Forest Practices Application/Notification
Office Checklist Page 1
Northwest Region

A/N #: 2817117
Received Date: 7-30-19
WDFW Concurrence Due Date: —
WDFW Concurrence Review Completed: —
Comments Due Date: 8-13-19
Decision Due Date: 8-29-19
FP Forester: SA30
Shutdown Zone: 1056
RMAP #: R28019675

FPA/N CLASSIFICATION: [ ] II [X] III [ ] IVG [ ] IVS		Biomass [ ] FFFPP [ ] 20-acre exempt [ ]	
Landowner Name:	West Side Logging, Timberline Logging, Richmond JPJ	Project Name:	Cavanaugh A

WRIA: Stillaguamish WAU: Lake Cavanaugh
WRIA: WAU:
WRIA: WAU:
Legal Description: 27-33-10E County: Skagit

Activity Type: Harvest 24.7 ac Spray ac Stream Crossing(s) 10
Road Construction 2030 ft Road Abandonment 325 ft Rock Pit ac Spoils 100 cy

ALTERNATIVE PRESCRIPTIONS

[ ] Alternate Plan
[ ] Ten-Year Forest Management Plan
[ ] Columbia River Gorge National Scenic Area
[ ] Watershed Analysis:
[ ] Habitat Conservation Plan
[ ] Landowner Option Plan for Northern Spotted Owl
[ ] Cooperative Habitat Enhancement Agreement

RESOURCE REVIEW

[X] Unstable Slopes (Risk: Highway, Water;)
[X] Soils Map (Highly Erodible & Very Unstable)
[X] SLPSTAB
[ ] Landslide Hazard Zonation
[ ] Landslide Inventory Polygon
[X] Rain-on-Snow and Outside Approved WA
[ ] Hydric Soils
[ ] Wetland [ ] Forested, [ ] A, [ ] B
[ ] In WMZ of [ ] A, or [ ] B Wetland
[X] In RMZ/ELZ of Type [ ] S, [X] F, [X] N water
[ ] Water Verification
[ ] Bull Trout Overlay
[ ] HCP Bull Trout Population
[ ] Bald Eagle nest or roost within 660 feet
[ ] Group A or B Water Supply
[ ] Hatchery (Name:)
[ ] Even-Aged Harvest greater than 120 Acres
[ ] Ground-based Equipment on Slopes greater than 40%
[ ] Road Construction on Slopes greater than 65%
[ ] Saltwater Islands (Name:)
[X] In or Over Typed Water
[ ] Volume greater than 5 mbf per acre

ASSOCIATED NON-SCANNED DOCUMENTS – On file with the FPA/N at the Region office.

[ ] SEPA Checklist/Documents
[ ] Large Landowner Road Maintenance and Abandonment Plan

ASSOCIATED SCANNED DOCUMENTS

[ ] Conversion Option Harvest Plan
[ ] FPHP Plans & Specifications
[X] Qualified Expert Report; Type: Geotech
[ ] Natural Regeneration Plan
[ ] Shoreline Permit
[X] Marbled Murrelet Form
[ ] FPBM Appendix(s)
[X] Small Landowner RMAP Checklist
[ ] CMZ Assessment Form
[ ] Hardwood Conversion Form
[ ] Wetland Mitigation Plan
[ ] Water Protocol Surveys
[ ] Modification Form#
[X] Water Classification Worksheet
[ ] Shade Documentation (Stream Shade Assessment Worksheet)
[ ] Watershed Analysis Worksheet
[ ] DFC Printout
[X] Slope Stability Informational Form

EARR Tax Credit [X] Yes [ ] No
Form completed by BA

ADDITIONAL COMMENTS: Resubmittal of 2817007

For DNR Region Office Use Only	
FPA/N #:	2817112
Region:	NW
Received Date:	7-30-19

Forest Practices Application/Notification
Western Washington

Project Name: Cavanaugh A

PLEASE USE THE INSTRUCTIONS TO COMPLETE THIS APPLICATION.

1. Landowner, Timber Owner and Operator

Legal Name of LANDOWNER	Legal Name of TIMBER OWNER	Legal Name of OPERATOR
West Side Logging, LLC, Timberline Logging, Inc., Richmond JPJ	☐ Same as Landowner Nielsen Brothers Inc.	☒ Same as Landowner
Mailing Address: PO Box 2789	Mailing Address: PO Box 2789	Mailing Address:
City, State, Zip: Bellingham, WA 98227	City, State, Zip: Bellingham, WA 98227	City, State, Zip:
Phone: (360) 630-0725 Email: SamP@nielsenbrothers.net	Phone: (360) 630-0725 Email: SamP@nielsenbrothers.net	Phone: Email:

2. Contact Person

Contact Person:	Phone: (360) 630-0725
Samuel Petska	Email: SamP@nielsenbrothers.net

3. Are you converting the land to non-forestry use within 3 years of harvest?

☒ No ☐ Yes If yes, include your SEPA checklist and SEPA determination (if applicable) and county clearing and grading permit (if applicable).

4. If you are harvesting timber, enter the Forest Tax Number of the Timber Owner:

800018336 Eligible for EARR Tax Credit ☐ No ☐ Yes

Contact the Department of Revenue at 1-800-548-8829 for tax reporting information or to obtain a number.

5. Are you a small forest landowner per RCW 76.09.450? See instructions

☐ No ☒ Yes If yes, **Check all that apply**. If no, skip to Question 6.

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☒ My entire proposed harvest area is on a single contiguous ownership consisting of one or more parcels.

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NW REGION

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☐ My proposed forest practices activities is within an area covered by an approved Forest Stewardship Plan or Forest Management Plan developed in cooperation with DNR.

☐ I received technical assistance from a DNR small forest landowner Stewardship and Technical Assistance Forester in preparing this FPA/N.

☐ I have participated in a Washington State University Extension Service and/or DNR-sponsored Forest Stewardship Coached Planning course.

☐ I have attended a Washington State University Extension Service and/or DNR-sponsored Family Forest Owner Field Day.

6. Are you substituting prescriptions from an approved state or federal conservation agreement or Watershed Analysis?

■No ☐Yes Write 'HCP' or 'Using Prescriptions' in tables that apply. Attach or reference prescriptions and/or crosswalks for approved state or federal conservation agreements or Watershed Analysis on file at the Region office.

7. What is the legal description of your forest practices?

Section	Township	Range	E/W	Tax Parcel Number	County
27	33	6	E	P67021, P66954, P18456, P66776	Skagit

8. Have you reviewed this forest practices activity area to determine whether it may involve historic sites and/or Native American cultural resources? Read the instructions before answering this question.

☐No ■Yes If you made any contacts, please provide information in Question 28.

9. Do you have a DNR approved Road Maintenance and Abandonment Plan (RMAP)?

a. ■No ☐Yes Enter the RMAP number: _____ If yes, continue to b. If no, skip to c.

b. ■No ☐Yes Is this Forest Practices Application/Notification for work that is included in this approved RMAP?

c. ■No ☐Yes Is a Checklist RMAP required (see instructions)? See FPA Narrative

10. Are there potentially unstable slopes or landforms in or around the area of your forest practices activity?

☐No ■Yes If yes, attach Appendix D. Slope Stability Informational Form and map of areas reviewed for and locations of unstable slopes and landforms found. If applicable, attach a geotechnical letter, memo, or report, Watershed Analysis prescriptions, and/or a SEPA Environmental Checklist.

11. Is this Forest Practices Application/Notification (answer every question):

a. ■No ☐Yes A request for a multi-year permit? If yes, length requested: ☐ 4 years or ☐ 5 years. Not everyone qualifies for a multi-year permit. See instructions for details.

b. ■No ☐Yes An Alternate Plan? If yes, include a template or detailed plan. See instructions for details.

c. ■No ☐Yes For a funded Forest Family Fish Passage Program project?

d. ■No ☐Yes Within an urban growth area? If yes, see instructions for additional required documents.

e. ■No ☐Yes Within a public park? If yes, include SEPA Environmental Checklist or SEPA Determination, except for harvest/salvage of less than 5,000 board feet within a developed public park.
Park name: _____

f. ■No ☐Yes Within 500 feet of a public park? Park name: _____

g. ■No ☐Yes In an approved Conversion Option Harvest Plan (COHP) from the local government? If yes, include a copy. This only applies to proposals within urban growth areas.

h. ■No ☐Yes Within 200 feet of the Ordinary High Water Mark (OHWM) or floodway of Type S Water? If yes, check with the county or city to determine whether a substantial development permit is required under the local shorelines master plan.

i. ■No ☐Yes Within 50 miles of saltwater AND do you own more than 500 acres of forest land in Washington State? If yes, include Marbled Murrelet Form or attach/reference HCP prescriptions. See FPA Narrative

j. ■No ☐Yes In or directly adjacent to a potential Channel Migration Zone (CMZ)? If yes, include CMZ Assessment Form. Attach/reference applicable HCP and/or Watershed Analysis prescriptions.

You are required to verify all waters within 200 feet of your proposed forest practices activities prior to submitting a Forest Practices Application / Notification. Use the Water Type Classification Worksheet and/or a Water Type Modification form to explain how you verified water types. See Water Typing Requirements in the instructions.

* * * * * **If not working in or over typed Waters, skip to Question 16** * * * * *

Prior to answering Questions 12-15 in this section please refer to the Forest Practices Application Instructions and Forest Practices Board Manual Section 5.

12. Are you proposing any of the following projects NOT permitted by current HPAs from WDFW?

a. ■ No ☐ Yes Installing, replacing, or repairing a culvert at or below the bankfull width of Type S or F Water(s) that exceeds a five percent gradient?

b. ■ No ☐ Yes Constructing, replacing, or repairing a bridge at or below the bankfull width of unconfined streams in Type S or F Water(s)?

c. ■ No ☐ Yes Placing fill material within the 100-year flood level of unconfined streams in Type S or F Water(s)?

13. Have you consulted with DNR and/or WDFW about the proposed hydraulic project(s) in or over Type S or F Water? ■ No ☐ Yes

14. If installing, replacing, removing, or maintaining structures in or over any typed Water, complete the table below. Provide crossing locations and identifiers on your Activity Map. Provide plan details in Question 28 or attach plan to the FPA/N. Type S and F Waters require detailed plan information. Complex hydraulic projects in Type N Waters may also be required per WAC 222-24-042(2). See instructions for detailed plan requirements.

Crossing Identifier *(letter, number)*	Water Type *(S, F, Np, Ns)*	*Existing HPA Number *(if applicable)*	HPA Expiration Date *(if applicable)*	Planned Activity *(install, replace, remove, temporary, structure maintenance)*	Structure *(bridge, ford/equipment crossing** puncheon/fill, arch, pipe arch, round culvert, other)*	Proposed Size *(width x length) (inches x feet)*	Culvert Design Method *(no-slope, stream-sim, hydraulic, other) (F and S only)*	Channel Bed Width *(ft) (F and S only)*	Stream Gradient *(%) (F and S only)*	Is this an RMAP Project?
		See Attached FPA Narrative								

*Existing HPAs issued by WDFW will be complied and enforced by WDFW until expiration. Plan details are not required for hydraulic projects permitted with an existing HPA (see instructions).

**Fords and/or equipment crossings on Type S and F Waters may result in an unauthorized incidental take of certain threatened or endangered fish species. For more information, see 'Background for the State's Incidental Take Permits for certain threatened and endangered fish species' following Question 22 of the FPA/N Instructions.

15. If conducting any of the following activities in or over typed Water(s), complete the table below. Some activities will require identifiers on the Activity Map and/or more information in Question 28. See instructions.

*Activity	Type S Water	Type F Water	Type Np Water	Type Ns Water
Equipment Crossing**	PROVIDE DETAILS IN QUESTION 14		✓	✓
Suspending Cables			✓	✓
Cable Yarding			✓	✓
LWD Placement/Removal				
Beaver Dam Removal				
Felling and Bucking			✓	✓
Other *(describe in Question 28)*				

*Existing HPAs issued by WDFW will be complied and enforced by WDFW until expiration. Plan details are not required for hydraulic projects permitted with an existing HPA (see instructions).

** Fords and/or equipment crossings on Type S and F Waters must be identified in Question 14.

16. If constructing or abandoning forest roads, complete the table below. Show the road locations and identifiers on the Activity Map. Include abandonment plans for all temporary roads and abandonment projects.

Road Identifier *(name, number)*	Road Construction		Road Abandonment	
	Length *(feet)*	Steepest Side-slope *(%)*	Length *(feet)*	Abandonment Date *(MM/YYYY)*
Road A	950	30		
Road B	560	60	325	~~Hunt Creek~~ 8/2022
Road C	520	40		

17. **If depositing spoils and/or expanding or developing a rock pit for forestry use, complete the table below. Show locations and identifiers on the Activity Map.**

Spoil Area Identifier *(letter, number)*	Amount of Spoils Deposited *(cubic yards)*
W1	100

Rock Pit Identifier *(name, number or letter)*	Acres of New Rock Pit Developed	Acres of Existing Rock Pit Expanded

18. **If operating within 200 feet of a wetland not associated Type F Water, complete the table below. Welands associated with Type S or F water should be listed in Question 25. Show the boundaries of each wetland, along with its identifier, and Wetland Management Zones on the Activity Map. See instructions for information.**

Wetland Identifier *(letter, number)*	Wetland Type *(A, B, Forested)*	Planned Activities in Wetland	Planned Activities in Maximum Width WMZ	Total Wetland Acres	How many Acres will be drained?	How many Acres will be filled?

* * * * * **If not harvesting or salvaging timber, skip to Question 27** * * * * *

19. **If harvesting or salvaging timber, complete the table below. Show all harvest areas and unit numbers on the Activity Map. For even-aged harvest units, also show surrounding stand information on the Activity Map.**

Unit Number	Harvest Type *(Even-aged, Uneven-aged, Salvage, Right-of-Way)*	Biomass Harvest *(Y or N)*	Harvest Method *(rubber tired skidder, tracked skidder, dozer, shovel, full suspension cable, leading end suspension cable, helicopter, cable assist/tethered logging, animal, chipper, forwarder, slash bundler)*	Acres to be Harvested	Volume to be Harvested *(mbf)*	Volume to be Harvested *(tonnage)*	Volume to be Harvested (%)	Steepest Slope in Harvest Unit (%)
Unit 1	Even-Aged	N	RTS, shovel, Cable	3.6	100		98	75
Unit 2	Even-Aged	N	RTS, shovel, cable	9.8	295		98	90
Unit 3	Even-aged	N	RTS, shovel, cable	6.5	210		98	80
Unit 4	~~E~~even-aged	N	Cable	0.3	5		60	70
Unit 5	~~Ee~~even-aged	N	Cable	4.5	45		60	100

20. Reforestation. Check all that apply:

- [x] Planting. Tree Species: DF, WRC
- [ ] Natural. Include a Natural Regeneration Plan
- [ ] Not required because of one or more of the following:
  - [ ] I am converting some or all of this land to non-forest land in the next 3 years or lands are exempted under WAC 222-34-050.
  - [ ] Individual dead, dying, down, or wind-thrown trees will be salvaged.
  - [ ] Trees are removed under a thinning program reasonably expected to maximize the long-term productivity of commercial timber.
  - [ ] I am leaving at least 100 vigorous, undamaged, and well-distributed saplings or merchantable trees per acre.
  - [ ] An average of 190 tree seedlings per acre are established on the harvest area and my harvest will not damage them.
  - [ ] Road right-of-way or rock pit development harvest only.

*** * Do you own MORE than 80 acres of forest land in Washington? If yes, skip to Question 25 * ***

21. Are you using the exempt 20-acre parcel riparian management zone (RMZ) rule (WAC 222-30-023) on type S, F, or Np Waters?

- [x] No — Skip to Question 25. — See FPA Narrative
- [ ] Yes — Continue to Question 22. See instructions for qualifications and information.

22. Choose the answer below that best fits your situation. Show all RMZs on the Activity Map.

- [ ] **a.** ALL of the following apply to me and my land: (If no, answer b.)
  - Between June 5, 2006 and today's date I have always owned less than 80 acres of forest land in Washington.
  - Between June 5, 2006 and today's date this parcel has always been 20 acres or less of contiguous ownership. See RCW 76.09.020 for definition of 'contiguous'.
  - Between June 5, 2006 and today's date this parcel has always been owned by me or someone else that has owned less than 80 acres of forest land in Washington.
- **b.** ONE OR MORE of the following apply to me and/or my land (check all that apply):
  If any of the statements below apply AND you use the exempt 20-acre parcel RMZ rule, you are NOT authorized under the State's Incidental Take Permits (see explanation in FPA instructions under Question 22).
  - [ ] Between June 5, 2006 and today's date I have owned more than 80 acres of forest land in Washington.
  - [ ] Between June 5, 2006 and today's date this parcel has been a part of more than 20 acres of contiguous ownership. See RCW 76.09.020 for definition of 'contiguous'.
  - [ ] Between June 5, 2006 and today's date this parcel has been owned by someone that has owned more than 80 forested acres in Washington.

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23. If harvesting within 115 feet of a Type S or F Water on an exempt 20-acre parcel, complete the table below. Show RMZs and stream segment identifiers on the Activity Map. If you are harvesting within 75 feet or within the maximum RMZ (whichever is less), stream shade must be assessed and met following harvest. Describe in Question 28 how stream shade was determined to be met, using the 'Appendix F. Stream Shade Assessment Worksheet' if necessary.

Stream Segment Identifier *(letter)*	Water Type *(S, F)*	Segment Length *(feet)*	Bankfull Width *(feet)*	RMZ Maximum Width *(feet)*	Are you harvesting within the maximum RMZ? *(Y or N)*

24. Are you harvesting within 29 feet of a Type Np Water on an exempt 20-acre parcel?

☐ No Skip to Question 27.

☐ Yes See instructions and describe leave tree strategy in Question 28. Then skip to Question 27.

25. If harvesting within 200 feet of any Type S or F Water or periodically inundated areas of their associated wetlands, complete the table below. Include Desired Future Condition (DFC) for all inner zone harvests unless you have an HCP prescription. Show RMZs, CMZs, and stream segment identifiers on the Activity Map. If you are harvesting within 75 feet or within the maximum RMZ, whichever is less, stream shade must be assessed and met following harvest. Describe in Question 28 how stream shade was determined to be met or use the 'Appendix F. Stream Shade Assessment Worksheet' if necessary.

Stream Segment Identifier *(letter)*	Water Type *(S, F)*	Site Class *(I - V)*	Stream Width *(feet)*	Is there a CMZ? *(Y or N)*	RMZ Harvest Code(s) *(see instructions)*	DFC Run Number	Total width of RMZ *(feet)*
Stream A	F	III	4'	N	B,L,M	N/A	140'

26. If harvesting within 50 feet of Type Np Water, complete the table(s) below. Show RMZs and stream segment identifiers on the Activity Map.

Stream Segment Identifier *(letter)*	Total Stream Length in Harvest Unit *(feet)*	Length of No-Harvest, 50-foot Buffers in Harvest Unit *(feet)*
Stream B	415	415
Stream C	324	324
Stream L	789	789
Stream O	1018	1018

Stream Segment Identifier *(letter)*	Total Stream Length in Harvest Unit *(feet)*	Length of No-Harvest, 50-foot Buffers in Harvest Unit *(feet)*

27. **How are the following currently marked on the ground?** *(Flagging color, paint color, road, fence, etc.)* Harvest/

Salvage Boundaries: Pink Flagging

Clumped Wildlife Reserve Trees/Green Recruitment Trees: Orange Painted Leave Trees

Right-of-Way Limits/Road Centerlines: Orange Flagging for centerline

Stream Crossing Work: Orange and blue flagging at crossing

Riparian Management Zone Boundaries and Leave/Take Trees: Pink Flagging

Channel Migration Zone: N/A

Wetland Management Zone Boundaries and Leave/Take Trees: N/A

28. **Additional Information (attach additional pages if necessary):** For hydraulic projects in or over Type S, F, or complex N Water(s) see instructions for required plan information. If applicable, document the mitigation measures you will be implementing from a geotechnical memo, letter, or report.

Q#9 - The Department of Archaeology and Historic Preservation's online map viewer was used to identify cultural resources at the proposed site and none were found.

