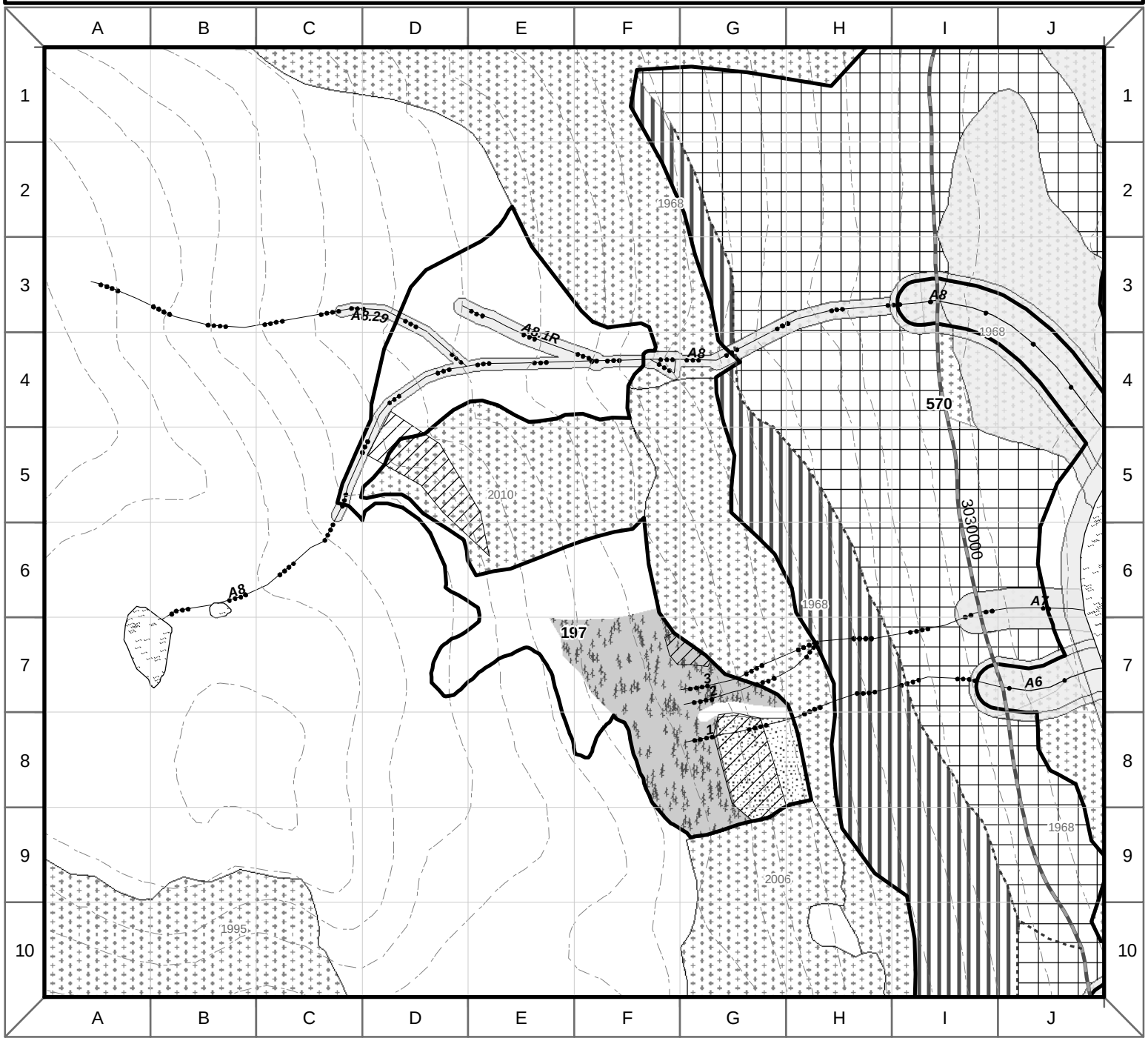
Unit Number 197 | **Alternative 5** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 200

Unit Number	200	Alternatives	2, 3, 4, 5	Total Unit Acres:	18.3	Prescription:	Clearcut
VCU Number:	581	Harvest System:	Cable, Helicopter	Net Harvest Volume (MBF):	222	LUD:	Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure with over-mature timber that shows declining volume growth. The overstory consists of western hemlock as the dominant species. Secondary species include Sitka spruce, and patchy Alaska-cedar with widely scattered western redcedar. The dominant damage is stem decay as indicated by cracks and black seams. Mistletoe was rated low. Windthrow risk is moderate. A past even-age harvest with origin in 1987 is to the east. An even-age harvest from 1992 and a partial cut cable unit from 2000 are to the north. These areas all meet the green-up requirements of NFMA.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. Original opening size was 28 acres; this requires that approximately 8 1/2 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to block up POG and divde unit into two smaller openings, as well as reduce visibility of most visible area. Total mapped legacy is approximately 9 3/4 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of cable and helicopter yarding. Cable settings are planned for downhill yarding to landings on the existing NFS road 3000329. Helicopter settings are planned for yarding to landings on existing NFS road 3000329.

ENGINEERING/ROADS:

Np proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Luck Creek.

All streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:

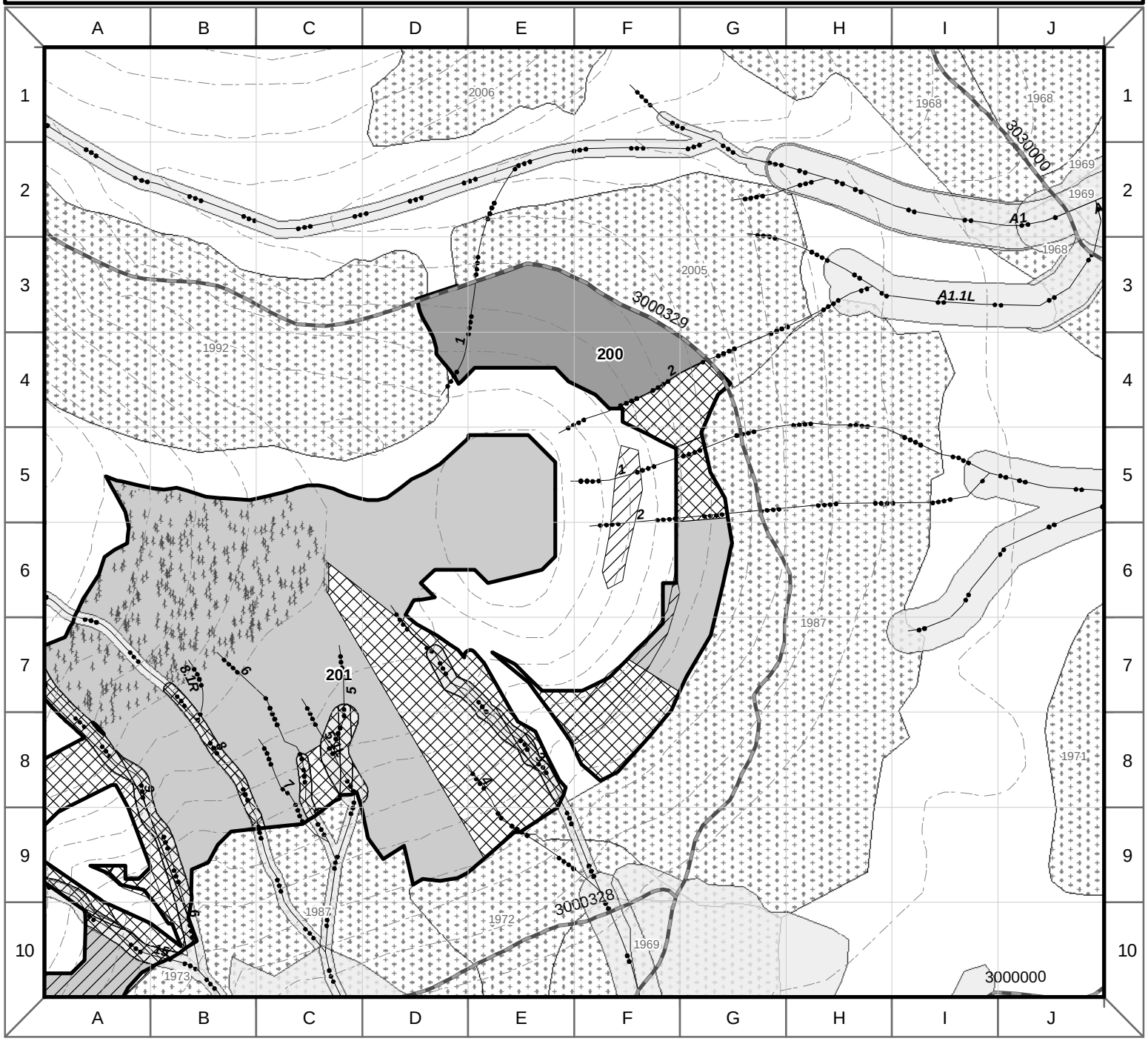
No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

Unit 200
SCENERY: Unit is mostly Very Low SIO with 4 acres of Low. No Concerns
RECREATION: No Concerns
SOILS/WETLANDS: Slopes range from 35 to over 72%. There are about 2 acres of slopes greater than 72% that are suitable for harvest with full suspension. A 2002 debris avalanche runs downslope in the middle of the southern setting. A second debris avalanche enters the northern legacy patch adjacent to the northern setting. No wetlands have been mapped in the unit. Full suspension yarding is required to meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).
WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some marten habitat and deer winter range.

Unit Number 200 | **Alternative 2** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

0 500 Feet

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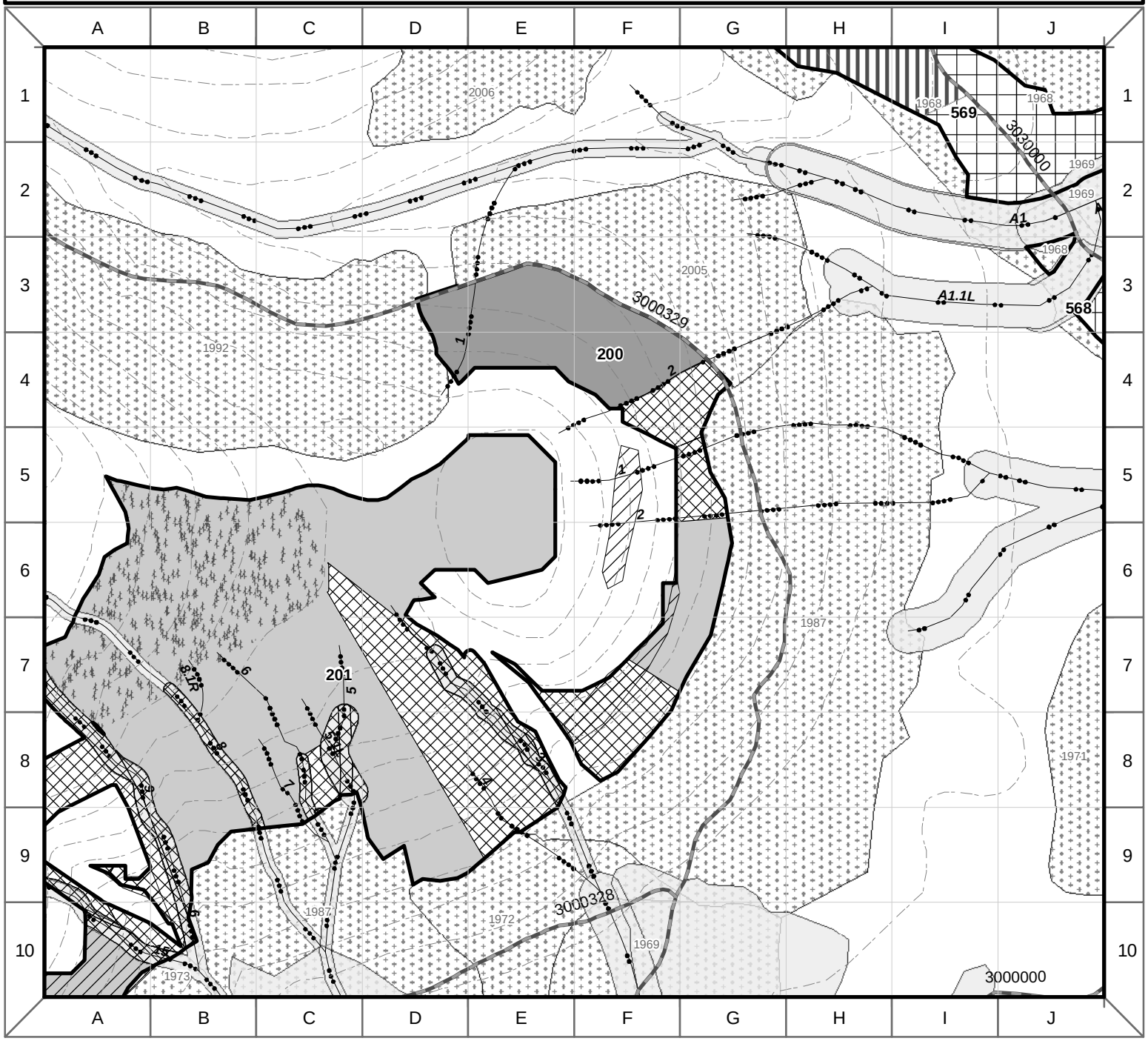
Unit Number 200 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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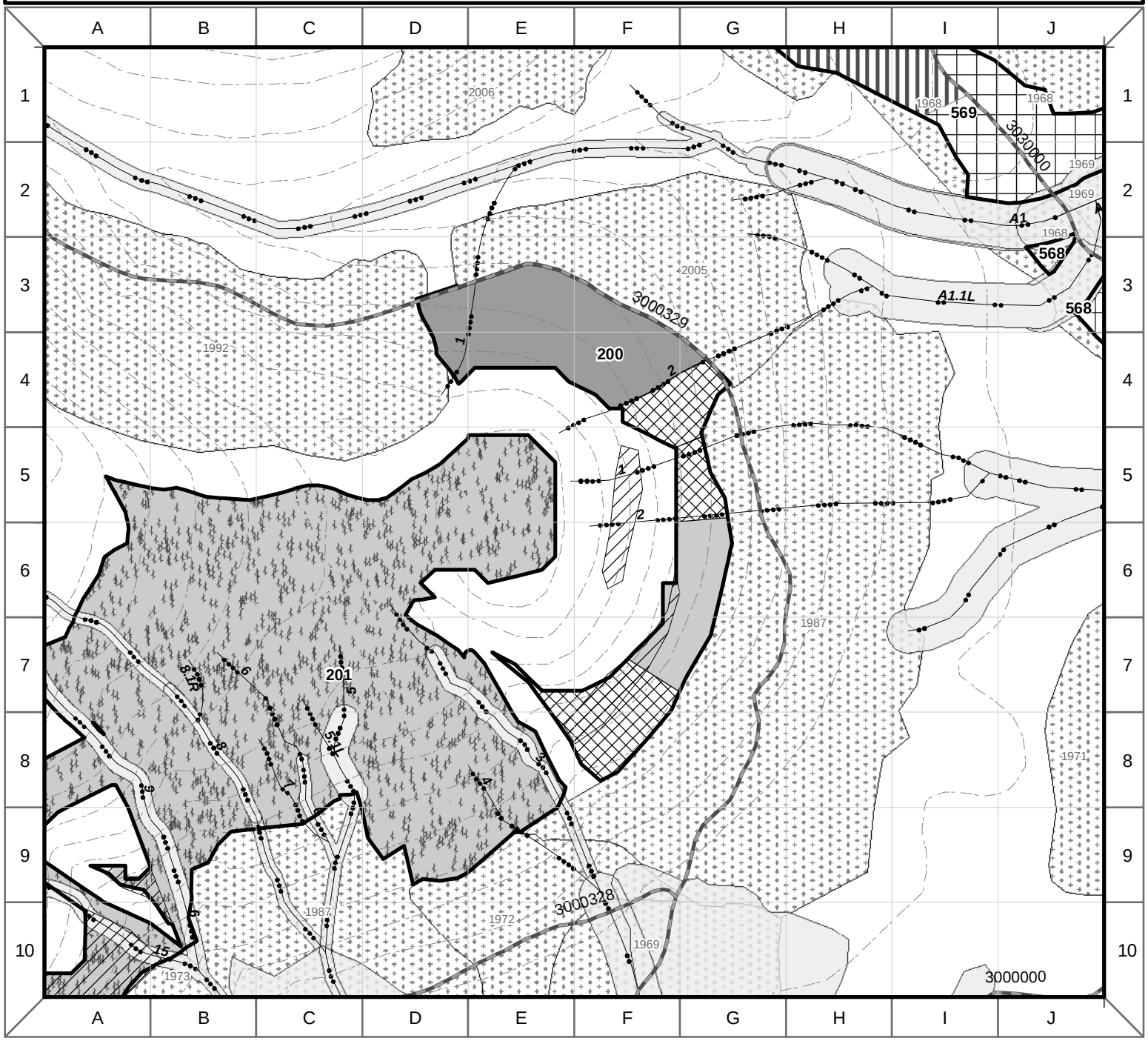
Unit Number 200 | **Alternative 4** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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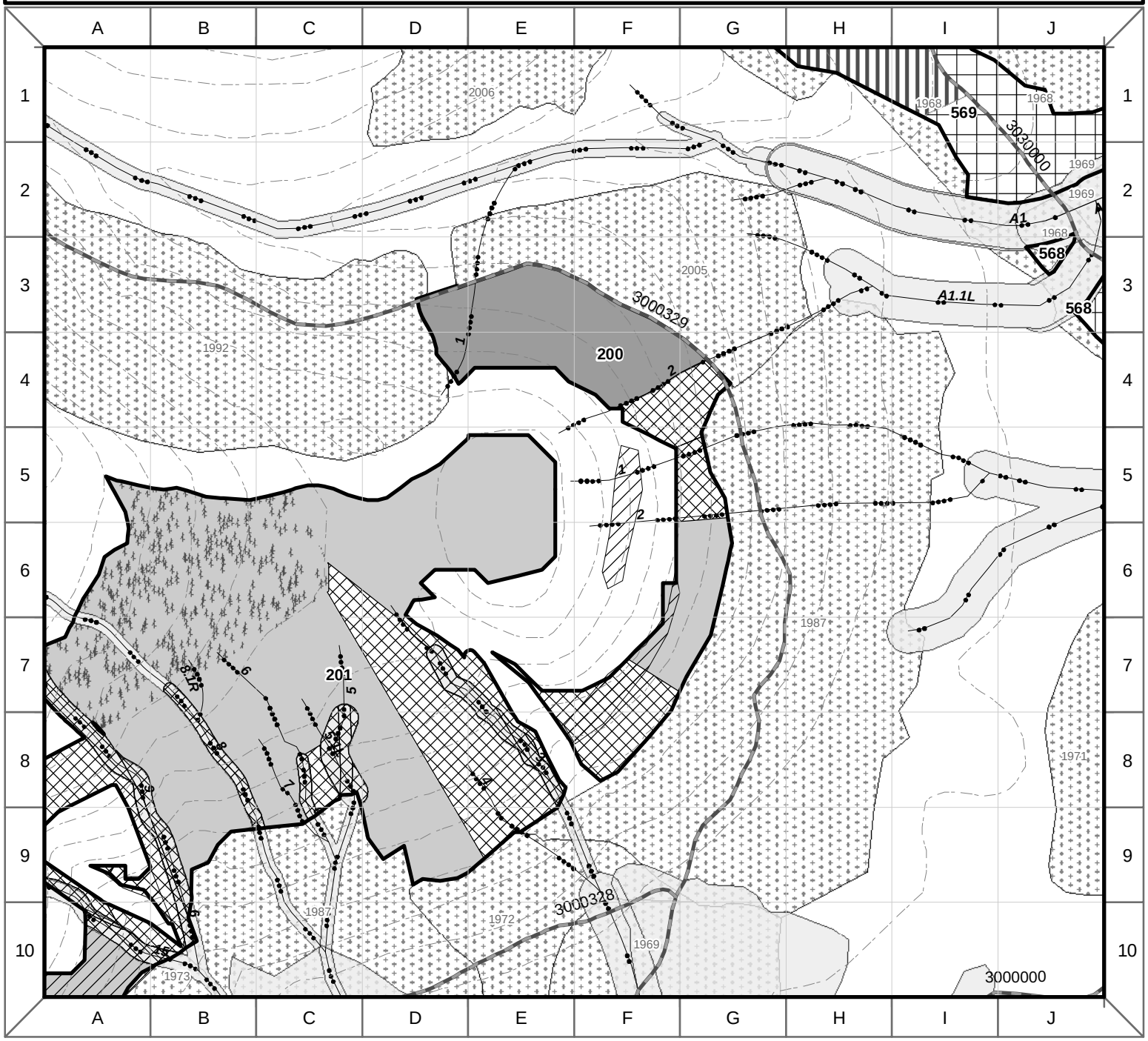
Unit Number 200 | **Alternative 5** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

0 500 Feet

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Unit 201

Unit Number	201	Alternatives	2, 3, 4, 5	Total Unit Acres:	2, 3, 5 - 94.9 4 - 114.6	Prescription:	2, 3, 5 - Clearcut, 50% Removal 4 - 50% Removal
VCU Number:	581	Harvest System:	Helicopter	Net Harvest Volume (MBF):	2, 3, 5 - 2,240 4 - 1,537	LUD:	Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 201 has old-growth stand structure. The overstory consists of western hemlock as the dominant species. Secondary species include Sitka spruce, and patchy Alaska-cedar with western redcedar in the southern half of the unit. The dominant damage is stem decay, indicated by cracks and black seams. Mistletoe was rated low. Windthrow risk is moderate. An adjacent past harvest to the east has regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut (Alternatives 2, 3, 5 settings as shown on unit card)
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. About 103 acres of the unit represented a potential opening; this requires approximately 31acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy within these 103 acres included RMAs and to block up large areas building off of RMAs, to divide the opening into three openings, also reducing visibility. Total mapped legacy is approximately 31 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Alternative 4, Alternatives 2, 3, 5 settings as shown on unit card)

Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

No Legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on existing NFS roads 3000329, 3000328, and 3000331.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 201

Streams are tributaries to Luck Creek. (Location is depicted from confluence to headwaters)

Stream#: 3 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCD, HCO
Concerns: Active erosion
Buffer (RMA): Class III or HCM and HCD to the top of the side-slope break. Class IV HCO none.
Alternatives: 2, 3, and 5 Buffer (RAW): Will be identified by IDT during layout.
Alternative: 4 Buffer (RAW): no review needed.
Protection: Category B and C

Stream#: 5 Class: III, IV Flagging: O/W, G/W C- Type: HCV, HCO
Concerns: Blowdown and active erosion
Buffer (RMA): Class III for HCV to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B and C

Stream#: 6 Class: III, IV Flagging: O/W, G/W C- Type: HCV, HCO
Concerns: Blowdown and active erosion
Buffer (RMA): Class III for HCV to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B and C

Stream#: 8 Class: III Flagging: O/W C- Type: HCM, HCO
Concerns: blowdown
Buffer (RMA): Class III for HCM and HCO to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B

Stream#: 9 Class: III Flagging: O/W C- Type: HCD
Concerns: blowdown
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B

Stream#: 15 Class: III Flagging: O/W C- Type: HCD
Concerns: active erosion
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B

Stream#: 16 Class: III Flagging: O/W C- Type: HCD
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B

Stream#: 16.1R Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: blowdown and Active erosion
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B and C

Stream#: 16.2R Class: III, IV Flagging: O/W, G/W C- Type: HCM
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCM none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:
No Concerns

Unit 201

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is entirely Very Low SIO. No concerns.

RECREATION:

No Concerns

SOILS/WETLANDS:

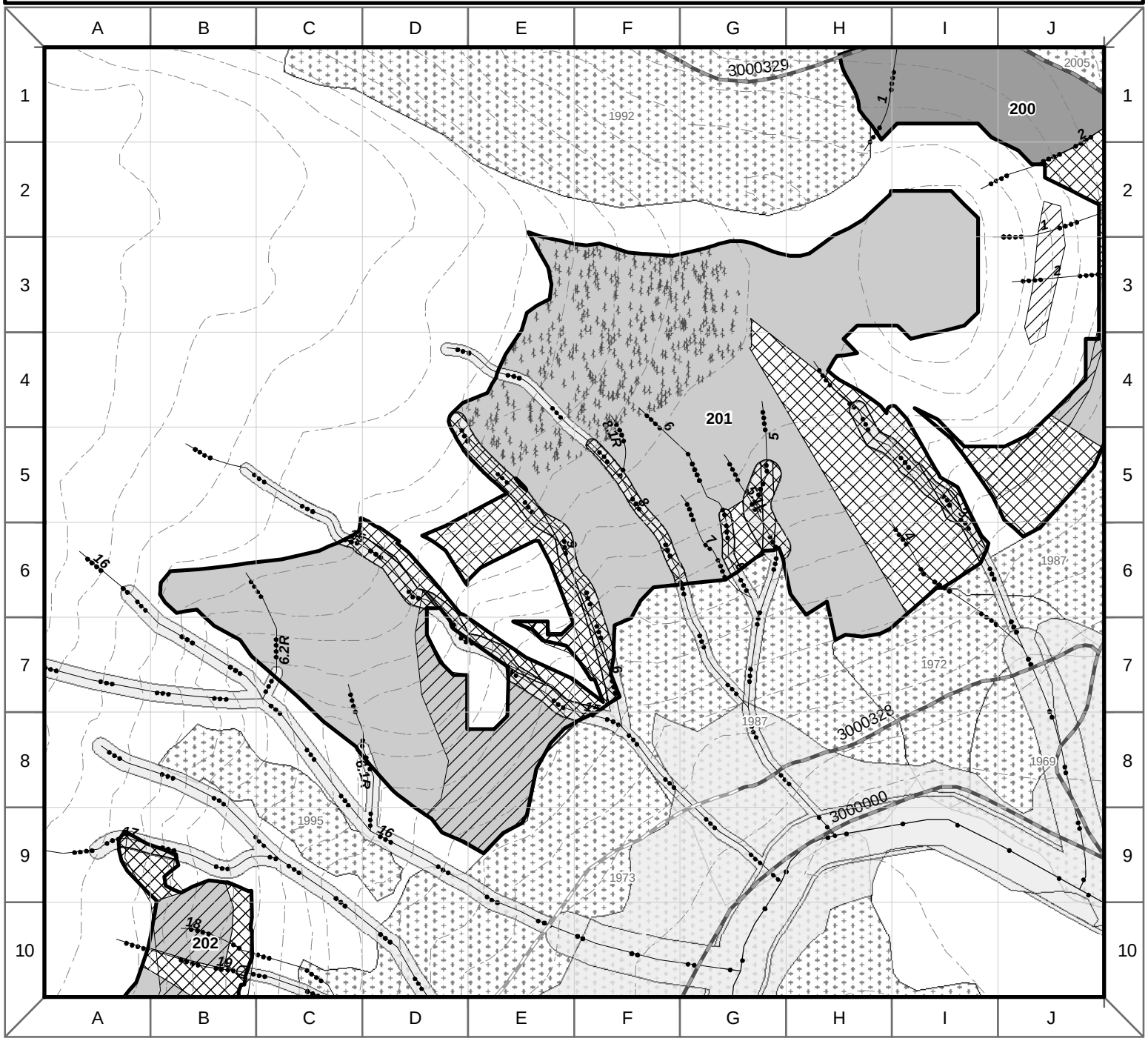
Slopes range from nearly level to 100%. There are about 9 acres of mapped slopes greater than 72% in the harvest unit that are suitable for full suspension harvests. Forested wetlands occur in about 1/3 of the unit. Full suspension yarding is required to meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:

Unit includes average snow deer winter range (southern 3/4 of unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range.

Alternative 4: Prescription is 50% basal area removal for entire unit to minimize impacts to connectivity and marten habitat in the Luck Creek drainage. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit Number 201 | **Alternative 2** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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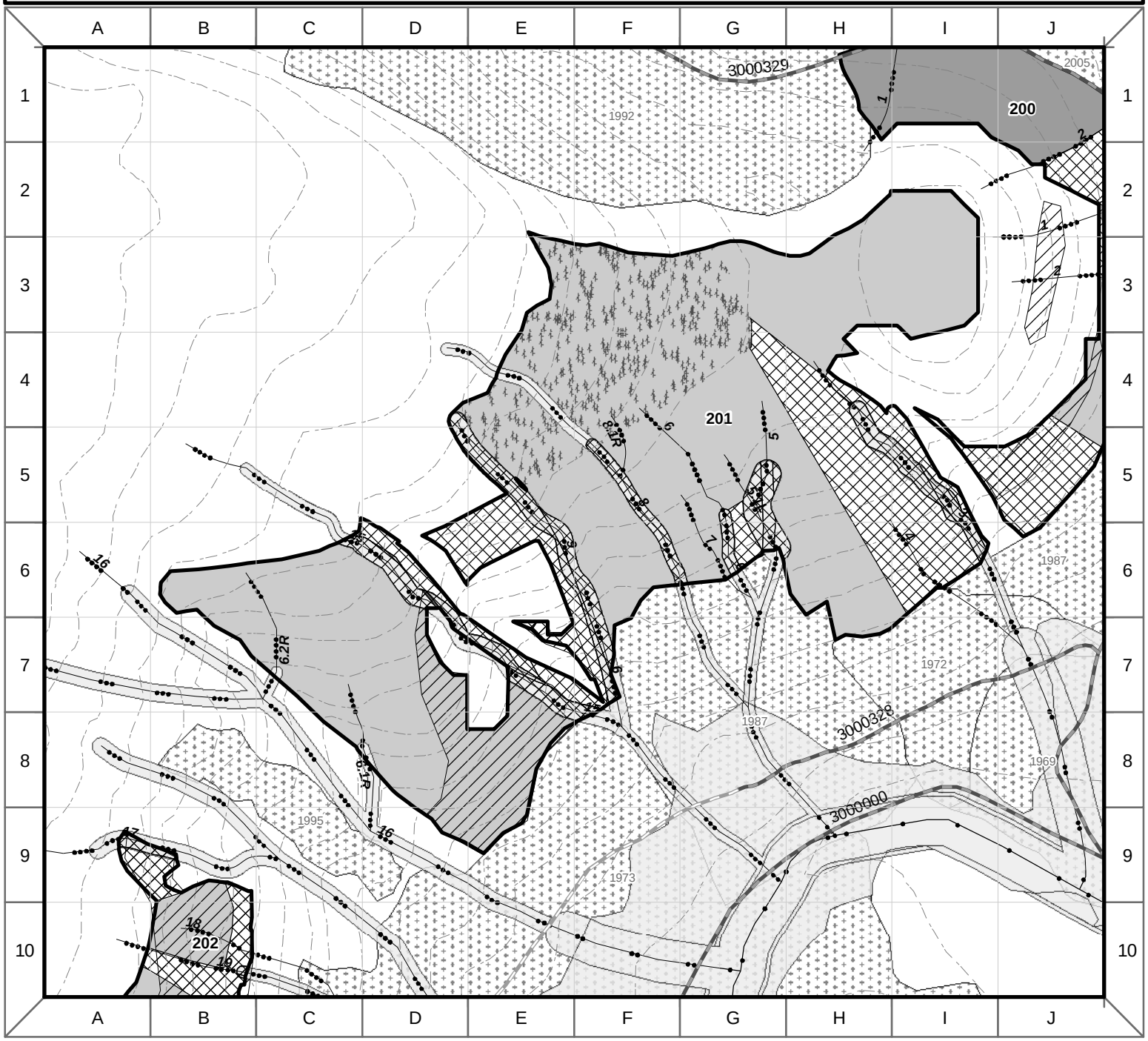
Unit Number 201 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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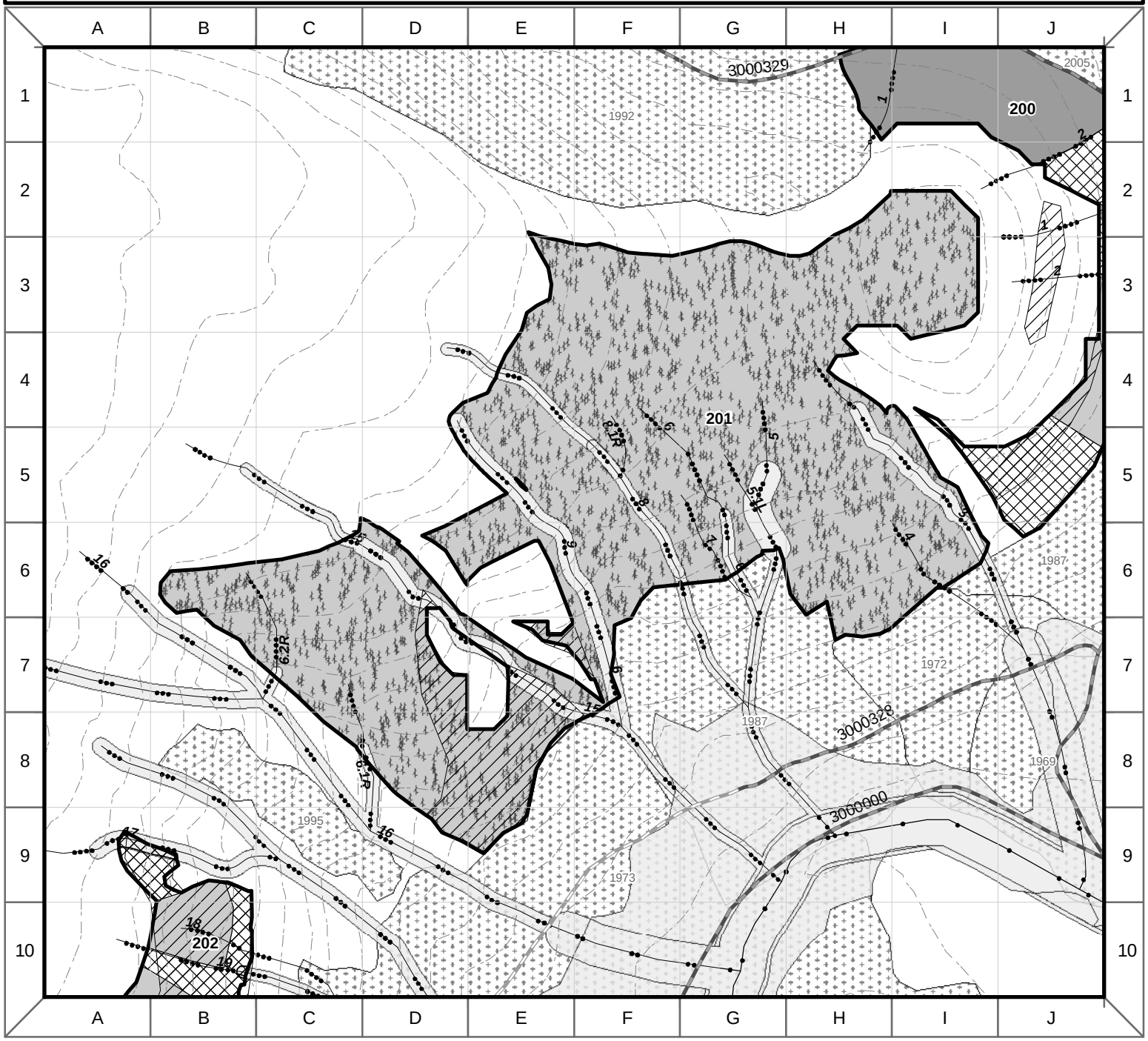
Unit Number 201 | **Alternative 4** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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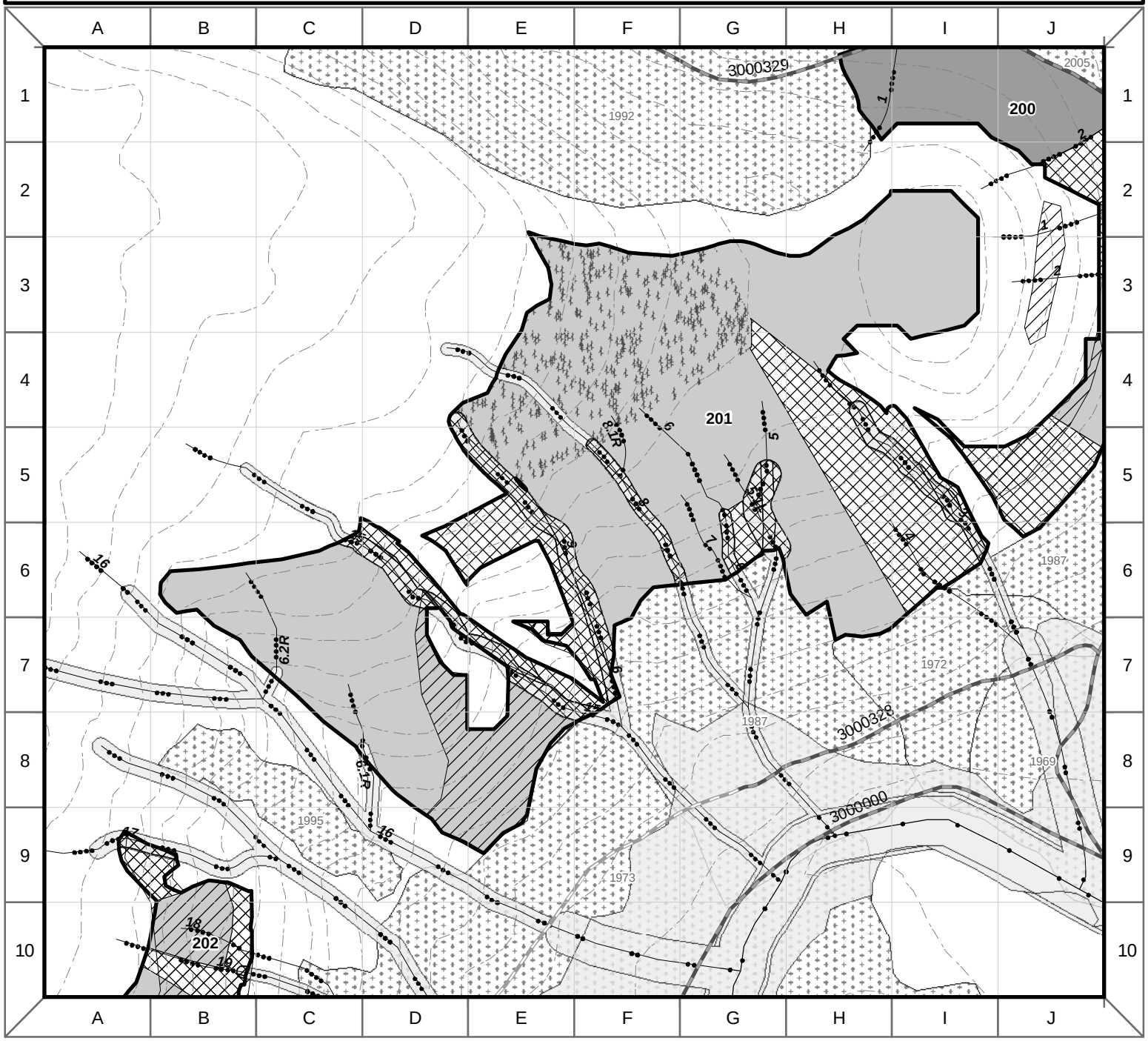
Unit Number 201 | **Alternative 5** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt5.mxd 14 July 2012

Unit 202

Unit Number 202	Alternatives 2, 3, 4, 5	Total Unit Acres: 49.6	Prescription: Clearcut
VCU Number: 581	Harvest System: Helicopter	Net Harvest Volume (MBF): 1,429	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 202 has old-growth stand structure with an overstory composition of western hemlock, western redcedar, Sitka spruce and Alaska-cedar. Moderate heart rot and stem decay are the primary damages. Mistletoe is low. Windthrow risk is moderate. This is a mature stand with static to declining growth. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm, stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 22 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to build off RMAs, and add RAW. Total mapped legacy is approximately 23 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on existing NFS roads 3000331 and 3000334.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Luck Creek.

Stream#: 29 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: blowdown, active erosion, with rubble piles present in channel.
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B and C

Stream#: 24 Class: III Flagging: O/W C- Type: HCM
Concerns: blowdown and active erosion, steep side-slopes with shallow soils and exposed bedrock
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B

Stream#: 23 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: Blowdown and active erosion, steep side-slopes with shallow soils and exposed bedrock
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.

Protection: Category B and C

Stream#: 19 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: Blowdown and active erosion
Buffer (RMA): Class III for HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B and C

Stream#: 17 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category B and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
Unit is entirely Very Low SIO. No concerns.

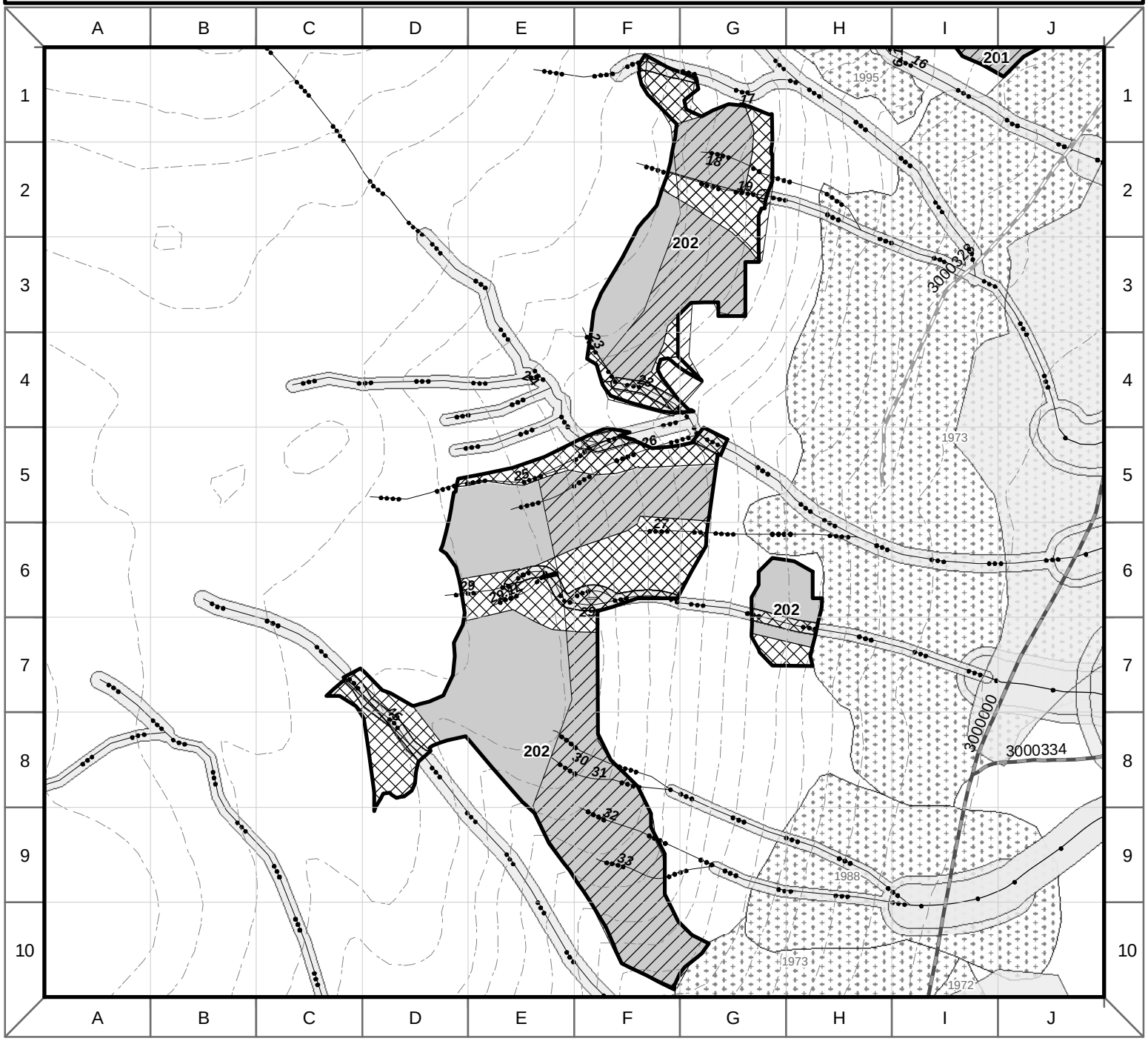
RECREATION:
No Concerns

SOILS/WETLANDS:
Slopes range from nearly level to 90%. There are about 20 acres of mapped slopes greater than 72% in the harvest unit that are suitable for full suspension harvest. An alder revegetated debris torrent initiated near the upper unit boundary and extends below the unit. This debris torrent can be operated around. Full suspension yarding is required to meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

There are approximately 5 acres (10% of the unit) of forested wetland adjacent to the southwestern unit boundary of the west polygon (BMP 12.5).

WILDLIFE:
Unit includes average snow deer winter range (eastern ½ of unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range.

Unit Number 202 | **Alternative 2** | **VCU: 581**



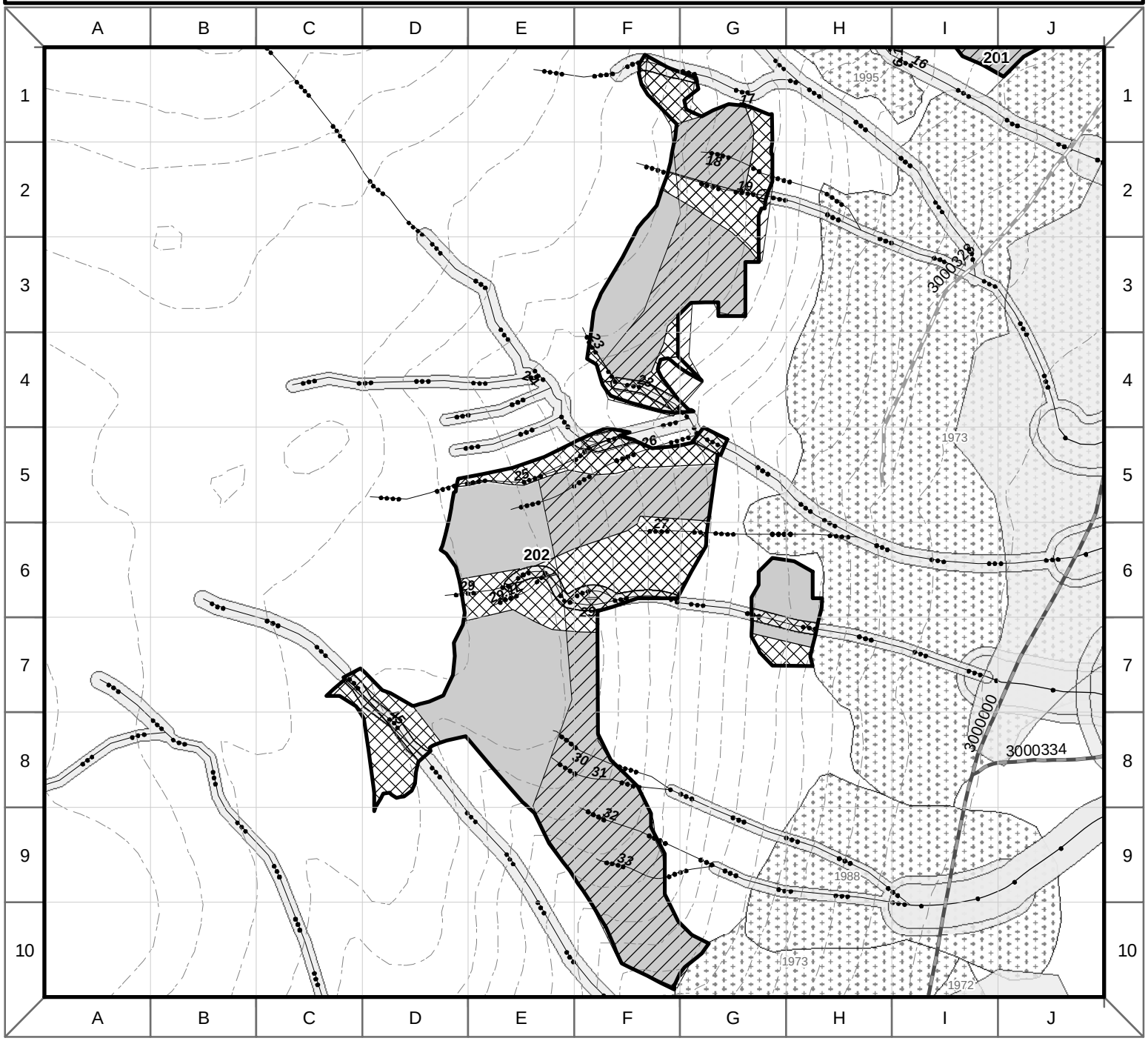
Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt2.mxd 14 July 2012

Unit Number 202 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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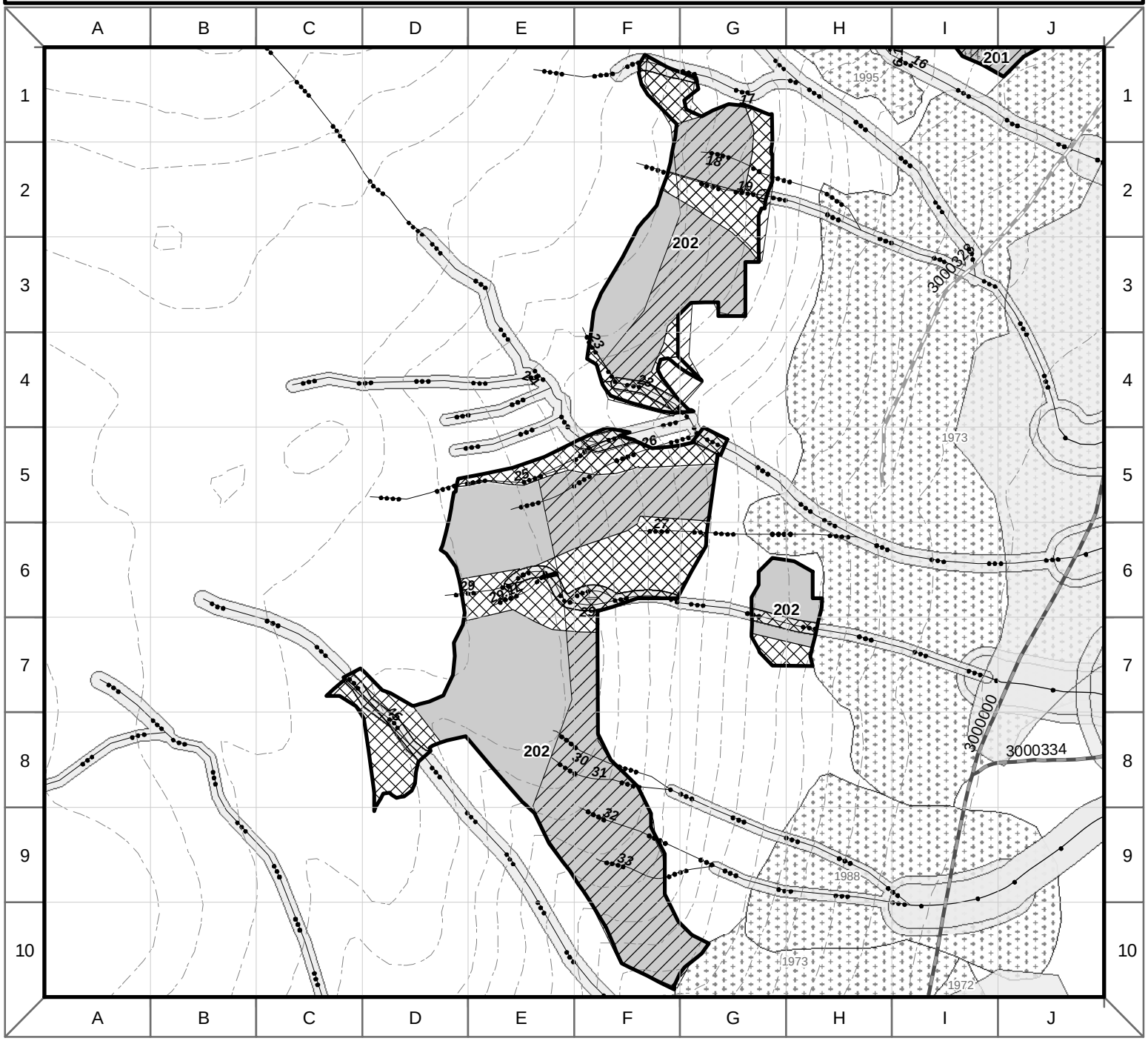
Unit Number 202 | **Alternative 4** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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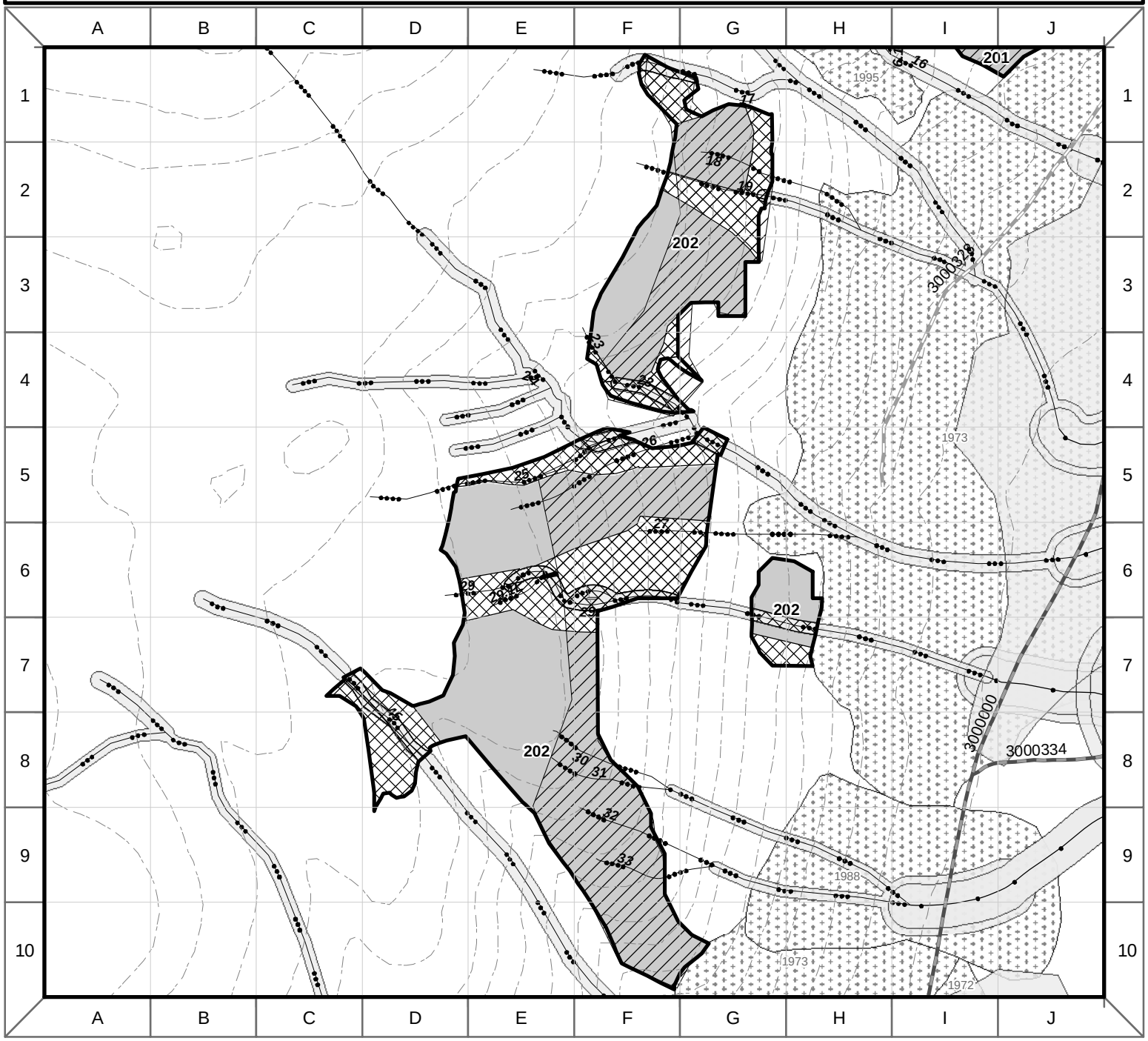
Unit Number 202 | **Alternative 5** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 203

Unit Number	203	Alternatives	2, 3, 4, 5	Total Unit Acres:	72.1	Prescription:	Clearcut, 50% Removal
VCU Number:	581	Harvest System:	Helicopter	Net Harvest Volume (MBF):	2,130	LUD:	Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit is old-growth timber with the overstory consisting primarily of western hemlock, Alaska-cedar and Sitka spruce. Mountain hemlock are abundant in the higher elevations. The unit has over-mature timber with moderate stem decay and defects. Mistletoe is low. Windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut (Alternatives 2, 3, 4, 5 settings as shown on unit card)
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 26 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy consists of soils drops and RMAs. Total mapped legacy is approximately 36 acres and consists entirely of drops for soils and RMAs. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Alternatives 2, 3, 4, 5 settings as shown on unit card)
Maintain at least 50 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

No Legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on existing NFS road 3000340 and the proposed temporary road accessing Unit 206. Helicopter yarding would occur over existing NFS road 3000000, and traffic control would likely be necessary.

ENGINEERING/ROADS:

Unit utilizes the proposed temporary road constructed in Unit 206, totaling 1,100 feet, as shown on the Unit 206 unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Luck Creek.

Stream#: 6 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: blowdown and active erosion
Buffer (RMA): Class III for HCD and HCO to the top of the side-slope break. Class IV for HCO none.
Protection: Category B and C

Stream#: 20 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: blowdown and active erosion in Class III, steep side-slopes with shallow soils and exposed bedrock.
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout
Protection: Category B and C

Stream#: 10 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCM
Concerns: blowdown and active erosion in Class III, steep side-slopes with shallow soils and exposed bedrock.
Buffer (RMA): Class III for HCD and HCM to the top of the side-slope break.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout
Protection: Category B and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

GEOLOGY/KARST:

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

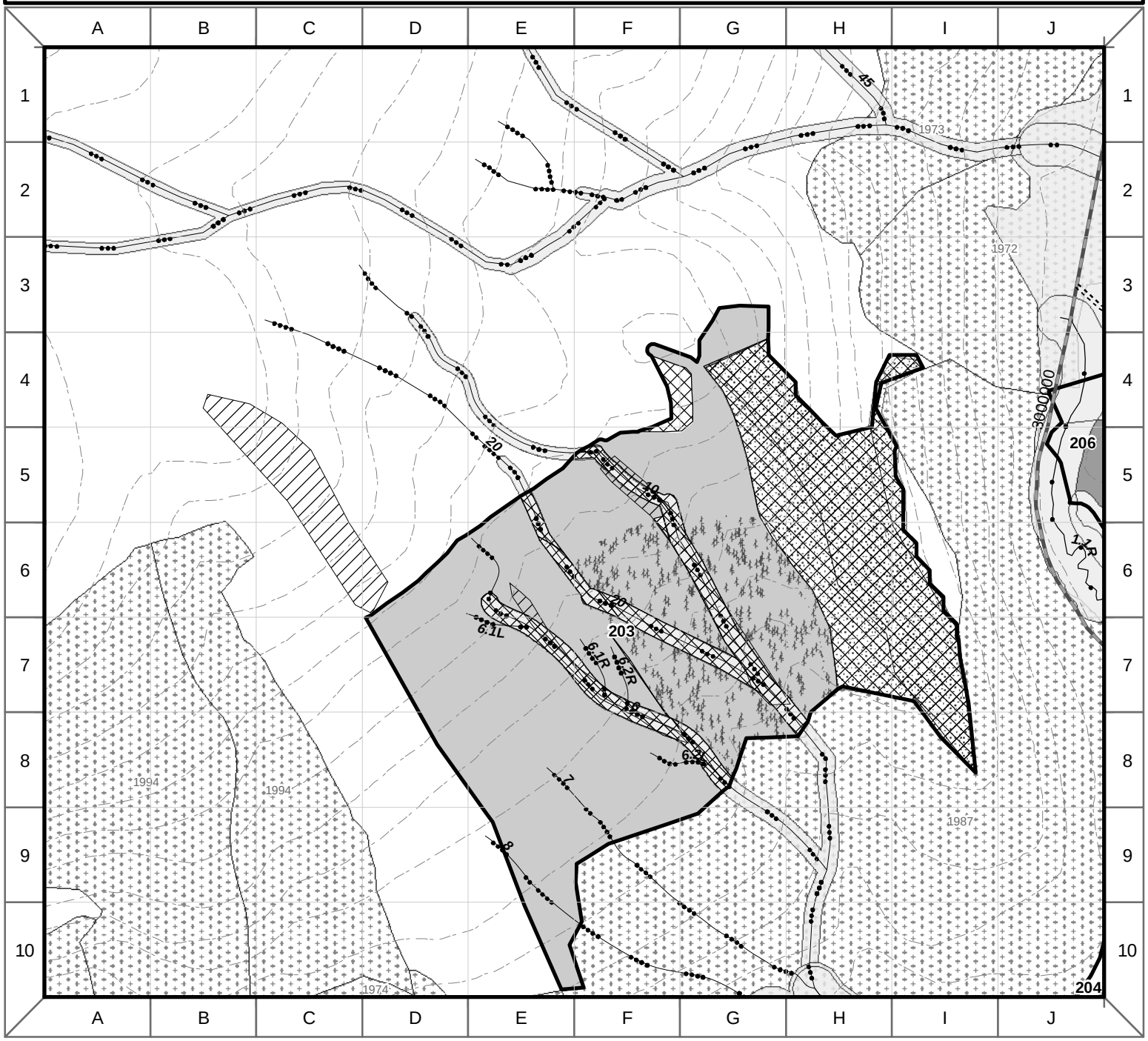
SCENERY:
No Concerns

RECREATION:
No Concerns

SOILS/WETLANDS:
Slopes range from 40 to greater than 72%. Slopes inside the V-notches range from 100 percent to near vertical. Slopes outside of the V-notches range from 35 to 60 percent. Minor areas of forested wetlands were identified. All slopes exceeding 72% are included in soil exclusion area. About 26 acres was excluded due to very high landslide potential, colluvial activity, steep slopes, and unstable drainages. The remainder of the unit is suitable for harvest with full suspension and partial harvest.

WILDLIFE:
Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range.

Unit Number 203 | **Alternative 2** | **VCU: 574,581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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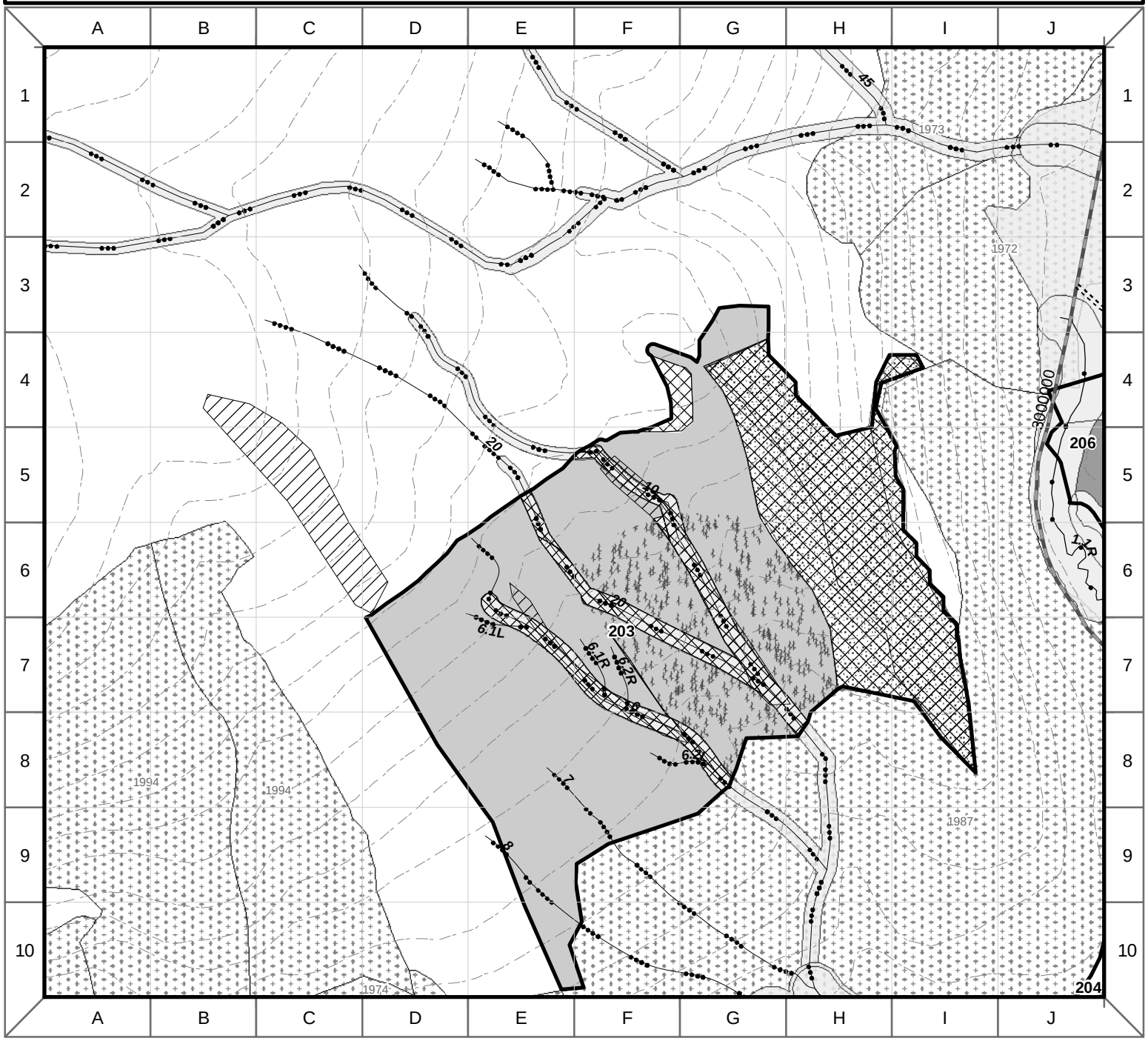
Unit Number 203 | **Alternative 3** | **VCU: 574,581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

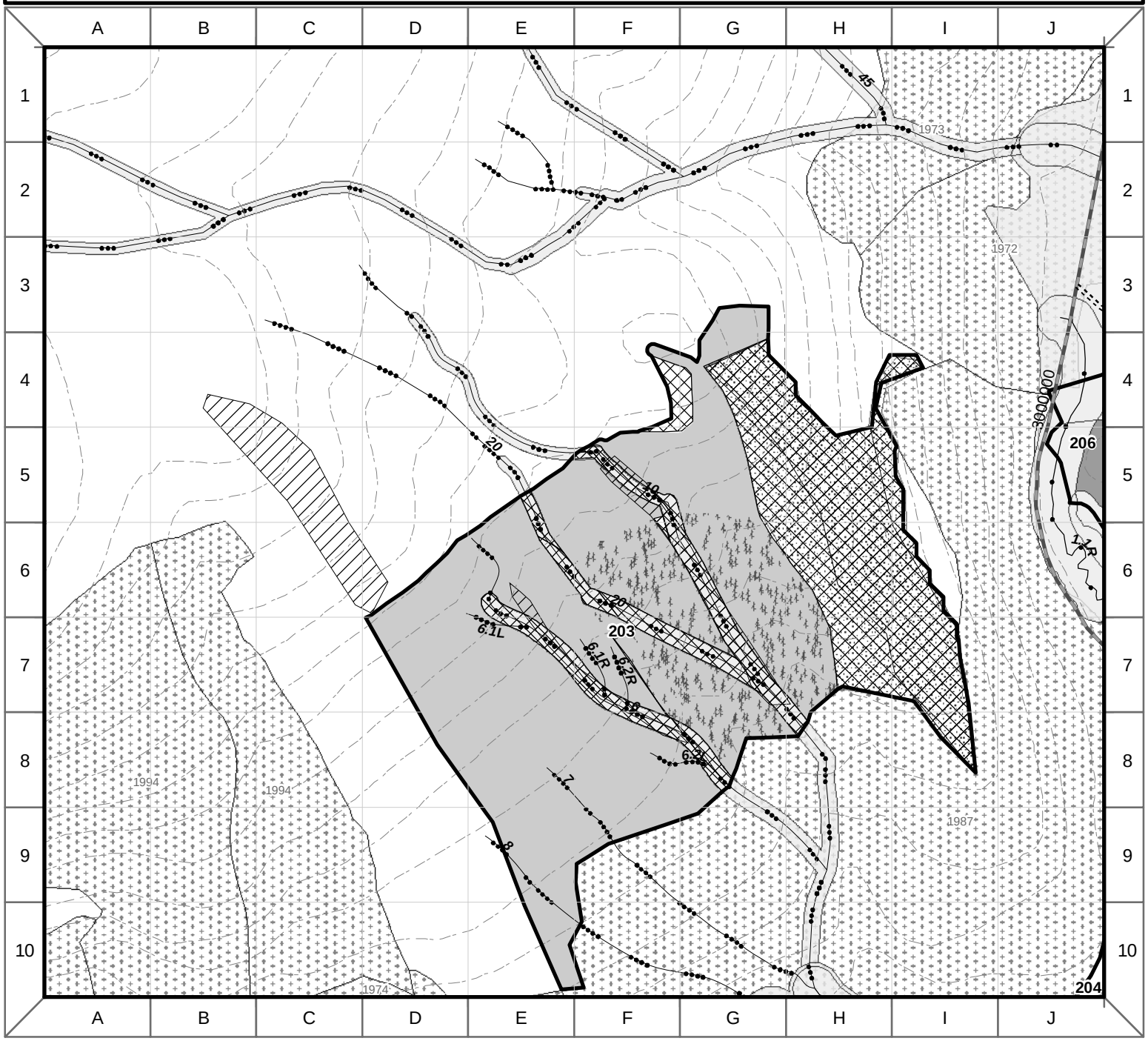
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt3.mxd 14 July 2012

Unit Number 203 | **Alternative 4** | **VCU: 574,581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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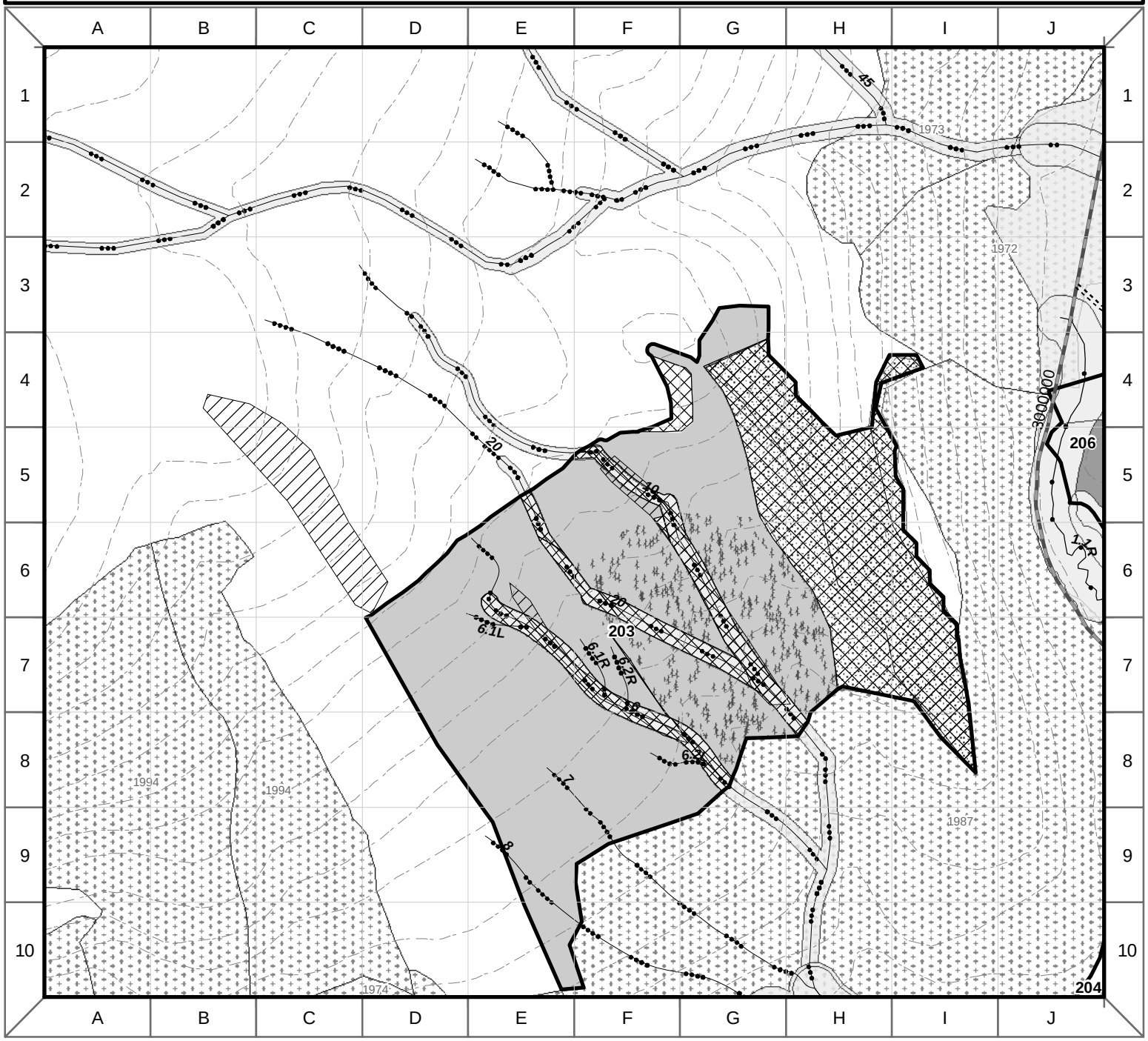
Unit Number 203 | **Alternative 5** | **VCU: 574,581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

R:\projects_2010\BigThorneEIS\maps\Unitcards\Alt5.mxd 14 July 2012

Unit 204

Unit Number 204	Alternatives 2, 3, 4, 5	Total Unit Acres: 8.9	Prescription: Clearcut
VCU Number: 581	Harvest System: Shovel	Net Harvest Volume (MBF): 176	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth structure. The overstory consists of a mixture of western hemlock and western redcedar. Sitka spruce are present in lesser amounts. The main damage is stem form with light to moderate stem decay. Overall the average defect rating for the whole unit is moderate. Mistletoe was rated as low. Windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit consists of settings that are less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the existing NFS road 3000000.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Luck Creek.