There is an un-built Skagit County right of way area associated with this proposal. Road will be built through this with trail permit obtained by the county.

Stream locations once leaving the site, are estimated based on lidar and not all streams were surveyed out to Lake Cavanaugh.

In marbled murrelett managed buffer, leave trees are focused around stream I where possible.

Crossing X8 and X9 shown in the attached plans will be constructed when the channel is dry. Stream L is an Np due to there being perennially flow higher up the slope.

There is a no entry area down stream of X10. Culver will be placed outside of this area. Area is marked with pink flagging.

Ford Crossing X8, X9:
Harvesting and road construction activites around and across the constructed ford will only be allowed when no water is flowing on the ford.

The Structure will be monitored before use and on a yearly basis to ensure the ford is operating properly. Maintenance will be performed as soon as issues arise.

2817112

29. We acknowledge the following:

- The information on this application/notification is true.
- We understand this proposed forest practice is subject to:
  - The Forest Practices Act and Rules AND
  - All other federal, state or local regulations.
- Compliance with the Forest Practices Act and Rules does not ensure compliance with the Endangered Species Act or other federal, state or local laws.
- If we said that we would not convert the land to non-forestry use, the county or city may deny development permits on this parcel for the next 6 years.
- The following may result in an unauthorized incidental take of certain endangered or threatened fish species:
  - Conversion of land to non-forestry use.
  - Harvesting within the maximum RMZ on a 20-acre exempt parcel that was acquired after June 5, 2006.
  - Equipment Crossings/Fords in or over Type S and F Waters.
- Inadvertent Discovery – Chapters 27.44, 27.53, 68.50 and 68.60 RCW
  - If you find or suspect you have found an archaeological object or Native American cairn, grave, or glyptic record, immediately cease disturbance activity, protect the area and promptly contact the Department of Archaeology and Historic Preservation at 360 586-3077.
  - If you find or suspect you have found human skeletal remains, immediately cease disturbance activity, protect the area, and contact the County Coroner or Medical Examiner and local law enforcement as soon as possible. Failure to report human remains is a misdemeanor.

The landowner understands that by signing and submitting this FPA, he/she is authorizing the Department of Natural Resources to enter the property in order to review the proposal, inspect harvest operations, and monitor compliance for up to three years after its expiration date. RCW 76.09.150

Signature of Legal LANDOWNER	**Signature of Legal TIMBER OWNER*** *(If different than landowner)*	**Signature of Legal OPERATOR** *(If different than landowner)*
Westside Logging LLC Timberline Logging LLC Richmond JPJ	Nielsen Brothers Inc	NBI
Print Name: Samuel Petska	Print Name: Samuel Petska	Print Name: Samuel Petska
Date: 7/29/19	Date: 7/29/19	Date: 7/29/19

** NOTE: If you are a "Perpetual Timber Rights Owner," and are submitting this without the Landowner's Signature, provide written evidence the landowner has been notified.*

Please make a copy of this FPA/N for your records. If this FPA/N contains a hydraulic project requiring WDFW concurrence review, it will not be available online for public review until after the WDFW concurrence review period.

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8/29/19

FPA Narrative:

#5. Are you a small forest landowner per RCW 76.09.450?

Westside Logging LLC	Yes
Timberline Logging Inc.	Yes
Richmond JPJ Enterprises, Inc.	Yes

#9.

A checklist is required for Richmond JPJ Enterprise, Inc. and attached to this FPA. Checklists for both Timberline Logging Inc. and Westside Logging LLC. are provide for informational purposes.

#11. i.

Westside Logging LLC	No
Timberline Logging Inc.	No
Richmond JPJ Enterprises, Inc.	No

All three owners do not own more than 500 acres of forest land in Washington State. However, a marbled Murrelet Form is included with this FPA.

#14.

Crossing Identifier (letter,	Water Type(S,F,Np,Ns)	Planned Activity	Structure	Proposed Size	Culvert Design Method	Channel Bed Width	Stream Gradient	Is this an RMAP Project	Notes
X1	Ns	Install	Culvert	36" X 30'				N	
X2	Ns	Install	Culvert	36" X 30'				N	Dipped rock fill
X3	Ns	Install	Culvert	48" X 30'				N	Dipped rock fill
X4	Ns	Install	Culvert	36" X 30'				N	Dipped rock fill
X5	Ns	Install	Culvert	36" X 30'				N	Dipped rock fill
X6	Ns	Install	Culvert	60" X 30'				N	
X7	Ns	Install	Culvert	36" X 30'				N	
X8	Np	Install	Ford	See Plans				N	See attached plans
X9	Np	Install	Ford	See Plans				N	See attached plans
X10	Ns	Install	Culvert	36" X 30'				N	Dipped rock fill, do not enter category E landform

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#21.

Owns More than 80 Acres of forest land in Washington:

Westside Logging LLC	Yes
Timberline Logging Inc.	No
Richmond JPJ Enterprises, Inc.	No

#21.

Are you using the exempt 20-acre parcel riparian management zone (RMZ) rule (WAC 222-30-023) on type S, F, or Np Waters?

Westside Logging LLC	N/A
Timberline Logging Inc.	No
Richmond JPJ Enterprises, Inc.	No

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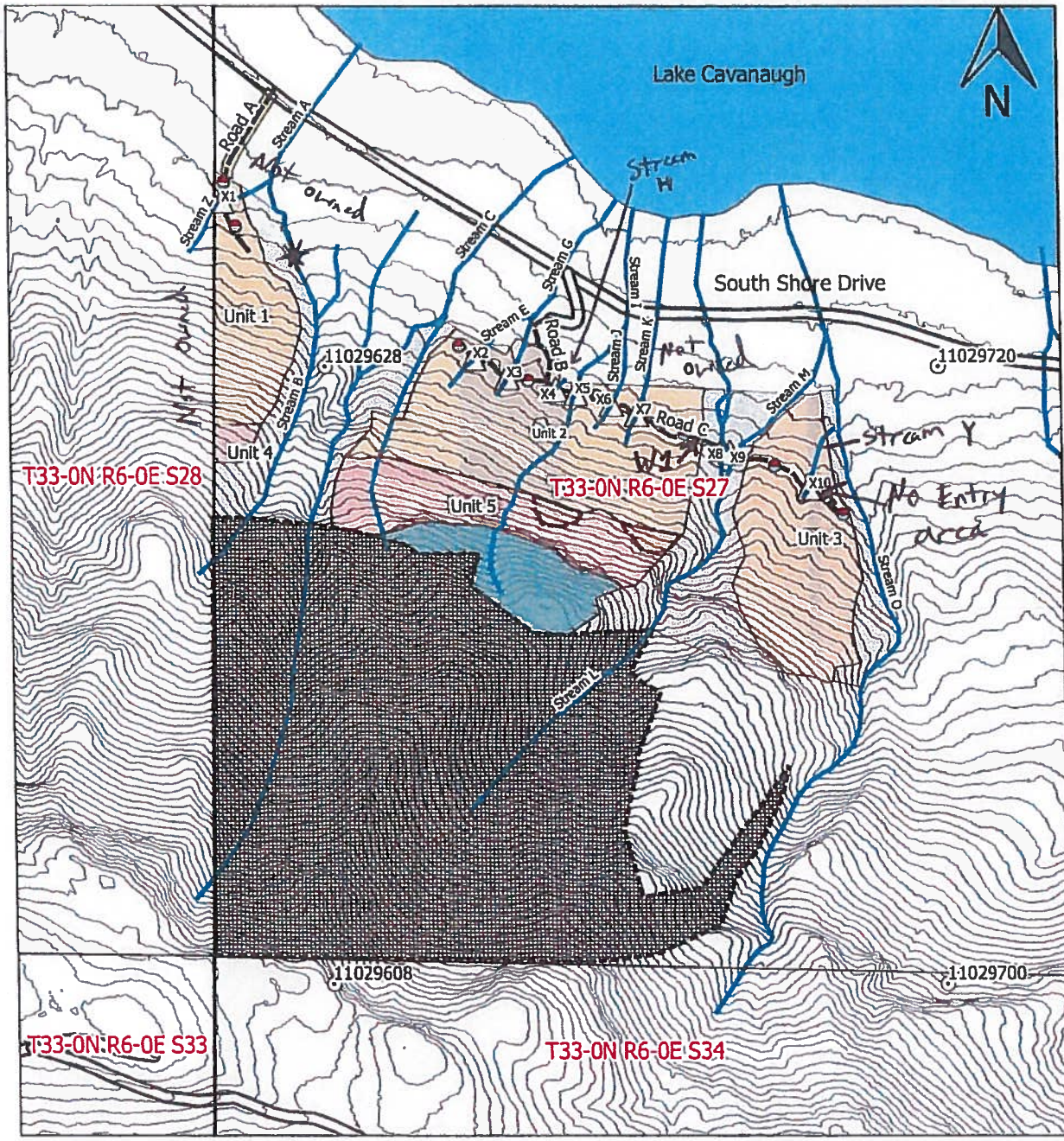
NIELSEN BROTHERS, INC.

Nielsen Brothers Inc. Forest Practices Activity Map
Township 33 Range 6E Section 27



Even-Aged Harvest Areas	no harvest area	Crossing ID	1:6000 1" = 500'
Managed MM Buffer	Existing Roads	Landing	
MM Habitat Area	Planned Roads	20ft Contours	NAD 83 Washington South(ft)
Skagit County ROW	FPA Tics	Stream Type Break	
MM No cut manged buffer	Streams		

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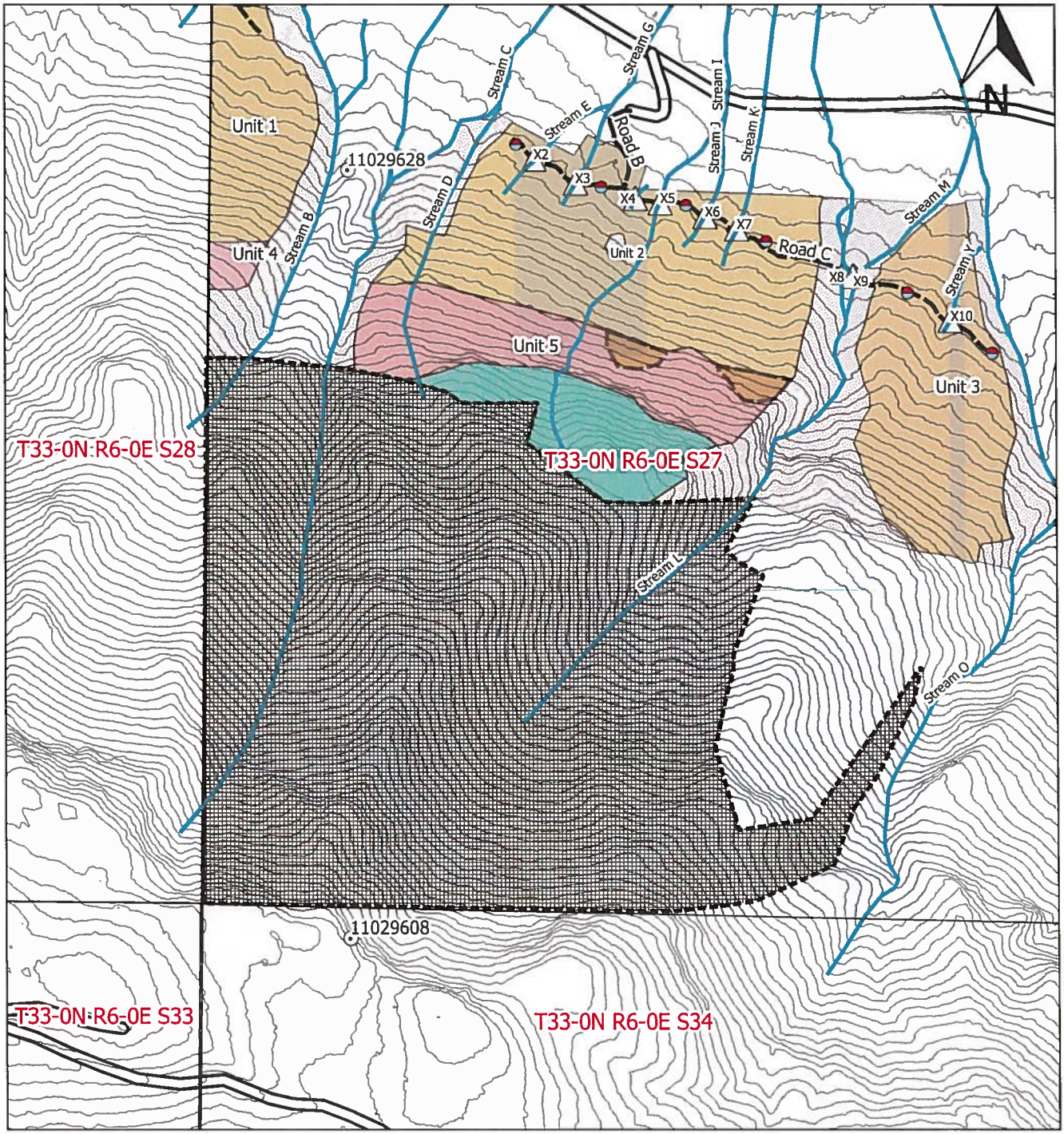
NIELSEN BROTHERS, INC.

Nielsen Brothers Inc. Forest Practices Marbled Murrelet Map
Township 33 Range 6E Section 27



- Even-Aged Harvest Areas
- Managed MM Buffer
- MM Habitat Area
- Skagit County ROW
- MM No cut manged buffer
- Existing Roads
- Planned Roads
- FPA Tics
- Streams
- Crossing ID
- Landing
- 20ft Contours
- Stream Type Break

1:4800
1" = 400"

NAD 83
Washington
South(ft)

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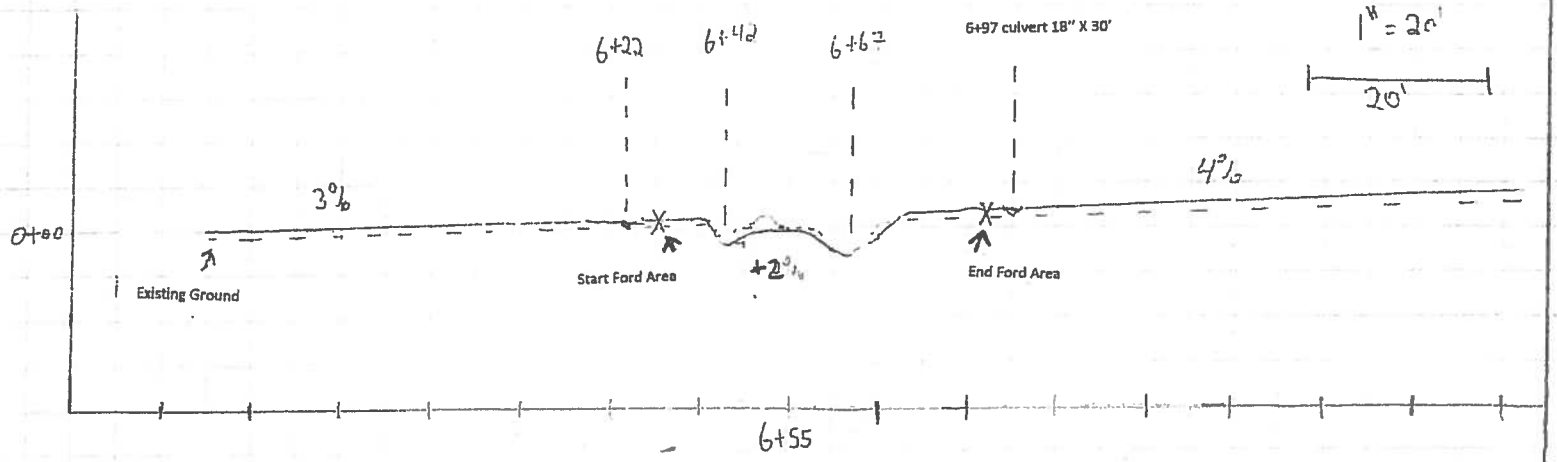
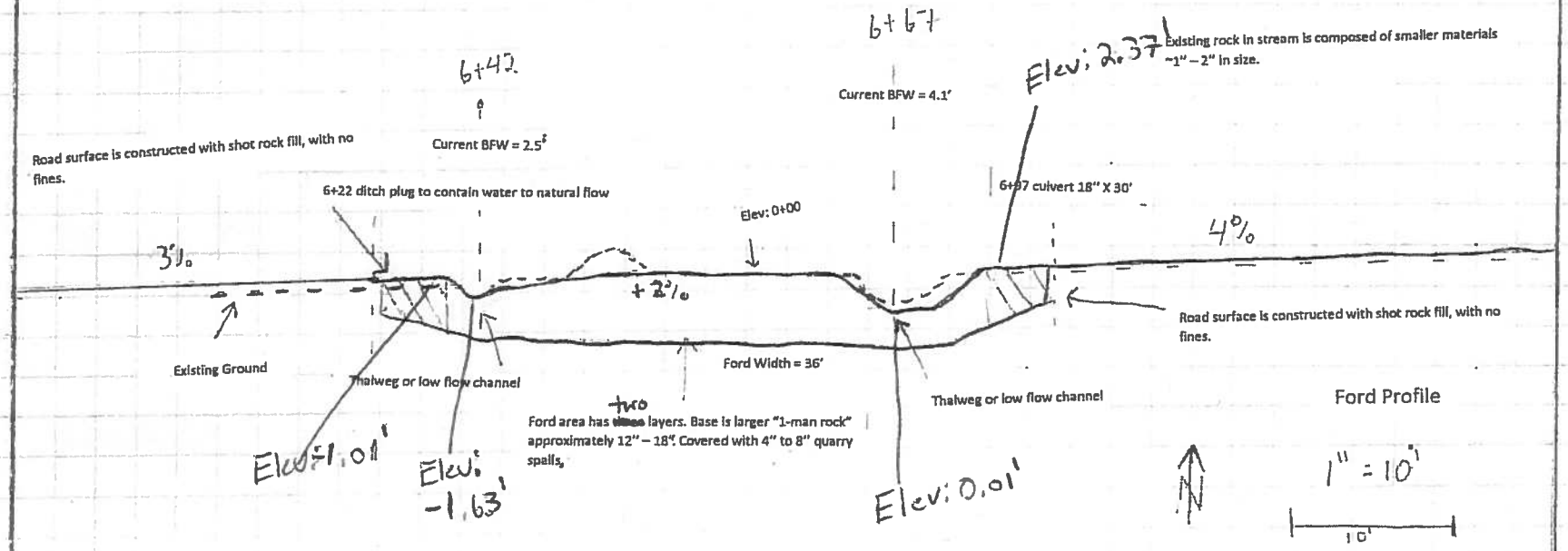
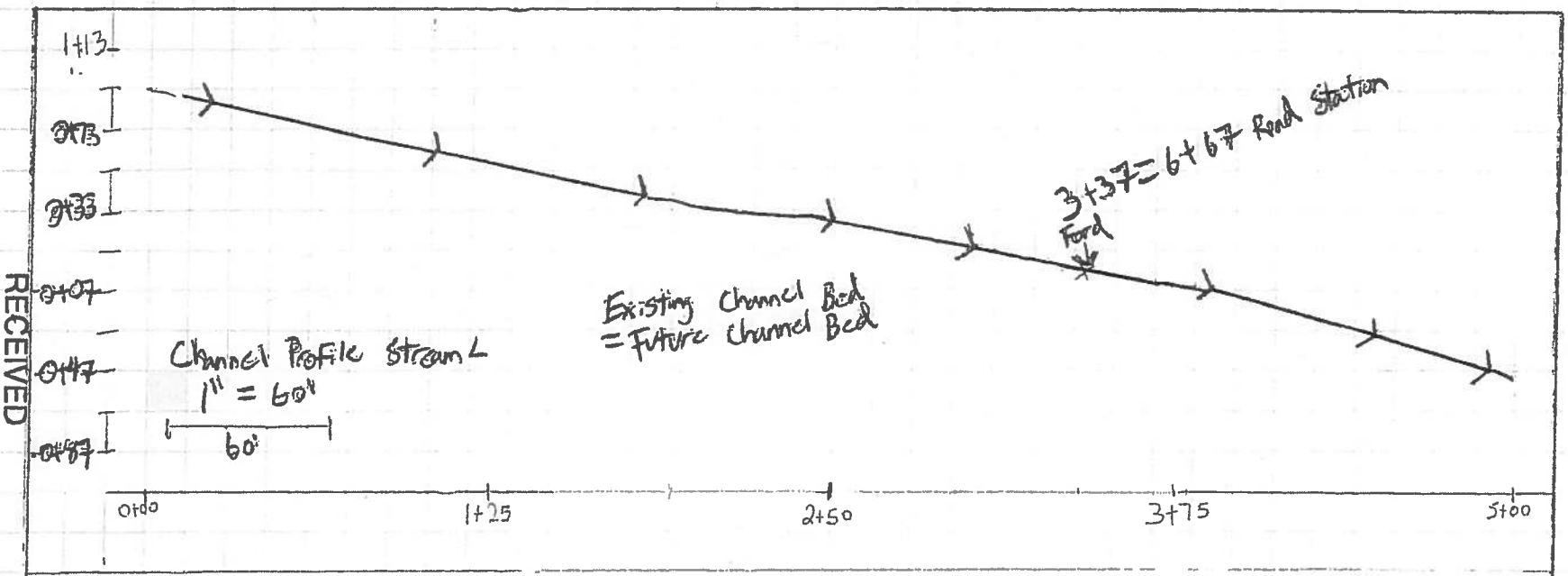
Road Profile

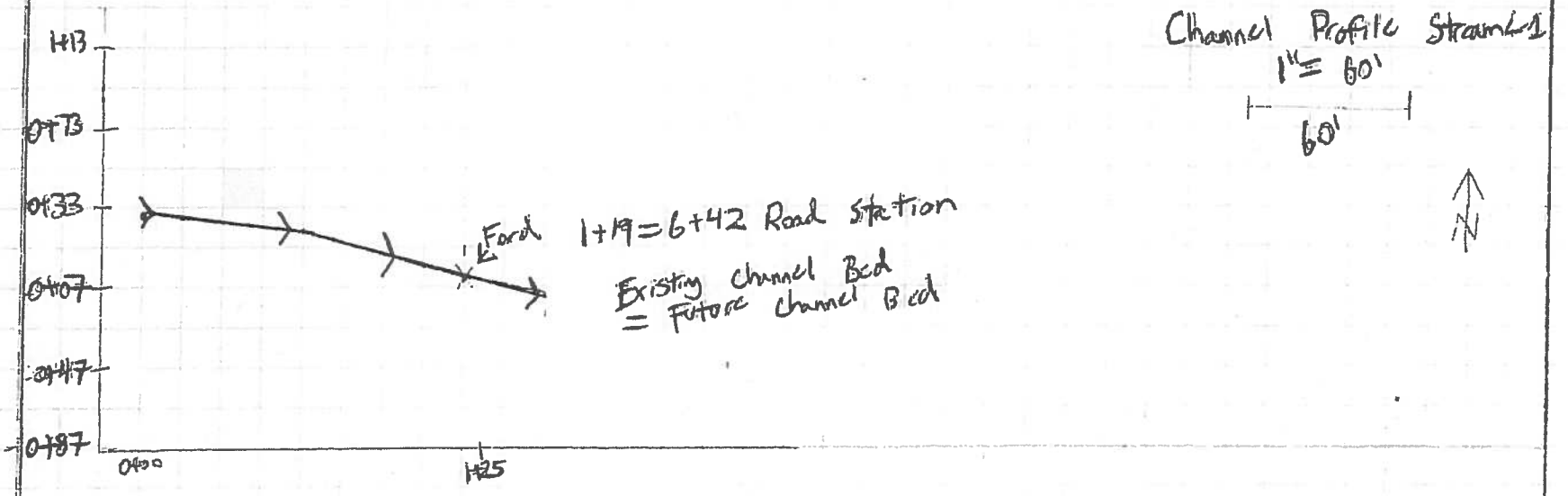




Ford Profile

Revisions	Road Profile Crossing X8 + X9 Nielsen Brothers Inc.	527 T33N R06E N48.3167 W-122.0247 7/17/19



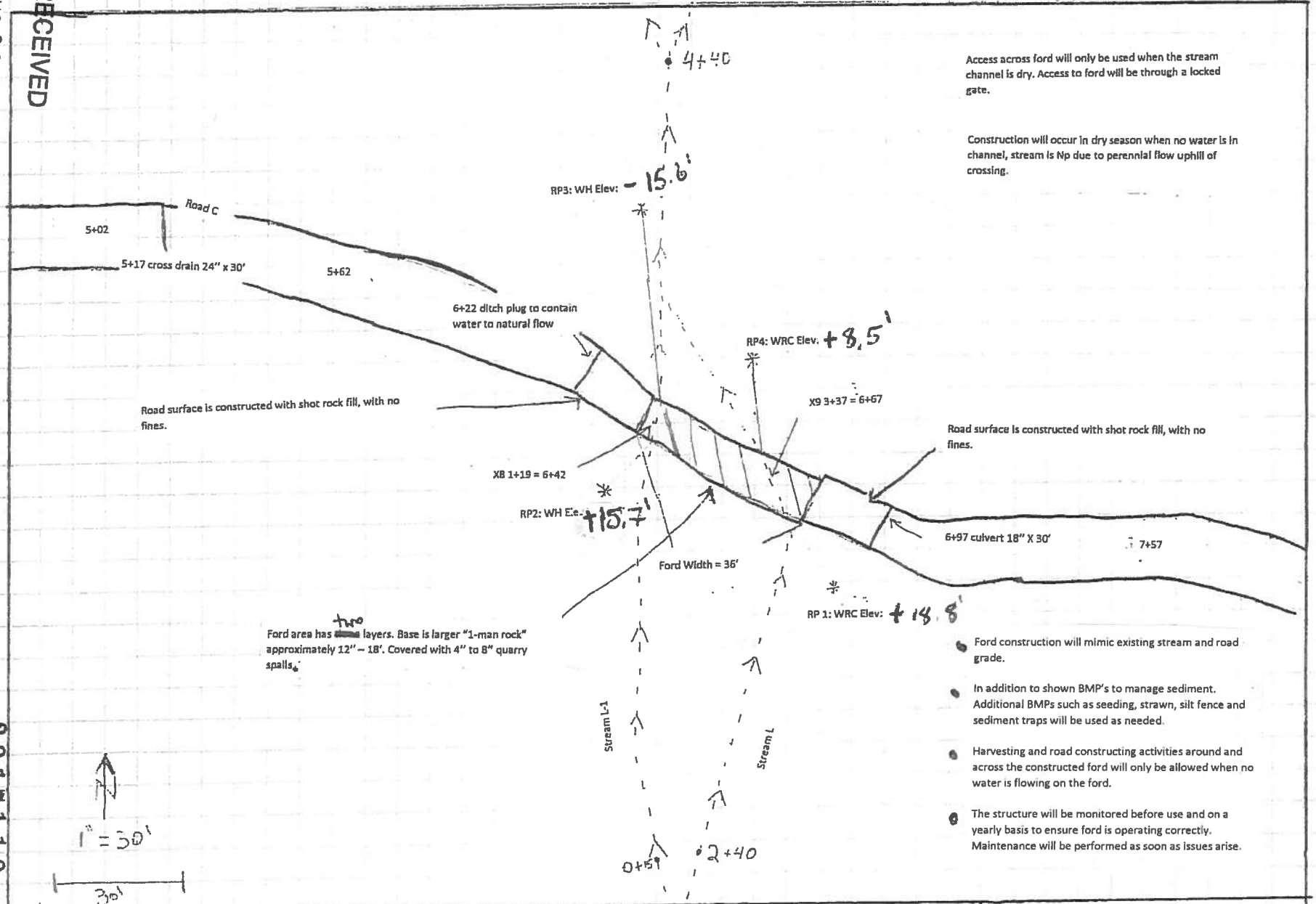


Revisions

Channel Profile Crossing XS ↓ XS
Nielsen Brothers Inc.

S27 T33N R06E
N48.3167 W-122.0247
7/17/19

Pg 2 of 3



Access across ford will only be used when the stream channel is dry. Access to ford will be through a locked gate.

Construction will occur in dry season when no water is in channel, stream is Np due to perennial flow uphill of crossing.

- Ford construction will mimic existing stream and road grade.
- In addition to shown BMP's to manage sediment. Additional BMPs such as seeding, strawn, silt fence and sediment traps will be used as needed.
- Harvesting and road constructing activities around and across the constructed ford will only be allowed when no water is flowing on the ford.
- The structure will be monitored before use and on a yearly basis to ensure ford is operating correctly. Maintenance will be performed as soon as issues arise.

Revision 3

Site Plan Crossing X8 + X9
Nielsen Brothers Inc.

S27 T33N R06E
N48.3167 W-122.0247
7/17/19

Appendix D. Slope Stability Informational Form

Complete and attach this form to your FPA/N if you answered 'Yes' to FPA Question 10. Refer to WAC 222-16-050(1)(d) and Forest Practices Board Manual Section 16—*Guidelines for Evaluating Potentially Unstable Slopes* for definitions and descriptions of potentially unstable slopes or landforms. Instructions for Appendix D. is located in the Forest Practices Application/Notification Instruction document.

1. a. What preliminary screening tools were used to identify unstable slopes or landform features in and/or around your proposal?

☒ Aerial Photo, ☒ LiDAR, ☒ Landslide Inventory, ☒ Landslide Hazard Zones, ☒ GIS,
☒ Other, describe:

Geologic Map of the Stimson Hill 7.5-minute Quadrangle, Skagit and Snohomish Counties, Washington - http://www.dnr.wa.gov/publications/ger_ofr2004-9_geol_map_stimsonhill_24k.pdf

b. Did any of the features identified during the preliminary screening (1.a.) not exist when you performed a field review? If yes, describe:

Complex 41119 is confined to the inner gorge areas. Features identified on the 24k geo map layers show landslide complexes 41119 and 41102 near the harvest area. Complex 41119 is shown to overlap the harvest area but on the ground is contained within the no-harvest inner gorge areas. 41102 is outside the harvest unit See attach Geo-memo.

2. a. Are you conducting forest practices activities **in or over** potentially unstable slopes or landforms? Check all that apply:

☐ Inner Gorge ☐ Groundwater recharge areas for glacial deep-seated landslides
☐ Bedrock Hollow ☐ Convergent Headwall ☐ Toe of deep-seated landslide
☐ Outer edges of meander bends
☐ Other (Deep-seated landslides or other features of potentially unstable slopes). Describe:

b. What activities may occur **in or over** potentially unstable slopes or landforms? Check all that apply:

☐ Timber harvest ☐ Road construction ☐ Suspending cables ☐ Yarding ☐ Tailholds

3. a. Are you conducting forest practices activities **around** potentially unstable slopes or landforms? Check all that apply:

☒ Inner Gorge ☐ Groundwater recharge areas for glacial deep-seated landslides
☐ Bedrock Hollow ☐ Convergent Headwall ☐ Toe of deep-seated landslide
☐ Outer edges of meander bends
☒ Other (Deep-seated landslides or other features of potentially unstable slopes). Describe:

Complex 41142 and the polygon shown in the landslide compilation layer are around the harvest area. These polygons are associated with the inner gorge area that has been bound out. Both landslide complexes mapped from the Geo mapping area near the harvest area. Complex 41119 is confine to the no harvest area. 41102 is outside harvest area

b. What activities may occur **around** potentially unstable slopes or landforms? Check all that apply:

☒ Timber harvest ☐ Road construction ☒ Suspending cables ☒ Yarding ☒ Tailholds

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4. **a.** Were any features identified in question 3.a. excluded from your forest practices activity?

☐ No, skip to question 5. ☒ Yes, continue to question 4.b.

b. Describe the field indicators you used to exclude potentially unstable slopes or landforms from your forest practices activity (i.e.: flagging was placed a crown width away from the break in slope of the inner gorge.):

Inner gorge along stream B, C, D and L were removed from he harvest area. The no cut area was marked where the slope that leads into the inner gorge was less than 70% and then leaving one extra tree. By doing this we will ensure that the increased ground water, from the temporary loss of canopy cover, will not affect the adjacent inner gorges and associated streams. IG areas are located in the 50ft NP buffers on stream B and stream C.

5. Are there areas of public use (which may include, but are not limited to: public roads, utilities, designated recreation areas, occupied structures, etc.) located in or around the area of your proposed forest practices activity?

☐ No ☒ Yes, Show these locations on the map in question 7.

Structures, utilities and public roads are shown on the map.

6. Date(s) of field review(s): 7/26/18 and 4/11/19

Person(s) that conducted field review(s):

Samuel Petska	Forester
Name	Title/position
Brian Beaman	Geologist
Name	Title/position

7. Attach a map that shows the following:

- All areas reviewed.
- Locations of unstable slopes and landforms that were identified as described in question 2.a. and 3.a. above.
- Locations where areas of public use exist as described in question 5 above.

This map is intended to be developed by the field practitioner. This can be a forest practices activity map, harvest map, or GIS map – See attached example.

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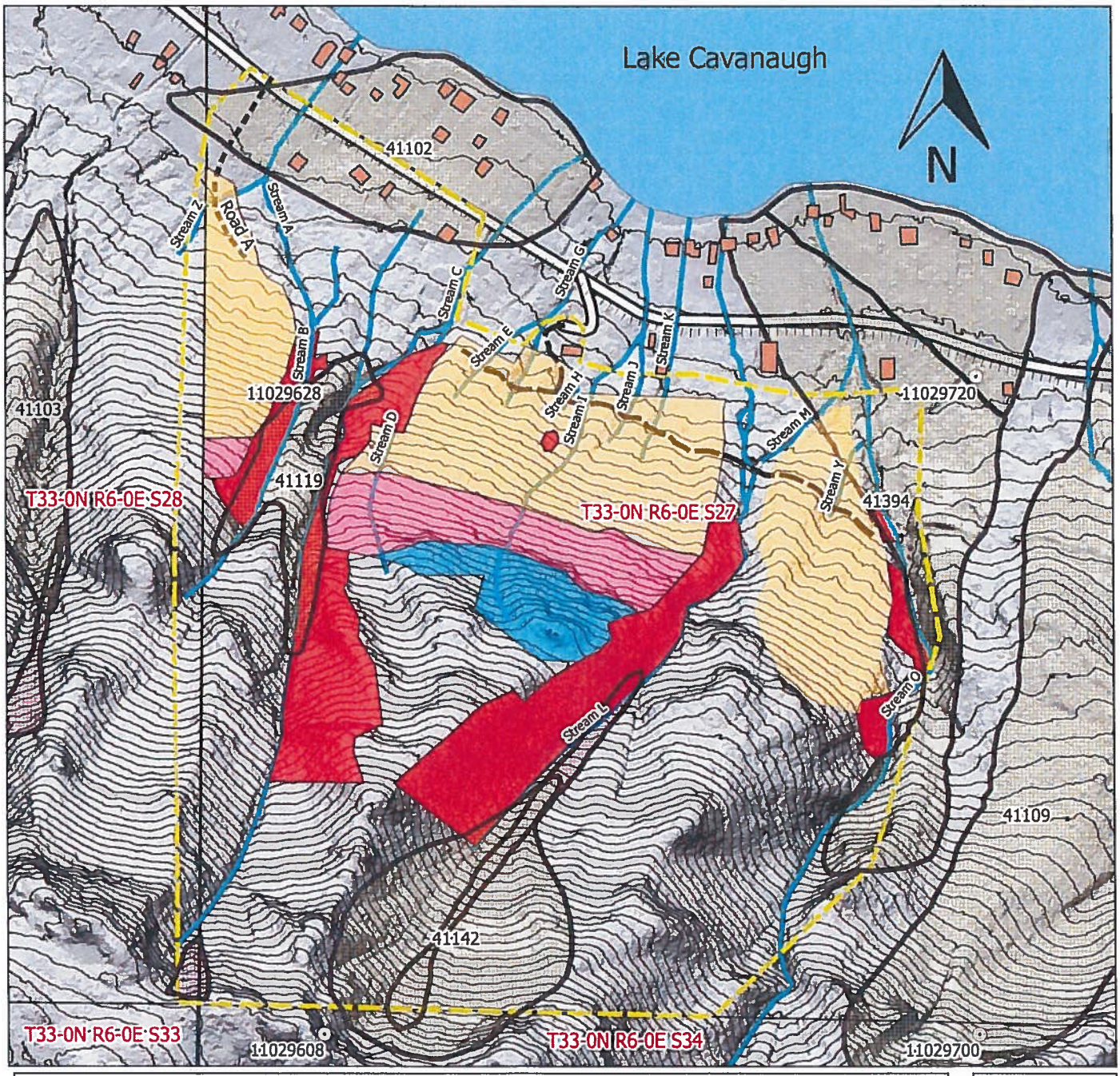
NIELSEN BROTHERS, INC.

Nielsen Brothers Inc. Forest Practices Slope Stability Map
Cavanaugh A
Township 33 Range 6E Section 27



Harvest Areas	Managed MM Buffer	Streams	1 : 5400
Area Reviewed	FPA Tics	stream type break	1" = 450'
Unstable Areas	Planned Roads	20 ft contour lines	NAD 83
Structures	existing road	landslide_compilation	Washington
MM No Cut Area	Utility lines	landslide_24k_geologic_map	South(ft)
			S. Petska
			8/13/18

ICICLECREEK ENGINEERS

Revised Report
Geological Engineering Services
Potentially Unstable Slopes and Landforms Evaluation
Cavanaugh Proposed Harvest Unit
Section 27, Township 33 North, Range 6 East
Skagit County, Washington

July 10, 2019
ICE File No. 1319-001

2817112

Revised Report
Geological Engineering Services
Potentially Unstable Slopes and Landforms Evaluation
Cavanaugh Proposed Harvest Unit
Section 27, Township 33 North, Range 6 East
Skagit County, Washington

July 10, 2019
ICE File No. 1319-001

Prepared For:
Nielsen Brothers Inc.

Prepared By:
Icicle Creek Engineers, Inc.

= 2817112

ICICLECREEK ENGINEERS

July 10, 2019

Sam Petska
Nielsen Brothers Inc.
100 Pine Street, Suite 301
Bellingham, Washington 98225

Revised Report
Geological Engineering Services
Potentially Unstable Slopes and Landforms Evaluation
Cavanaugh Proposed Harvest Unit
Section 27, Township 33 North, Range 6 East
Skagit County, Washington
ICE File No. 1319-001

1.0 INTRODUCTION

This revised report presents the results of Icicle Creek Engineers' (ICE's) geological engineering services for an evaluation of Potentially Unstable Slopes and Landforms associated with the Cavanaugh Proposed Harvest Unit (PHU) owned by Nielsen Brothers Inc. The Cavanaugh PHU is located in Section 27, Township 33 North, Range 6 East, Willamette Meridian, along the south shore of Lake Cavanaugh in Skagit County, Washington. The location of the Cavanaugh PHU relative to nearby physical features is shown on the Vicinity Map, Figure 1. This revised report is intended to replace our original report dated June 10, 2019.

Our services were provided in general accordance with our Proposal dated January 16, 2019 and were authorized in writing by Robert C. Nielsen of Nielsen Brothers Inc. on January 28, 2019.

This report was prepared by Brian R. Beaman, PE, LEG, LHG of ICE. Mr. Beaman is a "Qualified Expert" (Washington State Department of Natural Resources - DNR Qualified Experts List, Engineering Geologist License No. 671) as described in WAC 222-10-030(5) SEPA Policies for Potentially Unstable Slopes and Landforms. Mr. Beaman is also licensed by the State of Washington as a Professional Engineer (PE), Engineering Geologist (LEG) and Hydrogeologist (LHG).