Stream#: 1.11R.1R Class: I Flagging: B/W C- Type: FPO, FPS, PAB, AFM
Concerns: extreme braiding present
Buffer (RMA): Class I for FPO and FPS greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for AFM greater of 140 feet or active portion of alluvial fan.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A

Stream#: 1.11R.1R.1R Class: I Flagging: B/W C- Type: MMO
Concerns: none
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category A

Stream#: 1 Class: I Flagging: B/W C- Type: FPM
Concerns: none

Unit 204

Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category A

Stream#: 1.10R Class: I Flagging: B/W C- Type: PAO
Concerns: none
Buffer (RMA): Class I for PAO greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): no review needed.
Protection: Category A

Temporary roads for Unit 206: Alternatives 2, 3, 4, and 5 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

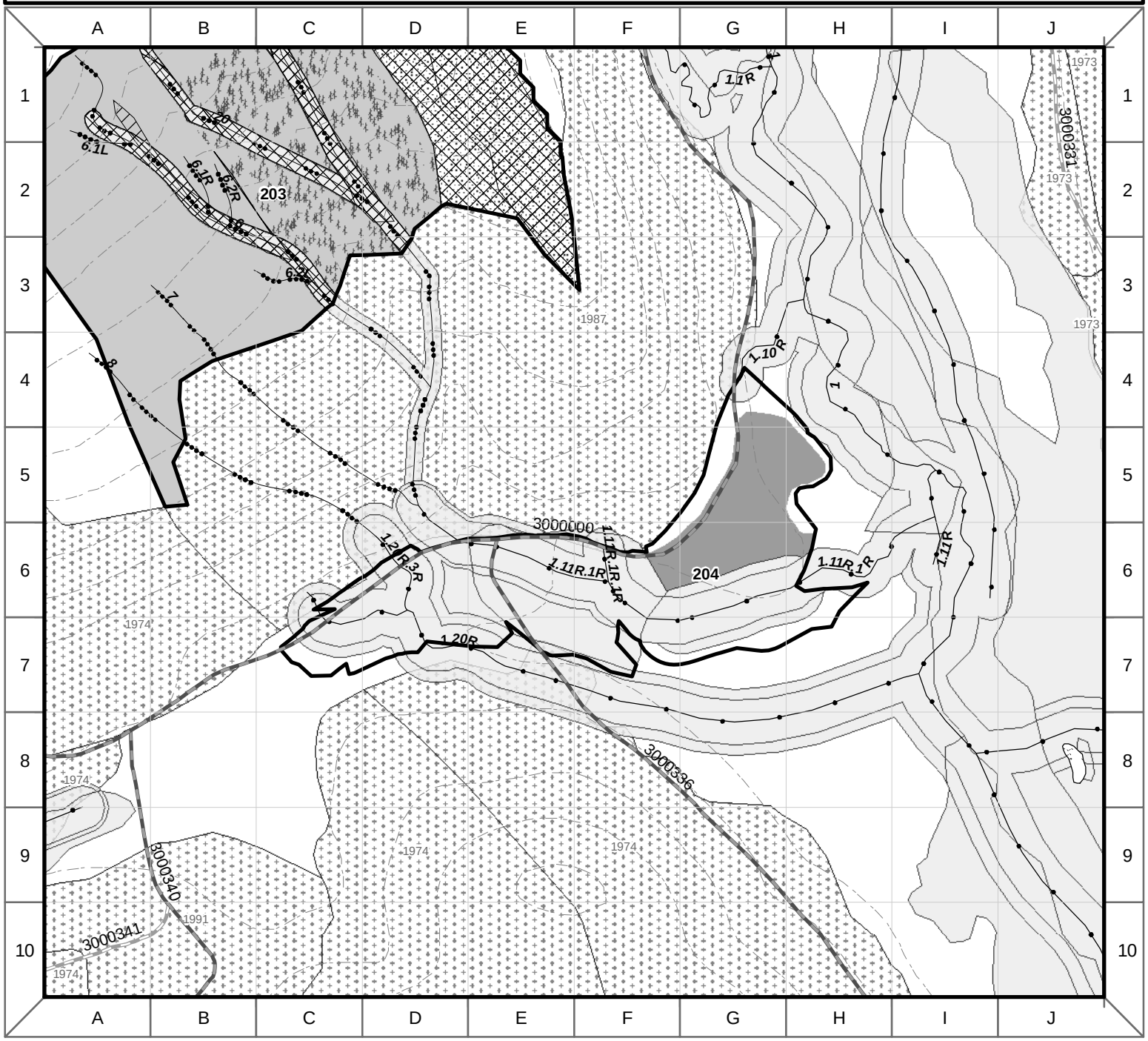
SCENERY:
No Concerns

RECREATION:
No Concerns

SOILS/WETLANDS:
Slopes are gentle throughout the unit. Forested wetlands are located throughout the unit. The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

WILDLIFE:
Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 204 | **Alternative 2** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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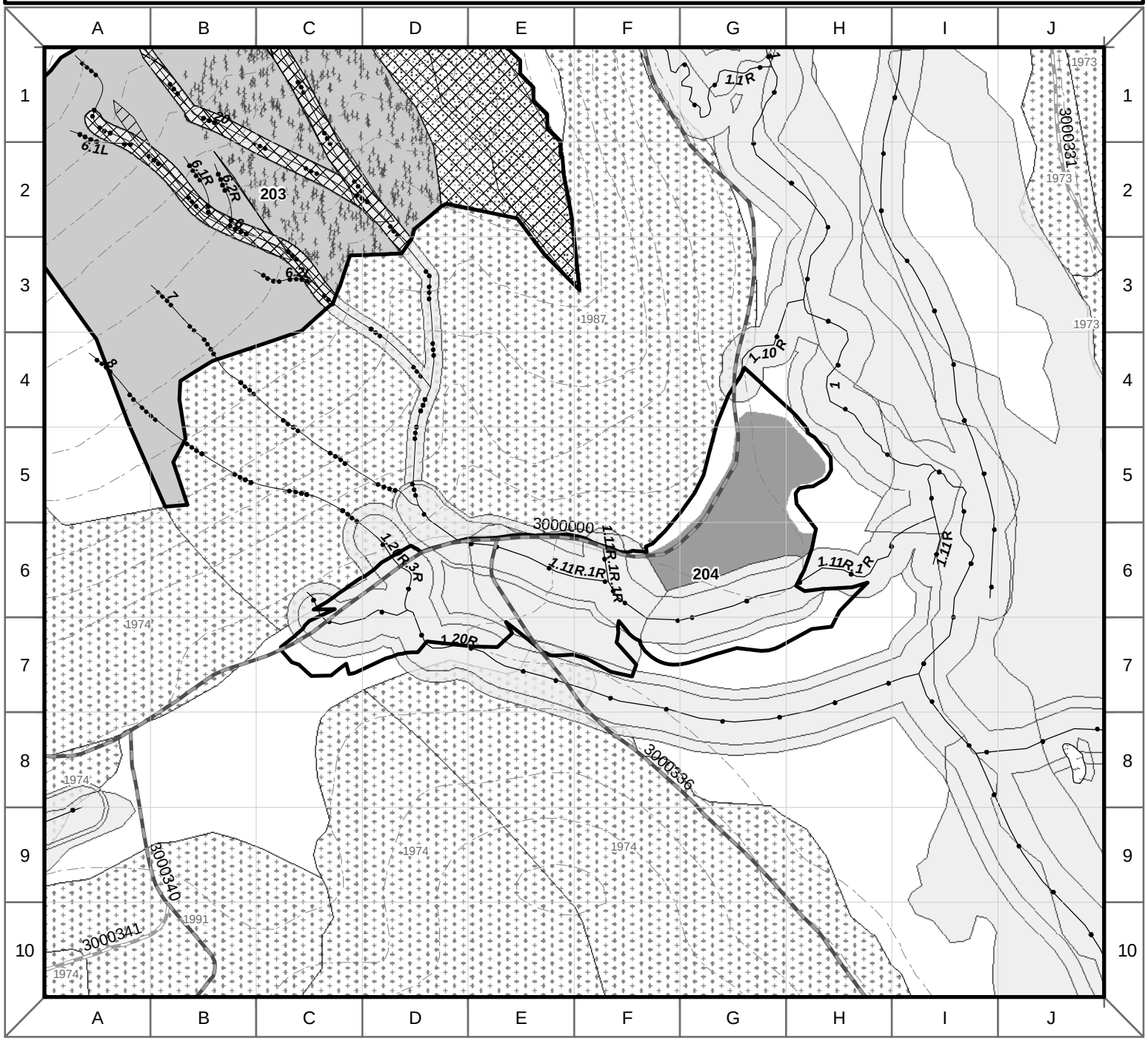
Unit Number 204 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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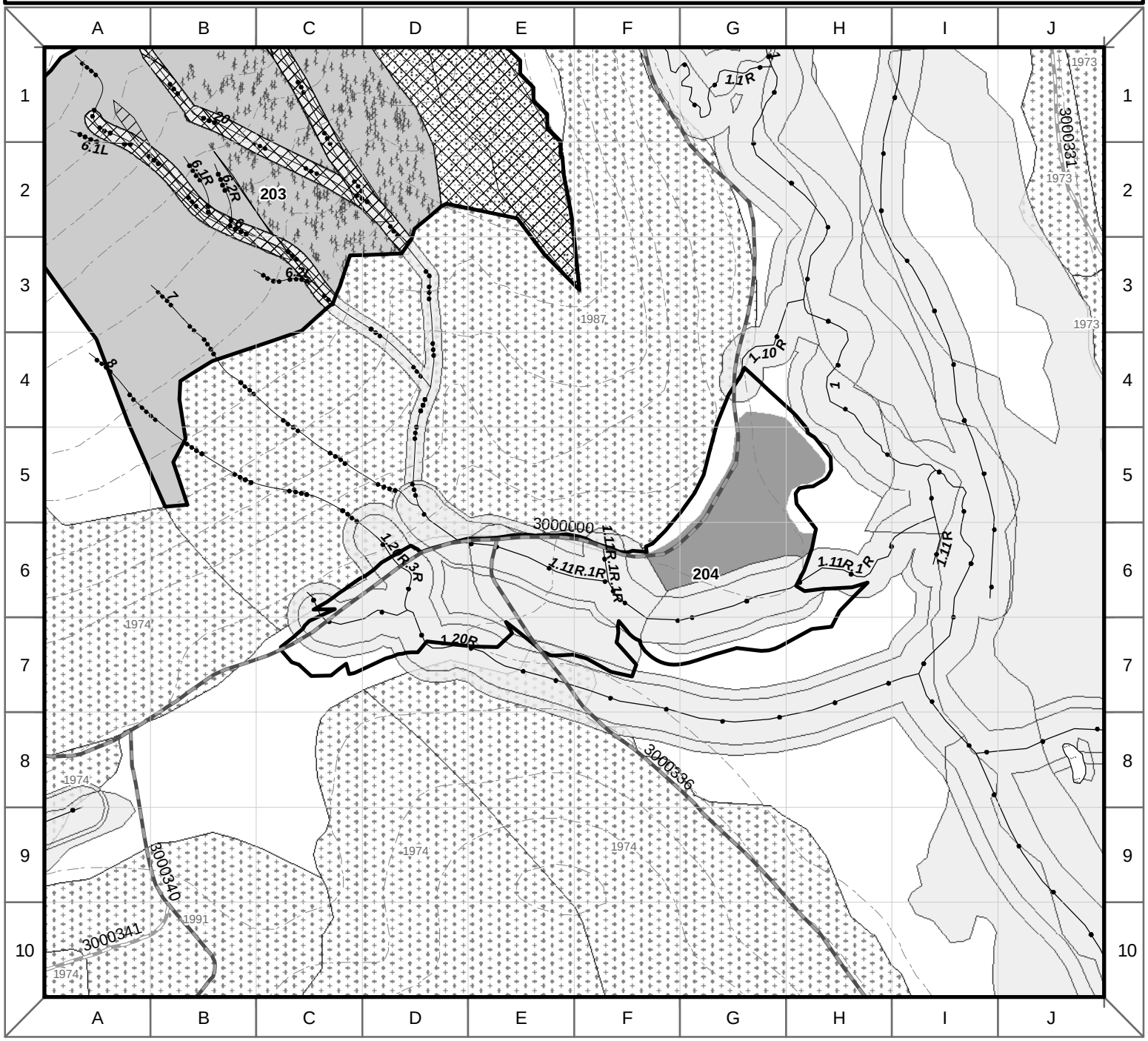
Unit Number 204 | **Alternative 4** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

0 500 Feet

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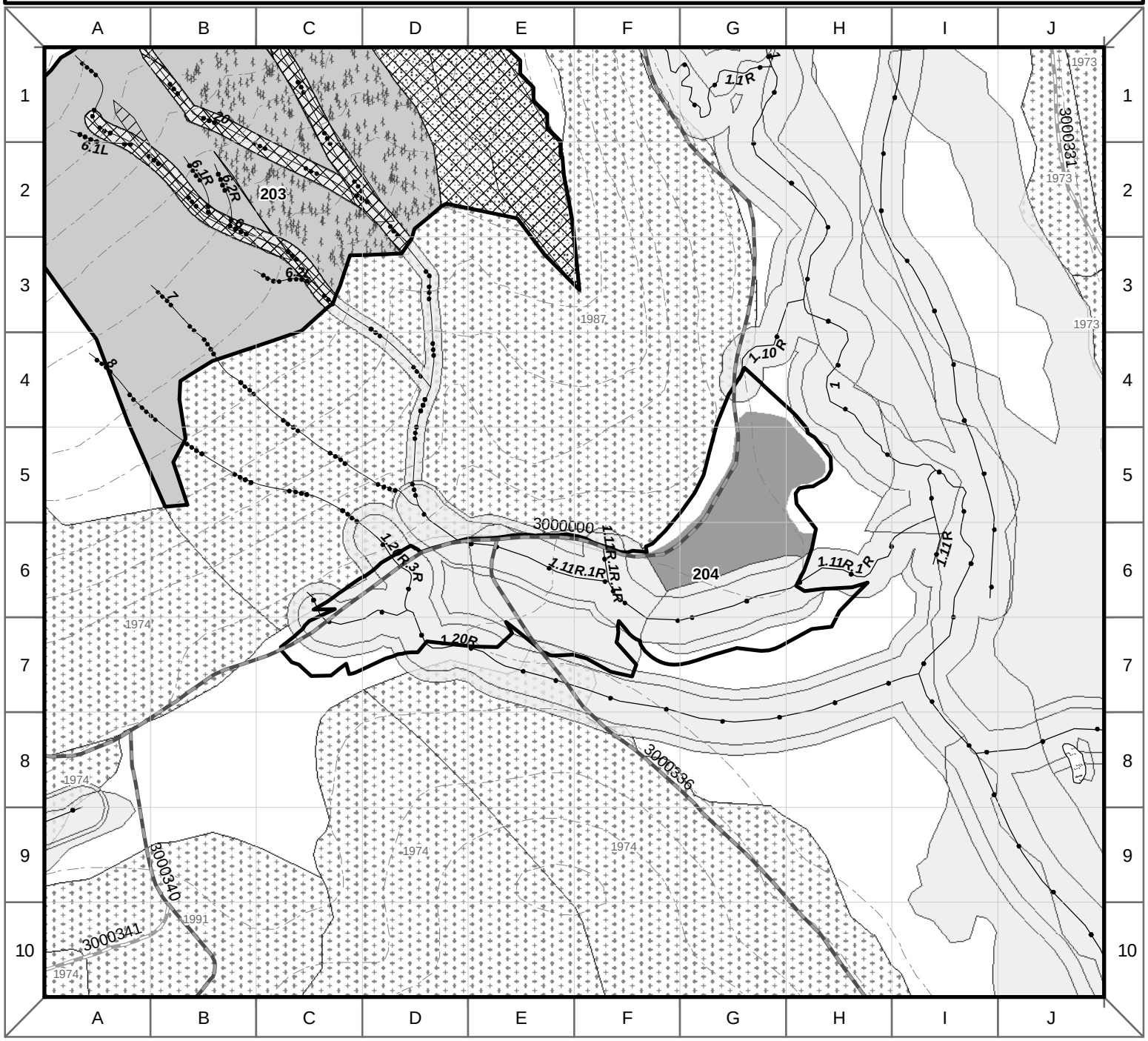
Unit Number 204 | **Alternative 5** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 206

Unit Number 206	Alternatives 2, 3, 4, 5	Total Unit Acres: 3.6	Prescription: Clearcut
VCU Number: 581	Harvest System: Shovel	Net Harvest Volume (MBF): 83	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure. The overstory consists mostly of western Hemlock and Sitka Spruce. The major damage agent is stem decay. Mistletoe is low. Windthrow risk is high. There is extensive recent windthrow in the unit. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit consists of settings that are less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the proposed temporary road.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road, totaling 1100 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Luck Creek. (Location is depicted from confluence to headwaters)

Stream#: 1 Class: I Flagging: B/W C- Type: PAM
Concerns: none
Buffer (RMA): Class I for PAM greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during Layout.
Protection: Category A

Stream#: -1.1R Class: I Flagging: B/W C- Type: PAS, PAB
Concerns: blowdown
Buffer (RMA): Class I for PAS and PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 2, 3, 4, and 5 Buffer (RAW): Will be identified by IDT during Layout.
Protection: Category A

Temporary roads for Unit 206: Alternatives 2, 3, 4, and 5 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

Unit 206

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

Slopes are gentle throughout the unit. Forested wetlands are located throughout the unit. The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

A temporary road will impact about 1/4 acre of forested wetland within the unit and less than 1/4 acre outside of the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 206 | **Alternative 2** | **VCU: 581**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Partial Cut
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit Number 206 | **Alternative 3** | **VCU: 581**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Unit Number 206 | **Alternative 4** | **VCU: 581**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit Number 206 | **Alternative 5** | **VCU: 581**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 207

Unit Number 207	Alternatives 2, 3	Total Unit Acres: 12.4	Prescription: Clearcut
VCU Number: 582	Harvest System: Cable	Net Harvest Volume (MBF): 442	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 207 has old-growth stand structure with an overstory consisting of western hemlock and western redcedar. Sitka spruce and Alaska-cedar are secondary components. This is a mature stand with moderate to heavy areas of mistletoe, stem decay and breakage. Windthrow risk is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to heavy levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit consists of settings that are less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for uphill cable yarding to landings on the proposed temporary road. Unit borders the Ratz roadless area.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road, totaling 1600 feet, as displayed on the unit card. Approximately 200 feet of this road will be constructed across decommissioned road bed. Reconstruction of existing NFS road 3030100, totaling 12,000 feet, will be required to access this unit. This road also is used to access Units 464, 577, 578, 212, and 213.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait.

All streams in unit: Class: IV Flagging: G/W C- Type: HC
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

Temporary roads for Unit 153: Alternatives 2 and 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

Unit 207

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No concerns, but unit is adjacent to the Ratz Roadless Area along southeast border.

SOILS/WETLANDS:

Most slopes range from 35 to 55%. Intermittent areas of forested wetlands are located along the proposed road line. A minimum of partial suspension yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

A temporary road will impact about 1 acre of forested wetland in the unit and about 1/2 acre outside of the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

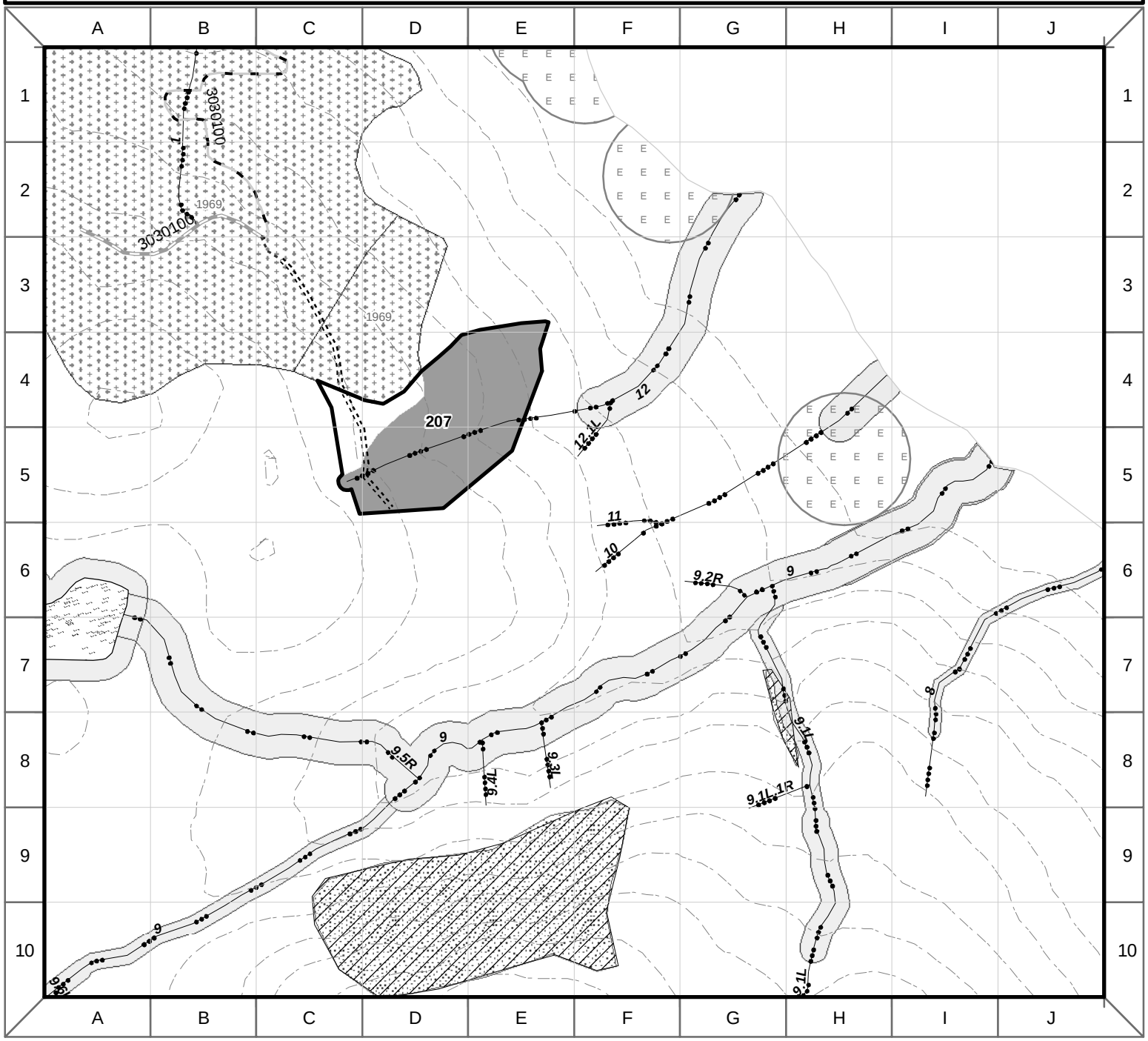
WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (eastern 3/4 of unit). Loons observed in small lake to west. Legacy standard and guideline does not apply in this VCU.

Alternative 4: Unit dropped because location is adjacent to the biologically preferred small OGR and to provide better connectivity with OGR to the northwest of unit.

Old-growth Reserve (OGR) Boundary
Alternatives 2: Current OGR boundary is not near unit.
Alternative 3: OGR acres were added in a discrete piece north of existing small OGR in VCU 582, but to the south of unit.
Alterative 4: Unit dropped.
Alternative 5: Unit dropped.

Unit Number 207 | **Alternative 2** | **VCU: 582**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road
Partial Cut

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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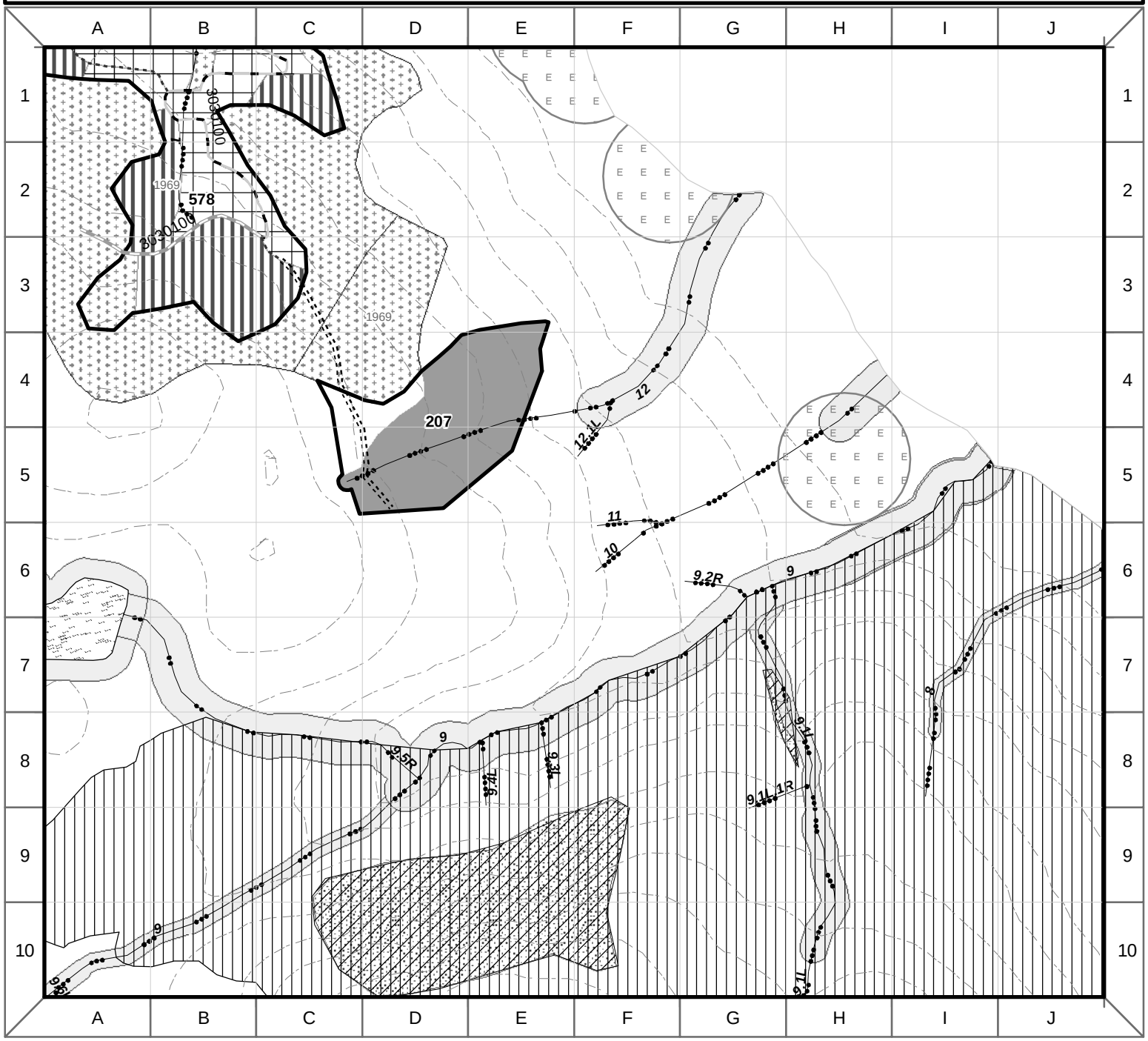
Unit Number 207 | **Alternative 3** | **VCU: 582**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 212

Unit Number	212	Alternatives	3, 5	Total Unit Acres:	35.4	Prescription:	25% Removal
VCU Number:	582	Harvest System:	Helicopter	Net Harvest Volume (MBF):	310	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 212 has old-growth stand structure. The overstory consists of western hemlock. Sitka spruce, western redcedar, Alaska-cedar and mountain hemlock are secondary species. Primary damages are stem decay and stem form (crooks, sweeps and splits). The average defect rating is moderate. Mistletoe was rated as low. Windthrow risk moderate. There are no adjacent harvest areas.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

TIMBER/LOGGING:

Alternative 3: This unit is planned for helicopter yarding to landings on the proposed temporary road accessing Unit 207.

Alternative 5: Helicopter settings are planned for yarding to landings on the existing NFS road 3030112.

ENGINEERING/ROADS:

Reconstruction of existing NFS road 3030100, totaling 12,000 feet, is used to provide access in Alternative 3. This road also is used to access Units 464, 577, 578, 207, and 213.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait. Stream 7.1L characteristics do not include project specific field verified information.

Stream#: 7 Class: III Flagging: O/W C- Type: AFH, HCD,
Concerns: blowdown, steep side-slopes with exposed bedrock and loose soil
Buffer (RMA): Class III for AFH greater of 140 feet or active portion of the alluvial fan. Class III for HCD to the top of the side-slope break.
Alternatives: 3 and 5 Buffer (RAW): no review needed.
Protection: Category B

Stream#: 7.1 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO,
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 and 5 Buffer (RAW): no review needed.
Protection: Category B and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed.
Protection: Category C

Unit 212

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is in Middleground and has Low VAC, No concerns because of uneven-age management.

RECREATION:

No Concerns, but unit is adjacent to the Ratz Roadless Area along its southwestern border.

SOILS/WETLANDS:

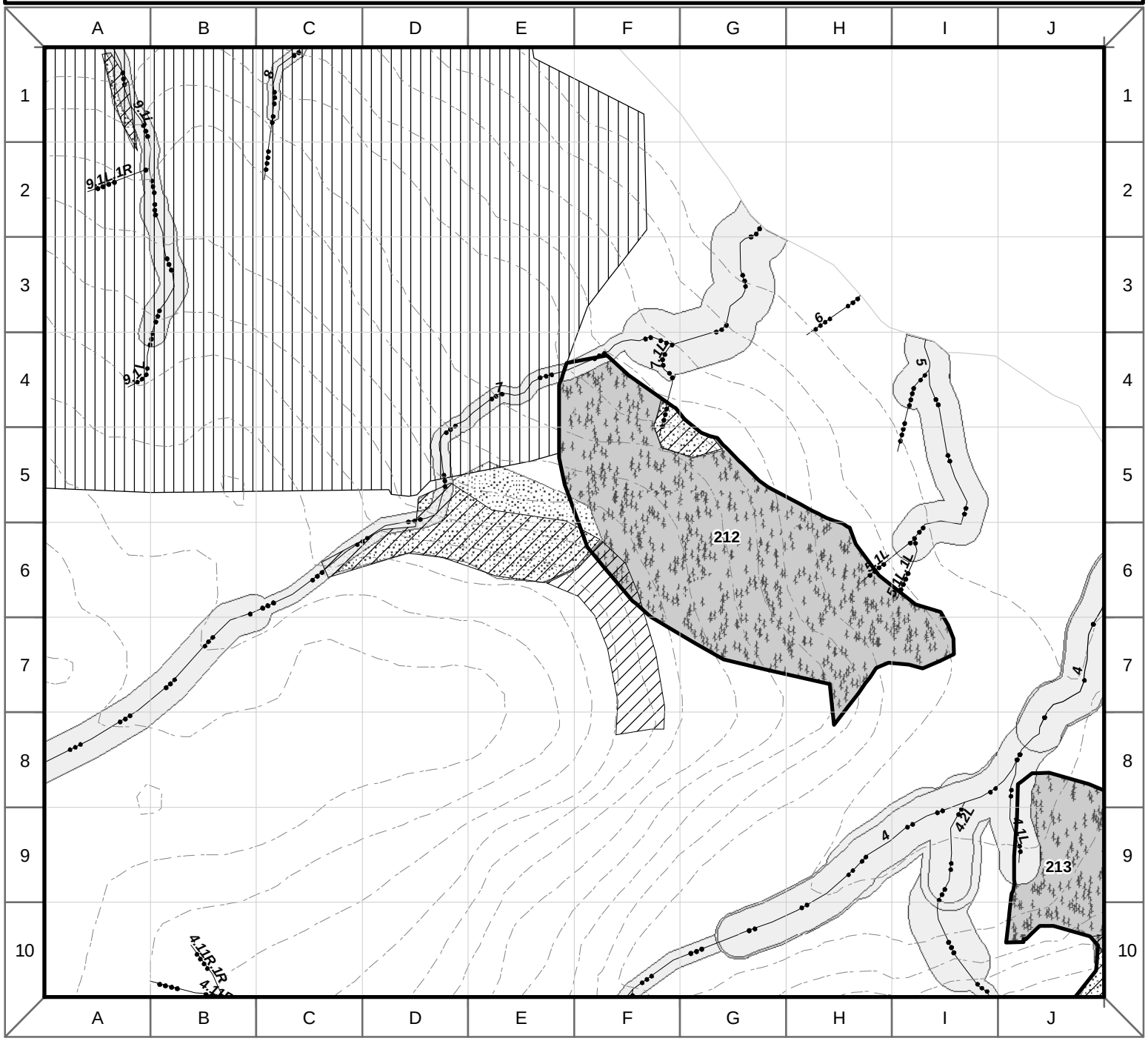
Slopes range from 50 to greater than 72%. No wetlands were identified during field investigations. About ½ acre of slopes greater than 72% occur along the top of the unit. Full suspension and partial harvest is required on these steep slopes. About 1.5 acres were excluded due to colluvial activity on the soil surface, active and historic landslides, extremely steep slopes, wet steep slopes, and MMI4 soils. In the remaining unit, full suspension and partial harvest is required to meet soil and wetland concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern 1/2 of unit). Legacy standard and guideline does not apply in this VCU.

Old-growth Reserve (OGR) Boundary
Alternative 2: Unit dropped.
Alternative 3: OGR acreage added in an isolated piece north of the existing OGR, adjacent to north boundary of unit.
Alterative 4: Adopts Interagency OGR adjacent to north boundary of unit.
Alternatives 5: Current OGR boundary not located near unit.

Unit Number 212 | **Alternative 3** | **VCU: 582**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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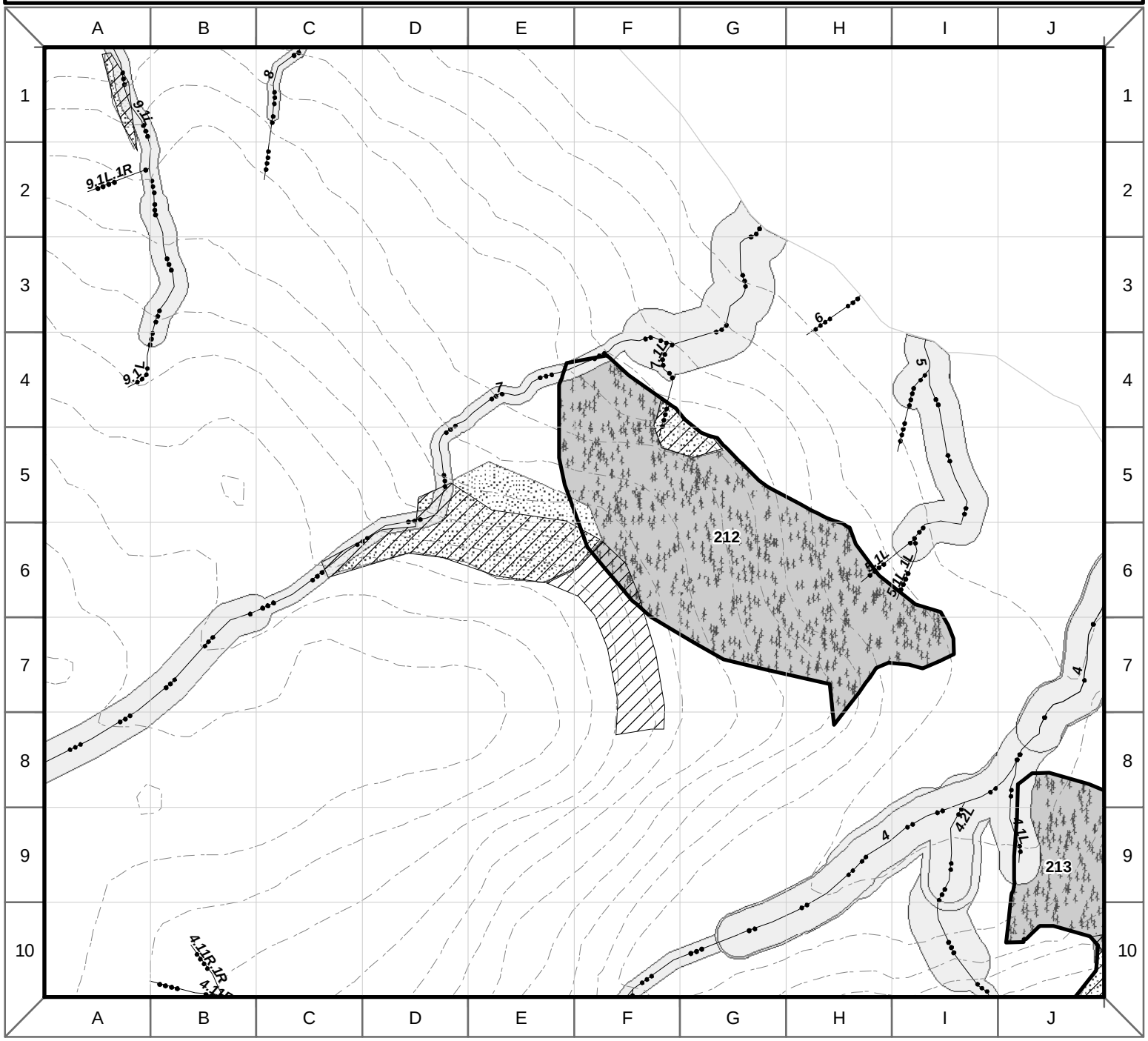
Unit Number 212 | **Alternative 5** | **VCU: 582**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 213

Unit Number	213	Alternatives	3, 5	Total Unit Acres:	65.2	Prescription:	3, 5 - 50% Removal 5 - 25% Removal
VCU Number:	582	Harvest System:	Helicopter	Net Harvest Volume (MBF):	689	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth stand structure. The overstory consists primarily of western hemlock with Sitka spruce and western redcedar common. The dominant damage agents are stem decay, along with wind damage and mistletoe. The average defect rating for the unit as a whole is moderate. Mistletoe is present, but patchy and ranges from light to heavy ratings. Much of the area has high wind exposure, with some micro-sites having very high risk exposure. Repeated windthrow events are evident in the stand structure. Wind risk rating is high. There are no adjacent harvest areas.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 75 percent of the eastern setting and 50 percent of the western setting pretreatment basal area uncut, based on standing live tree total for the unit. The western settings has generaly north exposure, and is expected to be less susceptible to windthrow than the eastern setting. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

TIMBER/LOGGING:

A portion of unit borders the Ratz roadless area. This unit has long yarding distances (approximately 10,000 feet)

Alternative 3: This unit is planned for helicopter yarding to landings on the proposed temporary road accessing Unit 207.

Alternative 5: Helicopter settings are planned for yarding to landings on the existing NFS road 3025500.

ENGINEERING/ROADS:

Reconstruction of existing NFS road 3030100, totaling 12,000 feet, is used to provide access in Alternative 3. This road also is used to access Units 464, 577, 578, 207, and 212.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait. Stream A1.1R characteristics do not contain project specific, field verified information.

Stream #: A1.1R Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 and 5 Buffer (RAW): no review needed.
Protection: Category B

Stream #: 1 Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV none.
Alternatives: 3 and 5 Buffer (RAW): no review needed.

Protection: Category A and C

Stream #: 2 Class: II , IV Flagging: B/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV none.
Alternatives: 3 and 5 Buffer (RAW): no review needed.
Protection: Category A and C

Stream #: 3 Class: II , IV Flagging: B/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV none.
Alternatives: 3 and 5 Buffer (RAW): no review needed.
Protection: Category A and C

Stream #: 4 Class: II Flagging: B/W C- Type: HCM
Concerns: blowdown
Buffer (RMA): Class II for HCM greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 and 5 Buffer (RAW): no review needed.
Protection: Category A

Stream #: 4.1L Class: II Flagging: B/W C- Type: HCO
Concerns: blowdown
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 and 5 Buffer (RAW): no review needed.
Protection: Category A

Stream #: 4.2L Class: II, II Flagging: B/W, O/W C- Type: AFH
Concerns: blowdown
Buffer (RMA): Class II and III for AFH greater of 140 feet or the active portion of the alluvial fan.
Alternatives: 3 and 5 Buffer (RAW): no review needed.
Protection: Category A and B

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
No Concerns because of uneven-age management.

RECREATION:
No concerns, but unit is adjacent to the Ratz Roadless Area.

SOILS/WETLANDS:
Slopes range from gentle to 90%. Forested wetlands are intermixed with uplands in the lower elevations of the unit. There is a small area of slopes greater than 72% that is suitable for harvest with full suspension. Most of the upper elevations of the unit are about 70% slopes and are suitable for harvest with full suspension. About 2 acres were excluded due to colluvial activity on the soil surface, active and historic landslides, extremely steep slopes, and MMI4 soils. A small landslide was identified during field investigations that is within the soil exclusion area. Full suspension yarding is required to meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:
Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (eastern 1/2 of unit). Legacy standard and guideline does not apply in this VCU.

Alternative 4: Dropped to maintain connectivity.

Old-growth Reserve (OGR) Boundary
Alternative 2: not in alternative
Alternative 3: OGR acres around southern end of unit relocated; OGR now adjacent to southeastern boudary of unit.
Alterative 4: Adopts Interagency OGR (shifting boundary farther south); no unit under this alternative.

Unit 213

Alternatives 5: Current OGR boundary adjacent to southern end of unit.

Unit Number 300	Alternatives	Total Unit Acres:	Prescription:
VCU Number:	Harvest System:	Net Harvest Volume (MBF): 0	LUD:

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

TIMBER/LOGGING:

ENGINEERING/ROADS:

BOTANY:

INVASIVE SPECIES:

FISHERIES:

GEOLOGY/KARST:

HERITAGE RESOURCES:

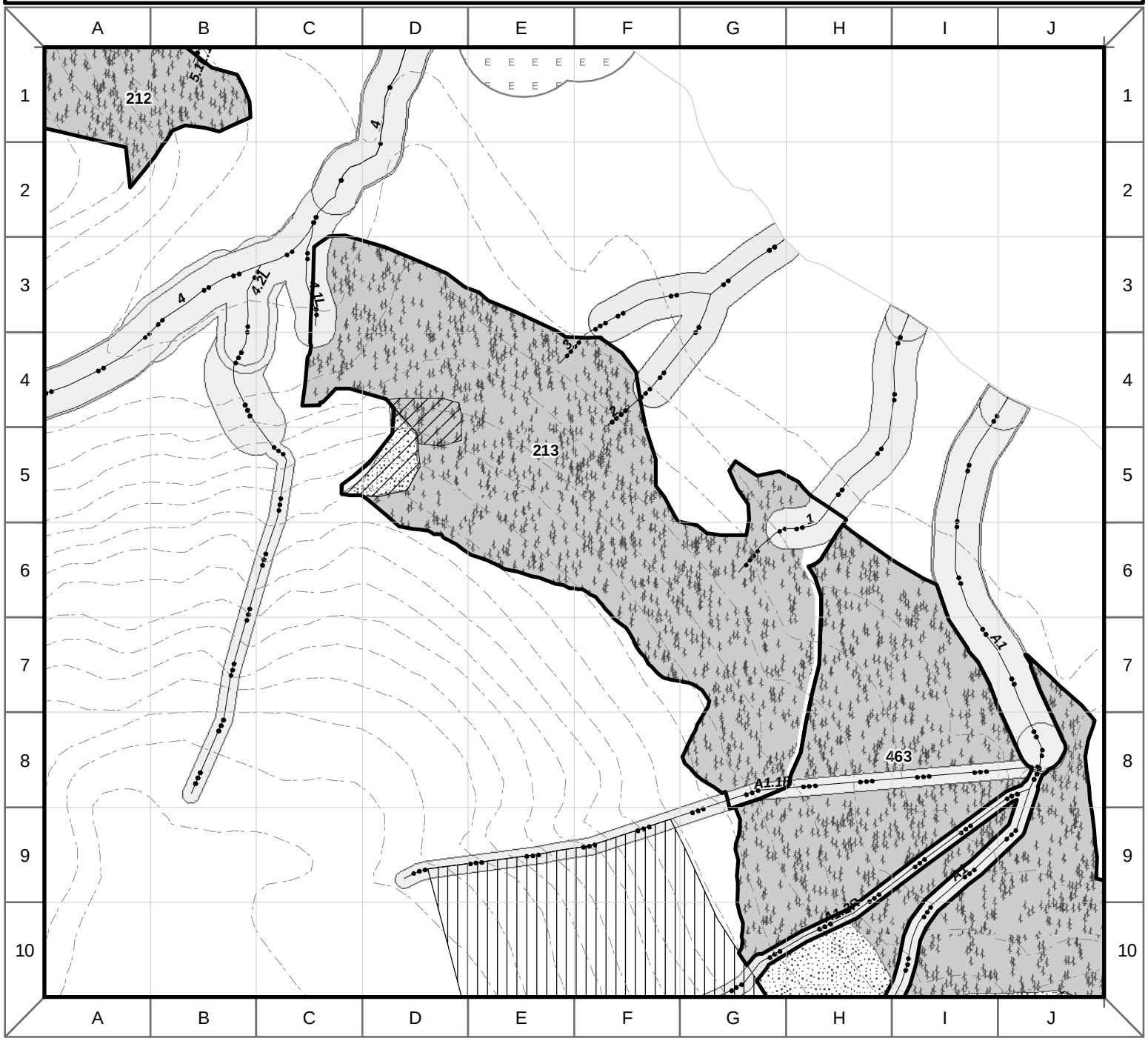
SCENERY:

RECREATION:

SOILS/WETLANDS:

WILDLIFE:

Unit Number 213 | **Alternative 3** | **VCU: 582**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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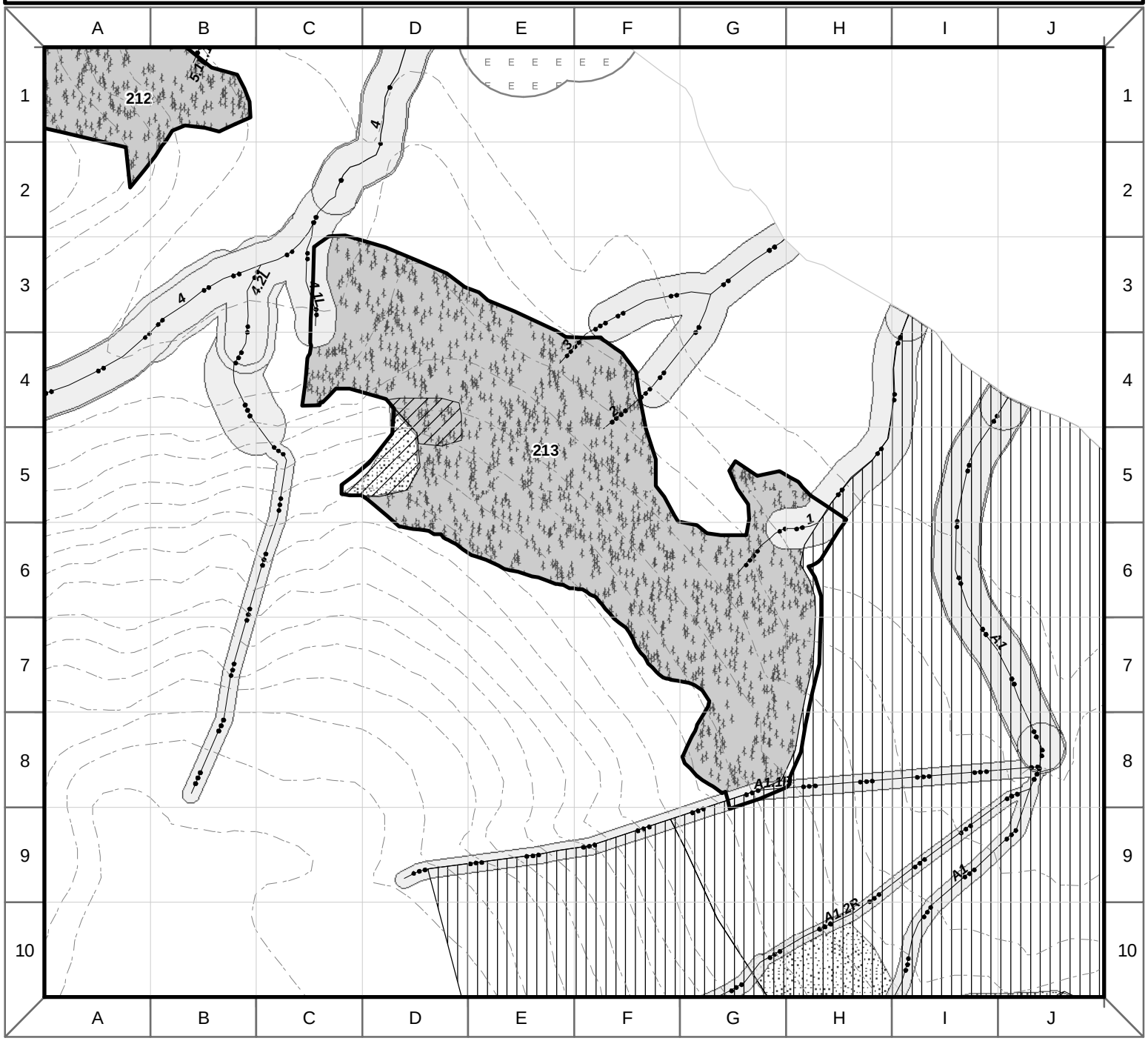
Unit Number 213 | **Alternative 5** | **VCU: 582**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 360

Unit Number 360	Alternatives 3, 5	Total Unit Acres: 20.9	Prescription: Clearcut
VCU Number: 595	Harvest System: Cable, Shovel,	Net Harvest Volume (MBF): 331	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 360 is predominantly a western hemlock stand that transitions to western hemlock and Alaska-cedar in the upper elevations. Old-growth stand structure dominates. Light to moderate windthrow, moderate defect, and a common incidence of mistletoe defines the health of the stand. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

Alternative 3: This unit is planned for a combination of helicopter, shovel, and cable yarding. Cable settings are planned for uphill and downhill yarding to landings on the proposed temporary roads. Shovel settings are planned for yarding to the proposed temporary roads.

Alternative 5: This unit is planned for helicopter yarding. Helicopter settings are planned for yarding to the existing NFS road 2000400.

ENGINEERING/ROADS:

Unit is accessed by two proposed temporary roads in Alternative 3, totaling 2200 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams tributaries to Steelhead Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A15.1R Class: II Flagging: B/W C- Type: HCL, HCLw
Concerns: none known
Buffer (RMA): Class II for HCL and HCLw greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 and 5 Buffer (RAW): no review needed
Protection: Category A

Stream#: A15.1R.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A15.1R.1R.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 and 5 Buffer (RAW): no review needed

Protection: Category B

Stream#: A15.1R.2R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A15.1R.3R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A10.2L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 and 5 Buffer (RAW): no review needed
Protection: Category B

Temporary roads for Unit 360: Alternatives 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns. Unit is entirely in Very Low SIO.

RECREATION:

No Concerns

SOILS/WETLANDS:

Slopes range from about 10 to 80 percent. Most slopes are between 25 and 50%. There are less than 1/2 acre of slopes over 72% within the unit that are suitable for harvest. About 3 acres were excluded due to steep slopes, dissected slopes, and landslides. The remaining the soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

There is about 1/4 acre (0.4% of the unit) of emergent sedge/forested wetland complex along the southeastern edge of the unit (BMP 12.5).

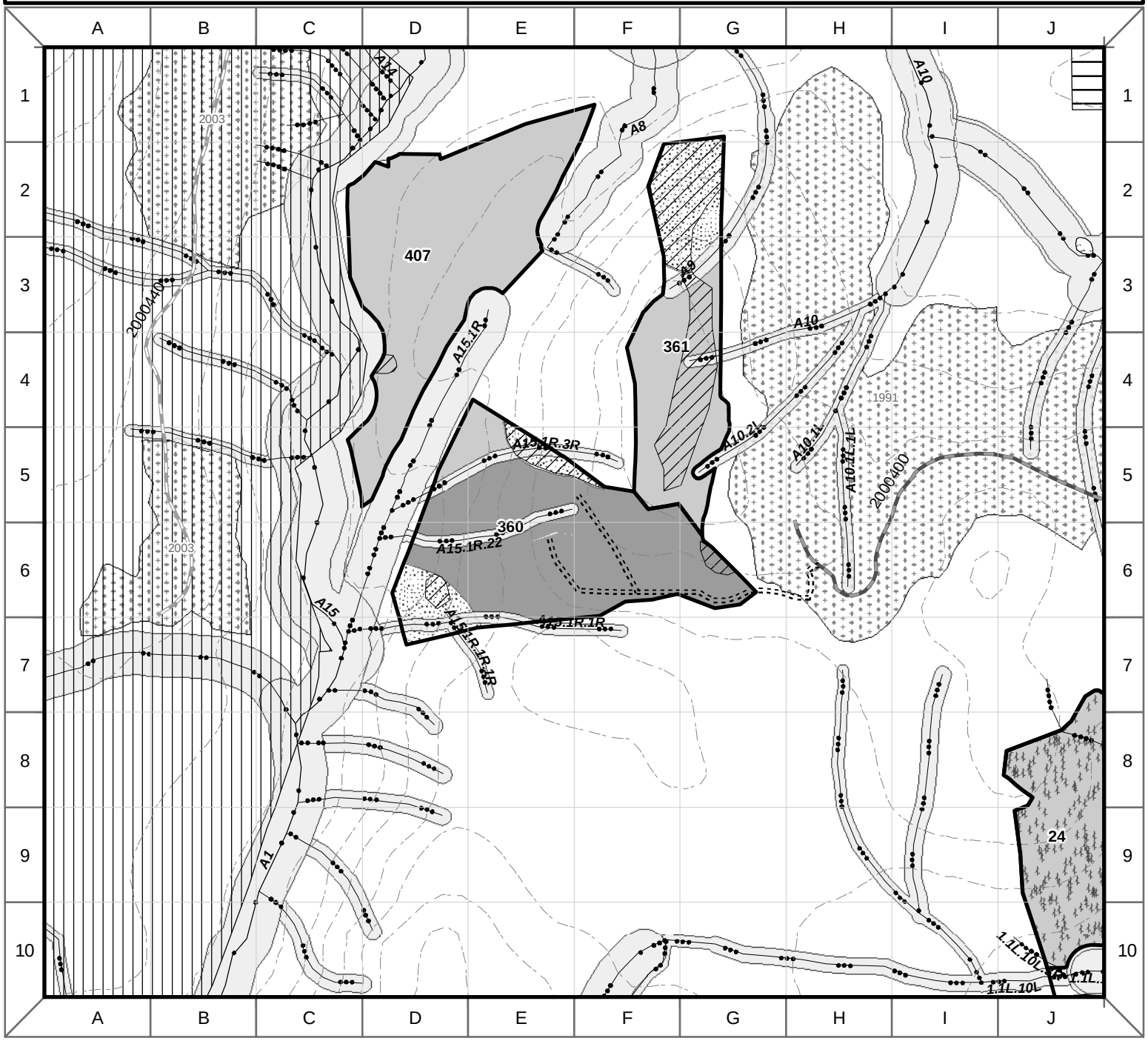
WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (western 1/3 of unit). Unit is located in an area of known wolf use near Control Lake. Legacy standard and guideline does not apply in this VCU.

Alternative 4: Unit dropped because majority of unit coincides with the biologically preferred small OGR.

Old-growth Reserve (OGR) Boundary
Alternative 2: Unit not in alternative
Alternatives 3: OGR shifted slightly further west of unit.
Alternative 4: Adopts Interagency OGR which coincides with unit.
Alternative 5: Current OGR boundary near unit to the west.

Unit Number 360 | **Alternative 3** | **VCU: 595**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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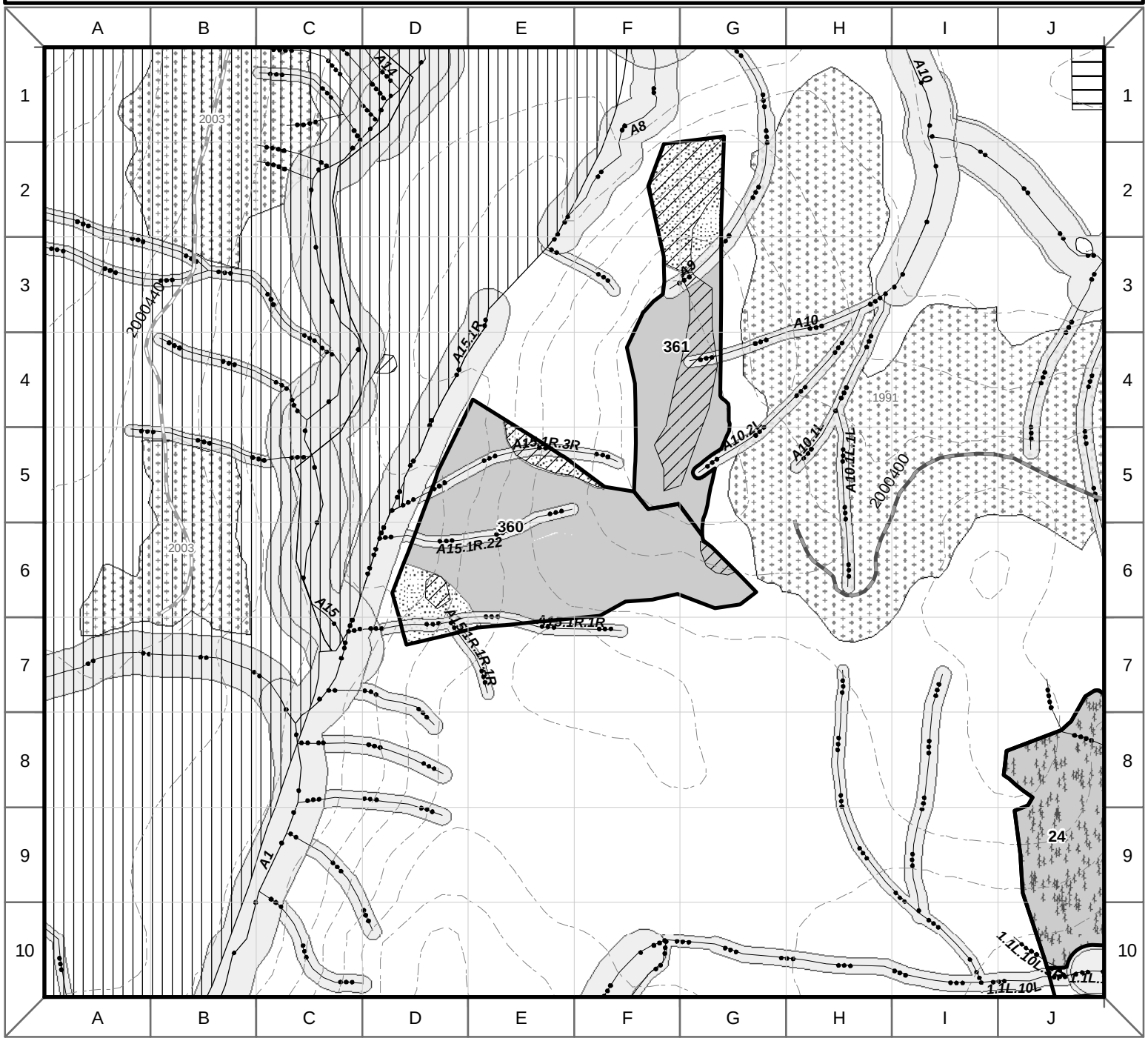
Unit Number 360 | **Alternative 5** | **VCU: 595**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 361

Unit Number	361	Alternatives	3, 4, 5	Total Unit Acres:	3, 5 - 10.3 4 - 6.0	Prescription:	Clearcut
VCU Number:	595	Harvest System:	Helicopter	Net Harvest Volume (MBF):	3, 5 - 285 4 - 166	LUD:	Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condtion: Unit 361 is predominantly a Sitka spruce stand that transitions to western hemlock on the northern slopes. Old-growth stand structure dominates. Moderate to high windthrow and past weather damage, moderate defect, and moderate mistletoe define the stand. This stand is over-mature with declining growth. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 2000400.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams tributaries to Steelhead Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A15.1R.3R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A8 Class: II, III Flagging: B/W, O/W C- Type: HCDw, HCM
Concerns: none known
Buffer (RMA): Class II for HCDw and HCM greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: A9 Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A10 Class: III Flagging: O/W C- Type: HCM
Concerns: none known

Unit 361

Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A10.2L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns. Unit consists of Low and Very Low SIOs.

RECREATION:

No Concerns

SOILS/WETLANDS:

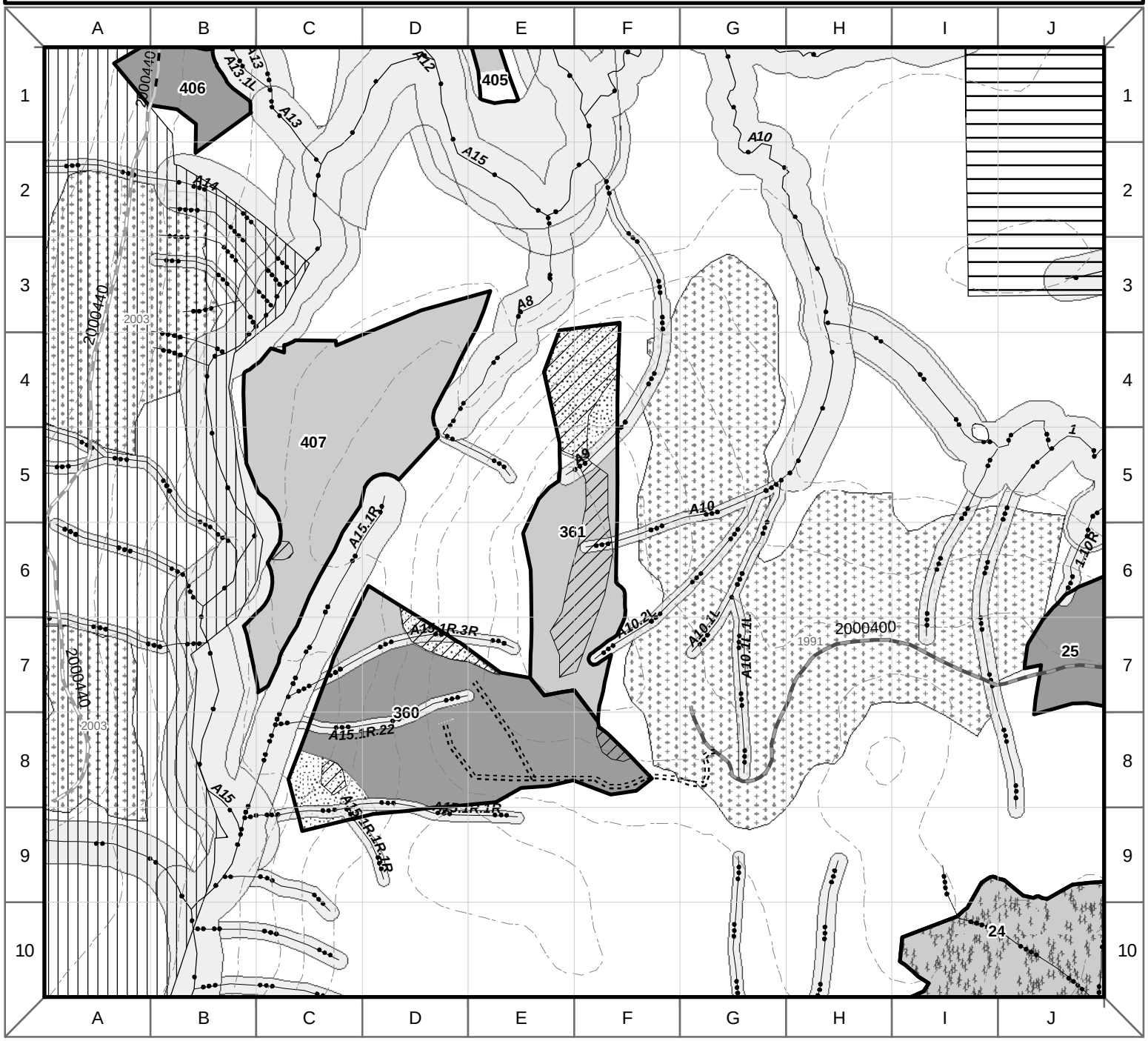
No wetlands have been mapped in the unit. About 5 acres are considered unsuitable due to steep slopes and were excluded from unit. GIS analysis indicates that most slopes are less than 65% in the remainider of unit. About 4 acres of steep slopes occur within the unit that are suitable with partial suspension requirements. In the remaining unit, a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:

Unit includes average snow deer winter range (entire unit) and is located in an area of known wolf use near Control Lake. Legacy standard and guideline does not apply in this VCU.

Old-growth Reserve (OGR) Boundary
Alternative 2: Unit not in alternative.
Alternative 3: OGR boundary shifted further west of unit.
Alterative 4: Adopts Interagency OGR shifting boundary to the east, OGR boundary is adjacent to west unit boundary
Alternative 5: Current OGR boundary near unit to the west.

Unit Number 361 | **Alternative 3** | **VCU: 595**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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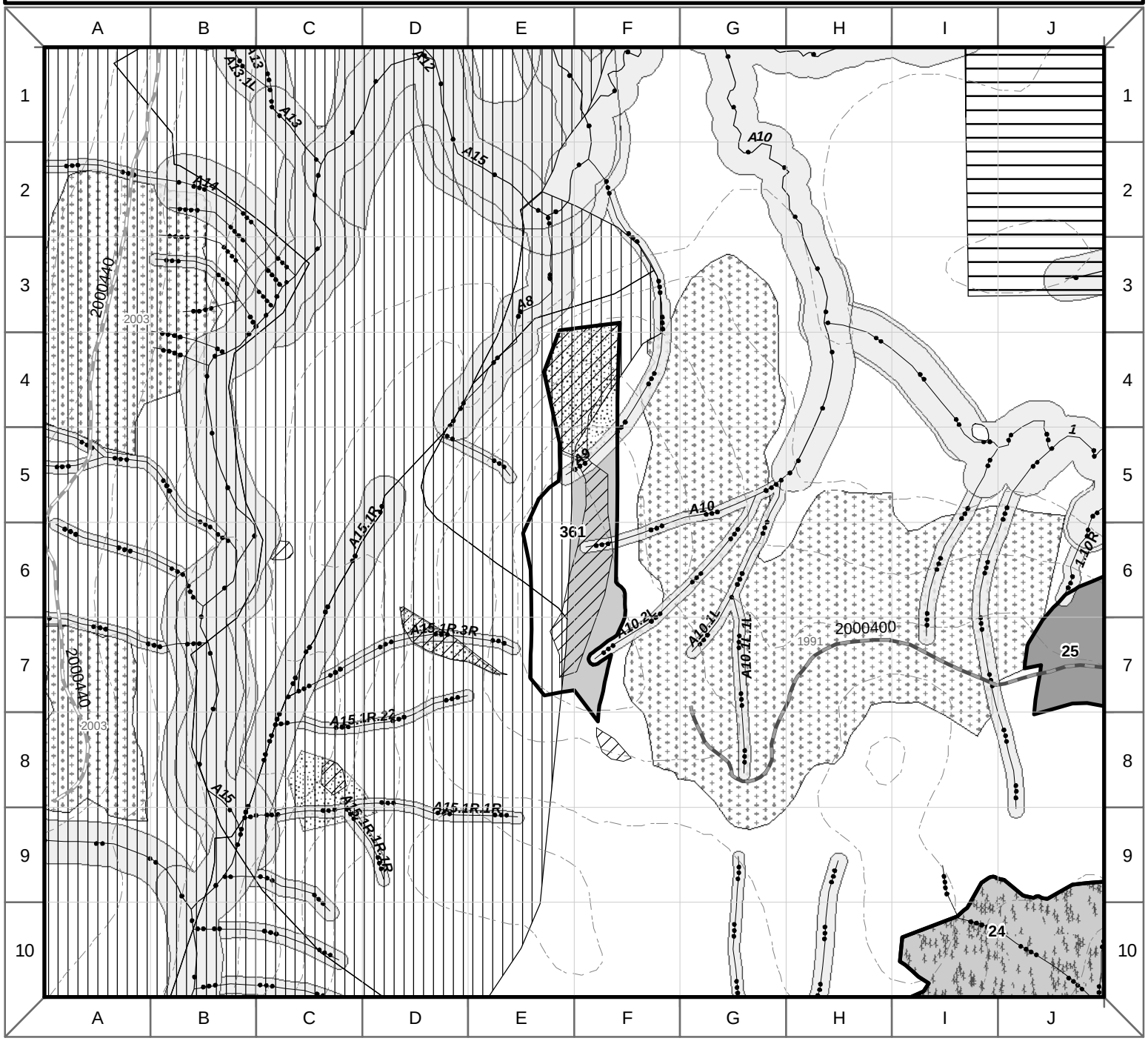
Unit Number 361 | **Alternative 4** | **VCU: 595**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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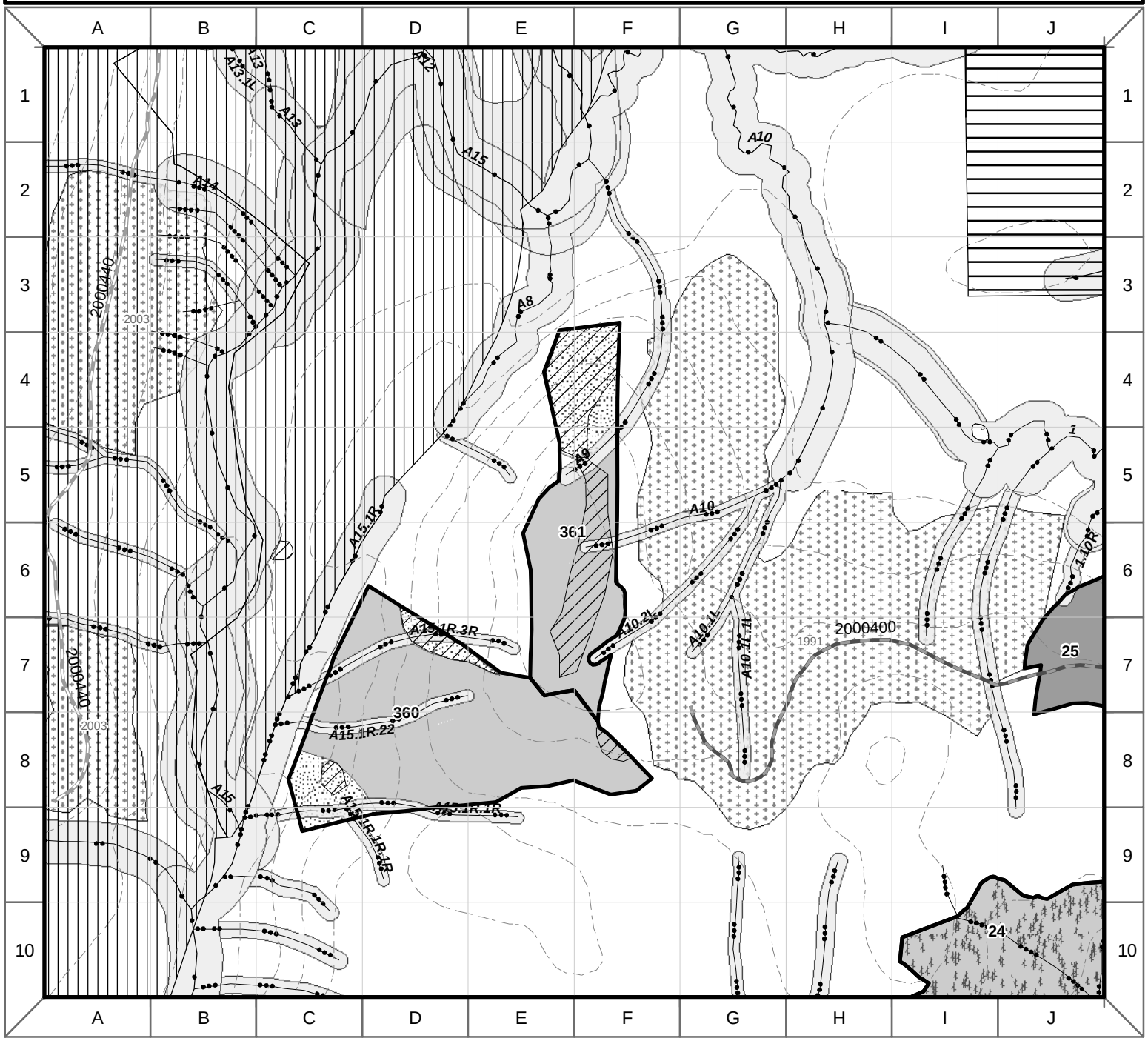
Unit Number 361 | **Alternative 5** | **VCU: 595**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 363

Unit Number 363	Alternatives 3, 4, 5	Total Unit Acres: 100.5	Prescription: Clearcut
VCU Number: 580	Harvest System: Helicopter	Net Harvest Volume (MBF): 3,453	LUD: Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit consists of old-growth stand structure. The overstory is made up of unevenly-spaced, moderately stocked, mature western hemlock and western redcedar, with scattered Alaska-cedar and Sitka Spruce. Windthrow risk is moderate. Mistletoe in the stand is low overall. Damages and defects were rated as moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

Total size of unit slightly exceeds 100 acres (0.5 acre). The entire unit represents a logical block of timber and would be most efficient to harvest at one time, rather than deferring an acre of two for later and returning with equipment and re-developing landings again in the future. Therefore the unit meets the criteria for exceeding 100 acres.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to existing NFS roads 3015000 and 3015600.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

Two populations of common tansy located about 500 ft. west of the unit along roads 3015000 and 3015600. These locations should be treated and then monitored.

FISHERIES:

Streams tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A1 Class: III Flagging: O/W C- Type: HCD, HCM, HCD
Concerns: none known
Buffer (RMA): Class III for HCM and HCD to the top of the side-slope break.
Alternatives: 3, 4, and 5 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

Stream#: A1.1L Class: III Flagging: O/W C- Type: HCM, HCD
Concerns: none known
Buffer (RMA): Class III for HCM and HCD to the top of the side-slope break.
Alternatives: 3, 4, and 5 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

Stream#: A1.1L.1R Class: III, IV Flagging: O/W, G/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCM none.

Alternatives: 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: A1.1L.1L Class: III, IV Flagging: O/W, G/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCM none.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: A1.2L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1.3L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1.4L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2 Class: III, IV Flagging: O/W, GW C- Type: MMS, HCM
Concerns: none known
Buffer (RMA): Class III for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCM none.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: A2.2R Class: III, IV Flagging: O/W, GW C- Type: HCL, HCM
Concerns: none known
Buffer (RMA): Class III for HCL to the top of the side-slope break. Class IV for HCM none.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: A2.3R Class: III, IV Flagging: O/W, GW C- Type: HCL, HCM
Concerns: none known
Buffer (RMA): Class III for HCL to the top of the side-slope break. Class IV for HCM none.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2.4L Class: III Flagging: O/W C- Type: HCL, HCD
Concerns: none known
Buffer (RMA): Class III for HCL and HCD to the top of the side-slope break.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2.5L Class: III, IV Flagging: O/W, G/W C- Type: HCL
Concerns: none known
Buffer (RMA): Class III for HCL to the top of the side-slope break. Class IV for HCL none.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: A3 Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3, 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Unit 363

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit consists of about 32 acres of Low and 68 acres of Very Low SIOs. Half or less of the unit may be visible from some locations in the Snakey Lakes area. No Concerns.

RECREATION:

Unit is about 1 mile from the Scenic River LUD, but is not likely to be visible from any location except on the river, at a distance of about 1 1/2 miles or more. No Concerns

SOILS/WETLANDS:

GIS analysis indicates that slopes range from nearly level up to about 90%, though no steep slopes are mapped within the unit. There is a historic landslide (pre-1971) in the north end of the unit. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

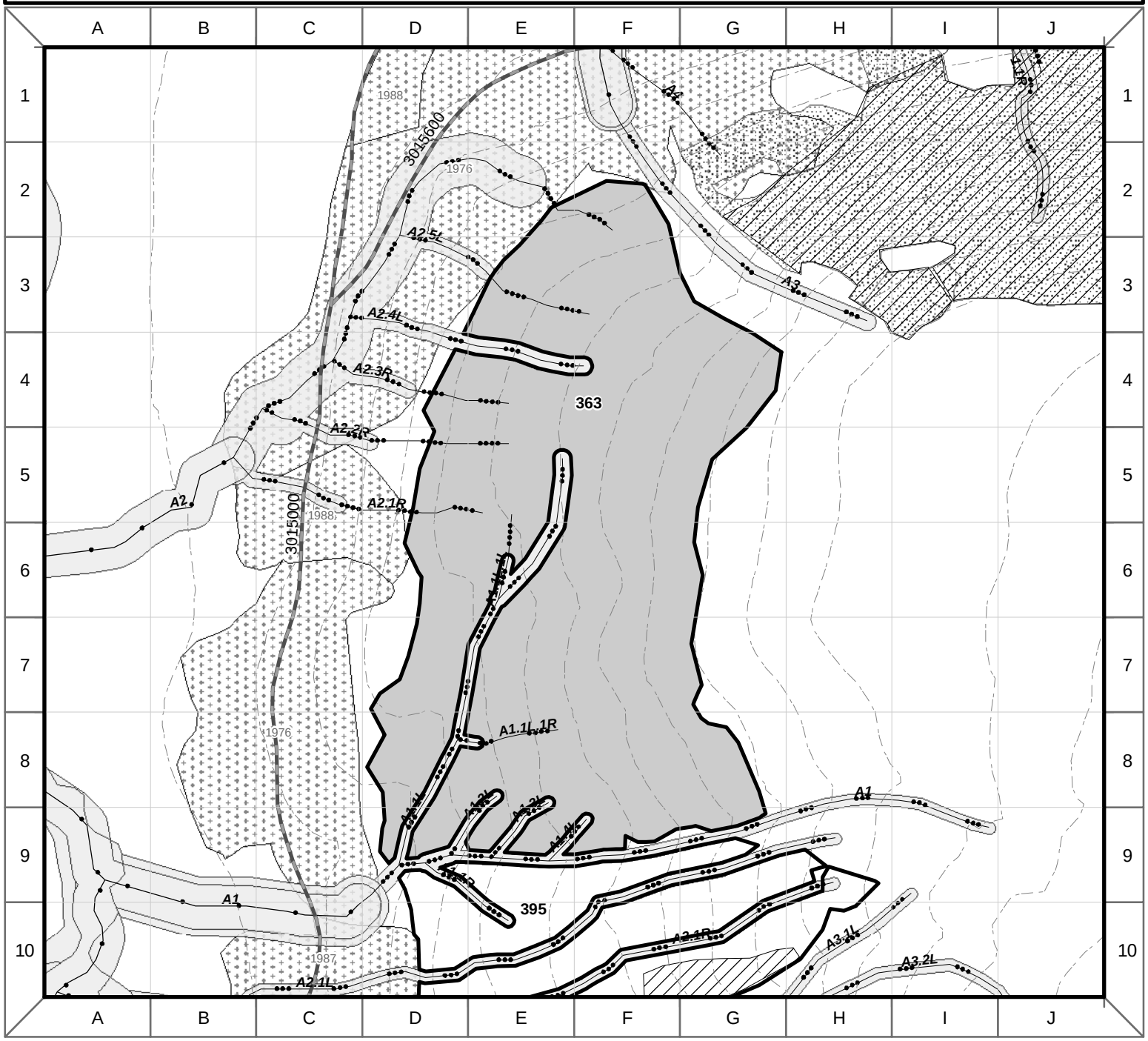
There are approximately 13 acres (13% of the unit) of forested wetland in the southeastern portion of the unit (BMP 12.5).

WILDLIFE:

Unit includes average snow deer winter range (along southern edge of unit). Unit is near the Honker large OGR complex. Legacy standard and guideline does not apply in this VCU.

Old-growth Reserve (OGR) Boundary
Alternative 2: Unit not in alternative.
Alternative 3: OGR boundary relocated north and further away from unit.
Alteratives 4 and 5: Current OGR boundary near unit to the north and west.

Unit Number 363 | **Alternative 3** | **VCU: 580**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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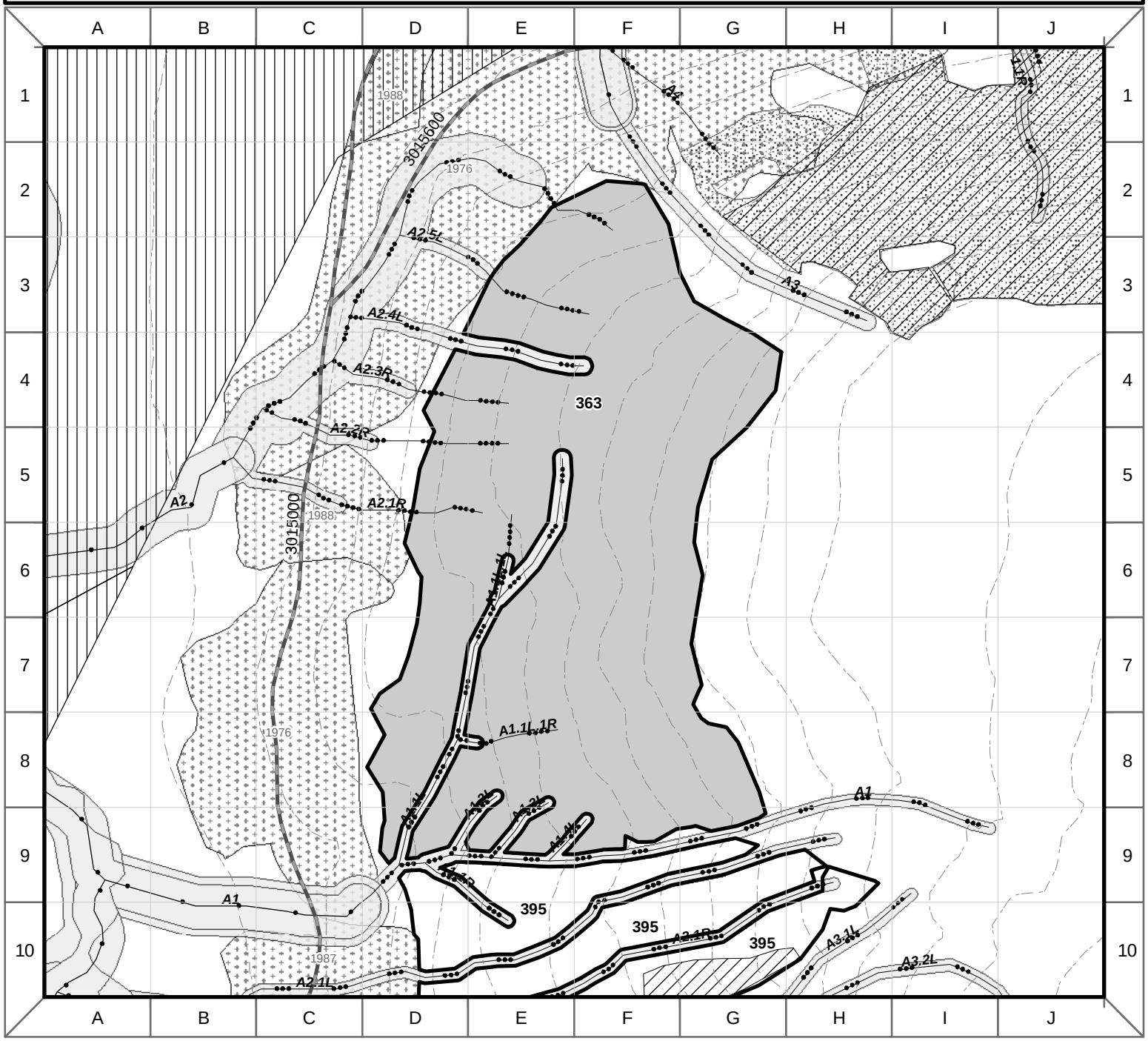
Unit Number 363 | **Alternative 4** | **VCU: 580**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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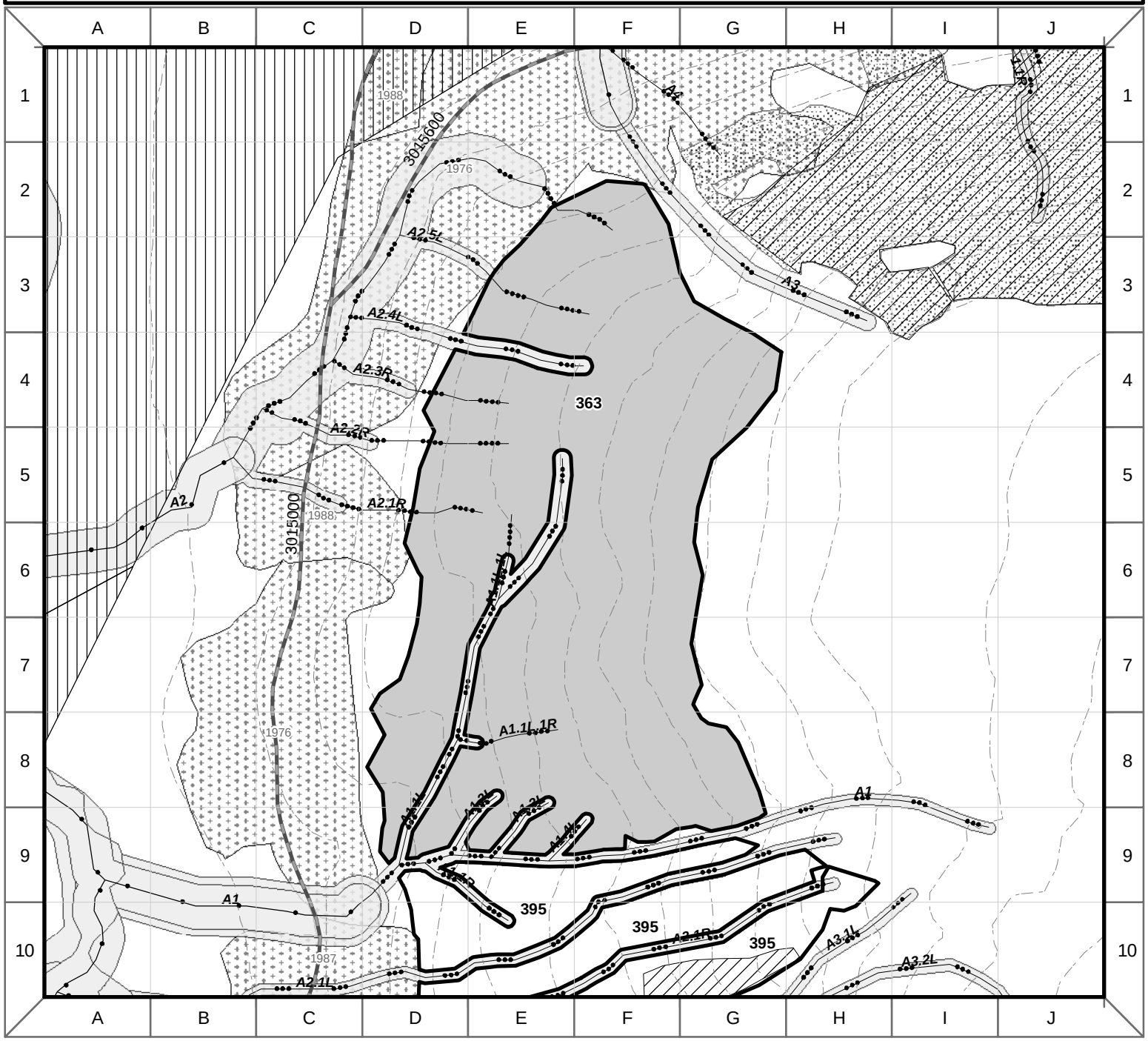
Unit Number 363 | **Alternative 5** | **VCU: 580**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit 365

Unit Number	365	Alternatives	3, 4, 5	Total Unit Acres:	10.7	Prescription:	Clearcut
VCU Number:	579	Harvest System:	Shovel, Helicopter	Net Harvest Volume (MBF):	221	LUD:	Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit consists of old-growth stand structure. Windthrow risk is low. Mistletoe was generally absent from the stand. Alaska cedar decline was evident with both past and recent mortality. The overstory is poorly-stocked, over-mature, western hemlock and Sitka spruce with groups of dead Alaska-cedar and scattered western redcedar. Mountain hemlock is also common in the upper elevations. Heavy defects are present consisting of stem decay and weather associated cracks and seams. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with heavy levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the original planned unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

Alternatives 3, 4: This unit is planned for shovel yarding to the proposed NFS road 3017100.