2.0 METHODOLOGY

Sam Petska of Nielsen Brothers Inc. requested that ICE complete a field review of the Cavanaugh PHU to provide additional evaluation of the Rule-Identified Landforms (RILs) and Alluvial Fans, and to provide recommendations, as appropriate, for site-specific mitigations (usually avoidance) related to sediment delivery. ICE's evaluation of RILs and Alluvial Fans was completed in general accordance with the DNR's Forest Practices Board Manual, Section 16, Guidelines for Evaluating Potentially Unstable Slopes and Landforms, dated May 2016, and followed evaluation procedures generally consistent with the Forest Practices Rules (WAC 222).

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3.0 BACKGROUND INFORMATION

ICE reviewed the following documents as part of this evaluation:

- DNR, May 2016, *Forest Practices Board Manual, Section 16, Guidelines for Evaluating Potentially Unstable Slopes and Landforms*, 91 pages.
- DNR, February 26, 2015, WAC *Chapter 222-10-030, State Environmental Policy Act Guidelines.*
- DNR, October 3, 2013, WAC *Chapter 222-16-010, Definitions.*
- DNR, October 3, 2013, *Chapter 222-16-050, Classes of Forest Practices*.
- DNR, June 2004, *Geologic Map of the Stimson Hill 7.5-Minute Quadrangle, Skagit and Snohomish Counties*, Open File Report 2004-9.
- DNR, *Geologic Information Portal*, Natural Hazards, Geologic and Landslide Inventory Mapping, http://www.dnr.wa.gov/geologyportal.
- DNR, *Open Data, Climatology, Rain-on-Snow*, http://data-wadnr.opendata.arcgis.com/.
- DNR, *Washington LiDAR Portal*, LiDAR raw data download site, http://lidarportal.dnr.wa.gov/; raw data processed using ArcGIS 10.6 for topographic contour and slope mapping.
- DNR, Available GIS Data, https://fortress.wa.gov/dnr/adminsa/DataWeb/dmmatrix.html.
- Environmental System Research Institute (Esri), ArcGIS version 10.6.0.8321, used to process LiDAR raw data.
- Google Earth, aerial photographs dated 2006 and 2018.
- Nielsen Brothers Inc., undated, *Nielsen Brothers Inc., Forest Practices Activity Map, Township 33, Range 6E, Section 27*, scale 1:4800.
- Skagit County, Property Map, https://www.skagitcounty.net/Maps/iMap/.
- USGS EarthExplorer, http://earthexplorer.usgs.gov/, aerial photographs dated 1941, 1953 and 1974
- Washington State Department of Fisheries and Wildlife, https://wdfw.wa.gov, Lake Cavanaugh lowland lakes details.

Based on our initial review, there are several Potentially Unstable Slopes and Landforms referred to by the DNR (May 2016) as RILs, and Alluvial Fans are mapped within the general area of the proposed Cavanaugh PHU by the DNR (June 2004 and the Geologic Information Portal). We understand that Nielsen Brothers Inc. intends to avoid (exclude) RILs and active Alluvial Fans that are present in the Cavanaugh PHU area. With this goal of avoidance of RILs and active Alluvial Fans, the Cavanaugh PHU will be submitted to the DNR as a Class III FPA.

4.0 CAVANAUGH PHU DESCRIPTION

We understand that the Cavanaugh PHU will be primarily harvested as a clear-cut of mature conifer and occasional deciduous trees in three harvest areas as shown on the Activity Map, Figure 2. The "West Harvest Area" consists of Units 1 and 4, the "Middle Harvest Area" consists of Units 2 and 5, and the "East Harvest Area" consists of Unit 3. Some areas, primarily in the higher elevations of the harvest areas (Units 5 and 6) will be thinned rather than clear-cut.

We expect most of the trees will be harvested using tower/cable methods by yarding downhill to landings along the lower, north side of the harvest areas. Shovel/ground methods may be used in the less steep areas.

Access to the West Harvest Area will be by a new road (Road A as shown on Figure 2) off of the South Shore Road that crosses unopened Skagit County right-of-way between Parcels P66971 and P66972. The

Middle and East Harvest Areas will be accessed off of the South Shore Road at 33242 South Shore Drive where an unimproved driveway accesses a former residential property (Road B as shown on Figure 2). The driveway, though overgrown, connects to a former forest road that is currently overgrown; the former forest road generally crosses along the lower, north part of the Middle and East Harvest Areas.

5.0 REGULATORY CONSIDERATIONS

RILs and Alluvial Fans are either field reviewed to confirm presence, avoided or mitigated for the DNR to approve a Class III Forest Practices Application (FPA). RILs are described by DNR (from WAC 222-16-050) as follows:

A) Inner gorges, convergent headwalls, or bedrock hollows with slopes steeper than thirty-five degrees (seventy percent);

(B) Toes of deep-seated landslides, with slopes steeper than thirty-three degrees (sixty-five percent);

(C) Groundwater recharge areas for glacial deep-seated landslides;

(D) Outer edges of meander bends along valley walls or high terraces of an unconfined meandering stream; or

(E) Any areas containing features indicating the presence of potential slope instability which cumulatively indicate the presence of unstable slopes.

Alluvial Fans are described by the DNR (from WAC 222-16-010; Sensitive Sites) as follows:

Alluvial Fan means a depositional land form consisting of cone-shaped deposit of water-borne, often coarse-sized sediments.

(a) The upstream end of the fan (cone apex) is typically characterized by a distinct increase in channel width where a stream emerges from a narrow valley;

(b) The downstream edge of the fan is defined as the sediment confluence with a higher order channel; and

(c) The lateral margins of a fan are characterized by distinct local changes in sediment elevation and often show disturbed vegetation.

Alluvial Fan does not include features that were formed under climatic or geologic conditions which are not currently present or that are no longer dynamic.

RILs and Alluvial Fans are described in more detailed in section 16 of the Forest Practices Board Manual (May 2016).

6.0 PUBLIC RESOURCES DESCRIPTION

The Cavanaugh PHU is bordered downslope to the north by a public road, South Shore Drive, and at least 93 private lots, most of which have existing houses. Twelve streams (Streams A, B, B2, C, E, G, I through M and O) flow from the general area as shown on Figure 2. The upper part of Streams C, E, G and I originate within the Middle Harvest Unit and are type Np (no fish/perennial) or Ns (no fish/seasonal). The remainder of the streams (also Np and Ns) flow adjacent to or between the harvest areas.

7.0 SITE CONDITIONS

7.1 GENERAL

Mr. Beaman and Mr. Petska completed a field review of the Cavanaugh PHU on April 11, 2019. The weather during the site visit was cloudy with light rain, with the temperature in the 40s. We completed

a second site visit on July 9, 2019 to attend a DNR hosted Interdisciplinary Team (IDT) meeting for a combined review of various aspects of the Cavanaugh PHU. The approximate routes of our field reviews are shown on the Field Review Route Map, Figure 3.

The surficial geologic conditions (unweathered soils that underlie the weathered horizon) and Potentially Unstable Slopes and Landforms were evaluated based on regional geologic mapping by the DNR (June 2004), geologic and landslide mapping by the DNR (Geologic Information Portal), review of historical aerial photographs dating back to 1941 (USGS EarthExplorer and Google Earth), review of LiDAR imagery (DNR Washington LiDAR Portal), contours and slope mapping (DNR/ESRI, ArcGIS) and field review of the Cavanaugh PHU.

Mr. Petska had the cut-line flagged prior to our field review. We observed that the cut-line was, in most places, established well in (over-buffered) from what we would have considered a reasonable cut-line to safely avoid RILs. In many cases, this over-buffered cut-line provides for mature trees to remain in topographically-defined areas that flow toward the RILs; this condition will lessen runoff from the proposed harvest areas.

7.2 GEOGRAPHIC AND TOPOGRAPHIC SETTING

The Cavanaugh PHU is located within a generally north-facing hillside of Frailey Mountain overlooking Lake Cavanaugh. Based on our review of information from the Washington State Department of Fisheries and Wildlife (WDFW - https://wdfw.wa.gov), Lake Cavanaugh covers about 833 acres with a lake level at about Elevation 1,012 feet. The lake is stocked by the WDFW with Cutthroat Trout, Kokanee and Rainbow Trout and resident Largemouth Bass.

Based on our review of the Climatology GIS files available from the DNR (Open Data, Climatology, Rain-on-Snow), the Cavanaugh PHU is within a Rain-on-Snow Dominated Precipitation Zone.

From the north boundary of the three harvest areas at about Elevation 1,060 to 1,130 feet, the ground surface gradually steepens from less than 20 percent grade to well over 100 percent grade along the south part of all three harvest areas at about Elevation 1,460 to 1,540 feet. Generally, the harvest areas are planar surfaced with locally convergent areas. The convergent areas, sloped at about a 40 to 50 percent grade, are primarily within the lower part of the Middle Harvest Area where Streams E, G, I, J and K originate. The upper slopes of the harvest areas steepen appreciably and form near vertical bedrock cliff bands. The crest of the Frailey Mountain ridgeline south of the harvest areas is at about Elevation 2,600 to 2,680 feet.

The three harvest areas are divided by deeply incised (primary) ravines containing Streams A, B, B2, L and O. The East Harvest Area is bordered to the east by a similar deeply incised ravine containing Stream O. These five primary ravines (Streams A, B, B2, L and O) originate in basins extending into the upper slopes of Fraley Mountain south of the Cavanaugh PHU.

7.3 SLOPE MAPPING

Based on the LiDAR topography (DNR/ESRI – 5-, 10- and 20-foot contours), we mapped the location of slopes that exceed 70- and 100-percent grade in the Cavanaugh PHU. Slope inclinations were reviewed

by field measurements. Slope inclinations (greater than 70- and 100-percent grade) are shown on the Slope Map, Figure 4.

7.4 GEOLOGIC SETTING

The surficial geologic soil conditions were evaluated based on regional geologic mapping by the DNR (June 2004) followed by ICE review of historical aerial photographs and LiDAR data, and field review (by foot travel) of the unit and adjacent areas.

Based on regional geologic mapping by the DNR (June 2004) and our site observations, the lower hillside area of the Cavanaugh PHU (hillside) area is underlain by native (in-place) glacial soils of Vashon Stade of the Fraser Glaciation that occurred about 11,500 to 15,500 years ago.

Glacial Till, consisting of an unsorted mixture of silty sand with gravel, cobbles and occasional boulders in a dense condition as a result of being overridden by glacial ice, mantles the ground surface in the lower part of the three harvest areas.

The Glacial Till is underlain by Advance Outwash and Advance Glaciolacustrine Sediments. The Advance Outwash (greater than 15,500 years old) typically consists of stratified (horizontally layered) to massive sand with silt interbeds that was deposited by rivers and streams in front of the advancing ice sheet. The Advance Glaciolacustrine Sediments typically consist of thinly layered to massive silt and fine sand that was deposited in lakes in front of the advancing ice sheet, in a dense or very stiff/hard condition as a result of being overridden by glacial ice. Bedrock underlies the glacial soils.

The mid-slope to upper parts of the three harvest areas is underlain by bedrock referred to as Rocks of Bulson Creek consisting of sedimentary conglomerate with interbeds of sandstone and siltstone, and Rocks of the Eastern Melange Belt consisting of metamorphosed basalt, basaltic andesite and andesite. The Rocks of Bulson Creek are Oligocene to Eocene age (23 to 56 million years old) and the Rocks of the Eastern Melange Belt are Jurassic to Triassic age (145 to 252 million years old).

More recent (during the past 10,500 years) soil deposits in the area include Landslide Complexes consisting of soils that have been transported and deposited by mass wasting processes, typically by landslides (debris flows) or water (sedimentation). Based on our site observations, most of the active landslide processes (source areas) are occurring in Bedrock Hollow basins higher and south of the Cavanaugh PHU harvest areas. The primary streams that drain from these basins (Streams A, B, B2, L and O) transport soils from these landslides as shallow, rapid debris flows that are contained in these steep ravines between the harvest areas, where this material is deposited as Alluvial Fans as the slope flattens along and upgradient of the Lake Cavanaugh shoreline.

These Alluvial Fans coalesce in the lower slope areas and form the Lake Cavanaugh shoreline where most of the private properties and houses are located. The large amount of debris that comprise the Alluvial Fans has accumulated in a relatively short time frame (during the past 10,500 years).

The geologic units present at the Cavanaugh PHU are shown on the Geologic Map, Figure 5.

7.5 GEOMORPHIC SETTING

7.5.1 GENERAL

Regional geologic mapping by the DNR (June 2004) and landslide inventories by the DNR (Geologic Information Portal) indicate the presence of twelve RILs (RIL-1 through RIL-12) within and around the Cavanaugh PHU area.

We also mapped five Alluvial Fans that have accumulated sediment from the primary ravines that discharge to Lake Cavanaugh.

The RILs and Alluvial Fans are shown on the Potentially Unstable Slopes and Landforms Map, Figure 6; a description of each RIL and Alluvial Fan is presented in the following sections.

7. 5.2 Rule-Identified Landforms

RIL-1 – RIL-1 is an Inner Gorge landform between the West and Middle Harvest Areas; the landform contained a stream at the time of our field review. The sideslopes of RIL-1 are generally planar surfaced at over 70 percent grade with bedrock exposures that exceed 100 percent grade increasingly present in the upper part of the unit where the stream channel is scoured to bedrock. Vegetation varies from light to moderately dense brush, especially in the lower part of the drainage area, with no trees or brush in areas of exposed bedrock and scoured channel areas. Localized shallow failures of the sideslopes related to Inner Gorge processes were observed.

Based on our site observations, RIL-1, where it crosses between the West and Middle Harvest Areas, is an Inner Gorge landform where debris flows are transported, rather that sourced. The primary source of debris flows is upgradient from the Cavanaugh PHU.

In our opinion, the risk of shallow slope failure of RIL-1 is moderate to high and the risk of sediment delivery to a public resource is very high. **RIL-1 is excluded (avoided) from the proposed harvest area.**

RIL-2 – RIL-2 (similar to RIL-1) is an Inner Gorge landform between the West and Middle Harvest Areas; the landform contained a stream at the time of our field review. The sideslopes of RIL-2 are generally planar surfaced at over 70 percent grade with bedrock exposures that exceed 100 percent grade. The bedrock exposures are increasingly present in the upper part of the unit where the stream channel is scoured to bedrock. Vegetation varies from light to moderately dense brush, especially in the lower part of the drainage area, with no trees or brush in areas of exposed bedrock and scoured channel areas. Localized shallow failures of the sideslopes related to Inner Gorge processes were observed.

Based on our site observations, RIL-2, where it crosses between the West and Middle Harvest Areas, is an Inner Gorge landform where debris flows are transported, rather that sourced. The primary source of the debris flows is upgradient from the Cavanaugh PHU.

In our opinion, the risk of shallow slope failure of RIL-2 is moderate to high and the risk of sediment delivery to a public resource is very high. **RIL-2 is excluded (avoided) from the proposed harvest area.**

RIL-3 – RIL-3 is an Inner Gorge landform bordering the west side of the Middle Harvest Area. The channel within the landform was intermittently wet at the time of our field review. The sideslopes of RIL-3 are

relatively low, about 10- to 20-feet high with a 70+ percent grade and irregular because of bedrock outcrops. The upper part RIL-3 flattens and ends adjacent to the upper part of the Middle Harvest Area. Vegetation consists of light brush. The channel within RIL-3 is not scoured and does not appear to be a location of past debris flows.

In our opinion, the risk of shallow slope failure of RIL-3 is low and the risk of sediment delivery to a public resource is high. **RIL-3 is excluded (avoided) from the proposed harvest area.**

RIL-4 – RIL-4 is a shallow convergent slope area within the Middle Harvest Area, similar to a Bedrock Hollow but with slopes that are only 30 to 50 percent grade. The area is located at the head of the stream labeled as "X4" on Figure 2 and was generally wet at the time of our field review. It appears this area may have failed and contains features that indicate the presence of potential slope instability. The vegetation is light. This area would be characterized as an "E" using the list of defined RILs by the DNR in WAC 222-16-050.

In our opinion, the risk of shallow slope failure of RIL-4 is low and the risk of sediment delivery to a public resource is high. **RIL-4 is excluded (avoided) from the proposed harvest area.**

RIL-5 – RIL-5 is an Inner Gorge landform located just south of the Middle Harvest Area, within an area of bedrock cliff bands in a narrow convergent slope area comprised of broken rock. Very few trees occur in this area because of the cliff bands. It appears that during a snow-on-rain event, about 10 cubic yards of broken rock became mobilized in this very steep (over 100 percent grade) area and resulted in a debris flow of rock fragments. The debris flow deposited at the base of the cliff bands in a forested area with no apparent damage.

In our opinion, the risk of shallow slope failure of RIL-5 is moderate and the risk of sediment delivery to a public resource is low. **RIL-5 is excluded (avoided) from the proposed harvest area.**

RIL-6 – RIL-6 (similar to RIL-1 and RIL-2) is an Inner Gorge landform between the Middle and East Harvest Areas; the landform contained a stream at the time of our field review. The sideslopes of RIL-6 are planar to irregularly surfaced (bedrock cliffs) at over 70 percent grade with bedrock exposures that exceed 100 percent grade increasingly present in the upper part of the unit where the stream channel is scoured to bedrock. Vegetation varies from light to moderately dense brush, especially in the lower part of the drainage area, with no trees or brush in areas of exposed bedrock and scoured channel areas. Localized shallow failures of the sideslopes related to Inner Gorge processes were observed.

Based on our site observations, RIL-6, where it crosses between the Middle and East Harvest Areas, is an Inner Gorge landform where debris flows are transported, rather that sourced. The primary source of the debris flows is upgradient from the Cavanaugh PHU.

In our opinion, the risk of shallow slope failure of RIL-6 is moderate to high and the risk of sediment delivery to a public resource is very high. **RIL-6 is excluded (avoided) from the proposed harvest area.**

RIL-7 – RIL-7 is an Inner Gorge landform bordering the east side of the East Harvest Area; the landform contained a stream at the time of our field review. The slope on the left bank is planar, about 10- to 15-

feet high, sloped at over 70 percent grade and in contact with the stream; the slope appears to be related to sidecast fill for the forest road that crosses upstream of this area. The right bank conditions are similar to the left bank, but the toe of the slope is about 10 to 15 feet from the stream channel. Vegetation varies from light to moderately dense brush. No surface failures were observed, but the shallow soils appeared to be loose and erosion prone, typical of sidecast fill.

Based on our site observations, RIL-7, where it crosses adjacent to the East Harvest Area, is an Inner Gorge landform where debris flows are transported, rather that sourced. The primary source of the debris flows is upgradient from the Cavanaugh PHU.

In our opinion, the risk of shallow slope failure of RIL-7 is low (right bank) to moderate (left bank) and the risk of sediment delivery to a public resource is moderate (right bank) to high (left bank). **RIL-7 is excluded (avoided) from the proposed harvest area.**

RIL-8 – RIL-8 is an Inner Gorge landform bordering the east side of the East Harvest Area; the landform contained a stream at the time of our field review. The sideslopes of RIL-8 are planar to irregularly surfaced (bedrock cliffs) at over 70 percent grade, with bedrock exposures that exceed 100 percent grade increasingly present in the upper part of the unit where the stream channel is scoured to bedrock. Vegetation varies from light to moderately dense brush, especially in the lower part of the drainage area, with no trees or brush in widespread areas of exposed bedrock and scoured channel areas. Localized shallow failures of the sideslopes related to Inner Gorge processes were observed.

Based on our site observations, RIL-8, where it crosses adjacent to the East Harvest Area, is an Inner Gorge landform where debris flows are transported, rather that sourced. The primary source of the debris flows is upgradient from the Cavanaugh PHU.

In our opinion, the risk of shallow slope failure of RIL-8 is moderate to high and the risk of sediment delivery to a public resource is very high. **RIL-8 is excluded (avoided) from the proposed harvest area.**

RIL-9 – RIL-9 was not field reviewed but happens to partially show up within the topographic area depicted on Figure 6. RIL-9, though not shown completely on Figure 6, is an example of the large Bedrock Hollow complexes that provide the source of debris flows that periodically flow down the Inner Gorge landforms of the primary streams (Streams A, B, B2, L and O) that cross adjacent to or between the three harvest areas. We reviewed the regional geologic mapping and LiDAR image that contains RIL-9 and the other Bedrock Hollow complexes that occur at the head of the primary streams, well south of the Cavanaugh PHU. This review strongly suggested that these Bedrock Hollow complexes at the heads of the primary streams are the source areas for debris flows that channel down the Inner Gorge landforms and result in deposition at the five Alluvial Fans that occur in the lakeshore area of Lake Cavanaugh. These Alluvial Fans are described in section **5.2.3** of this report.