Alternative 5: This unit is planned for helicopter yarding to landings on the existing NFS road 3017100.

ENGINEERING/ROADS:

Unit is accessed by proposed extension of NFS road 3017100 in Alternatives 3 and 4, totaling 700 feet, as displayed on the unit card. See road card for detailed information on the proposed NFS road. Unit is also accessed by reconstruction of existing NFS road 3017100, totaling 2,200 feet. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams tributaries to Gravelly Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A1 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2 Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Unit 365

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

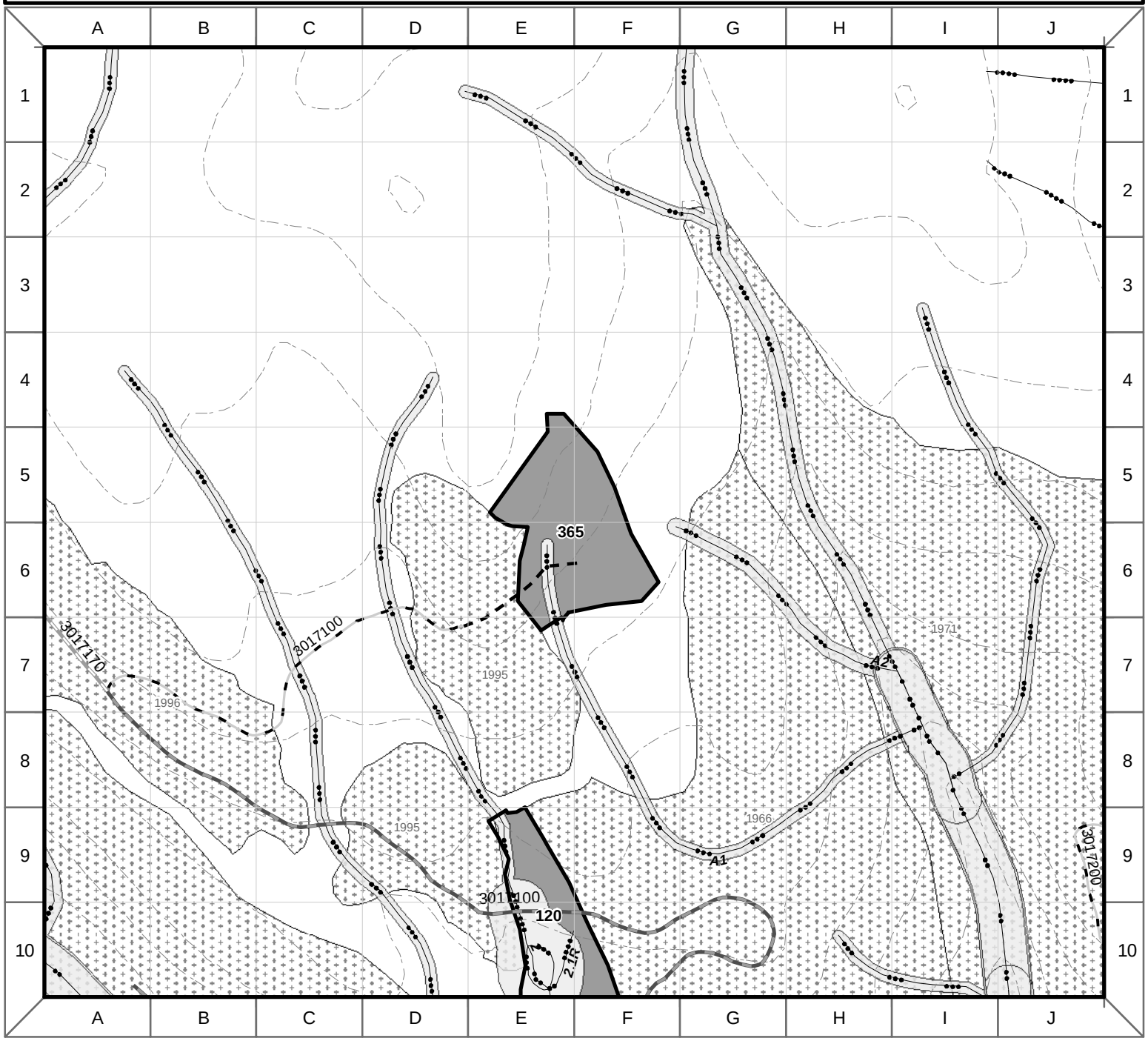
SCENERY:
No Concerns

RECREATION:
No Concerns

SOILS/WETLANDS:
No steep slopes are mapped in the unit. Slopes in about 2/3 of unit are below 35%. There is less than 1/4 acre (1% of the unit) of emergent sedge/forested wetland complex near the eastern edge of the unit (BMP 12.5). The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

WILDLIFE:
Unit includes average snow deer winter range (southern end of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 365 | **Alternative 3** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit Number 365 | **Alternative 4** | **VCU: 579**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N
W
E
S

0 500
Feet

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Unit Number 365 | **Alternative 5** | **VCU: 579**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 368

Unit Number	368	Alternatives	3, 4, 5	Total Unit Acres:	3 - 22.7 4, 5 - 22.3	Prescription:	Clearcut
VCU Number:	579	Harvest System:	Shovel, Helicopter	Net Harvest Volume (MBF):	3 - 543 4, 5 - 535	LUD:	Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit has old-growth structure. Windthrow risk is moderate. Mistletoe occurrence in the stand is light. Alaska cedar decline is evident throughout the unit. The overstory is primarily mature western hemlock, with Alaska cedar common in the south and Sitka spruce occurring in the northernmost tip of the unit. The primary defects are stem decay and stem form defects. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with heavy stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 10 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to block up POG at north end of unit, expanding off the RMA and providing RAW. Also, it was placed to block up POG across the north-center of unit to divide opening into smaller openings and maintain east-west connectivity. Total mapped legacy is approximately 10 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

Alternative 3: This unit is planned for a combination of shovel and helicopter yarding. Shovel settings are planned for yarding to the proposed temporary road. Helicopter settings are planned for yarding to the existing NFS road 3017200.

Alternatives 4, 5: This unit is planned for helicopter yarding to the existing NFS roads 3017200.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road in Alternative 3, totaling 1100 feet, as displayed on the unit card. This unit is also accessed by reconstruction of existing NFS road 3017200, totaling 11,800 feet. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 368

Streams tributaries to Gravelly Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: 1 Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: 1.2L Class: III Flagging: O/W C- Type: HCV
Concerns: none known
Buffer (RMA): Class III for HCV to the top of the side-slope break.
Alternatives: 3 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: Lake A2 Class: III Flagging: O/W C- Type: L
Concerns: none known
Buffer (RMA): Class III for Lake-A2 none.
Alternatives: 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B

Temporary roads for Unit 368: Alternative 3 -- One Class IV stream crossing. The temporary roads have not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.16, 13.10, 13.11, 13.17, 14.3, and 14.5.

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
No Concerns

RECREATION:
No Concerns

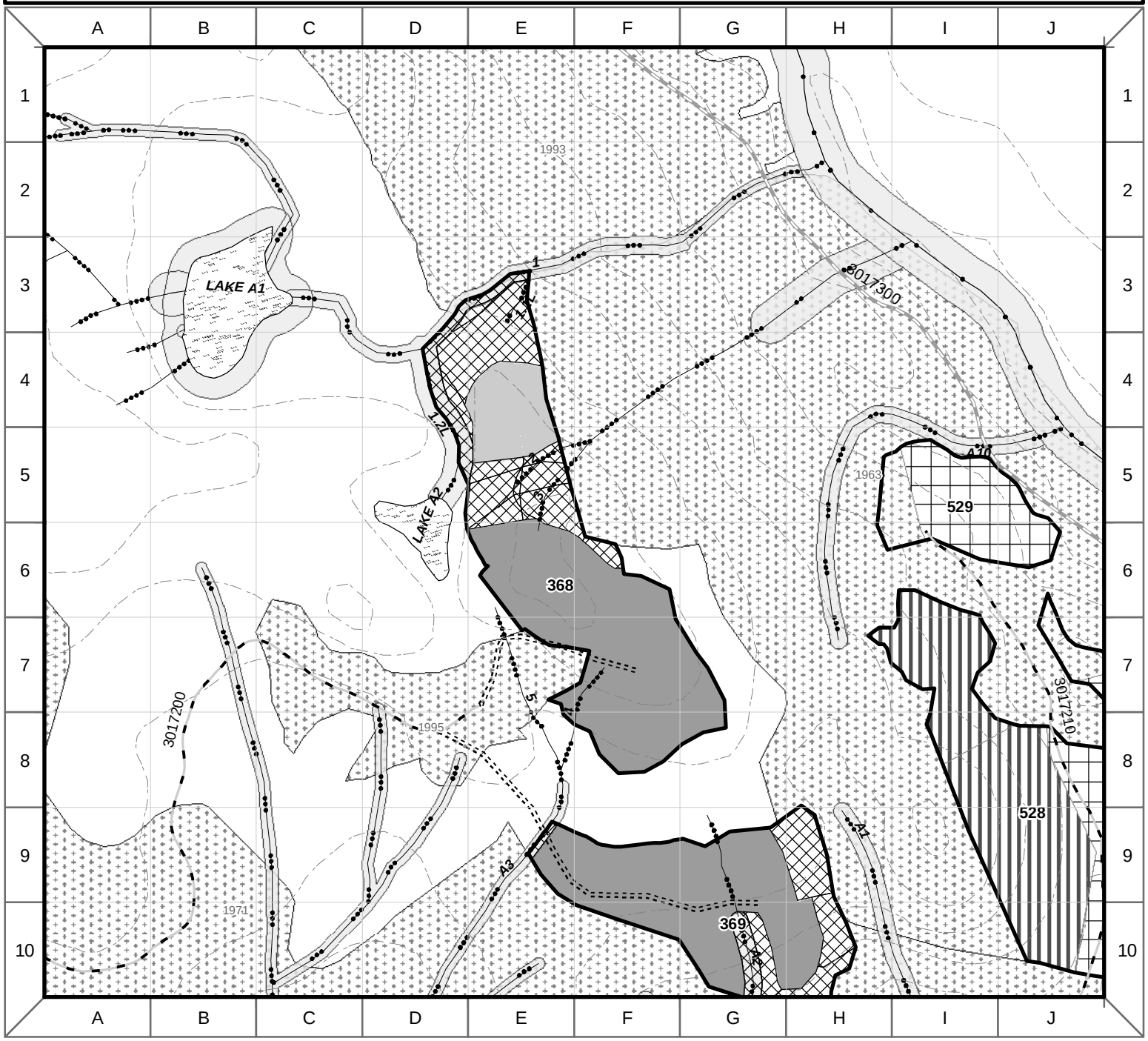
SOILS/WETLANDS:
Slopes generally range from about 20% to about 50%. No slopes over 72% have been mapped in the unit. Approximately 1/4 of the unit is forested wetland. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

Alternative 3: A temporary road will impact about 2 acres of forested wetland in the unit and about 1 acre outside of the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:
Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range.

Alternatives 4 and 5: All helicopter yarding to minimize road building and associated impacts to wildlife due to increased access.

Unit Number 368 | **Alternative 3** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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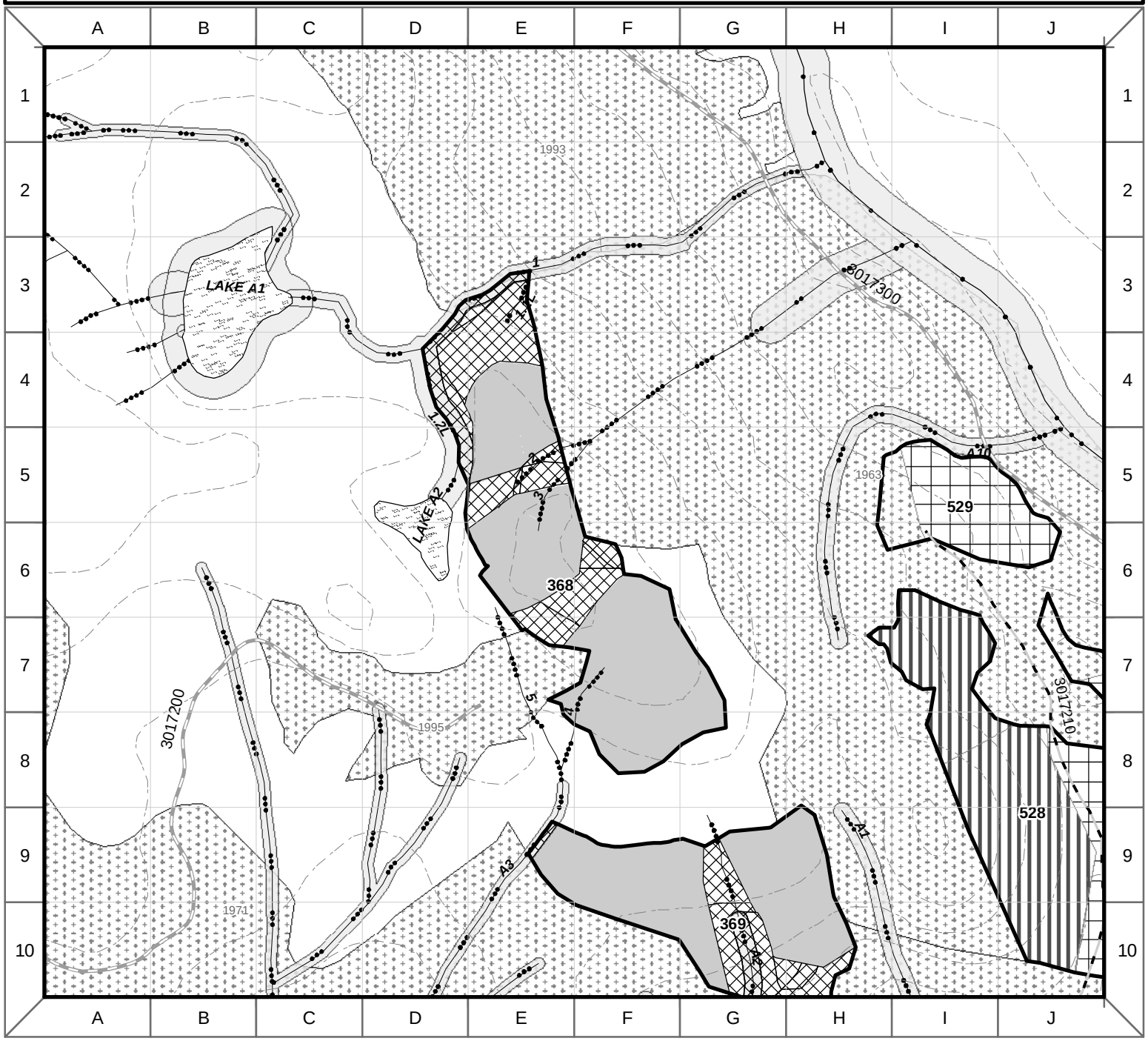
Unit Number 368 | **Alternative 4** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500 Feet

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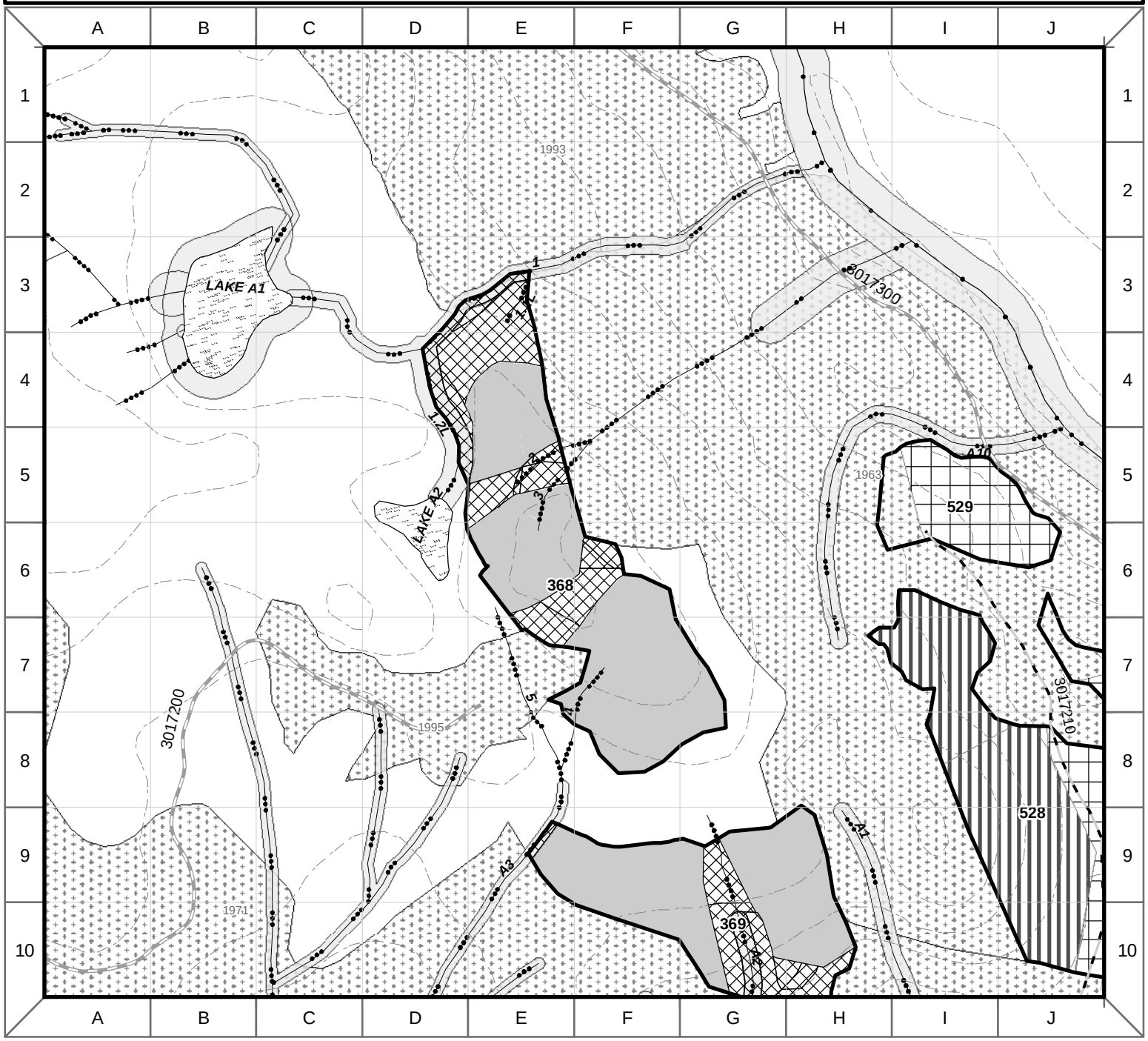
Unit Number 368 | **Alternative 5** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 369

Unit Number	369	Alternatives	3, 4, 5	Total Unit Acres:	3 - 15.1 4, 5 - 15.4	Prescription:	Clearcut
VCU Number:	579	Harvest System:	Cable, Shovel,	Net Harvest Volume (MBF):	3 - 392 4, 5 - 399	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 369 has old-growth stand structure comprised of mature western hemlock, western redcedar, Alaska-cedar and scattered Sitka spruce. Windthrow risk is moderate. Mistletoe occurrence is moderate. Stem decay is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 7 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. In Alternative 3 legacy was placed to block up POG at the south and east sides of unit and adjacent to RMA in center and to shorten required roads. In Alternatives 4 and 5 legacy was placed to block up POG at south end of unit and in middle of unit and to divide unit into two openings. Total mapped legacy is approximately 7 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

Alternative 3: This unit is planned for a combination of cable and shovel yarding. Shovel settings are planned for yarding to the proposed temporary road. Cable settings are planned for uphill yarding to landings on the proposed temporary road.

Alternatives 4, 5: This unit is planned for helicopter yarding to landings on the existing NFS roads 3017200 and 3017210.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road in Alternative 3, totaling 2,000 feet, as displayed on the unit card. This unit is also accessed by reconstruction of existing NFS road 3017200, totaling 11,600 feet. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 369

FISHERIES:

Streams tributaries to Gravelly Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A3 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2 Class: III, IV Flagging: O/W, GW C- Type: HCD, HCM
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break. Class IV for HCM none.
Alternatives: 3 4, and 5 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: A1 Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Temporary roads for Unit 369: Alternative 3 -- One Class III and one Class IV stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

Slopes are about 10 to 50%. The soils and wetlands are suitable for full or partial suspension yarding or shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

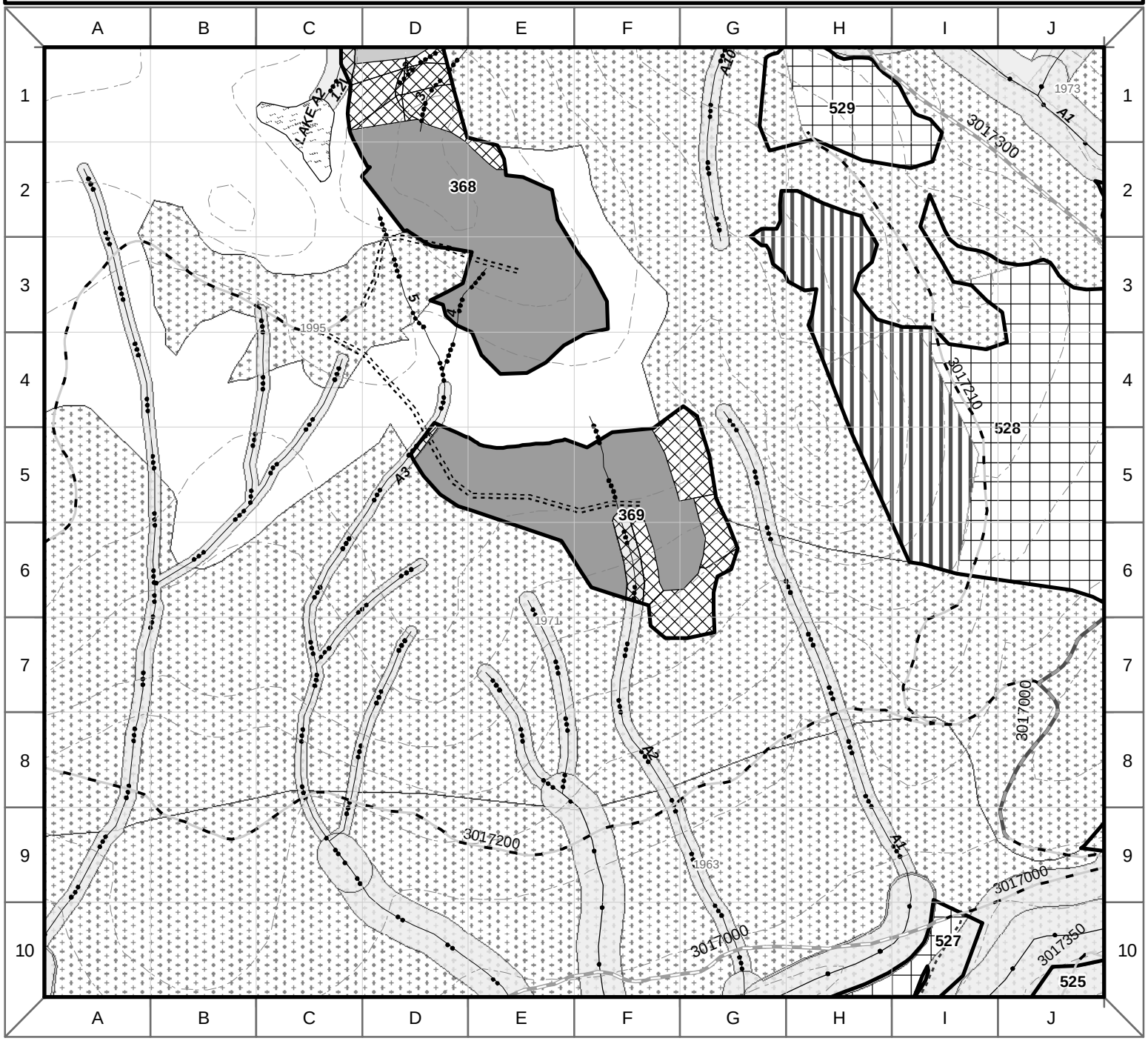
Alternative 3: A temporary road will impact about 1 acre of forested wetland within the unit and an additional 1 acre outside the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range.

Alternatives 4 and 5: Helicopter yarding of entire unit will minimize road building and associated effects to wildlife due to increased access.

Unit Number 369 | **Alternative 3** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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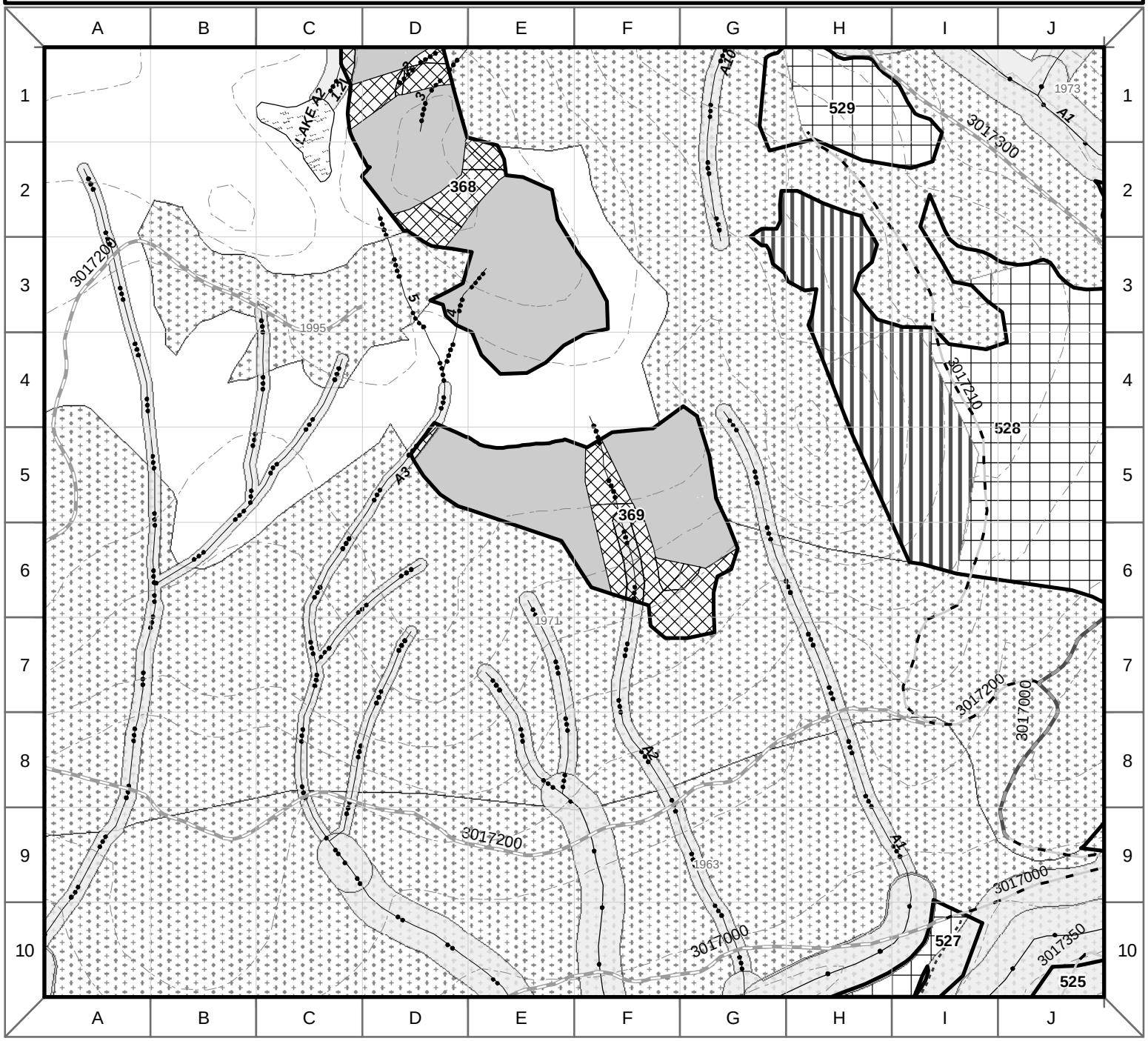
Unit Number 369 | **Alternative 4** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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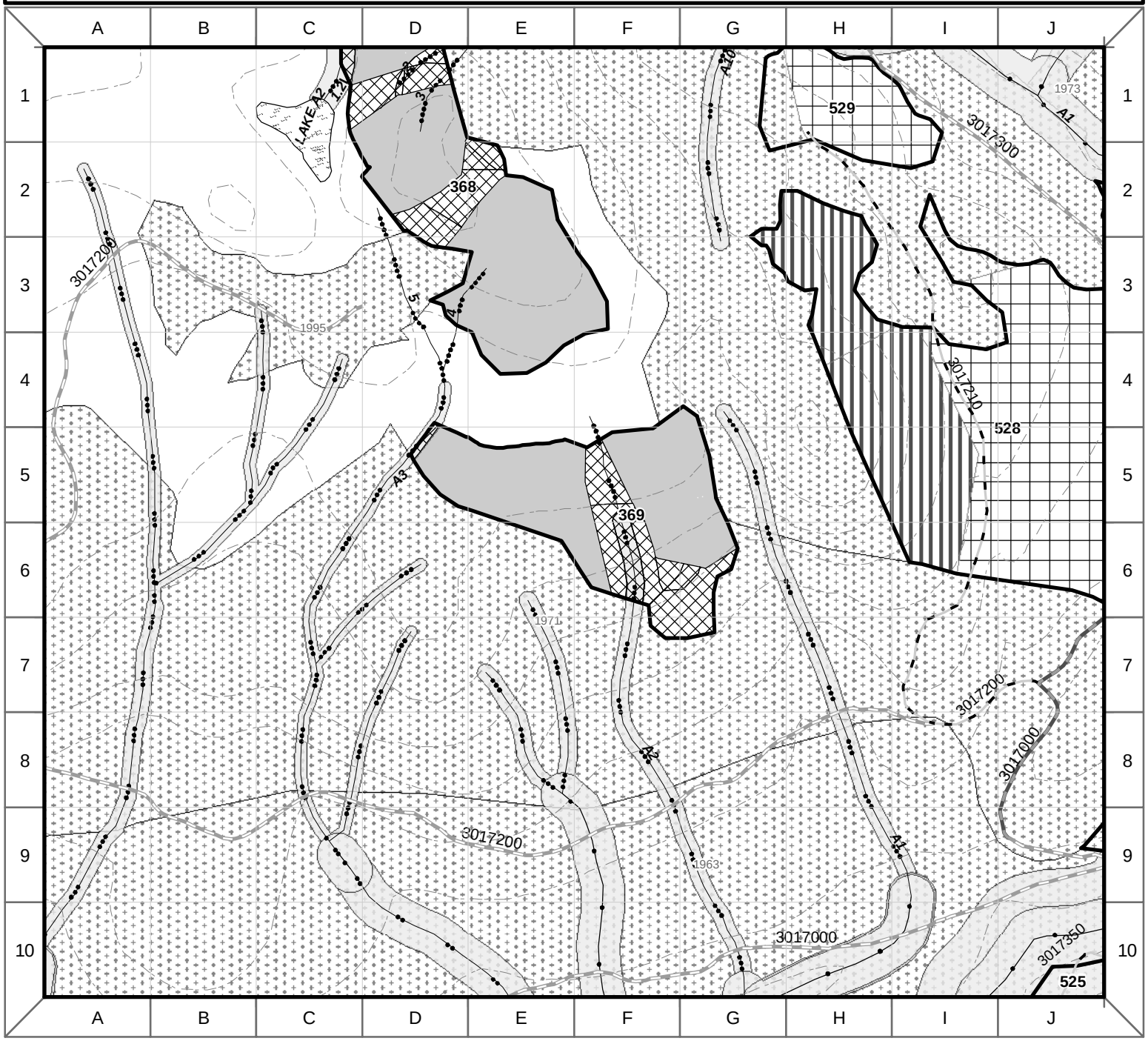
Unit Number 369 | **Alternative 5** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 370

Unit Number	370	Alternatives	3, 4, 5	Total Unit Acres:	3 - 20.6 4, 5 - 21.8	Prescription:	Clearcut
VCU Number:	586	Harvest System:	Cable, Shovel,	Net Harvest Volume (MBF):	3 - 709 4, 5 - 751	LUD:	Modified Landscape, Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condtion: This unit has old-growth stand structure in the southern half that transitions to even-age appearing understory re-initiation structure as you move up in elevation and to the north. The overstory consists of western hemlock, western redcedar, Alaska-cedar and Sitka spruce. The even-age area has a strong component of Sitka spruce due to the past disturbance. The even-age portion of the stand is approximately 150 years old and meets culmination requirements. The old growth area has moderate damage and defect. Windthrow risk is high. Mistletoe is light. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate stem decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 7 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. In Alternative 3 legacy was placed to block up POG at north end of unit and on west side of unit (adjacent to RMA) and to shorten required roads. In Alternatives 4 and 5 legacy was placed to block up POG at north end of unit and in middle of unit and to divide unit into three openings. Total mapped legacy is approximately 9 acres in Alternative 3 and 7 acres in Alternatives 4 and 5. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

Alternative 3: This unit is planned for a combination of shovel and cable yarding. Cable settings are planned for uphill yarding to landings on the proposed temporary roads. Shovel settings are planned for yarding to the proposed temporary roads.

Alternatives 4, 5: This unit is planned for helicopter yarding to landings on the existing NFS road 2030952.

ENGINEERING/ROADS:

Unit is accessed by proposed temporary roads in Alternative 3, totaling 3100 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 370

FISHERIES:

Streams drain to Thorne Bay. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A1 Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 4, and 5 Buffer (RAW): no review needed
Protection: Category B

Temporary roads for Unit 370: Alternative 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns. Units mostly in Low SIO, with 3 acres of Moderate, but majority of unit is well screened from VPRs along the Thorne River and saltwater areas.

RECREATION:

No Concerns

SOILS/WETLANDS:

Slopes range from about 15% to about 65%. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

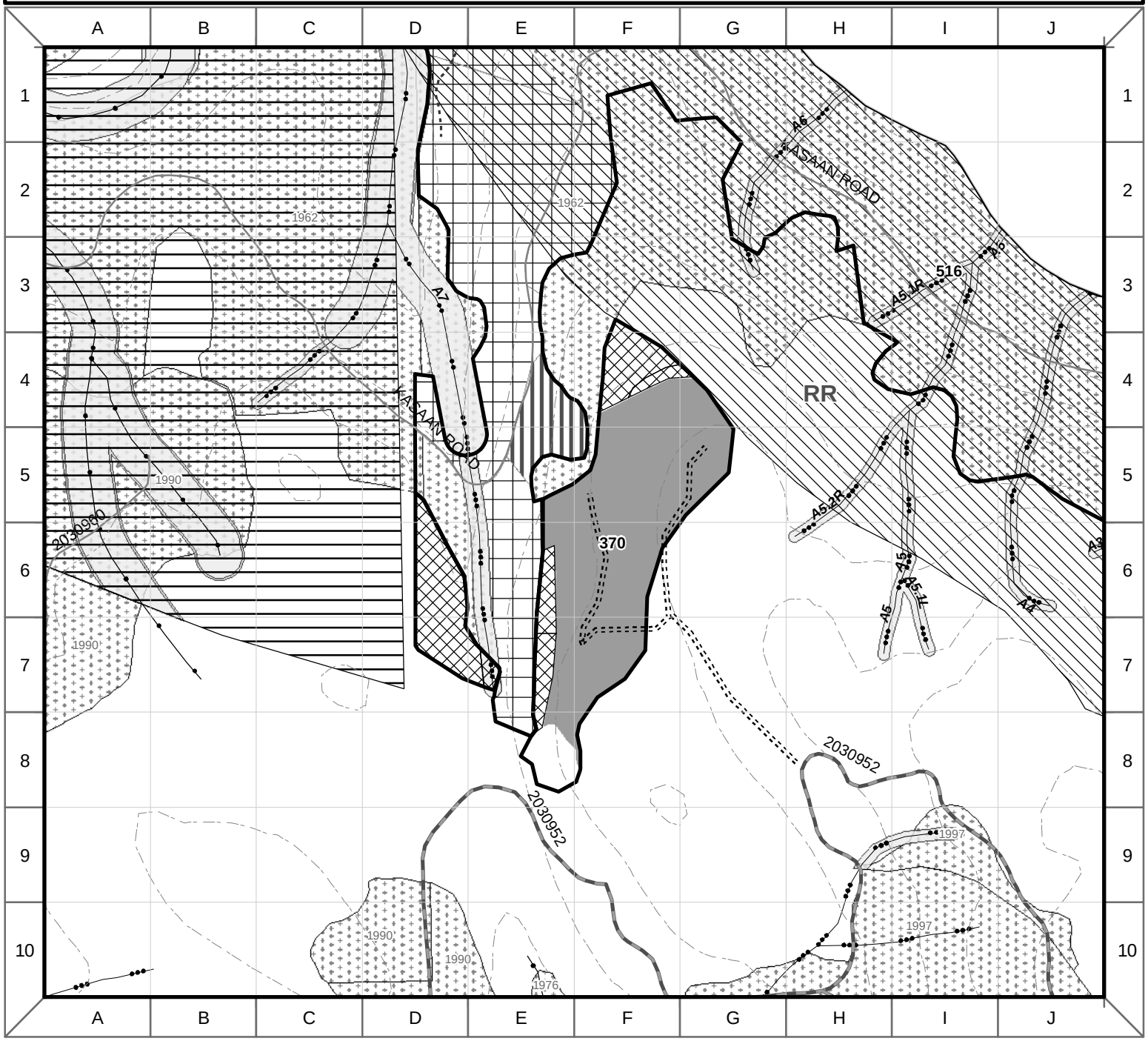
No wetlands have been mapped in the unit

WILDLIFE:

Unit includes average snow deer winter range (western half of unit), all of which is also deep snow marten habitat/deer winter range. Legacy standard and guideline applies in VCU 5860; positioning of Legacy acres covers some deer winter range.

Alternatives 4 and 5: Helicopter yarding to minimize road building and associated effects to wildlife.

Unit Number 370 | **Alternative 3** | **VCU: 586,598**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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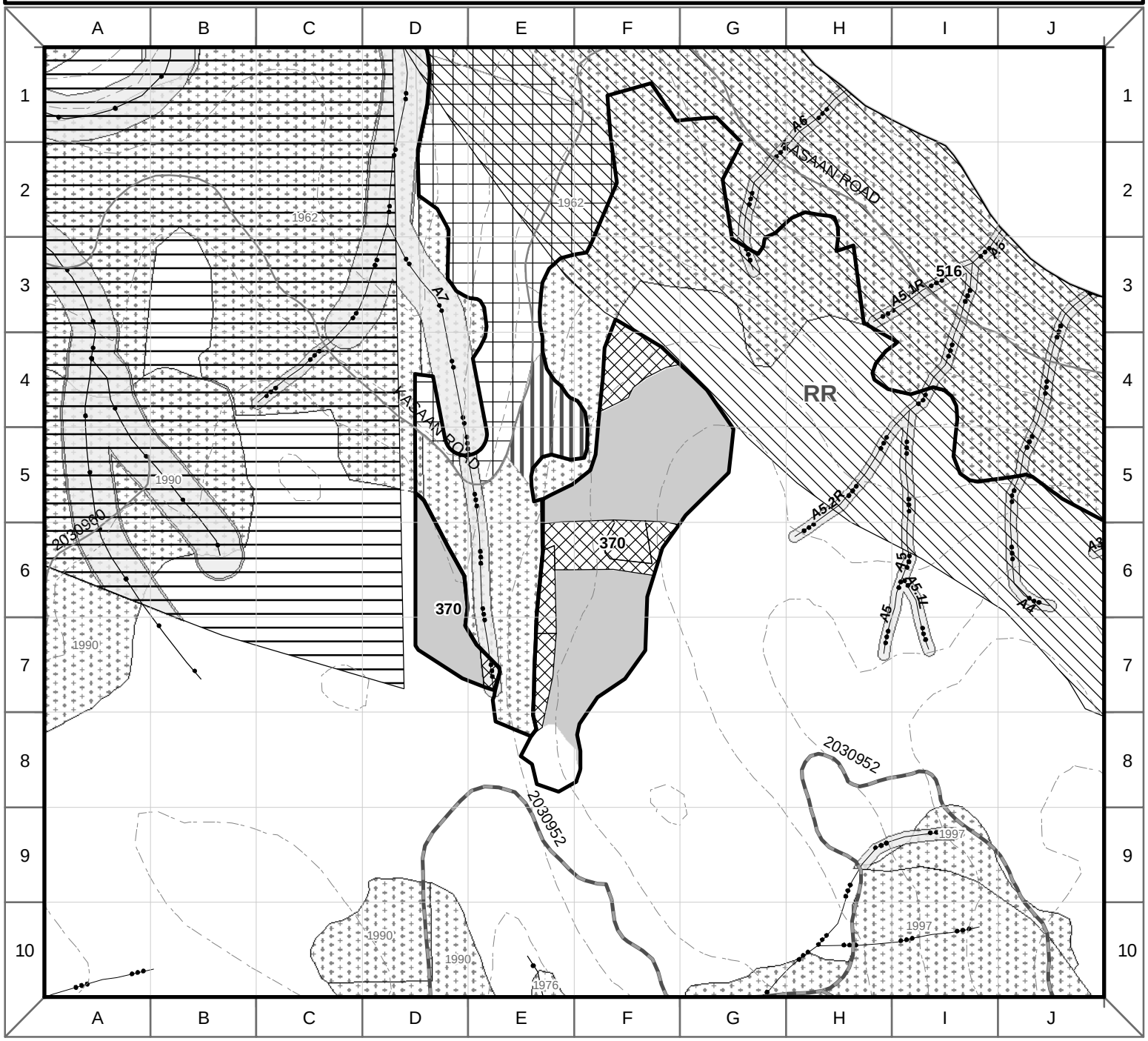
Unit Number 370 | **Alternative 4** | **VCU: 586,598**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500 Feet

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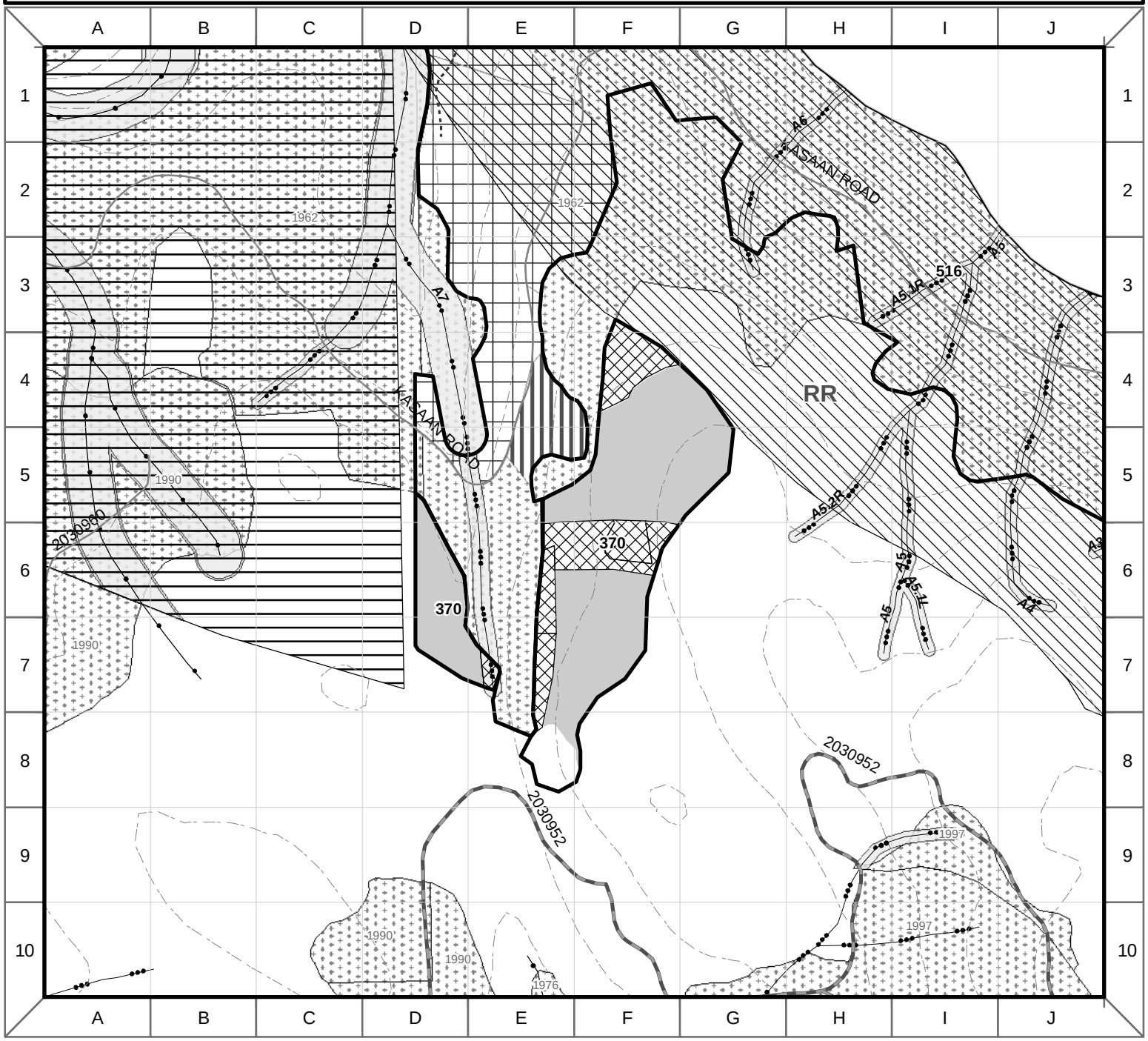
Unit Number 370 | **Alternative 5** | **VCU: 586,598**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Sytematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 371

Unit Number	371	Alternatives	3, 4, 5	Total Unit Acres:	18.8	Prescription:	Clearcut
VCU Number:	586	Harvest System:	Cable	Net Harvest Volume (MBF):	551	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: Unit 371 has old-growth stand structure across the majority of the acreage. There are areas with patchy two-age structure resulting from older windthrow. The overstory of the unit consists of western hemlock, western redcedar and scattered Sitka spruce. Alaska cedar is present where the stand transitions into non-commercial timber along the southern boundary. The overstory has moderate damage and defect. Mistletoe is present but light. Windthrow risk is high. All nearby past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for uphill and downill cable yarding to landings on the proposed temporary road and existing NFS road 2030798.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road, totaling 700 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are Tributaries to Setter Lake and Thorne Bay. Stream characteristics do not include project-specific, field-verified, information.

Stream#: 1 Class: II Flagging: B/W C- Type: HCO
Concerns: none known
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 4, and 5 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: 1.1L Class: II Flagging: B/W C- Type: HCO
Concerns: none known
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 4, and 5 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: A1 Class: II Flagging: B/W C- Type: HCLw
Concerns: none known

Unit 371

Buffer (RMA): Class II for HCLw greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 4, and 5 Buffer (RAW): no review needed
Protection: Category A

Temporary roads for Unit 371: Alternatives 3, 4 and 5 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

Slopes are about 30 to 50%. About 2 acres of slopes greater than 72% are mapped in the unit. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

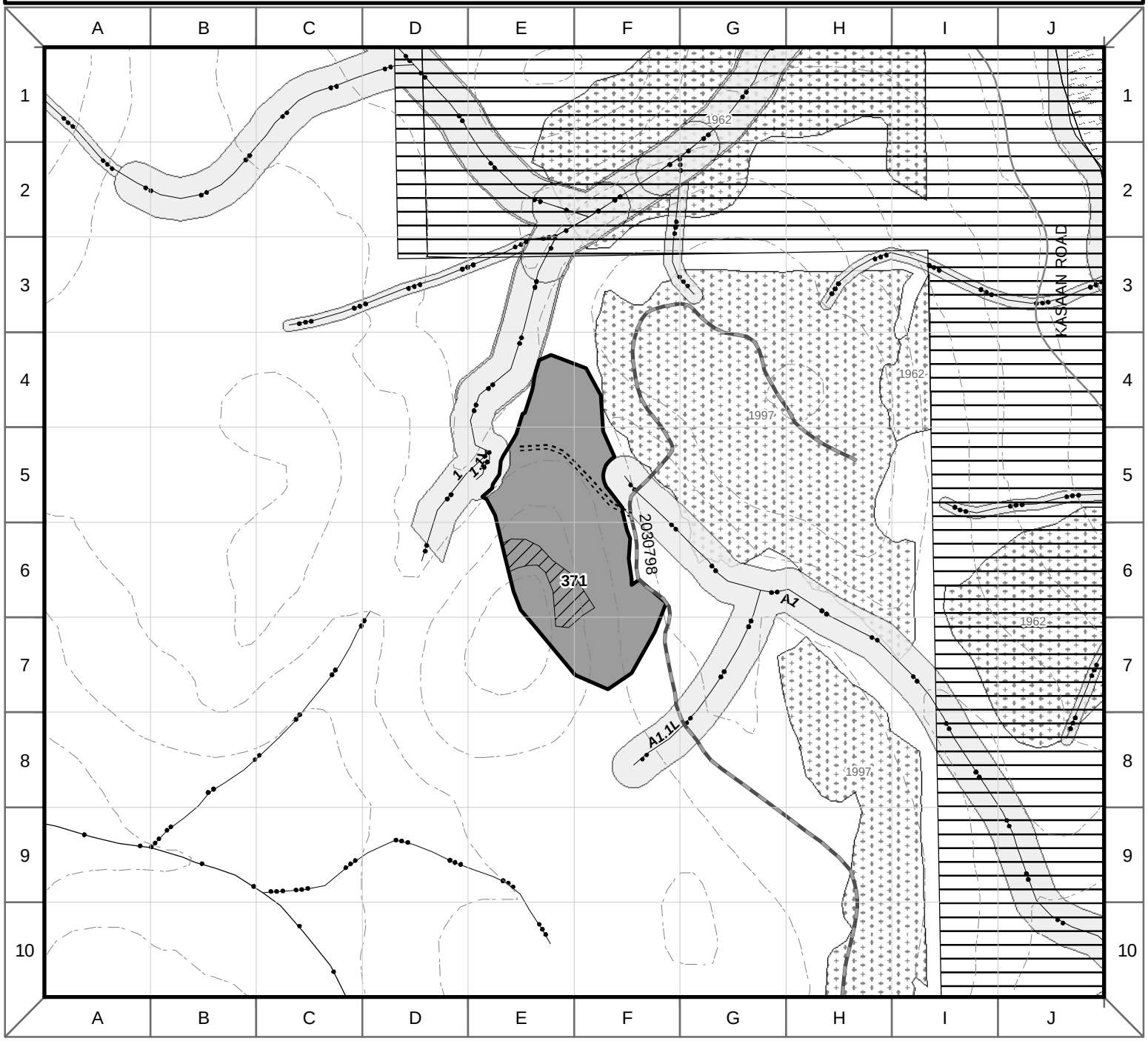
There is a small area (less than 1/4 acre) of moss muskeg near the eastern unit boundary (BMP 12.5).

A temporary road will impact less than 1/4 acre of moss muskeg within the unit and less than 1/4 acre outside the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern and southern ends of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 371 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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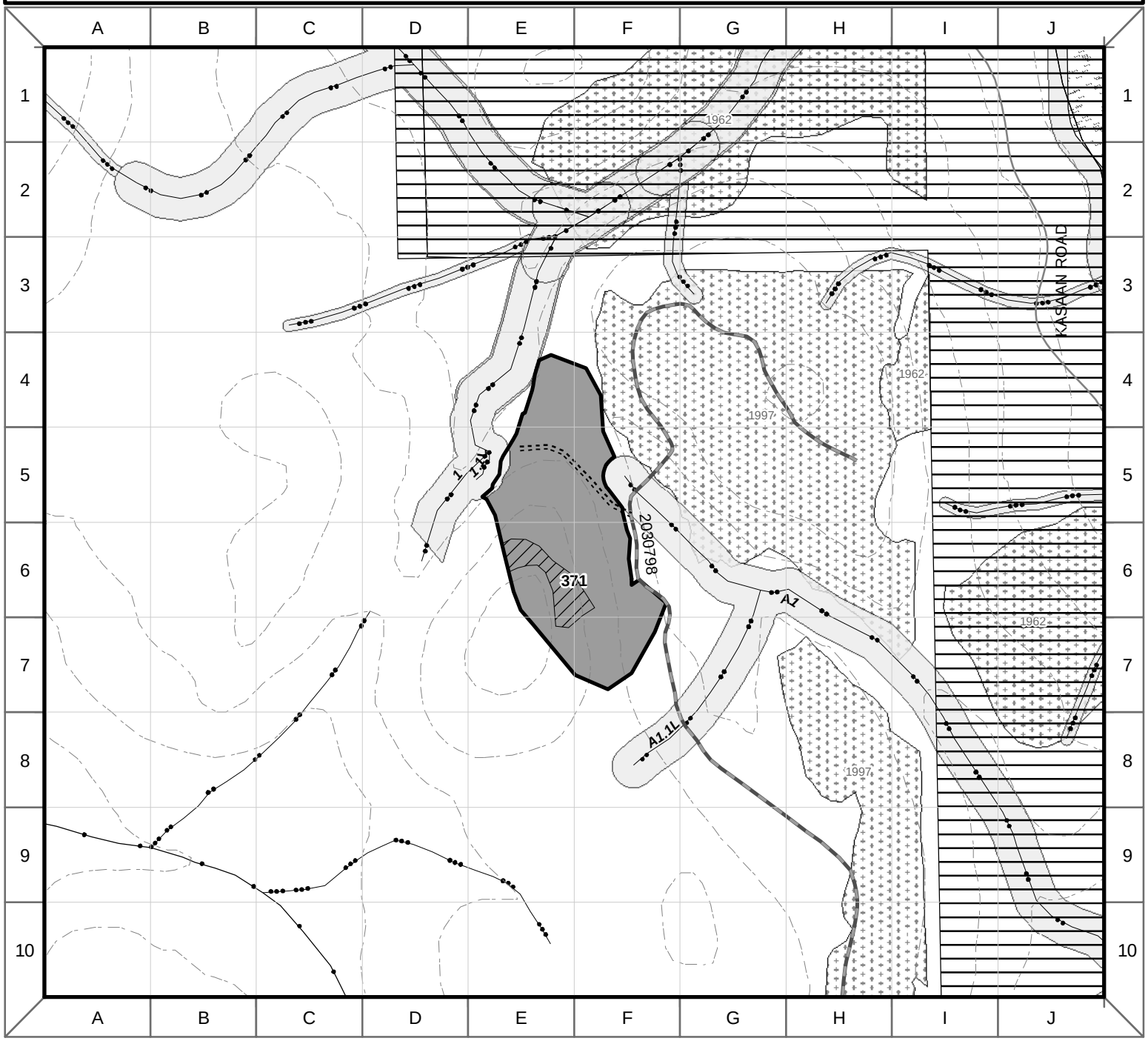
Unit Number 371 | **Alternative 4** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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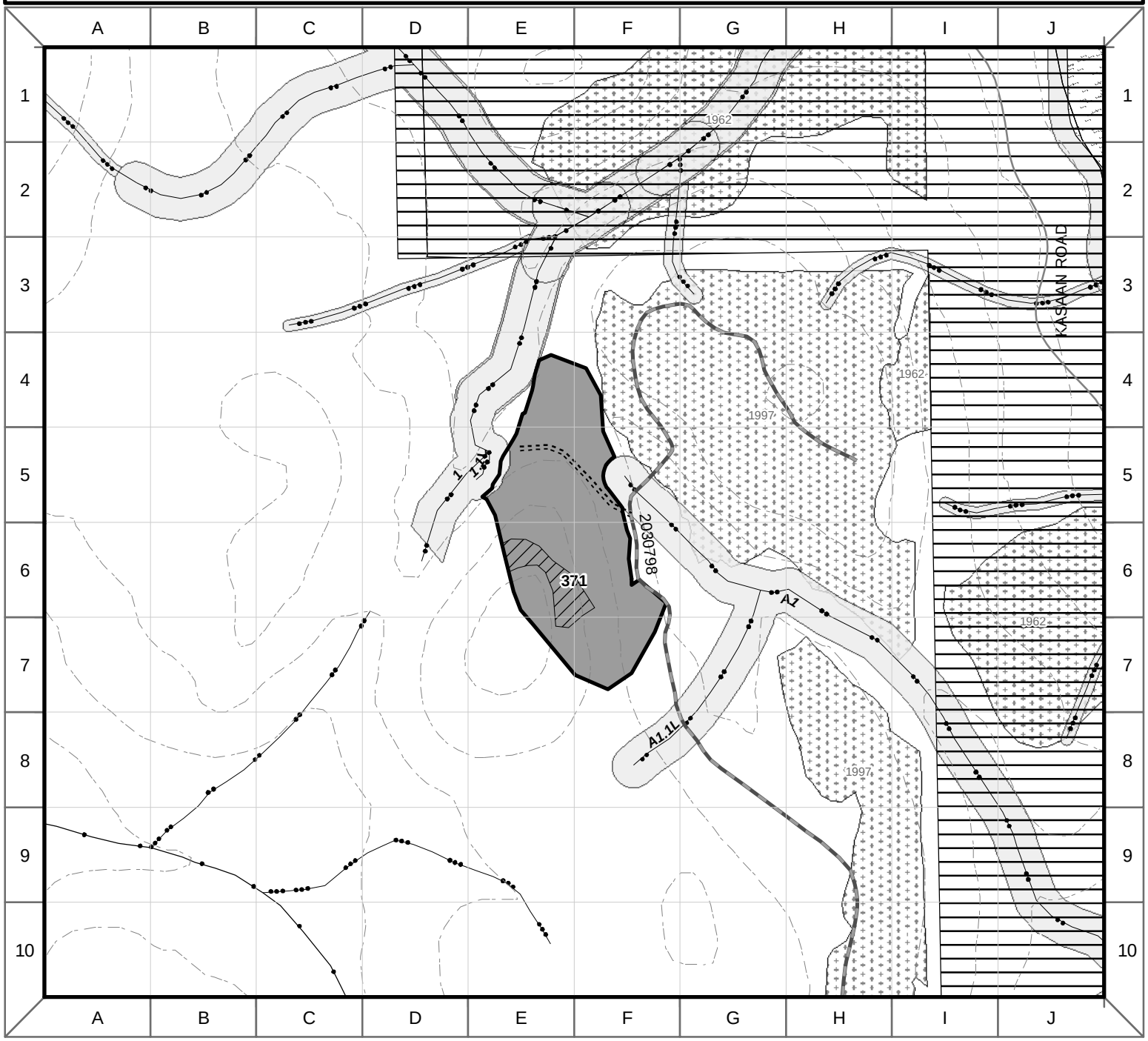
Unit Number 371 | **Alternative 5** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 372

Unit Number	372	Alternatives	3, 5	Total Unit Acres:	15.5	Prescription:	Clearcut
VCU Number:	584	Harvest System:	Shovel, Helicopter	Net Harvest Volume (MBF):	236	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This area consists of old-growth timber. Windthrow risk is high. Mistletoe is light. The overstory is mature western hemlock, western redcedar and Sitka spruce. Damages are considered moderate across the stand. All nearby past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit consists of settings that are less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

Alternative 3: This unit is planned for shovel yarding to the proposed temporary roads.

Alternative 5: This unit is planned for helicopter yarding to the existing NFS road 3000200.

ENGINEERING/ROADS:

Unit is accessed by two proposed temporary roads in Alternative 3, totaling 700 feet, as displayed on the unit card. This unit is also accessed by reconstruction of existing NFS road 3000215, totaling 1200 feet. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait.

Stream#: 1 Class: I Flagging: B/W C- Type: MCM
Concerns: blowdown, bank erosion
Buffer (RMA): Class I for MCM greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 and 5 Buffer (RAW): no review needed
Protection: Category A

Stream#: 1.2R Class: II Flagging: B/W C- Type: HCO
Concerns: blowdown observed
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 and 5 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Temporary roads for Unit 372: Alternatives 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations

will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is mostly Low SIO and is mostly screened from NFS Road 3000000, which is at a distance of more than 1/2 mile. No concerns.

RECREATION:

No Concerns

SOILS/WETLANDS:

Slopes range from about 15 to 30%. Most of the southern half of the unit is forested wetland (BMP 12.5). The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

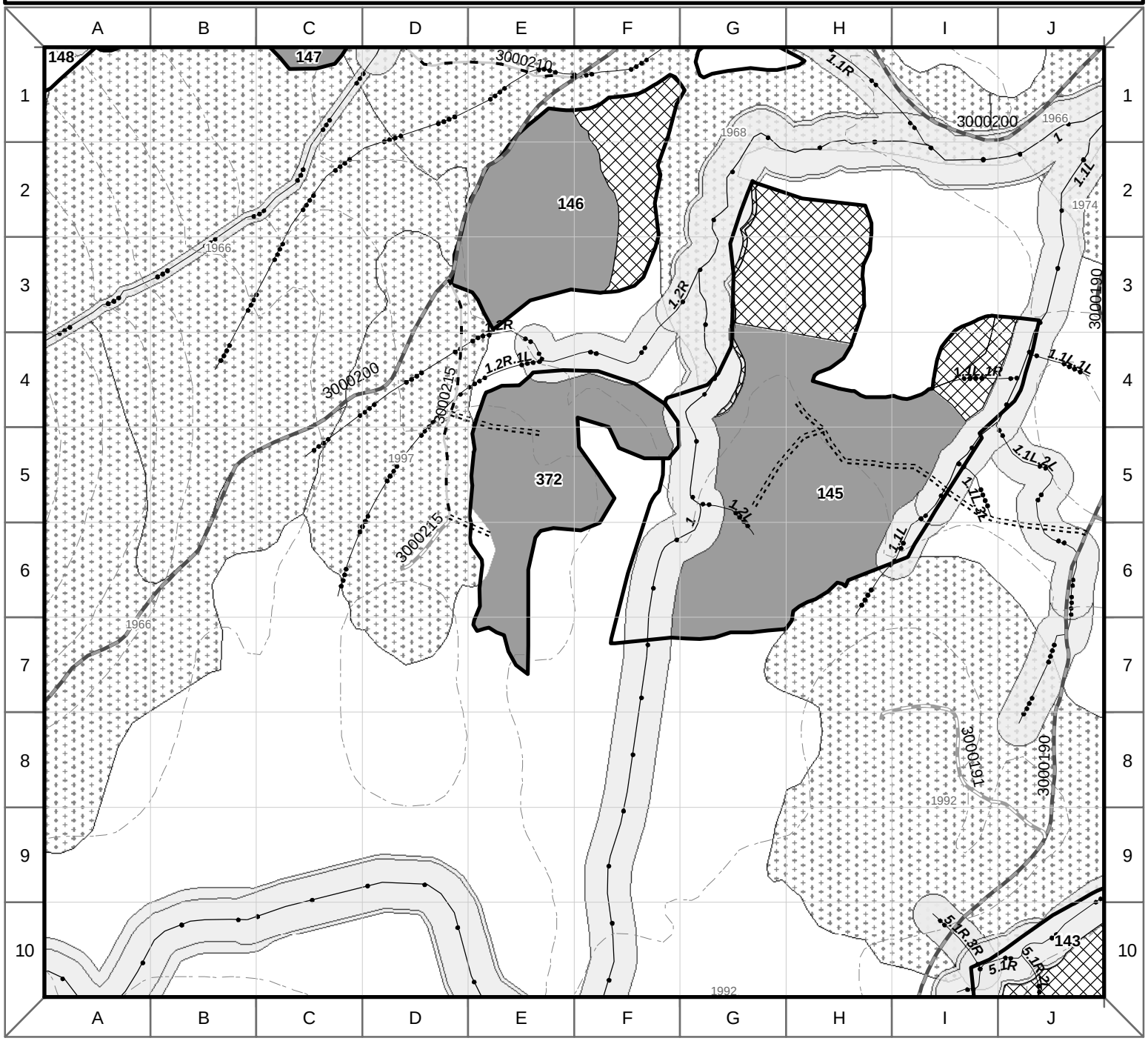
The proposed temporary road in Alternative 3 would not traverse any wetlands.

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern half of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Alternative 4: Unit dropped to maintain connectivity, deer winter range, and marten habitat.

Unit Number 372 | **Alternative 3** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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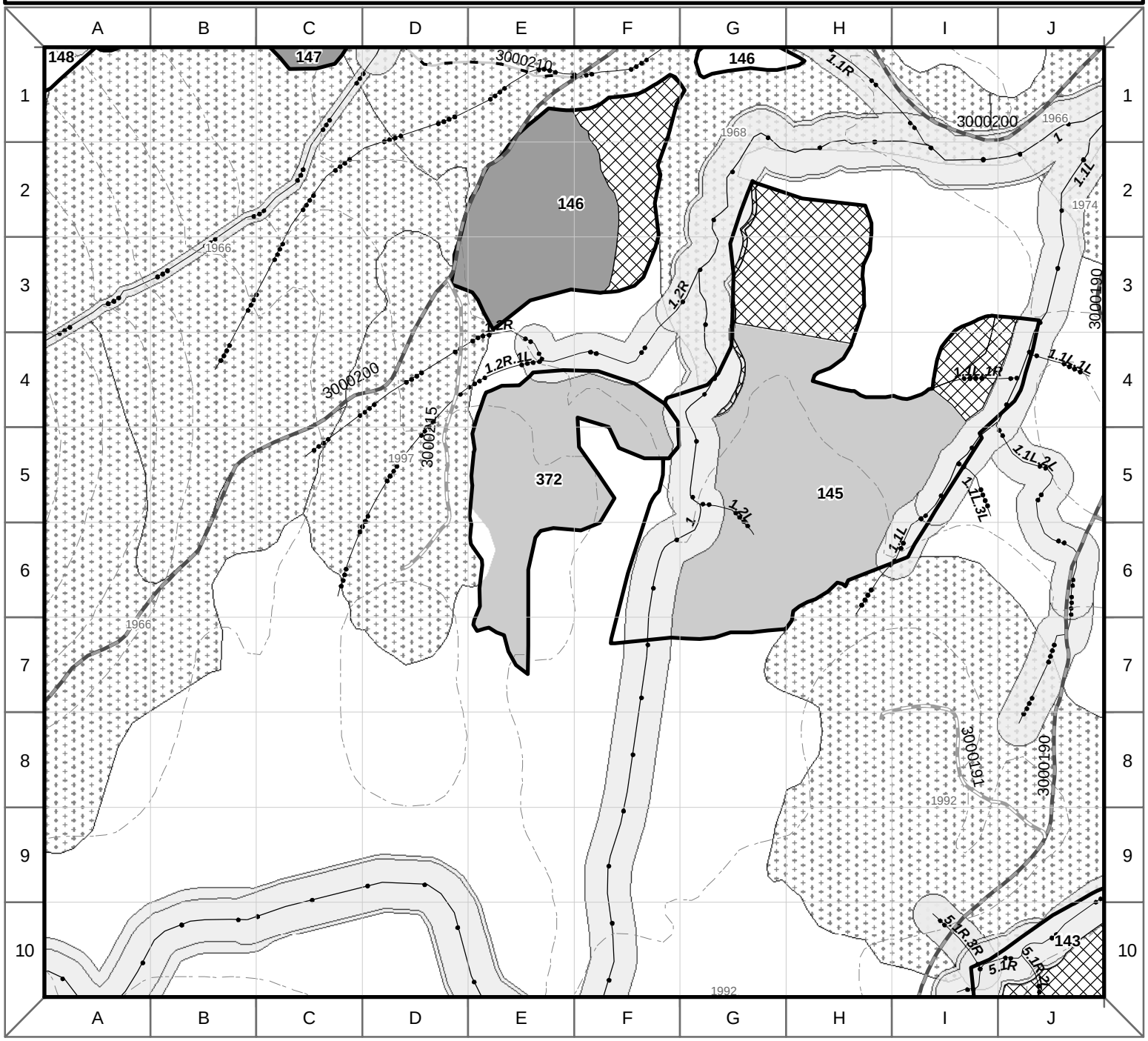
Unit Number 372 | **Alternative 5** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 380

Unit Number	380	Alternatives	3	Total Unit Acres:	35.0	Prescription:	Clearcut
VCU Number:	575	Harvest System:	Cable	Net Harvest Volume (MBF):	1,395	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This area consists of old-growth that is comprised of mature western hemlock, western redcedar and Sitka spruce with scattered Alaska-cedar in the northwest. Windthrow risk is high. Mistletoe was practically absent in the stand. There is moderate stem form defect and stem decay. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

Legacy is not required in this VCU.

TIMBER/LOGGING:

This unit is planned for uphill and downhill yarding to landings on the proposed temporary road and existing NFS road 3016000.

ENGINEERING/ROADS:

Unit is accessed by proposed temporary road in Alternative 3, totaling 3,400 feet, as displayed on the unit card. Approximately 500 feet of this road will be constructed across decommissioned road bed. This road is also used to access Units 381 and 382. This route has not been field verified and may require adjustements to its location to allow operational feasibility.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A3 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A3.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2 Class: III Flagging: O/W C- Type: HCL
Concerns: none known
Buffer (RMA): Class III HCL to the top of the side-slope break.

Unit 380

Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

Temporary roads for Unit 380: Alternative 3 -- One Class III stream crossing. The temporary road had not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
Unit is entirely in Low SIO and is partially visible from portions of the lakes along the Honker Divide trail at a distance of about 1 1/4 miles or more. Typical opening sizes described in the Forest Plan for Low SIO areas are 15 to 40 acres for Low VAC and 40 to 60 acres for Intermediate VAC. The area is mostly Low with some Intermediate VAC so unit is expected to meet the SIO. If Units 380, 381, and 382 are to be harvested together, visible opening size is estimated at 40 acres or less and the combination still appears to meet the SIO.

RECREATION:
Unit is about 3/4 mile outside of the Scenic River corridor. It is partially visible from some portions of the lakes along the Honker Divide trail in the center of the Scenic River corridor, at a distance of about 1 1/4 miles or more. The northeastern boundary of the unit coincides with the boundary of the Thorne River inverntoried roadless area, which also occurs about 1/4 mile southwest of the unit.

SOILS/WETLANDS:
Slopes range from about 40% to greater than 72%. About 2 acres were excluded due to very steep slopes. About 8 acres of slopes greater than 72% that are suitable for partial suspension yarding remain in the unit. A minimum of partial suspension yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

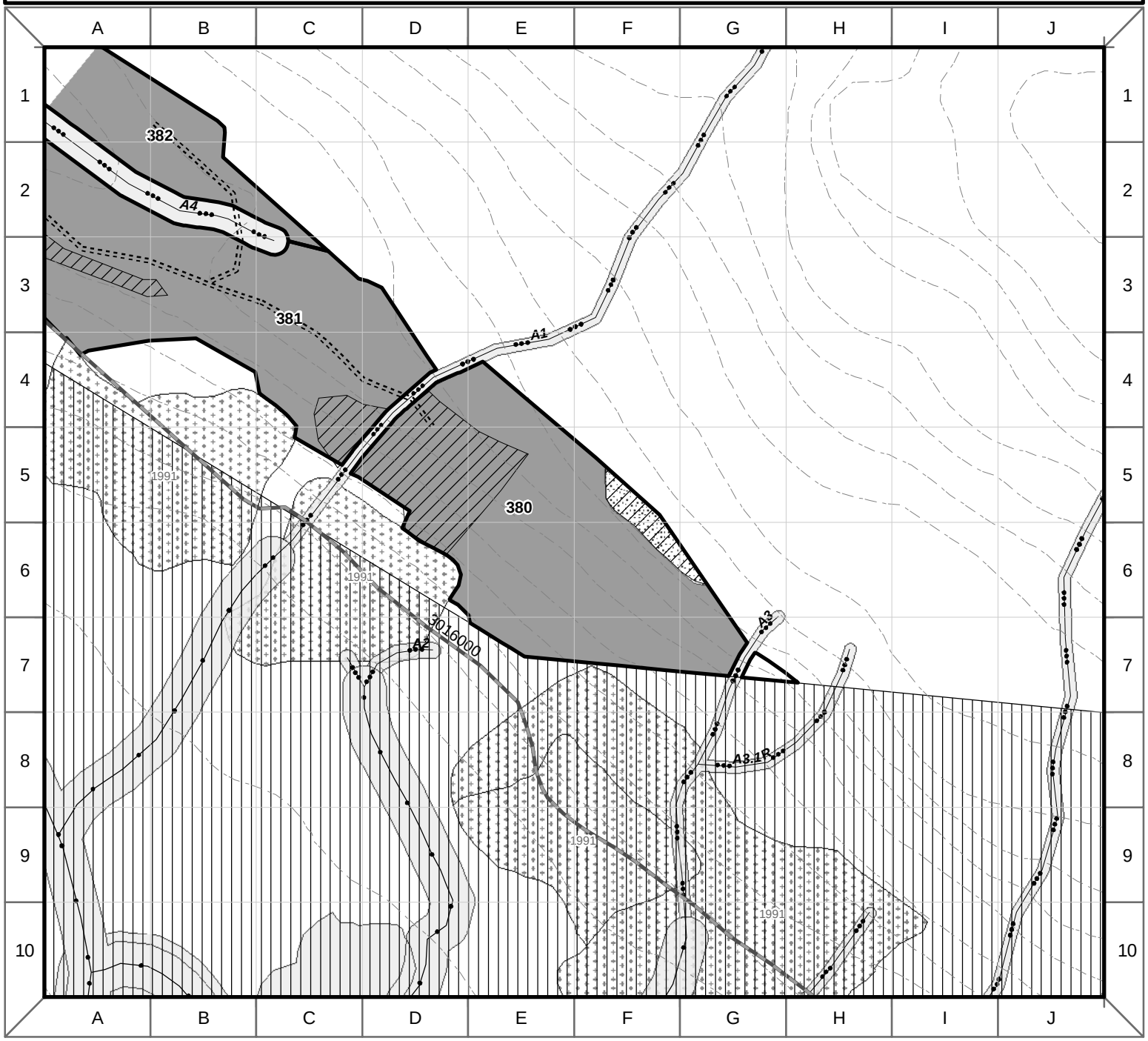
Approximately 20% of the unit is forested wetland - mostly in the southern portion of the unit (BMP 12.5).

Based on GIS analysis, the proposed temporary road does not traverse any wetlands.

WILDLIFE:
Unit includes average snow deer winter range (entire unit). Unit is adjacent to the Honker large OGR complex (OGR to the south). Legacy standard and guideline does not apply in this VCU.

Alternative 4: Unit dropped to maintain connectivity and integrity of forest on fringes of Honker large OGR.

Unit Number 380 | **Alternative 3** | **VCU: 575**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 381

Unit Number	381	Alternatives	3	Total Unit Acres:	46.2	Prescription:	Clearcut
VCU Number:	575	Harvest System:	Cable, Shovel	Net Harvest Volume (MBF):	1,442	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is old-growth timber comprised mostly of western hemlock and Alaska-cedar. Windthrow risk is moderate to high throughout the stand with some evidence of older blowdown in the central to southeast portion of the unit and more recent blowdown along past harvest edges. Mistletoe was on average moderate throughout the stand. Primary defect is stem decay and form defects. Alaska-cedar decline was also evident in the southeastern corner. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for a combination of shovel, and cable yarding. Shovel settings are planned for yarding to the proposed temporary road and existing NFS road 3016000. Cable settings are planned for uphill and downhill yarding to landings on the proposed temporary road.

A portion of the unit on the west side of the road is adjacent to the Honker OGR boundary.

ENGINEERING/ROADS:

Unit is accessed by proposed temporary road, totaling 2,900 feet, as displayed on the unit card. Approximately 500 feet of this road will be constructed across decommissioned road bed. Part of this road is also used to access Unit 380 and 382. This route has not been field verified and may require adjustements to its location to allow operation feasibility.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A1 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A5 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A4 Class: III Flagging: O/W C- Type: MMS, HCV

Unit 381

Concerns: none known
Buffer (RMA): Class III for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III HCV to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

Temporary roads for Unit 381: Alternative 3 -- Two Class III stream crossings. The temporary roads had not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
Unit has 37 acres of Low SIO and 9 acres of Very Low. It is partially visible from portions of the lakes along the Honker Divide trail at a distance of about 1 1/4 miles or more. Approximate opening sizes described in the Forest Plan for Low SIO areas are 15 to 40 acres for Low VAC and 60 to 100 acres for High VAC. About half the unit is Low and half is High. If Units 380, 381, and 382 are to be harvested together, visible opening size is estimated at 40 acres or less and the combination still appears to meet the SIO.

RECREATION:
Unit is about 3/4 mile outside of the Scenic River corridor. It is partially visible from some portions of the lakes along the Honker Divide trail in the center of the Scenic River corridor, at a distance of about 1 1/4 miles or more. A portion of the northeastern boundary of unit is within about 50 ft of the Thorne River inventoried roadless area boundary.

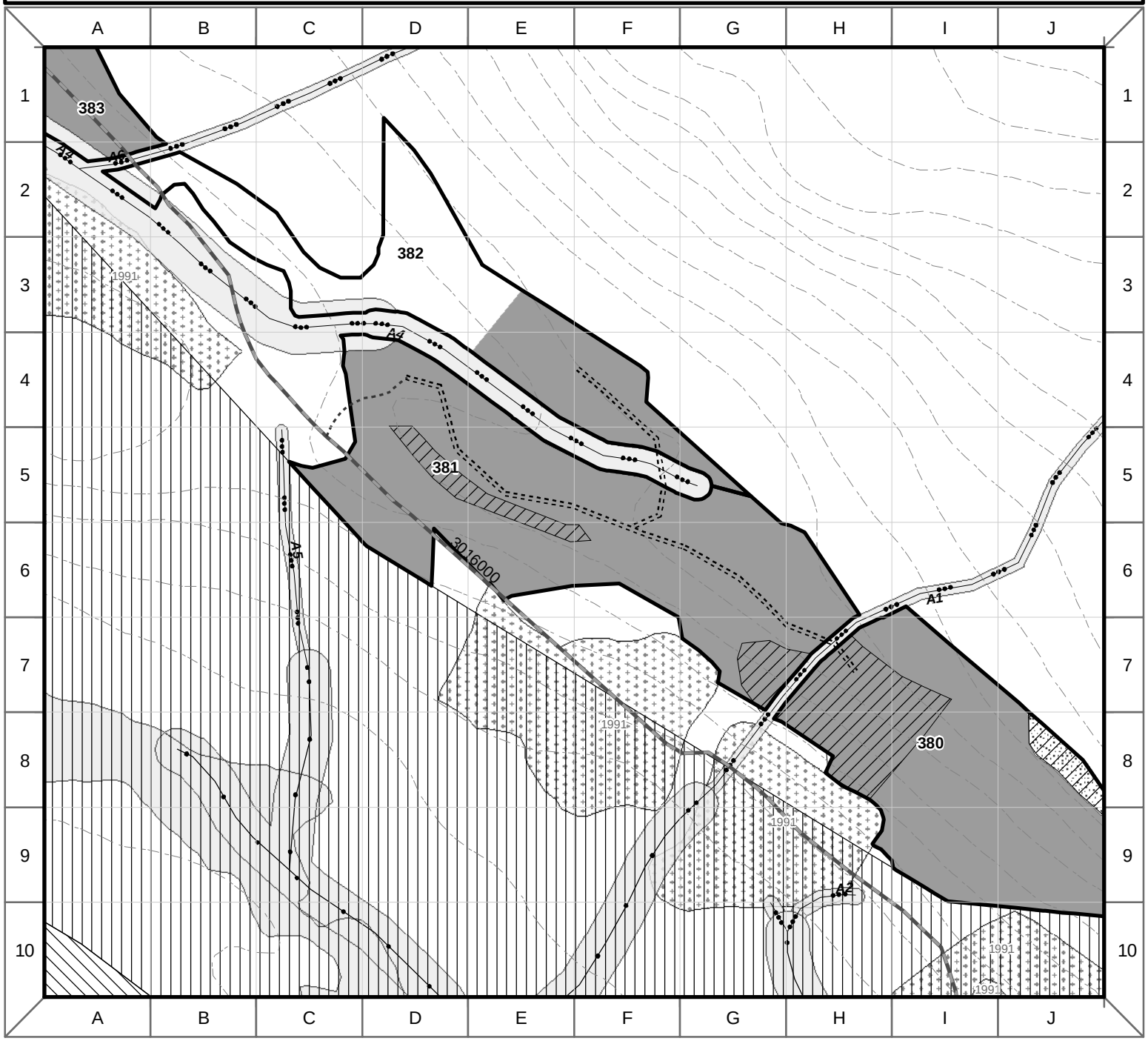
SOILS/WETLANDS:
Slopes range from about 20 to over 72%. About 4 acres of slopes greater than 72% are mapped in the unit that are suitable for harvest with partial suspension. There are approximately 8 acres of forested wetland in the northern portion of the unit (BMP 12.5). The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

A temporary road will impact about 1/2 acre of forested wetland in the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:
Unit includes average snow deer winter range (entire unit). Unit is adjacent to the Honker large OGR (OGR to the west). Legacy standard and guideline does not apply in this VCU.

Alternative 4: Unit dropped to maintain connectivity and integrity of forest on fringes of Honker large OGR.