In our opinion, the risk of shallow slope failure within RIL-9 is high and the risk of sediment delivery to a public resource is high. **RIL-9 is excluded (avoided) from the proposed harvest area.**

RIL-10 – RIL-10 is an Inner Gorge landform about 250 to 300 feet west of the west side of the West Harvest Area; this landform contained a stream at the time of our field review. RIL-10 is deeply incised (40+ feet

deep) into a completely scoured to bedrock Inner Gorge landform that is nearly completely stripped of vegetation. The importance of RIL-10 relates to the activity of the Alluvial Fan landform downstream of the apex of this feature. The depth of scour at the apex is at a level where a renewed avulsion into the east part of the downstream Alluvial Fan is unlikely.

In our opinion, the risk of shallow slope failure of RIL-10 is moderate to high and the risk of sediment delivery to a public resource is very high. **RIL-10 is outside of the Cavanaugh PHU and will not be harvested.**

RIL-11 – RIL-11 was not field reviewed and is well outside of the Cavanaugh PHU. Based on our review of the geologic and LiDAR image conditions, RIL-11 is an Inner Gorge landform that transmits debris flows to the Alluvial Fan (AAF-1 as described in section **7.5.4** of this report) that occurs in the shore area of Lake Cavanaugh. **RIL-11 is outside of the Cavanaugh PHU and will not be harvested.**

RIL-12 – RIL-12 occurs along the toe of eroded sidecast fill for the existing unmaintained forest road. RIL-12 is considered a category "E" type unstable landform which implies that this landform "*contains features indicating the presence of potential slope instability which cumulatively indicate the presence of unstable slopes* (WAC 222-16-050). The landform is characterized by wet, soggy ground. **RIL-12 is excluded (avoided) from the proposed harvest area.**

7.5.4 Alluvial Fans

General – Five distinctive Alluvial Fans occur downgradient of the Cavanaugh PHU. These Alluvial Fans are currently active (AAF-1 through AAF-5). However, portions of these Alluvial Fans are not active (IAF-1), or likely not active (IAF-2) because of deep incisement of the primary stream that creates conditions where stream avulsion to these parts of the Alluvial Fans are not, or likely not, possible. Based on our review of private property (lot) locations from Skagit County iMap (https://www.skagitcounty.net/Maps/iMap/) and ICE's Alluvial Fan mapping, about 57 lots are located within Active Alluvial Fan areas, about 18 lots within Inactive Alluvial Fan areas and about 18 lots in non-Alluvial Fan areas.

AAF-1 (active) – AAF-1 is an active Alluvial Fan that receives debris slides that are sourced in the upper Bedrock Hollow complexes and transported by RIL-10 and RIL-11. RIL-11 is deeply-incised into AAF-1. The reason for this deep incision is not known and may be attributed to man-made channeling in the mid- to lower Alluvial Fan area in an attempt to control the natural channel migration of the stream(s) that flow to this landform.

IAF-1 (inactive) – IAF-1 is an inactive Alluvial Fan that appears to have been cut-off from natural stream erosion and deposition by deep incisement of the stream that flows from RIL-10. Based on our site observations, the stream at the apex of IAF-1 is incised over 40 feet and is scoured well into bedrock. The benefit to the Cavanaugh PHU is that the new planned access road and harvest area in the north part of the West Harvest Area can be completed without mitigation, including exclusion (avoidance) for active Alluvial Fan conditions.

AAF-2 (active) – AAF-2 is an active Alluvial Fan that receives debris slides that are sourced in the upper Bedrock Hollow complexes and transported by RIL-1 (Stream A and Stream B). AAF-2 includes about 12 lots in the debris flow path of the Stream A and Stream B watershed.

IAF-2 (inactive) – IAF-2 is an inactive Alluvial Fan that appears to have been cut-off from natural stream erosion and deposition by rafting of slide debris at a sharp bend in Stream B2 and C, combined with deep incision (about 15 to 20 feet) into bedrock at the apex of the Alluvial Fan. However, this "debris deflection point" could be temporary and removed during an extreme debris flow event. At this time, the Cavanaugh PHU excludes (avoids) this area for harvest, but this could be revisited in the future with additional field evaluation.

AAF-3 (active) – AAF-3 is an active Alluvial Fan that receives debris slides that are sourced in the upper Bedrock Hollow complexes and transported by RIL-2 (Stream B2 and C. AAF-3 includes about 18 lots in the debris flow path of the Stream C watershed.

AAF-4 (active) – AAF-4 is an active Alluvial Fan that receives debris slides that are sourced in the upper Bedrock Hollow complexes and transported by RIL-6 and RIL-9 (Stream L). AAF-4 includes about 6 lots in the debris flow path of the Stream L watershed.

AAF-5 (active) – AAF-5 is an active Alluvial Fan that receives debris slides that are sourced in the upper Bedrock Hollow complexes and transported by RIL-7 and RIL-8 (Stream O), and RIL-6 and RIL-9 (Stream L and M) depending on the where Stream L and M crosses AAF-5. AAF-5 includes about 23 lots in the debris flow path of the Stream O watershed.

7.6 HISTORICAL AERIAL PHOTOGRAPH REVIEW

ICE reviewed historical aerial photographs of the Cavanaugh PHU area from 1941, 1953, 1974 (USGS EarthExplorer), 2006 and 2018 (Google Earth), as shown in Figures 7 through 11. The following is a summary of surface conditions observed on the aerial photographs.

1941 Aerial Photograph – The 1941 aerial photograph (Figure 7 – fair quality) shows that the Cavanaugh PHU and surrounding areas on the south-facing slope of Frailey Mountain have been clear-cut with the exception of some regrowth and old-growth trees in the very steep area immediately south of the Cavanaugh PHU. Areas of mature trees also appear to be present near the shore of Lake Cavanaugh. It appears that the currently overgrown forest road that crosses the lower part of the Middle and East Harvest Areas is present. No houses are present along the south shore of Lake Cavanaugh.

It appears that the primary stream ravines (Streams A, B, B2, L and O) are visible and appear to be deeply incised, similar to that of the existing conditions of Inner Gorge Landforms. No other evidence of landsliding or severe erosion is apparent within the Cavanaugh PHU or adjacent areas.

1953 Aerial Photograph – The 1953 aerial photograph (Figure 8 – good quality) shows that the Cavanaugh PHU and surrounding areas on the south-facing slope of Frailey Mountain are reforesting or have otherwise not been clear-cut (old-growth trees), especially south of the Cavanaugh PHU. South Shore Drive is present, along with the currently overgrown forest road that crosses the lower part of the Middle and East Harvest Areas. Considerable residential development has occurred along the south shoreline of Lake Cavanaugh.

It appears that recent debris flows have occurred in the stream ravine west of the West Harvest Area (RIL-10), Streams B2 and C (RIL-3), Stream L (RIL-6 and RIL-9) and Stream O (RIL-8). No other evidence of landsliding or severe erosion is apparent within the Cavanaugh PHU or adjacent areas.

1974 Aerial Photograph – The 1974 aerial photograph (Figure 9 – good quality) shows that the Cavanaugh PHU and surrounding areas on the south-facing slope of Frailey Mountain are reforesting or have otherwise not been clear-cut (old-growth trees) especially south of the Cavanaugh PHU. South Shore Drive is present, along with the currently overgrown forest road that crosses the lower part of the Middle and East Harvest Areas. Considerable residential development has occurred along the south shoreline of Lake Cavanaugh.

It appears that recent debris flows have occurred in the area immediately upgradient from the South Shore Road in the stream that occupies RIL-10. Another debris flow appears to have affected South Shore Road and Stream O (RIL-7 and RIL-8). No other evidence of landsliding or severe erosion is apparent within the Cavanaugh PHU or adjacent areas.

2006 Aerial Photograph – The 2006 aerial photograph (Figure 10 – very good quality) shows that the Cavanaugh PHU and surrounding areas on the south-facing slope of Frailey Mountain are reforesting or have otherwise not been clear-cut (old-growth trees), especially south of the Cavanaugh PHU. A recent clear cut is visible on the north-facing slope of Frailey Mountain south of the Cavanaugh PHU. South Shore Drive is present, along with the currently overgrown forest road that crosses the lower part of the Middle and East Harvest Areas. Considerable residential development and land clearing has occurred along the south shoreline of Lake Cavanaugh.

A recent debris flow is visible in RIL-10, west of the Cavanaugh PHU. Streams B2 and C (RIL-2), Stream L (RIL-6 and RIL-9) and Stream 0 (RIL-7 and RIL-8) appear to still be transporting debris flow material. No other evidence of landsliding or severe erosion is apparent within the Cavanaugh PHU or adjacent areas.

2018 Aerial Photograph – The 2018 aerial photograph (Figure 11 – very good quality) shows that the Cavanaugh PHU and surrounding areas on the south-facing slope of Frailey Mountain are reforesting. South Shore Drive is present, along with the currently overgrown forest road that crosses the lower part of the Middle and East Harvest Areas. Extensive residential development and land clearing has occurred along the south shoreline of Lake Cavanaugh.

No evidence of landsliding or severe erosion is apparent within the Cavanaugh PHU or adjacent areas.

7.7 LIDAR IMAGE REVIEW

Our review of the LiDAR image (raw data obtained from the DNR Washington LiDAR Portal and processed by ICE using ESRI ArcGIS) as presented on the LiDAR Image, Figure 12, shows landforms consistent with shallow landslide, Inner Gorge landforms and other erosional features regionally mapped by the DNR and from our field review within the Cavanaugh PHU.

8.0 CAVANAUGH PHU CONCLUSIONS

It is our opinion that the proposed Forest Practices for the Cavanaugh PHU can be successfully/safely completed as planned provided that the RILs and active Alluvial Fan areas shown on Figure 6 are excluded

(avoided) from the harvest plan. We understand that a bridge, that can be partially or fully dismantled or moved, or a "vented ford" may be used for restoration of the road that parallels the upstream side of RIL-12.

As previously mentioned, Mr. Petska had the cut-line flagged prior to our field review. We observed that the cut-line was, in most places, established well in from what we would have considered a reasonable cut-line to safely avoid RILs. In many cases, this over-buffered cut-line provides for mature trees to remain in topographically-defined areas that flow toward the RILs; this condition will lessen runoff from the proposed harvest areas.

Other buffers (riparian, wildlife and others) may be applicable.

Provided that the RILs and active Alluvial Fans are excluded (avoided), standard Forest Practices should apply for the Cavanaugh PHU. The harvest area within the Cavanaugh PHU should be replanted as soon as practical.

9.0 USE OF THIS REVISED REPORT

We have prepared this revised report for use by Nielsen Brothers Inc. to supplement the Forest Practices Application permit process for the Cavanaugh PHU; this revised report is not applicable to other locations or for other purposes. Our revised report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

There are always risks related to slope stability issues in mountainous areas. These areas are naturally active geologically with respect to mass wasting, erosional and sedimentation processes exacerbated by other factors such as earthquakes, extreme precipitation events and climate change. This risk related to slope stability issues can be reduced using currently accepted and prescribed methods, but the risk cannot be eliminated. Proper logging methods, including road construction/decommissioning, drainage and erosion control, before and after logging, are key to reducing risks of slope instability.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in this area at the time this revised report was prepared. No warranty, express or implied, should be understood.

****

We trust this revised report meets your present needs. Please call if you have any questions.

Yours very truly,
Icicle Creek Engineers, Inc.

Kathy S. Killman, LEG
Principal Engineering Geologist

Brian R. Beaman, PE, LEG, LHG
Principal Engineer/Geologist/Hydrogeologist

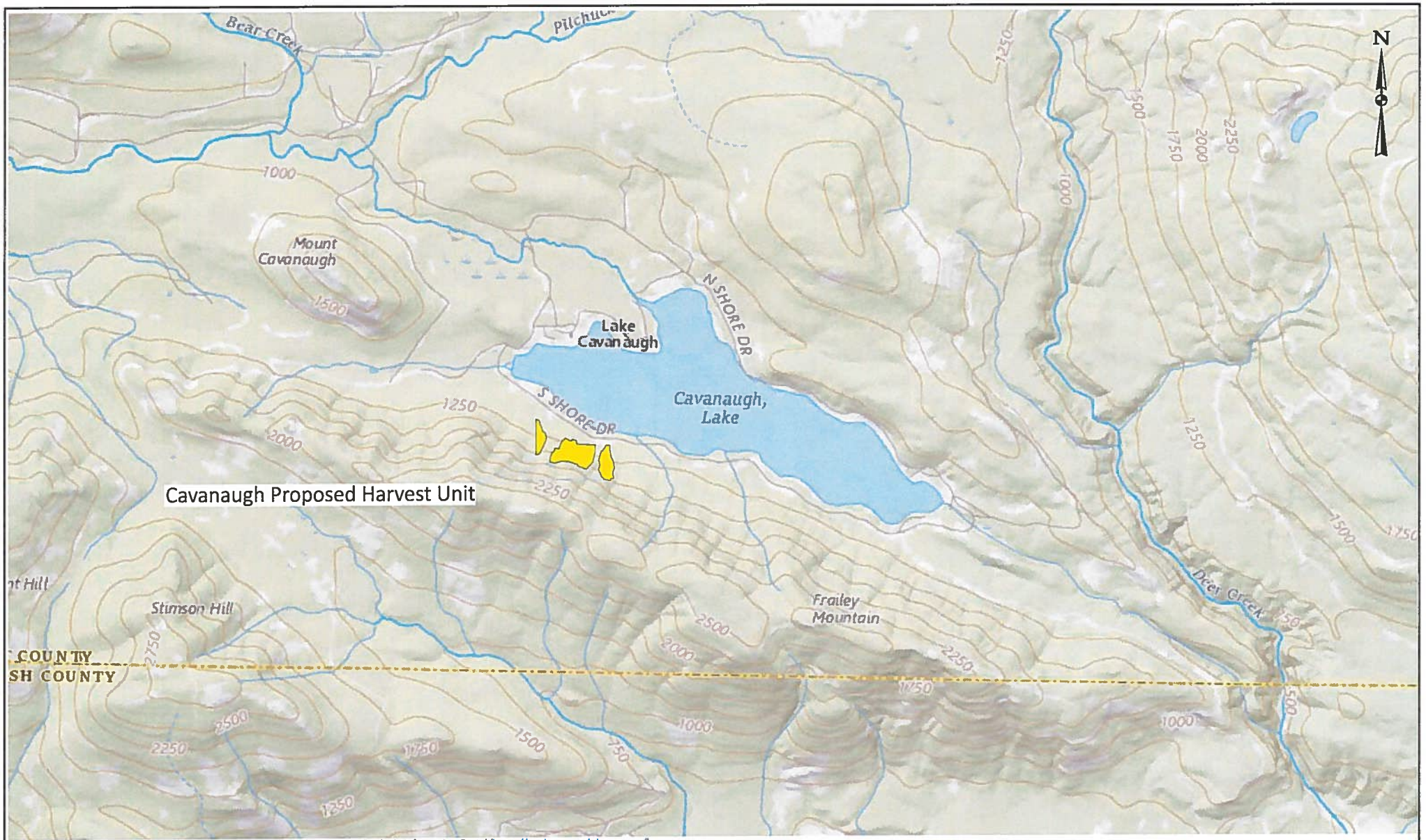
State of Washington
Engineering Geologist
671
Licensed Geologist
BRIAN R. BEAMAN

Attachments: Vicinity Map – Figure 1
Activity Map – Figure 2
Field Review Route Map – Figure 3
Slope Map – Figure 4
Geologic Map – Figure 5
Potentially Unstable Slopes and Landforms Map – Figure 6
1941 Aerial Photograph – Figure 7
1953 Aerial Photograph – Figure 8
1974 Aerial Photograph – Figure 9
2006 Aerial Photograph – Figure 10
2018 Aerial Photograph – Figure 11
LiDAR Image – Figure 12

Document ID: 1319001.revrep

Submitted via email (PDF) and surface mail (one original copy)

FIGURES



Base map obtained from Washington State Department of Natural Resources, Geologic Information Portal (https://geologyportal.dnr.wa.gov/)

28171112

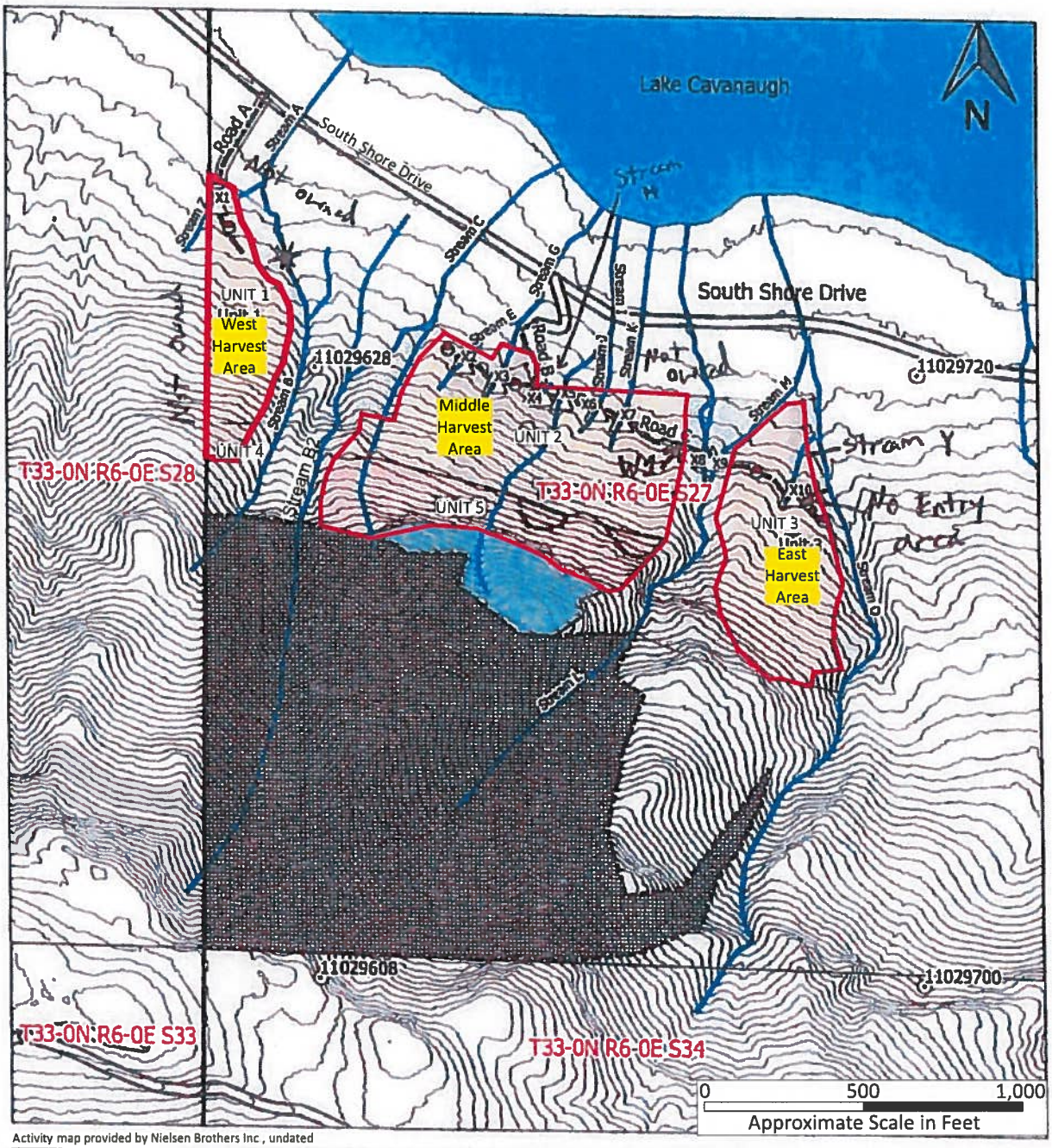
VICINITY MAP

CAVANAUGH PROPOSED HARVEST UNIT

ICICLECREEK ENGINEERS
29335 NE 20th Street
Carnation, Washington 98014
(425) 333-0093

SCALE: None	ICE FILE NO.
DESIGNED: ---	1319-001
DRAWN: BRB	Figure
CHECKED: KSK	1
DATE: 07/10/19	

Nielsen Brothers Inc. Forest Practices Activity Map
Township 33 Range 6E Section 27



Activity map provided by Nielsen Brothers Inc , undated

- Even-Aged Harvest Areas
- Managed MM Buffer
- MM Habitat Area
- Skagit County ROW
- MM No cut manged buffer
- no harvest area
- Existing Roads
- Planned Roads
- FPA Tics
- Streams
- Crossing ID
- Landing
- 20ft Contours
- Stream Type Break

NAD 83 Washington South(ft)

NIELSEN BROTHERS, INC

ACTIVITY MAP

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SCALE: As Shown	ICE FILE NO.
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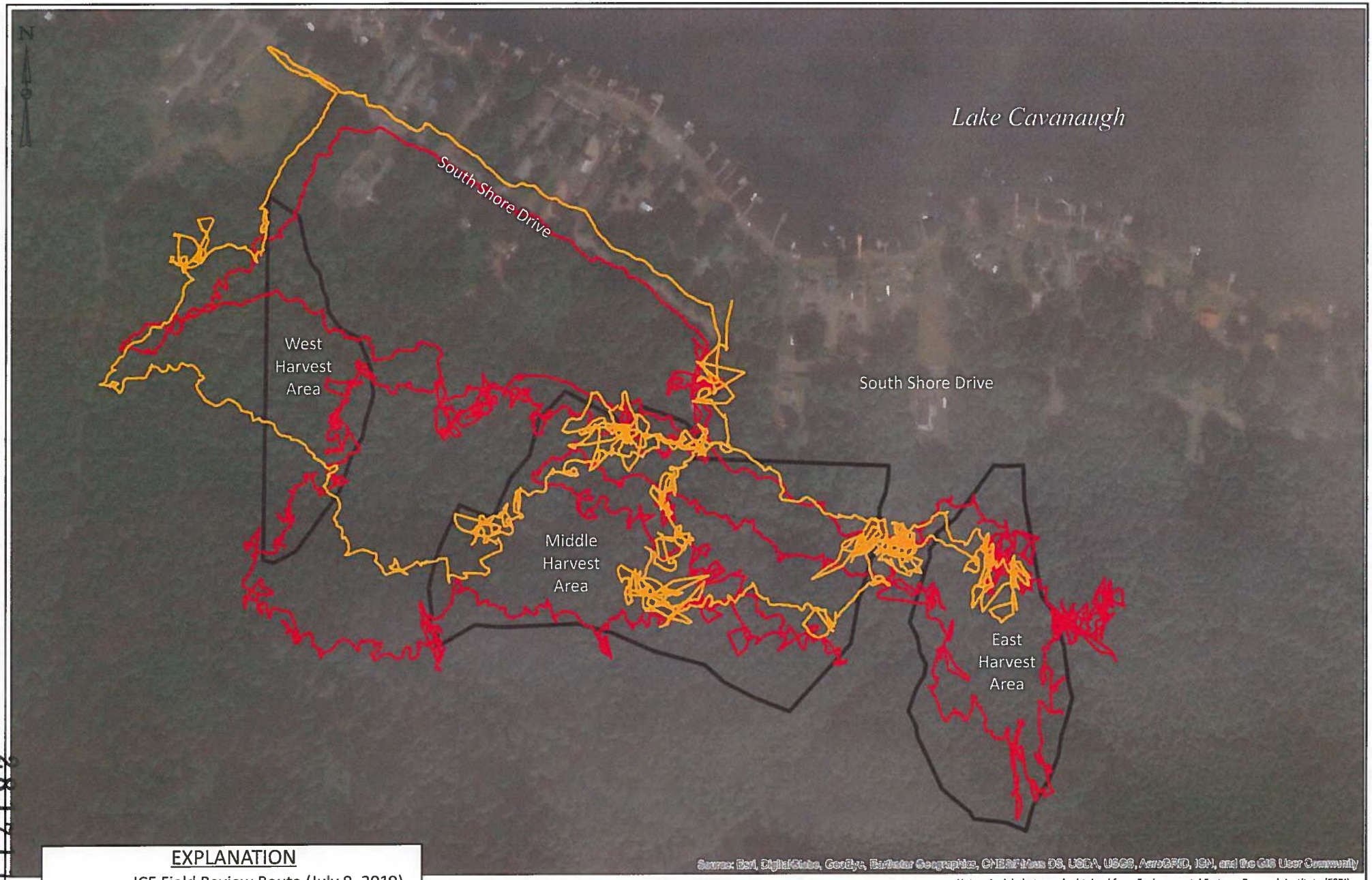
DATE: 07/10/19	



Notes: Aerial photograph obtained from Environmental Systems Research Institute (ESRI).

EXPLANATION

- ICE Field Review Route (July 9, 2019)
- ICE Field Review Route (April 11, 2019)
- Cavanaugh Proposed Harvest Unit

0 300 600

Approximate Scale in Feet

FIELD REVIEW ROUTE MAP

CAVANAUGH PROPOSED HARVEST UNIT

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Carnation, Washington 98014
(425) 333-0093

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DESIGNED: ---	1319-001
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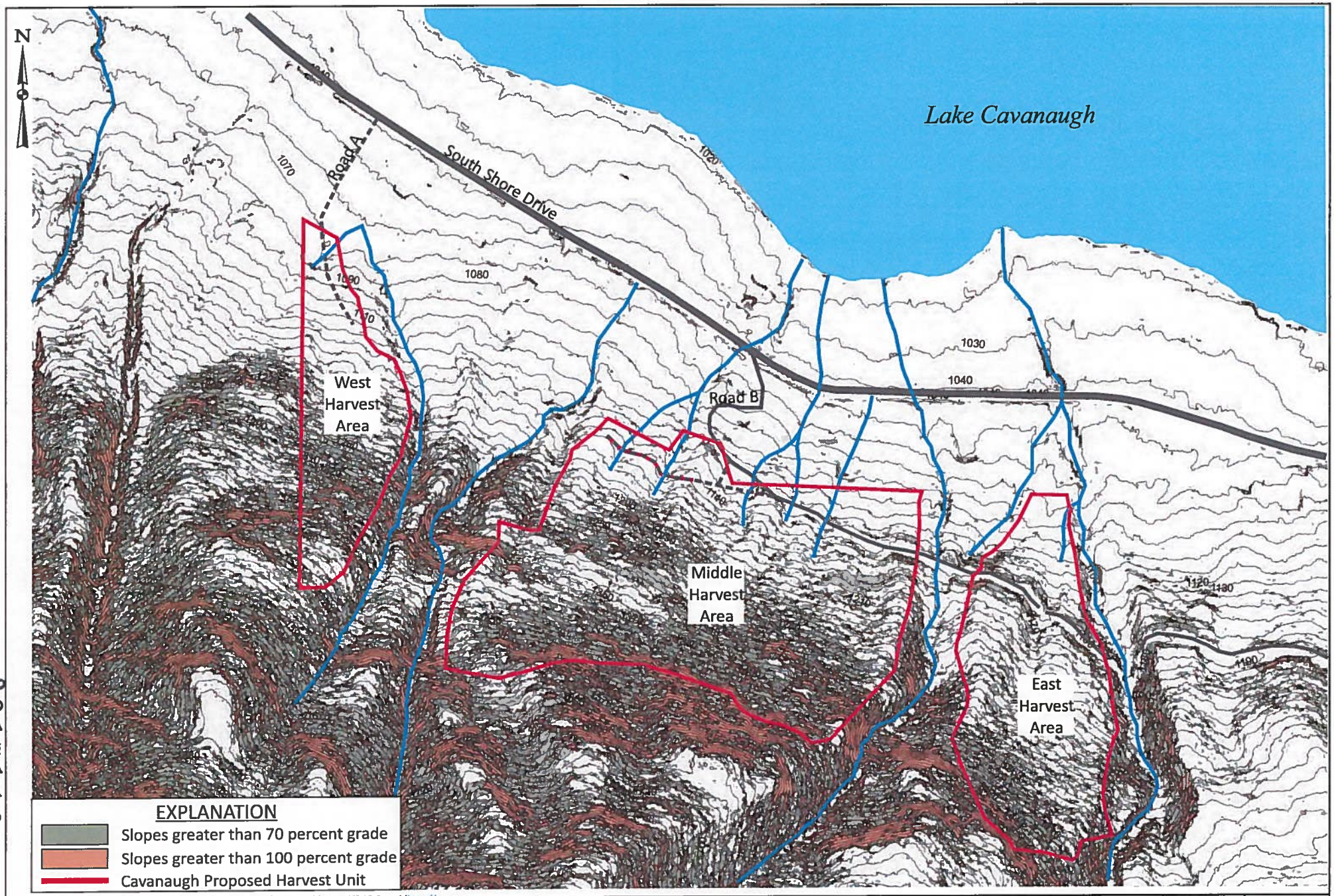
CHECKED: KSK	3
DATE: 07/10/19	

2/17/22



Notes: 1) Base map obtained from LiDAR based topography (DNR Washington LiDAR Portal (http://lidarportal.dnr.wa.gov); processed by ICE using Esri ArcGIS 10.6. for 10-foot contour interva and 70/100 percent slope.
2) See report text for additional details.

0 300 600
Approximate Scale in Feet

SLOPE MAP

CAVANAUGH PROPOSED HARVEST UNIT

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Carnation, Washington 98014
(425) 333-0093

SCALE: As Shown	ICE FILE NO.
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DRAWN: BRB	Figure
CHECKED: KSK	4
DATE: 07/10/19	

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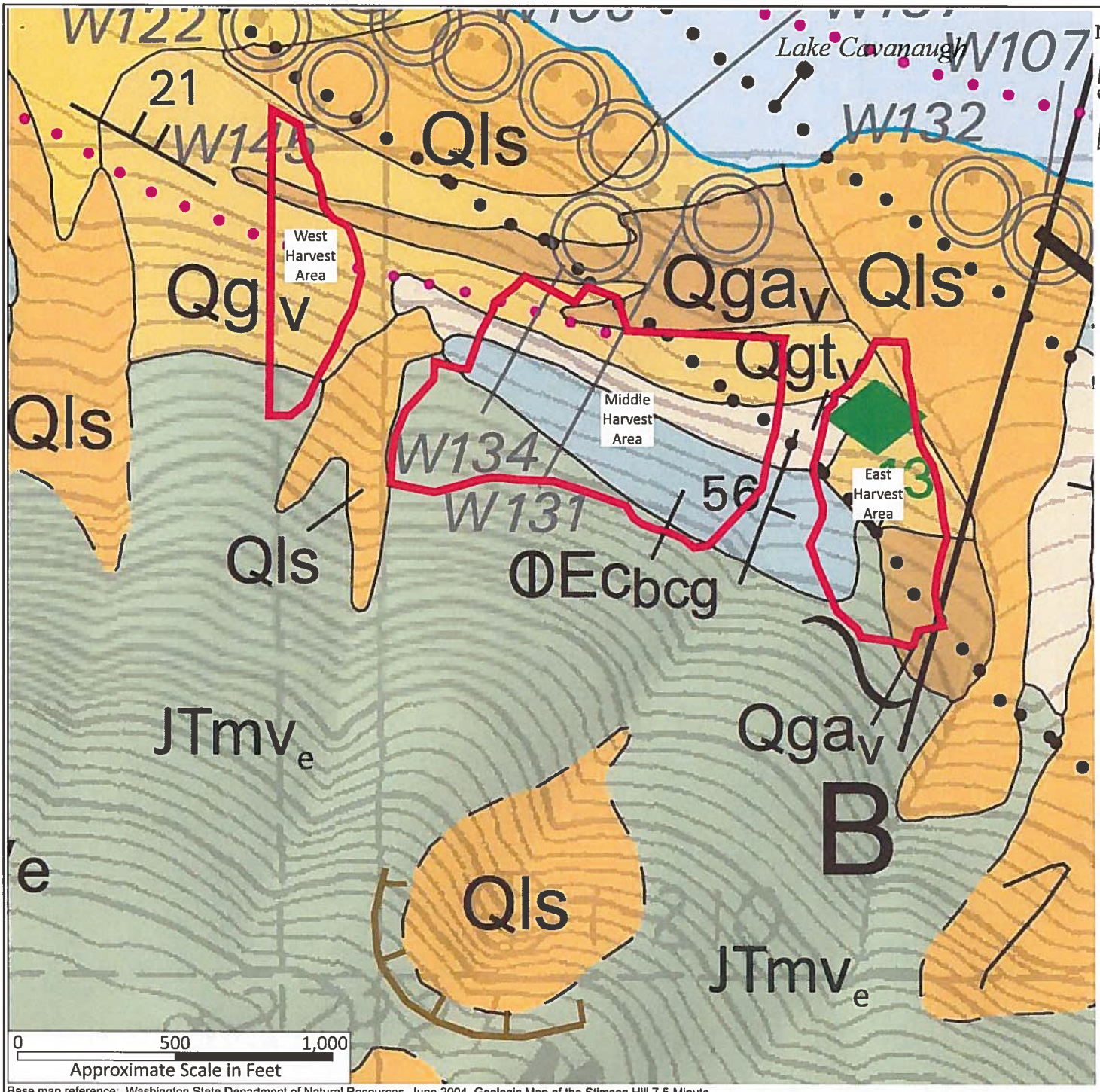

Base map reference: Washington State Department of Natural Resources, June 2004, Geologic Map of the Stimson Hill 7.5-Minute Quadrangle, Skagit and Snohomish Counties, Washington, Open File Report 2004-9.

EXPLANATION

- Qls — **Landslide Complexes** - Unsorted loose mixture of silt, sand and gravel; includes source, runout and deposition areas.
- Qgt_v — **Glacial Till** - Unsorted mixture of silty sand with gravel, cobbles and occasional boulders deposited directly by glacial ice.
- Qga_v — **Advance Outwash** - Stratified to massive sand with silt interbeds deposited by rivers and streams in front of the advancing ice sheet, in a dense condition as a result of being overridden by glacial ice.
- Qgl_v — **Advance Glaciolacustrine Sediments** - Thinly layered to massive silt and fine sand deposited in lakes in front of the advancing ice sheet, in a very stiff/hard or dense condition as a result of being overridden by glacial ice.
- Oec_{bcg} — **Rocks of Bulson Creek (bedrock)** - Sedimentary conglomerate with interbeds of sandstone and siltstone.
- $JTmv_e$ — **Rocks of the Eastern Melange Belt (bedrock)** - Metamorphosed basalt, basaltic andesite and andesite.
- **Cavanaugh Proposed Harvest Unit**

GEOLOGIC MAP

CAVANAUGH PROPOSED HARVEST UNIT 2817112

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(425) 333-0093

SCALE: As Shown	ICE FILE NO.
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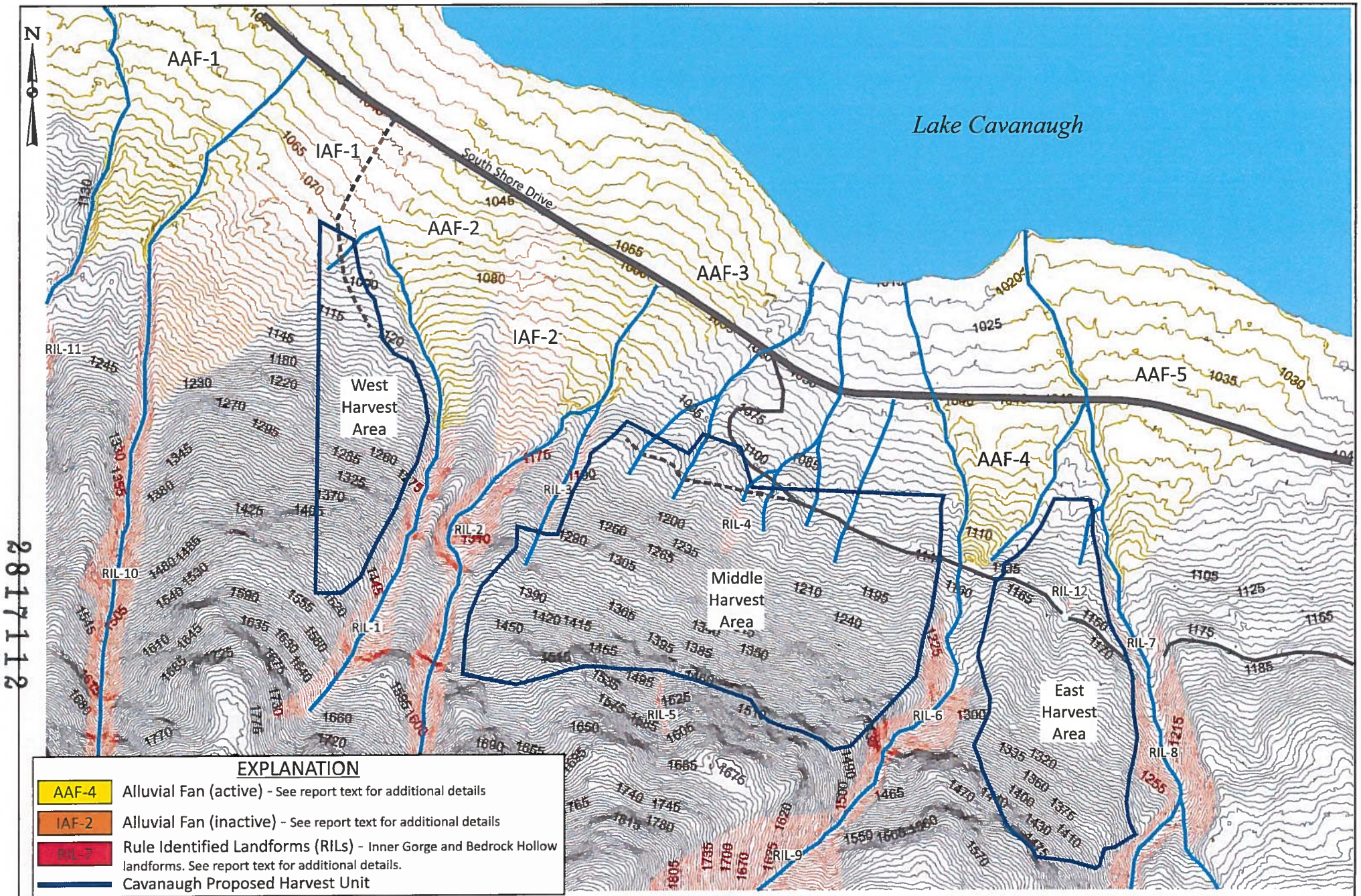
DATE: 07/10/19	



28177112

Notes: 1) Base map obtained from LiDAR based topography (DNR Washington LiDAR Portal (http://lidarportal.dnr.wa.gov); processed by ICE using ArcGIS 10.6 for10-foot contour interval.
2) See report text for additional details.