Unit Number 381 | **Alternative 3** | **VCU: 575**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 382

Unit Number 382	Alternatives 3	Total Unit Acres: 9.8	Prescription: Clearcut
VCU Number: 575	Harvest System: Shovel	Net Harvest Volume (MBF): 364	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 382 is a mixed species stand of old-growth timber. Windthrow risk is moderate throughout the stand with no significant evidence of blowdown. Mistletoe is light. The overstory is made up of mature western hemlock, western redcedar, Alaska-cedar, and Sitka spruce. Damage and defects are moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the proposed temporary road.

ENGINEERING/ROADS:

Unit is accessed by proposed temporary road in Alternative 3, totaling 3,300 feet, as displayed on the unit card. Approximately 500 feet of this road will be constructed across decommissioned road bed. Part of this road is also used to access Units 380 and 381. This route has not been field verified and may require adjustements to its location to allow operation feasibility.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A4 Class: III Flagging: O/W C- Type: MMS, HCV
Concerns: none known
Buffer (RMA): Class III for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III HCV to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

Stream#: A6 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

Temporary roads for Unit 382: Alternative 3 -- One Class III stream crossing. The temporary road had not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

Unit 382

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is 2/3 in Low SIO and 1/3 in Very Low. Unit is small and does not appear to be visible from the Honker Divide trail because of topographic and vegetation screening. If Units 380, 381, and 382 are to be harvested together, visible opening size is estimated at 40 acres or less and the combination still appears to meet the SIO.

RECREATION:

The Thorne River inventoried roadless area borders the unit on its northeastern boundary.

SOILS/WETLANDS:

Slopes range from about 25% to about 40%. The majority of the unit is covered by forested wetland (BMP 12.5). The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

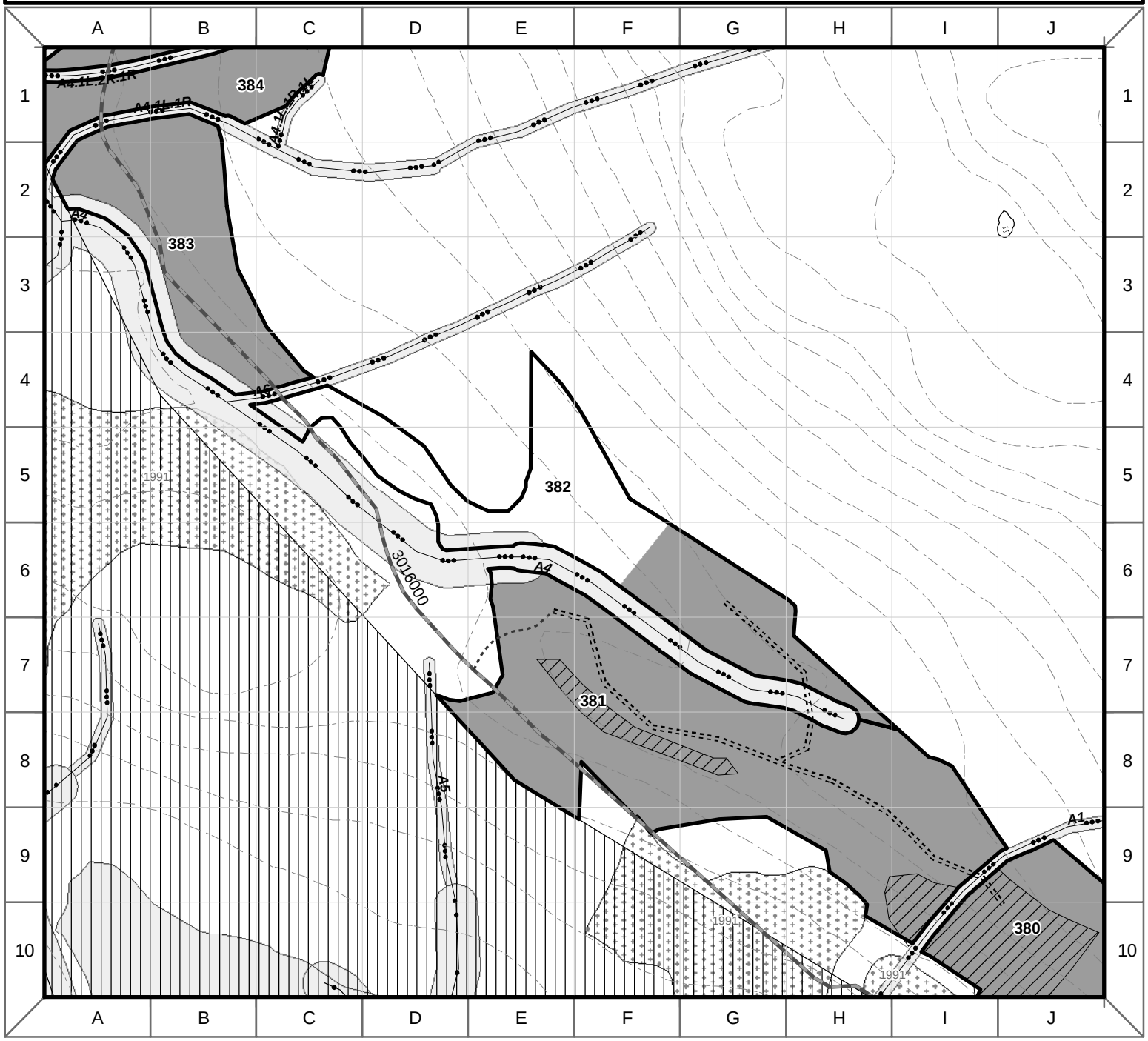
A temporary road will impact about 3/4 acre of forested wetland in the unit and about 1/4 acre outside the unit.). Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Unit is near Honker Large OGR complex. Legacy standard and guideline does not apply in this VCU.

Alternative 4: Unit dropped to maintain connectivity and integrity of forest on fringes of Honker large OGR.

Unit Number 382 | **Alternative 3** | **VCU: 575**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit 383

Unit Number 383	Alternatives 3	Total Unit Acres: 16.0	Prescription: Clearcut
VCU Number: 575	Harvest System: Shovel	Net Harvest Volume (MBF): 460	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 383 is predominantly a western hemlock old-growth stand. Western redcedar occurs to the west of the road. Moderate windthrow, moderate defect, and low evidence of mistletoe define the stand. All nearby past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the existing NFS road 3016000.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A4 Class: III Flagging: O/W C- Type: MMS
Concerns: none knonw
Buffer (RMA): Class III for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout.
Protection: Category B

Stream#: A4.1L Class: III Flagging: O/W C- Type: HCL
Concerns: none known
Buffer (RMA): Class III HCL to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout.
Protection: Category B

Stream#: A4.1L.1R Class: III Flagging: O/W C- Type: HCL, HCM
Concerns: none known
Buffer (RMA): Class III HCL and HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout.
Protection: Category B

Stream#: A6 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III HCM to the top of the side-slope break.

Unit 383

Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
Unit is entirely in Very Low SIO. Unit is small and would not be visible from the Honker Divide trail because of topographic and vegetation screening.

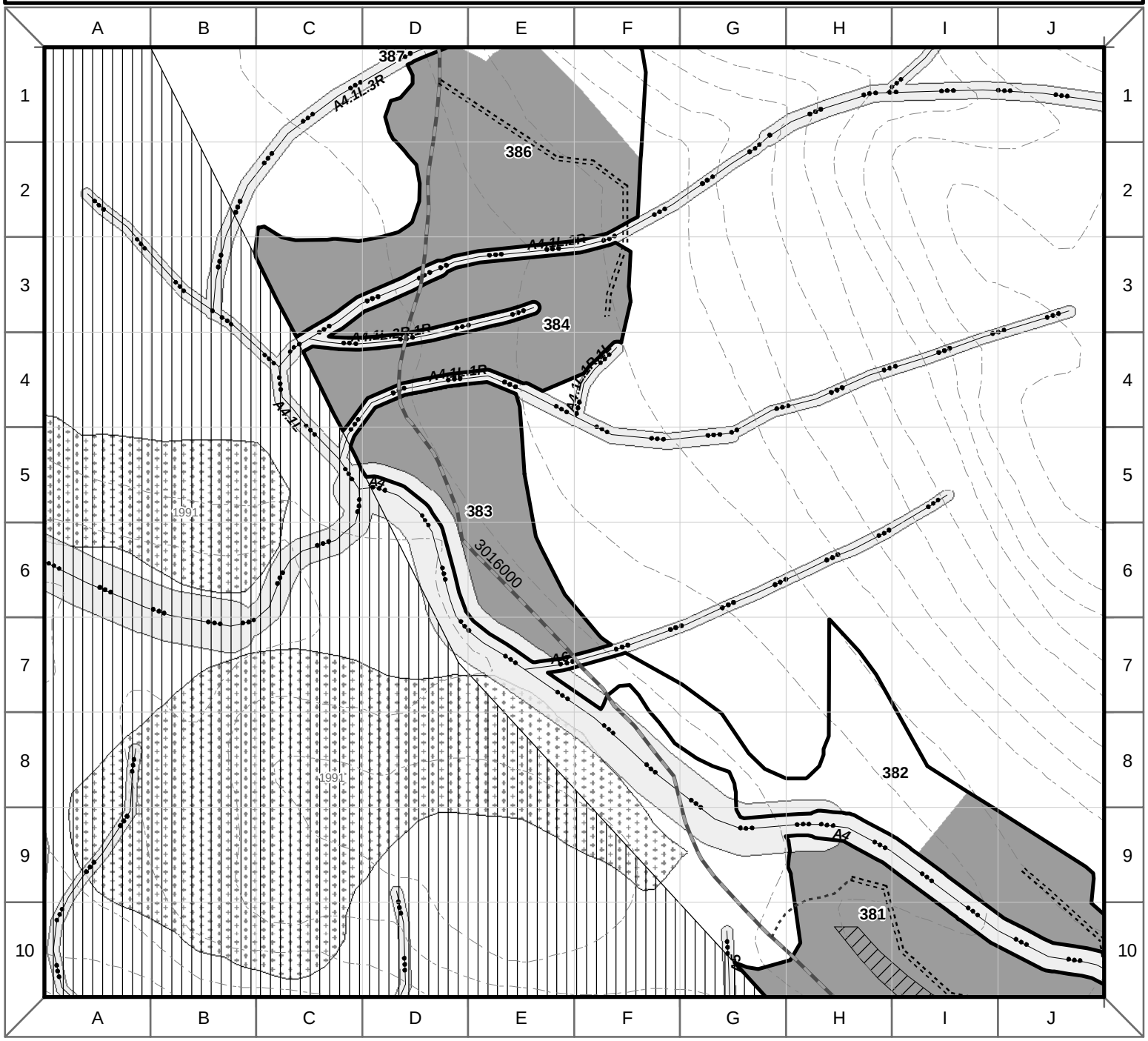
RECREATION:
No Concerns

SOILS/WETLANDS:
Slopes range from about 20% to 30%. About half of the unit (mostly in the northern portion) is covered by forested wetland (BMP 12.5). The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

WILDLIFE:
Unit includes average snow deer winter range (nearly entire unit), some of which is also deep snow marten habitat/deer winter range (western lobe of unit). Unit is adjacent to the Honker large OGR (OGR boundary to the west). Legacy standard and guideline does not apply in this VCU.

Alternative 4: Unit dropped to maintain connectivity and integrity of forest on fringes of Honker large OGR.

Unit Number 383 | **Alternative 3** | **VCU: 575**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Unit 384

Unit Number 384	Alternatives 3	Total Unit Acres: 17.1	Prescription: Clearcut
VCU Number: 575	Harvest System: Shovel	Net Harvest Volume (MBF): 564	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Condition: This unit is predominantly a western hemlock and western redcedar stand with old-growth stand structure. The timber is over-mature with declining growth. Moderate windthrow, moderate defect, and low evidence of mistletoe define the health of the stand. All nearby past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the existing NFS road 3016000 and proposed temporary road.

A portion of the unit on the west side of the road is adjacent to the Honker OGR boundary.

ENGINEERING/ROADS:

Unit is accessed by proposed temporary road in Alternative 3, totaling 1,700 feet, as displayed on the unit card. This road is also used to access Unit 386.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River (Stream characteristics do not include project-specific, field-verified, information).

Stream#: A4.1L Class: III Flagging: O/W C- Type: HCL
Concerns: none known
Buffer (RMA): Class III HCL to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout.
Protection: Category B

Stream#: A4.1L.2R Class: III Flagging: O/W C- Type: HCL, HCM
Concerns: none known
Buffer (RMA): Class III HCL and HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout.
Protection: Category B

Stream#: A4.1L.2R.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout.
Protection: Category B

Unit 384

Stream#: A4.1L.1R Class: III Flagging: O/W C- Type: HCL, HCM
Concerns: none known
Buffer (RMA): Class III HCL and HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout.
Protection: Category B

Stream#: A4.1L.1R.1L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout.
Protection: Category B

Temporary roads for Unit 384: Alternative 3 -- One Class III stream crossing. The temporary road had not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is approximately 60% in Very Low and 40% in Low SIO and is not visible or only slightly visible from portions of the lakes along the Honker Divide trail at a distance of about 1 1/4 miles or more. It is not likely to be visible from the Honker Divide trail because of topographic and vegetation screening. Typical opening sizes described in the Forest Plan for Low SIO areas with Intermediate VAC are 40 to 60 acres and 60 to 100 acres for High VAC. This unit has a combination of Intermediate and High VAC. Total visible size of the opening created by Units 383, 384, 386, and 387 is estimated to be less than 25 acres. No other units are considered part of the same opening, because Unit 383 is mostly not seen and does not connect with Unit 382 to the south and Unit 387 is long and linear and connects to Unit 394 to the north, but is considered not seen.

RECREATION:

Unit is about 3/4 mile outside of the Scenic River corridor. It is not likely to be visible from the corridor or the Honker Divide trail due to topographic and vegetation screening. A portion of the eastern boundary of the unit is adjacent to the Thorne River inventoried roadless area.

SOILS/WETLANDS:

Slopes range from about 15% to about 35%. The majority of the unit is forested wetland (BMP 12.5). The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

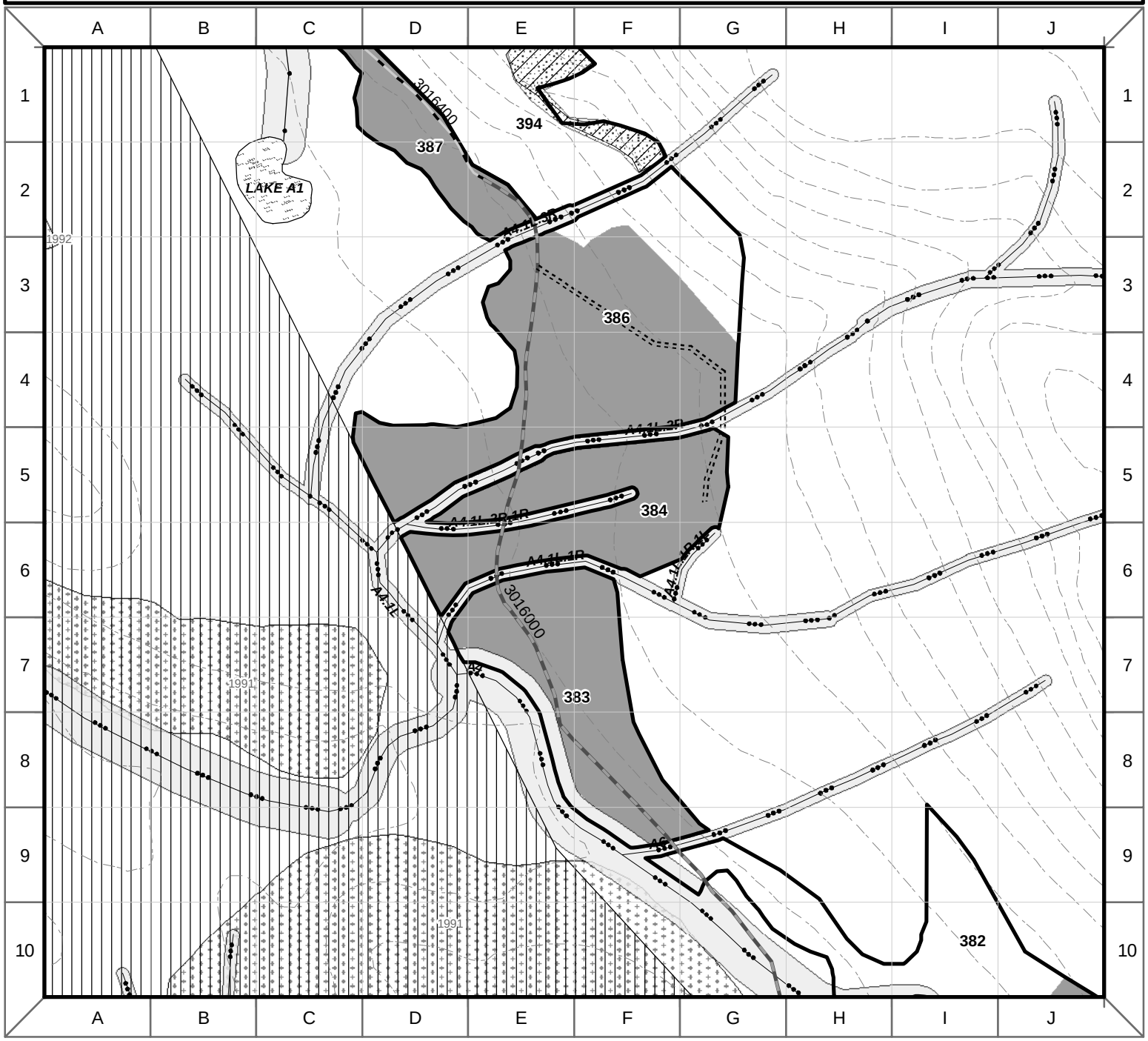
A temporary road will impact about 1/2 acre of forested wetland in the unit and less than 1/4 acre outside of the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (western half of unit). Unit is adjacent to the Honker large OGR (OGR boundary to the west). Legacy standard and guideline does not apply in this VCU.

Alternative 4: Unit dropped to maintain connectivity and integrity of forest on fringes of Honker large OGR.

Unit Number 384 | **Alternative 3** | **VCU: 575**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit 386

Unit Number 386	Alternatives 3	Total Unit Acres: 28.7	Prescription: Clearcut
VCU Number: 575	Harvest System: Shovel	Net Harvest Volume (MBF): 873	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 386 is predominantly a western hemlock and western redcedar stand that transitions to pure western Hemlock in the southeast. Generally old-growth stand structure dominates. Moderate windthrow, moderate to high stem decay and a low instance of physical defects was observed. Mistletoe was rated low. The timber is over-mature and shows signs of declining growth. There are no adjacent past harvest units.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the proposed temporary road and existing NFS road 3016000.

A portion of the unit on the west side of the road is adjacent to the Honker OGR boundary.

ENGINEERING/ROADS:

Unit is accessed by proposed temporary road in Alternative 3, totaling 900 feet, as displayed on the unit card. This road is also used to access Unit 384.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A4.1L.2R Class: III Flagging: O/W C- Type: HCL, HCM
Concerns: none known
Buffer (RMA): Class III HCL and HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: A4.1L.3R Class: III Flagging: O/W C- Type: HCL, HCM
Concerns: none known
Buffer (RMA): Class III HCL and HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Temporary roads for Unit 386: Alternative 3 -- One Class III stream crossing. The temporary road had not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

Unit 386

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is about 70% in Low SIO and 30% in Very Low SIO and may be partially visible from portions of the lakes along the Honker Divide trail at a distance of about 1 3/4 miles or more. Typical opening sizes described in the Forest Plan for Low SIO areas with Intermediate VAC are 40 to 60 acres and 60 to 100 acres for High VAC. This unit has a combination of Intermediate and High VAC. Total visible size of the opening created by Units 383, 384, 386, and 387 is estimated to be less than 25 acres. No other units are considered part of the same opening, because Unit 383 is mostly not seen and does not connect with Unit 382 to the south and Unit 387 is long and linear and connects to Unit 394 to the north, but is considered not seen.

RECREATION:

Unit is about 3/4 mile outside of the Scenic River corridor. It is only partially visible (at most) from the corridor or the Honker Divide trail due to topographic and vegetation screening. Eastern and northeastern boundary of unit is adjacent to the Thorne River inventoried roadless area.

SOILS/WETLANDS:

Slopes range from about 20% to about 35%. About half of the unit (western half) is forested wetland (BMP 12.5). The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

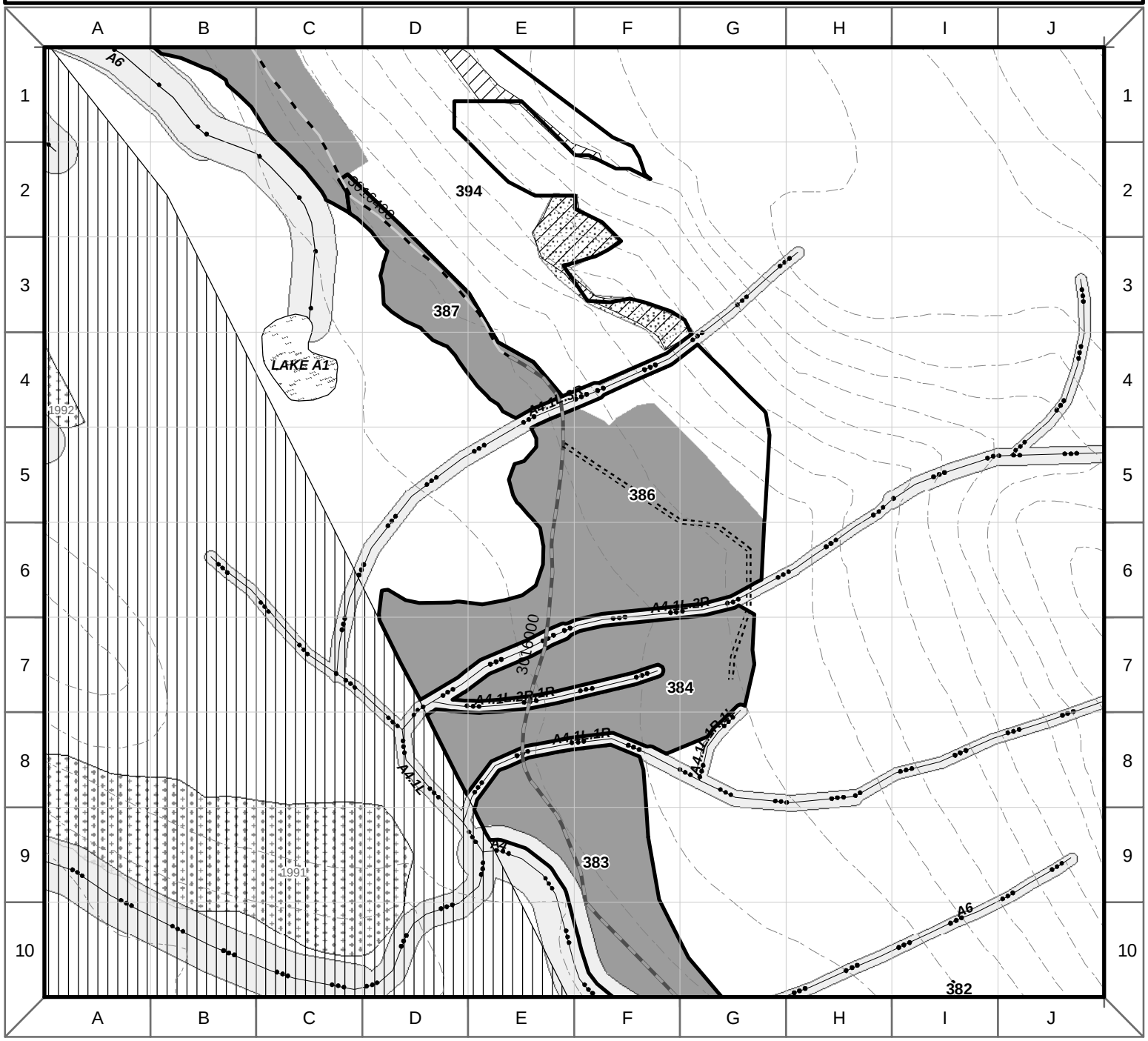
A temporary road will impact about 1 acre of forested wetland in the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Unit is adjacent to the Honker large OGR (OGR boundary to the west). Legacy standard and guideline does not apply in this VCU.

Alternative 4: Unit dropped to maintain connectivity and integrity of forest on fringes of Honker large OGR.

Unit Number 386 | **Alternative 3** | **VCU: 575**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500 Feet

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Unit 387

Unit Number 387	Alternatives 3	Total Unit Acres: 7.7	Prescription: Clearcut
VCU Number: 575	Harvest System: Shovel	Net Harvest Volume (MBF): 139	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 387 is a low volume western hemlock / Alaska-cedar old growth stand. Moderate windthrow, moderate defect, and a moderate occurrence of mistletoe were observed. Timber values are poor in the unit however access and logging costs would be minimal due to the close proximity to the road. The timber is over-mature with declining growth. There are no adjacent past harvest areas.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the existing NFS roads 3016000 and 3016400.

ENGINEERING/ROADS:

This unit will utilize part of reconstructed NFS road 3016400, totaling 800 feet. See road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A6 Class: I Flagging: B/W C- Type: MMS, MCS
Concerns: none
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for MCS greater of 100 feet or the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: A4.1L.3R Class: III Flagging: O/W C- Type: HCL, HCM
Concerns: none
Buffer (RMA): Class III HCL and HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

GEOLOGY/KARST:

No Concerns

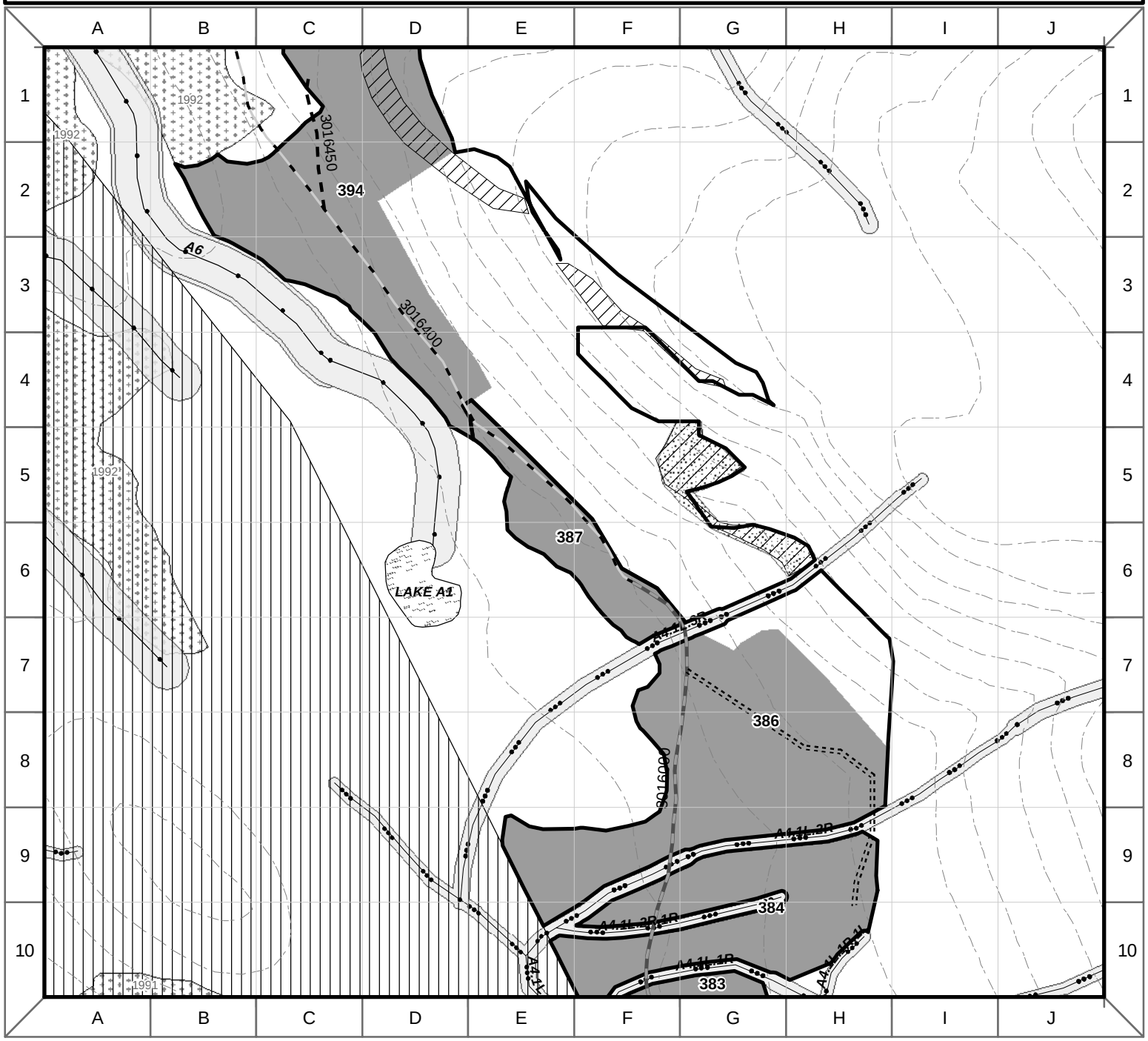
HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit 387
Unit is entirely in Low SIO and does not appear to be visible from the lakes along the Honker Divide trail due to topographic and vegetative screening. Approximate opening sizes described in the Forest Plan for Low SIO areas with Intermediate VAC are 40 to 60 acres. Total visible size of the opening created by Units 383, 384, 386, and 387 is estimated to be less than 25 acres. No other units are considered part of the same opening, because Unit 383 is mostly not seen and does not connect with Unit 382 to the south and Unit 387 is long and linear and connects to Unit 394 to the north, but is considered not seen.
RECREATION: Unit is over 1 mile outside of the Scenic River corridor and is not likely to be visible from the corridor or the Honker Divide trail due to topographic and vegetation screening.
SOILS/WETLANDS: Slopes range from about 15% to about 50%. Approximately half of the unit is forested wetland (BMP 12.5). The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.
WILDLIFE: Unit includes average snow deer winter range (entire unit). Unit is adjacent to the Honker large OGR. Legacy standard and guideline does not apply in this VCU. Alternative 4: Unit dropped to maintain connectivity and integrity of forest on fringes of Honker large OGR.

Unit Number 387 | **Alternative 3** | **VCU: 575**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 392

Unit Number 392	Alternatives 3	Total Unit Acres: 16.7	Prescription: Clearcut
VCU Number: 575	Harvest System: Cable	Net Harvest Volume (MBF): 435	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 392 is an old-growth western hemlock and western redcedar stand with Sitka spruce with Alaska-cedar only present in the north. Windthrow risk is moderate throughout the stand, with a few small windthrow patches found low on the slope in the northwest corner. Mistletoe was light in the eastern portion but heavy in the western lower elevations. The primary defect in the overstory is stem decay and wind damage. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

Unit is planned for uphill and downhill cable yarding to landings on the proposed temporary road.

A portion of the unit on the north boundary is adjacent to the Honker OGR boundary.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road, totaling 1,600 feet, as displayed on the unit card. Approximately 400 feet of this road will be constructed across decommissioned road bed. Unit is also accessed by reconstruction of NFS road 3016400, totaling 5,300 feet. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A1 Class: III Flagging: O/W C- Type: AFM, HCD
Concerns: none
Buffer (RMA): Class III AFM greater of 140 feet or active portion of the alluvial fan. Class III HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1.1L Class: III Flagging: O/W C- Type: HCL
Concerns: none
Buffer (RMA): Class III HCL to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

Unit 392

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is about 98% in Very Low SIO and may be partially visible (estimated to be up to 10 acres) from a few locations on the lakes along the Honker Divide trail at a distance of about 2 miles. Typical opening sizes described in the Forest Plan for Very Low SIO areas with Low VAC are 40 to 60 acres, so no concerns.

RECREATION:

Unit is over 1 mile outside of the Scenic River corridor and is not likely to be visible from the corridor or the Honker Divide trail due to topographic and vegetation screening. The norhern boundary is adjacent to the Thorne River inventoried roadless area.

SOILS/WETLANDS:

Slopes range from about 20 to greater than 72%. There are about 3 acres of slopes greater than 72% that are suitable for harvest with partial suspension requirements. There are approximately 3 acres of forested wetland along the eastern edge of the unit (BMP 12.5). A minimum of partial suspension yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

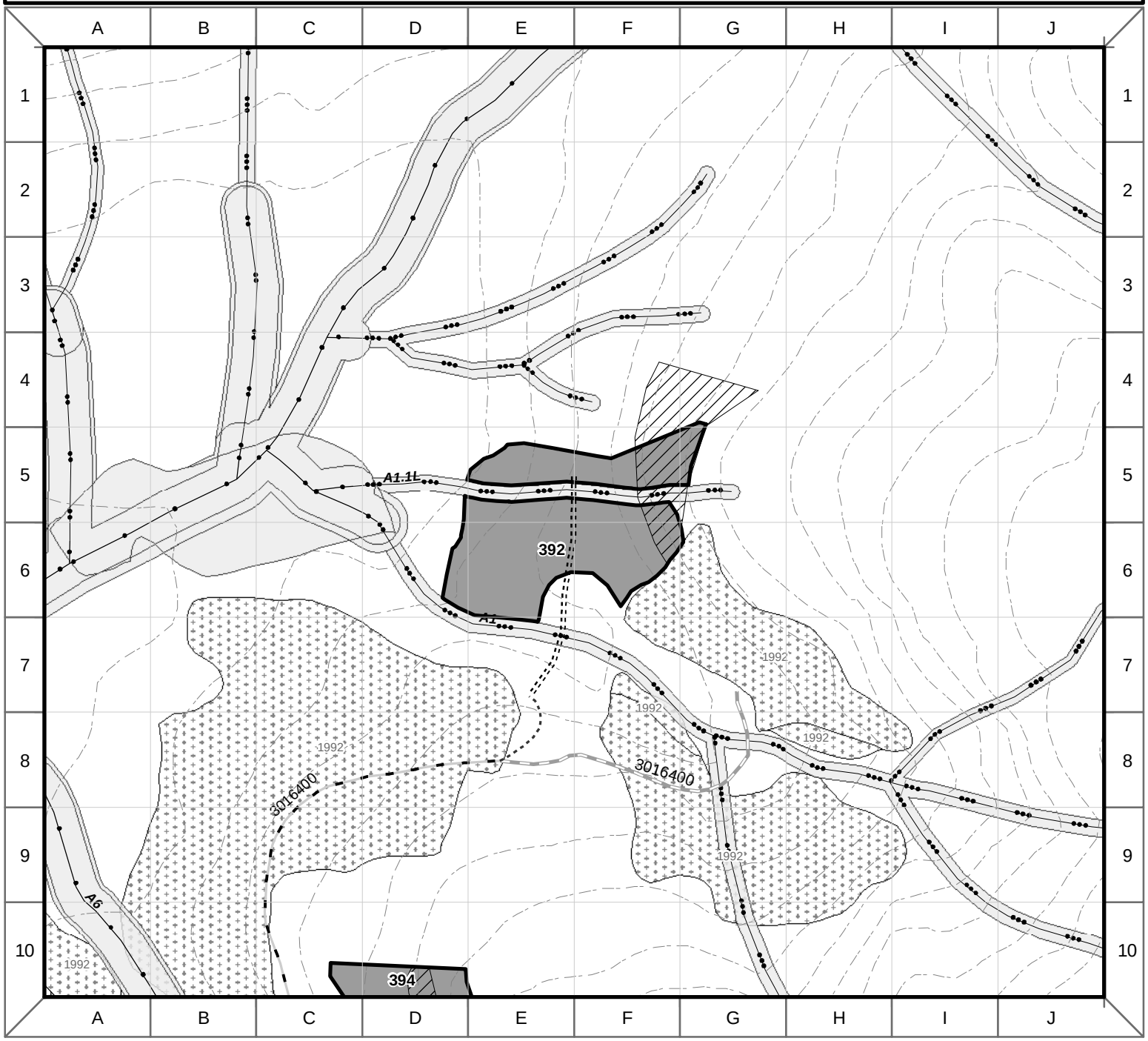
A temporary road will impact about 1/2 acre of forested wetland within the unit and 1/2 acre outside the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (central portion of unit). Unit is near the Honker large OGR. Legacy standard and guideline does not apply in this VCU.

Alternative 4: Unit dropped to maintain connectivity and integrity of forest on fringes of Honker large OGR.

Unit Number 392 | **Alternative 3** | **VCU: 575**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 394

Unit Number	394	Alternatives	3	Total Unit Acres:	28.2	Prescription:	Clearcut
VCU Number:	575	Harvest System:	Cable, Shovel	Net Harvest Volume (MBF):	752	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 394 is predominantly a western hemlock / western redcedar stand with Alaska-cedar and Sitka Spruce present as lesser components. Generally old-growth stand structure dominates, however areas with patchy past wind damage throughout the south have a somewhat two-age structure. Moderate to high windthrow was noted. High defect occurs west of the road but defect is moderate east of the road. There is low evidence of mistletoe throughout the stand. The past harvest area adjacent to the north boundary has regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered an opening.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

Unit is planned for a combination of shovel and cable yarding. Shovel settings are planned for yarding to the existing NFS road 3016400. Cable settings are planned for downhill yarding to landings on the proposed NFS road 3016450.

ENGINEERING/ROADS:

Unit is accessed by proposed NFS road 3016450, totaling 700 feet. See corresponding road card for detailed information. Unit is also accessed by reconstruction of existing NFS road 3016400, totaling 2700 feet. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A6 Class: I Flagging: B/W C- Type: MMS, MCS
Concerns: none
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for MCS greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: A4.1L.3R Class: III Flagging: O/W C- Type: HCL, HCM
Concerns: none
Buffer (RMA): Class III HCL and HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

Unit 394

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is 70% in Low SIO and 30% in Very Low. It may be partially visible (estimated to be up to 15 acres) from portions of the lakes along the Honker Divide trail at a distance of about 1 1/4 miles or more. Typical opening sizes described in the Forest Plan for Low SIO areas with Low VAC are 15 to 40 acres, so no concerns.

RECREATION:

Unit is over 1 mile outside of the Scenic River corridor and may be only slightly visible from the corridor or the Honker Divide trail due to topographic and vegetation screening.

SOILS/WETLANDS:

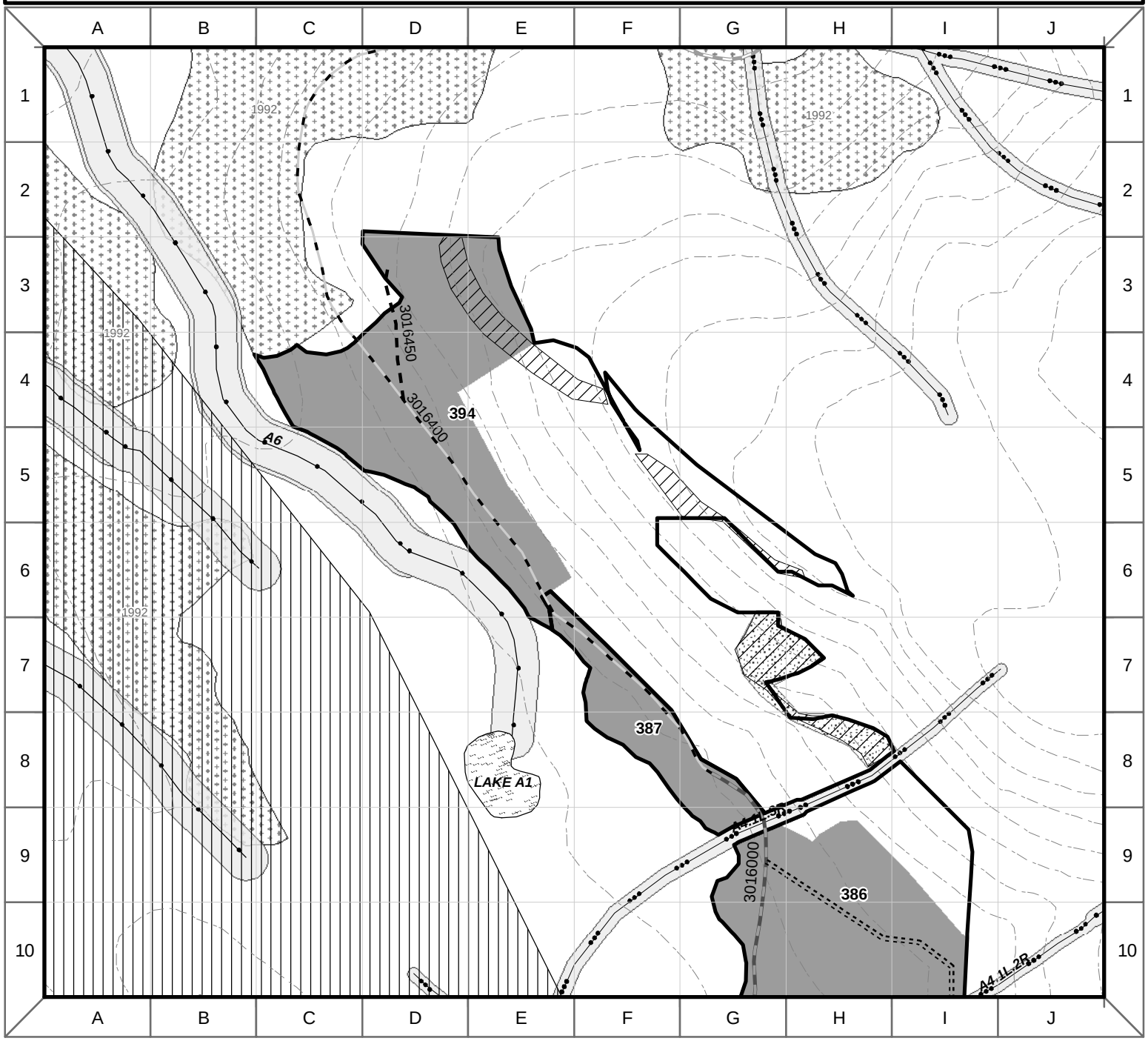
Slopes range from about 20% to greater than 72%. There are about 2 acres of slopes greater than 72% that are suitable for harvest with partial suspension requirements. About 1/4 of the unit in the western lobe and eastern edge is forested wetland (BMP 12.5). The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Unit is near the Honker large OGR (OGR boundary to the west). Legacy standard and guideline does not apply in this VCU.

Alternative 4: Unit dropped to maintain connectivity and integrity of forest on fringes of Honker large OGR.

Unit Number 394 | **Alternative 3** | **VCU: 575**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit 395

Unit Number	395	Alternatives	3, 4, 5	Total Unit Acres:	19.2	Prescription:	Clearcut
VCU Number:	580	Harvest System:	Helicopter	Net Harvest Volume (MBF):	550	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This area consists of old-growth structure that is comprised mostly of western hemlock and western redcedar with scattered Sitka spruce and Alaska-cedar. Many of the Alaska-cedar are dead. Defect is average for the timber type. The primary defect in the overstory is stem decay. Windthrow risk is moderate throughout the stand. Mistletoe infection was variable across the stand. Heavy infection occurs in the southern portion in the higher volume classes. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 3015000.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River (Stream characteristics do not include project-specific, field-verified, information).

Stream#: A4 Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A4.1L Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3, 4 and 5 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

Stream#: A4.3L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A4.4L Class: III Flagging: O/W C- Type: HCM

Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A4.5L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A4.5L.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A4.6L Class: III Flagging: O/W C- Type: HCM, HCMw
Concerns: none known
Buffer (RMA): Class III for HCM and HCMw to the top of the side-slope break.
Alternatives: 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A3 Class: I, III Flagging: B/W, O/W C- Type: AFM, HCD, HCM
Concerns: none known
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class III for HCD and HCM to the top of the side-slope break.
Alternatives: 3, 4 and 5 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A and B

Stream#: A3.1R Class: III Flagging: O/W C- Type: HCD, HCM
Concerns: none known
Buffer (RMA): Class III for HCD and HCM to the top of the side-slope break.
Alternatives: 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A3.1L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the top of the side-slope break.
Alternatives: 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2.1L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1 Class: I, III Flagging: O/W C- Type: HCD, HCM
Concerns: none known
Buffer (RMA): Class I for HCD greater of 100 feet or to the top of the side-slope break.
Class III for HCM to the top of the side-slope break.
Alternatives: 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: A1.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.

Unit 395

Alternatives: 3, 4 and 5 Buffer (RAW): no review needed
Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is entirely in Low SIO and may be partially visible from the Snakey Lakes area at a distance of about 1 mile or more. Approximate opening sizes described in the Forest Plan for Low SIO areas with Low VAC are 15 to 40 acres.

RECREATION:

Unit is less than 1 mile from the Scenic River LUD, near Snakey Lakes, but is not likely visible, except possibly from the lakes at a distance of 1 mile or more.

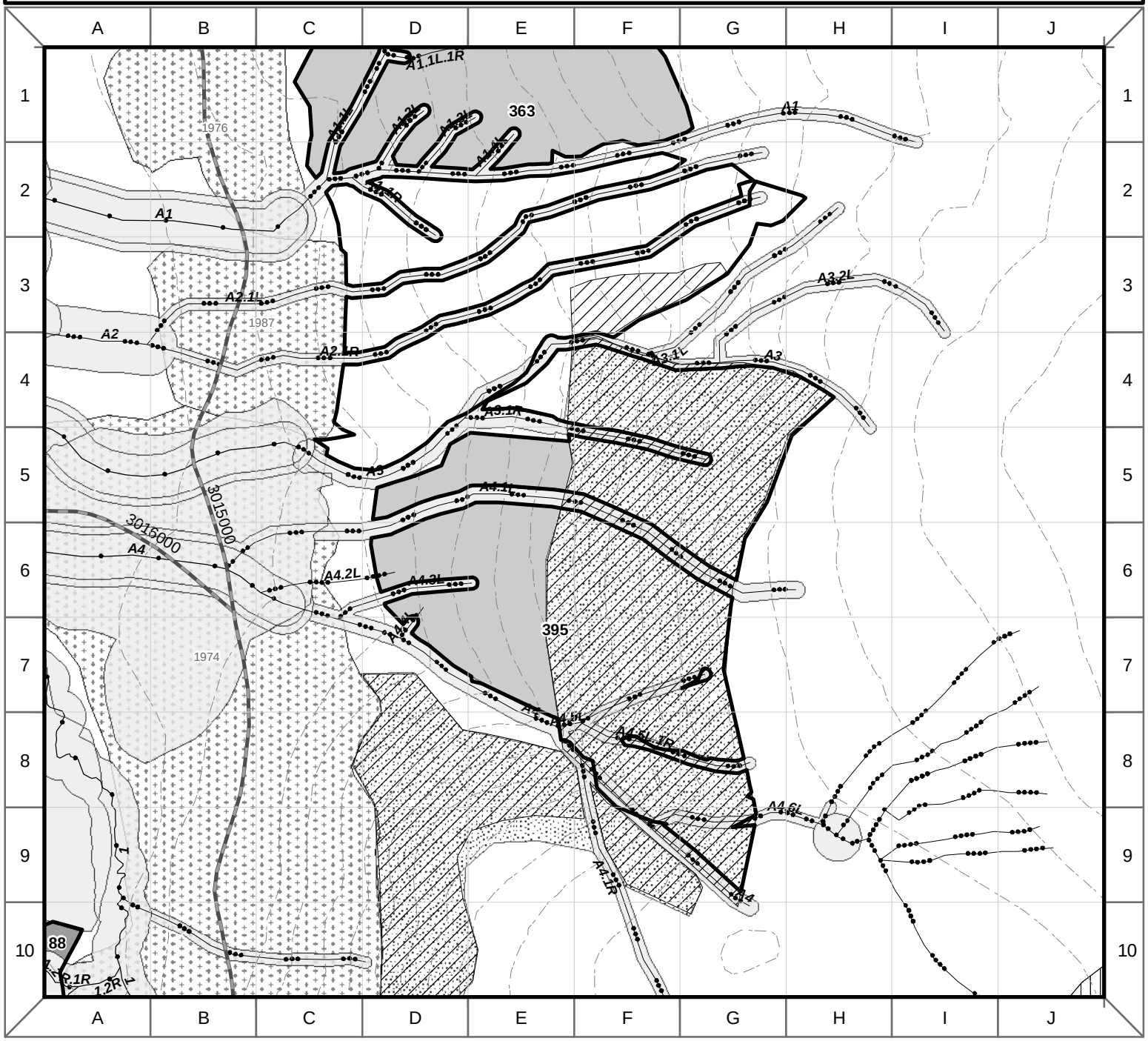
SOILS/WETLANDS:

About 45 acres were excluded due to extremely steep and wet slopes and debris torrents/avalanches. In the remainder of the unit, slopes average from about 20% to about 70%. About 1/3 of unit is covered by forested wetland (northern portion) (BMP 12.5). A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:

Unit is near the Honker large OGR complex. Legacy standard and guideline does not apply in this VCU.

Unit Number 395 | **Alternative 3** | **VCU: 580**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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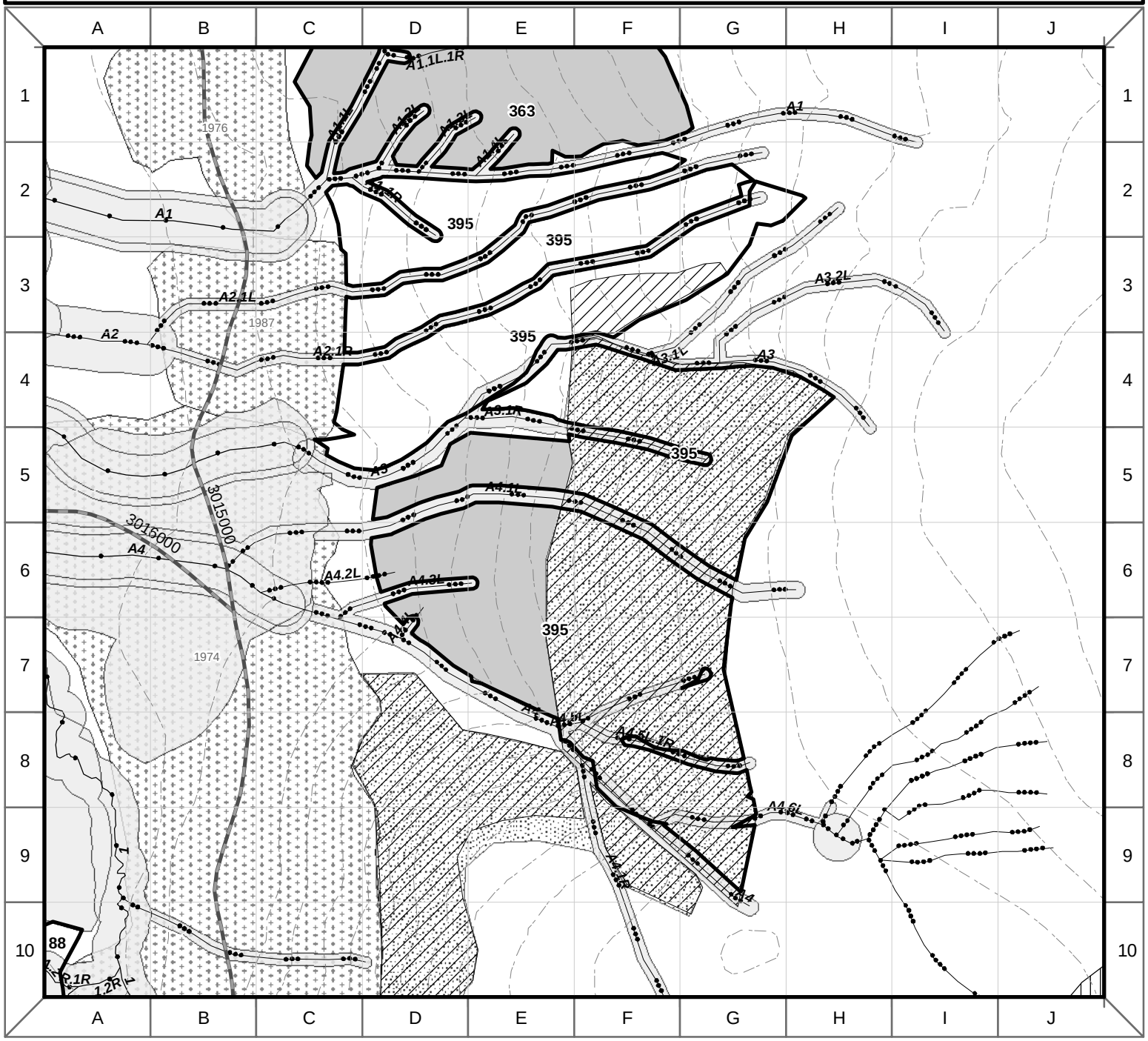
Unit Number 395 | **Alternative 4** | **VCU: 580**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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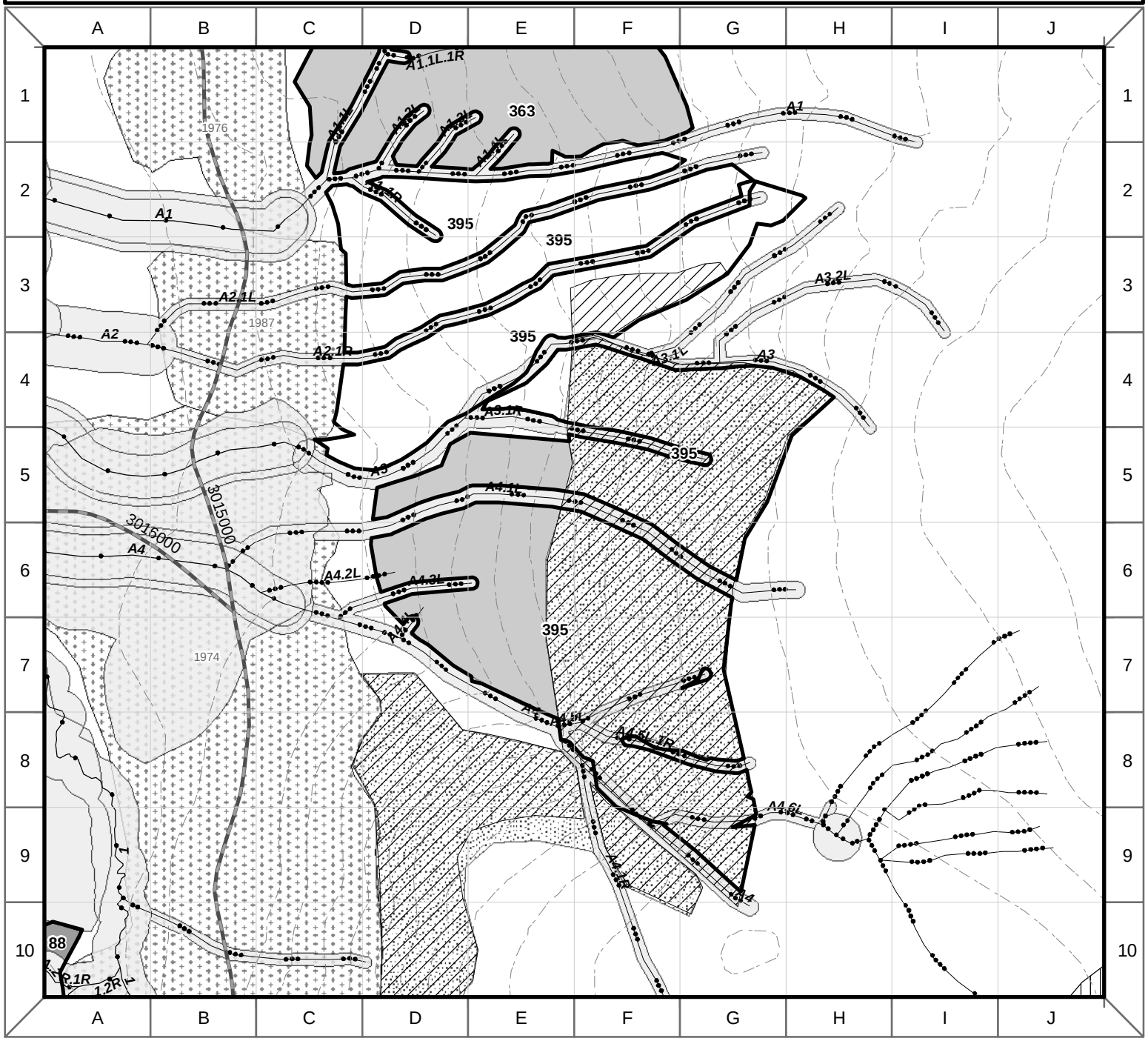
Unit Number 395 | **Alternative 5** | **VCU: 580**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Sytematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 401

Unit Number 401	Alternatives 3	Total Unit Acres: 17.0	Prescription: Clearcut
VCU Number: 595	Harvest System: Cable, Shovel,	Net Harvest Volume (MBF): 362	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 401 is made-up of a western hemlock / Alaska-cedar stand in the north that transitions to a mixed conifer stand in the center of the unit and then to a Sitka spruce stand in the southwest. Mistletoe was rated as low. Stem decay and defect were rated as moderate and high. Windthrow risk is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings. Portions of the unit in NW corner were dropped due to low volume timber and steep slopes.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for a combination of shovel, cable and helicopter settings. Shovel settings are planned for yarding to the existing NFS road 2000440. Cable settings are planned for downhill yarding to landings on existing NFS road 2000440. Helicopter settings are planned for yarding to landings on existing NFS road 2000440.

This unit is adjacent to State lands on the western boundary.

ENGINEERING/ROADS:

Unit is accessed by reconstruction of existing NFS road 2000440, totaling 1600 feet. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Steelhead Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A2 Class: I, III Flagging: B/W, O/W C- Type: MMS, HCM
Concerns: none known
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A and B

Stream#: A1 Class: II, III Flagging: B/W, O/W C- Type: HCL, HCD
Concerns: none known
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: A2.1R Class: III Flagging: O/W C- Type: HCM

Unit 401

Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2.1R.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit has 15 acres of Low and 2 acres of Very Low SIO. It is Seen at a distance of about 1/2 mile or more from portions of the Control Lake to Naukati highway. Typical opening sizes described in the Forest Plan are 40 to 60 acres for Low SIO areas and 80 to 100 acres for Very Low SIO areas with Intermediate VAC. The seen portion of unit is about 15 acres, so no concerns.

RECREATION:

No Concerns

SOILS/WETLANDS:

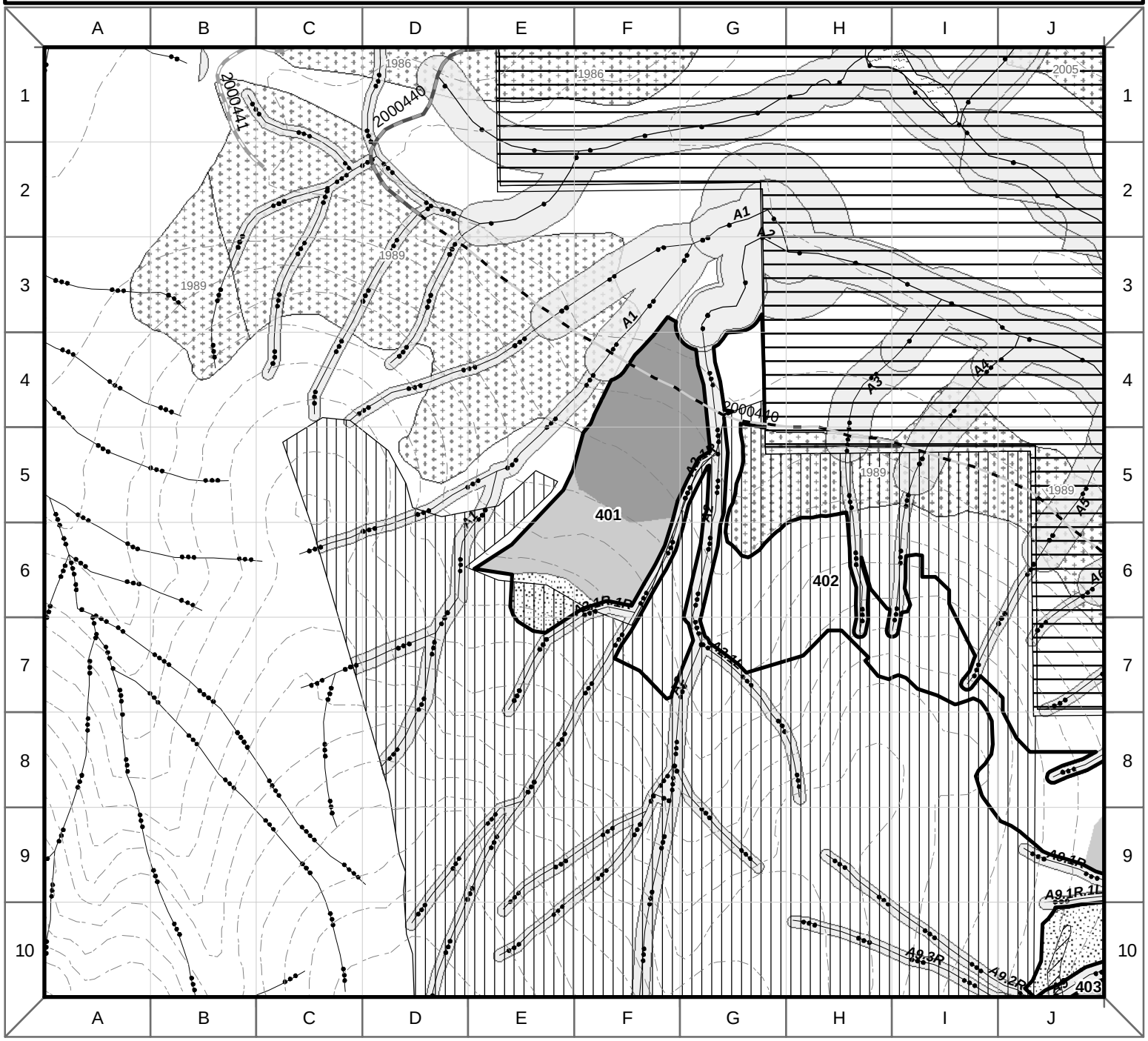
Slopes range from about 20% to about 70%. About 6 acres of the original reconnaissance area (which included additional portions of the OGR) were excluded due to soil concerns. There is approximately 1/2 acre of forested wetland in the northern portion of the unit (BMP 12.5). The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern portion of unit). Unit is in an area of known wolf use. Legacy standard and guideline does not apply in this VCU.

Old-growth Reserve (OGR) Boundary
Alternatives 2 and 5: Unit not in alternative.
Alternative 3: OGR boundary is adjacent to unit to the south, west, and east (separated by a stream buffer).
Alterative 4: Adopts Interagency OGR coinciding with unit location.

Unit Number 401 | **Alternative 3** | **VCU: 595**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit 402

Unit Number 402	Alternatives 3	Total Unit Acres: 6.4	Prescription: Clearcut
VCU Number: 595	Harvest System: Helicopter	Net Harvest Volume (MBF): 172	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 402 is predominantly a western Hemlock / Alaska-cedar stand. Generally old-growth stand structure dominates. Moderate windthrow, moderate to high defect, and light evidence of mistletoe define the health of the stand. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings. Parts of the original unit in the northwest corner were dropped due to low volume timber and steep slopes

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

Unit is planned for helicopter yarding to landings on the existing NFS road 2000440.

ENGINEERING/ROADS:

Unit is accessed by reconstruction of existing NFS road 2000440, totaling 5400 feet. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Steelhead Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A9 Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A9.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A9.1R.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A9.1R.1L Class: III Flagging: O/W C- Type: HCM

Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A9.2R Class: III Flagging: O/W C- Type: HCM
Concerns: noneknown
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A9.2R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A8 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A5 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A4 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A3 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2 Class: I, III Flagging: B/W, O/W C- Type: MMS, HCM
Concerns: none known
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: A2.1L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

GEOLOGY/KARST:

No Concerns

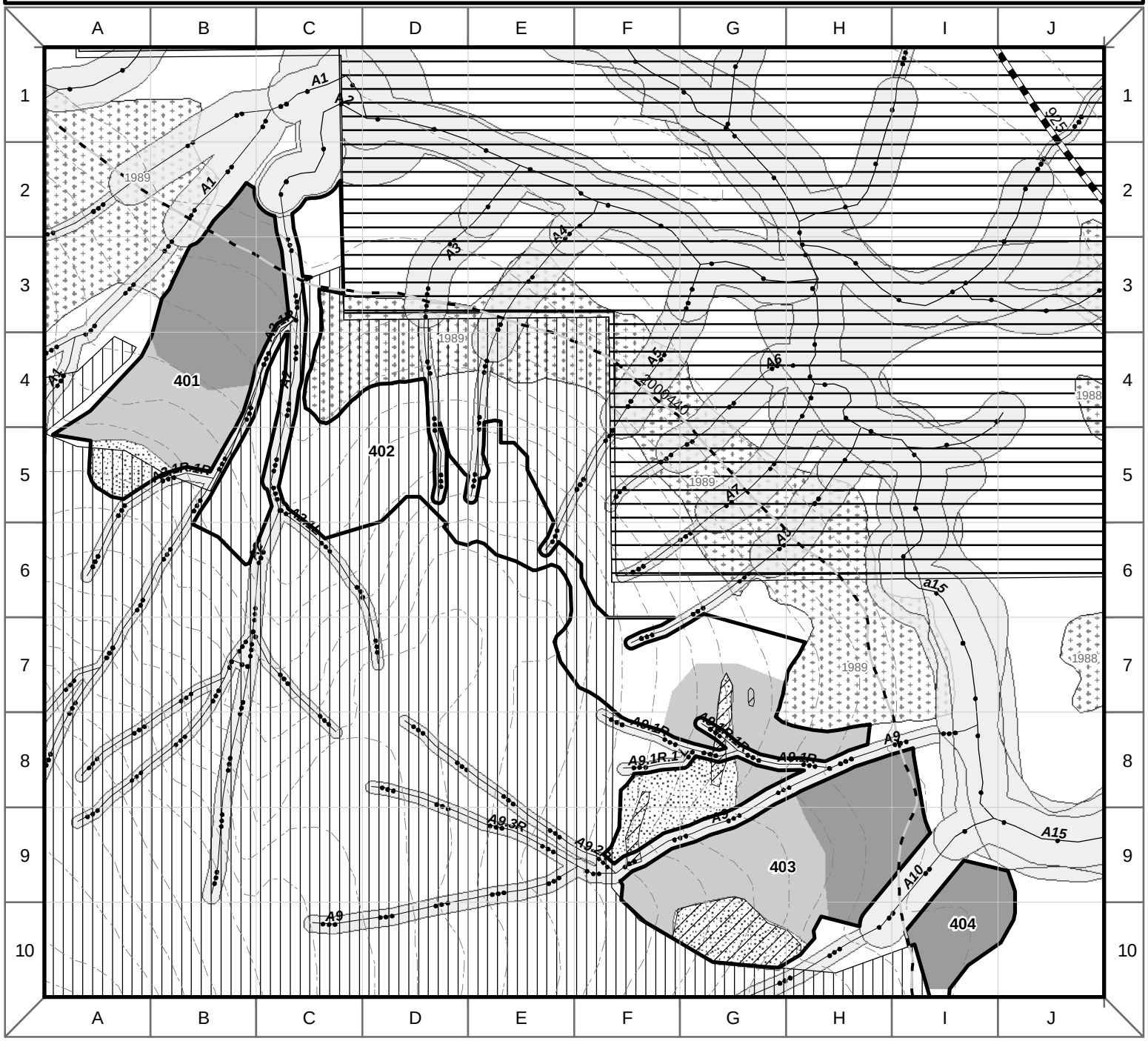
HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit 402
All 6 acres of unit are in Low SIO. It is Seen at a distance of 1/2 mile or more from portions of the Control Lake to Naukati highway. Approximate opening sizes described in the Forest Plan for Low SIO areas are 15 to 40 acres with Low VAC and seen portion of unit is about 6 acres. In addition, unit is broken by riparian buffer and areas dropped due to soils. No concerns
RECREATION: No Concerns
SOILS/WETLANDS: Slopes range from about 30% to greater than 72%. There is less than 1/4 acre of slopes over 72% in the unit that are suitable for harvest with partial suspension requirements. A total of about 30 acres of the original reconnaissance area were dropped due to steep slopes and soil concerns. About 5 of these excluded acres are outside of the modified OGR. In the remaining unit, a minimum of partial suspension yarding would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). No wetlands have been mapped in the unit.
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (eastern portion of unit). It is in an area of known wolf use. Legacy standard and guideline does not apply in this VCU. Old-growth Reserve (OGR) Boundary Alternatives 2 and 5: Unit not in alternative. Alternative 3: OGR boundary ist adjacent to unit to the west. Alterative 4: Adopts Interagency OGR, coinciding with location of unit.

Unit Number 402 | **Alternative 3** | **VCU: 595**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Unit 403

Unit Number 403	Alternatives 3	Total Unit Acres: 17.5	Prescription: Clearcut
VCU Number: 595	Harvest System: Shovel, Helicopter	Net Harvest Volume (MBF): 402	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is old-growth timber comprised of patchy, lightly stocked, western hemlock and Alaska-cedar, as well as some scattered mountain hemlock and western redcedar in the upper elevations. Windthrow risk is moderate. Mistletoe occurrence is light throughout the entire unit. Overall defect is moderate to high with primary defects being stem decay, root/butt diseases, and cedar decline. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for a combination of shovel, and helicopter yarding. Helicopter settings are planned for yarding to landings on the existing NFS road 2000440. Shovel settings are planned for yarding to the existing NFS road 2000440.

ENGINEERING/ROADS:

Unit is accessed by reconstruction of existing NFS road 2000440, totaling 6400 feet. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Steelhead Creek (Stream characteristics do not include project-specific, field-verified, information).

Stream#: A15 Class: I Flagging: B/W C- Type: FPM
Concerns: none known
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: A10 Class: I, II, III Flagging: B/W, O/W C- Type: HCL, HCD
Concerns: none known
Buffer (RMA): Class I and Class II for HCL greater of 100 feet or the top of the side-slope break. Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: A9 Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

Unit 403

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

All 17 acres of unit are in Low SIO. It is Seen at a distance of 1/2 mile or more from portions of the Control Lake to Naukati highway. Typical opening sizes described in the Forest Plan for Low SIO areas are 15 to 40 acres for Low VAC and 40 to 60 acres for Intermediate VAC. The Seen portion of unit is about 17 acres. Even if combined with Unit 402, which is 6 acres, opening size would be about 23 acres. In addition, unit 402 is broken by riparian buffer and areas dropped due to soils, and is across another riparian buffer from Unit 403. No concerns.

RECREATION:

Unit is adjacent to the Kogish Roadless Area and small OGR on the southwest.

SOILS/WETLANDS:

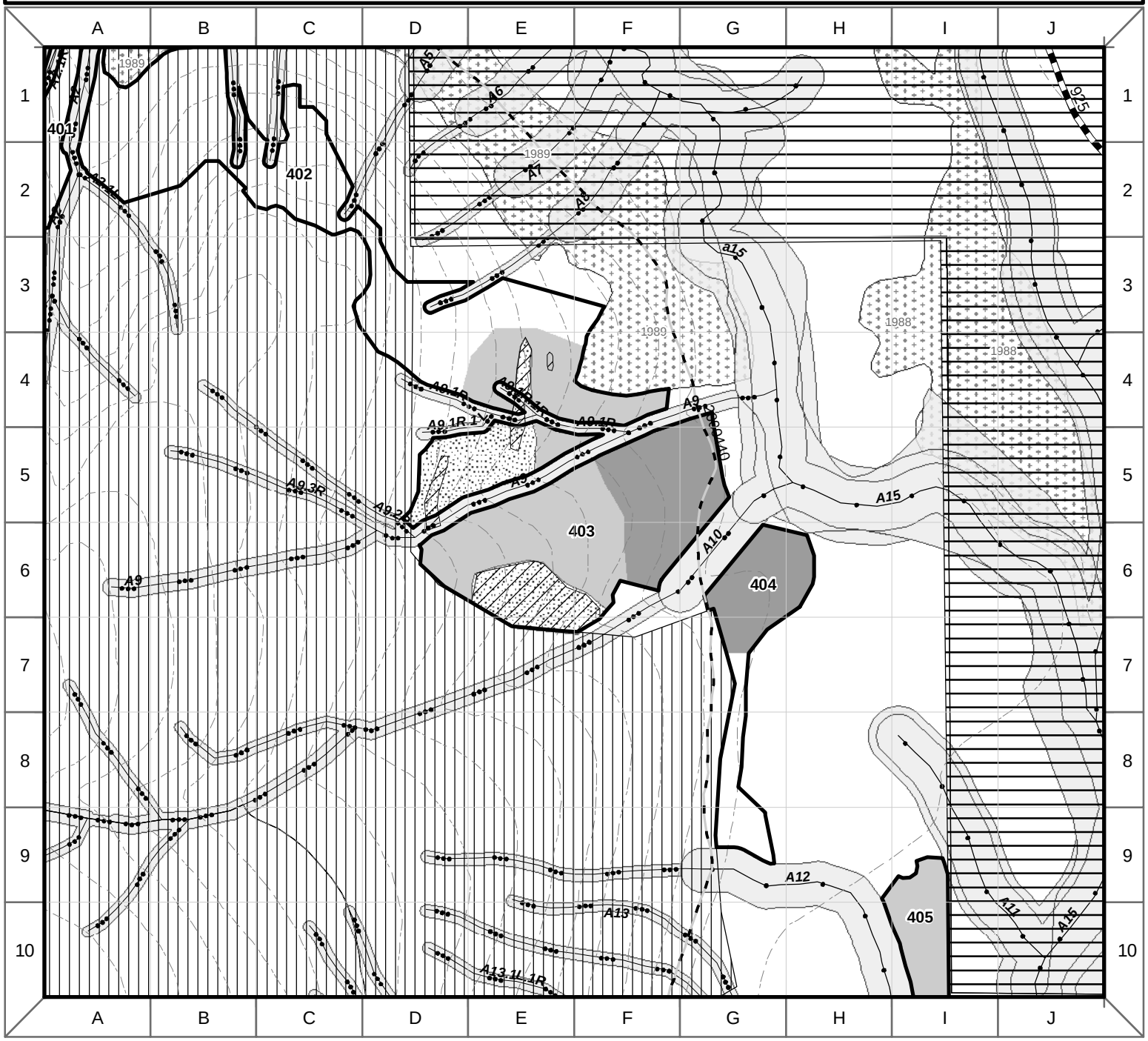
Slopes range from about 25 to greater than 72%. All slopes greater than 72% are located in the soil exclusion area. About 4 acres were excluded due to unsuitable steep slopes. In the remainder of the unit, the soils and wetlands are suitable for minimum partial suspension yarding or shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting. No wetlands have been mapped in the unit

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (eastern portion of unit). It is in an area of known wolf use. Legacy standard and guideline does not apply in this VCU.

Old-growth Reserve (OGR) Boundary
Alternatives 2 and 5: Unit not in alternative.
Alternative 3: OGR boundary adjacent to unit to the southwest.
Alterative 4: Adopts Interagency OGR, coinciding with location of unit.

Unit Number 403 | **Alternative 3** | **VCU: 595**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit 404

Unit Number 404	Alternatives 3	Total Unit Acres: 5.0	Prescription: Clearcut
VCU Number: 595	Harvest System: Shovel	Net Harvest Volume (MBF): 91	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This lower elevation unit consists of old-growth structure that is comprised of western hemlock along with some scattered Sitka Spruce. Windthrow risk is low, with only minor indications of past windthrow throughout the stand. Mistletoe occurrence is light as well. Overall defect is moderate with primary defect being stem decay. There are no adjacent past harvest areas.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the existing NFS road 2000440.

Unit is adjacent to the Kogish Roadless Area and small OGR on the southwest.

ENGINEERING/ROADS:

Unit is accessed by reconstruction of existing NFS road 2000440, totaling 6900 feet. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Steelhead Creek (Stream characteristics do not include project-specific, field-verified, information).

Stream#: A15 Class: I Flagging: B/W C- Type: FPM
Concerns: none known
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: A10 Class: I, II Flagging: B/W C- Type: HCL
Concerns: none known
Buffer (RMA): Class I and Class II for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

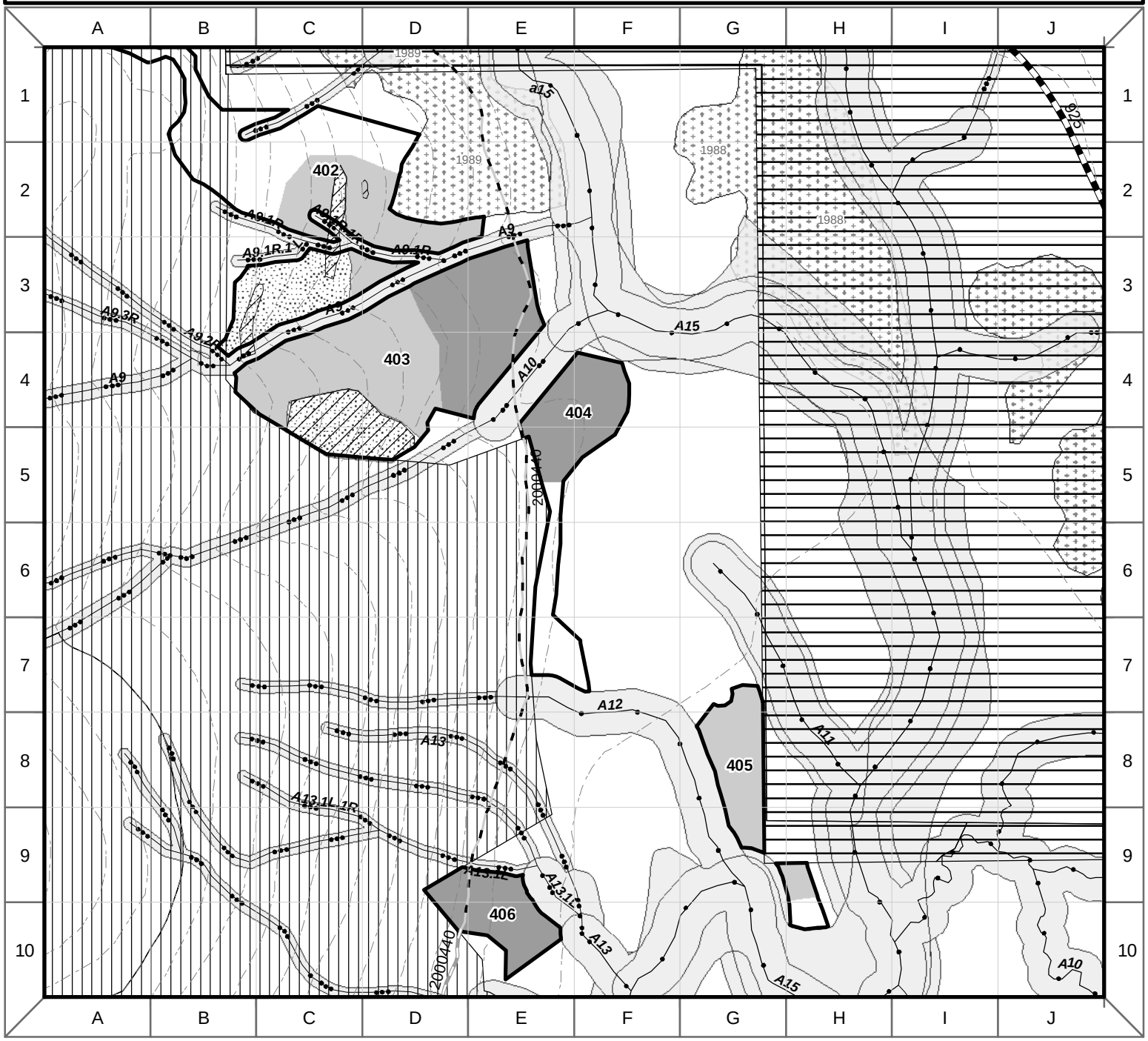
GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

Unit 404
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit has 2 acres in Low and 3 acres in Very Low SIO. Portion of the unit is Seen at a distance of 1/2 mile or more from portions of the Control Lake to Naukati highway. Typical opening sizes described in the Forest Plan for Low SIO areas are 60 to 100 acres for High VAC and seen portion of unit is about 2 acres. Even if combined with Units 402 and 403, opening size would be about 25 acres. In addition, unit 402 is broken by riparian buffer and areas dropped due to soils, and is across another riparian buffer from Unit 403; unit 404 is across a TTRA buffer from unit 403.
RECREATION: Most of the southwestern boundary of unit is adjacent to the Kogish inventoried roadless area. Only about 75 ft of the existing road borders the unit outside the roadless area; then the road enters the roadless area and the unit is separated from it by the roadless area.
SOILS/WETLANDS: Slopes are gentle throughout the unit, ranging from about 10% to about 35%. The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting. No wetlands have been mapped in the unit
WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Unit is in an area of known wolf use. Legacy standard and guideline does not apply in this VCU. Old-growth Reserve (OGR) Boundary Alternatives 2 and 5: Unit not in alternative. Alternative 3: OGR boundary adjacent to unit on west. Alterative 4: Adopts Interagency OGR, coinciding with location of unit.