POTENTIALLY UNSTABLE SLOPES AND LANDFORMS MAP

CAVANAUGH PROPOSED HARVEST UNIT

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Carnation, Washington 98014
(425) 333-0093

SCALE: As Shown	ICE FILE NO.
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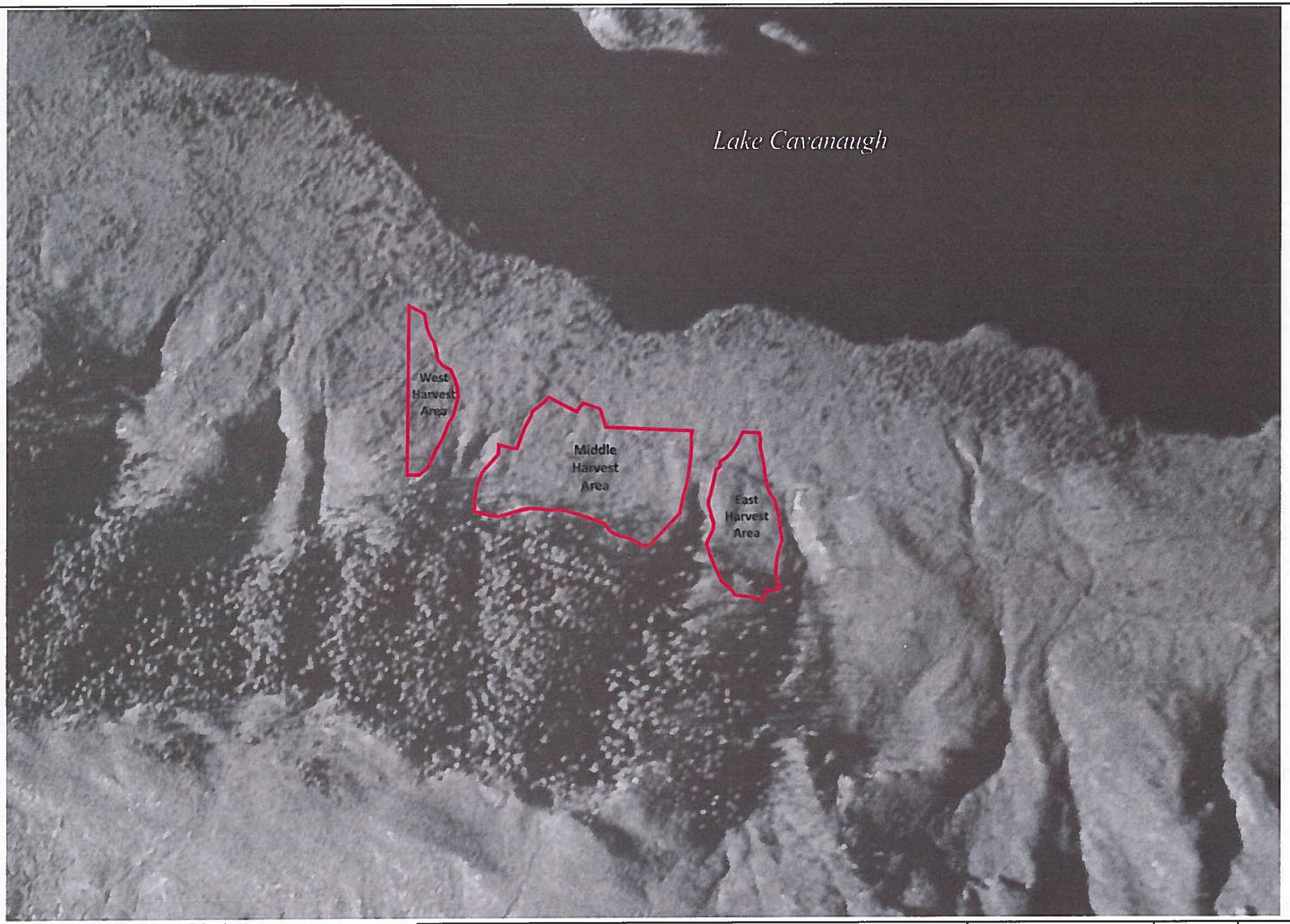
DRAWN: BRB	Figure
CHECKED: KSK	6
DATE: 07/10/19	



28171112

Aerial photograph obtained from USGS EarthExplorer (https://earthexplorer.usgs.gov/)

EXPLANATION

Cavanaugh Proposed Harvest Unit

1941 AERIAL PHOTOGRAPH

CAVANAUGH PROPOSED HARVEST UNIT

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29335 NE 20th Street
Carnation, Washington 98014
(425) 333-0093

SCALE: None	ICE FILE NO.
DESIGNED: —	1319-001
DRAWN: BRB	Figure
CHECKED: KSK	7
DATE: 07/10/19	

Aerial photograph obtained from USGS EarthExplorer (https://earthexplorer.usgs.gov/)

EXPLANATION

Cavanaugh Proposed Harvest Unit

28171112

1953 AERIAL PHOTOGRAPH

CAVANAUGH PROPOSED HARVEST UNIT

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29335 NE 20th Street
Carnation, Washington 98014
(425) 333-0093

SCALE: None	ICE FILE NO.
DESIGNED: —	1319-001
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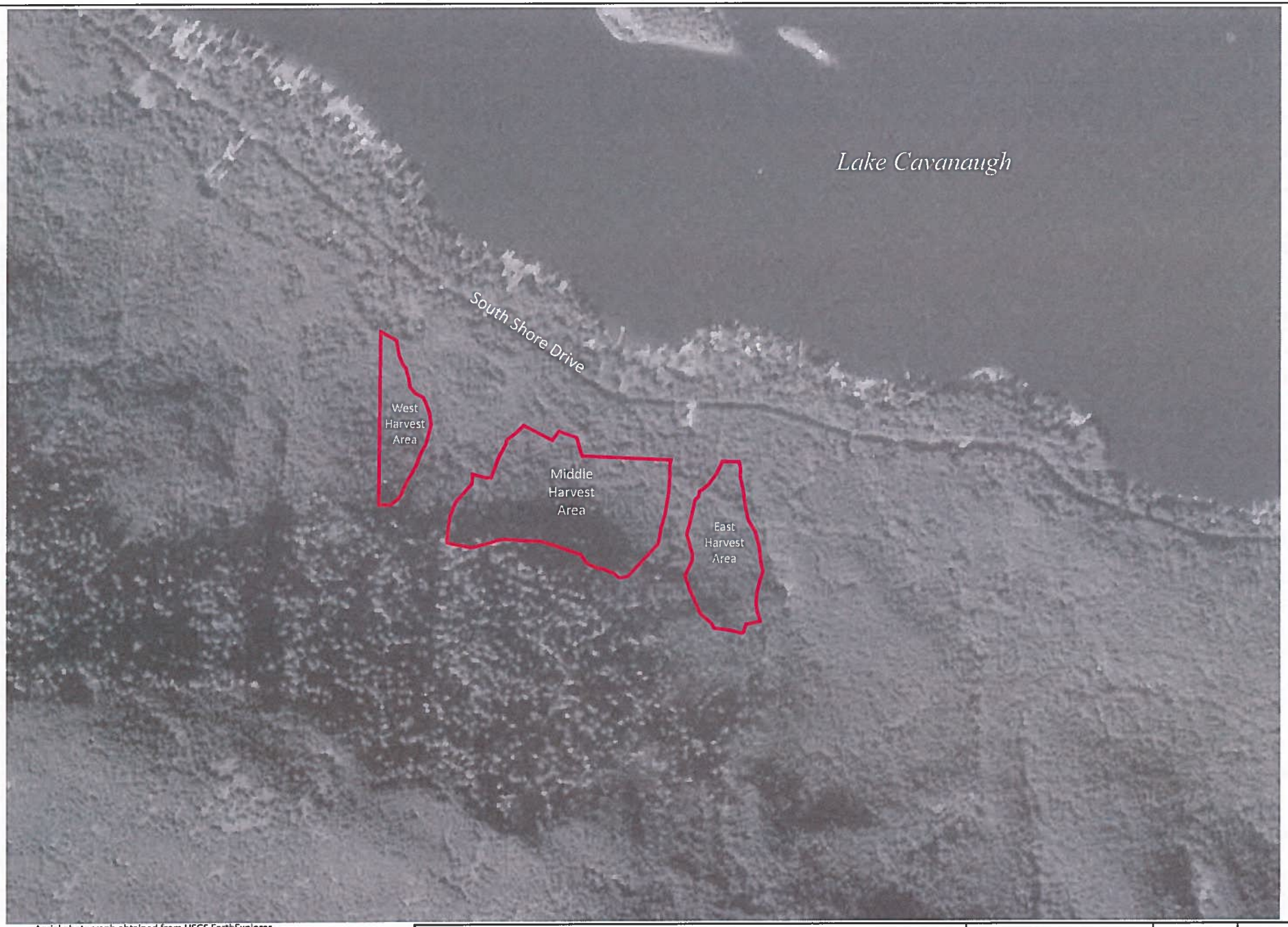
DATE: 07/10/19	



28171112

Aerial photograph obtained from USGS EarthExplorer (https://earthexplorer.usgs.gov/)

EXPLANATION

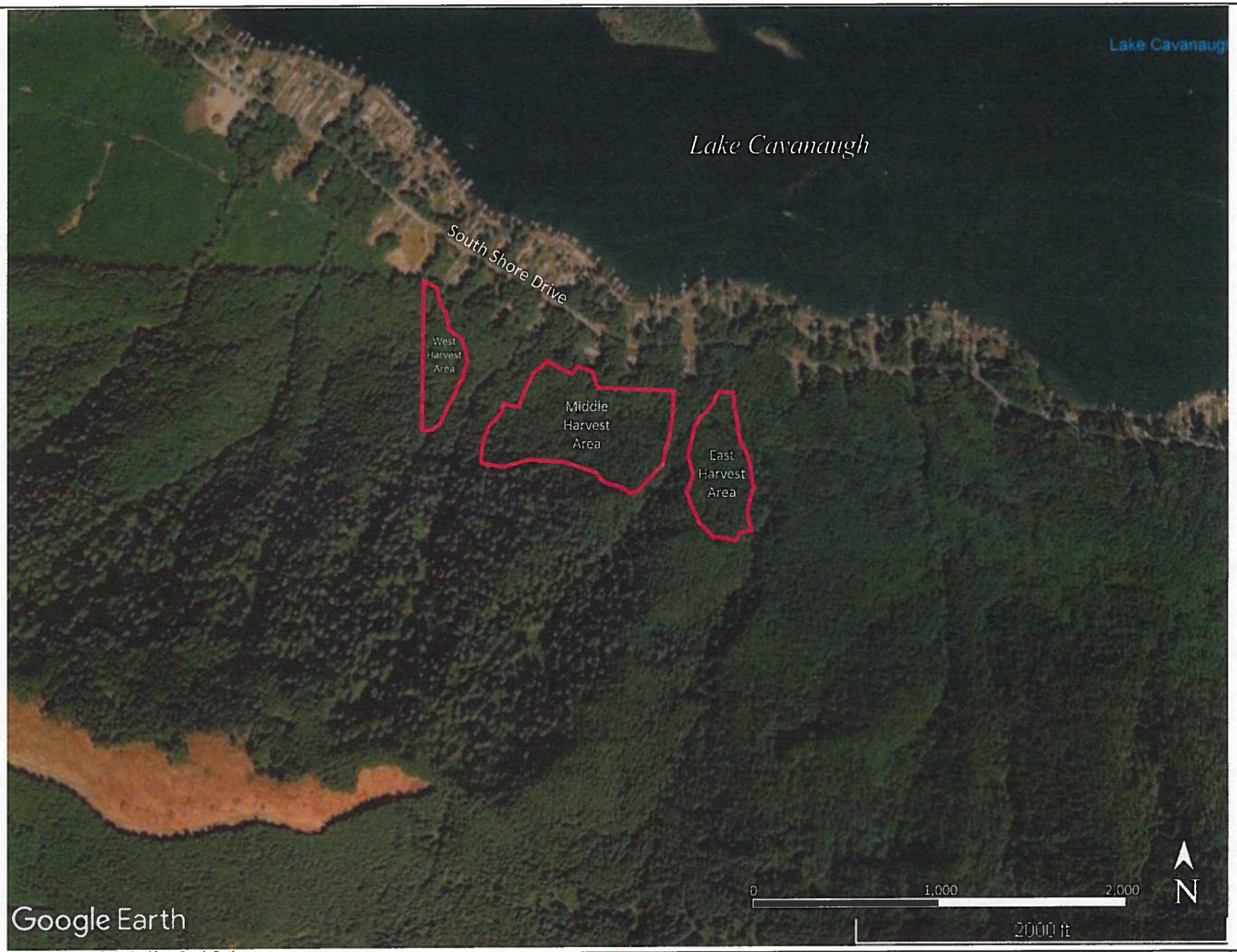
Cavanaugh Proposed Harvest Unit

1974 AERIAL PHOTOGRAPH

CAVANAUGH PROPOSED HARVEST UNIT

ICICLECREEK ENGINEERS
29335 NE 20th Street
Carnation, Washington 98014
(425) 333-0093

SCALE: None	ICE FILE NO.
DESIGNED: ---	1319-001
DRAWN: BRB	Figure
CHECKED: KSK	9
DATE: 07/10/19	



Aerial photograph obtained from Google Earth

EXPLANATION

Cavanaugh Proposed Harvest Unit

2006 AERIAL PHOTOGRAPH

CAVANAUGH PROPOSED HARVEST UNIT

ICICLE CREEK ENGINEERS
29335 NE 20th Street
Carnation, Washington 98014
(425) 333-0093

SCALE: As Shown	ICE FILE NO.
DESIGNED: —	1319-001
DRAWN: BRB	Figure
CHECKED: KSK	10
DATE: 07/10/19	

28171112

Aerial photograph obtained from Google Earth

28171112

EXPLANATION

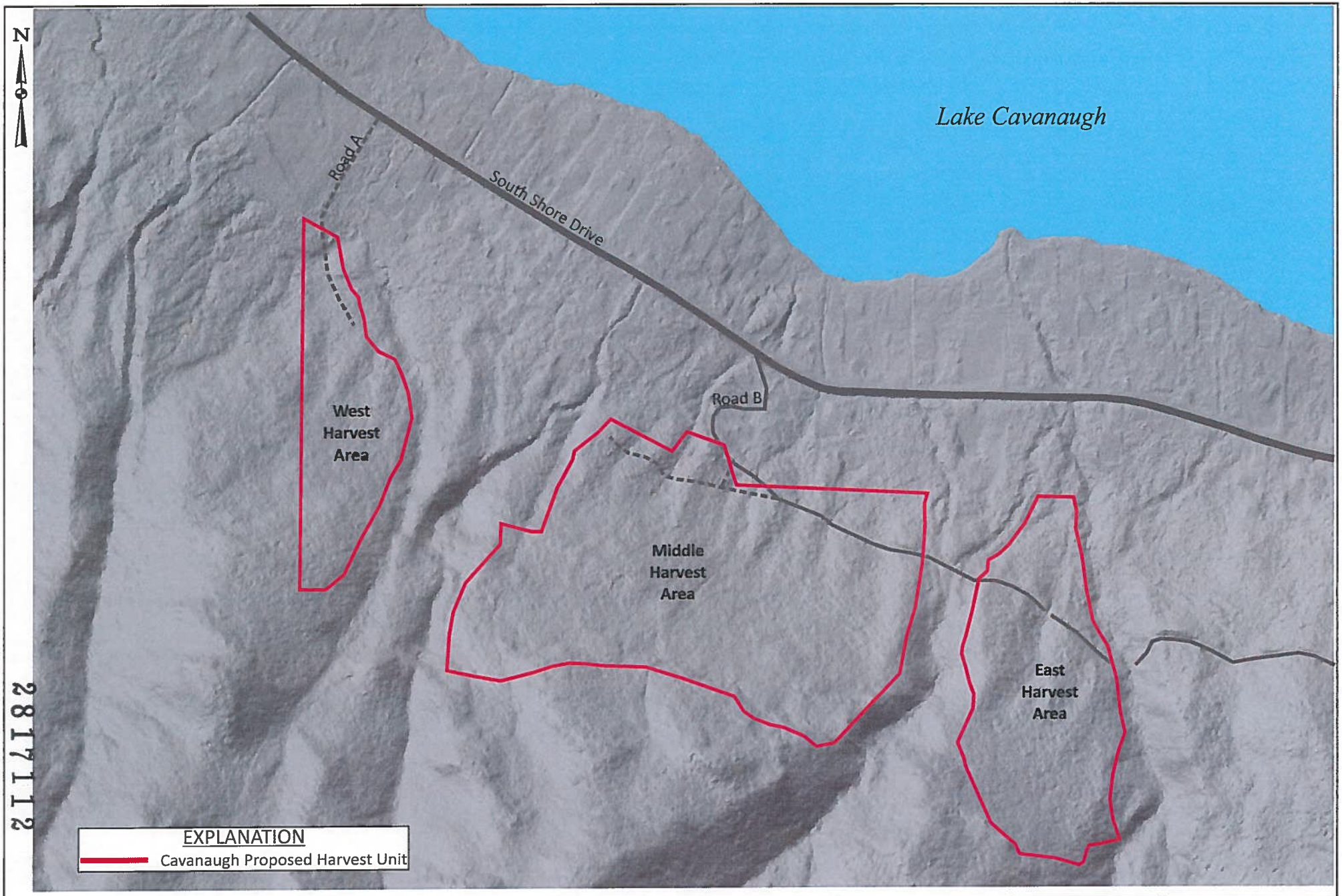
Cavanaugh Proposed Harvest Unit

2018 AERIAL PHOTOGRAPH

CAVANAUGH PROPOSED HARVEST UNIT

ICICLECREEK ENGINEERS
29335 NE 20th Street
Carnation, Washington 98014
(425) 333-0093

SCALE: As Shown	ICE FILE NO.
DESIGNED: —	1319-001
DRAWN: BRB	Figure
CHECKED: KSK	11
DATE: 07/10/19	



Light Detection and Ranging (LiDAR) Digital Terrain Model (DTM) data (North Puget 2017 acquisition) obtained from the Washington State Department of Natural Resources (DNR) LiDAR Portal (http://lidarportal.dnr.wa.gov)

LIDAR IMAGE

CAVANAUGH PROPOSED HARVEST UNIT

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29335 NE 20th Street
Carnation, Washington 98014
(425) 333-0093

SCALE: As Shown	ICE FILE NO.
DESIGNED: ---	1319-001
DRAWN: BRB	Figure
CHECKED: KSK	12
DATE: 07/10/19	

2817112

Appendix A. Water Type Classification Worksheet
Western Washington

Stream M is non-typed water

Stream/Segment ID: Stream A	Stream/Segment ID: B,C,L,O	Stream/Segment ID: Z,Y,E,G,H,I,J,K,O
Date(s) Observed: 7/26/18	Date(s) Observed: 7/26/18	Date(s) Observed: 7/26/18

1. Did you determine fish use as described in the Forest Practices Board Manual Section 13? Or, does the stream have waiver characteristics? *[See WAC 222-16-031(3)(b)(ii)]*

■ No. Continue	■ No. Continue	■ No. Continue
☐ Yes. Attach documentation or approved WTMF number: _____	☐ Yes. Attach documentation or approved WTMF number: _____	☐ Yes. Attach documentation or approved WTMF number: _____
☐ Fish found. Type F water. Stop.	☐ Fish found. Type F water. Stop.	☐ Fish found. Type F water. Stop.
☐ No fish. Continue.	☐ No fish. Continue.	☐ No fish. Continue.
☐ Yes. Meets waiver criteria. Continue to 6.	☐ Yes. Meets waiver criteria. Continue to 6.	☐ Yes. Meets waiver criteria. Continue to 6.

2. Were fish observed or are fish known to use the stream any time of the year?

☐ Yes. Type F water. Stop.	☐ Yes. Type F water. Stop.	☐ Yes. Type F water. Stop.
■ No. Continue.	■ No. Continue.	■ No. Continue.

3. Is there an impoundment (ponded water) upstream of the assessed segment that is greater than 0.5 acres?

☐ Yes. Type F water. Stop.	☐ Yes. Type F water. Stop.	☐ Yes. Type F water. Stop.
■ No. Continue.	■ No. Continue.	■ No. Continue.

4. Are there segments within or upstream of the assessed portion of the stream where the average bankfull width is three feet or greater? AND, is the average stream gradient less than or equal to 16%?

■ Yes. Type F water. Stop.	☐ Yes. Type F water. Stop.	☐ Yes. Type F water. Stop.
☐ No. Continue.	■ No. Continue.	■ No. Continue.

5. Are there segments within or upstream of the assessed portion of the stream where the average bankfull width is three feet or greater? AND, is the average stream gradient between 16% and 20%? AND, is the contributing basin to the stream greater than 50 acres?

☐ Yes. Type F water. Stop.	☐ Yes. Type F water. Stop.	☐ Yes. Type F water. Stop.
☐ No. Continue.	■ No. Continue.	■ No. Continue.