Unit Number 404 | **Alternative 3** | **VCU: 595**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit 405

Unit Number 405	Alternatives 3	Total Unit Acres: 4.7	Prescription: Clearcut
VCU Number: 595	Harvest System: Helicopter	Net Harvest Volume (MBF): 62	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 405 is predominantly a western hemlock stand with old-growth stand structure. Sitka spruce are scattered. Moderate windthrow, moderate to high defect, and a light occurrence of mistletoe were noted for the stand. There are no adjacent past harvest areas. State lands border the unit on the east.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 2000440. Note that the eastern boundary of the unit borders State lands.

ENGINEERING/ROADS:

Unit is accessed by reconstruction of existing NFS road 2000440, totaling 9500 feet. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Steelhead Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A15 Class: I Flagging: B/W C- Type: LCM, FPM
Concerns: none known
Buffer (RMA): Class I for LCM greater of 100 feet or to the top of the side-slope break. Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

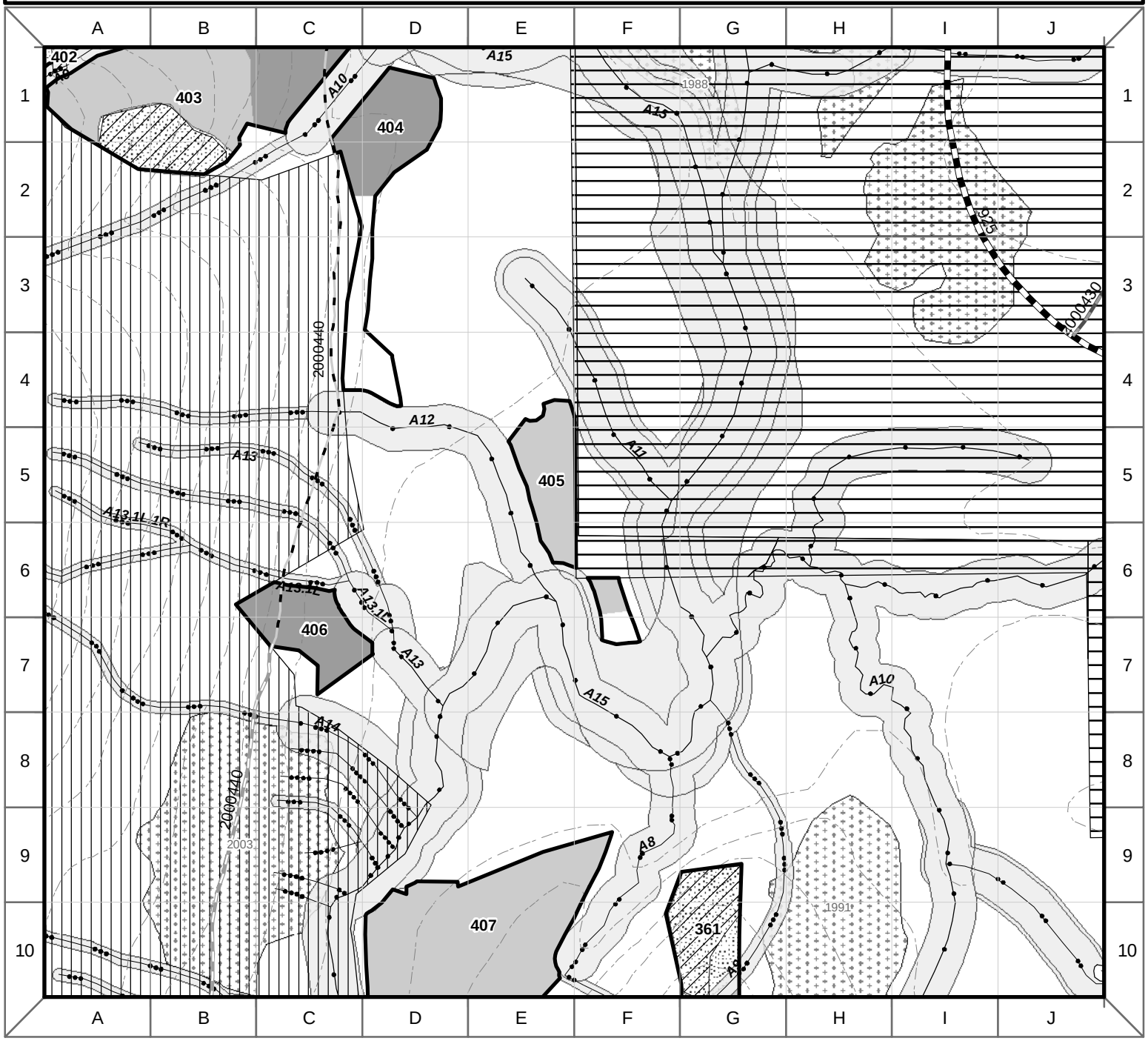
Stream#: A 12 Class: I Flagging: B/W C- Type: MCS
Concerns: none known
Buffer (RMA): Class I for MCS greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: A11 Class: I Flagging: B/W C- Type: AFM
Concerns: none known
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

GEOLOGY/KARST:

Unit 405
No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit entirely in Very Low SIO. No concerns.
RECREATION: No Concerns
SOILS/WETLANDS: Slopes are gentle throughout the unit. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). No wetlands have been mapped in the unit
WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Unit is in an area of known wolf use. Legacy standard and guideline does not apply in this VCU. Old-growth Reserve (OGR) Boundary Alternatives 2 and 5: Unit not in alternative. Alternative 3: OGR boundary near unit to west, but not adjacent. Alternative 4: Unit dropped because location coincides with the biologically preferred OGR.

Unit Number 405 | **Alternative 3** | **VCU: 595**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Unit 406

Unit Number 406	Alternatives 3	Total Unit Acres: 4.3	Prescription: Clearcut
VCU Number: 595	Harvest System: Shovel	Net Harvest Volume (MBF): 136	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is a western hemlock and western redcedar stand with old-growth stand structure. Alaska-cedar are present as a lesser component. Moderate windthrow, moderate defect, and light evidence of mistletoe were noted. A 2003 even-age past harvest unit is along the southwest boundary. This harvest does not appear to meet green-up requirements at this time. The combined acreage of unit 406 and this past harvest do not however exceed 100 acres. No adjustments to unit 406 are required as a result.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the existing NFS road 2000440.

ENGINEERING/ROADS:

Unit is accessed by reconstruction of existing NFS road 2000440, totaling 9500 feet. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Steelhead Creek. Stream characteristics do not include project-specific, field-verified, information.

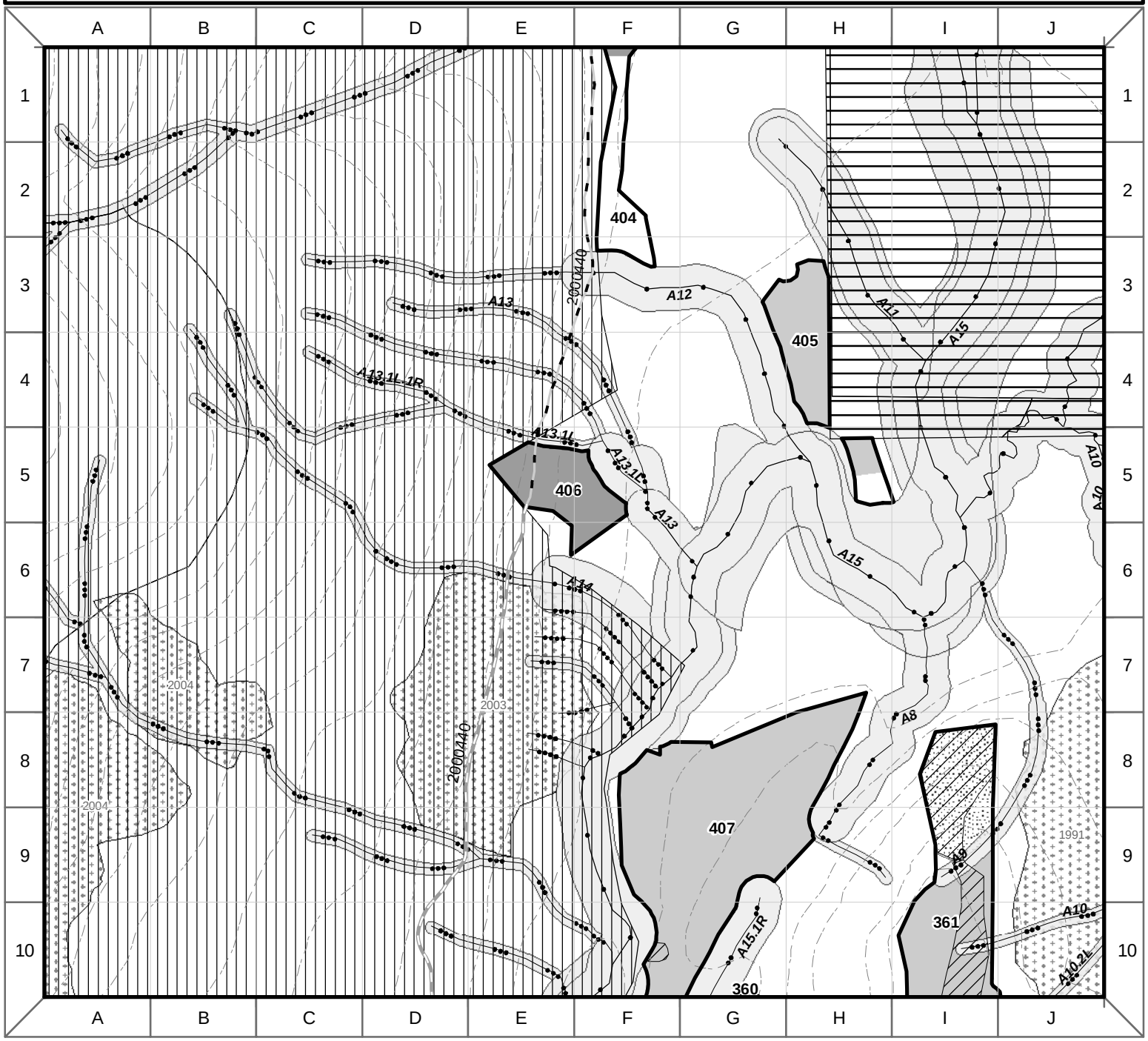
Stream#: A14 Class: III Flagging: O/W C- Type: AFH, HCM
Concerns: none known
Buffer (RMA): Class III for AFH greater of 140 feet or active portion of the alluvial fan. Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A13 Class: I, II, III Flagging: B/W, O/W C- Type: HCL, HCM
Concerns: none known
Buffer (RMA): Class I and II for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCM to the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: A13.1L Class: II, III Flagging: B/W, O/W C- Type: HCL, HCM
Concerns: none known
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed

Unit 406
Protection: Category A and B
GEOLOGY/KARST: No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: Unit entirely in Very Low SIO. No concerns.
RECREATION: Kogish inventoried roadless area is adjacent to the western boundary of unit.
SOILS/WETLANDS: Slopes range from about 20 to 50%. No wetlands have been mapped in the unitThe soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.
WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Unit is in an area of known wolf use. Legacy standard and guideline does not apply in this VCU. Alternative 4: Unit dropped because location coincides with the biologically preferred OGR. Old-growth Reserve (OGR) Boundary Alternatives 2, 4, 5: Unit not in alternative. Alternative 3: OGR boundary adjacent to unit to the west.

Unit Number 406 | **Alternative 3** | **VCU: 595**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit 407

Unit Number 407	Alternatives 3	Total Unit Acres: 23.2	Prescription: Clearcut
VCU Number: 595	Harvest System: Helicopter	Net Harvest Volume (MBF): 584	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 407 is predominantly a western hemlock and Sitka spruce stand where old-growth stand structure dominates. Moderate windthrow, low to moderate defect, and light evidence of mistletoe define the stand. There was some evidence of wind shake seams in the Sitka spruce in the south end of the unit. There are no adjacent past harvest areas.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with low to moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 2000440.

ENGINEERING/ROADS:

Unit is accessed by reconstruction of existing NFS road 2000440, totaling 9500 feet. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Steelhead Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A15 Class: I Flagging: B/W C- Type: FPM
Concerns: none known
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: A8 Class: II, III Flagging: B/W, O/W C- Type: HCDw, HCM
Concerns: none known
Buffer (RMA): Class II for HCDw greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: A15.1R Class: II Flagging: B/W C- Type: HCL, HCLw
Concerns: none known
Buffer (RMA): Class II for HCL and HCLw greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

GEOLOGY/KARST:

Unit 407

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit entirely in Very Low SIO. No concerns.

RECREATION:

No Concerns

SOILS/WETLANDS:

Slopes range from about 20 to over 72%. Less than 1/4 acre of slopes greater than 72% are mapped along the west-southwest side of the unit that are suitable for harvest with partial suspension requirements. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). No wetlands have been mapped in the unit

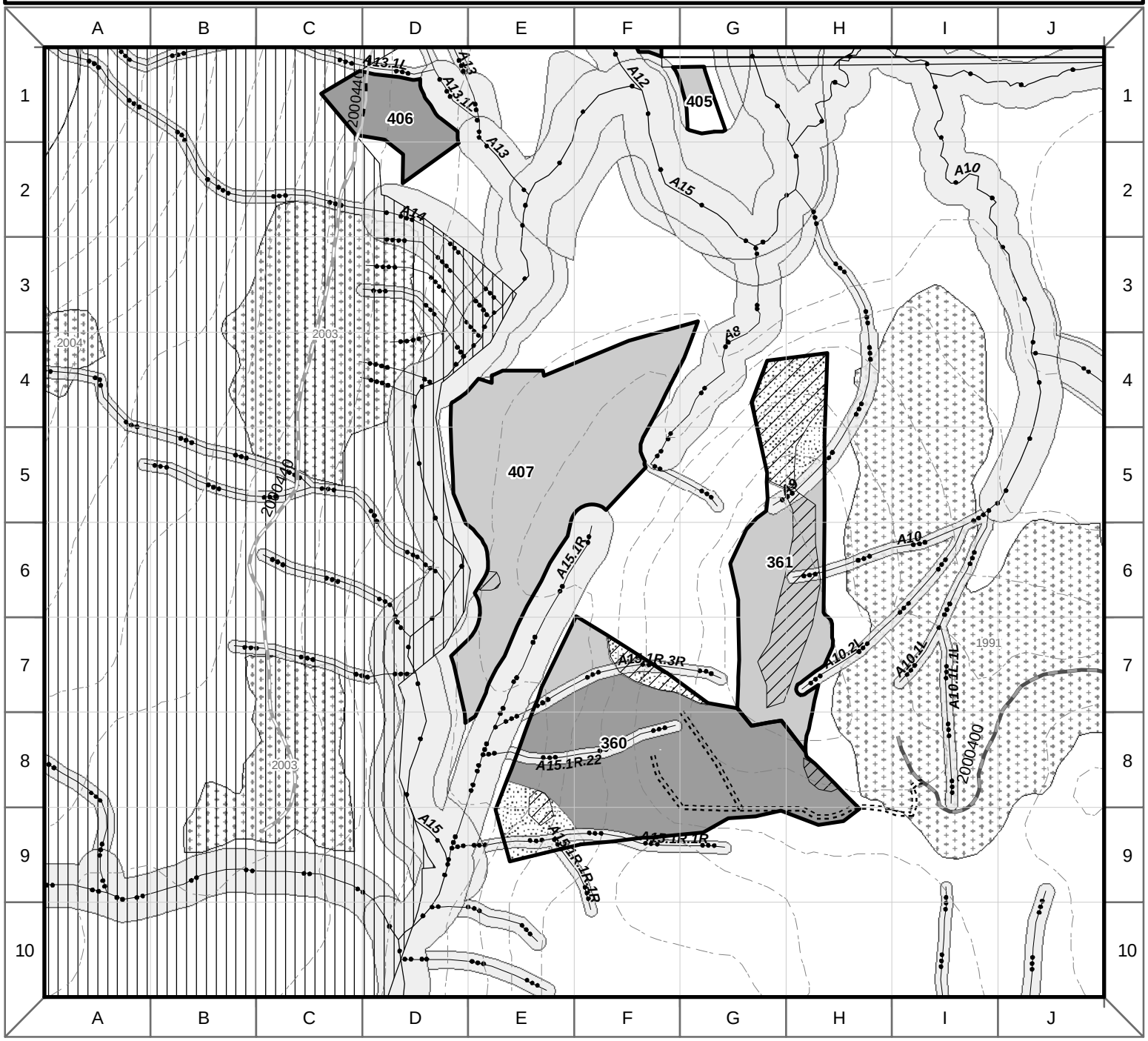
WILDLIFE:

Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Unit is in an area of known wolf use. Legacy standard and guideline does not apply in this VCU.

Alternative 4: Unit dropped because location coincides with the biologically preferred OGR.

Old-growth Reserve (OGR) Boundary
Alternatives 2, 4, 5: Unit not in alternative.
Alternative 3: OGR boundary is across Class I stream buffer from OGR to the west.

Unit Number 407 | **Alternative 3** | **VCU: 595**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Unit 408

Unit Number 408	Alternatives 4	Total Unit Acres: 53.1	Prescription: 50% Removal
VCU Number: 597.2	Harvest System: Helicopter	Net Harvest Volume (MBF): 783	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is mostly western hemlock with western redcedar, Alaska-cedar, and Sitka spruce as lesser components. Old-growth stand structure dominates. Stem decay and top breakage are common. Moderate to high defect, a low incidence of mistletoe and light-patchy Alaska-cedar decline were noted. Windthrow risk for the stand is moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 50 percent of the pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

No Legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 3013200.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Goose Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: 1 Class: I Flagging: B/W C- Type: MMM, MCS, HCV, MCS
Concerns: none known
Buffer (RMA): Class I for MMM greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for MCS and HCV greater of 100 feet or to the top of the side-slope break.
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category A

Stream#: A2 Class: I, III Flagging: B/W, O/W C- Type: MMS, HCM, HCO
Concerns: none known
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCM and HCO to the top of the side-slope break.
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: A2.2L Class: III Flagging: O/W C- Type: HCO

Unit 408

Concerns: none known
Buffer (RMA): Class III for HCO to the top of the side-slope break
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2.3L Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category B

Stream#: A7 Class: I, III Flagging: B/W, O/W C- Type: MCS, HCM
Concerns: none known
Buffer (RMA): Class I for MCS greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category A and B

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

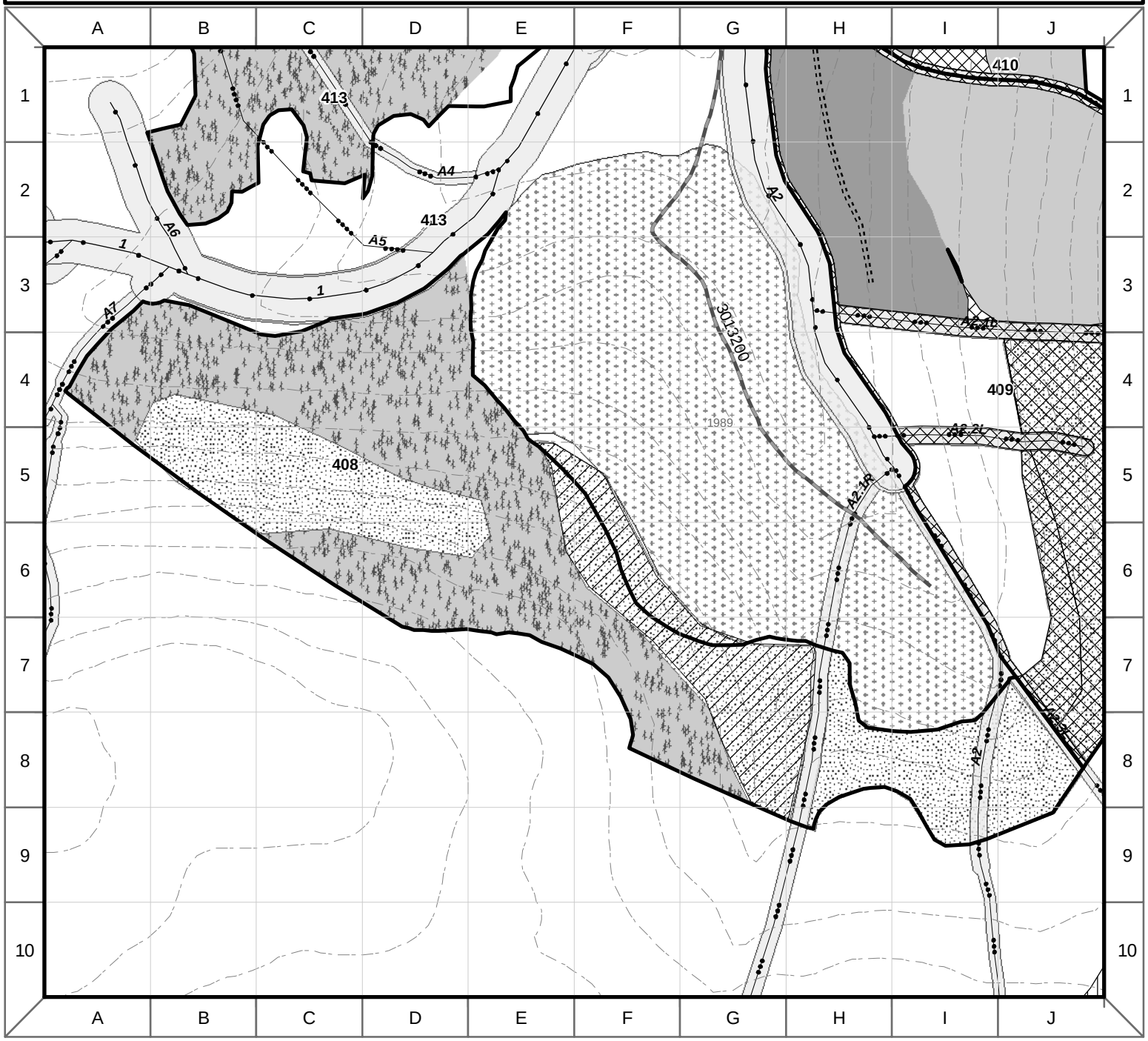
SCENERY:
No Concerns

RECREATION:
Unit borders the Karta inventoried roadless area along its southwestern boundary.

SOILS/WETLANDS:
Slopes range from about 50 to greater than 72%. About 43 acres of original unit were excluded due to slides, steep slopes, and wet notches. In the remaining unit, a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). No wetlands have been mapped in the unit

WILDLIFE:
Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern end of unit). Unit is in 2008 Forest Plan OGR exchanged in favor of biologically preferred location. Prescription is 50% basal area removal to maintain habitat values. Legacy standard and guideline applies in this VCU; however, no legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit Number 408 | **Alternative 4** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 409

Unit Number 409	Alternatives 4	Total Unit Acres: 52.7	Prescription: Clearcut
VCU Number: 597.2	Harvest System: Cable, Shovel,	Net Harvest Volume (MBF): 1,756	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 409 is a western hemlock stand that transitions to western hemlock and Alaska-cedar in the north and south-east. Sitka spruce and western redcedar are present as lesser components. Old-growth stand structure dominates the area. Moderate windthrow, moderate defect, and light occurrence of mistletoe occur. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 31 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to cover unsuitable soils and total mapped legacy is approximately 49 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

Unit is planned for a combination of shovel, cable, and helicopter yarding. Shovel settings are planned for yarding to the proposed temporary road and existing NFS road 3013200. Cable settings are planned for downhill yarding to landings on the proposed temporary road. Helicopter settings are planned for yarding to landings on existing NFS road 3013200.

Unit is adjacent to the Karta Roadless Area on the east.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road, totaling 1900 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Goose Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: 1 Class: I Flagging: B/W C- Type: MMM
Concerns: none known
Buffer (RMA): Class I for MMM greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category A

Stream#: A13 Class: I, III Flagging: B/W, O/W C- Type: MCS, HCD
Concerns: none known
Buffer (RMA): Class I for MCS greater of 100 feet or to the top of the side-slope break. Class III for HCD to the top of the side-slope break.
Alternatives: 4 Buffer (RAW): no review needed

Protection: Category A and B

Stream#: A2 Class: I, III Flagging: B/W, O/W C- Type: MMS, HCM, HCO
Concerns: none known
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCM and HCO to the top of the side-slope break.
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: A2.2L Class: III Flagging: O/W C- Type: HCO
Concerns: none known
Buffer (RMA): Class III for HCO to the top of the side-slope break
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2.3L Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category B

Temporary roads for Unit 409: Alternatives 4 -- One Class I stream crossing. The temporary roads have not been field verified and will be surveyed before implementation. Crossing structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). The Class 1 and II crossing will be designed to provide fish passage, using a log culvert or bridge, will be installed under current timing constrictions and concurrence from the State will be solicited prior to starting the work. During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
No Concerns

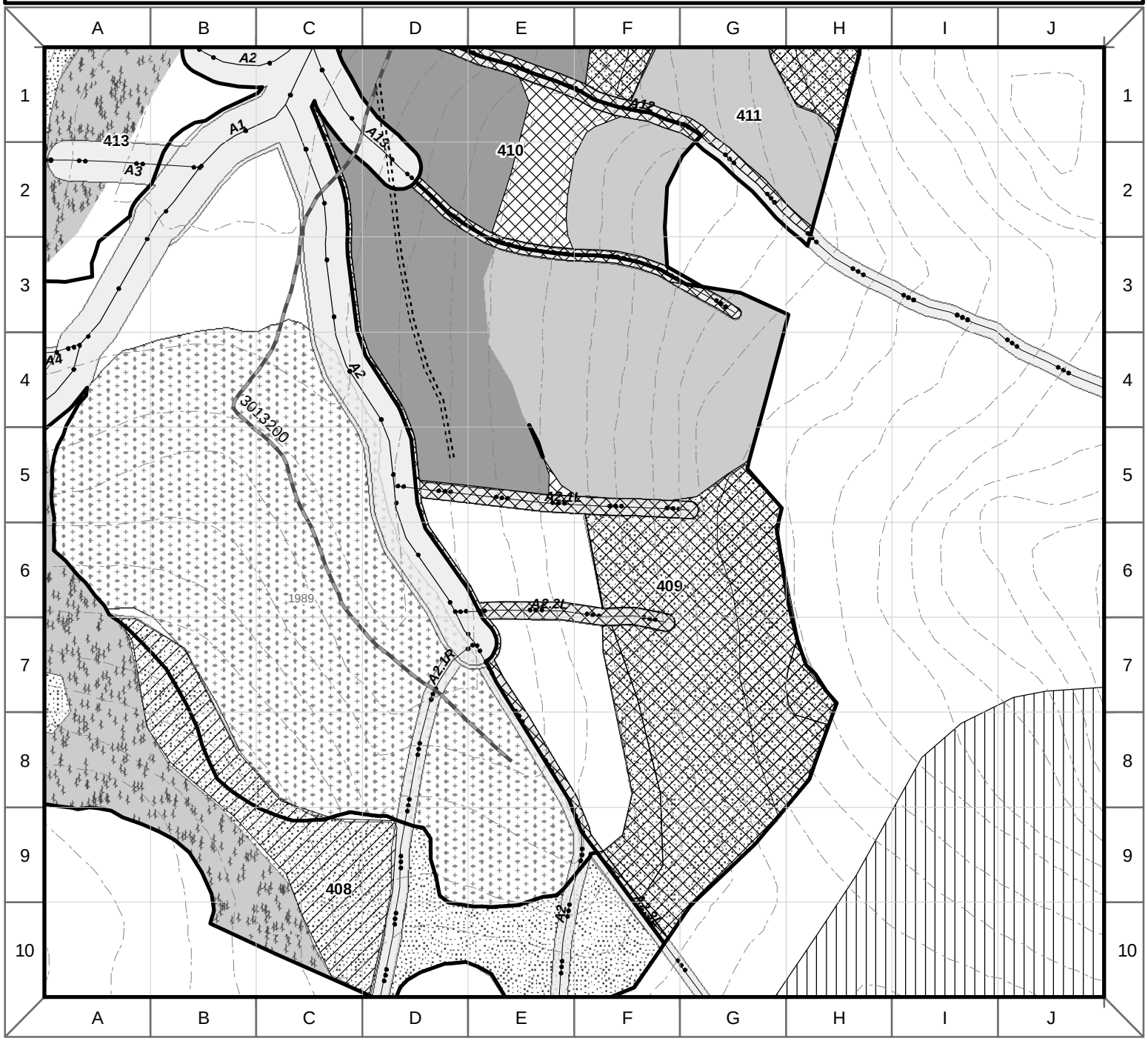
RECREATION:
Unit borders the Karta inventoried roadless area along its eastern boundary.

SOILS/WETLANDS:
Slopes range from about 40% to 70%. There are approximately 9 acres of forested wetland in the unit (BMP 12.5).The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

A temporary road will impact about 1/2 acre of forested wetland within the unit and about 1/4 acre outside the unit. Wetland avoidance was not practicable due to the abundance of forested wetland. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:
Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northwestern portion of unit). Unit is in 2008 Forest Plan OGR, which was exchanged in favor of biologically preferred location. Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range and marten habitat.

Unit Number 409 | **Alternative 4** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 410

Unit Number	410	Alternatives	4	Total Unit Acres:	19.8	Prescription:	Clearcut
VCU Number:	597.2	Harvest System:	Cable, Shovel, Helicopter	Net Harvest Volume (MBF):	982	LUD:	Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is a western hemlock and Alaska-cedar stand. Sitka spruce are scattered throughout. Old-growth stand structure dominates. Moderate windthrow. Moderate defect and a low to moderate incidence of mistletoe were present. There are no adjacent past harvest areas.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. Although unit acres are slightly less than 20, combined with Units 409 and 411 it represents a larger opening. This requires that approximately 9 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely in this unit. Legacy was placed to block up POG in the center of unit to divide opening in two and to cover RMAs. Total mapped legacy is approximately 9 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of shovel, cable, and helicopter yarding. Shovel settings are planned for yarding to the existing NFS road 3013200. Cable settings are planned for downhill yarding to landings on the existing NFS road 3013200. Helicopter settings are planned for yarding to landings on the existing NFS road 3013200.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Goose Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: 1 Class: I Flagging: B/W C- Type: MMM
Concerns: none known
Buffer (RMA): Class I for MMM greater of 120 feet, flood plain, riparian vegetaion or soils, or riparian associated wetland fens.
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category A

Stream#: A12 Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 4 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

Stream#: A13 Class: I, III Flagging: B/W, O/W C- Type: MCS, HCM

Unit 410

Concerns: none known
Buffer (RMA): Class I for MCS greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category A and B

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

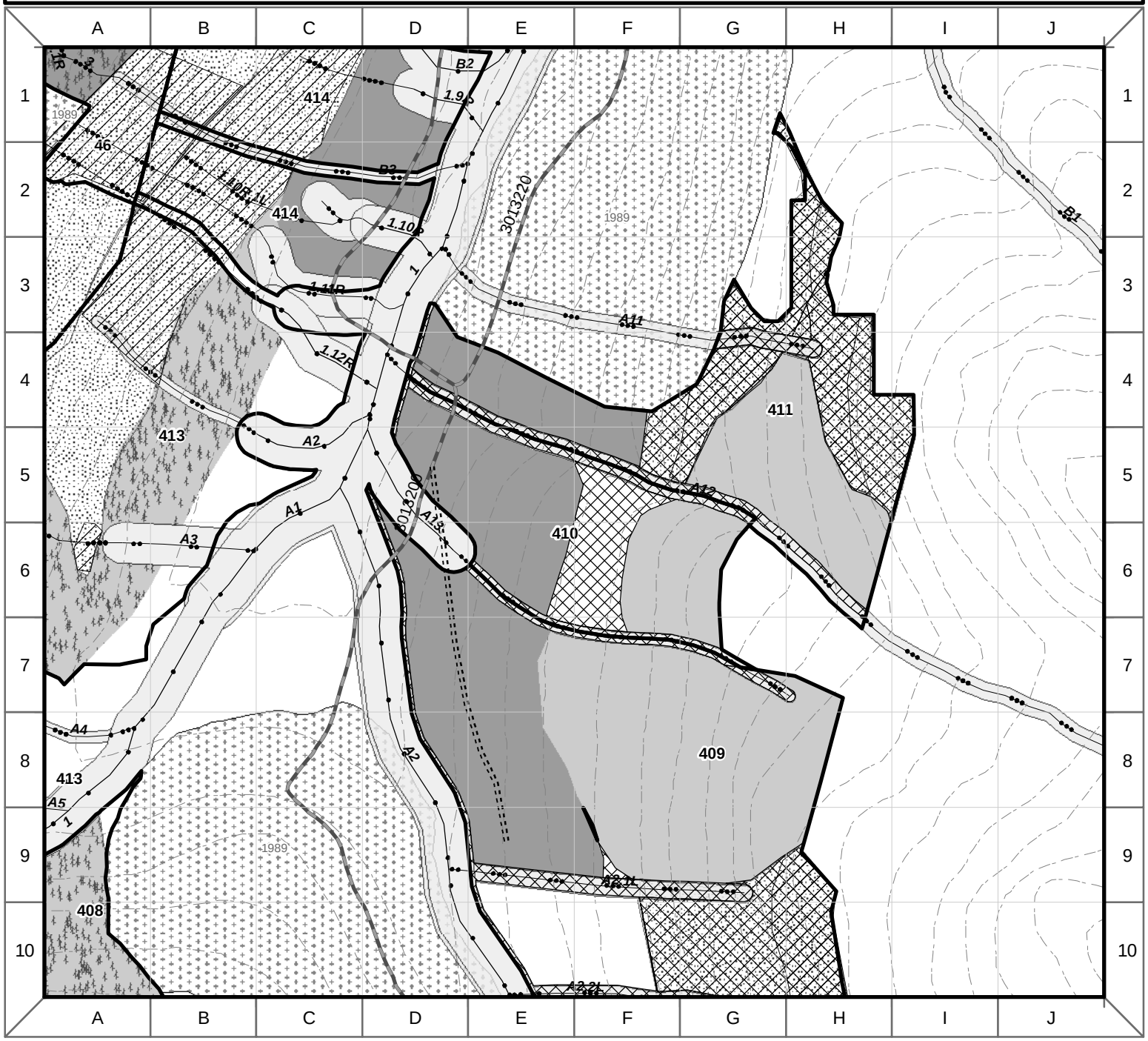
There are no slopes greater than 72% mapped in the unit. There is a small (less than 1 acre) debris torrent that initiated within the unit near the north boundary (1991). There is approximately 1 acre of forested wetland in the unit (BMP 12.5). The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

A temporary road will impact about 1/4 acre of forested wetland in the unit. Wetland avoidance was not practicable due to the abundance of forested wetland in the area needed for access and engineering constraints. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (western half of unit). Unit is in 2008 Forest Plan OGR, which was exchanged in favor of biologically preferred location. Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range and marten habitat.

Unit Number 410 | **Alternative 4** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 411

Unit Number	411	Alternatives	4	Total Unit Acres:	20.3	Prescription:	Clearcut
VCU Number:	597.2	Harvest System:	Cable, Shovel,	Net Harvest Volume (MBF):	438	LUD:	Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is predominantly a western hemlock stand with Sitka spruce scattered throughout. Old-growth stand structure dominates. Moderate windthrow, moderate defect and a low to moderate incidence of mistletoe were present. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 12 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to cover unsuitable soils and RMAs in orginal unit and the total is approximately 20 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of shovel, cable, and helicopter yarding. Shovel settings are planned for yarding to the existing NFS roads 3013200 and 3012220. Cable settings are planned for downhill yarding to landings on the existing NFS road 3013220. Helicopter settings are planned for yarding to landings on the existing NFS road 3013200.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Goose Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: 1 Class: I Flagging: B/W C- Type: MMM
Concerns: none known
Buffer (RMA): Class I for MMM greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category A

Stream#: A11 Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category B

Stream#: A12 Class: III Flagging: O/W C- Type: HCD

Unit 411

Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 4 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

Unit borders the Karta inventoried roadless area along its eastern boundary.

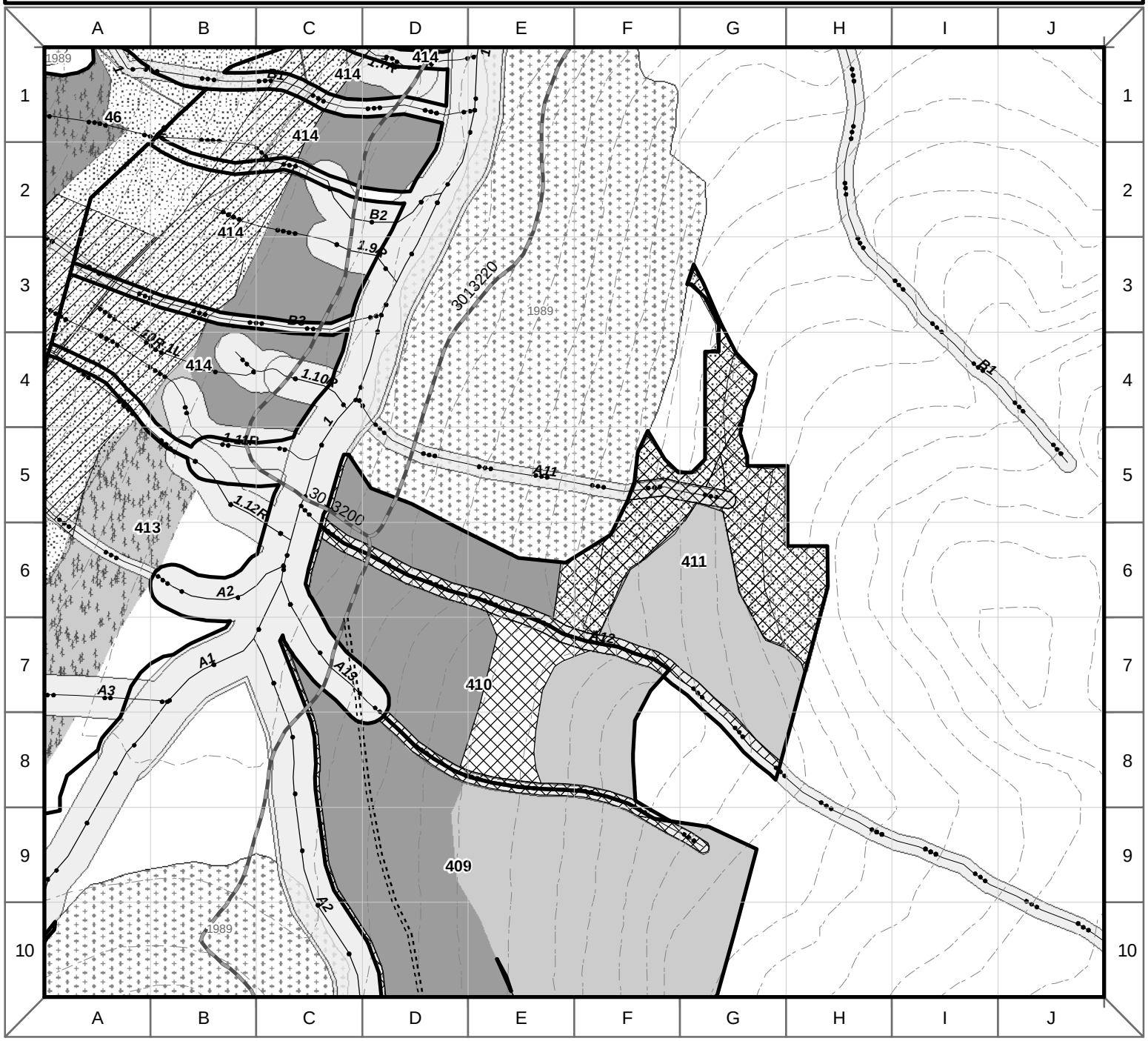
SOILS/WETLANDS:

Slopes range from about 40% to greater than 72%. About 16 acres were excluded due to very steep slopes and landslides. In the remainder of the unit, there are no slopes greater than 72% mapped. About 1/4 of the unit is covered by forested wetland (BMP 12.5). The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (western half of unit). Unit is in 2008 Forest Plan OGR exchanged in favor of biologically preferred location. Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range and marten habitat.

Unit Number 411 | **Alternative 4** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 413

Unit Number 413	Alternatives 3, 4	Total Unit Acres: 3 - 45.4 4 - 56.5	Prescription: 3 - Clearcut 4 - 50% Removal
VCU Number: 597.2	Harvest System: Cable, Shovel,	Net Harvest Volume (MBF): 3 - 1,135 4 - 706	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This lower elevation unit consists of old-growth stand structure that is comprised of western hemlock as well as moderately-stocked Alaska-cedar and scattered Sitka spruce and western redcedar. Windthrow risk is moderate to high. Mistletoe occurrence is low. Physical defects were rated low but stem decay was high. Alaska-cedar decline was evident on lower site index, less well drained areas in the west. Portions of the unit were dropped along the southern edge due to poor timber. All nearby past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut (Alternative 3)
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with high levels of stem decay resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 19 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to cover unsuitable soils and RMAs. Total mapped legacy is approximately 19 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

Silvicultural Prescription: Uneven-age Management Single Tree Selection (Alternative 4)
Maintain at least 50 percent of the pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

No Legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

Alternative 3: This unit is planned for a combination of shovel, cable, and helicopter yarding. Shovel settings are planned for yarding to the proposed temporary road. Cable settings are planned for downhill yarding to landings on the proposed temporary road. Helicopter settings are planned for yarding to landings on the proposed temporary road.

Alternative 4: This unit is planned for helicopter yarding to landings on the existing NFS road 3013200.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road in Alternative 3, totaling 2,500 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 413

Streams are tributaries to Goose Creek. Some stream characteristics do not include project-specific, field-verified, information.

Stream#: 1 Class: I Flagging: B/W C- Type: MMM, MCS, HCV
Concerns: none known
Buffer (RMA): Class I for MMM greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for MSC and HCV greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 and 4 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: 1.12R Class: I, IV Flagging: B/W, G/W C- Type: HCO
Concerns: blowdown
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: A2 Class: I, III Flagging: B/W, O/W C- Type: MCS, HCM
Concerns: none known
Buffer (RMA): Class I for MCS greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: A3 Class: I, IV Flagging: B/W, O/W C- Type: HCO
Concerns: none known
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: A4 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category C

Stream#: A6 Class: I Flagging: B/W C- Type: HCL
Concerns: none known
Buffer (RMA): Class I for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 413 : Alternatives 3 -- One Class I, one Class II, one Class III, and one class IV stream crossings and Alternative 4 - no planned roads. The temporary roads have not been field verified and will be surveyed before implementation. Crossing structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). The Class 1 and II crossing will be designed to provide fish passage, using a log culvert or bridge, will be installed under current timing constrictions and concurrence from the State will be solicited prior to starting the work. During construction of temporary roads implement BMPs 12.16, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

Unit 413

RECREATION:

No Concerns

SOILS/WETLANDS:

Slopes range from about 30 to greater than 72%. About 16 acres were excluded due to very high landslide potential, colluvial activity, MMI4 soils, steep slopes, and unstable drainages. There are no slopes greater than 72% mapped in the remainder of the unit. Approximately 1/4 of the unit in both alternatives consists of forested wetland in the eastern portion of the unit (BMP 12.5). In the harvest area of the unit, the soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

Based on GIS analysis, the proposed temporary road does not traverse any wetlands.

Alternative 3:
There are approximately 10 acres (24% of the unit) of forested wetland in the eastern portion of the unit (BMP 12.5).

Alternative 4:
There are approximately 10 acres (19% of the unit) of forested wetland in the eastern portion of the unit (BMP 12.5).

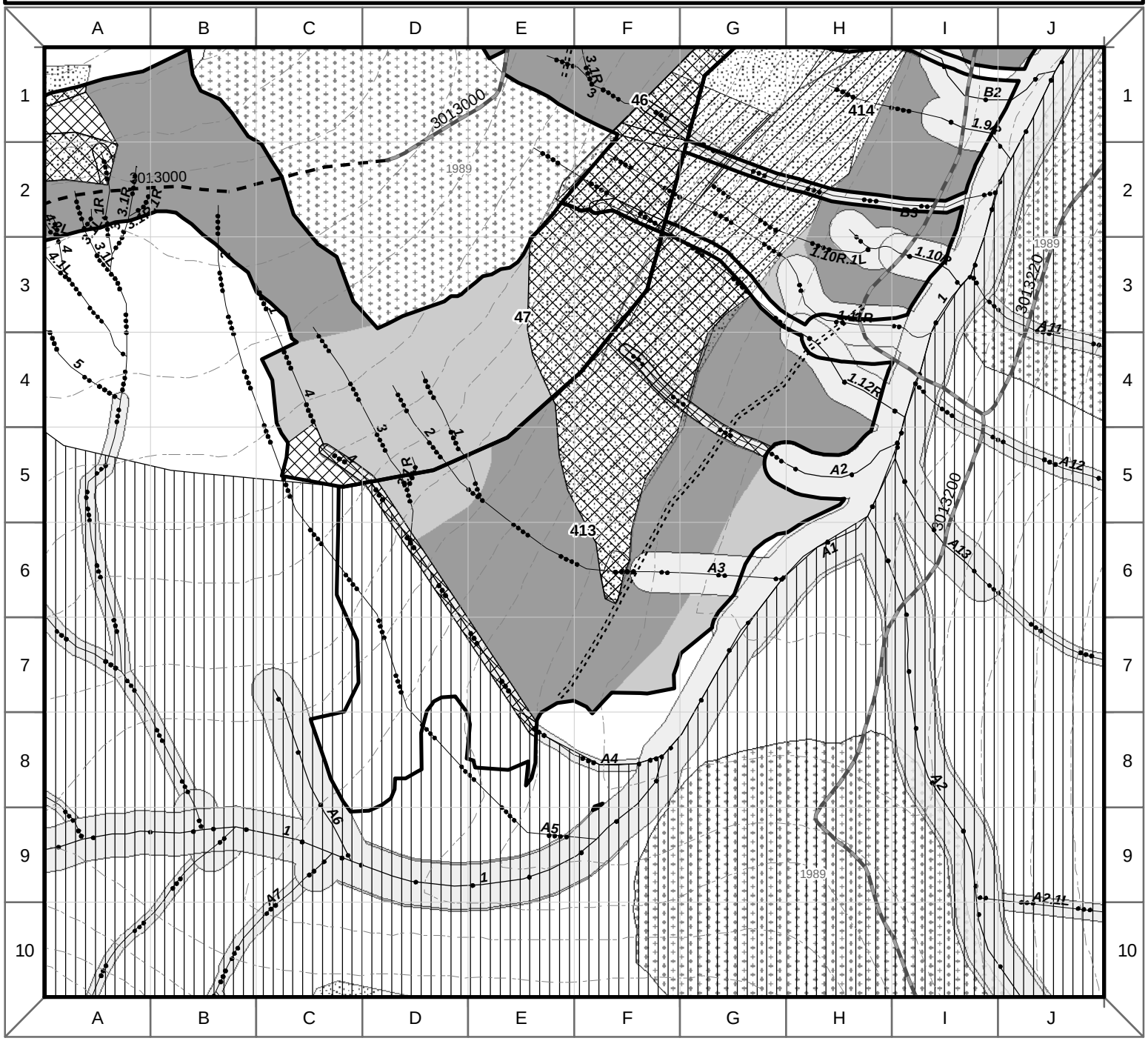
WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (eastern half of unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range and marten habitat.

Alternative 4: Helicopter yarding with 50% basal area removal to minimize road construction and maintain habitat values. Unit is in 2008 Forest Plan OGR exchanged in favor of biologically preferred location. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Old-growth Reserve (OGR) Boundary
Alternatives 2 and 5: Not in alternative
Alternative 3: OGR boundary adjacent to unit to the south, east, and west.
Alterative 4: Adopts Interagency OGR in a different location, away from unit to the north.

Unit Number 413 | **Alternative 3** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit Number 413 | **Alternative 4** | **VCU: 597.2**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

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Unit 414

Unit Number	414	Alternatives	3, 4	Total Unit Acres:	16.2	Prescription:	Clearcut
VCU Number:	597.2	Harvest System:	Cable, Helicopter	Net Harvest Volume (MBF):	344	LUD:	Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 414 is an old-growth stand of western hemlock. Western redcedar and Sitka spruce are scattered throughout. Windthrow risk is high. Mistletoe occurrence is moderate. Physical defects are low but stem decay is moderate. Overall defect is moderate. This stand is over-mature with declining growth. All nearby past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the original unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for a combination of cable and helicopter yarding. Cable settings are planned for uphill and downhill yarding to landings on the existing NFS road 3013200. Helicopter settings are planned for yarding to landings on the existing NFS road 3013200.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Goose Creek (Some stream characteristics do not include project-specific, field-verified, information).

Stream#: 1 Class: I Flagging: B/W C- Type: MMM
Concerns: none known
Buffer (RMA): Class I for MMM greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category A

Stream#: 1.6R Class: I, III Flagging: B/W, O/W C- Type: MMO, HCD
Concerns: none known
Buffer (RMA): Class I for MMM greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCD to the top of the side-slope break.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: 1.7R Class: III Flagging: O/W C- Type: AFH, HCD

Concerns: none known
Buffer (RMA): Class III for AFH greater of 140 feet or active portion of the alluvial fan. Class III for HCD to the top of the side-slope break.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category B

Stream#: B1 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the side-slope break.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category B

Stream#: B2 Class: I, III Flagging: B/W, G/W C- Type: MMO, HCO
Concerns: none known
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCO to the side-slope break.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: 1.9R Class: I, IV Flagging: B/W, G/W C- Type: MMO, HCO
Concerns: none known
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCO none.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: B3 Class: I, III, IV Flagging: B/W, O/W, G/W C- Type: MMO, HCO
Concerns: none known
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCO to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category A, B and C

Stream#: 1.10R Class: I, II, III Flagging: B/W, O/W C- Type: MMO, HCD
Concerns: none known
Buffer (RMA): Class I and II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCD to the top of the side-slope break.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: 1.11R Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: none known
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: 1.12R Class: I, IV Flagging: B/W, G/W C- Type: HCO
Concerns: blowdown
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category A and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

Unit 414

SCENERY:

No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

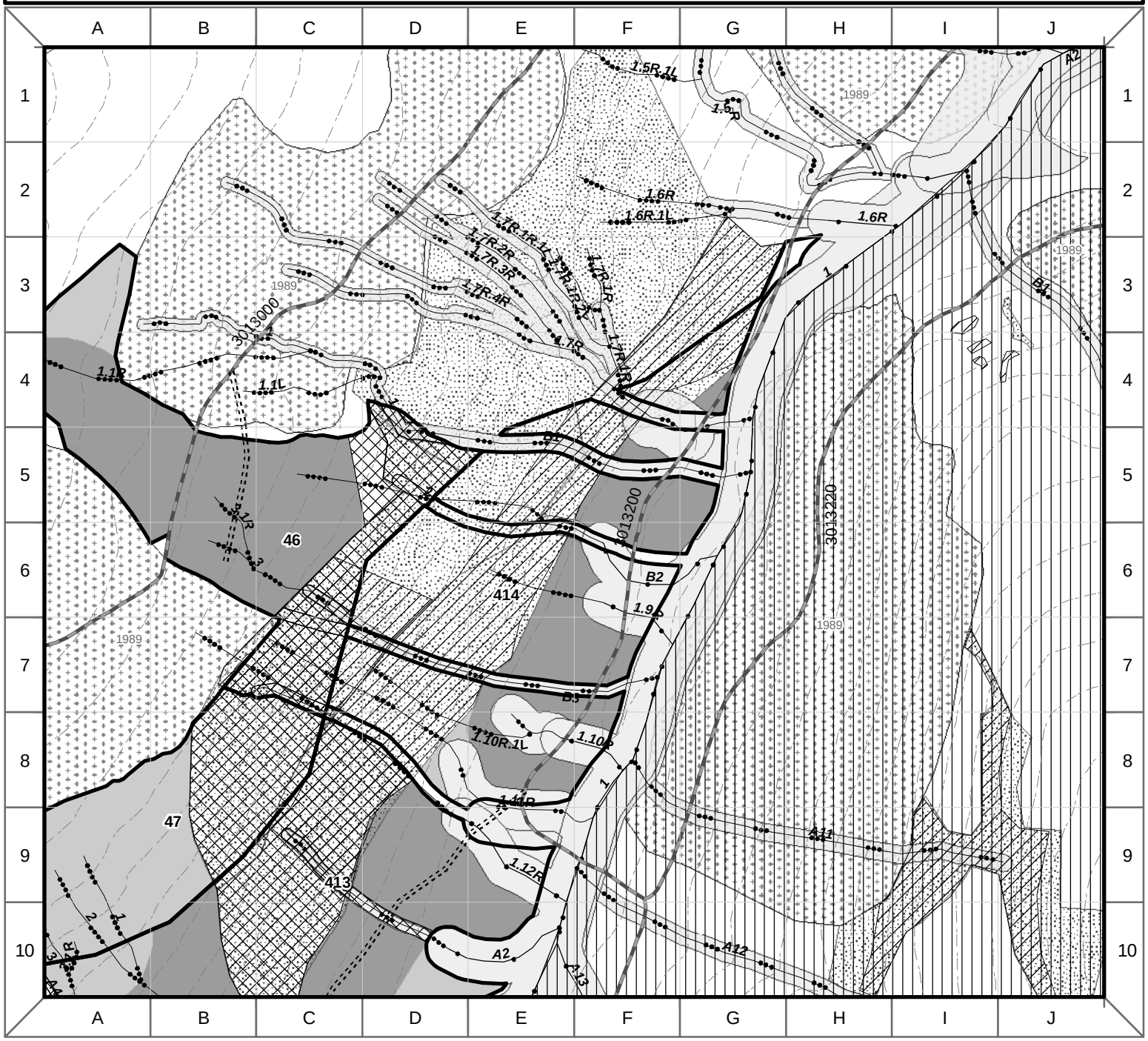
Slopes range from about 20 to greater than 72%. About 29 acres were excluded due very high landslide potential, colluvial activity, MMI4 soils, steep slopes, and unstable drainages. In the remainder of the unit, there are no slopes greater than 72%. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). No wetlands have been mapped in the unit

WILDLIFE:

Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Unit is in 2008 Forest Plan OGR exchanged in favor of biologically preferred location under Alt 4. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Old-growth Reserve (OGR) Boundary
Alternatives 2 and 5: Unit not in alternative.
Alternative 3: OGR boundary adjacent to unit to the east.
Alterative 4: Adopts Interagency OGR in a different location, away from unit to the north.

Unit Number 414 | **Alternative 3** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit Number 414 | **Alternative 4** | **VCU: 597.2**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

0 500 Feet

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Unit 415

Unit Number 415	Alternatives 4	Total Unit Acres: 5.4	Prescription: Clearcut
VCU Number: 597.2	Harvest System: Cable	Net Harvest Volume (MBF): 91	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is a western hemlock old-growth stand with high windthrow risk, moderate to high defect, and light evidence of mistletoe. The timber is over-mature and shows signs of declining growth. All nearby past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is over-mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit consists of settings that are less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

Unit is planned for downhill cable yarding to landings on the existing NFS road 3013220.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Goose Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 4 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

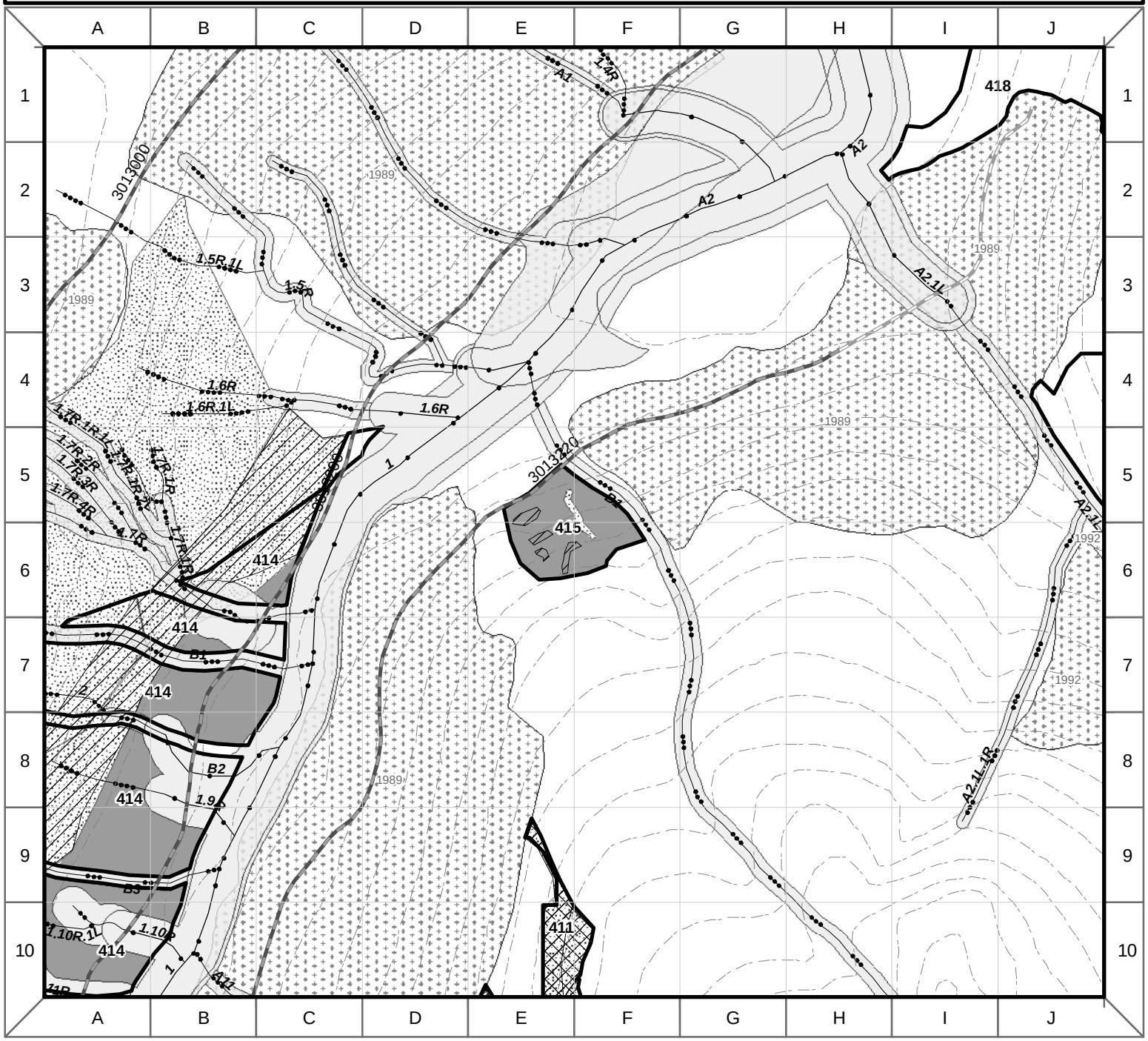
SCENERY:

No Concerns

RECREATION:

Unit 415
No Concerns
SOILS/WETLANDS: Slopes range from about 45% to greater than 72%. Less than 1/4 acre was excluded due to a landslide, wet slopes, slopes greater than 72%. In the remainder of the unit, about 1/2 acre of slopes greater than 72% are mapped that are suitable for harvest with partial suspension requirements. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). No wetlands have been mapped in the unit
WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Unit is in 2008 Forest Plan OGR exchanged in favor of biologically preferred location. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 415 | **Alternative 4** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

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Unit 418

Unit Number 418	Alternatives 4	Total Unit Acres: 35.9	Prescription: 50% Removal
VCU Number: 597.2	Harvest System: Helicopter	Net Harvest Volume (MBF): 595	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 418 is predominantly a western hemlock and western redcedar stand with an area of more pure western hemlock in a narrow central band. Generally old-growth stand structure dominates, however large areas of windthrow origin even-age structure in the original planned unit have been removed from harvest consideration. Moderate to heavy past windthrow, moderate defect and low occurrence of mistletoe were noted in the stand. The windthrow risk rating is high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 50 percent of the pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to 2 acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

No Legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 3013150.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Goose Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: Lake A1 Class: I Flagging: B/W C- Type: L
Concerns: none known
Buffer (RMA): Class I for Lake-A1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category A

Stream#: A1 Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2 Class: I Flagging: B/W C- Type: FPM

Unit 418

Concerns: none known
Buffer (RMA): Class I for FPM greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category A

Stream#: A2.1L Class: I, III Flagging: B/W C- Type: AFM, HCD
Concerns: none known
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class III for HCD to the top of the side-slope break.
Alternatives: 4 Buffer (RAW): no review needed
Protection: Category A and B

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

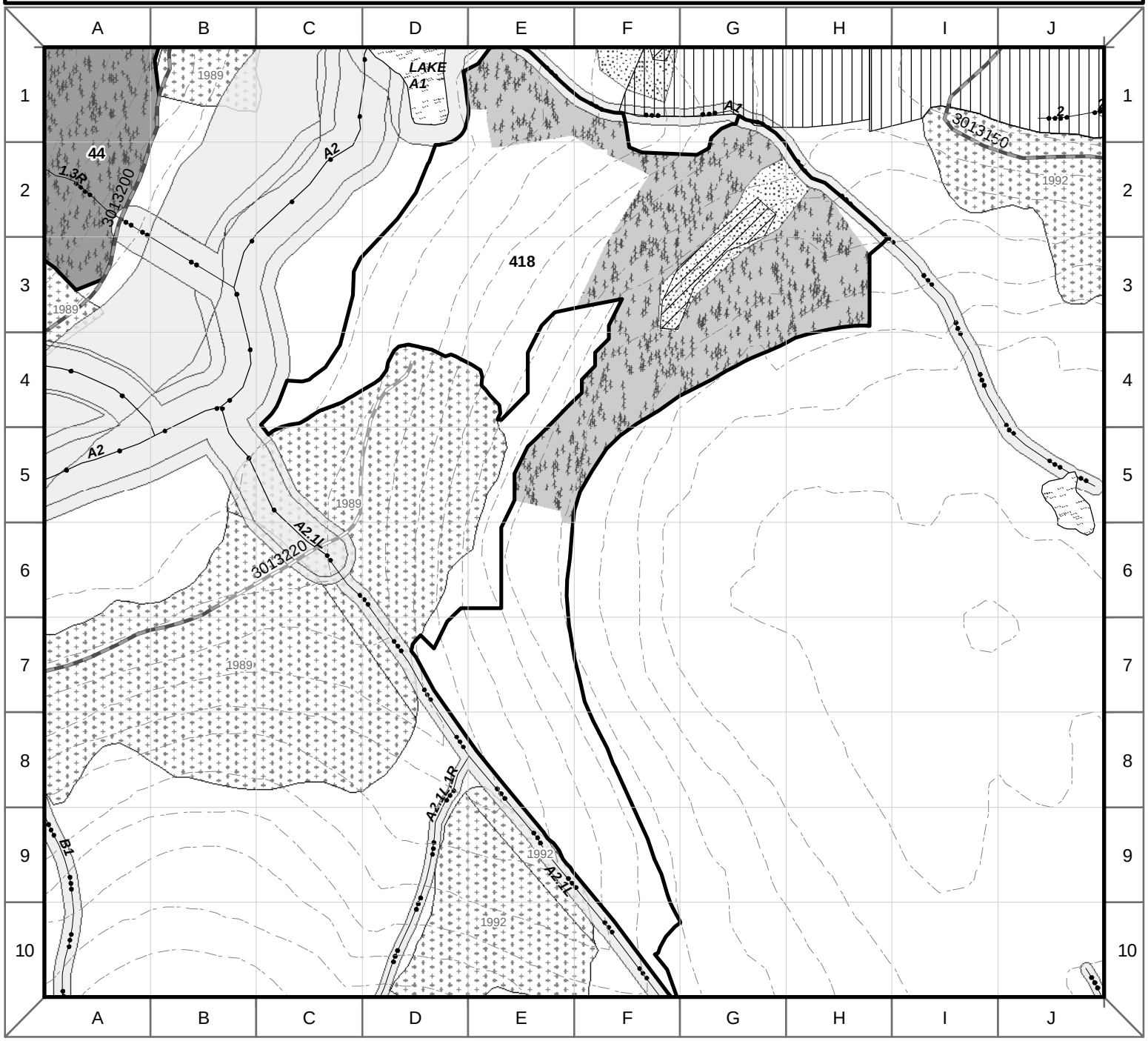
Slopes range from about 37% to greater than 72%. About 5 acres were excluded due to landslides, wet slopes, and slopes greater than 72%. In the remainder of the unit, there are no slopes greater than 72% mapped. There is less than 1/4 acre of forested wetland in the unit (BMP 12.5). A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northwestern portion unit). Unit is in 2008 Forest Plan OGR exchanged in favor of biologically preferred location. Unit is adjacent to new OGR on the north. Prescription is 50% basal area removal to maintain habitat value.

Legacy standard and guideline applies in this VCU. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit Number 418 | **Alternative 4** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 419

Unit Number	419	Alternatives	3	Total Unit Acres:	3.0	Prescription:	Clearcut
VCU Number:	597.2	Harvest System:	Cable	Net Harvest Volume (MBF):	85	LUD:	Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is characterized by old-growth stand structure that is comprised of western hemlock and western redcedar with scattered patchy Alaska-cedar. Windthrow risk is moderate to low. Mistletoe occurrence is low. Alaska cedar decline is evident in the stand along lower productivity edges. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy,and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit consists of settings that are less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for uphill yarding to landings on the existing NFS road 3013200.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Goose Creek.

Stream#: 1.2 R Class: III Flagging: O/W C- Type: HCO
Concerns: none
Buffer (RMA): Class III for HCO to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

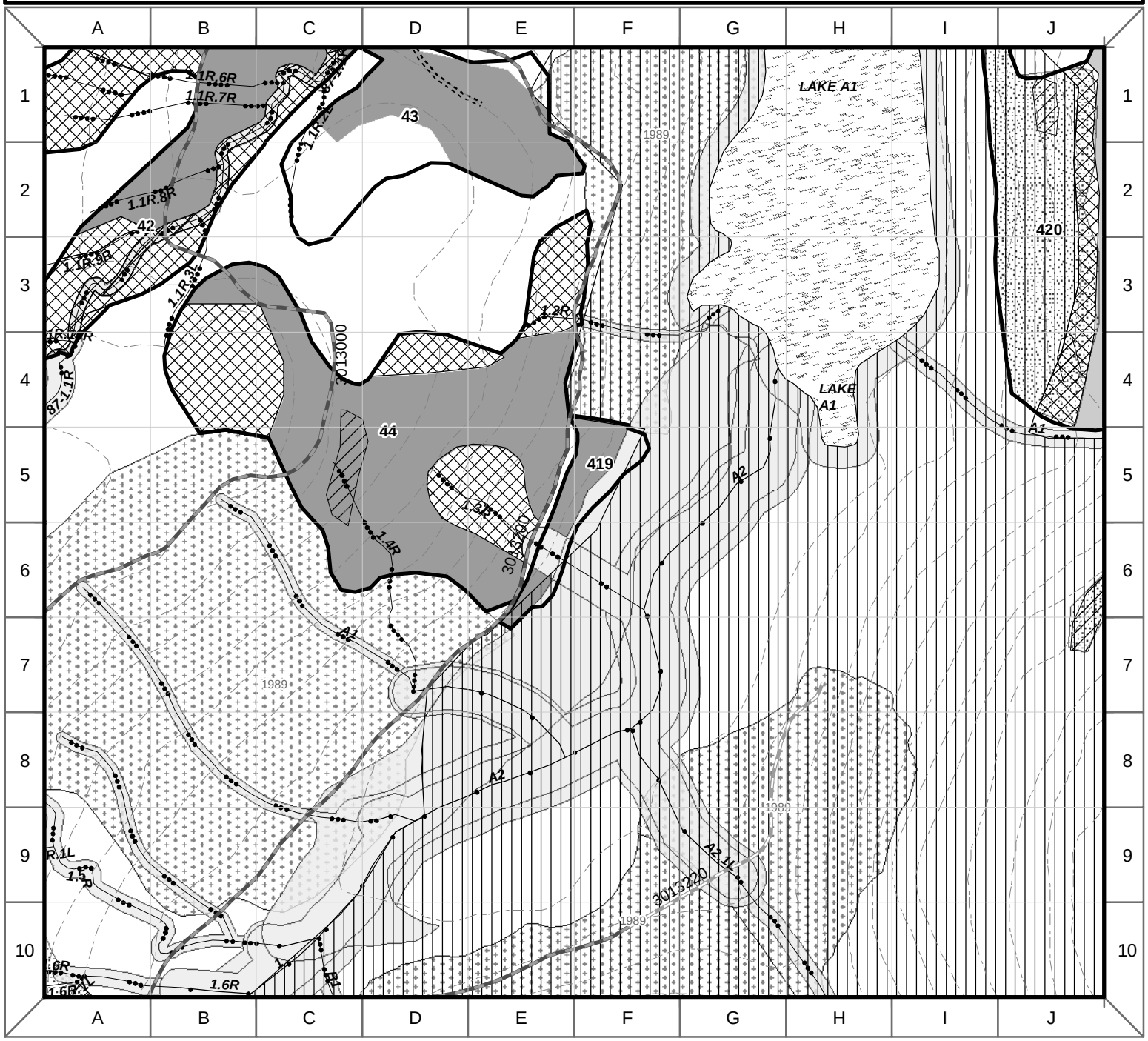
Stream#: 1.3R Class: II, III Flagging: B/W, O/W C- Type: HCM, HCO
Concerns: none.
Buffer (RMA): Class II for HCM greater of 100 feet or the top of the side-slope break. Class III for HCO to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:

Unit 419
No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No Concerns
RECREATION: No Concerns
SOILS/WETLANDS: Slopes range from about 20 to 60%. No wetlands occur within the unit. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).
WILDLIFE: Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres. Unit is close to the new OGR boundary on the east. Alternatives 2 and 5: Unit not in alternative. Alternative 3: Unit is very close to new OGR boundary on the east. Alternative 4: Unit dropped because location coincides with the biologically preferred OGR.

Unit Number 419 | **Alternative 3** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit 420

Unit Number 420	Alternatives 3	Total Unit Acres: 20.6	Prescription: Clearcut
VCU Number: 597.2	Harvest System: Helicopter	Net Harvest Volume (MBF): 380	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 420 is predominantly a western hemlock and western redcedar stand with an area of more pure western hemlock located in the narrow central area. Generally old-growth stand structure dominates, however many areas of past windthrow have created a mosaic of stand structure. Moderate to heavy past windthrow, moderate to high defect and low occurrence of mistletoe were noted in the stand. There are no adjacent past harvest areas.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high levels of stem decay resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 16 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. The required legacy was placed to coincide entirely with areas already dropped for soil concerns, which divides unit into three openings. The total mapped legacy is about 32 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 3013150.

New OGR boundary follows west and southwest edges of unit.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

One population of lesser round-leaved orchid (sensitive plant) and one population of western meadowrue (rare plant) occur outside of the unit, but close to the western border. No direct effects would occur, but the populations could be indirectly affected by the harvest.

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Goose Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream A4 Class: I Flagging: B/W C- Type: LCM
Concerns: none
Buffer (RMA): Class I for LCM greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: A5 Class: I Flagging: B/W C- Type: MCS
Concerns: none
Buffer (RMA): Class I for MCS greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed

Unit 420

Protection: Category A

Stream#: A1 Class: III Flagging: O/W C- Type: HCD
Concerns: blowdown present and bank erosion
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
No Concerns

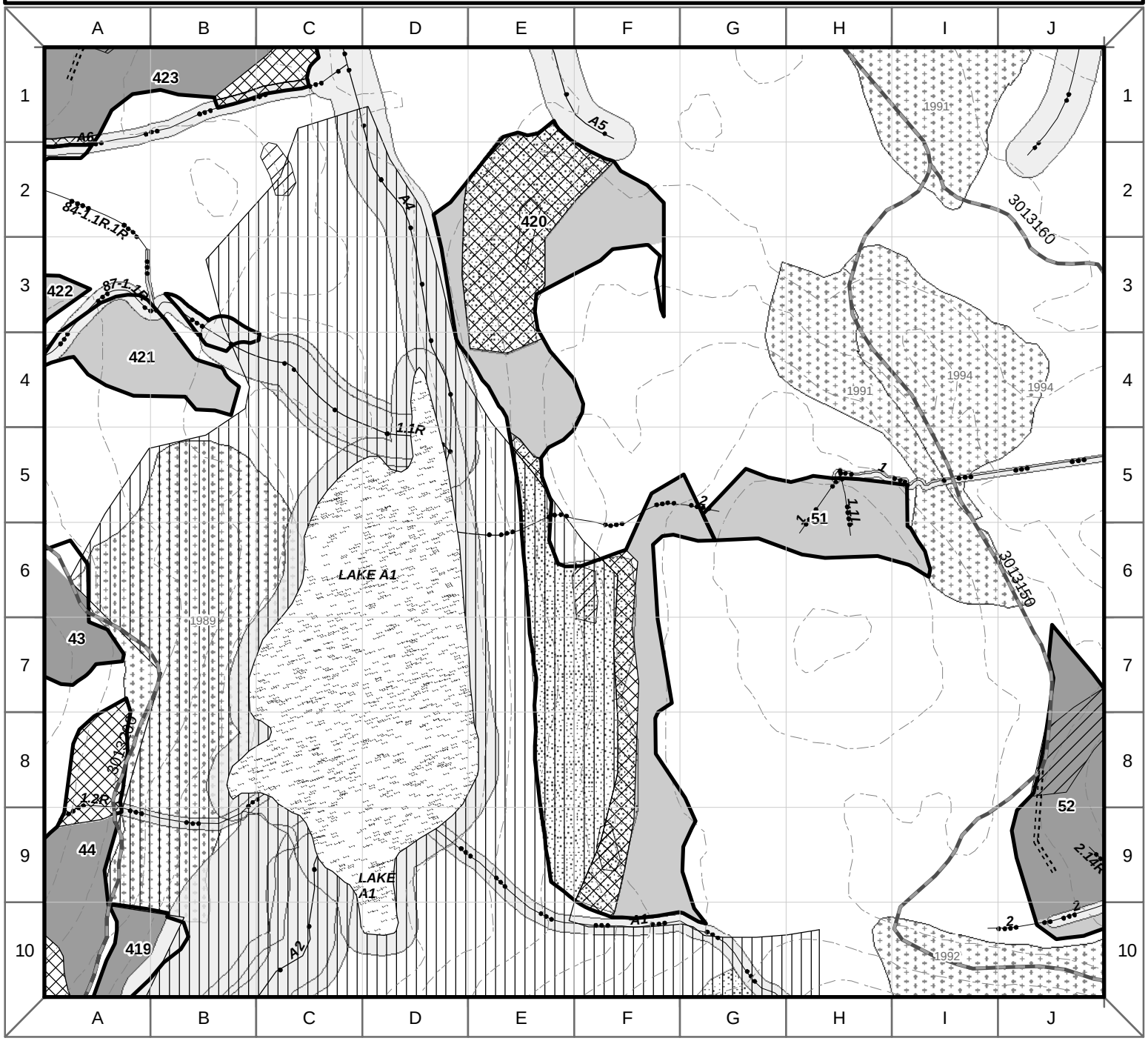
RECREATION:
No Concerns

SOILS/WETLANDS:
Slopes range from about 15% to greater than 72%. About 32 acres were excluded due to slopes over 72% and unsuitable soils. In the remainder of the unit, there are no mapped slopes greater than 72%. The entire unit consists of forested wetland (BMP 12.5). A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:
Unit includes average snow deer winter range (entire unit). Legacy standards and guidelines applies in this VCU; positioning of Legacy acres covers some deer winter range. Unit is adjacent to new OGR.

Alternative 4: Unit dropped because location coincides with the biologically preferred OGR.

Unit Number 420 | **Alternative 3** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 421

Unit Number	421	Alternatives	3	Total Unit Acres:	5.9	Prescription:	Clearcut
VCU Number:	597.2	Harvest System:	Helicopter	Net Harvest Volume (MBF):	112	LUD:	Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 421 is western hemlock and western redcedar that changes to mountain hemlock in the northeast corner. Old-growth stand structure dominates. Moderate windthrow, moderate to high defect, and low evidence of mistletoe define the existing condition. The adjacent past harvest along the southern boundary meets green-up requirements.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit consists of settings that are less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 3013000.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Goose Creek.

Stream#: 1.1R Class: I, III Flagging: B/W, O/W C- Type: HCD
Concerns: blowdown present and bank erosion
Buffer (RMA): Class I for HCD greater of 100 feet or to the top of the side-slope break. Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A and B

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

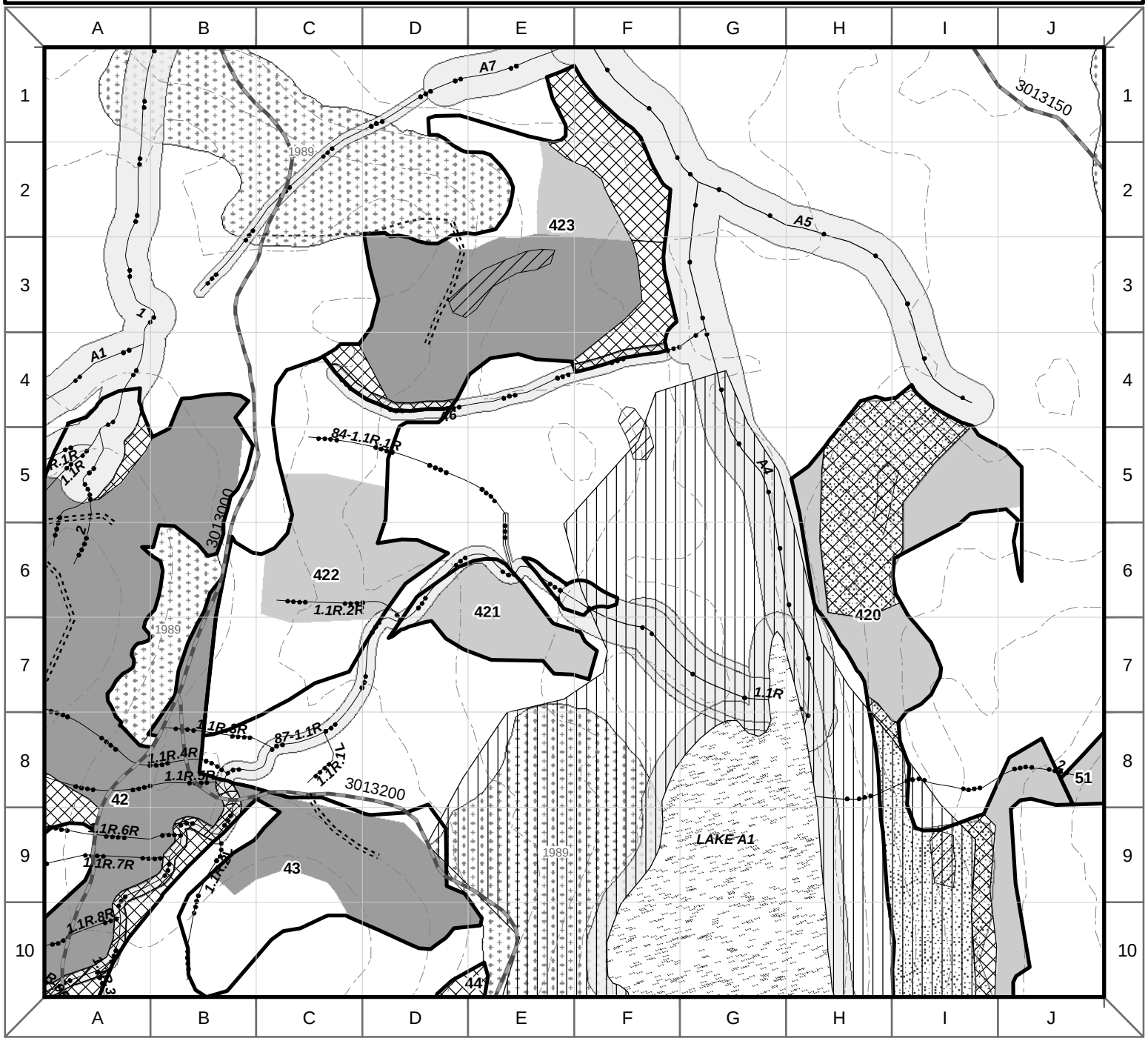
SCENERY:

No Concerns

RECREATION:

Unit 421
No Concerns
SOILS/WETLANDS: Slopes are about 20%. The entire 6-acre unit is forested wetland (BMP 12.5). A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).
WILDLIFE: Unit includes average snow deer winter range (northern portion of unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres. Alternatives 2 and 5: Not in alternative. Alternative 3: Unit is adjacent to new OGR boundary on east. Alternative 4: Unit dropped because location coincides with biologically preferred OGR.

Unit Number 421 | **Alternative 3** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit 422

Unit Number 422	Alternatives 3	Total Unit Acres: 10.2	Prescription: Clearcut
VCU Number: 597.2	Harvest System: Helicopter	Net Harvest Volume (MBF): 185	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is an old-growth stand with moderate windthrow, high defect, and a low incidence of mistletoe. The over-story of the stand is mainly western hemlock and western redcedar with Sitka spruce, Alaska-cedar and mountain hemlock present as lesser components. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 3013000.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Goose Creek. Stream A6 characteristics do not include project-specific, field-verified, information.

Stream#: 1.1R Class: III Flagging: O/W C- Type: HCD
Concerns: blowdown present and bank erosion
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

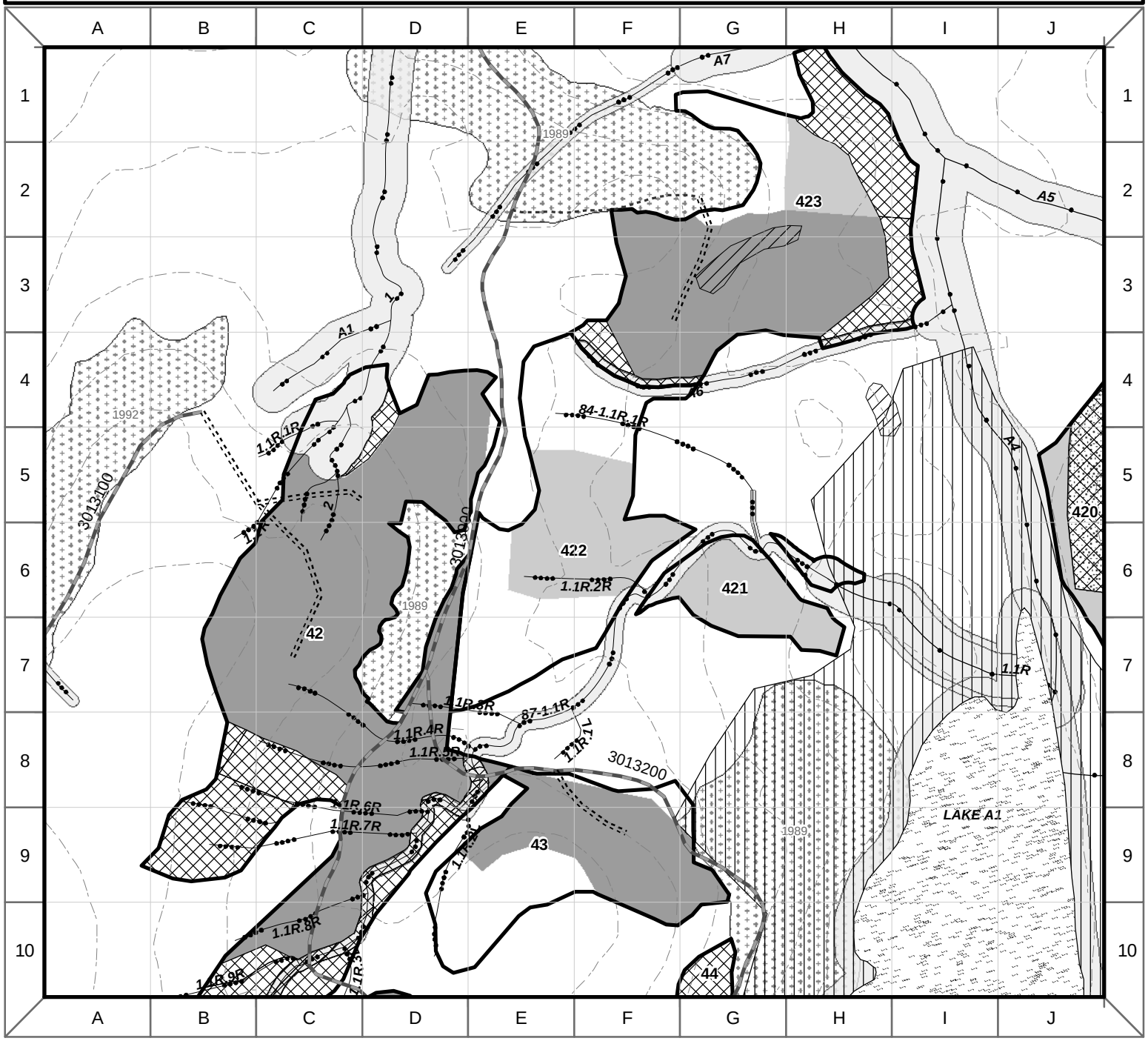
Stream#: A6 Class: III Flagging: O/W C- Type: HCL
Concerns: none known
Buffer (RMA): Class III for HCL to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C-Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:

Unit 422
No Concerns
HERITAGE RESOURCES: This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No Concerns
RECREATION: No Concerns
SOILS/WETLANDS: Slopes are about 25% to 40%. The entire 10-acre unit is forested wetland (BMP 12.5). A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).
WILDLIFE: Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres. Alternative 4: Unit dropped because location coincides with biologically preferred OGR.

Unit Number 422 | **Alternative 3** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 423

Unit Number	423	Alternatives	3	Total Unit Acres:	22.9	Prescription:	Clearcut
VCU Number:	597.2	Harvest System:	Cable, Helicopter	Net Harvest Volume (MBF):	337	LUD:	Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 423 is mainly a western hemlock and western redcedar old-growth stand. Sitka Spruce and Alaska-cedar are present as lesser components. The unit has moderate windthrow, moderate defect, and low evidence of mistletoe. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of stem decay resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 10 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to block up POG on the east side of the unit along the Class 1 TTRA that borders the unit, and building off RMA along south border at east and west ends, providing RAW. These POG blocks also eliminate the need for greater oad length. Total mapped legacy is approximately 10 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of cable and helicopter yarding. Helicopter settings are planned for yarding to landings on the proposed temporary road. Cable settings are planned for uphill and downhill yarding to landings on the proposed temporary road.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road, totaling 1600 feet, as displayed on the unit card. Approximately 900 feet of this road will be constructed across decomissioned road beds.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Goose Creek (Stream characteristics do not include project-specific, field-verified, information).

Stream#: A7 Class: II, III Flagging: B/W, O/W C- Type: HCL, HCM
Concerns: none known
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A and B

Stream#: A4 Class: I Flagging: B/W C- Type: LCM
Concerns: none known
Buffer (RMA): Class I for LCM greater of 100 feet or to the top of the side-slope break.

Unit 423

Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: A6 Class: I, III Flagging: B/W, O/W C- Type: HCL
Concerns: none known
Buffer (RMA): Class I for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCL to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and B

Temporary roads (new and reopened decommissioned) for Unit 423: Alternative3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

Slopes range from about 20 to greater than 72%. There are less than 2 acres of slopes greater than 72% mapped in the unit that are suitable for harvest with partial suspension requirements. Approximately 3/4 of the unit) is forested wetland (all but the northern portion of the unit) (BMP 12.5). A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

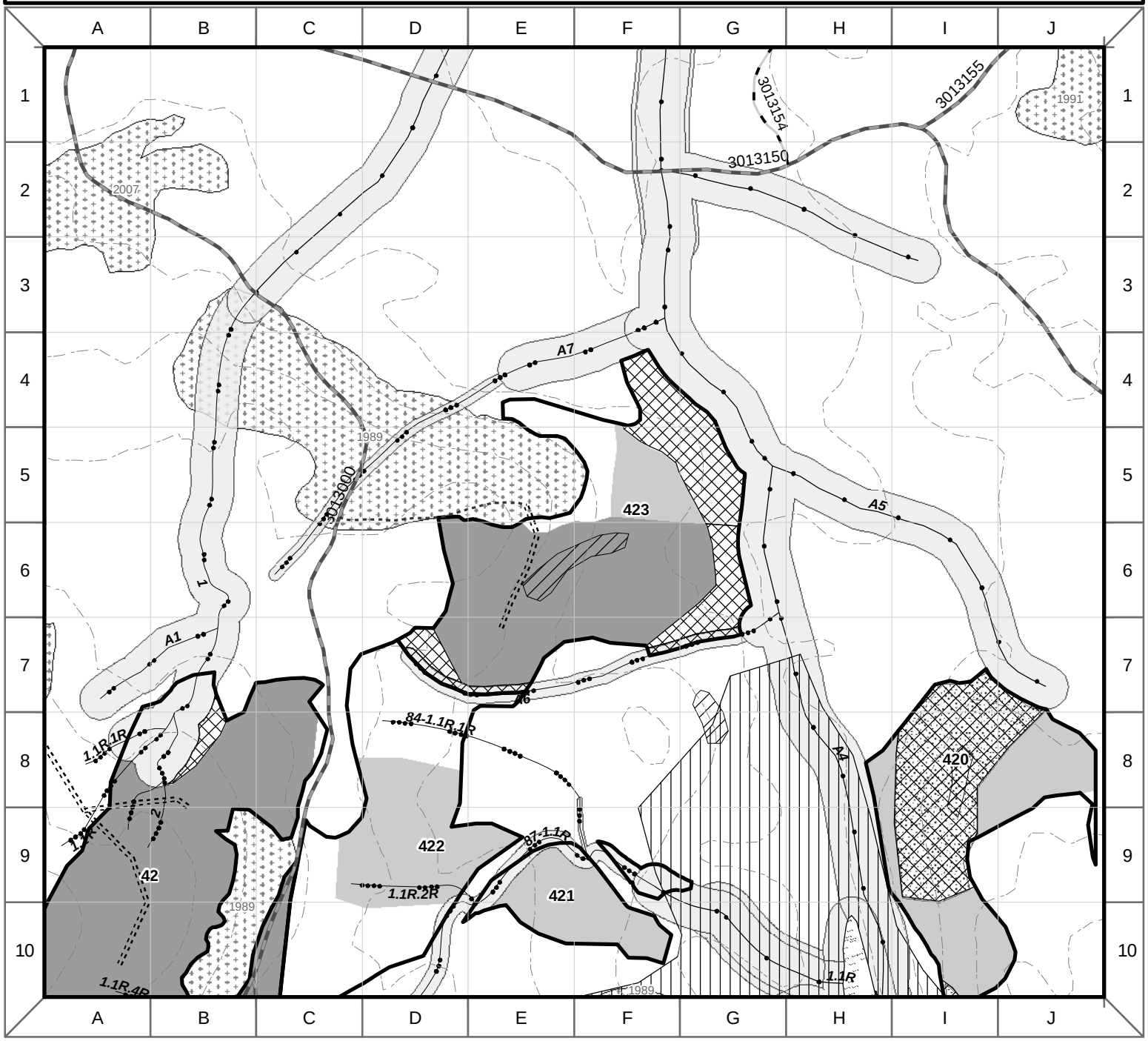
A temporary road will impact about 1/2 acre of forested wetland within the unit and less than 1/4 acre outside the unit. Wetland avoidance was not practicable due to the location of existing roads, topography, and the extent of wetlands in the area, there was not another way to provide road access with less impact (BMP 12.5, 13.2). Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range.

Alternative 4: Unit dropped because location coincides with biologically preferred small OGR.

Unit Number 423 | **Alternative 3** | **VCU: 597.2**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit 424

Unit Number	424	Alternatives	3	Total Unit Acres:	19.8	Prescription:	Clearcut
VCU Number:	579	Harvest System:	Cable	Net Harvest Volume (MBF):	656	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit has mainly old-growth stand structure. There is an area with heavy past wind damage in the center of the unit has a more two-age structure. High windthrow, moderate to high defect, and high incidence of mistletoe were noted in the stand. The over-story of the stand is mainly western hemlock and western redcedar with Sitka spruce present as a lesser component. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high levels of stem decay resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 9 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to block up POG along the north side of unit along the Class 1 & 2 TTRAs that border unit (providing RAW), as well as in the southwest and west corners of unit. These POG blocks reduce the required road length needed for harvest. Total mapped legacy is approximately 9 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for uphill and downhill cable yarding to landings on the proposed temporary road.

Unit is adjacent to small OGR.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road, totaling 1,000 feet, as displayed on the unit card.

BOTANY:

One small population of Platanthera (Sensitive species) in TTRA buffer, over 300 ft from nearest harvest.

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River. Some stream characteristics do not include project-specific, field-verified, information.

Stream#: 2.5L.5R.1R Class: I Flagging: B/W C- Type: MMO
Concerns: blowdown present
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: 2.5L.5R.2R Class: I Flagging: B/W C- Type: MMO
Concerns: blowdown present
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland

fens.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: A2.5L.5R Class: III Flagging: O/W C- Type: HCO
Concerns: none known
Buffer (RMA): Class III for HCO to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Temporary roads for Unit 424: Alternative3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
No Concerns

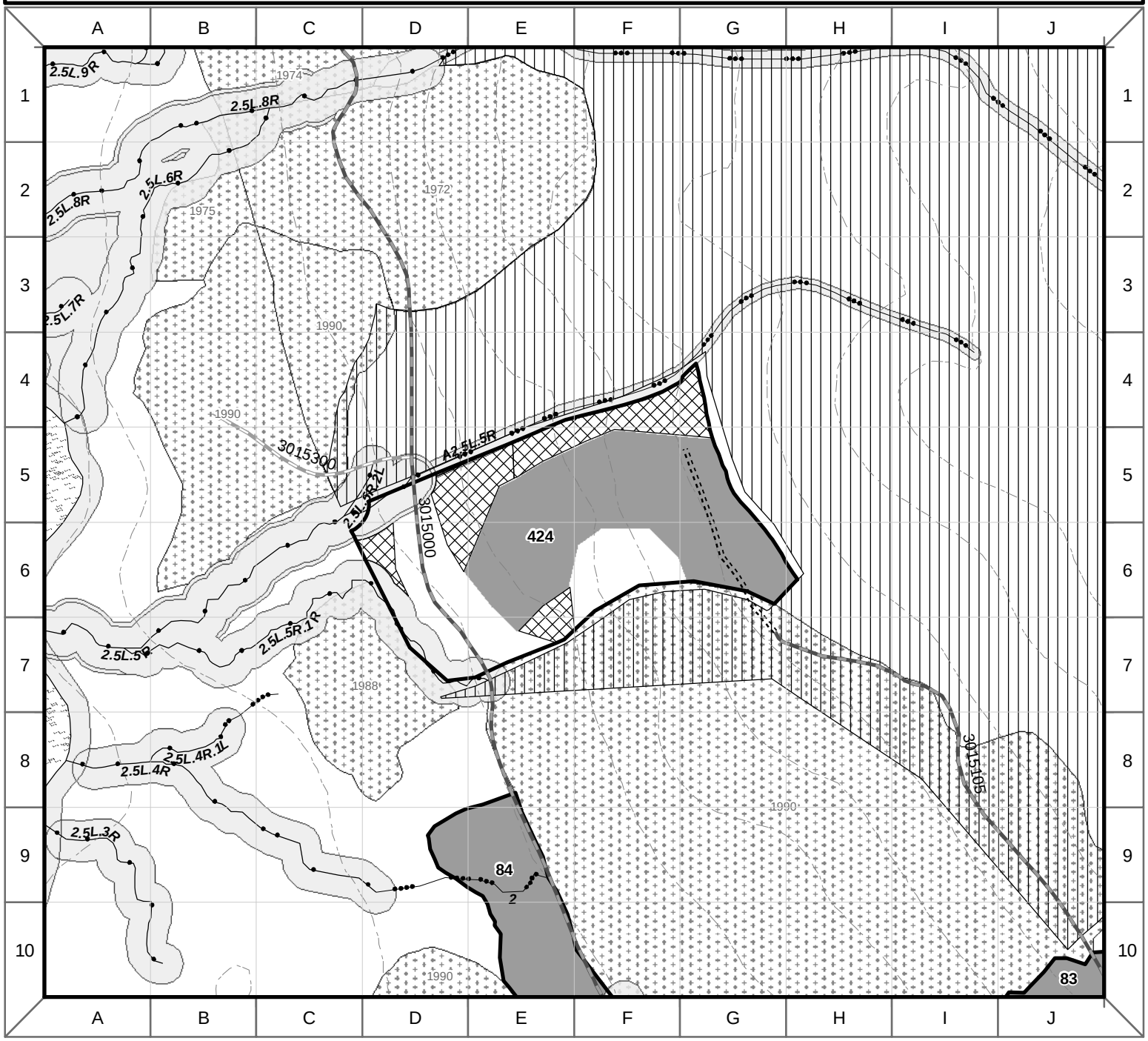
RECREATION:
No Concerns

SOILS/WETLANDS:
Slopes range from about 20% to 50%. There are no slopes greater than 72% mapped in the unit. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). No wetlands have been mapped in the unit.

Based on GIS analysis, the proposed temporary road does not traverse any wetlands.

WILDLIFE:
Unit includes average snow deer winter range (western portion and eastern edge of unit), some of which is also deep snow marten habitat/deer winter range (western portion unit). Unit is within 2008 Forest Plan OGR, which is modified under Alternative 3 (unit is adjacent to small OGR on its north, east, and south sides). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range and marten habitat.

Unit Number 424 | **Alternative 3** | **VCU: 579**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit 426

Unit Number 426	Alternatives 3	Total Unit Acres: 10.2	Prescription: Clearcut
VCU Number: 586	Harvest System: Shovel	Net Harvest Volume (MBF): 156	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 426 is a low productivity western Hemlock and western redcedar stand with old-growth stand structure. High windthrow, high defect, and light evidence of mistletoe were noted. The lowest productivity patches in the unit, usually occurring on poorly drained flats and rocky knobs, are stocked with small diameter Alaska-cedar. These trees are mostly dead due to decline and of little to no value. Most of the larger diameter western redcedar in the overstory are cull. The unit is a narrow strip of marginal value timber located between the beach buffer and the property boundary with the State of Alaska. Large areas of recent harvest not yet regenerated have occurred on adjacent State lands.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with high levels of windthrow and defect resulting in a situation where stand growth is being offset by decay and mortaltiy. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit consists of settings that are less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the proposed temporary road.

Unit is adjacent to State lands on the west and a small OGR on the east.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road, totaling 1,400 feet, as displayed on the unit card. Road is constructed from the existing State road and shall be designed to minimize impacts the State lands.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Snug Anchorage.

All streams in unit: Class: IV Flagging: G/W C-Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 426: Alternative3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

Unit 426

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is mapped as Moderate SIO and is adjacent to Unit 427 for a combined total of 14 acres. These units form a long and narrow (maximum of 300 ft wide) opening that is parallel to the contours. The viewing area of concern is the saltwater use area to the east of the units. However, because of topographic and vegetative screening it is estimated that about 10 acres or less would be visible from any location, which is within the range of approximate opening sizes identified in the Forest Plan for Moderate SIO areas with Low VAC.

RECREATION:

No Concerns

SOILS/WETLANDS:

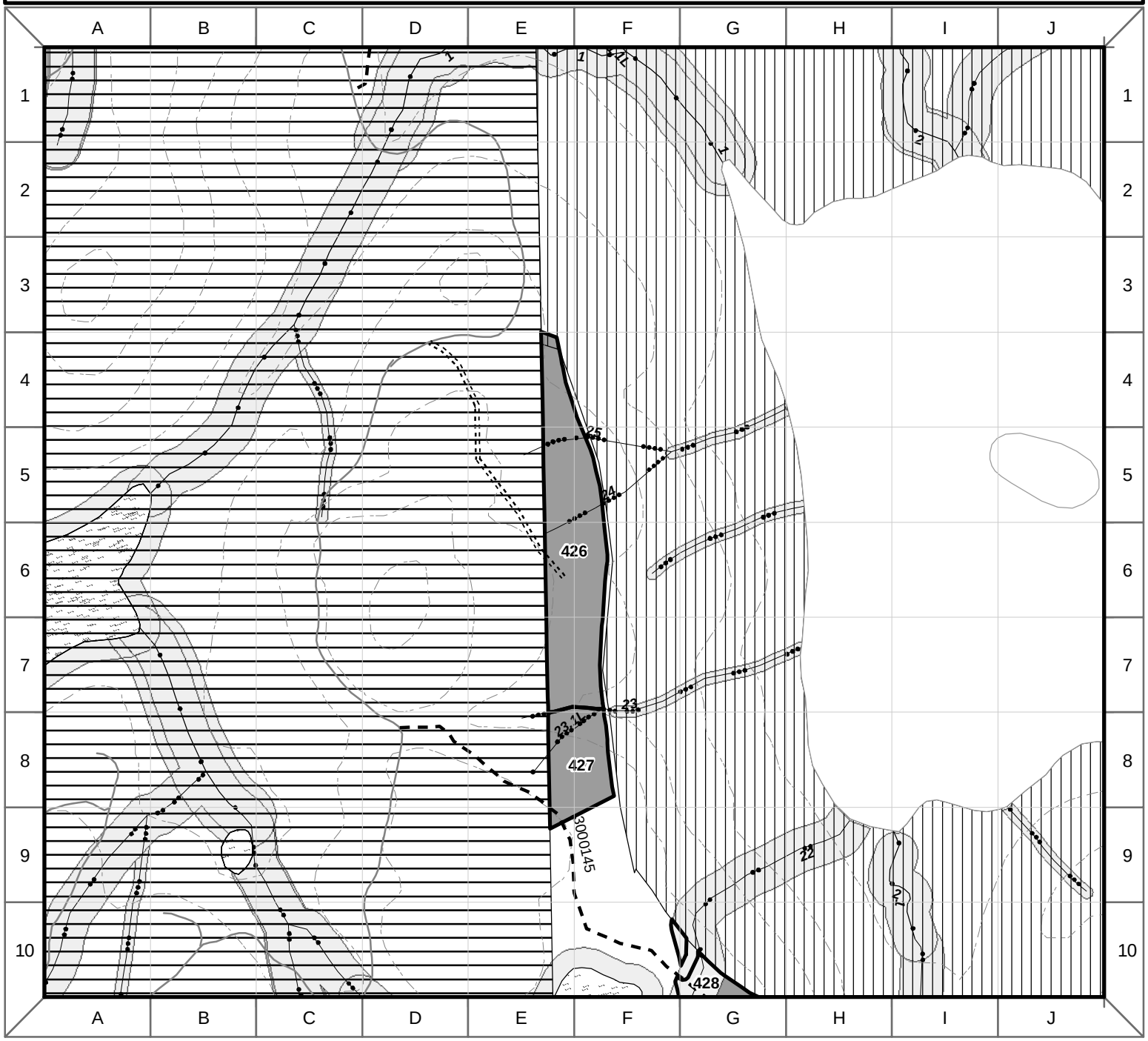
Slopes are about 15 to 25%. There are no slopes greater than 72% mapped in the unit. The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting. No wetlands have been mapped in the unit.

Based on GIS analysis, the proposed temporary road does not traverse any wetlands.

WILDLIFE:

Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range, and low elevation/high volume POG that is limited in the VCU. Unit is within 2008 Forest Plan OGR, which is modified under Alternative 3 (unit is outside of but adjacent to the new OGR on its east, north, and south sides). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 426 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit 427

Unit Number 427	Alternatives 3	Total Unit Acres: 3.6	Prescription: Clearcut
VCU Number: 586	Harvest System: Shovel	Net Harvest Volume (MBF): 69	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is a western hemlock and western redcedar stand with old-growth stand structure. High windthrow, high defect, and a light evidence of mistletoe were noted in the stand. The over-story of the stand is mainly western hemlock and western redcedar with Alaska-cedar present as a lesser component. The western boundary of the unit is along the State of Alaska land border. No past harvest areas are adjacent to the unit.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the proposed NFS road 3000145.

Unit is adjacent to State lands on the west and a small OGR on the east.

ENGINEERING/ROADS:

Unit is accessed by a portion of proposed NFS road 3000145 in Alternative 3, totaling 900 feet, as displayed on the unit card. This road is also used to access Units 428-431. See road card for detailed information on the proposed NFS road. This unit will require hauling and road construction across state lands. Road design should be completed to minimize impacts on state lands.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Snug Anchorage.

Stream#: 23 Class: III , IV Flagging: O/W, G/W C- Type: HCL, HCO
Concerns: blowdown in class IV reach
Buffer (RMA): Class III for HCL to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B and C

All other streams in unit: Class: IV Flagging: G/W C-Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

Unit 427

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is mapped as Moderate SIO and is adjacent to Unit 426 for a combined total of 14 acres. These units form a long and narrow (maximum of 300 ft wide) opening that is parallel to the contours. The viewing area of concern is the saltwater use area to the east of the units. However, because of topographic and vegetative screening it is estimated that about 10 acres or less would be visible from any location, which is within the range of approximate opening sizes identified in the Forest Plan for Moderate SIO areas with Low VAC.

RECREATION:

No Concerns

SOILS/WETLANDS:

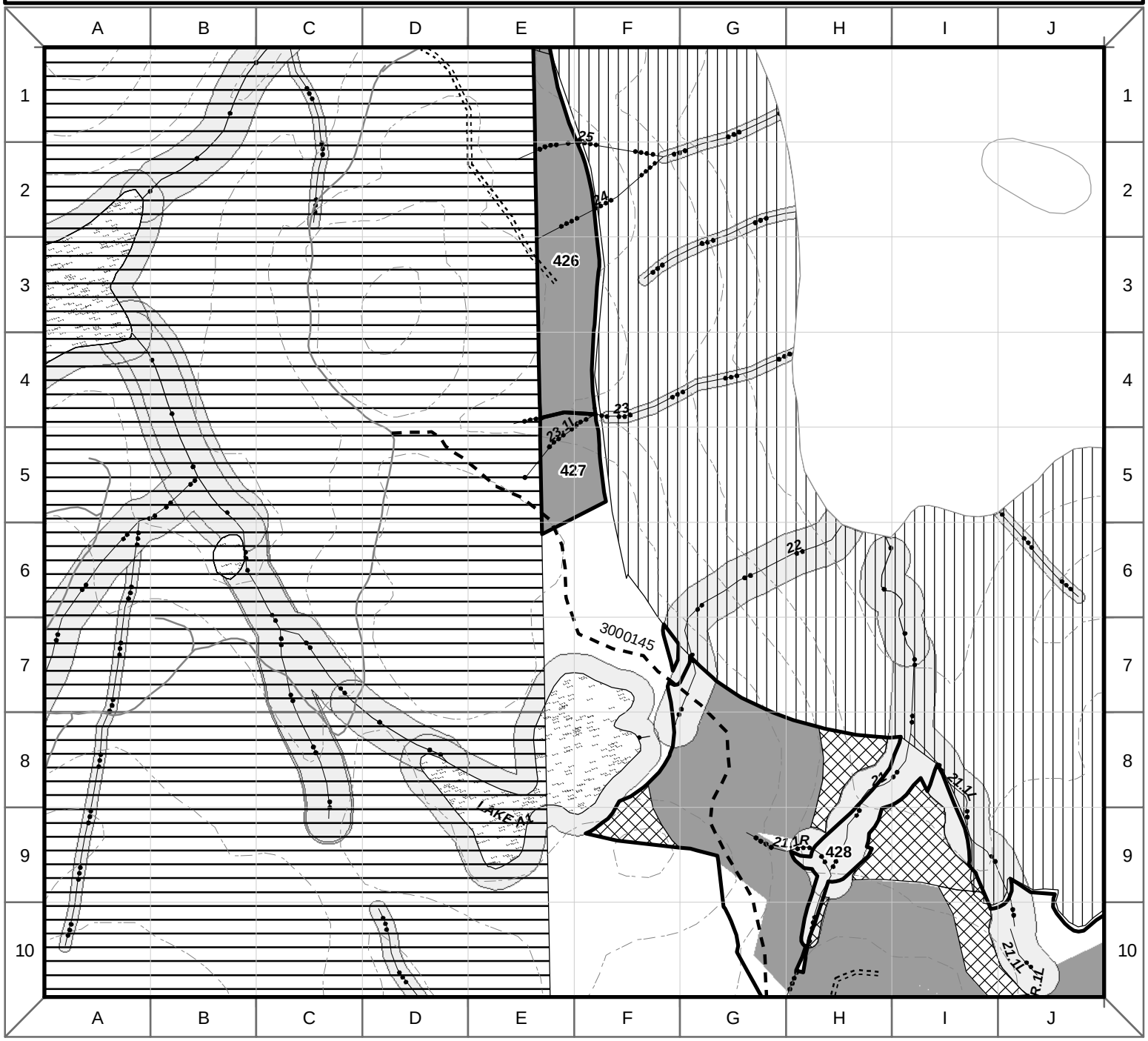
Slopes are about 15 to 25%. There are no slopes greater than 72% mapped in the unit. The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

No wetlands have been mapped in the unit

WILDLIFE:

Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range, and low elevation/high volume POG that is limited in the VCU. Unit is within 2008 Forest Plan OGR, which is modified under Alternative 3 (unit is adjacent to the new OGR to its east and south sides). Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 427 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit 428

Unit Number	428	Alternatives	3	Total Unit Acres:	59.0	Prescription:	Clearcut
VCU Number:	586	Harvest System:	Cable, Shovel	Net Harvest Volume (MBF):	1,454	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 428 is predominantly a western redcedar and western hemlock old growth stand. Alaska-cedar occurs in the stand on low productivity poorly drained areas. Sitka spruce are scattered. Alaska cedar decline is prominent where the species exists in the unit. Mistletoe was rated moderate, windthrow risk is high. Physical defects were rated low but stem decay was moderate. There are no adjacent past harvest areas.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of stem decay resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 27 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely, based on the original area of Unit 428 (90 acres). However, Units 428, 429, and 430 were originally connected as one 150-acre opening. Therefore, legacy is placed to satisfy the legacy requirements of the combined opening, which is 45 acres. For Unit 428, legacy was placed to block up POG, building off TTRA/RMA buffers to provide wider riparian corridors and RAW, to reduce visible opening sizes from saltwater use areas, and to avoid conflicts with logging systems and roads. Legacy along east and southeast sides was also placed to reduce road length. Legacy between units 428 and 430 is also designed to divide the opening created by these two units into two smaller openings. Total mapped legacy within this unit is approximately 31 acres, which contributes to 45 combined acres for the three adjacent units. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of shovel and cable yarding. Shovel settings are planned for yarding to the proposed NFS roads 3000145, 3000147, and proposed temporary roads. Cable settings are planned for uphill and downhill yarding to landings on the proposed NFS road 3000145 and proposed temporary roads.

Unit boundary is adjacent to new location for small OGR on the north.

ENGINEERING/ROADS:

Unit is accessed by proposed NFS roads 3000145 and 3000147, totaling 7900 feet. Proposed NFS road 3000145 is also used to access Units 427, 429, 430, and 431. See corresponding road card for detailed information. Unit is accessed by a proposed temporary road, totaling 700 feet, as displayed on the unit card. This unit will require hauling and road construction across state lands. Road design should be completed to minimize impacts on state lands.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Snug Anchorage.

Stream#: 22 Class: II Flagging: B/W C- Type: HCL
Concerns: blowdown present
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: 21 Class: II, III, IV Flagging: B/W, O/W, G/W C- Type: HCL, HCD, HCO
Concerns: blowdown present in Class IV section, fresh channel erosion, scour and bedload transport, debris piles, and loose mobile bank soils
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCD to the top of the side-slope break. Class IV HCO none.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A, B and C

Stream#: 21.1L Class: II Flagging: B/W C- Type: HCL
Concerns: none
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: 21.1R Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: 50.2R.1L Class: I, IV Flagging: B/W, G/W C- Type: HCO
Concerns: blowdown and bank erosion in Class I portion of stream.
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: Lake- A1 Class: I Flagging: B/W C- Type: L
Concerns: none
Buffer (RMA): Class I for Lake-A1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C-Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 428: Alternative 3 -- One Class IV stream crossing. The temporary roads have not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit has approximately 12 acres mapped as Moderate SIO and 47 acres mapped as Very Low SIO. The viewing area of concern is the saltwater use area to the north and east of unit. However, because of topographic and vegetative screening it is estimated that about 10 acres or less would be visible from any location, which is within the range of approximate opening sizes identified in the Forest Plan for Moderate SIO areas with Low VAC.

Unit 428

RECREATION:

No Concerns

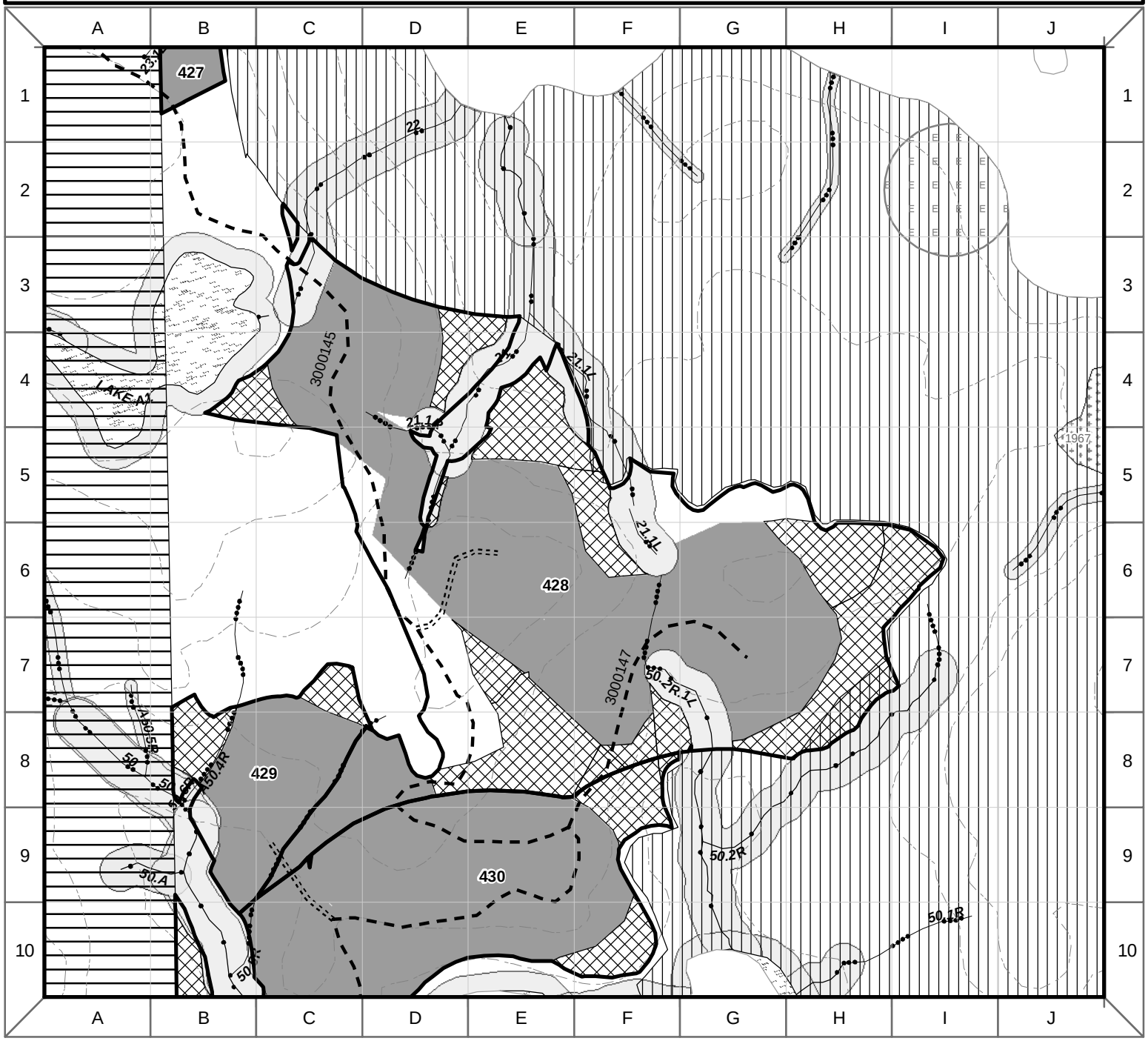
SOILS/WETLANDS:

Slopes are about level to about 50%. There are no slopes greater than 72% mapped in the unit. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting. No wetlands have been mapped in the unit

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (entire unit except northern edge), and low elevation/high volume POG that is limited in the VCU. Unit is within 2008 Forest Plan OGR, which is modified under Alternative 3 (unit is outside of but adjacent to the new OGR). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range and marten habitat.

Unit Number 428 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 429

Unit Number	429	Alternatives	3	Total Unit Acres:	10.9	Prescription:	Clearcut
VCU Number:	586	Harvest System:	Shovel	Net Harvest Volume (MBF):	302	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is old-growth timber made up mainly of western hemlock, western redcedar and scattered Sitka Spruce. Alaska-cedar occurs throughout the stand but is primarily found were drainage is restricted. Windthrow risk is moderate to high, with some blowdown evident both in the stand and at the stand edges. Topographic exposure to storm winds is high. State land is to the west. No past harvest areas are adjacent to this unit.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 6 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely, based on the original area of Unit 429 (14 acres). However, Units 428, 429, and 430 were originally connected as one 150-acre opening. Therefore, legacy is placed to satisfy the legacy requirements of the combined opening, which is 45 acres. For Unit 429, legacy was placed to block up POG and avoid conflicts with logging systems and roads. Total mapped legacy within this unit is approximately 3 acres, which contributes to 45 combined acres for the three adjacent units. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the proposed temporary road.

Unit is adjacent to state lands to the west, but separated by legacy.

ENGINEERING/ROADS:

Unit is accessed by proposed NFS road 3000145, totaling 7900 feet. This road is also used to access Units 427, 428, 430, and 431. See corresponding road card for detailed information. Unit is accessed by a proposed temporary road, totaling 500 feet, as displayed on the unit card. This road is also used to access Unit 428. This unit will require hauling and road construction across state lands. Road design should be completed to minimize impacts on state lands.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 429

Streams drain to Clarence Strait.

Stream#: 50 Class: I, II Flagging: B/W C- Type: MMS, HCD
Concerns: blowdown present
Buffer (RMA): Class I and II for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class I for HCD greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C-Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 429: Alternative 3 -- One Class IV stream crossing. The temporary roads have not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

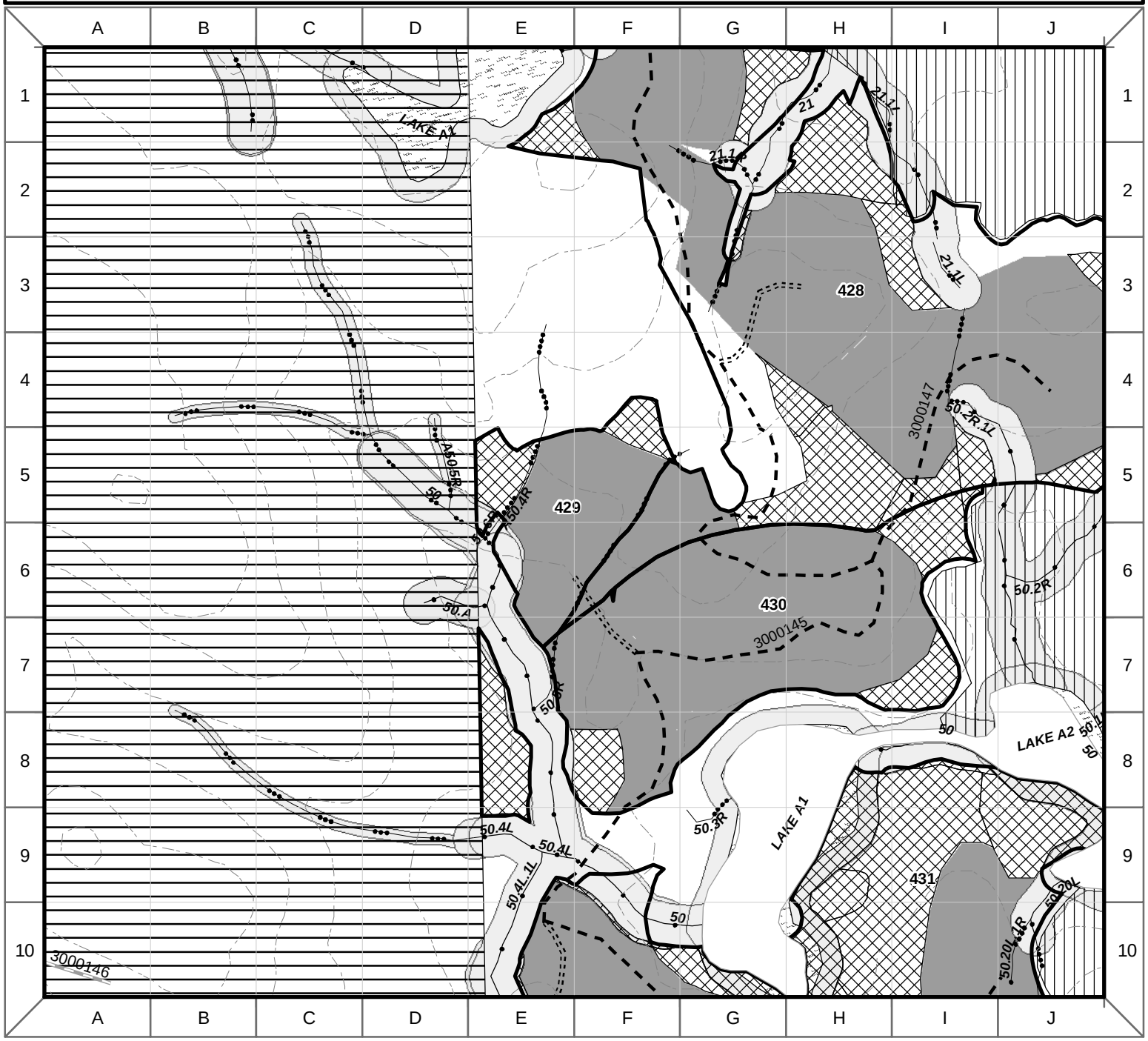
Slopes are about 10 to 40%. There are no slopes greater than 72% mapped in the unit. The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting. No wetlands have been mapped in the unit.

Based on GIS analysis, the proposed temporary road does not traverse any wetlands.

WILDLIFE:

Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range, and low elevation/high volume POG that is limited in the VCU. Unit is within 2008 Forest Plan OGR, which is modified under Alternative 3 (unit is outside of the new OGR, being separated only by Legacy). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range and marten habitat.

Unit Number 429 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit 430

Unit Number	430	Alternatives	3	Total Unit Acres:	35.7	Prescription:	Clearcut
VCU Number:	586	Harvest System:	Cable, Helicopter	Net Harvest Volume (MBF):	649	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 430 is predominantly a western redcedar and western hemlock old growth stand with scattered Sitka spruce and patches of Alaska-cedar. Mistletoe, defect and windthrow were all rated moderate. No past harvest areas are adjacent to this unit.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of stem decay resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 14 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely, based on the original area of Unit 430 (46 acres). However, Units 428, 429, and 430 were originally connected as one 150-acre opening. Therefore, legacy is placed to satisfy the legacy requirements of the combined opening, which is 45 acres. For Unit 430, legacy was placed to block up POG, build off TTRA/RMA buffers, and avoid conflicts with logging systems and roads. Legacy between units 428 and 430 is also designed to divide the opening created by these two units into two smaller openings. Total mapped legacy within this unit is approximately 10 acres, which contributes to 45 combined acres for the three adjacent units. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of helicopter and cable yarding. Helicopter settings are planned for yarding to landings on the proposed temporary road. Cable settings are planned for uphill yarding to landings on the proposed temporary road.

Unit is adjacent to a relocated OGR on east end and is iadjacent to state lands to the west, but is separated by legacy..

ENGINEERING/ROADS:

Unit is accessed by proposed NFS road 3000145, totaling 8,400 feet. This road is also used to access Units 427, 428, and 430. See corresponding road card for detailed information.This unit will require hauling and road construction across state lands. Road design should be completed to minimize impacts on state lands.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait. Lakes were thought to be saltwater in the Forest Plan, but were found to be freshwater during field verification; as a result, the beach buffer has changed.

Stream#: Lake- A2 Class: I Flagging: B/W C- Type: L
Concerns: none
Buffer (RMA): Class I for Lake-A2 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: Lake- A1 Class: I Flagging: B/W C- Type: L
Concerns: none
Buffer (RMA): Class I for Lake-A1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: 50 Class: I Flagging: B/W C- Type: PAB, PAS, MMS
Concerns: none
Buffer (RMA): Class I - greater of 100 feet (PAB and PAS) or 120 feet (MMS), flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C-Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 430: One Class IV stream crossing. The temporary roads have not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

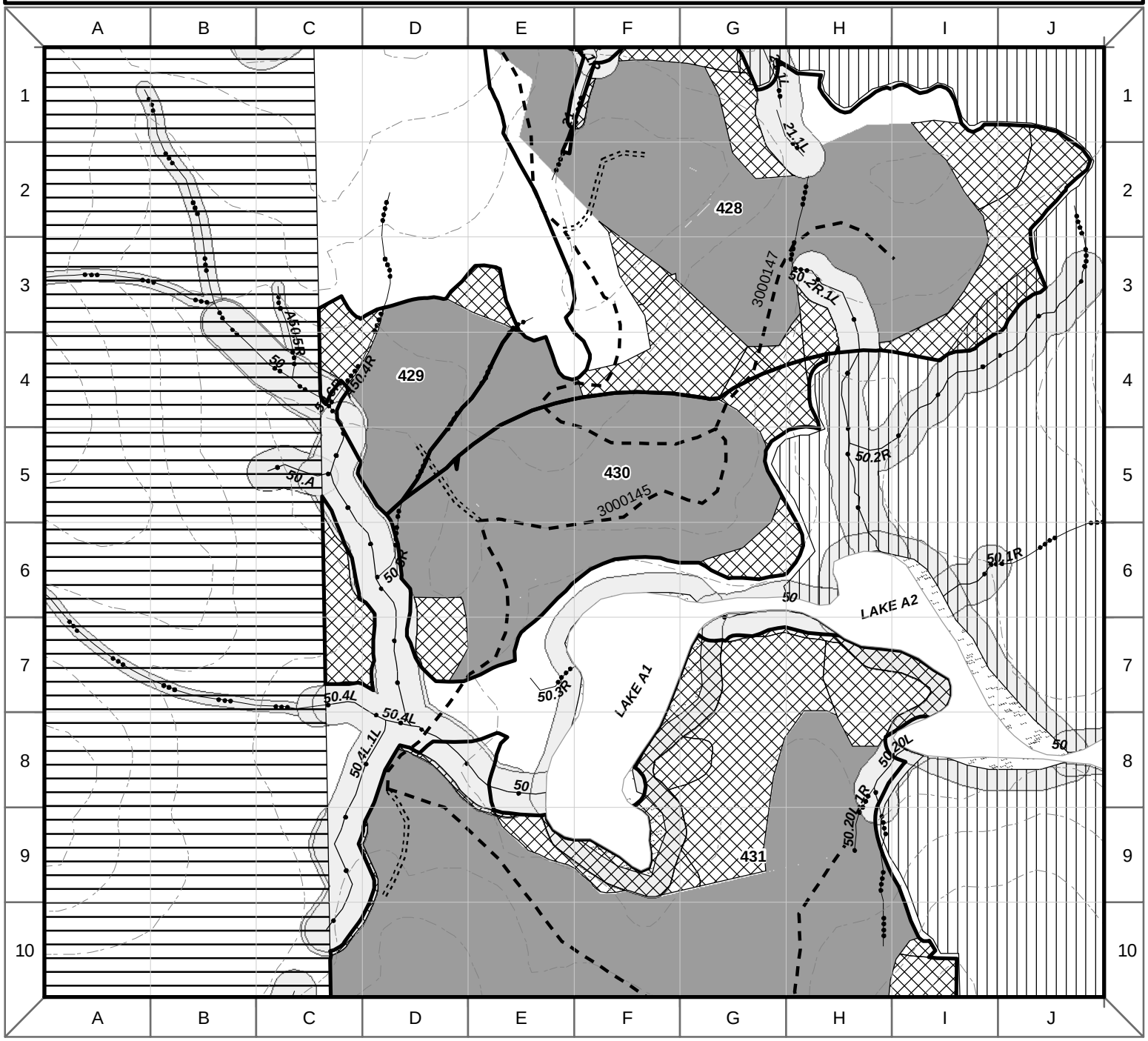
Slopes are about 10 to 40%. There are no slopes greater than 72% mapped in the unit. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). No wetlands have been mapped in the unit.

Based on GIS analysis, the proposed temporary road does not traverse any wetlands.

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (eastern portion of unit), and low elevation/high volume POG that is limited in the VCU. Unit is within 2008 Forest Plan OGR, which is modified under Alternative 3 (unit is outside of, but adjacent to OGR on east end). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range and marten habitat.

Unit Number 430 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit 431

Unit Number	431	Alternatives	3	Total Unit Acres:	67.7	Prescription:	Clearcut
VCU Number:	586	Harvest System:	Cable, Shovel	Net Harvest Volume (MBF):	1,330	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 431 is a lower elevation, mixed species old growth stand. Areas of the stand are trending toward two-age structure due to heavy decay and resulting breakage in the overstory hemlock. The over-story of the stand is a mix of western hemlock and redcedar with scattered Sitka spruce and patchy Alaska-cedar. Mistletoe is high, defects are high and wind risk was rated high as well. State land is along the southern boundary. There are no adjacent past harvest areas. .

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with high levels of stem decay resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 30 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to block up POG, to coincide with areas dropped for RMA and heritage concerns, to build off TTRA/RMA buffers on streams to the south and the lake on the NW to provide RAW, to avoid conflicts with logging systems and roads, to coincide with areas dropped for RMA and heritage concerns, and to reduce overall road lengths to the northeast and southeast. Total mapped legacy is approximately 31 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of cable and shovel yarding. Cable settings are planned for uphill and downhill yarding to the proposed NFS road 3000145 and the proposed temporary road. Shovel settings are planned for yarding to the proposed NFS road 3000145 and the proposed temporary road.

Unit is adjacent to state lands on the south and west and to the new OGR location to the east.

ENGINEERING/ROADS:

Unit is accessed by proposed NFS road 3000145, totaling 12,900 feet. This road is also used to access Units 427-430. See corresponding road card for detailed information. Unit is also accessed by a proposed temporary road, totaling 600 feet, as displayed on the unit card. This unit will require hauling and road construction across state lands. Road design should be completed to minimize impacts on state lands.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait.

Stream#: Lake- A2 Class: I Flagging: B/W C- Type: L
Concerns: none
Buffer (RMA): Class I for Lake-A2 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: Lake- A1 Class: I Flagging: B/W C- Type: L
Concerns: none
Buffer (RMA): Class I for Lake-A1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: 50 Class: I Flagging: B/W C- Type: PAS, MMS
Concerns: none
Buffer (RMA): Class I - greater of 100 feet (PAS) or 120 feet (MMS), flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: 50.4L.1L Class: I Flagging: B/W C- Type: HCO
Concerns: blowdown present
Buffer (RMA): Class I for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: 50.20L Class: I, IV Flagging: B/W, G/W C- Type: MMO, HCO
Concerns: blowdown present
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCO none
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance. The physical boundaries of this unit are not to be modified without input from a Forest Service Heritage specialist.

SCENERY:
No Concerns

RECREATION:
No Concerns

SOILS/WETLANDS:
Slopes are about 5 to 35%. There are no slopes greater than 72% mapped in the unit. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting. No wetlands have been mapped in the unit.

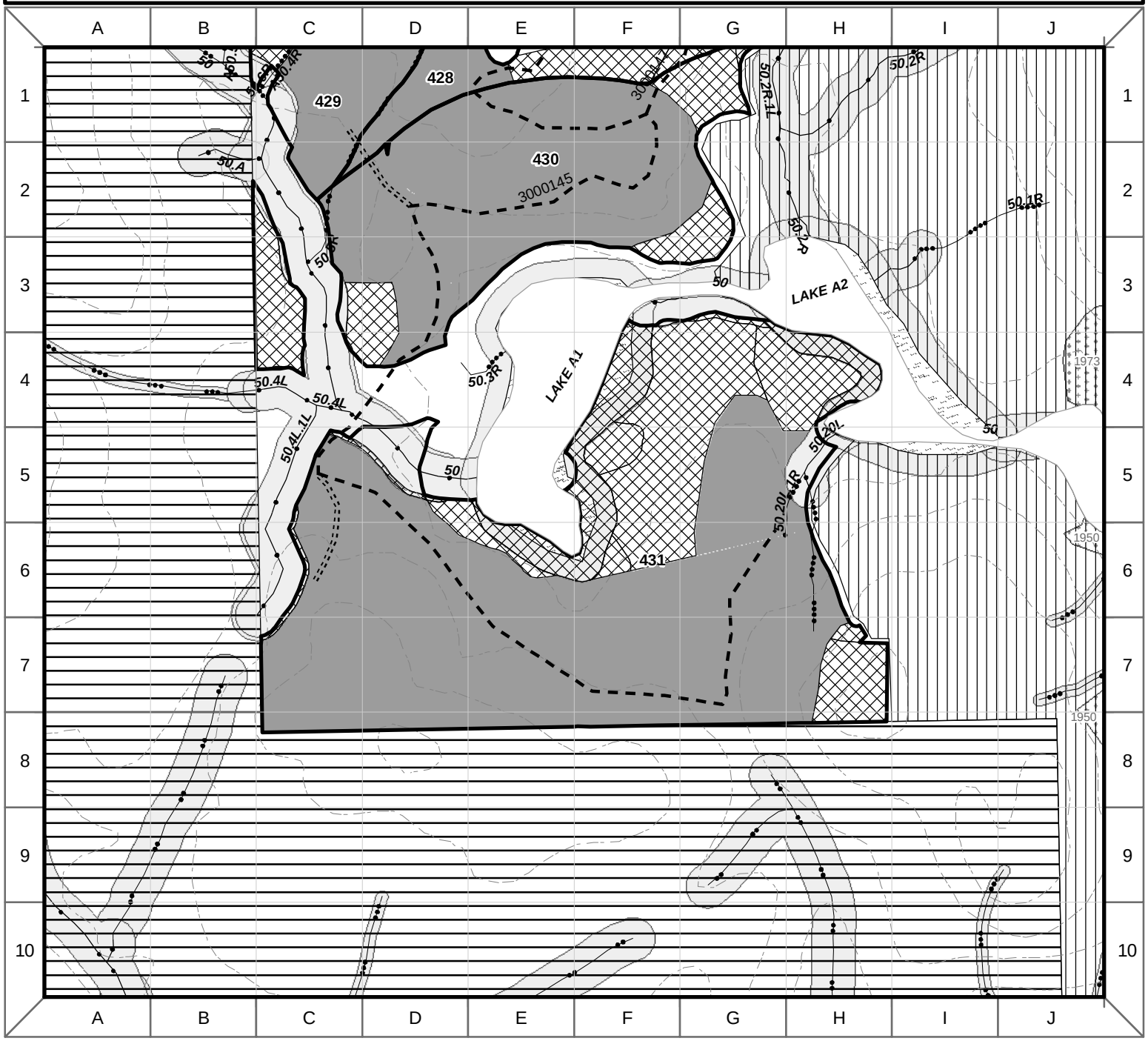
Based on GIS analysis, the proposed temporary road does not traverse any wetlands.

Unit 431

WILDLIFE:

Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range, and low elevation/high volume POG that is limited in the VCU. Unit is within 2008 Forest Plan OGR, which is modified under Alternative 3 (unit is outside of, but adjacent to OGR on east end). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range and marten habitat.

Unit Number 431 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit 433

Unit Number 433	Alternatives 3	Total Unit Acres: 2.1	Prescription: Clearcut
VCU Number: 586	Harvest System: Shovel	Net Harvest Volume (MBF): 33	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 433 is predominantly an over-mature, average defect western hemlock and western redcedar stand with scattered Sitka spruce. Old-growth stand structure dominates. Stem decay and broken tops were the most common damages observed. Mistletoe was rated light, defect and decay were moderate and windthrow hazard was moderate. State land is just to the west. There are no adjacent past harvest areas.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the proposed NFS road 3000144.

Unit is adjacent to state lands to the west and TTRA on the north and east and the OGR boundary to the south.

ENGINEERING/ROADS:

Unit is accessed by proposed NFS road 3000144, totaling 1300 feet. This road is also used to access Units 434 and 435. See corresponding road card for detailed information. This unit will require hauling and road construction across state lands. Road design should be completed to minimize impacts on state lands.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Snug Anchorage.

Stream#: 1.1L Class: I Flagging: B/W C- Type: HCL, MMS, MCS
Concerns: none
Buffer (RMA): Class I for HCL and MCS greater of 100 feet or the side-slope break. Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

Unit 433

SCENERY:

Unit is mapped as Very Low SIO. No Concerns

RECREATION:

No Concerns

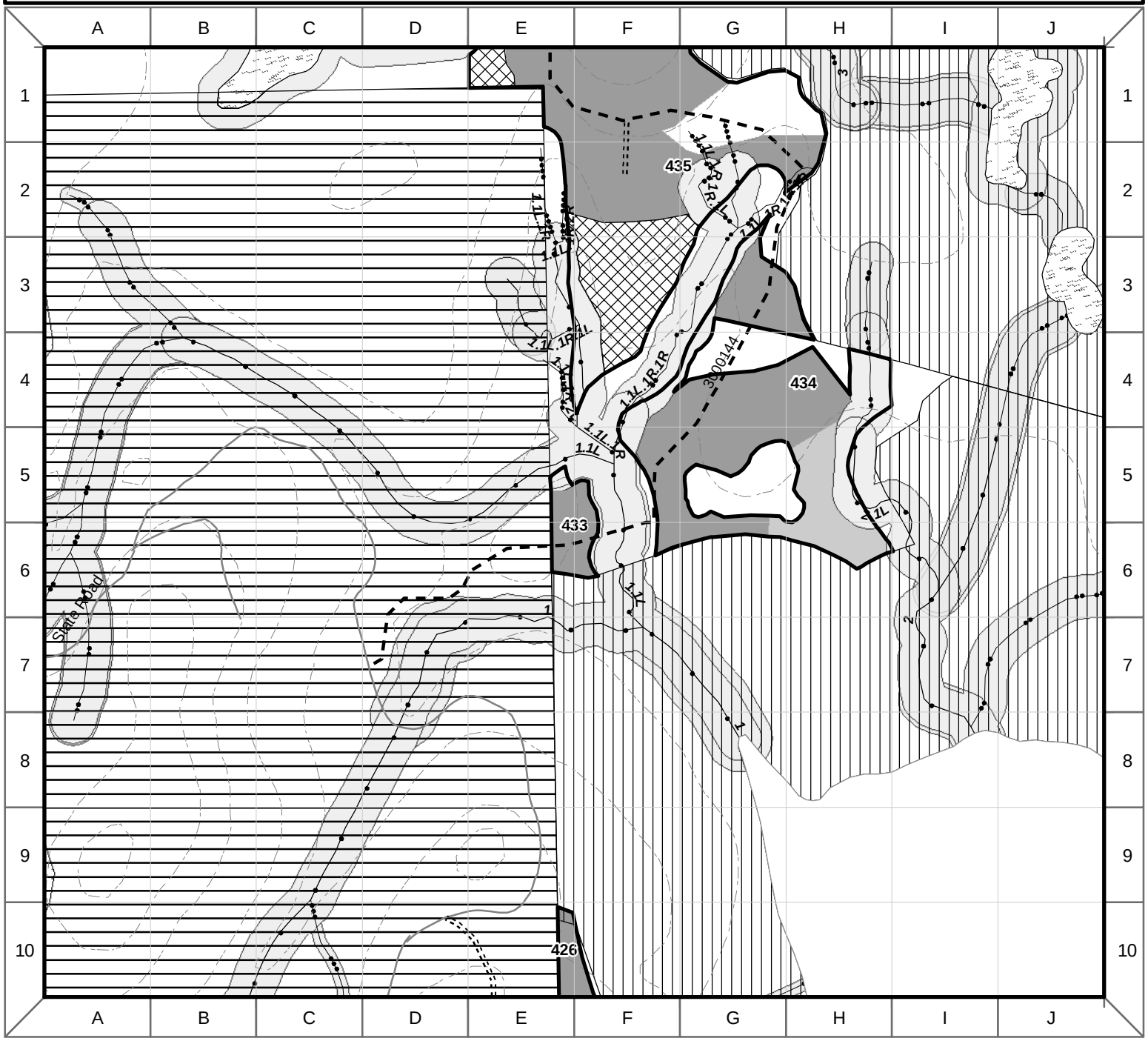
SOILS/WETLANDS:

Slopes are gentle throughout the unit. The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting. No wetlands have been mapped in the unit.

WILDLIFE:

Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Unit is within 2008 Forest Plan OGR, which is modified under Alternative 3 so that unit is outside of, but adjacent to OGR to the south . Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 433 | **Alternative 3** | **VCU: 586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit 434

Unit Number 434	Alternatives 3	Total Unit Acres: 18.5	Prescription: Clearcut
VCU Number: 585, 586	Harvest System: Shovel, Helicopter	Net Harvest Volume (MBF): 570	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is a western hemlock and western redcedar stand with old-growth structure. Sitka spruce and Alaska-cedar occur as lesser components. Minor windthrow, moderate defect, and patchy mistletoe were found in the stand. Mistletoe was noted as heavy in the southeastern corner of the unit. Little mistletoe was seen elsewhere. There are no adjacent past harvest areas.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in these VCU's; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for a combination of shovel and helicopter yarding. Shovel settings are planned for yarding to the proposed NFS road 3000144. Helicopter settings are planned for yarding to landings on the proposed NFS road 3000144.

Unit is adjacent to relocated OGR to the south and across buffer to the east.

ENGINEERING/ROADS:

Unit is accessed by proposed NFS road 3000144, totaling 2,400 feet. This road is also used to access Units 433 and 435. See corresponding road card for detailed information. This unit will require hauling and road construction across state lands. Road design would be completed to minimize impacts on state lands.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Snug Anchorage and Clarence Strait.

Stream#: 1.1L Class: I Flagging: B/W C- Type: HCL, MMS
Concerns: none
Buffer (RMA): Class I for HCL greater of 100 feet or to the top of the side-slope break. Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: 1.1L.1R Class: I Flagging: B/W C- Type: HCL
Concerns: none
Buffer (RMA): Class I for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Unit 434

Stream#: 1.1L.1R.1R Class: I, II Flagging: B/W C- Type: HCLw
Concerns: none
Buffer (RMA): Class I and II for HCLw greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: 1.1L.1R.1R.1R Class: II Flagging: B/W C- Type: HCLw
Concerns: none
Buffer (RMA): Class II for HCLw greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: 2 Class: I Flagging: B/W C- Type: HCL
Concerns: blowdown present
Buffer (RMA): Class I for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: 2.1L Class: I, II Flagging: B/W C- Type: MMO, HCO
Concerns: none
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

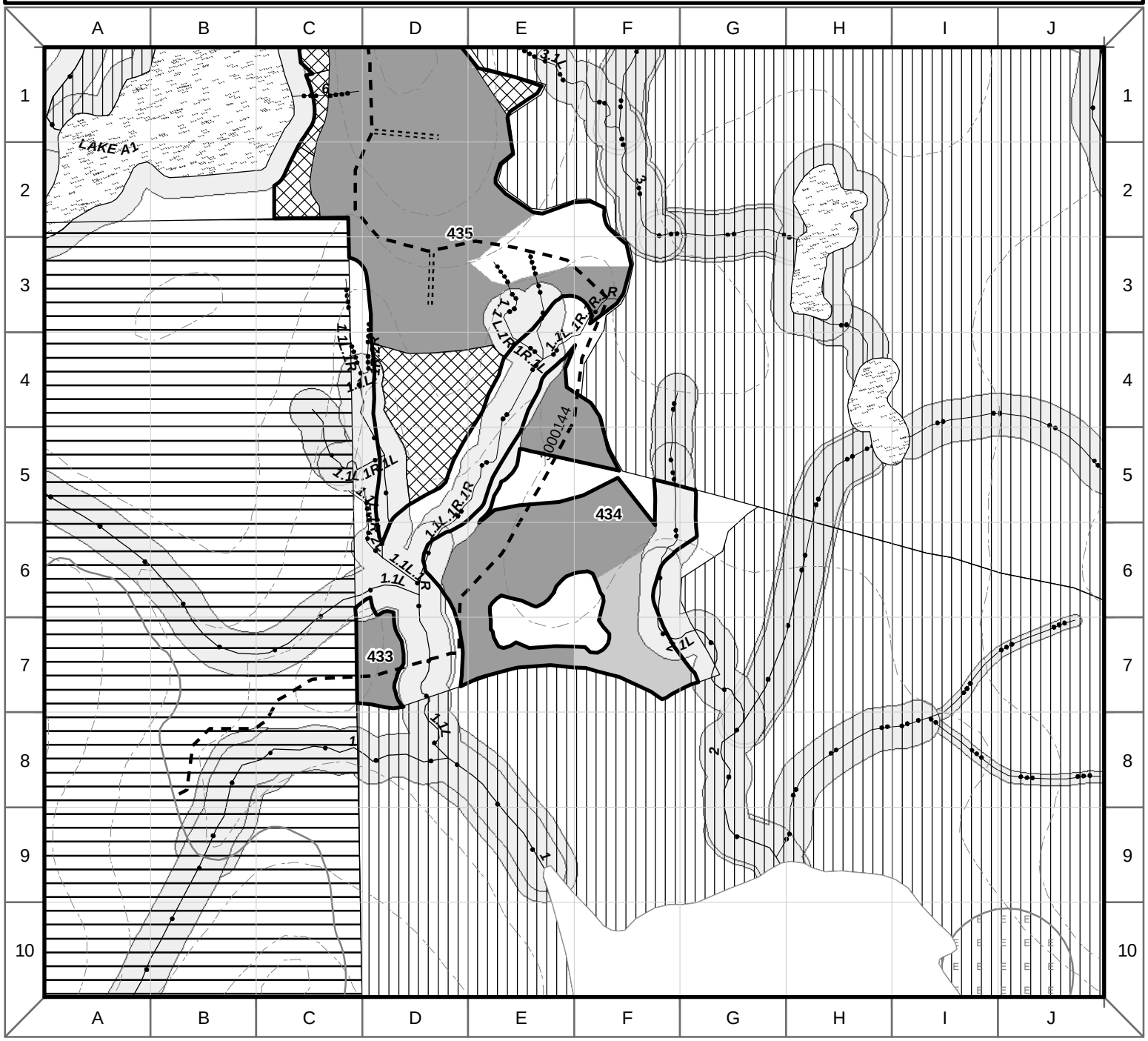
SCENERY:
Unit is mapped as Very Low SIO. No Concerns

RECREATION:
No Concerns

SOILS/WETLANDS:
Slopes are gentle throughout the unit. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting. No wetlands have been mapped in the unit

WILDLIFE:
Unit includes average snow deer winter range (entire unit). Unit is within 2008 Forest Plan OGR, which is modified under Alternative 3; unit is outside of, but adjacent to OGR to the south and across buffer to the east. Legacy standard and guideline applies in these VCUs, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 434 | **Alternative 3** | **VCU: 585,586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 435

Unit Number	435	Alternatives	3	Total Unit Acres:	32.2	Prescription:	Clearcut
VCU Number:	585	Harvest System:	Cable, Shovel	Net Harvest Volume (MBF):	578	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 435 is a mixed species stand of over-mature timber. Generally old-growth stand structure dominates, however areas with heavy past wind damage in upper elevations have a two-age structure. Patchy, moderate windthrow, some very recent was evident in the upper elevations. Moderate defect and patchy moderate to heavy mistletoe was found in the stand. The over-story of the stand is mainly western hemlock, western redcedar with Sitka spruce and Alaska-cedar present as lesser components. State land with extensive past harvest is to the west.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 14 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to block up POG, building off TTRA/RMA buffers on streams and lakes to provide RAW and wider corridors, to reduce overall road lengths, and to avoid conflicts with logging systems and roads. Total mapped legacy is approximately 14 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of shovel and cable yarding. Shovel settings are planned for yarding to the proposed NFS road 3000144, and proposed temporary roads. Cable settings are planned for yarding to landings on the proposed NFS road 3000144.

Unit is adjacent to state lands on the southwest and to the relocated OGR boundary on the north and east.

ENGINEERING/ROADS:

Unit is accessed by proposed NFS road 3000144, totaling 6,000 feet. This road is also used to access Units 433 and 434. See corresponding road card for detailed information. This unit is also accessed by two proposed temporary road, totaling 600 feet, as displayed on the unit card. This unit will require hauling and road construction across state lands. Road design should be completed to minimize impacts on state lands.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Snug Anchorage and Clarence Strait.

Stream#: 1.1L.1R Class: II, IV Flagging: B/W, G/W C- Type: HCLw, HCO
Concerns: none
Buffer (RMA): Class II for HCLw greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: 1.1L.1R.1R Class: II, IV Flagging: B/W, G/W C- Type: HCL, HCO
Concerns: none
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: 1.1L.1R.1R.1R Class: II Flagging: B/W C- Type: HCL
Concerns: none
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: 1.1L.1R.1R.1L Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or ot the top of the the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: 3 Class: II Flagging: B/W C- Type: MMS
Concerns: none
Buffer (RMA): Class II for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: 3.1L Class: II Flagging: B/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: Lake- A1 Class: I Flagging: B/W C- Type: L
Concerns: none
Buffer (RMA): Class I for Lake-A1 greater of 100 horizontal feet or to the extent of flood plain, riparian vegetation or soils, riparian associated wetland fens, or height of one site potential tree.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
Unit is mapped as Very Low SIO. No Concerns

RECREATION:
No Concerns

Unit 435

SOILS/WETLANDS:

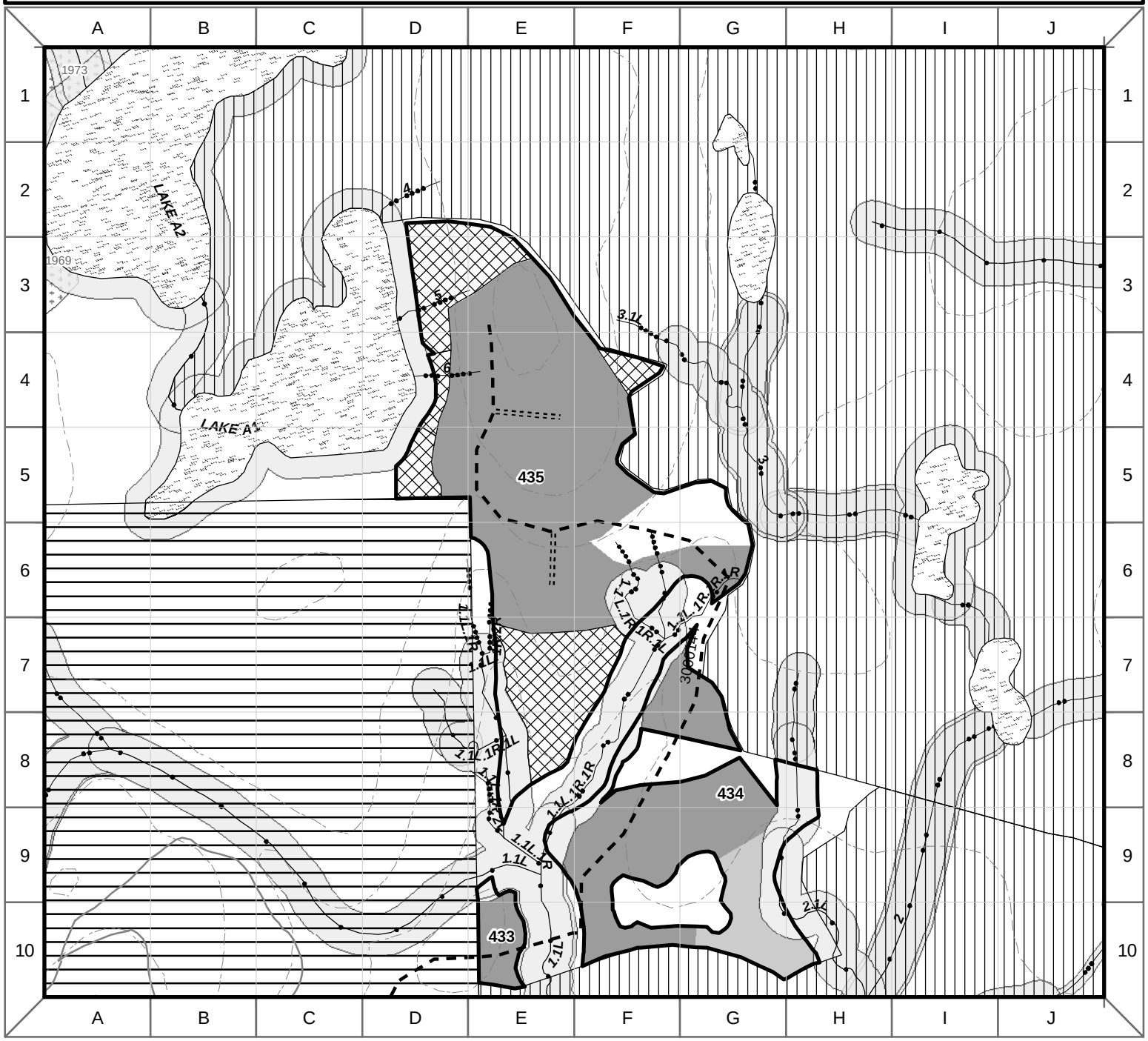
Slopes range from nearly level to about 20%. There are no slopes greater than 72% mapped in the unit. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting. No wetlands have been mapped in the unit.

Based on GIS analysis, the proposed temporary road does not traverse any wetlands.

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (western half of unit), and low elevation/high volume POG that is limited in the VCU. Unit is within 2008 Forest Plan OGR, which is modified under Alternative 3; unit is outside of but adjacent to the OGR. Legacy standard and guideline applies in this VCU; positioning of legacy acres covers some deer winter range and marten habitat.

Unit Number 435 | **Alternative 3** | **VCU: 585,586**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
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0 500
Feet

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Unit 438

Unit Number	438	Alternatives	3	Total Unit Acres:	55.7	Prescription:	Clearcut
VCU Number:	585	Harvest System:	Cable, Shovel	Net Harvest Volume (MBF):	861	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 438 is a mixed species stand with a mosaic of uneven-age and old growth stand structure. Moderate to high windthrow, moderate to light defect and a moderate to high occurrence of mistletoe was found. Volume Class 5-6 timber occurs throughout the unit with areas of non-merchantable timber in recent windthrow patches. The overstory of the stand is mainly Western Hemlock, Western redcedar and Sitka spruce. The average overstory tree class rating is unacceptable except in areas of older even-age structure where the average tree class was acceptable. The primary damage in the overstory is stem decay.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 26 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to block up POG and screen the majority of unit from NFS road 3000000 and Clarence Strait; legacy also widens buffer above road along Salamander Creek. Legacy was also used to help divide unit into four separate openings. Total mapped legacy is approximately 33 acres; the excess acreage above the minimum required is added to address visual concerns. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of shovel and cable yarding. Cable settings are planned for uphill yarding to landings on the southern two proposed temporary roads. Shovel settings are planned for yarding to the northernmost proposed temporary road and existing NFS roads 3000000 and 3000153. Some shovel yarding through one visual buffer along road 3000000 will be necessary. Corridors through the visual buffer will be used to minimize impacts.

ENGINEERING/ROADS:

Unit is accessed by three proposed temporary roads, totaling 3,500 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A1L Class: I, II Flagging: B/W C- Type: MMS, HCV
Concerns: none known
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCV greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Temporary roads for Unit 438: Alternative 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be

approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is primarily in Moderate SIO, with a small amount of Very Low in the north. Legacy areas have been placed to screen or reduce visibility from the 3000000 Road and saltwater use areas. Acreage in legacy is greater than the minimum because of visual concerns. Legacy was also used to help divide unit into four separate openings. Typical opening sizes identified by the Forest Plan for Moderate SIO areas with Intermediate VAC are 15 to 40 acres. Because of the separate openings that are spread north to south over 1 mile and topographic and vegetative screening, no more than about 10 to 15 acres of each opening are visible and, generally,about two openings can be seen at a time.

RECREATION:

No Concerns

SOILS/WETLANDS:

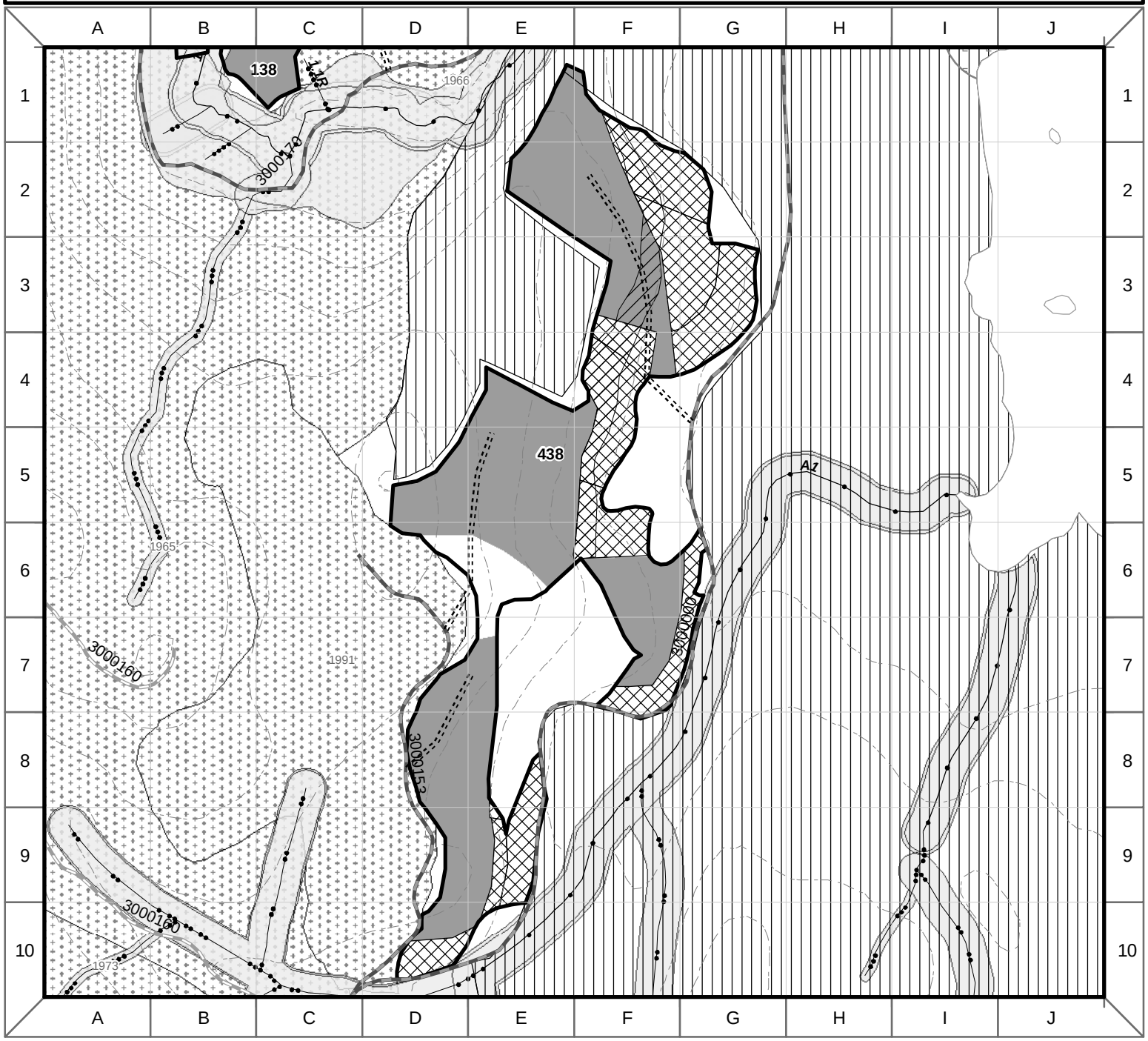
Slopes range from about 15% to greater than 72%, with most slopes around 40%. There are about 2 acres of slopes greater than 72% mapped in the unit that are suitable for harvest with partial suspension requirements. There is an area about 2 acres in size where full suspension is required; this area is immediately west of the proposed temporary road in the center of the unit, north of the deferral area. Approximately 3/4 of the unit is covered by forested wetland (most of unit except for northwest portion) (BMP 12.5). Outside of the identified areas, the soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

A temporary road will impact 2 acres of forested wetland within the unit, about 1 acre of forested wetland outside the unit, and about 1/4 acre of moss muskeg outside the unit. Wetland avoidance was not practicable due to the location of existing roads, topography, and the extent of wetlands in the area (BMP 12.5, 13.2). Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (western lobe of unit), and low elevation/high volume POG that is limited in the VCU. Unit is within 2008 Forest Plan OGR, which was modified under Alternative 3; unit is adjacent to, but outside of OGR (it is separated by legacy at many other locations). Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range and marten habitat.

Unit Number 438 | **Alternative 3** | **VCU: 585**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit 439

Unit Number 439	Alternatives 3	Total Unit Acres: 36.3	Prescription: Clearcut
VCU Number: 580	Harvest System: Helicopter	Net Harvest Volume (MBF): 694	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is comprised of five separate polygons each with productive western hemlock, western redcedar along with some scattered Sitka spruce and Alaska-cedar. The areas have old-growth stand structure. Windthrow risk is moderate across the stands with only minor indications of past windthrow. Mistletoe occurrence is heavy in the south and eastern polygons but low to moderate in the two northwestern polygons. Overall defect is high with primary defects being stem decay and weather damage as well as some stem form defect. There are no adjacent past harvest areas.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
These stands are being recommended for harvest at this time because they are not expected to obtain the desired condition given the current growth trajectory. The stands are mature with high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

A Tongass Wide Young Growth Study site (POW Thorne River #3) is along the 3015000 road to the northeast of the unit and may coincide with potential helicopter landing zones. Protection of this site is required. Contact the Forestry Sciences Lab in Juneau for additional information.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS roads 3015000 and 3016015.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

Unit indirectly affects an Alaska rein orchid (sensitive plant) population (8 individuals), located in the northern corner of the northern polygon. This 0.05-ac corner of unit was dropped to totally avoid direct effects to population, with only an insignificant affect on the unit size. A western meadowrue (rare plant) population occurs about 30 ft west of the northen polygon boundary and could be indirectly affected.

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River (Stream characteristics do not include project-specific, field-verified, information).

Stream#: 1 Class: I Flagging: B/W C- Type: FPL
Concerns: none known
Buffer (RMA): Class I for FPL greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: A1 Class: I Flagging: B/W C- Type: FPL
Concerns: none known
Buffer (RMA): Class I for FPL greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): no review needed

Protection: Category A

Stream#: A1.2L Class: I Flagging: B/W C- Type: PAB
Concerns: none known
Buffer (RMA): Class I for PAB greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: A1.1L Class: I Flagging: B/W C- Type: PAS
Concerns: none known
Buffer (RMA): Class I for PAS greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: A1.1L.1R Class: I, III Flagging: B/W, O/W C- Type: PAS, PAB
Concerns: none known
Buffer (RMA): Class I for PAS greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for PAB consider no or limited harvest areas.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and B

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

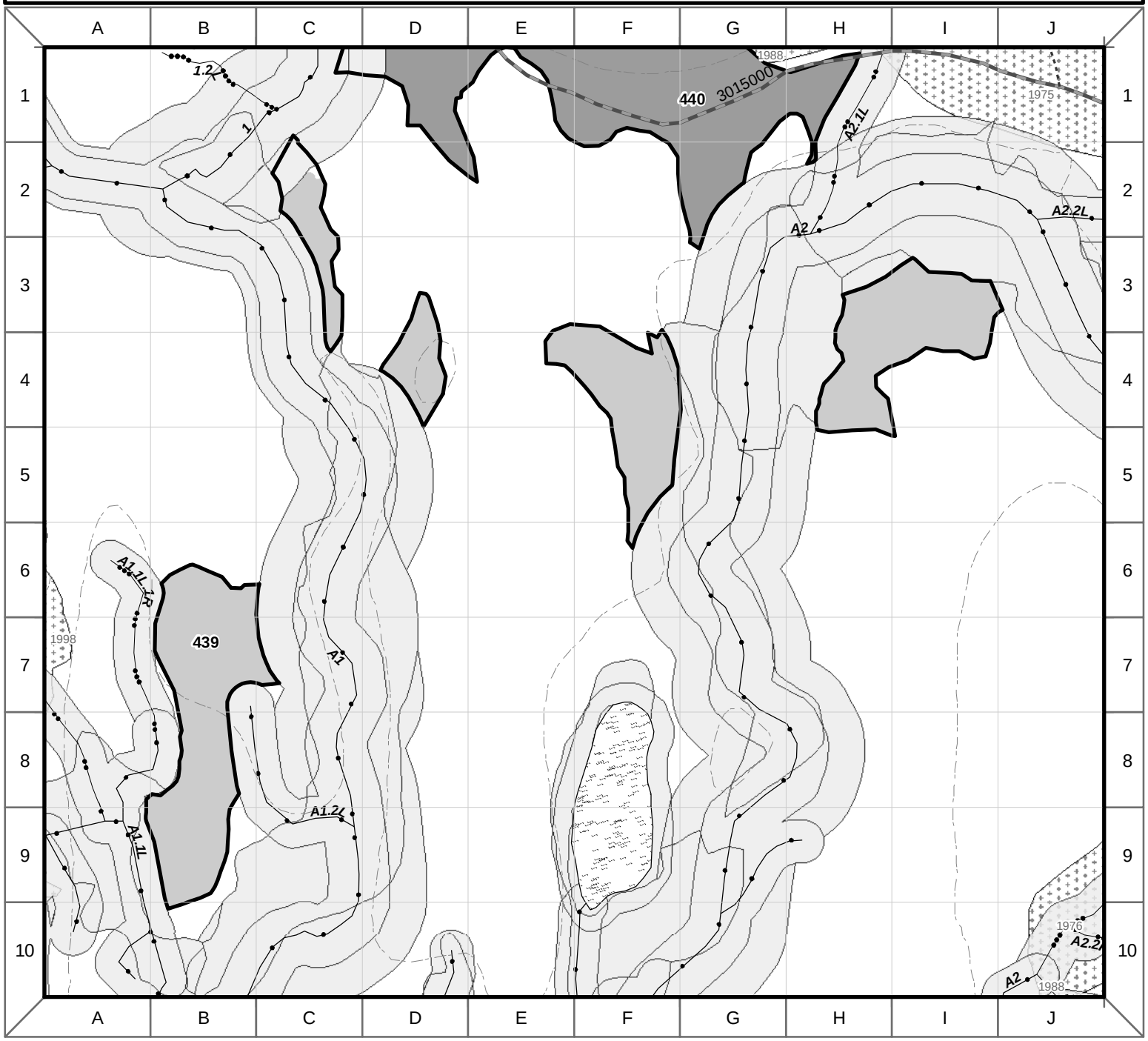
SCENERY:
No Concerns

RECREATION:
No Concerns

SOILS/WETLANDS:
Slopes are gentle throughout the unit. Approximately 2/3 of unit is forested wetland (mostly in northern polygons). A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

WILDLIFE:
Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (west/central setting). Unit within the 2008 Forest Plan OGR, which was modified under Alternative 3, and is located in an area that connects the Honker large OGR with the beach fringe near Sal Creek. Legacy standard and guideline does not apply in this VCU.

Unit Number 439 | **Alternative 3** | **VCU: 580**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 440

Unit Number	440	Alternatives	3	Total Unit Acres:	78.4	Prescription:	Clearcut
VCU Number:	580	Harvest System:	Cable, Shovel, Helicopter	Net Harvest Volume (MBF):	1,902	LUD:	Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 440 is a western hemlock and western redcedar stand that changes to near pure western hemlock in the far southwestern point of the unit. Old-growth stand structure dominates the area. Minor windthrow, moderate defect, and a high incidence of mistletoe define the stand. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

A Tongass Wide Young Growth Study site (POW Thorne River #3) is along the southeast boundary. Protection of this site is required. Contact the Forestry Sciences Lab in Juneau for additional information.

TIMBER/LOGGING:

This unit is planned for a combination of cable, helicopter, and shovel yarding. This unit includes two separate polygons. The western polygon is mostly shovel, but includes some cable yarding. The northeast polygon includes shovel, cable, and helicopter. Shovel settings are planned for yarding to the existing NFS road 3015000 and the proposed temporary road. Cable settings are planned for downhill yarding to landings on the existing NFS road 3015000 and the proposed temporary road. Helicopter settings are planned for yarding to landings on the existing NFS road 3015000.

Northeast polygon shares its long western border with the modified OGR boundary.

ENGINEERING/ROADS:

The northeast polygon of this unit is accessed by a proposed temporary road, totaling 1,800 feet, as displayed on the unit card. Approximately 800 feet of this road will be constructed across decomissioned road bed. This road is also used to access Units 443 and 444.

BOTANY:

One lesser round-leaved orchid (sensitive species) population entirely inside southwestern portion of unit. Only one plant identified in population; founnd in a small patch of blowdown and likelihood of persistence may be low regardles of harvest activities.

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 440

Streams are tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: 1 Class: I Flagging: B/W C- Type: FPL
Concerns: none known
Buffer (RMA): Class I for FPL greater of 130 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: A2.1L Class: II, III Flagging: B/W, O/W C- Type: HCL, HCM
Concerns: none known
Buffer (RMA): . Class II for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: A2.2L Class: I, III Flagging: B/W, O/W C- Type: AMF, HCD
Concerns: none known
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and B

Temporary roads (new and reopened decommissioned) for Unit 440: One Class I stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. Crossing structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). The Class I crossing will be designed to provide fish passage, using a log culvert or bridge, will be installed under current timing constrictions and concurrence from the State will be solicited prior to starting the work. During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

Slopes are about 15 to 22%. There are no slopes greater than 72% mapped in the unit. About 1 acre was excluded due to very high landslide potential, active and historic landslides, colluvial activity, steep wet slopes, and unstable drainages. More than 90% of unit is forested wetland (BMP 12.5). In the remainder of the unit, the soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

A temporary road will impact about 1 acre of forested wetland within the unit and 1/2 acre of forested wetland outside of the unit. The road outside the unit will also be used for access to units 443 and 444. Wetland avoidance was not practicable due to the extent of wetlands in the area (BMP 12.5, 13.2). Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Unit is within the 2008 Forest Plan OGR, which was moved under Alternative 3, and is located in an area that connects the Honker large OGR with saltwater near Sal Creek. Legacy standard and guideline does not apply in this VCU.

Unit Number 440 | **Alternative 3** | **VCU: 580**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 441

Unit Number 441	Alternatives 3	Total Unit Acres: 4.7	Prescription: Clearcut
VCU Number: 580	Harvest System: Shovel	Net Harvest Volume (MBF): 57	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 441 is predominantly a poorly stocked, over-mature, high defect western hemlock and western redcedar stand. Old-growth stand structure dominates. The over-story of the stand is mainly redcedar and western hemlock with Sitka spruce and Alaska-cedar present as lesser components. Alaska-cedar occurs primarily in the lower productivity areas that split the unit. Mistletoe and windthrow were rated low. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

A Tongass Wide Young Growth Study site (POW Thorne River #3) is along the south, east and west boundary. Protection of this site is required. Contact the Forestry Sciences Lab in Juneau for additional information.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the proposed temporary road. The unit consists of two polygons separated by a strip of non-merchantable timber. Yarding will occur through corridors in the non-merchantable timber to access the proposed temporary road from the eastern setting.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road, totaling 400 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A2.2L Class: I Flagging: B/W C- Type: AMF
Concerns: none known
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Temporary roads (new and reopened decommissioned) for Unit 441: Alternative 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

Unit 441

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

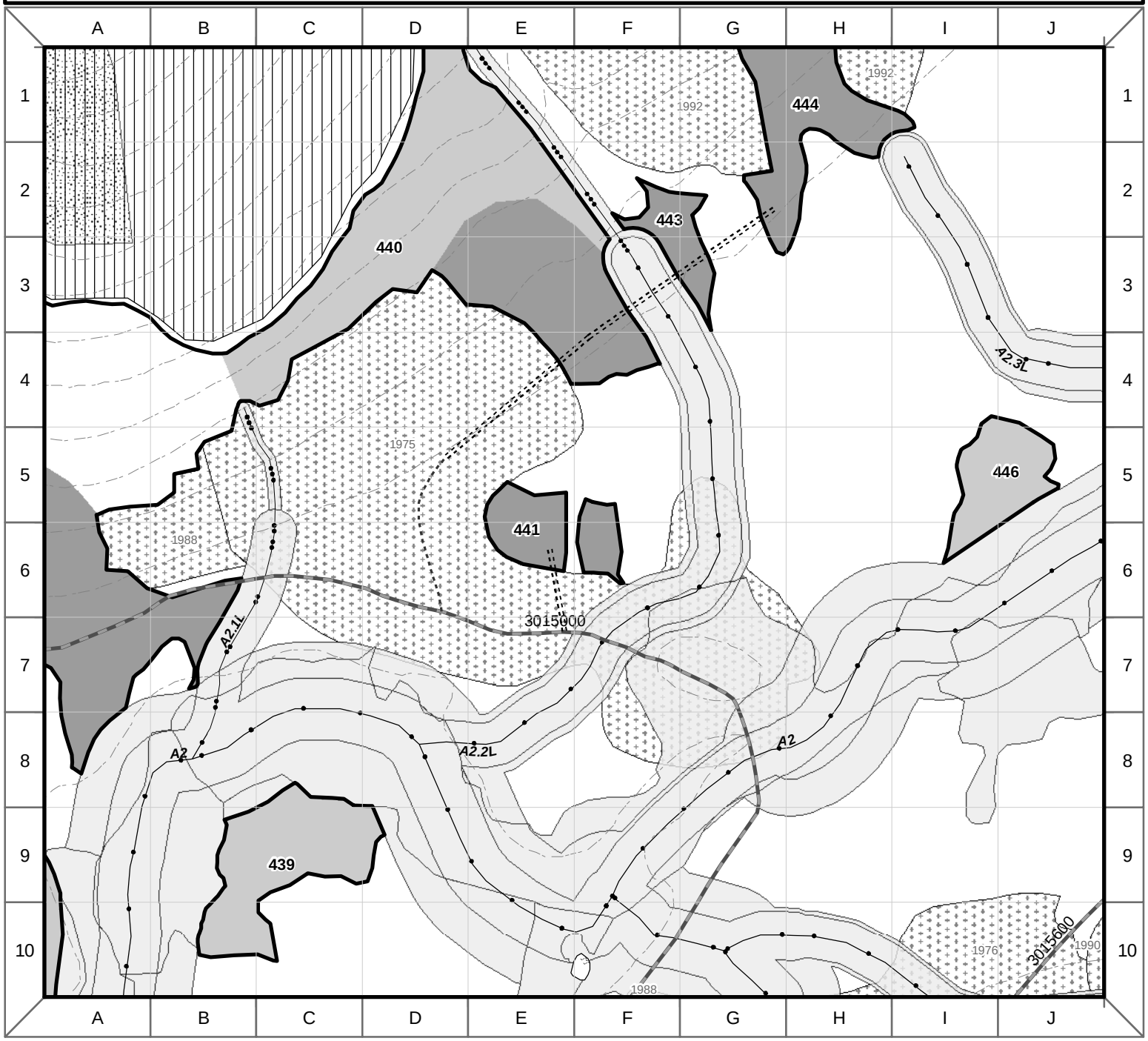
Slopes are gentle throughout the unit. The entire unit is forested wetland (BMP 12.5). The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

A temporary road will impact approximately 1/2 acre of forested wetland within the unit and about 1/4 acre of forested wetland outside the unit. Wetland avoidance was not practicable due to the extent of wetlands in the area (BMP 12.5, 13.2). Sufficient cross drainage must be provided for temporary roads. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Unit within the 2008 Forest Plan OGR, which was modified under Alternative 3, and is located in an area that connects the Honker large OGR with saltwater near Sal Creek. Legacy standard and guideline does not apply in this VCU.

Unit Number 441 | **Alternative 3** | **VCU: 580**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit 443

Unit Number 443	Alternatives 3	Total Unit Acres: 2.9	Prescription: Clearcut
VCU Number: 580	Harvest System: Shovel	Net Harvest Volume (MBF): 76	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 443 is a western hemlock and western redcedar stand with old growth structure. Alaska-cedar is present in the southern half of the unit. Low to moderate windthrow, moderate to high defect and a low to moderate occurrence of mistletoe was found. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for shovel yarding to the proposed temporary road.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road, totaling 2400 feet, as displayed on the unit card. Approximately 800 feet of this road will be constructed across decommissioned road bed. This road is also used to access Units 440 and 444.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A2.2L Class: I, III Flagging: B/W, O/W C- Type: AMF, HCD
Concerns: none known
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan. Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A and B

Temporary roads (new and reopened decommissioned) for Unit 443: Alternative 3 -- One Class I stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. Unkown fish species occur near the proposed Class I crossing. Crossing structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). The Class I crossing will be designed to provide fish passage, using a log culvert or bridge, will be installed under current timing constrictions and concurrence from the State will be solicited prior to starting the work. During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5. Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Upon completion of unit harvest, decommission road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Ensure natural drainage across road is restored beyond fish stream crossing prior to temporary structure removal (BMP 14.20). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST:

Unit 443

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns

SOILS/WETLANDS:

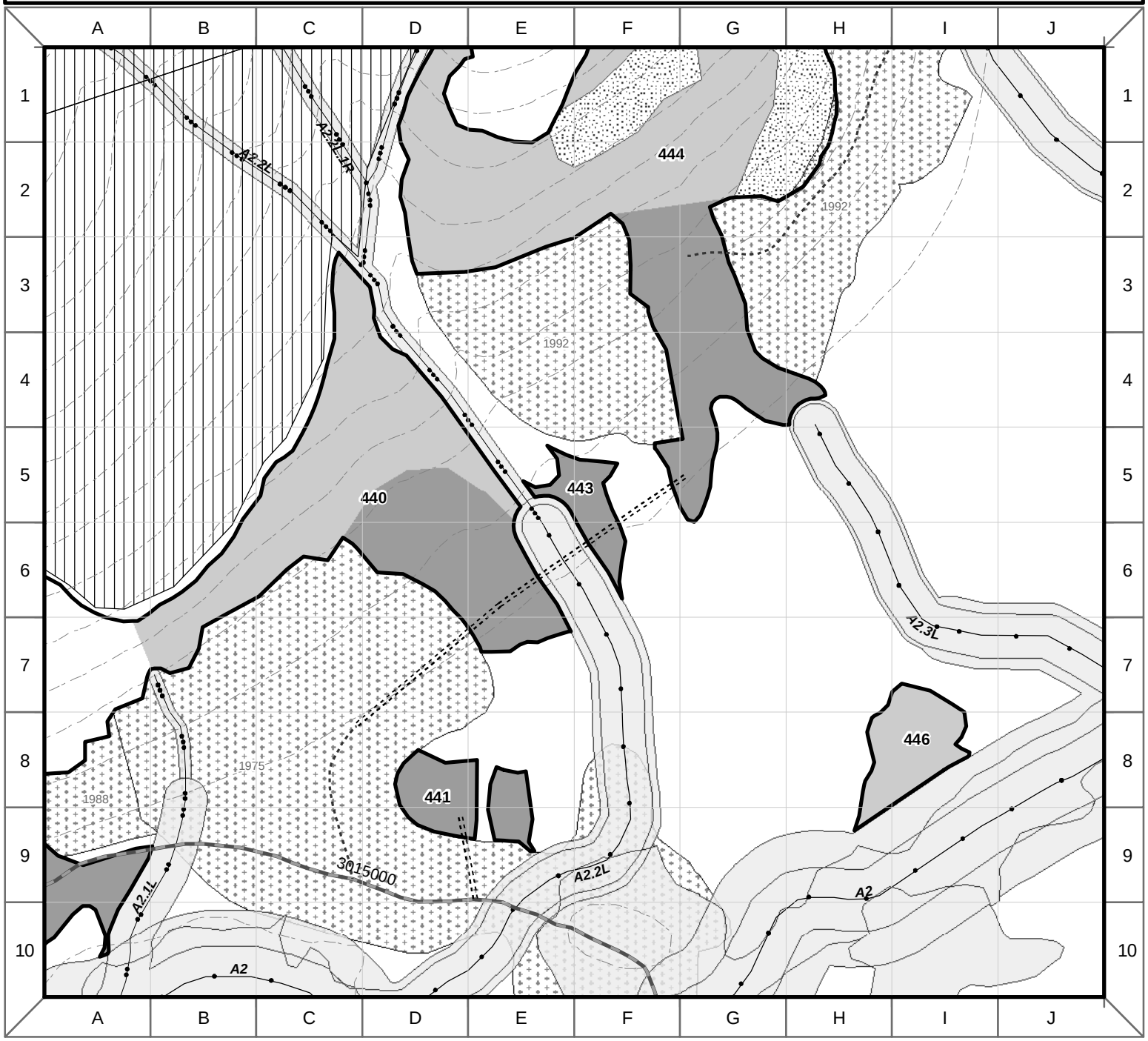
Slopes are gentle throughout the unit. The entire unit is forested wetland (BMP 12.5). The soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

A temporary road will impact about 3/4 acre of forested wetland within the unit and about 1/2 acre of forested wetland outside of the unit. The road outside the unit will also be used for access to units 440 and 444. Wetland avoidance was not practicable due to the extent of wetlands in the area (BMP 12.5, 13.2). Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Unit is within the 2008 Forest Plan OGR, which was modified under Alternative 3, and is located in an area that connects the Honker large OGR with saltwater near Sal Creek. 2011 Interagency Review Team felt this area would still provide functional connectivity due to the nature of the land. Legacy standard and guideline does not apply in this VCU.

Unit Number 443 | **Alternative 3** | **VCU: 580**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 444

Unit Number 444	Alternatives 3	Total Unit Acres: 48.7	Prescription: Clearcut
VCU Number: 580	Harvest System: Cable, Shovel,	Net Harvest Volume (MBF): 1,659	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 444 is an old-growth stand comprised of a mixture of western hemlock, western redcedar and Alaska-cedar, with a few Sitka spruce in the lowest elevations. Windthrow risk is low in the lower elevations and high in the upper elevations of the stand with evidence of past windthrow being common there. Topographic exposure to storm winds is high in the upper elevations. Mistletoe was low in the upper elevations and moderate in the lower elevations. The primary defect in the overstory is stem decay, but in the upper elevations wind damage is also prevalent. Considerable Alaska-cedar decline has occurred in the lower elevations. Most Alaska-cedar are dead. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

A Tongass Wide Young Growth Study site (POW Thorne River #3) is along the 3015000 road to the southwest of the unit. Protection of this site is required. Contact the Forestry Sciences Lab in Juneau for additional information.

TIMBER/LOGGING:

This unit is planned for a combination of shovel, cable, and helicopter yarding. Shovel settings are planned for yarding to the south proposed temporary road. Cable settings are planned for uphill and downhill yarding to landings on the north proposed temporary road. Helicopter settings are planned for yarding to landings on the north proposed temporary road.

ENGINEERING/ROADS:

Unit is accessed by two proposed temporary roads, totaling 5,300 feet, as displayed on the unit card. Approximately 3,200 feet of this road will be constructed across decommissioned road bed. The south proposed temporary road is also used to access units 440 and 443. This unit is also accessed by reconstruction of existing NFS road 3015640, totaling 6,800 feet. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A2.2L Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

Stream#: A2.3L Class: I Flagging: B/W C- Type: MMS
Concerns: none known
Buffer (RMA): Class I for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.

Unit 444

Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Temporary roads (new and reopened decommissioned) and for Unit 444: Alternative 3 --One Class I stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. Crossing structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). The Class I crossing will be designed to provide fish passage, using a log culvert or bridge, will be installed under current timing constrictions and concurrence from the State will be solicited prior to starting the work. During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5. Minimize channel disturbance during road construction (BMP 14.14). Control erosion and disperse runoff away from streams (BMP 14.8). Upon completion of unit harvest, decommission road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Ensure natural drainage across road is restored beyond fish stream crossing prior to temporary structure removal (BMP 14.20). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:
No Concerns

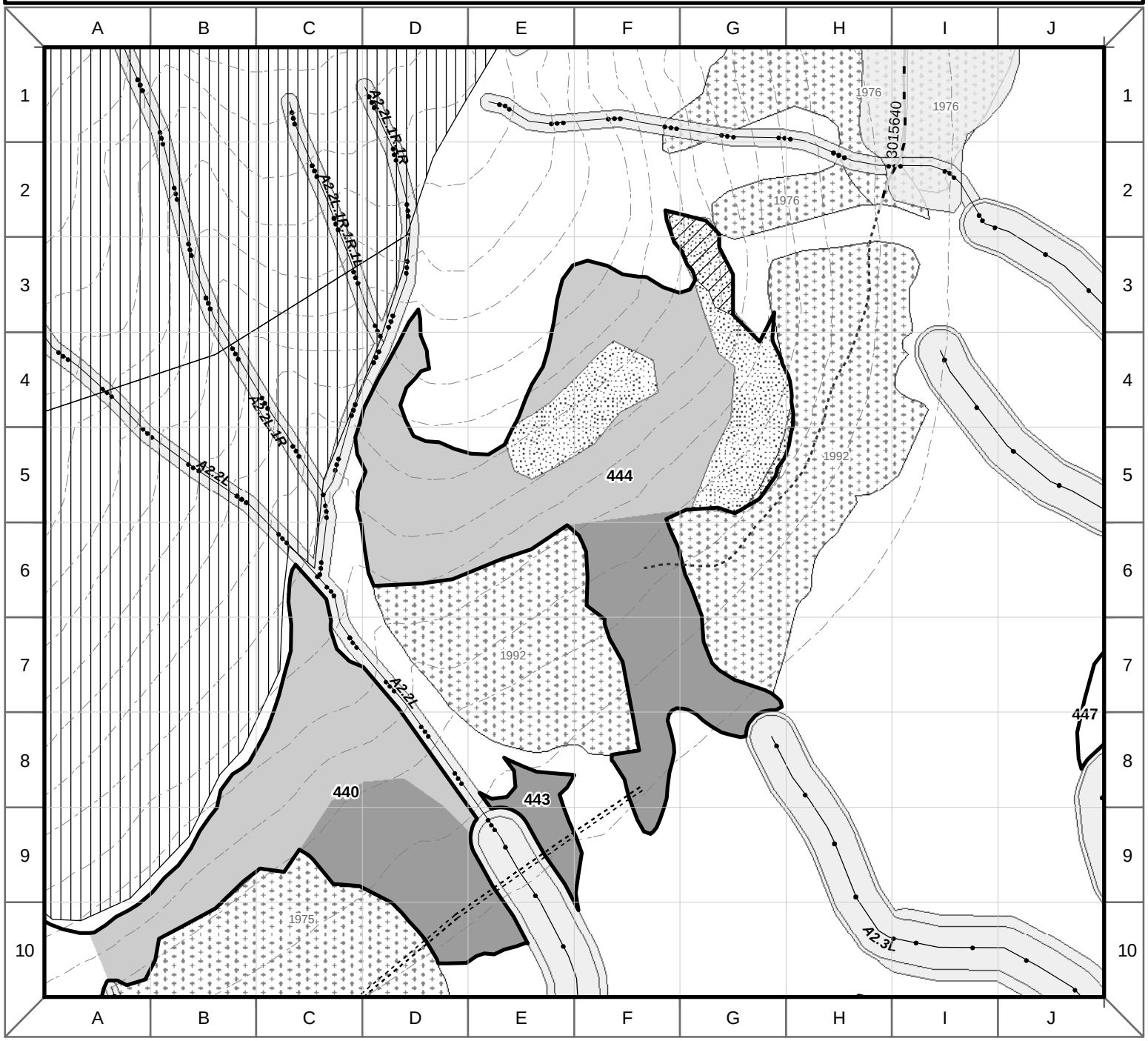
RECREATION:
No Concerns

SOILS/WETLANDS:
Slopes range from about 20 to greater than 72%. About 14 acres were excluded due to steep slopes and debris torrents/avalanches. All slopes greater than 72% are in the soil exclusion area. A debris torrent (initiated in 1993) enters into the unit in the southeastern lobe that is proposed to be cable yarded. Approximately 1/4 of the unit is forested wetland (southern polygon). In the remaining unit, the soils and wetlands are suitable for shovel yarding. Shovel yarding should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

A temporary road will impact approximately 1/2 acre of forested wetland and 1/4 acre of moss muskeg within the unit and about 1/2 acre of forested wetland and 1/4 acre of moss muskeg outside of the unit. The road outside the unit will also be used for access to units 440 and 443. Wetland avoidance was not practicable due to the extent of wetlands in the area (BMP 12.5, 13.2). Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:
Unit includes average snow deer winter range (entire unit). Unit is within 2008 Forest Plan OGR, which was modified under Alternative 3, and is located in an area that connects the Honker large OGR with the beach fringe near Sal Creek. Modified OGR is across RMA from northwestern border. Legacy standard and guideline does not apply in this VCU.

Unit Number 444 | **Alternative 3** | **VCU: 580**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit 446

Unit Number 446	Alternatives 3	Total Unit Acres: 5.1	Prescription: Clearcut
VCU Number: 580	Harvest System: Helicopter	Net Harvest Volume (MBF): 142	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This stand is old-growth described primarily as moderately-stocked, western hemlock and western redcedar with a minor component of Sitka spruce and Alaska-cedar scattered throughout Windthrow risk is low with only minor past blowdown evident in the stand. Mistletoe was low in the southeast and moderate in the remainder of the unit. The primary defect in the overstory is stem decay. Alaska cedar decline is also present in limited amounts. There are no adjacent past harvest areas.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 3015600.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A2 Class: I Flagging: B/W C- Type: MMM
Concerns: none known
Buffer (RMA): Class I for MMM greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

No Concerns

Unit 446

SOILS/WETLANDS:

Slopes are gentle throughout the unit. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). The entire unit is forested wetland (BMP 12.5).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Unit is within 2008 Forest Plan OGR, which was modified under Alternative 3, and is located in an area that connects the Honker large OGR with saltwater near Sal Creek.

Unit Number 446 | **Alternative 3** | **VCU: 580**

Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 447

Unit Number 447	Alternatives 3	Total Unit Acres: 15.9	Prescription: Clearcut
VCU Number: 580	Harvest System: Shovel, Helicopter	Net Harvest Volume (MBF): 342	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 447 is a western hemlock and western redcedar stand with old growth structure. Alaska-cedar occurs as a minor component. Low windthrow, moderate defect and a low occurrence of mistletoe was found. The larger overstory hemlock trees are particularly high defect. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for a combination of shovel and helicopter yarding. Shovel settings are planned for yarding to the existing NFS road 3015600. Helicopter settings are planned for yarding to landings on the existing NFS road 3015600.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A2 Class: I Flagging: B/W C- Type: MMM
Concerns: none known
Buffer (RMA): Class I for MMM greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: A2.2R Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

Stream#: A2.3R Class: I Flagging: B/W C- Type: AFM
Concerns: none known
Buffer (RMA): Class I for AFM greater of 140 feet or active portion of the alluvial fan.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

GEOLOGY/KARST:

Unit 447

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

This unit is located along the North Thorne Falls fishing access route. Recreation use of this site has caused soil erosion and vegetation loss. Harvest in this unit would temporarily prevent recreation use along this route, but visitors would likely create a new trail to the river following harvest activities.

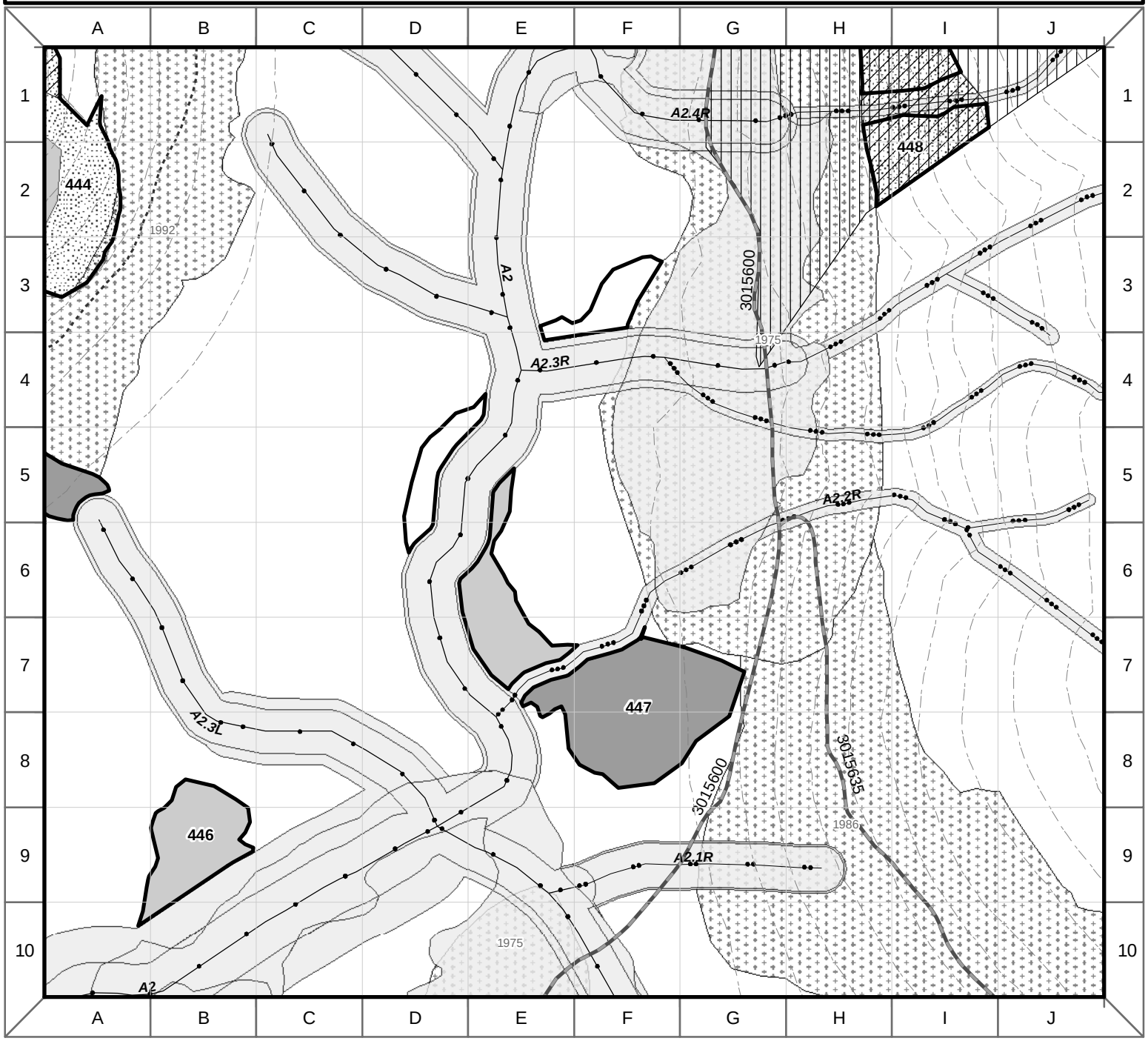
SOILS/WETLANDS:

Slopes are generally about 10%. About 90% of the unit is in forested wetland and emergent sedge/forested wetland complex. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

WILDLIFE:

Unit includes average snow deer winter range (entire unit). Unit is within the 2008 Forest Plan OGR, which was modified under Alternative 3, and is located in an area that connects the Honker large OGR with beach fringe near Sal Creek. Legacy standard and guideline does not apply in this VCU.

Unit Number 447 | **Alternative 3** | **VCU: 580**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit 448

Unit Number 448	Alternatives 3	Total Unit Acres: 5.4	Prescription: Clearcut
VCU Number: 580	Harvest System: Cable, Helicopter	Net Harvest Volume (MBF): 143	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 448 is predominantly a moderately stocked, over-mature, high defect western hemlock and western redcedar stand. Old-growth stand structure dominates. Trees are rough due to heavy stem form defects and stem decay. Mistletoe was rated heavy and windthrow risk was rate high. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for a combination of cable and helicopter yarding. Cable settings are planned for uphill and downhill yarding to landings on the proposed temporary road. Helicopter settings are planned for yarding to landings on the proposed temporary road.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road, totaling 640 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A2.4R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

Stream#: A2.5R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

Stream#: A2.6R.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2.6R.2R Class: III Flagging: O/W C- Type: HCD

Unit 448

Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Temporary roads for Unit 448: Alternative 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

Unit is near the Thorne River roadless area.

SOILS/WETLANDS:

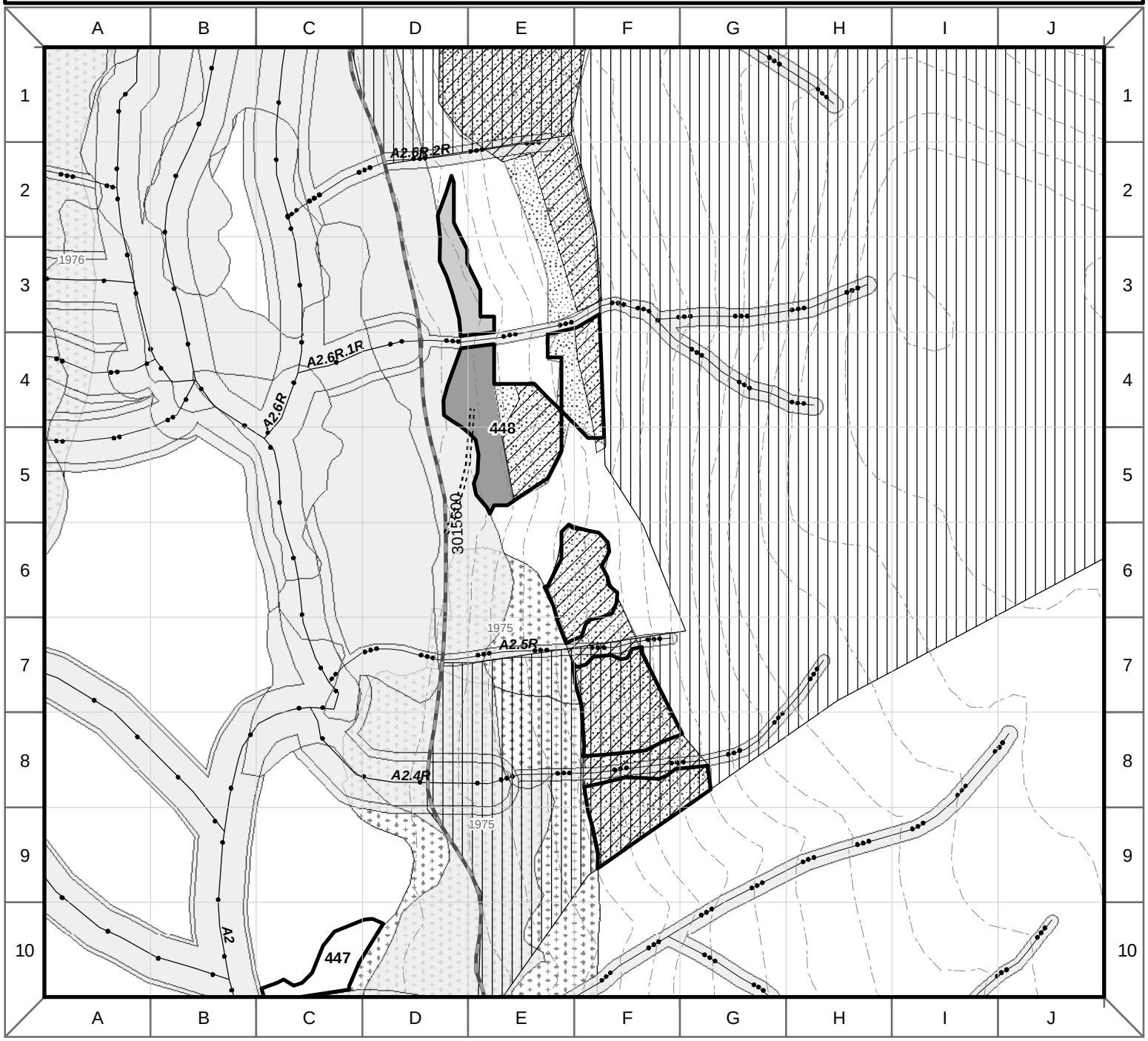
About 17 acres were excluded due to landslides and very steep slopes. In the remainder of the unit, there are no mapped slopes greater than 72%. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). No wetlands have been mapped in the unit.

Based on GIS analysis, the proposed temporary road does not traverse any wetlands.

WILDLIFE:

Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Unit is within the 2008 Forest Plan OGR, which was moved under Alternative 3 and is located in an area that connects the Honker large OGR with saltwater near Sal Creek. Portion of unit to be harvested is near, but not adjacent to the modified OGR

Unit Number 448 | **Alternative 3** | **VCU: 580**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 450

Unit Number	450	Alternatives	3	Total Unit Acres:	10.8	Prescription:	Clearcut
VCU Number:	580	Harvest System:	Helicopter	Net Harvest Volume (MBF):	267	LUD:	Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This high elevation unit consists of old-growth structure comprised of western hemlock, mountain hemlock and patchy Alaska-cedar with some well-spaced Sitka spruce and an occasional western redcedar group on better drained sites. Windthrow risk was rated moderate due to moderate topographic exposure to storm winds, restricted rooting due to wet soils and the past evidence of windthrow in the stand. Mistletoe was light in the unit. The primary defect is heavy stem decay with frost cracks and black seams common. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 3015600.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Thorne River. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A1 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

Stream#: A2.1L Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A3 Class: III Flagging: O/W C- Type: HCM

Unit 450

Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A4 Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

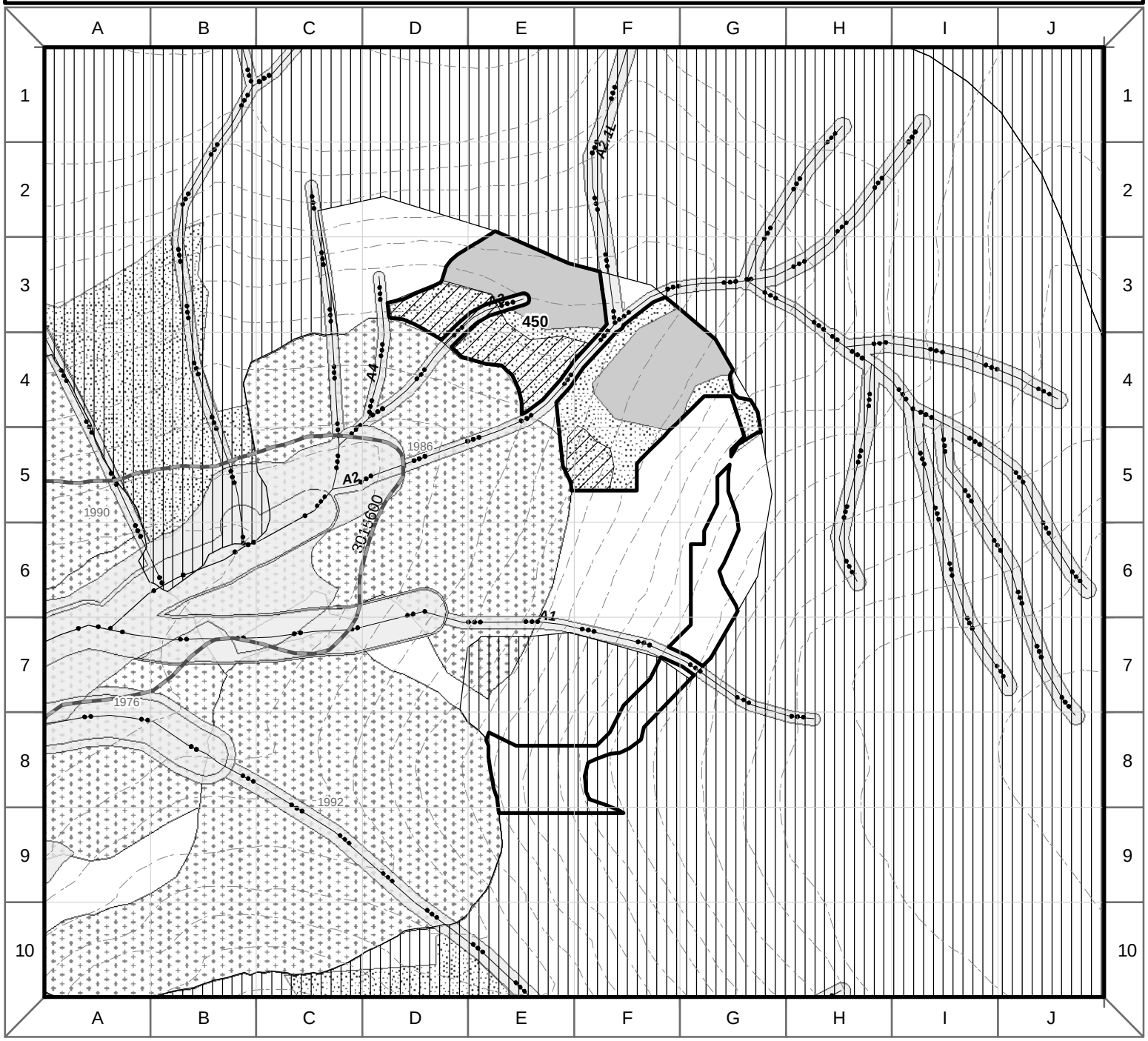
SCENERY:
No Concerns

RECREATION:
North and northeastern boundary of unit are adjacent to the Thore River inventoried roadless area.

SOILS/WETLANDS:
Slopes range from about 40 to greater than 72%. About 21 acres were excluded due to very steep slopes, wet slopes, landslide activity and steep rock outcrops. All slopes greater than 72% are within the soil exclusion area. In the remainder of the unit, a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). There are approximately 5 acres of forested wetland in the northern polygon (BMP 12.5).

WILDLIFE:
Unit includes average snow deer winter range (entire unit). Unit is within the 2008 Forest Plan OGR, which was modified under Alternative 3, and is now adjacent to the unit on the north and northeast. It is located in an area that connects the Honker large OGR with saltwater near Sal Creek. Legacy standard and guideline does not apply in this VCU.

Unit Number 450 | **Alternative 3** | **VCU: 580**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 452

Unit Number	452	Alternatives	3	Total Unit Acres:	20.0	Prescription:	Clearcut
VCU Number:	584	Harvest System:	Cable, Shovel,	Net Harvest Volume (MBF):	327	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 452 is predominantly a moderately stocked, over-mature, moderate defect mixed species stand. Old-growth stand structure dominates. The over-story of the stand is mainly western hemlock with Sitka spruce, redcedar and yellow-cedar present as lesser components. The average over-story tree has moderate stem decay. Mistletoe and windthrow risk were rated moderate. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 17 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was entirely placed to coincide with areas that were being dropped due to soil concerns and RMAs. Total mapped legacy is approximately 37 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of shovel, cable, and helicopter yarding. Shovel settings are planned for yarding to the proposed temporary road and existing NFS road 3000271. Cable settings are planned for downhill yarding to landings on the proposed temporary road and existing NFS road 3000271. Helicopter settings are planned for yarding to landings on the proposed temporary road and existing NFS road 3000271.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road, totaling 600 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait.

Stream#: 1 Class III Flagging: O/W C- Type: HCM
Concerns: steep side slopes with mobile fine sediment
Buffer (RMA): Class III for HCM to the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: 7 Class: II Flagging: B/W C- Type: PAB, MMS, HCL
Concerns: blowdown, with bank erosion middle to downstream area and bank instability present in MMS section
Buffer (RMA): Class II for PAB and HCL greater of 100 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.

Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: 5 Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: debris accumulation
Buffer (RMA): Class II for HCO greater of 100 feet or the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: 7.4L Class: II, III Flagging: B/W, O/W C- Type: HCO, HCL
Concerns: in class III area steep side slopes mobile fine sediment, shallow bank soils
Buffer (RMA): Class II for HCO greater of 100 feet or the side-slope break. Class III for HCL to the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: 7.6L Class: II Flagging: B/W C- Type: HCO
Concerns: blowdown present
Buffer (RMA): Class II for HCO greater of 100 feet or the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: 7.6L.1L Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 452: Alternative 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

About 3/4 of unit (15 acres) is in Low SIO and 1/4 is in Very Low. The viewing areas of concern are the 30 Road and saltwater use areas. Some of the Low SIO areas are likely not seen from these viewing areas due to topographic and vegetative screening. Opening sizes fall well within Forest Plan guidelines.

RECREATION:

No Concerns

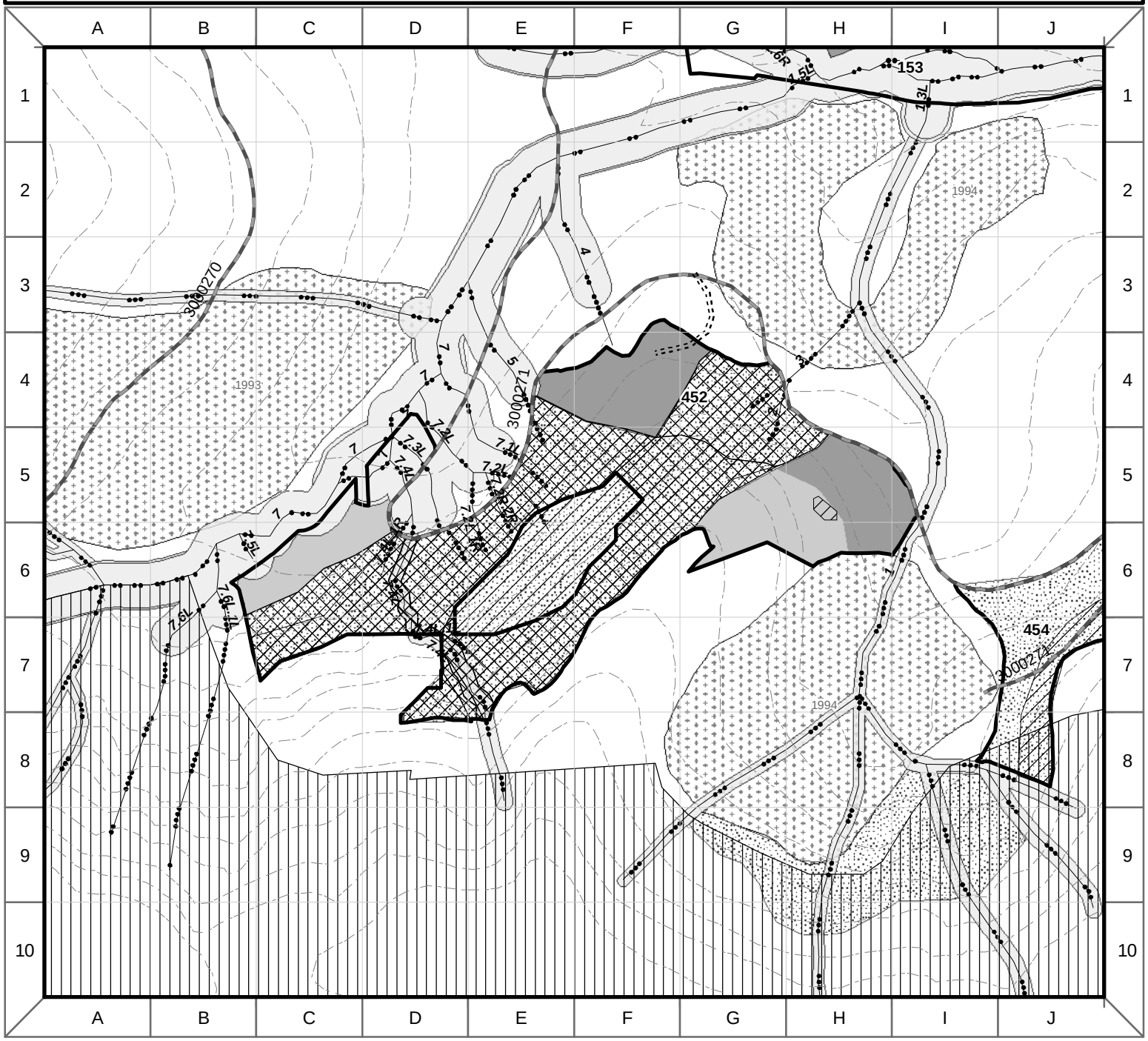
SOILS/WETLANDS:

Slopes range from about 20 to greater than 72%. About 36 acres were excluded due to steep slopes, saturated slopes, landslides and colluvial activity. There are less than 1/4 acre of slopes greater than 72% in the remaining unit that are suitable for harvest with partial suspension. In the remainder of the unit, the soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting. More than 3/4 of the unit is forested wetland (BMP 12.5).

A temporary road will impact about 1/4 acre of forested wetland and 1/2 acre of emergent sedge/forested wetland complex within the unit, and about 1/2 acre of emergent sedge/forested wetland complex outside the unit. Wetland avoidance was

Unit 452
not practicable due to the extent of wetlands in the area (BMP 12.5, 13.2). Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern piece). Unit is located within the 2008 Forest Plan OGR modified under Alternative 3, in a corridor connecting the Honker large OGR complex with saltwater near Sal Creek. Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers somd deer winter range and marten habitat.

Unit Number 452 | **Alternative 3** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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Unit 454

Unit Number	454	Alternatives	3	Total Unit Acres:	13.9	Prescription:	Clearcut
VCU Number:	584	Harvest System:	Cable, Shovel, Helicopter	Net Harvest Volume (MBF):	280	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 454 is a western hemlock stand that transitions to western hemlock and Alaska-cedar in the higher elevations or where site productivity is limited by poor drainage. Old-growth stand structure dominates. Moderate past windthrow, high defect, and a light incidence of mistletoe defines the health of the stand. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for a combination of shovel, cable, and helicopter yarding. Shovel settings are planned for yarding to the south proposed temporary road and existing NFS road 3000271. Cable settings are planned for uphill and downhill yarding to landings on the proposed temporary roads. Helicopter settings are planned for yarding to landings on the proposed temporary roads.

ENGINEERING/ROADS:

Unit is accessed by proposed temporary roads in Alternative 3, totaling 800 feet, as displayed on the unit card.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait.

Stream#: 1 Class: I, II Flagging: B/W C- Type: MMM, HCM
Concerns: heavy braiding present
Buffer (RMA): Class I for MMM greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCM greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 1.1L Class: II, IV Flagging: B/W, G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 1.2L Class: II, IV Flagging: O/W, G/W C- Type: HCO
Concerns: none

Buffer (RMA): Class III for HCO to the tiop of the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 456-1 Class: III Flagging: O/W, G/W C- Type: HCD
Concerns: blowdown, steep side slopes with shallow soils and exposed bedrock, frequent bank erosion.
Buffer (RMA): Class III for HCM and HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 454: Alternative 3-- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is mapped as Low SIO because of potential visibility from NFS Road 3000000 and saltwater use areas. Given it's small size and the fact that topographic and vegetative screening would reduce the visibile opening to about 10 acres or less, there is no concern.

RECREATION:

No Concerns

SOILS/WETLANDS:

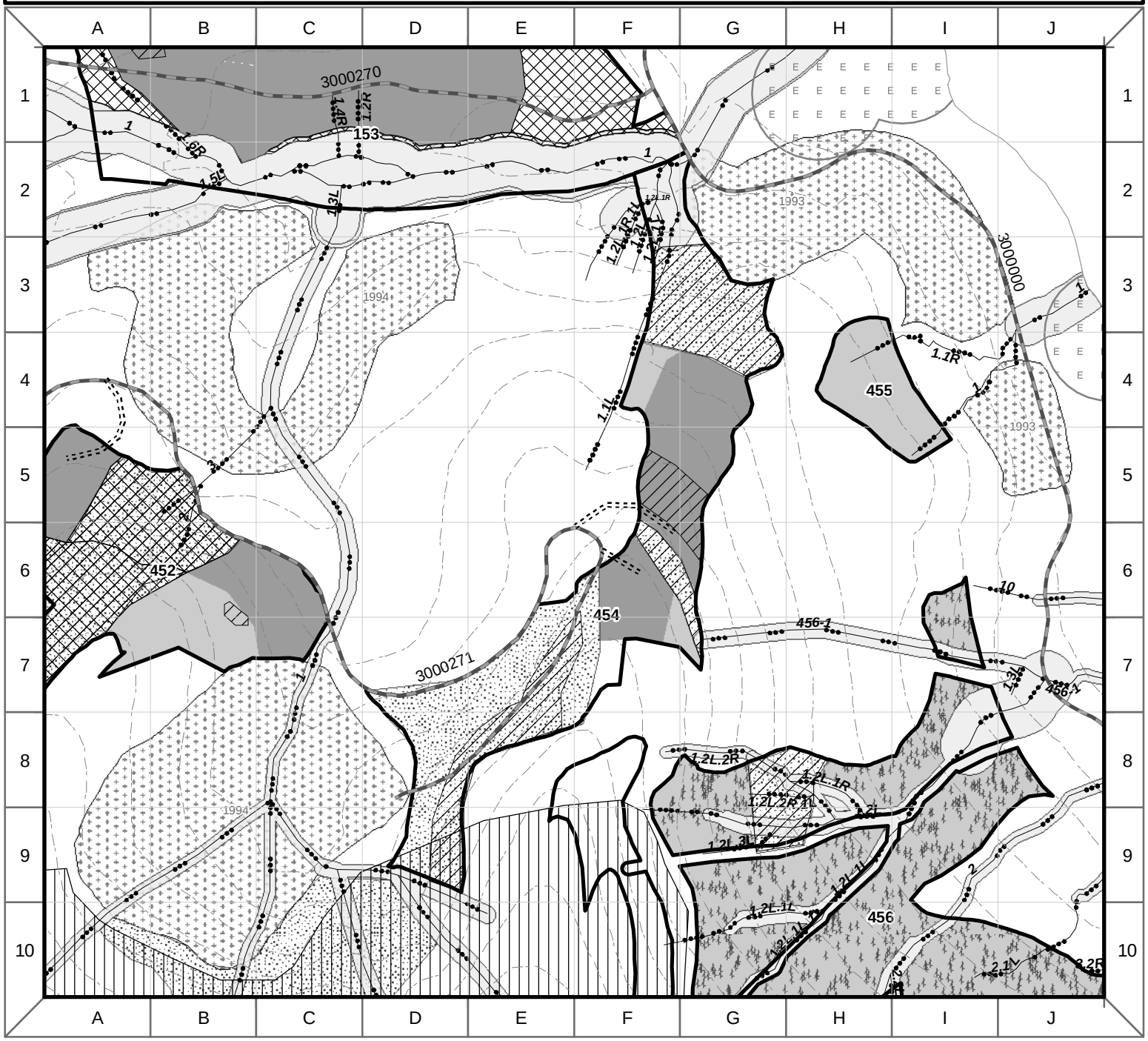
Slopes range from about 25 to greater than 72%. About 24 acres were excluded due to very steep slopes, saturated slopes, landslides, and erosive soils. There are less than 3 acres of slopes greater than 72% mapped in the remainder of the unit that are suitable for harvest. In the remainder of the unit, the soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

A temporary road will impact about 1 acre of emergent sedge/forested wetland within the unit and 1 acre of emergent sedge/forested wetland outside of the unit. Wetland avoidance was not practicable due to the extent of wetlands and unsuitable soils in the area (BMP 12.5, 13.2).. Provide adequate cross drainage, remove structures, and close the road after harvest (BMP 14.9) (33 CFR BMPs 4, 5, 6).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern 2/3 of unit). Unit is located within the 2008 Forest Plan OGR, which was modified under Alternative 3, in a corridor connecting the Honker large OGR complex with beach fringe near Sal Creek. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because all settings are less than 20 acres.

Unit Number 454 | **Alternative 3** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

0 500 Feet

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Unit 455

Unit Number	455	Alternatives	3	Total Unit Acres:	5.7	Prescription:	Clearcut
VCU Number:	584	Harvest System:	Helicopter	Net Harvest Volume (MBF):	71	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is a moderately stocked, mature to over-mature, moderate defect western hemlock and western redcedar stand. Old-growth stand structure dominates. The over-story of the stand is mainly western hemlock and redcedar with scattered Sitka spruce. Windthrow risk is moderate and mistletoe is heavy. A nearby stand to the east meets NFMA requirements for no longer being considered an opening.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 3000270.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait.

All streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is mapped as Low SIO because of potential visibility from the 30 Road and saltwater use areas. It's small size and the fact that topographic and vegetative screening would reduce the visibile opening to less than 5 acres, there is no concern.

RECREATION:

No Concerns

Unit 455

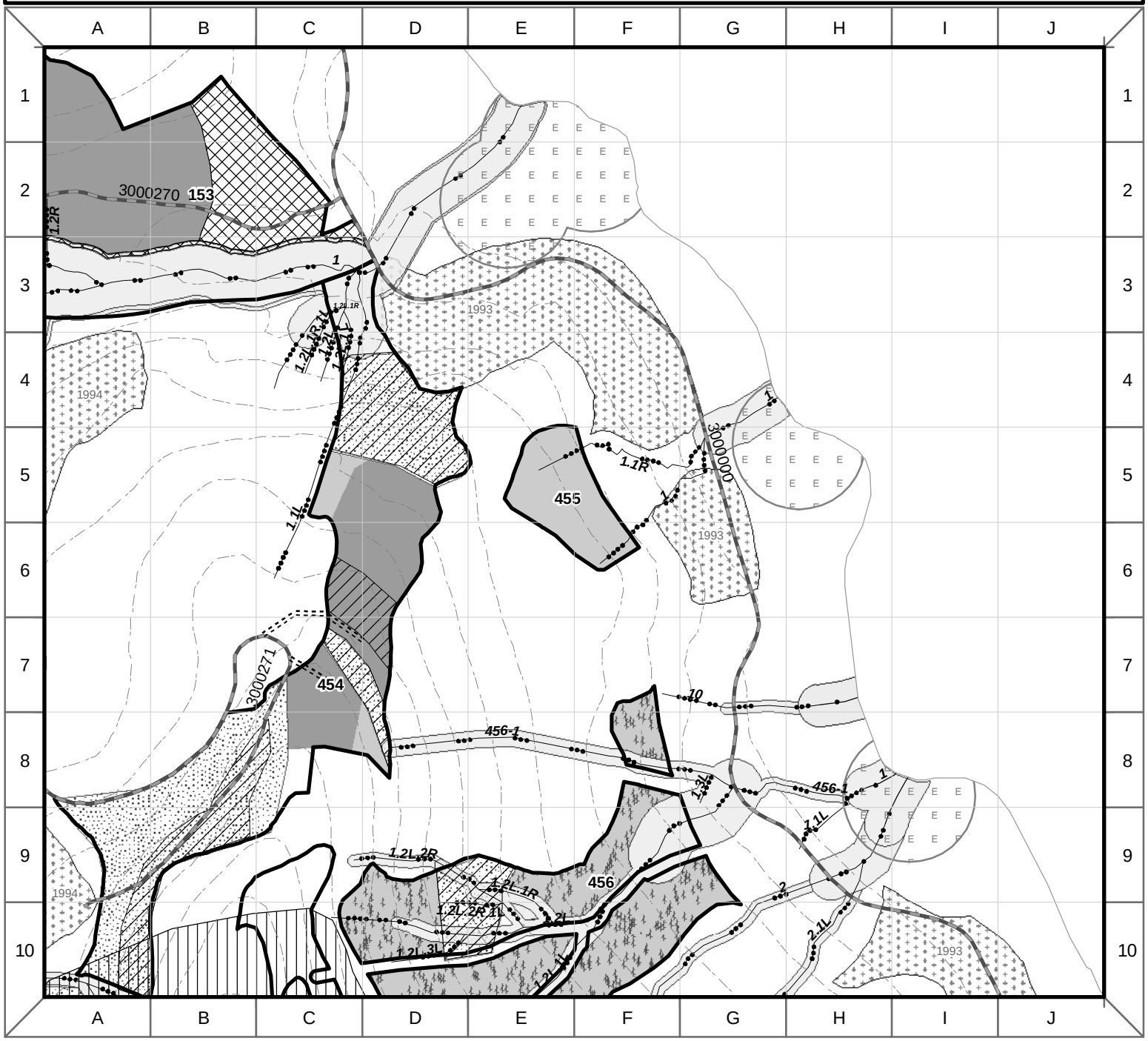
SOILS/WETLANDS:

Slopes range from nearly level to about 55%. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). No wetlands have been mapped in the unit

WILDLIFE:

Unit includes average snow deer winter range (entire unit), nearly all of which is also deer snow marten habitat/deer winter range (all except sliver along western edge). Unit is located within the 2008 Forest Plan OGR, which was modified under Alternative 3, in a corridor connecting the Honker large OGR complex with saltwater near Sal Creek. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because all settings are less than 20 acres.

Unit Number 455 | **Alternative 3** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 456

Unit Number	456	Alternatives	3	Total Unit Acres:	94.3	Prescription:	25% and 50% Removal
VCU Number:	584	Harvest System:	Helicopter	Net Harvest Volume (MBF):	1,178	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 456 is predominantly a well-stocked, over-mature, variable defect western hemlock, western redcedar and Sitka spruce stand. Yellow-cedar are present as a lessor component. Old-growth stand structure dominates. Moderate windthrow, moderate defect and a low occurrence of mistletoe was found. An adjacent stand to the east meets NFMA requirements for no longer being considered an opening.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 75 percent in the northern 3 settings (9 acres), and 50 percent in the southern 4 settings ((85 acres) of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction regarding how to implement this prescription.

No legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the proposed temporary roads accessing Units 454 and 457.

ENGINEERING/ROADS:

Unit utilizes proposed temporary roads constructed for Units 454 and 457, totaling 1,900 feet, as displayed on the unit card for those units. Approximately 1,700 feet of the roads will be constructed across decommissioned road beds.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait.

Stream#: 456-1 Class: III Flagging: O/W C- Type: HCD
Concerns: blowdown, frequent bank erosion, shallow bank soils
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: 456-1.2L Class: III, IV Flagging: O/W, G/W C- Type: AFH, HCD, HCM, HCO
Concerns: blowdown, frequent bank erosion and fine sediment
Buffer (RMA): Class III for AFH greater of 140 feet or active portion of allucial fan. Class III for HCD and HCM to the top of the side-slope break. Class IV for HCO none
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 456-1.2L.1L Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCM, HCO
Concerns: blowdown, steep exposed banks with bedrock, frequent bank erosion

Buffer (RMA): Class III for HCD and HCM to the top of the side-slope break. Class IV for HCO none
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 456-1.2L.1L.1L Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: blowdown, frequent bank erosion
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 456-1.2L.1R Class: III Flagging: O/W C- Type: HCL
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: 456-1.2L.2R Class: III Flagging: O/W C- Type: HCM
Concerns: blowdown, frequent bank erosion
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: 2 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCD, HCO
Concerns: blowdown, steep side slopes with shallow soils and exposed bedrock, frequent bank erosion.
Buffer (RMA): Class III for HCM and HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 2.2L Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: active bank erosion
Buffer (RMA): Class III for HCD to the to pof the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary road (reopened decommissioned) for Unit 456: Alternative 3 -- No known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit has 77 acres in Low SIO and 7 acres in Moderate. VAC is Intermediate to Low. Typical opening sizes according to the Forest Plan vary between 5 to 10 acres for Moderate SIO in Low VAC to 40 to 60 acres for Low SIO in Intermediate VAC. As long as uneven-aged management is used, there is no concern.

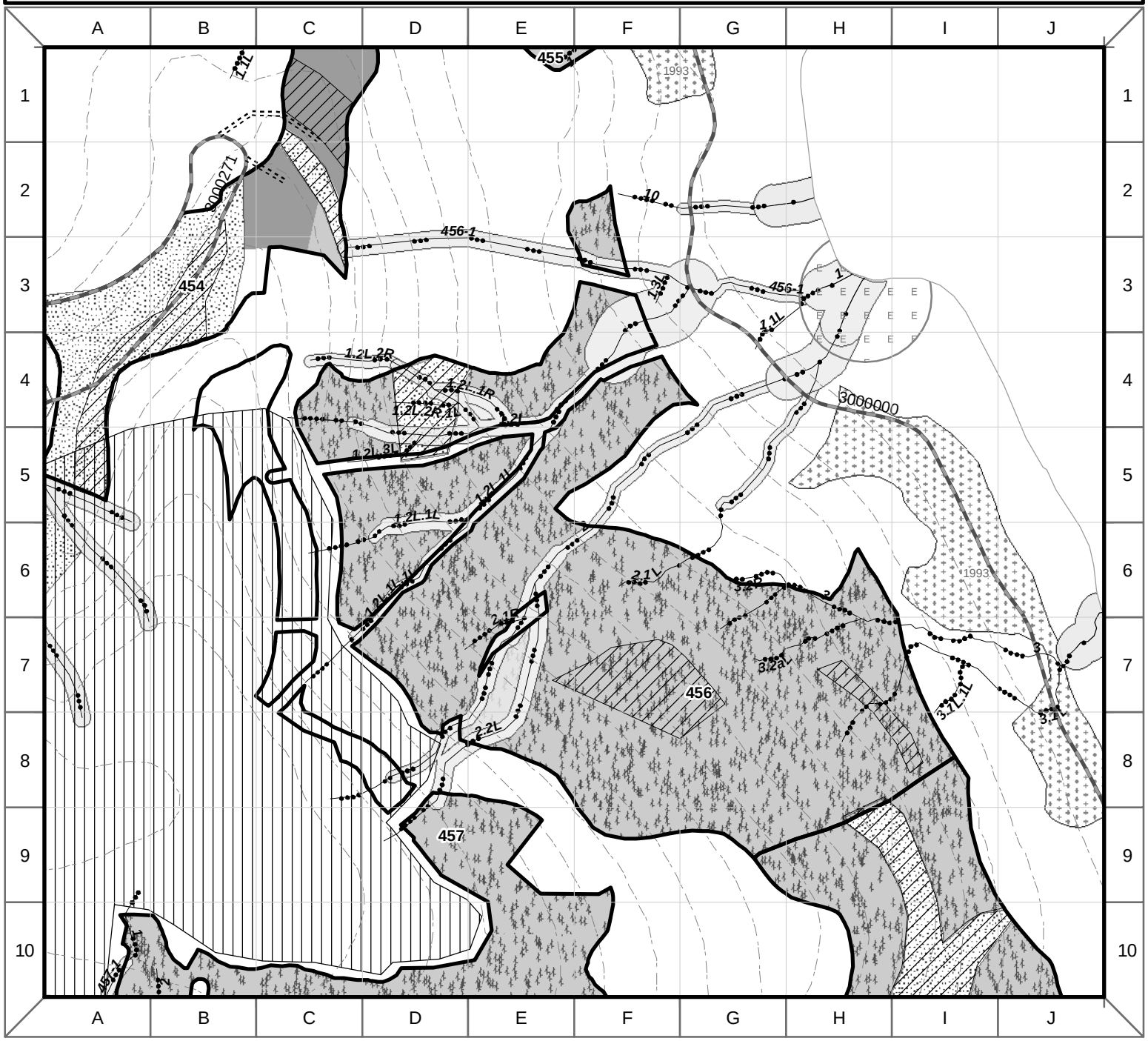
RECREATION:

No Concerns

SOILS/WETLANDS:

Unit 456
Slopes range from about 30 to greater than 72%. About 3.5 acres were excluded due to steep and wet slopes and a historic landslide (pre-1971). In the remainder of the unit, there are less than 6 acres of slopes greater than 72% that are suitable for harvest with partial suspension. Two small debris avalanches were identified above the steep slopes in the central-southern area of the unit. Combined, these two avalanches are less than 1 acre. There are approximately 11 acres of forested wetland adjacent to the northeastern edge of the unit (BMP 12.5). A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).
WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Unit is located within the 2008 Forest Plan OGR, which was modified under Alternative 3, in a corridor connecting the Honker large OGR complex with beach fringe near Sal Creek. Legacy standard and guideline applies in this VCU. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit Number 456 | **Alternative 3** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit 457

Unit Number	457	Alternatives	3	Total Unit Acres:	79.5	Prescription:	25% Removal
VCU Number:	584	Harvest System:	Helicopter	Net Harvest Volume (MBF):	586	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 457 is mainly a western hemlock and western redcedar stand that transitions to mountain hemlock in the upper elevations and more pure western hemlock in the northern lower elevations. Generally old-growth stand structure dominates, however areas with heavy past wind damage in the upper and middle elevations have a two-age structure due to repeated wind damage. Extensive windthrow, moderate to high defect, and a moderate to low incidence of mistletoe was observed in the unit. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. . Review the marking guides and silvicultural prescription for more detailed information and direction for how to implement this prescription.

A Tongass Wide Young Growth Study site (POW SAL Experiment #4) is along the southern boundary. Protection of this site is required. Contact the Forestry Sciences Lab in Juneau for additional information

No Legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the proposed temporary road.

ENGINEERING/ROADS:

Unit utilizes a proposed temporary road for a landing location, totaling 1,700 feet, as displayed on the unit card. This road will be constructed entirely across decommissioned road bed.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Sal Creek.

Stream#: 457-1 Class: III, IV Flagging: O/W, G/W C- Type: HCM, FPO
Concerns: very steep side slopes with shallow soil exposed bedrock
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for FPO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 457-2 Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: very steep side slopes with shallow soil exposed bedrock
Buffer (RMA): Class III for HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed

Protection: Category B and C

Stream#: 457-3 Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 457-3.1L Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: 457-3.1L.1L Class: III, IV Flagging: O/W, G/W C- Type: HCM, HCO
Concerns: none
Buffer (RMA): Class III for HCD and HCO to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: 2 .2L Class: III, IV Flagging: O/W, G/W C- Type: HCD, HCO
Concerns: none
Buffer (RMA): Class III for HCD to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B and C

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary road (reopened decommissioned) for Unit 457: Alternative 3 -- One Class IV stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. Crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5. Upon completion of unit harvest, decommission road, restore natural drainage patterns by removing road fill from channels and installing water bar as necessary (BMP 13.16). Seed and fertilize disturbed soil adjacent to streams (BMP 12.17).

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No concerns due to uneven-aged management.

RECREATION:

No Concerns

SOILS/WETLANDS:

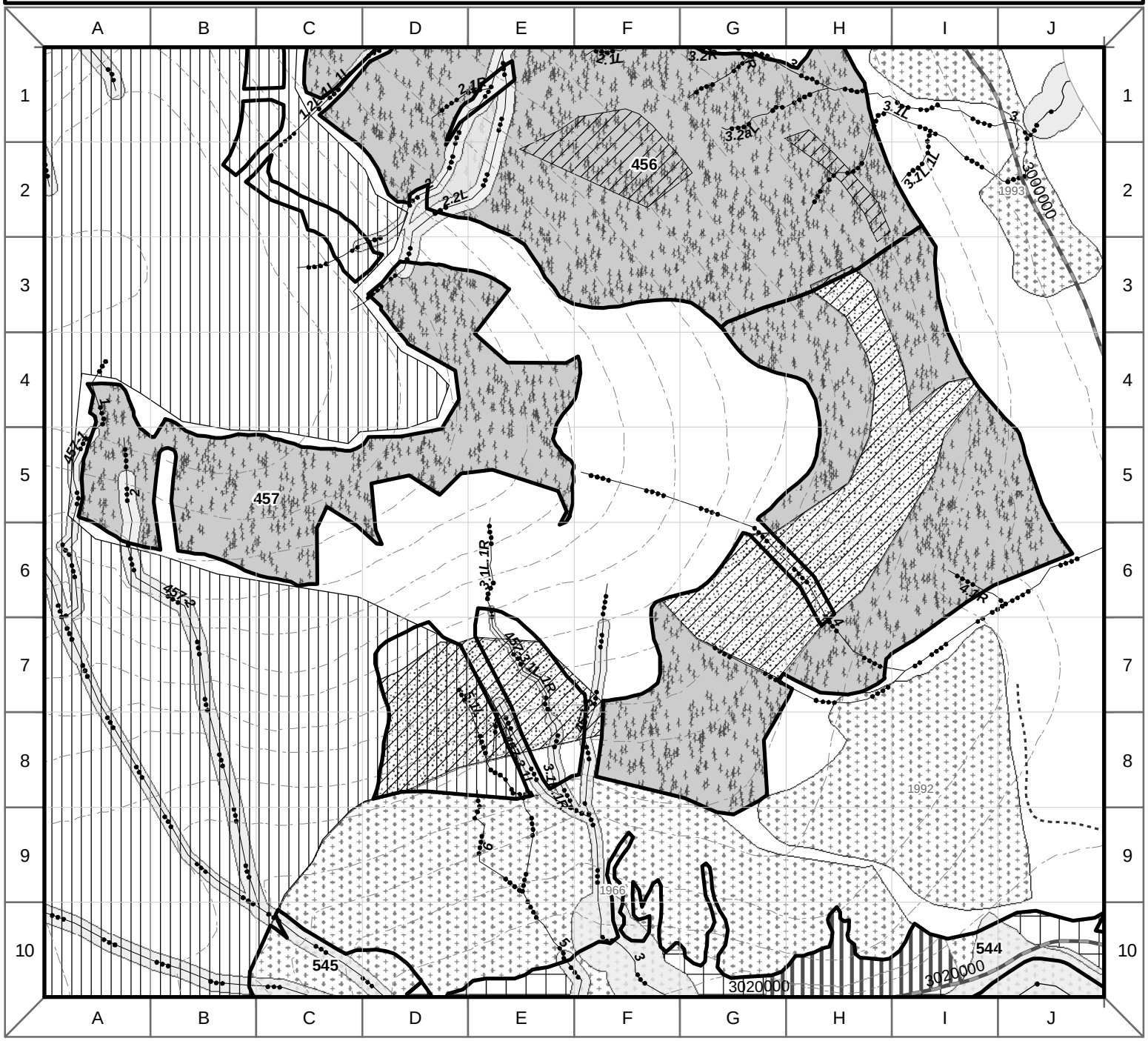
Slope range from about 30 to greater than 72%. About 32 acres were excluded due to steep slopes, wet slopes, and unsuitable soils. In the remainder of the unit, there are no mapped slopes greater than 72%. About 6 acres of the unit require full suspension yarding in the southernmost part of the unit. In the remaining unit, a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

There are approximately 43 acres (54% of the unit) of forested wetland, primarily located in the western polygon (BMP 12.5).

WILDLIFE:

Unit 457
Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (all except sliver along southern edge). Unit is located within the 2008 Forest Plan OGR, which was modified under Alternative 3, in a corridor connecting the Honker large OGR complex with beach fringe near Salt Chuck. Unit is adjacent to small OGR on its west, north, and south borders. Legacy standard and guideline applies in this VCU. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit Number 457 | **Alternative 3** | **VCU: 584**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 460

Unit Number 460	Alternatives 3	Total Unit Acres: 8.0	Prescription: Clearcut
VCU Number: 583	Harvest System: Cable	Net Harvest Volume (MBF): 257	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 460 is a two-age western hemlock, Sitka spruce and Alaska-cedar stand. Repeated heavy past wind damage has occurred across the unit. Heavy past windthrow, moderate to high defect, and a moderate to low incidence of mistletoe defines the health of the stand. Timber volume varies across the unit. Heavy volume occurs in areas of even-age structure. The over-story of the stand is mainly western hemlock and Sitka spruce in even-aged patches with western hemlock and Alaska-cedar making the older cohort. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate to high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for uphill and downhill cable yarding to landings on the existing NFS road 3025500.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams tributaries to Ratz Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A1 Class: II, III Flagging: B/W, O/W C- Type: MCS, HCM
Concerns: none
Buffer (RMA): Class II for MCS greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: A1.1L Class: III Flagging: O/W C- Type: HCL
Concerns: none
Buffer (RMA): Class III for HCL to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2 Class: III Flagging: O/W C- Type: HCD
Concerns: none
Buffer (RMA): Class III for HCD to the top of the side-slope break.

Unit 460

Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

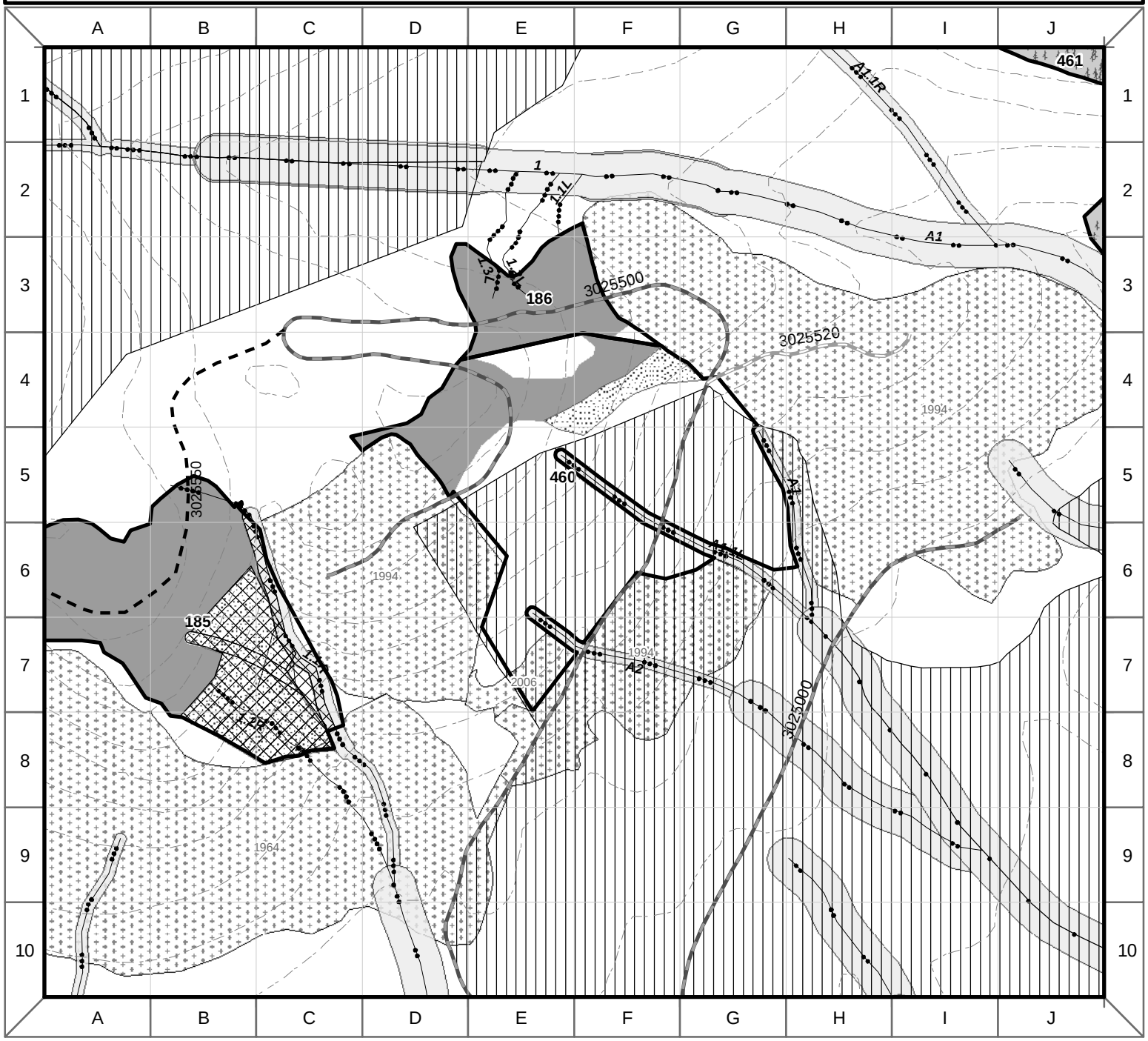
SCENERY:
No Concerns

RECREATION:
No Concerns

SOILS/WETLANDS:
Slopes range from about 20% to about 50%. About 2 acres were excluded due to wet soils and saturated hollows. In the remainder of the unit, a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). The entire unit is forested wetland (BMP 12.5).

WILDLIFE:
Unit includes average snow deer winter range (entire unit). Unit is located within the 2008 Forest Plan OGR, which was modified under Alternative 3, and now it is adjacent to the modified OGR at one point. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 460 | **Alternative 3** | **VCU: 583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
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0 500
Feet

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Unit 461

Unit Number	461	Alternatives	3, 4	Total Unit Acres:	3 - 78.0 4 - 25.4	Prescription:	25% Removal
VCU Number:	582, 583	Harvest System:	Helicopter	Net Harvest Volume (MBF):	3 - 492 4 - 160	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is a moderately well stocked stand of moderate defect, mature to over-mature western hemlock, western redcedar and Sitka spruce with areas of Alaska-cedar. Generally old-growth stand structure dominates, however areas with heavy past wind damage in upper elevations have two-age structure. Extensive windthrow, moderate defect, and a moderate incidence of mistletoe were observed in the unit. There are no adjacent past harvest areas.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 75 percent of the setting pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Avoid harvesting around the sensitive plant population (<0.1 ac) in southern part of unit (see Botany). Review the marking guides and silvicultural prescription for more detailed information and direction on how to implement this prescription.

VCU 583 requires legacy and VCU 582 does not. However, no legacy acres required for uneven-aged management because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 3025500.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

One lesser round-leaved orchid (sensitive plant) population (1 individual) entirely inside unit; however, unit is 25% harvest prescription and population is less than 0.1 ac so it can be avoided. Designate leave trees in and around plant population. Population may be indirectly impacted.

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait (Stream characteristics do not include project-specific, field-verified, information).

Stream#: A1 Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category B

Unit 461

Stream#: A2 Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category B

Stream#: A3 Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 and 4 Buffer (RAW): no review needed
Protection: Category B

Stream#: A4 Class: II Flagging: B/W C- Type: HCL
Concerns: none
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: A5 Class: II Flagging: B/W C- Type: HCL
Concerns: none
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: A5.1R Class: III Flagging: O/W C- Type: HCD
Concerns: none
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No Concerns

RECREATION:

Most polygons are adjacent to the Ratz roadless area on their west or northern borders.

SOILS/WETLANDS:

Slopes range from about 30 to greater than 72%. About 20 acres were excluded due to steep slopes, slides, and soil creep. In the remainder of the unit, there are no mapped slopes greater than 72%. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9).

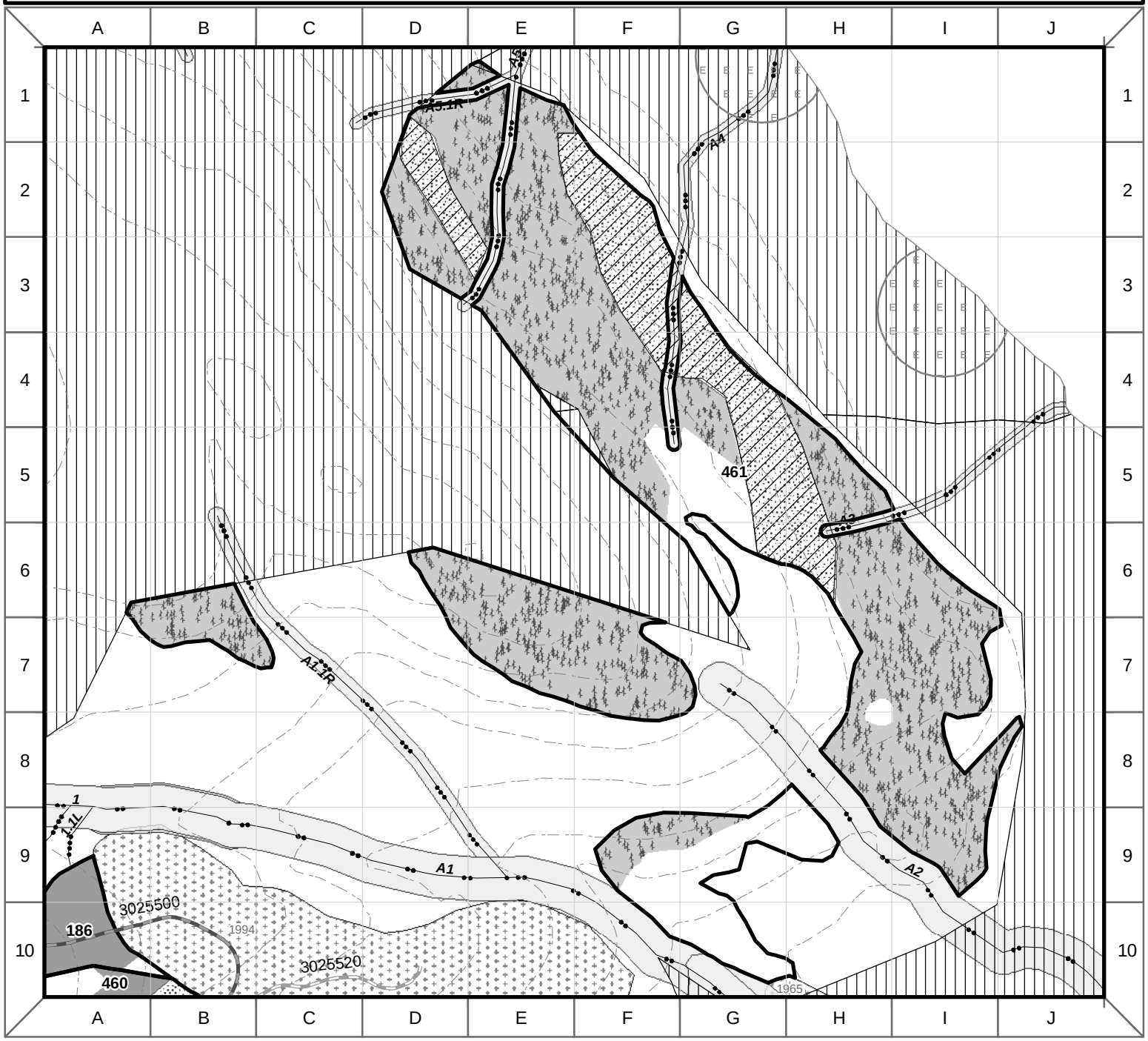
Alternative 3
There are approximately 43 acres (55% of the unit) of forested wetland, primarily located in the southern four polygons and the northwest corner of the northern polygon (BMP 12.5).

Alternative 4:
There are approximately 4 acres (15% of the unit) of forested wetland in the northwest corner of the unit (BMP 12.5).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (very southern and very northern portions for Alternative 3; western 3/4 for Alternative 4). Unit is within 2008 Forest Plan OGR, which was modified under Alternatives 3 and 4. Unit is now adjacent to the modified OGR in both alternatives. Legacy standard and guideline applies in VCU 5830. No Legacy acres required because adequate structure retained in unit under uneven-aged harvest prescription (i.e., no openings larger than 20 acres).

Unit Number 461 | **Alternative 3** | **VCU: 582,583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N
W
E
S

0 500
Feet

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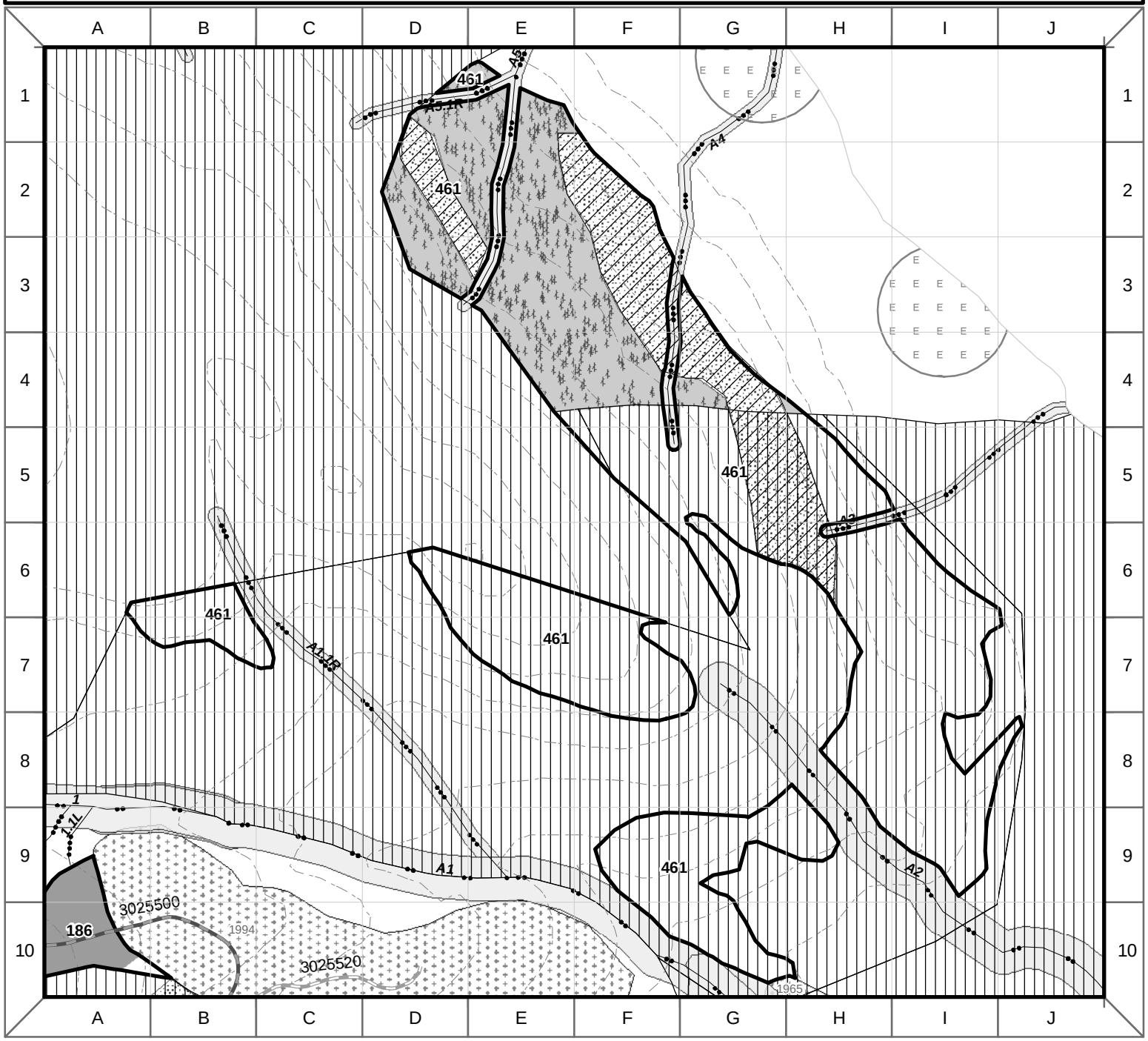
Unit Number 461 | **Alternative 4** | **VCU: 582,583**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)
Original Unit Reconnaissance Area

N W E S

0 500
Feet

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Unit 463

Unit Number	463	Alternatives	3	Total Unit Acres:	59.0	Prescription:	25% and 50% Removal
VCU Number:	582	Harvest System:	Helicopter	Net Harvest Volume (MBF):	530	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is predominantly a western hemlock stand that transitions to western hemlock and western redcedar in the lower elevations. Areas of Sitka spruce occur in the middle to upper elevations of the northern polygon. Generally old-growth stand structure dominates, however areas with heavy past wind damage are present and trending the stand toward a more two-age structure. Heavy windthrow, average defect, and moderate to heavy mistletoe were noted. The southeastern setting has less exposure (due to more northerly aspect) and lower windthrow risk. There are no adjacent past harvest areas.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Uneven-age Management Single Tree Selection
Maintain at least 50 percent of the southeastern setting and 75 percent of the remaining settings pretreatment basal area, based on standing live tree total for the unit, uncut. Individual trees selected for harvest may occur in small groups but will generally be evenly distributed across the stand. Any small groups will usually be less than one acre but may occasionally go up to two acres in size where needed to address insect and disease issues or capitalize on existing advanced regeneration of desirable tree species. Trees selected for harvest will generally be well distributed and no large openings will occur as a result of the harvest. Review the marking guides and silvicultural prescription for more detailed information and direction for how to implement this prescription.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 3025500. Shorter yarding distances are possible by yarding to a barge if adequate anchorages are available.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams drain to Clarence Strait. Stream characteristics do not include project-specific, field-verified, information.

Stream#: 1 Class: II, IV Flagging: B/W. G/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break. Class IV for HCO none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and C

Stream#: A1 Class: II, III Flagging: B/W, O/W C- Type: HCV, HCM
Concerns: none
Buffer (RMA): Class II for HCV greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: A1.1R Class: III Flagging: B/W, O/W C- Type: HCM, HCD
Concerns: none
Buffer (RMA): Class III for HCM, HCD to the top of the side-slope break

Unit 463

Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1.2R Class: III Flagging: B/W, O/W C- Type: HCD
Concerns: none
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

No concerns because of uneven-aged management.

RECREATION:

Westernmost extent of unit touches the Ratz roadless area.

SOILS/WETLANDS:

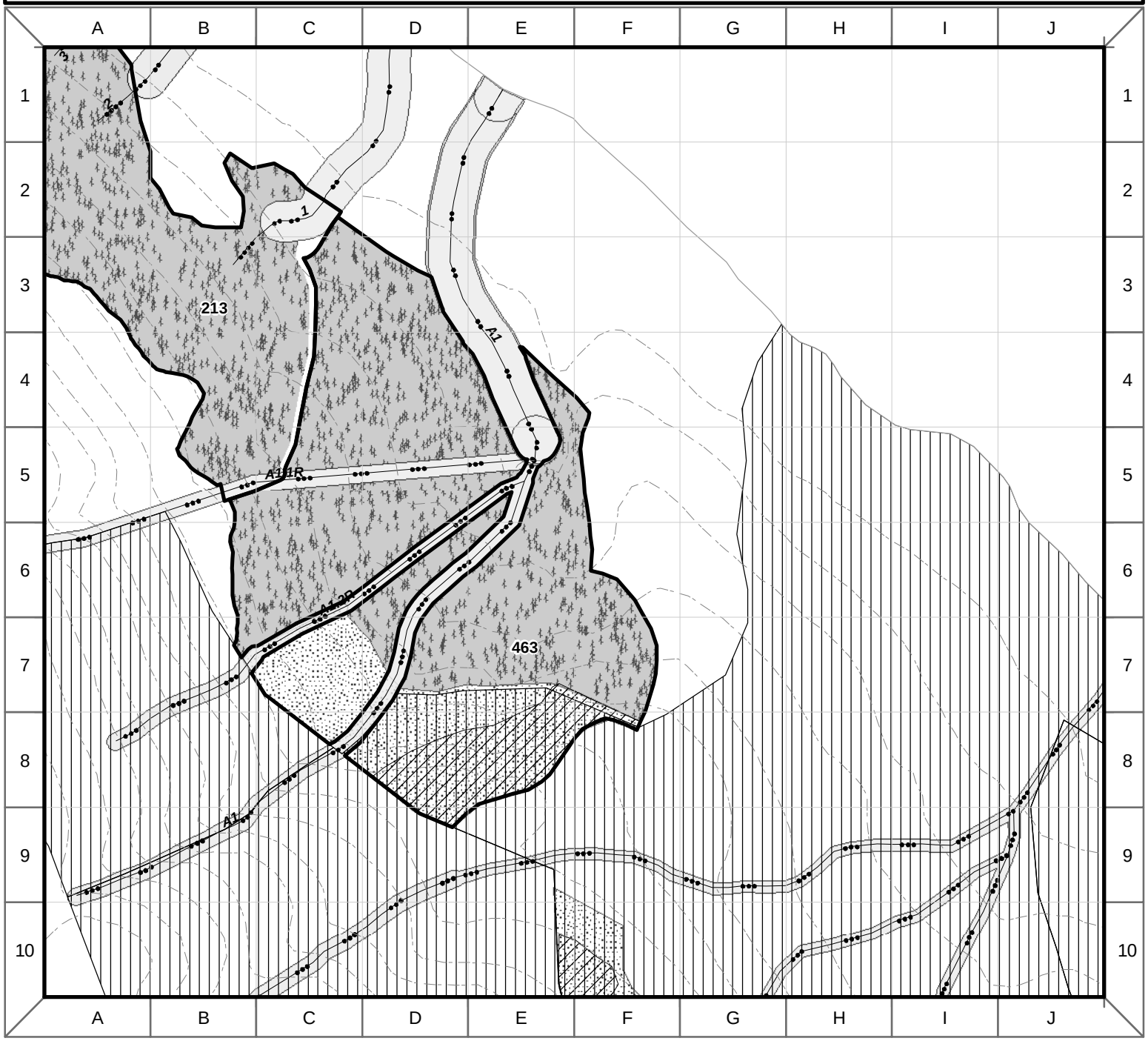
Slopes range from about 20 to greater than 72%. About 19 acres, originally reconned, were excluded due to very steep slopes, saturated hollows, and slides (some of this acreage is within the modified OGR). In the remainder of the unit, there are no mapped slopes greater than 72%. About 10 acres of the unit requires full suspension yarding; this area is located in the central-western part of the unit, immediately above the unsuitable soil area. In the remainder of the unit, a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). Approximately 2/3 of unit is in forested wetland (mostly in northern 2/3).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Located in the 2008 Forest Plan OGR, which was modified under Alternative 3; the unit touches the modified OGR boundary at two locations. Legacy standard and guideline does not apply in this VCU.

One agle nest located to the north of where the creek drains to saltwater, and 3 to the south. Helicopter flight paths will be determined for the Final EIS; nest activity will be confirmed prior to project implementation. Timing restrictions will be implemented as appropriate.

Unit Number 463 | **Alternative 3** | **VCU: 582**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 464

Unit Number	464	Alternatives	3	Total Unit Acres:	19.6	Prescription:	Clearcut
VCU Number:	581	Harvest System:	Shovel, Helicopter	Net Harvest Volume (MBF):	757	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 464 is a western hemlock old-growth stand with Sitka spruce and Alaska-cedar present as lesser components. Moderate windthrow, average defect, and a moderate incidence of mistletoe were noted. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

About 40% of this unit has a moderate SIO and is in foreground from Eagle Creek (the remainder is Very Low). Retention areas (visual buffers) have been designated along the northwest edge of settings to screen visibility from the creek. Design these screens approximately as shown on the unit card map. Evaluate the effectiveness and windthrow risk of the planned screens at the time of layout and adjust as needed.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres; therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for a combination of shovel and helicopter yarding. Shovel settings are planned for yarding to the existing NFS road 3030100. Helicopter settings are planned for yarding to landings on the existing NFS road 3030100.

Unit is adjacent to new OGR along northeastern edge of northeastern polygon.

ENGINEERING/ROADS:

This unit is accessed by reconstruction of existing NFS road 3030100, totaling 3900 feet. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Eagle Creek.

Stream#: 1 (Eagle Creek) Class: I Flagging: B/W C- Type: MCL, MML
Concerns: some bank erosion
Buffer (RMA): Class I for MCL greater of 100 feet or to the top of the side-slope break. Class I for MML greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: 1.3L Class: II Flagging: B/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.

Unit 464

Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: 1.4L Class: II Flagging: B/W C- Type: HCM
Concerns: none
Buffer (RMA): Class II for HCM greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: 1.2L Class: II Flagging: B/W C- Type: MMO
Concerns: none known
Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens..
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance. The physical boundaries of this unit are not to be modified without input from a Forest Service Heritage specialist.

SCENERY:

Unit is in foreground from Eagle Creek and includes 8 acres of Moderate SIO, with the remainder in Very Low SIO. The unit consists of three separate openings. Visual screens (buffers) have been incorporated into unit design (see Silviculture) to screen visibility of all openings from Eagle Creek. Evaluation of windfirmness for these buffers is included.

RECREATION:

Eagle Creek is a high value recreation stream. Implement buffers as indicated in Scenery. Timber harvest activities may be heard by recreationists using Eagle Creek.

SOILS/WETLANDS:

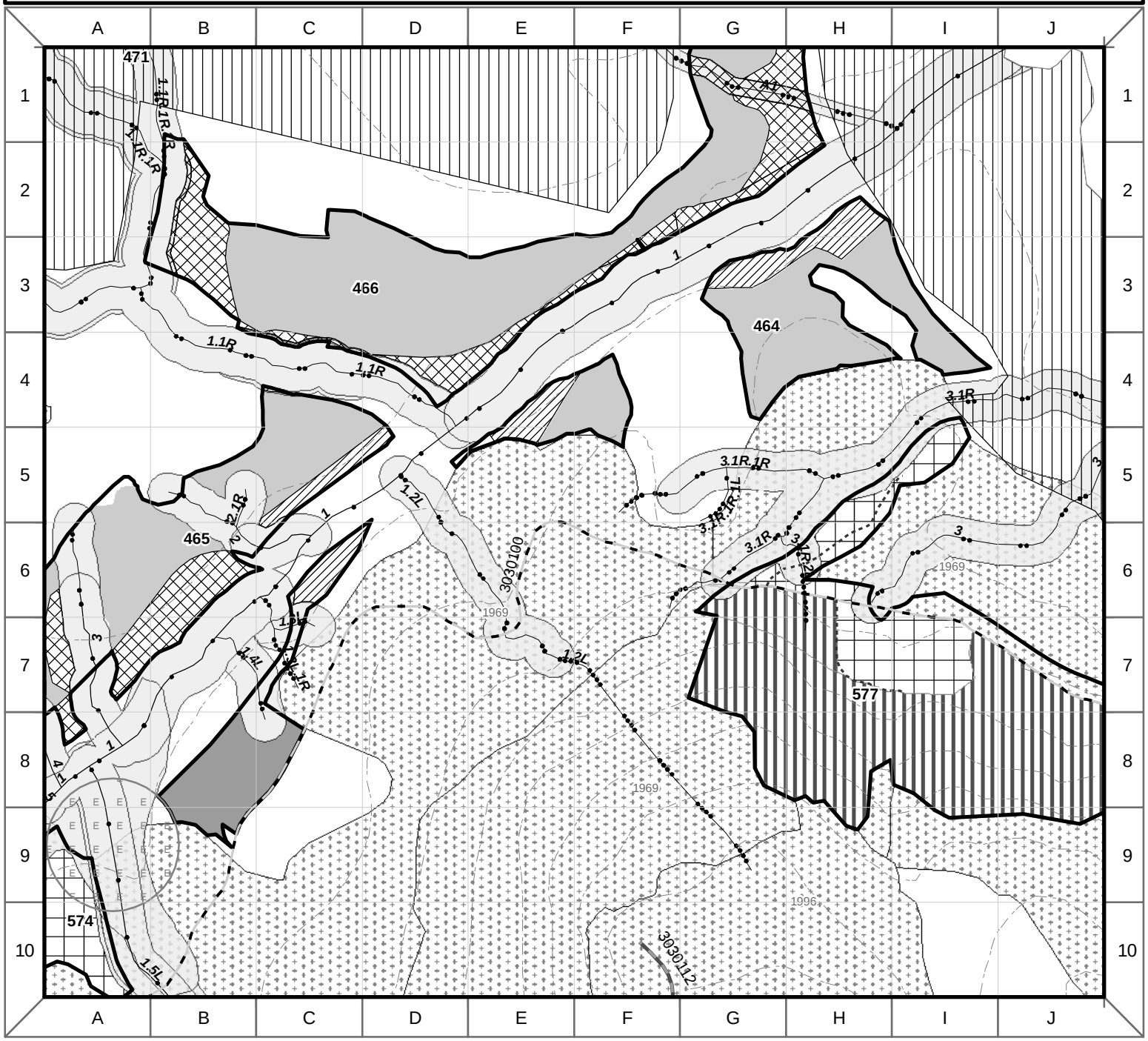
Slopes are gentle throughout the unit. There are approximately 3 acres of emergent sedge/forested wetland complex, and 5 acres of forested wetland. Wetlands are primarily located in the northern and southern polygons (BMP 12.5).The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.

WILDLIFE:

Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Unit is located within the 2008 Forest Plan OGR, which is modified under Alternative 3. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because all settings are less than 20 acres.

An eagle nest is located near this unit. Helicopter flight paths need to avoid this nest area during the nesting season; nest activity will be confirmed prior to project implementation.

Unit Number 464 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit 465

Unit Number	465	Alternatives	3	Total Unit Acres:	21.2	Prescription:	Clearcut
VCU Number:	581	Harvest System:	Helicopter	Net Harvest Volume (MBF):	495	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 465 is has old-growth stand structure with the over-story mainly western hemlock and western redcedar with Sitka spruce and Alaska-cedar present as lesser components. Moderate windthrow, average defect, and a moderate incidence of mistletoe were recorded. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

About half of this unit has a moderate SIO and is in foreground from Eagle Creek. Retention areas (visual buffers and retention for other reasons) have been designated along the southeast edge of settings to screen visibility from the creek. Design these screens approximately as shown on the unit card map. Evaluate the effectiveness and windthrow risk of the planned screens at the time of layout and adjust as needed.

The legacy standard and guide applies in this VCU. This requires that approximately 9 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to cover RMAs, provide visual screens, increase travel corridor width for wildlife, and address heritage concerns. Total mapped legacy is approximately 10 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 3030100.

ENGINEERING/ROADS:

This unit is accessed by reconstruction of existing NFS road 3030100, totaling 2500 feet. See corresponding road card for detailed information.

BOTANY:

Two populations (184 and 92 individuals) of lesser round-leaved orchid (sensitive plant) are partially in the original unit. About 0.2 ac were excluded from the unit to avoid direct and most indirect effects on the large population. Slightly over half of the other population is in the unit. Unit also indirectly affects portions of these populations, located to the north and west of the unit.

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Eagle Creek.

Stream#: 1 (Eagle Creek) Class: I Flagging: B/W C- Type: MCL, MML
Concerns: some bank erosion
Buffer (RMA): Class I for MCL greater of 100 feet or to the top of the side-slope break. Class I for MML greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: 1.1R Class: II Flagging: B/W C- Type: HCM, MMS, PAB
Concerns: blowdown observed
Buffer (RMA): Class II for HCM greater of 100 feet or to the top of the side-slope break. Class II - greater of 120 feet (MMS) or 100 feet (PAB), flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A

Stream#: 2 Class: I, II Flagging: B/W C- Type: MMO, HCO
Concerns: none
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: 2.1R Class: II Flagging: B/W C- Type: HCO
Concerns: none
Buffer (RMA): Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: 3 Class: I, II Flagging: B/W C- Type: MMO, HCO
Concerns: none
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: 4 Class: I, II Flagging: B/W C- Type: MMO, HCO
Concerns: none
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: 5 Class: I, II Flagging: B/W C- Type: MMO, HCO
Concerns: none
Buffer (RMA): Class I for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCO greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:

No Concerns

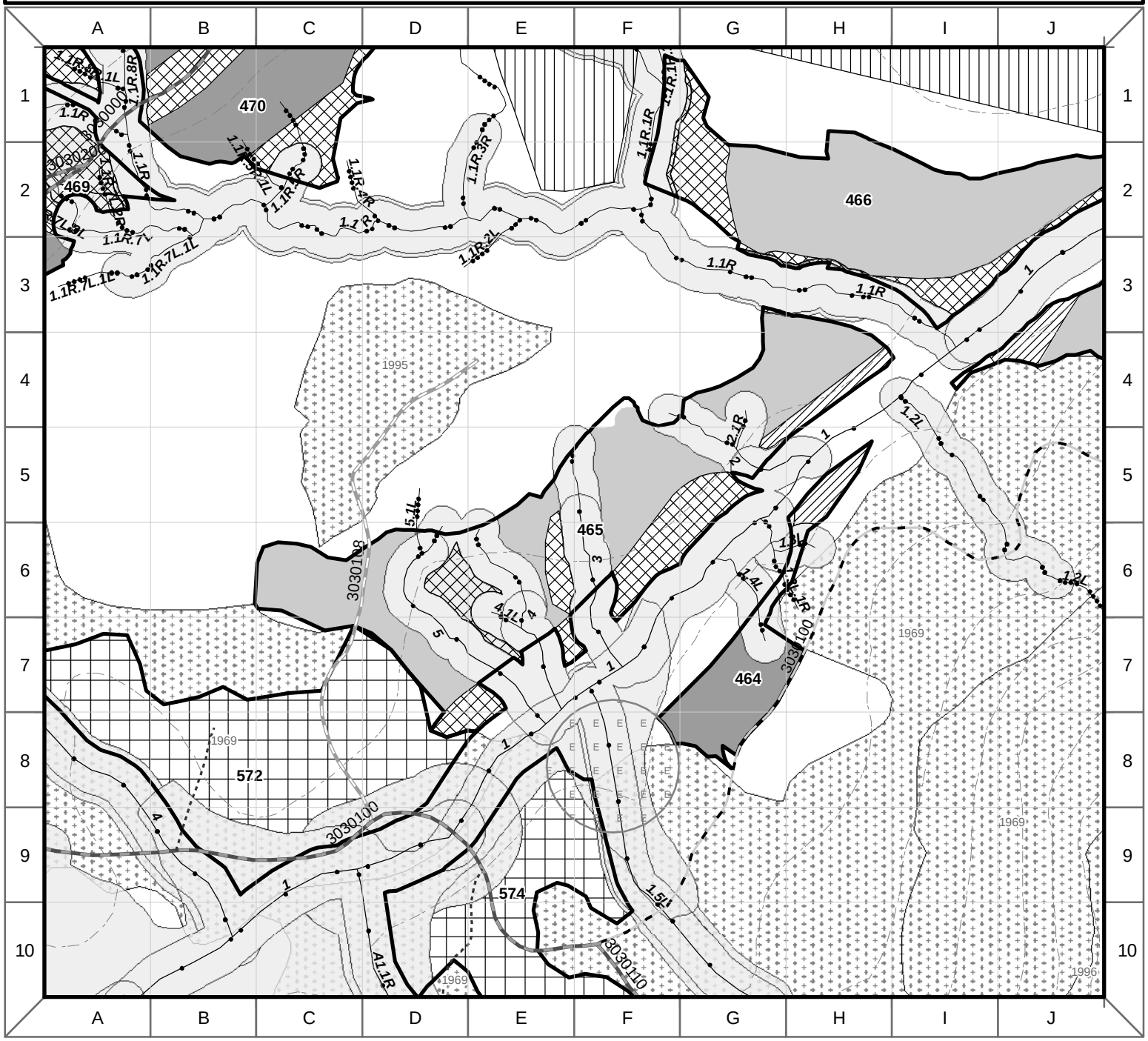
HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance. The physical boundaries of this unit are not to be modified without input from a Forest Service Heritage specialist.

SCENERY:

Unit 465
Unit is in foreground from Eagle Creek and includes 11 acres of Moderate SIO, with the remainder in Very Low SIO. The unit consists of four openings separated by TTRA buffers and legacy. Expanded RMAs also parallel Eagle Creek and a visual screen (buffers) was incorporated into unit design (see Silviculture) to add width in one case. With these buffers and screens, it is intended that the unit be visually screened from Eagle Creek. Evaluation of windfirmness for these buffers is included.
RECREATION: Timber harvest activities may be heard by recreationists using Eagle Creek.
SOILS/WETLANDS: Slopes are gentle throughout the unit. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). No wetlands have been mapped in the unit
WILDLIFE: Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range; unit also includes large-tree POG (SD 67). Unit is located within the 2008 Forest Plan OGR, which was modified under Alternative 3. Legacy standard and guideline applies in this VCU; positioning of legacy acres covers some deer winter range/marten habitat and large-tree POG. An eagle nest is located in the stream buffer for Eagle Creek. Helicopter flight paths will be determined for the Final EIS; nest activity will be confirmed prior to project implementation.

Unit Number 465 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit 466

Unit Number	466	Alternatives	3	Total Unit Acres:	27.4	Prescription:	Clearcut
VCU Number:	581	Harvest System:	Helicopter	Net Harvest Volume (MBF):	608	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 466 is described as a wind driven predominantly western hemlock and Sitka spruce stand. Old-growth stand structure dominates between significant areas of even-age structure some of which are in stem exclusion. Heavy past windthrow and stem breakage, high defect, and a moderate to high incidence of mistletoe define the area. Over-story trees are evenly spaced and lightly stocked due to past windthrow. Fluting was noted as particularly heavy in the overstory and midstory hemlock. Very poor residual tree stocking was noted for the central eastern portion of the unit. There are no adjacent past harvest areas.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time becaause it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

About 17 acres of this unit has a moderate SIO and is in foreground from Eagle Creek. Retention areas (made up of legacy due to expanded RMAs or for visual screens) have been designated along the southeast and eastern edge of setting to screen visibility from the creek and saltwater areas. Design these legacy areas as shown on the unit card map. Evaluate the effectiveness and windthrow risk of the planned screens at the time of layout and adjust as needed.

The legacy standard and guide applies in this VCU. This requires that approximately 12 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy placed along Eagle Creek to screen visibility, increase travel corridor width for wildlife, and build off of RMA at northeast end of unit and RMA at west end of unit to provide RAW. Total mapped legacy is approximately 12 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to the existing NFS road 3030100.

ENGINEERING/ROADS:

This unit utilizes reconstruction of existing NFS road 3030100, totaling 3,900 feet, for helicopter landings. See corresponding road card for detailed information.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 466

Streams are tributaries to Eagle Creek.

Stream#: 1 (Eagle CreeK) Class: I Flagging: B/W C- Type: MCL, MML
Concerns: none
Buffer (RMA): Class I for MCL greater of 100 feet or to the top of the side-slope break. Class I for MML greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A

Stream#: A1 Class: III Flagging: O/W C- Type: HCM
Concerns: none
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: 1.1R Class: II Flagging: B/W C- Type: HCM, MMS, PAB
Concerns: blowdown observed
Buffer (RMA): Class II for HCM greater of 100 feet or to the top of the side-slope break. Class II - greater of 120 feet (MMS) or 100 feet (PAB), flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A

Stream#: 1.1R.1R Class: II Flagging: B/W C- Type: MMS
Concerns: none
Buffer (RMA): Class II for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): Will be identified by IDT during layout.
Protection: Category A

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit is in foreground from Eagle Creek and includes 17 acres of Moderate SIO, with the remainder in Very Low SIO. Retention areas (made up of legacy due to expanded RMAs or for visual screens) have been designated along the southeast and eastern edge of setting to screen visibility from the creek and saltwater areas. Design these legacy areas as shown on the unit card map. Evaluate the effectiveness and windthrow risk of the planned screens at the time of layout and adjust as needed.

RECREATION:

Timber harvest activities may be heard by recreationists using Eagle Creek.

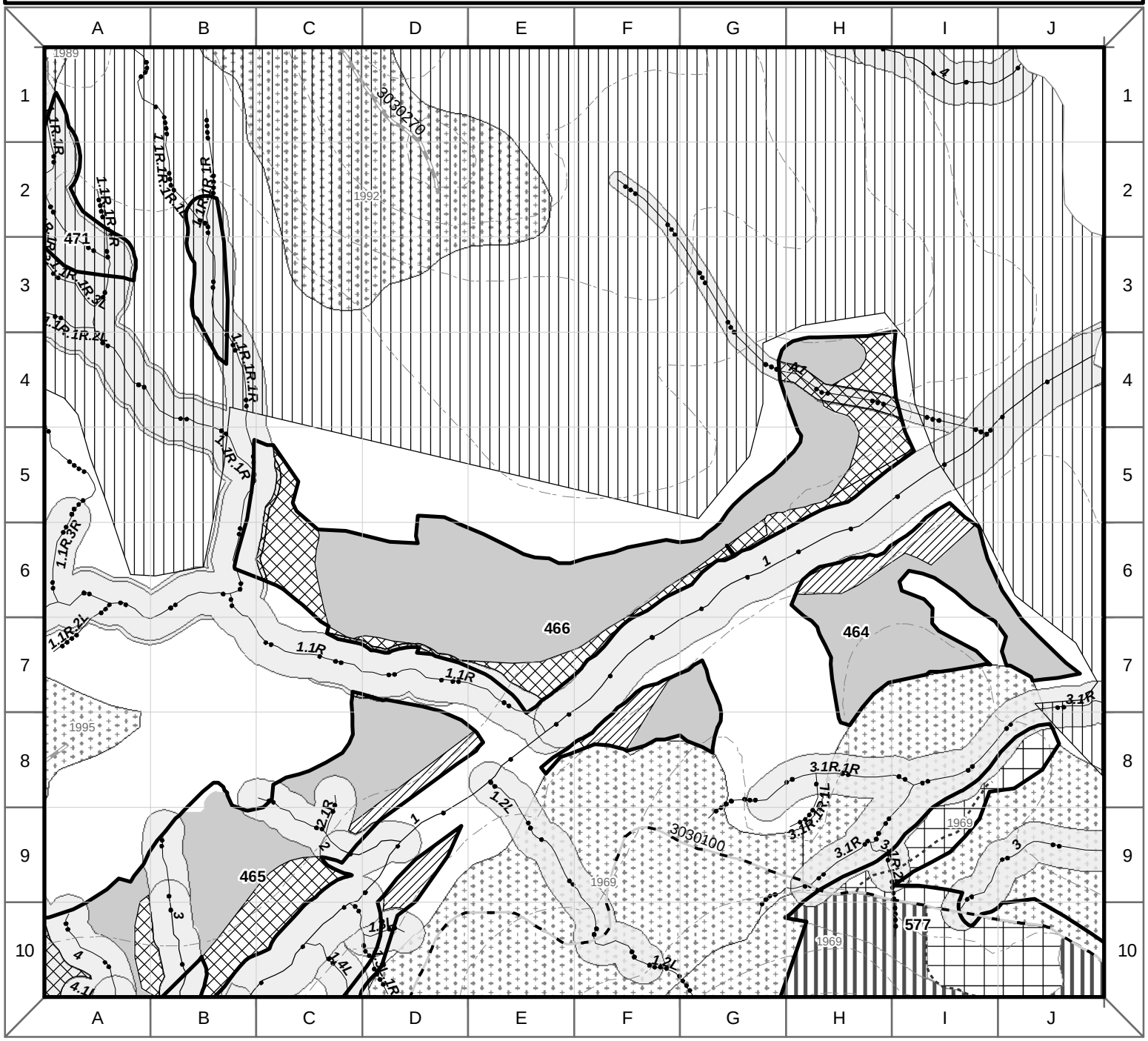
SOILS/WETLANDS:

Slopes are gentle through the unit. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). No wetlands have been mapped in the unit

WILDLIFE:

Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range; unit also includes large-tree POG (SD 67). Unit is located within the 2008 Forest Plan OGR, which was modified under Alternative 3. Northern boundary of eastern half of unit is almost adjacent to the modified OGR. Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range/marten habitat and large-tree POG.

Unit Number 466 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit 469

Unit Number	469	Alternatives	3	Total Unit Acres:	27.2	Prescription:	Clearcut
VCU Number:	581	Harvest System:	Cable	Net Harvest Volume (MBF):	823	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 469 is a mixed species stand with western hemlock, western redcedar, Sitka spruce and Alaska-cedar. Generally, old-growth stand structure dominates however patchy areas of heavy past wind damage across the stand have a two-age stem exclusion structure. Heavy repeated wind damage, average to high defect, and a generally moderate incidence of mistletoe was noted. Breakage and stem decay are the primary issues in the overstory. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time becaause it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, improve site productivity through increased soil temperature and minimize defect and disease in the future stand to the maximum extent possible.

This unit is adjacent to the Coffman Cove Loop road and due to the combination of Modified Landscape LUD and foreground distance zone, requires minimal visibility of harvest openings from this road. In order to meet this requirement a screen of trees is being prescribed to be maintained to block the harvest area from view. Design this screen approximately as shown on the unit card map. Evaluate the effectiveness and windthrow risk of the planned screen at the time of layout and adjust as needed. This screen will also serve as legacy retention.

The legacy standard and guide applies in this VCU. This requires that approximately 14 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Most legacy is provided by areas dropped for soils and RMA; however, visual buffers were added along the 3030 road and some additional legacy was added along RMA at NE end of unit. Total mapped legacy is approximately 20 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for uphill and downhill cable yarding to landings on the existing NFS road 3030200.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

Portions of two large lesser round-leaved orchid (sensitive plant) populations (estimated at 565 and 207 plants) occur in unit or legacy of unit . The smaller population is completely avoided by unit design, while about 23 acres of the larger population occurs in the unit and 22 acres occurs in the legacy, TTRA, or deferred areas of the unit. The majority of this larger population is outside of all units and not impacted. This population is also impacted by Units 470 and 471, which collectively result in direct impacts to 17% of the population. These populations are partially indirectly impacted by the unit; populations nearly surround area proposed for harvest.

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Eagle Creek.

Stream#: 1.1R Class: II, III Flagging: B/W, O/W C- Type: HCL, HCM
Concerns: debris in channel holding back bedload
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A and B

Stream#: 1.1R.7L Class: II, III Flagging: B/W, O/W C- Type: MMO, HCL
Concerns: existing LWD in channel is holding back bedload and sediment
Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class III for HCL to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: 4 Class: II, III Flagging: B/W, O/W C- Type: HCM, HCD
Concerns: none
Buffer (RMA): Class II for HCM greater of 100 feet or to the top of the side-slope break. Class III for HCM and HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A and B

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

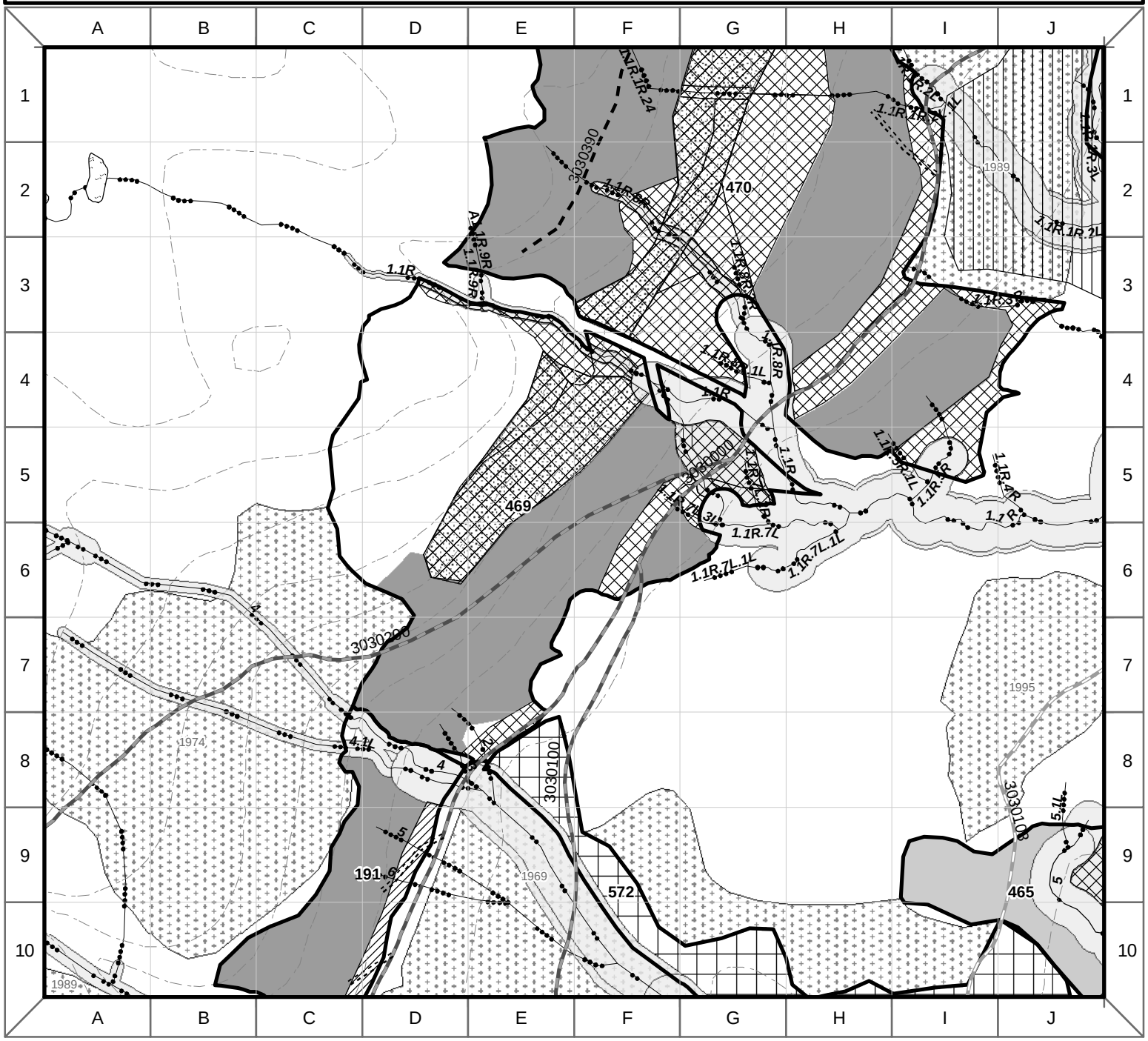
SCENERY:
Unit has 23 acres in Moderate SIO and 4 acres in Low SIO. It is adjacent to the Coffman Cove Loop road and requires minimal visibility of harvest openings from this road. In order to meet this requirement a screen of trees is being prescribed to be maintained to block the harvest area from view. Design this screen approximately as shown on the unit card map. Evaluate the effectiveness and windthrow risk of the planned screen at the time of layout and adjust as needed.

RECREATION:
No Concerns

SOILS/WETLANDS:
Slopes range from about 50 to greater than 72%. About 11 acres were excluded due to steep slopes. All slopes over 72% are in the soil exclusion area. In the remainder of the unit, a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). There is approximately 1 acre of forested wetland in the southwest portion of the unit (BMP 12.5).

WILDLIFE:
Unit includes average snow deer winter range (entire unit), all of which is also deep snow marten habitat/deer winter range. Unit is located within the 2008 Forest Plan OGR, which was modified under Alternative 3. Unit is adjacent to modified OGR. Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range/marten habitat.

Unit Number 469 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit 470

Unit Number	470	Alternatives	3	Total Unit Acres:	67.6	Prescription:	Clearcut
VCU Number:	581	Harvest System:	Cable, Shovel	Net Harvest Volume (MBF):	1,728	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is predominantly a western hemlock and western redcedar stand. Western hemlock and Alaska-cedar occur in the upper elevations. Generally old-growth stand structure dominates, however windthrow and stem breakage are extensive. Areas of advanced even-age structure occur in the southeast polygon below the road and in the northeastern-most polygon as well as thru the center of the unit where slopes bench out just above the central band of steeper slopes. Extensive repeated windthrow, moderate to high defect, and patches of heavy mistletoe were noted. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time becaause it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

This unit is adjacent to the Coffman Cove Loop road and due to the combination of Modified Landscape LUD and foreground distance zone, requires minimal visibility of harvest openings from this road. In order to meet this requirement a screen of trees is being prescribed to be maintained to block the harvest area from view. Design this screen approximately as shown on the unit card map. Evaluate the effectiveness and windthrow risk of the planned screen at the time of layout and adjust as needed. This screen will also serve as legacy retention.

The legacy standard and guide applies in this VCU. This requires that approximately 34 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to block up POG and tie into areas dropped for RMA/TTRA buffers and to include sensitive plant populations. Legacy was also placed as a visual buffer along 3030000 road. Legacy effectively divides unit into three openings. Total mapped legacy is approximately 44 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of shovel and cable yarding. Cable settings are planned for uphill yarding to landings on proposed NFS road 3030390. Shovel settings are planned for yarding to the proposed temporary road, proposed NFS road 3030390, and existing NFS road 3030000.

ENGINEERING/ROADS:

Unit is accessed by a proposed temporary road, totaling 400 feet, as displayed on the unit card. Unit is also accessed by proposed NFS road 3030390, totaling 3,600 feet. Approximately 800 feet of this road will be constructed across decommissioned road bed. See corresponding road card for detailed information.

BOTANY:

One large population of lesser round-leaved orchid (sensitive plant) partially in unit (33 acres of population area to be harvested, 51 ac in legacy, TTRA, deferred). This population is also impacted by Units 469 and 471, which collectively result in direct impacts to 17% of the population. Unit indirectly impacts portions of this large population located adjacent to the eastern half of the unit and the portions in legacy.

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Eagle Creek.

Stream#: 1.1R.1R.2L Class: II, IV Flagging: B/W, G/W C- Type: MMO, HCM
Concerns: none
Buffer (RMA): Class II for MMO greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class IV for HCM none.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A and C

Stream#: 1.1R Class: II, III Flagging: B/W, O/W C- Type: MMS, HCL, HCM
Concerns: blowdown observed, debris blockages holding bedload material
Buffer (RMA): Class II for MMS greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens. Class II for HCL and HCM greater of 100 feet or to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A and B

Stream#: 1.1R.8R Class: II, III, IV Flagging: B/W, O/W, G/W C- Type: HCL, HCM, MMO
Concerns: blowdown observed, LWD in channel holding back sediment
Buffer (RMA): Class II for HCL greater of 100 feet or to the top of the side-slope break. Class III for HCL and HCM to the top of the side-slope break. Class IV for MMO none.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A, B and C

All streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 470: Alternative 3 -- no known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit has 27 acres in Moderate SIO, 32 acres in Low SIO, and 9 acres in Very Low SIO. It is adjacent to the Coffman Cove Loop road and requires minimal visibility of harvest openings from this road. In order to meet this requirement a screen of trees is being prescribed (as legacy) to be maintained to restrict the harvest area from view. Design this screen approximately as shown on the unit card map. Evaluate the effectiveness and windthrow risk of the planned screen at the time of layout and adjust as needed.

RECREATION:

No Concerns

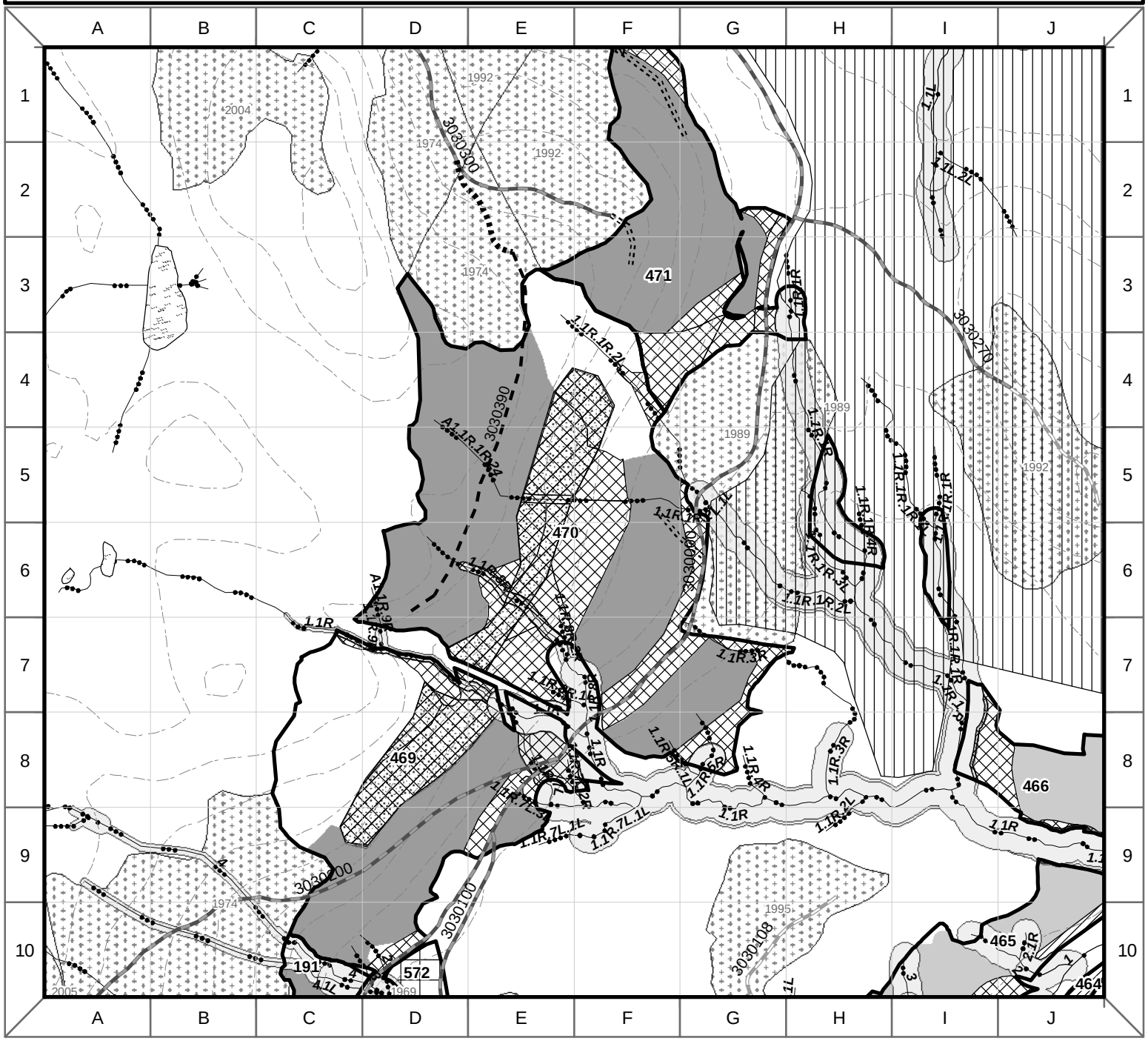
SOILS/WETLANDS:

Slopes range from about 15% to greater than 72%. About 15 acres were excluded due to steep slopes, wet slopes, and colluvial activity. All slopes over 72% are in the soil exclusion area. In the remaining unit, the soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting. Approximately 1/3 of unit is in forested wetland (in the northwestern part of the unit).

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern and southern ends). Unit is located within the 2008 Forest Plan OGR, which was modified under Alternative 3. Unit is adjacent to the modified OGR. Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range/marten habitat.

Unit Number 470 | **Alternative 3** | **VCU: 581**


A B C D E F G H I J
1 2 3 4 5 6 7 8 9 10
471
470
469
466
465
464
191
572
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3030390
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3030100
3030108
3030270
1992
2004
1974
1989
1995
2005
1969
1.1R
1.1R.1R.2L
1.1R.7L.1L
1.1R.3R
1.1R.4R
1.1R.2L
1.1R.1R.1R
1.1R.1R.2L
1.1R.1R.4R
1.1R.1R.3L
1.1R.1R.1R
1.1R.1R.1R
1.1R.1R.1R

Unit 471

Unit Number	471	Alternatives	3	Total Unit Acres:	32.8	Prescription:	Clearcut
VCU Number:	581	Harvest System:	Cable, Shovel	Net Harvest Volume (MBF):	640	LUD:	Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: This unit is an old-growth stand with windthrow and stem breakage resulting in some areas of even-aged stand structure. Variable windthrow and stem breakage, moderate stem decay, and moderate mistletoe were noted. The over-story of the stand is western hemlock, redcedar and spruce. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time becaause it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

This unit is adjacent to the Coffman Cove Loop road and due to the combination of Modified Landscape LUD and foreground distance zone, requires minimal visibility of harvest openings from this road. In order to meet this requirement screens of trees are being prescribed to be maintained to limit the harvest area from view. Design this screen approximately as shown on the unit card map. Evaluate the effectiveness and windthrow risk of the planned screen at the time of layout and adjust as needed. This screen will also serve as legacy retention.

The legacy standard and guide applies in this VCU. This requires that approximately 14 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to block up POG, screen the unit from the 3030 road, shorten required road length, and avoid interference with logging. Total mapped legacy is approximately 15 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for a combination of shovel and cable yarding. Shovel settings are planned for yarding to existing NFS road 3030000. Cable settings are planned for uphill and downhill yarding to landings on the proposed temporary roads.

ENGINEERING/ROADS:

Unit is accessed by two proposed temporary roads, totaling 1,900 feet, as displayed on the unit card.

BOTANY:

One large population (565 individuals) is partially in unit (3 acres of population to be harvested, 15 ac in legacy, TTRA, deferred). This population is also impacted by Unit 469 and 470, which collectively result in direct impacts to 17% of the population. The majority of the large population in this area is outside of units and not impacted. Unit indirectly affects the portion of the population located outside of the unit.

INVASIVE SPECIES:

No Concerns

FISHERIES:

Unit 471

Streams are tributaries to Eagle Creek.

All streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

Temporary roads for Unit 471: Alternative 3 -- no known stream crossings. The temporary roads have not been field verified and will be surveyed before implementation. If any stream crossings are found, crossings structures and locations will be approved by USFS, in consultation with fisheries biologist or hydrologist, prior to construction (BMP 14.17). During construction of temporary roads implement BMPs 12.17, 13.10, 13.11, 13.16, 14.3, and 14.5.

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

SCENERY:

Unit has 11 acres in Moderate SIO and 22 acres in Low SIO. It is adjacent to the Coffman Cove Loop road and requires minimal visibility of harvest openings from this road. In order to meet this requirement a screen of trees is being prescribed (as legacy) to be maintained to restrict the harvest area from view. Design this screen approximately as shown on the unit card map. Evaluate the effectiveness and windthrow risk of the planned screen at the time of layout and adjust as needed.

RECREATION:

No Concerns

SOILS/WETLANDS:

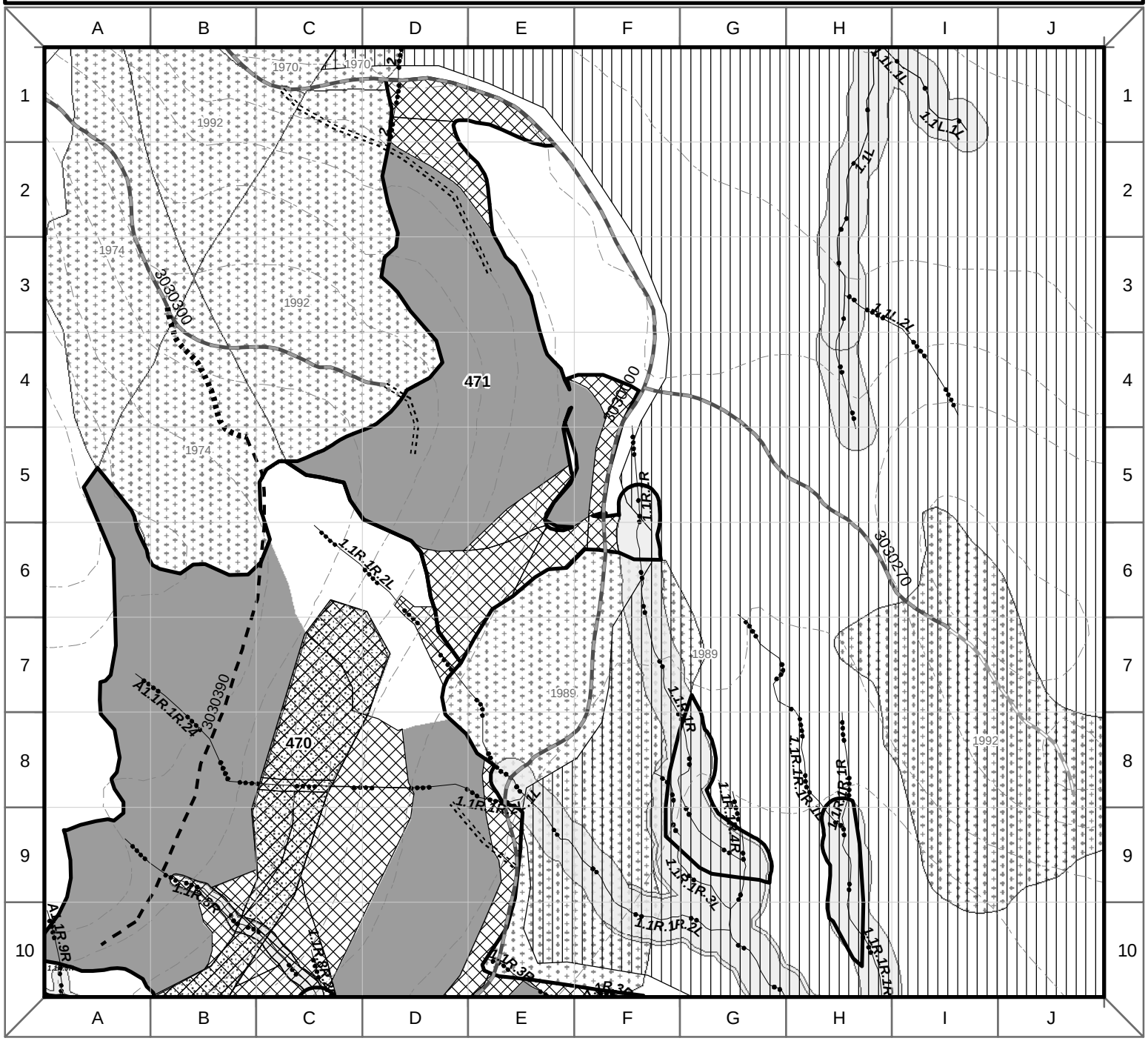
Slopes range about 20 to 50%. The soils and wetlands are suitable for a minimum partial suspension yarding or shovel yarding. All logging systems should follow BMPs 12.5, 13.2 and 13.9. Specifically, the shovel operator should avoid the small non-forested areas of the unit to prevent rutting. Slopes over 25% gradient may not be suitable for shovel yarding under some soil moisture conditions. Use care when approving shovel yarding on slopes over 25% gradient. Avoid track slippage and rutting.
There are approximately 2 acres of emergent sedge/forested wetland in the northeastern portion of the unit (BMP 12.5).

Based on GIS analysis, the proposed temporary road does not traverse any wetlands.

WILDLIFE:

Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern half). Unit is located within the 2008 Forest Plan OGR, which was modified under Alternative 3. Unit is adjacent to modified OGR. Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range/marten habitat.

Unit Number 471 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit 473

Unit Number	473	Alternatives	3	Total Unit Acres:	5.8	Prescription:	Clearcut
VCU Number:	581	Harvest System:	Helicopter	Net Harvest Volume (MBF):	186	LUD:	Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 473 is a high elevation, low productivity, high defect over-mature stand. Old-growth stand structure dominates. The over-story of the stand is a mix of western hemlock, Sitka spruce and red and yellow-cedar. Sitka spruce are widely spaced, large, high defect trees. Windthrow risk is moderate and mistletoe was rated light. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with high levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit consists of settings that are less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 3000330.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Luck Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A1 Class: III Flagging: O/W C- Type: HCD
Concerns: none
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

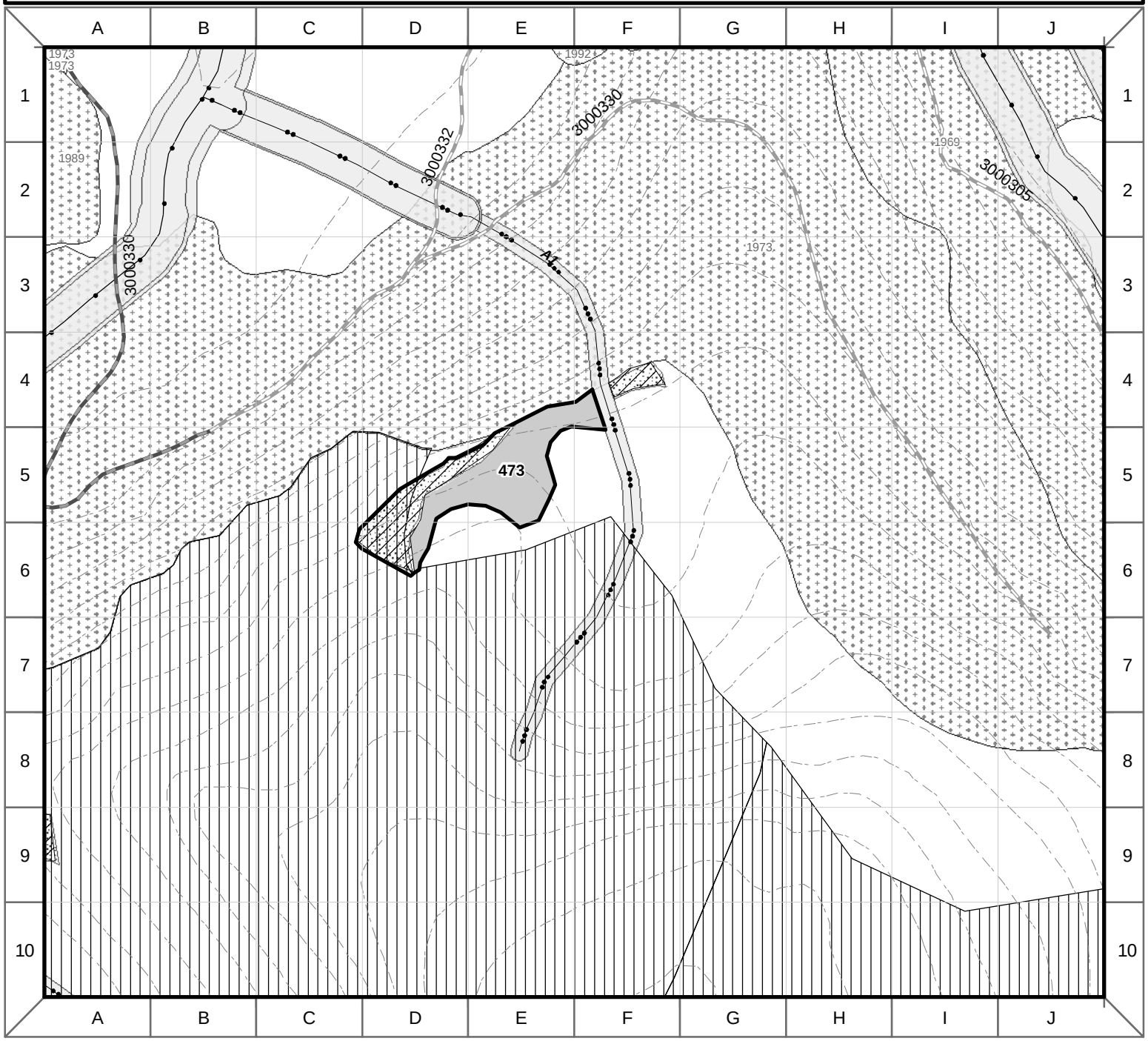
SCENERY:

No Concerns

RECREATION:

Unit 473
Unit touches the Thorne River roadless are to the southeast.
SOILS/WETLANDS: Slopes range from about 30 to greater than 72%. About 3 acres were excluded due to steep slopes over 80%. All slopes over 72% are in the soil exclusion area. A minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). The entire unit is forested wetland (BMP 12.5).
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range (northern half of unit). Unit is located within the 2008 Forest Plan OGR, which was modified under Alternative 3. Unit is adjacent to the modified OGR. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 473 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)

Proposed System Road
Proposed Temporary Road

Old Growth
Helicopter
Shovel or Cable
Partial Cut

Young Growth
Systematic Strip Thin
Uniform Crown Thin

Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N S E W

0 500
Feet

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Unit 475

Unit Number 475	Alternatives 3	Total Unit Acres: 14.9	Prescription: Clearcut
VCU Number: 581	Harvest System: Helicopter	Net Harvest Volume (MBF): 359	LUD: Timber Production

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 475 is an upper elevation, gap phase old growth stand of mixed species. The over-story of the stand is a mix of western hemlock, red and yellow-cedar and Sitka spruce. Sitka spruce are widely spaced large trees. Windthrow risk is moderate. Mistletoe and defect were rated moderate as well. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time because it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU; however, the unit is less than 20 acres, therefore no legacy set-aside is required.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 3000333.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Luck Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A1 Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A2 Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category B

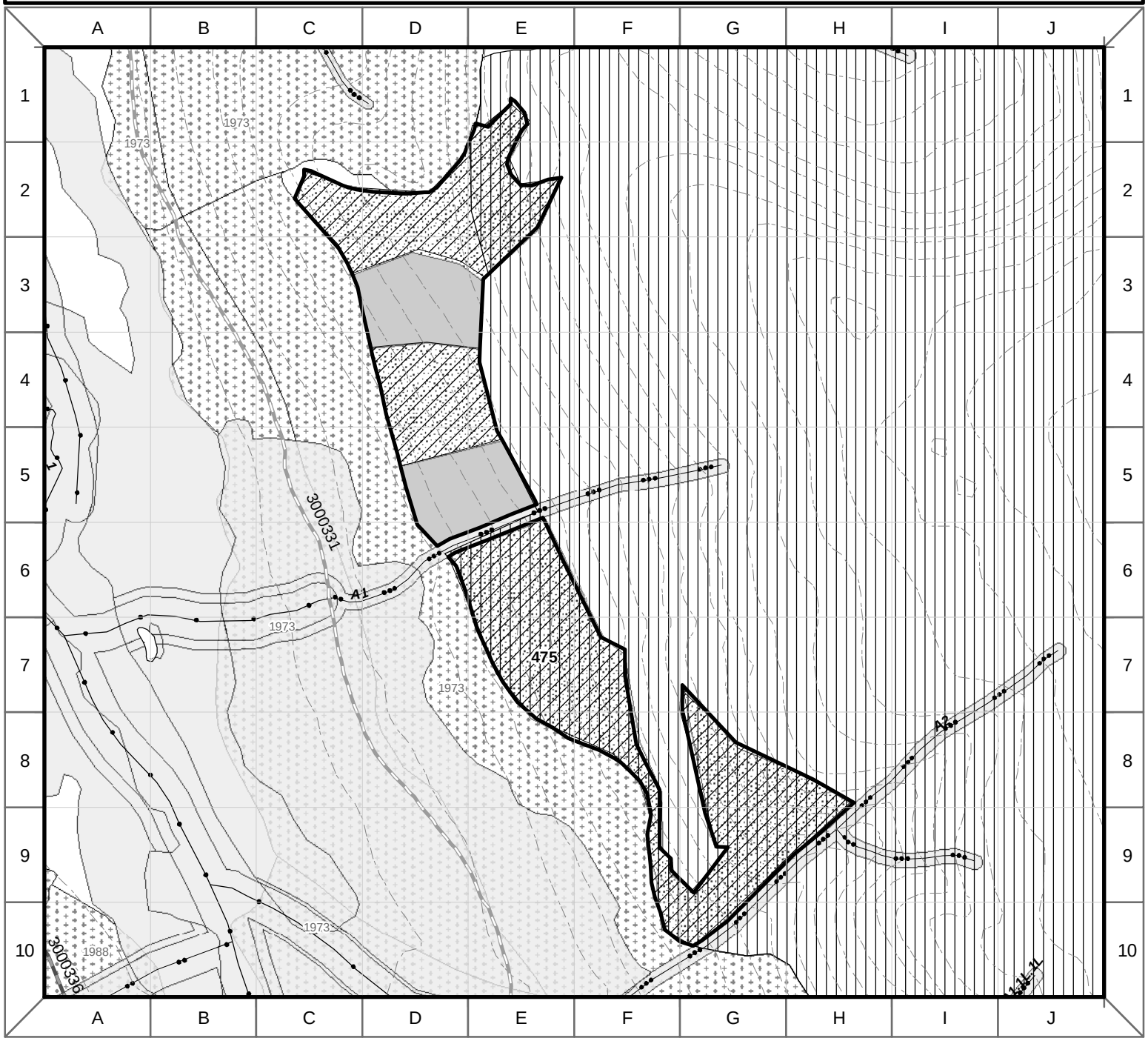
GEOLOGY/KARST:

No Concerns

HERITAGE RESOURCES:

Unit 475
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.
SCENERY: No Concerns
RECREATION: Unit is adjacent to the Thorne River roadless area on the east.
SOILS/WETLANDS: Slopes range from about 50 to greater than 72%. About 61 acres were excluded due to steep slopes, wet soils, and landslides. In the remainder of the unit, there are no mapped slopes greater than 72%. In the remaining unit, a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). No wetlands have been mapped in the unit
WILDLIFE: Unit includes average snow deer winter range (entire unit), some of which is also deep snow marten habitat/deer winter range 9 (western 1/2 of unit). Unit is located within the 2008 Forest Plan OGR, which was modified under Alternative 3. Unit is adjacent to the modified OGR. Legacy standard and guideline applies in this VCU, however there are no requirements for this unit because it is less than 20 acres.

Unit Number 475 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
RR Recreation River LUD
SR Scenic River LUD
State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
Proposed Reconstructed Road
Proposed System Road (reopened Decommissioned)
Proposed Temporary Road (reopened Decommissioned)
Proposed System Road
Proposed Temporary Road
Old Growth
Helicopter
Shovel or Cable
Partial Cut
Young Growth
Systematic Strip Thin
Uniform Crown Thin
Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer
Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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Unit 476

Unit Number 476	Alternatives 3	Total Unit Acres: 59.9	Prescription: Clearcut
VCU Number: 581	Harvest System: Helicopter	Net Harvest Volume (MBF): 1,509	LUD: Modified Landscape

Summary of Concerns, Responses, BMPs and Mitigation

SILVICULTURE:

Existing Conditions: Unit 476 is a mid to upper elevation, gap phase-old growth stand of primarily western hemlock. The over-story of the stand is a mix of western hemlock and scattered Sitka spruce with western redcedar occurring in the north on the gentler slopes. Windthrow risk is moderate. Mistletoe and defect were rated moderate as well. All adjacent past harvest areas have regeneration at least 5 feet tall, meeting NFMA requirements for no longer being considered openings.

Silvicultural Objective/Desired Condition: The desired condition for this stand is a highly productive, healthy, windfirm stand grown for timber management that retains residual trees as needed to meet standards and guides or other objectives.

Silvicultural Prescription: Even-age Management - Clearcut
This stand is being recommended for harvest at this time becaause it is not expected to obtain the desired condition given the current growth trajectory. This stand is mature with moderate levels of decay and defect resulting in a situation where stand growth is being offset by decay. Even-aged clear cutting is being prescribed to preclude or minimize the risk of windthrow post harvest, promote natural regeneration by opening up the canopy, and minimize defect and disease in the future stand to the maximum extent possible.

The legacy standard and guide applies in this VCU. This requires that approximately 29 acres of productive old growth representative of the overall composition of the planned harvest area be maintained indefinitely. Legacy was placed to coincide with areas dropped due to soil concerns and RMAs. Total mapped legacy is approximately 29 acres. Any adjustments to the planned unit during implementation must consider the planned acreage and location of legacy.

TIMBER/LOGGING:

This unit is planned for helicopter yarding to landings on the existing NFS road 3000336.

ENGINEERING/ROADS:

No proposed road construction.

BOTANY:

No Concerns

INVASIVE SPECIES:

No Concerns

FISHERIES:

Streams are tributaries to Luck Creek. Stream characteristics do not include project-specific, field-verified, information.

Stream#: A1 Class: I Flagging: B/W C- Type: MMM
Concerns: none known
Buffer (RMA): Class I for MMM greater of 120 feet, flood plain, riparian vegetation or soils, or riparian associated wetland fens.
Alternatives: 3 Buffer (RAW): Will be identified by an IDT during layout
Protection: Category A

Stream#: A1.1L Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1.1L.1L Class: III Flagging: O/W C- Type: HCD
Concerns: none known
Buffer (RMA): Class III for HCD to the top of the side-slope break.

Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1.2L Class: I, III Flagging: B/W, O/W C- Type: AFM, HCM
Concerns: none known
Buffer (RMA): Class I for AFM greater than 140 feet or the active portion of the alluvial fan. Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category A and B

Stream#: A1.2L.1L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A3 Class: III, IV Flagging: O/W, G/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCM none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: A1.2L.2L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1.2L.1R Class: III, IV Flagging: O/W, G/W C- Type: HCLw
Concerns: none known
Buffer (RMA): Class III for HCLw to the top of the side-slope break. Class IV for HCLw none.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B and C

Stream#: A1.2L.3L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1.2L.1R Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1.2L.4L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1.3L Class: III Flagging: O/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Stream#: A1.3L.1L Class: III, IV Flagging: O/W, G/W C- Type: HCM
Concerns: none known
Buffer (RMA): Class III for HCM to the top of the side-slope break. Class IV for HCM.
Alternatives: 3 Buffer (RAW): no review needed
Protection: Category B

Unit 476

All other streams in unit: Class: IV Flagging: G/W C- Type: HC or MM
Buffer (RMA): none Buffer (RAW): no review needed
Protection: Category C

GEOLOGY/KARST:
No Concerns

HERITAGE RESOURCES:
This unit was investigated per the third amended interagency Programmatic Agreement (PA) for historic properties. As specified by the PA, any potential adverse effect on historic properties (if any) was mitigated and portions of the Area of Potential Effect will be monitored by a qualified heritage specialist during and/or after actual ground disturbance.

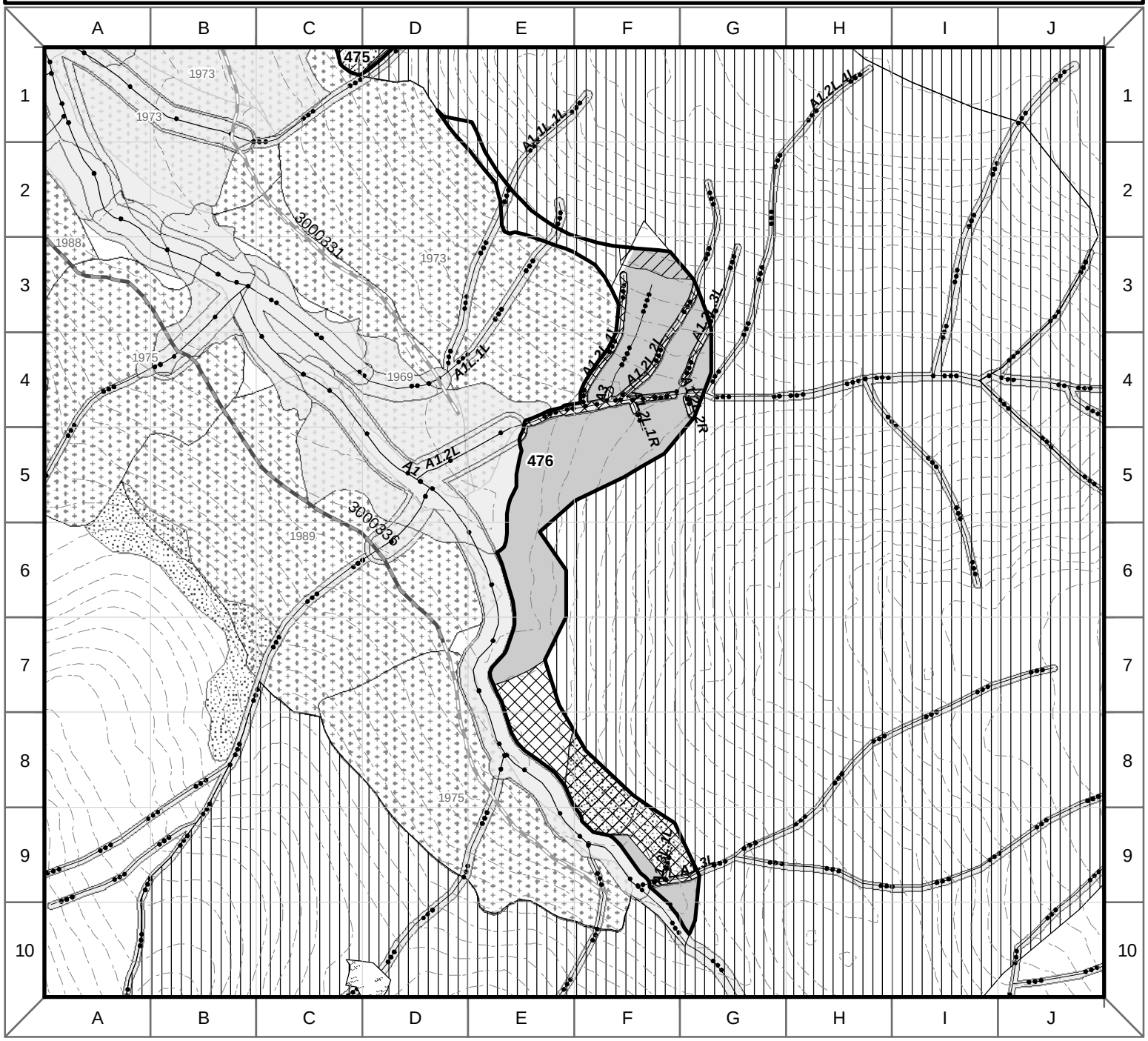
SCENERY:
No Concerns

RECREATION:
Unit is adjacent to the Thorne River roadless area on the east.

SOILS/WETLANDS:
Slopes range from about 30 to greater than 72%. In the remainder of the unit, there are about 2 acres of mapped slopes greater than 72% that are suitable for harvest with partial. About 29 acres were excluded due to steep slopes and landslides. suspension. In the remaining unit, a minimum of partial suspension would meet soil and wetland resource concerns (BMPs 12.5, 13.5, and 13.9). No wetlands have been mapped in the unit

WILDLIFE:
Unit includes average snow deer winter range (entire unit), some of which is also deer snow marten habitat/deer winter range (southern 2/3 of unit). Unit is located within the 2008 Forest Plan OGR, which was modified under Alternative 3. Unit is adjacent to the modified OGR on the east. Legacy standard and guideline applies in this VCU; positioning of Legacy acres covers some deer winter range/marten habitat.

Unit Number 476 | **Alternative 3** | **VCU: 581**



Past Harvest (Year Origin)
Unsuitable Soils
Riparian Management Area
Slope > 72%
Other Ownership
Old Growth Habitat LUD
Recreation River LUD
Scenic River LUD

State Highway
National Forest System Road - Open
National Forest System Road - Stored
Non-National Forest System Road
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Class 1 Stream
Class 2 Stream
Class 3 Stream
Class 4 Stream
Lake
100' Contour
Eagle Nest Buffer

Legacy
Visual Buffer
Deferred (within Original Unit Reconnaissance Area)

N W E S

0 500
Feet

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