6. Does the stream segment contain water at all times during a normal rainfall year?

☐ Yes. Type Np water. Go to 9.	■ Yes. Type Np water. Go to 9.	☐ Yes. Type Np water. Go to 9.
☐ No. Continue.	☐ No. Continue.	■ No. Continue.

7. Is the stream segment downstream of a perennial source of water?

☐ Yes. Type Np water. Go to 9	☐ Yes. Type Np water. Go to 9.	☐ Yes. Type Np water. Go to 9.
☐ No. Continue.	☐ No. Continue.	■ No. Continue.

8. Is the stream Is the stream physically connected by an above-ground channel to Type S, F, or Np water?

☐ Yes, Type Ns water.	☐ Yes, Type Ns water.	■ Yes, Type Ns water.
☐ No, non-typed water.	☐ No, non-typed water.	☐ No, non-typed water.

9. Describe how you determined the uppermost point of perennial flow. Include a description of its location and show the point on a map (Use a separate piece of paper if necessary).

Stream/Segment ID: B, C, O, L Description: These streams are dry and lower elevations but have flow higher up

Timberline Logging Inc.

Marbled Murrelet Form

Western Washington Forest Practices Application/Notification

Complete this form only if you are harvesting timber (including salvage) or constructing roads. Do not complete this form if you have an HCP for marbled murrelets.

Answer every question.

1. ☒ No ☐ Yes For this FPA/N, has a protocol survey(s) been completed that includes:
   - Harvest units (and within 300 ft on your ownership), **or**
   - Salvage units (and within 300 ft on your ownership), **or**
   - Any area of proposed road construction (and within 300 ft on your ownership)?

If 'Yes', fill out the table and check the appropriate findings below.

Survey ID (Name or Unit #)	Township, Range, & Section	Survey was approved by WDFW (Attach approval letter from WDFW)	Survey was disapproved by WDFW and is being resubmitted with this FPA/N (Explain below)	Survey has been submitted to WDFW and survey approval is unknown (Explain below)	Survey is complete but has not yet been submitted to WDFW (Submit survey with FPA/N)
		☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections
		☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections
		☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections

Explanation:

2. ☒ No ☐ Yes ☐ Unknown Will you harvest, salvage, or construct roads within 0.25 miles of an occupied site?

3. ☒ No ☐ Yes ☐ Unknown Will you fly helicopter(s) over or within 0.25 miles of an occupied site?

4. ☒ No ☐ Yes Will you harvest *live* trees in a buffer of an occupied site?

   If Yes, describe the leave trees and buffer widths you will leave. *NOTE: If you leave less than required in WAC 222-16-080(1) (h) (v) this is a Class IV-Special and an Environmental Checklist is required*

Description of managed buffers:

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5. ☒ No ☐ Yes Are there nesting platforms within any harvest unit (including salvage and road construction) that are within 300 feet that:

- Are not located within a surveyed area, **and;**
- Have a minimum of 2 platforms per acre, **and**;
- Are located within 7 or more acres of contiguous habitat, **and;**
- Have a least 40% (number not volume) of the dominant and co-dominant trees made up of Douglas-fir, western hemlock, western red cedar, or Sitka spruce?

If "Yes", complete the table below for those areas.

Name or # (as shown on map) of delineated stands of contiguous• habitat	Delineated stand acres	Nesting platforms per acre	Number of trees 32 inches dbh or greater with platforms	Platform Assessment Method Field Sampling Method, Sample Plot Method, 100% Cruise Method, Inventory Model Method, or Other

6. ☐ No ☒ Yes Are there areas within this forest practice or within 300 feet that:

- Are not surveyed, **and**;
- Are not listed in question 5, **and;**
- Have trees that are at least 32 inches dbh

If "Yes", list the forest practice unit numbers from your activity map. Provide brief description of current stand conditions. Such as tree species composition, stand age (if known), and maximum tree size (dbh).

Harvest Unit #(s) 1,2,4 ☒ Within the Unit ☐ Within 300 feet of the Unit

Description:

Some trees within the even aged harvest area are at least 32 inches dbh, but do not have platforms and is part of a uniform 2nd growth stand.

Harvest Unit #(s)_____ ☐ Within the Unit ☐ Within 300 feet of the Unit

Description:

Harvest Unit #(s)_____ ☐ Within the Unit ☐ Within 300 feet of the Unit

Description:

7. If you answered yes to question 1, 4, or 5, include a map (separate from your map that shows your harvest units and/or road construction) *See the instructions for the information required on each map.*

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Richmond JPJ Enterprises Inc.

Marbled Murrelet Form

Western Washington Forest Practices Application/Notification

Complete this form only if you are harvesting timber (including salvage) or constructing roads. Do not complete this form if you have an HCP for marbled murrelets.

Answer every question.

1. ☒ No ☐ Yes For this FPA/N, has a protocol survey(s) been completed that includes:
   - Harvest units (and within 300 ft on your ownership), **or**
   - Salvage units (and within 300 ft on your ownership), **or**
   - Any area of proposed road construction (and within 300 ft on your ownership)?

If 'Yes', fill out the table and check the appropriate findings below.

Survey ID (Name or Unit #)	Township, Range, & Section	Survey was approved by WDFW (Attach approval letter from WDFW)	Survey was disapproved by WDFW and is being resubmitted with this FPA/N (Explain below)	Survey has been submitted to WDFW and survey approval is unknown (Explain below)	Survey is complete but has not yet been submitted to WDFW (Submit survey with FPA/N)
		☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections
		☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections
		☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections

Explanation:

2. ☒ No ☐ Yes ☐ Unknown Will you harvest, salvage, or construct roads within 0.25 miles of an occupied site?

3. ☒ No ☐ Yes ☐ Unknown Will you fly helicopter(s) over or within 0.25 miles of an occupied site?

4. ☒ No ☐ Yes Will you harvest *live* trees in a buffer of an occupied site?

   If Yes, describe the leave trees and buffer widths you will leave. *NOTE: If you leave less than required in WAC 222-16-080(1) (h) (v) this is a Class IV-Special and an Environmental Checklist is required*

Description of managed buffers:

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5. ☒ No ☐ Yes Are there nesting platforms within any harvest unit (including salvage and road construction) that are within 300 feet that:

- Are not located within a surveyed area, **and;**
- Have a minimum of 2 platforms per acre, **and**;
- Are located within 7 or more acres of contiguous habitat, **and;**
- Have a least 40% (number not volume) of the dominant and co-dominant trees made up of Douglas-fir, western hemlock, western red cedar, or Sitka spruce?

If "Yes", complete the table below for those areas.

Name or # (as shown on map) of delineated stands of contiguous habitat	Delineated stand acres	Nesting platforms per acre	Number of trees 32 inches dbh or greater with platforms	Platform Assessment Method Field Sampling Method, Sample Plot Method, 100% Cruise Method, Inventory Model Method, or Other

6. ☐ No ☒ Yes Are there areas within this forest practice or within 300 feet that:

- Are not surveyed, **and**;
- Are not listed in question 5, **and;**
- Have trees that are at least 32 inches dbh

If "Yes", list the forest practice unit numbers from your activity map. Provide brief description of current stand conditions. Such as tree species composition, stand age (if known), and maximum tree size (dbh).

Harvest Unit #(s) 2 ☒ Within the Unit ☐ Within 300 feet of the Unit

Description:

Some trees within the even aged harvest area are at least 32 inches dbh, but do not have platforms and is part of a uniform 2nd growth stand.

Harvest Unit #(s)_____ ☐ Within the Unit ☐ Within 300 feet of the Unit

Description:

Harvest Unit #(s)_____ ☐ Within the Unit ☐ Within 300 feet of the Unit

Description:

7. If you answered yes to question 1, 4, or 5, include a map (separate from your map that shows your harvest units and/or road construction) *See the instructions for the information required on each map.*

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Westside Logging LLC

Marbled Murrelet Form

Western Washington Forest Practices Application/Notification

Complete this form only if you are harvesting timber (including salvage) or constructing roads. Do not complete this form if you have an HCP for marbled murrelets.

Answer every question.

1. ☒ No ☐ Yes For this FPA/N, has a protocol survey(s) been completed that includes:
   - Harvest units (and within 300 ft on your ownership), **or**
   - Salvage units (and within 300 ft on your ownership), **or**
   - Any area of proposed road construction (and within 300 ft on your ownership)?

If 'Yes', fill out the table and check the appropriate findings below.

Survey ID (Name or Unit #)	Township, Range, & Section	Survey was approved by WDFW (Attach approval letter from WDFW)	Survey was disapproved by WDFW and is being resubmitted with this FPA/N (Explain below)	Survey has been submitted to WDFW and survey approval is unknown (Explain below)	Survey is complete but has not yet been submitted to WDFW (Submit survey with FPA/N)
		☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections
		☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections
		☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections	☐ Occupancy ☐ Presence ☐ No Detections

Explanation:

2. ☐ No ☒ Yes ☐ Unknown Will you harvest, salvage, or construct roads within 0.25 miles of an occupied site?

3. ☒ No ☐ Yes ☐ Unknown Will you fly helicopter(s) over or within 0.25 miles of an occupied site?

4. ☐ No ☒ Yes Will you harvest *live* trees in a buffer of an occupied site?

   If Yes, describe the leave trees and buffer widths you will leave. *NOTE: If you leave less than required in WAC 222-16-080(1) (h) (v) this is a Class IV-Special and an Environmental Checklist is required*

Description of managed buffers:

Within the 300 foot managed buffer for Unit 5 there is a no cut area(see fpa map). There are greater than the necessary total leave trees necessary for a buffer(75 tpa). In the managed buffer harvest area, 2 0.1-0.2 acre even-aged patches will be harvested. Single trees in the rest of the managed buffer will be harvested. The manged buffer has an average of 300 feet, some areas are less than 300 feet and some areas are more than 300 feet.
For unit 4 individual harvest trees will be removed. Over 75 trees per acre will be left.

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5. ☒ No ☐ Yes Are there nesting platforms within any harvest unit (including salvage and road construction) that are within 300 feet that:

- Are not located within a surveyed area, **and;**
- Have a minimum of 2 platforms per acre, **and**;
- Are located within 7 or more acres of contiguous habitat, **and;**
- Have a least 40% (number not volume) of the dominant and co-dominant trees made up of Douglas-fir, western hemlock, western red cedar, or Sitka spruce?

If "Yes", complete the table below for those areas.

Name or # (as shown on map) of delineated stands of contiguous habitat	Delineated stand acres	Nesting platforms per acre	Number of trees 32 inches dbh or greater with platforms	Platform Assessment Method Field Sampling Method, Sample Plot Method, 100% Cruise Method, Inventory Model Method, or Other

6. ☐ No ☒ Yes Are there areas within this forest practice or within 300 feet that:

- Are not surveyed, **and**;
- Are not listed in question 5, **and;**
- Have trees that are at least 32 inches dbh

If "Yes", list the forest practice unit numbers from your activity map. Provide brief description of current stand conditions. Such as tree species composition, stand age (if known), and maximum tree size (dbh).

Harvest Unit #(s) 1, 2, 3,4 ☒ Within the Unit ☐ Within 300 feet of the Unit

Description:

Some trees within the even aged harvest area are at least 32 inches dbh, but do not have platforms and is part of a uniform 2nd growth stand. All MM platform trees are located within the MM habitat area,

Harvest Unit #(s)_____ ☐ Within the Unit ☐ Within 300 feet of the Unit

Description:

Harvest Unit #(s)_____ ☐ Within the Unit ☐ Within 300 feet of the Unit

Description:

7. If you answered yes to question 1, 4, or 5, include a map (separate from your map that shows your harvest units and/or road construction) *See the instructions for the information required on each map.*

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Revisions to FPA/N __2817112_____

DATE	DOCUMENT	DESCRIPTION
8/21/2019	Pg 8, map & drawings	Replaced page 8, map and ford crossing plans

Revisions to FPA/N __2817112_____

DATE	DOCUMENT	DESCRIPTION
8/21/2019	Pg 8, map & drawings	Replaced page 8, map and ford crossing plans
8/27/19	Pg 3, 6, 8, Narrative Slope map, MM form	Replaced pages 3, 6, 8, Narrative + Slope map, Replaced Murrelet form w/ 3 separate forms

Revisions to FPA/N _2817112_____

DATE	DOCUMENT	DESCRIPTION
8/21/2019	Pg 8, map & drawings	Replaced page 8, map, and ford crossing plans
8/27/2019	Pg 3,6,8, Narrative, slope map, MM form	Replaced pages 3,6,8, FPA Narrative & slope map, replaced murrelet form with 3 separate forms
8/29/2019	Checklist, Pg 1 & 2, map, RMAP checklist, Narrative	Replaced office checklist, pages 1 & 2, Figure 2 map, and FPA narrative, Added (3) Small Landowner RMAP Checklists

WASHINGTON STATE DEPT OF
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For DNR Use Only	
Checklist #:	R28019675

SMALL FOREST LANDOWNER CHECKLIST RMAP

WHEN TO SUBMIT A CHECKLIST RMAP

Submit this checklist with your Forest Practices Application/Notification (FPA/N) for harvest or salvage. If you have already submitted a Checklist for these roads, please contact the DNR region office. The Checklist is for existing roads on your forest land that have been used by anyone for a forest practice since 1974. Do not include haul roads on your neighbor's property. Do not include skid trails.

THIS CHECKLIST APPLIES TO *(Check one)*

☒ The forest roads on my forest land that I will use for this FPA/N. Minimum Required

☒ I assessed all the forest roads on my forest land. Assessing all your forest roads is optional. If you choose this, you will not be required to submit additional checklists with future FPA/N's. If you check this box, include a DNR Activity Map(s) that shows all your forest roads. Maps are available at DNR region offices and on the DNR website at: http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesApplications/Pages/fp_fpars.aspx. You need to know the legal description (section, township, and range) of your roads in order to request a map.

The approximate total number of miles of forest road assessed in this Checklist is: 180 ft
This information will be used for statewide statistics.

FOREST ROAD ASSESSMENT

Please complete this section after you have assessed your forest roads.

☐ I need help with this section. *(If you check this box, you may leave the rest of the boxes in this section blank. DNR will contact you)*

The following boxes describe common sediment and road issues. Check all that apply.

- ☐ Water from the road or ditch runs directly into typed water.
- ☐ Water flows under, over, or around the culvert.
- ☐ The culvert keeps filling with dirt.
- ☐ The road has large cracks or ruts.
- ☐ The road has sinkholes. *(Not a pothole – but a hole that you can't drive over)*
- ☐ Dirt from the uphill side of the road keeps falling into the ditch-line before regularly scheduled maintenance.
- ☐ Dirt from the cut-slope keeps falling downhill into or near a stream, pond, or wetland.
- ☐ There are indications of past surface erosion

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☐ The road crosses typed water (a culvert, bridge, or ford exists).
☒ I have assessed my forest roads and they do not have any of the above issues.

FAMILY FOREST FISH PASSAGE PROGRAM

This is a program to fix fish passage barriers, such as culverts. Not all culverts are fish passage barriers. For an evaluation of your potential fish passage barrier please contact the DNR's Small Forest Landowner Office in Olympia at (360) 902-1404 or go to www.dnr.wa.gov\fffpp for more information.

Check one of these boxes

- ☐ I choose to enroll in the Family Forest Fish Passage Program and would like to have my potential barrier evaluated for eligibility.
  I understand that by checking this box I may be required to provide cost-share associated with the barrier removal or replacement.
- ☒ I choose not to enroll in the Family Forest Fish Passage Program and accept responsibility for removing or repairing any artificial fish barrier on my forest roads at my own expense.
- ☐ This barrier is already enrolled in the Family Fish Passage Program.

ORPHANED ROADS

State law requires DNR to keep an inventory of orphaned roads that pose a risk to public safety or to public resources. Your help with this inventory is requested.

Orphaned roads are:

- Roads on your forest land that have not been used for forest activities since 1974. Forest Practices activities include timber cutting, timber hauling, tree planting, brush control, precommercial thinning, timber salvage, etc.

*Check one **of these boxes***

☒ I do not have orphaned roads that I think pose a risk to public resources or public safety – such as houses, highways, county roads, streams, ponds, or wetlands.

☐ I have orphaned roads that I think may pose a risk to public resources or public safety – such as houses, highways, county roads, streams, ponds or wetlands. *(Please show the locations of all these orphaned roads on a separate DNR Activity Map. This is not the same map that shows your harvest)*

☐ I need help identifying orphaned roads.

ROAD MAINTENANCE OBLIGATIONS

All forest landowners have a legal obligation to maintain all their forest roads on all their forest land to the extent necessary to prevent damage to public resources. This includes forest roads not shown on this Checklist. Maintenance rules are in WAC 222-24-052. Best Management Practices (BMP's) for road maintenance are in the Forest Practices Board Manual Section 3. Both are in the forest practices rule book or on the DNR website at:http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesRules/Pages/Home.aspx

Road maintenance includes:

- Inspecting forest roads and fixing damage before, during, and after hauling timber and/or rock
- Keeping drainage structures (relief culverts, ditches, water bars, dips, etc.) and water crossings functional
- Making sure water from roads and ditches do not flow directly into streams, ponds, or wetlands

☒ My road(s) are maintained to Forest Practices standards.

LANDOWNER INFORMATION

I certify that at the time I submit this FPA/N I am a small forest landowner because:

- I have an average annual timber harvest level of two million board feet or less from my own forest land in Washington
  State; and
- I have not exceeded this average annual harvest level in the last three years; and
- I will not exceed this average annual harvest level for the next ten years.

Printed Name of Landowner: Richmond JPJ Enterprises, Inc.

Landowner Signature(s): _____

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Complete this section only if you are not submitting an FPA/N

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

E-Mail Address (optional): _____ Phone Number: _____

Printed Name of Contact Person (If different from landowner): _____

E-Mail Address (optional): _____ Phone Number: _____

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WASHINGTON STATE DEPT OF
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Checklist #:	

SMALL FOREST LANDOWNER CHECKLIST RMAP

WHEN TO SUBMIT A CHECKLIST RMAP

Submit this checklist with your Forest Practices Application/Notification (FPA/N) for harvest or salvage. If you have already submitted a Checklist for these roads, please contact the DNR region office. The Checklist is for existing roads on your forest land that have been used by anyone for a forest practice since 1974. Do not include haul roads on your neighbor's property. Do not include skid trails.

THIS CHECKLIST APPLIES TO *(Check one)*

☒ The forest roads on my forest land that I will use for this FPA/N. Minimum Required

☐ I assessed all the forest roads on my forest land. Assessing all your forest roads is optional. If you choose this, you will not be required to submit additional checklists with future FPA/N's. If you check this box, include a DNR Activity Map(s) that shows all your forest roads. Maps are available at DNR region offices and on the DNR website at: http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesApplications/Pages/fp_fpars.aspx. You need to know the legal description (section, township, and range) of your roads in order to request a map.

The approximate total number of miles of forest road assessed in this Checklist is: 0
This information will be used for statewide statistics.

FOREST ROAD ASSESSMENT

Please complete this section after you have assessed your forest roads.

☐ I need help with this section. *(If you check this box, you may leave the rest of the boxes in this section blank. DNR will contact you)*

The following boxes describe common sediment and road issues. Check all that apply.

- ☐ Water from the road or ditch runs directly into typed water.
- ☐ Water flows under, over, or around the culvert.
- ☐ The culvert keeps filling with dirt.
- ☐ The road has large cracks or ruts.
- ☐ The road has sinkholes. *(Not a pothole – but a hole that you can't drive over)*
- ☐ Dirt from the uphill side of the road keeps falling into the ditch-line before regularly scheduled maintenance.
- ☐ Dirt from the cut-slope keeps falling downhill into or near a stream, pond, or wetland.
- ☐ There are indications of past surface erosion

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☐ The road crosses typed water (a culvert, bridge, or ford exists).
☐ I have assessed my forest roads and they do not have any of the above issues.

FAMILY FOREST FISH PASSAGE PROGRAM

This is a program to fix fish passage barriers, such as culverts. Not all culverts are fish passage barriers. For an evaluation of your potential fish passage barrier please contact the DNR's Small Forest Landowner Office in Olympia at (360) 902-1404 or go to www.dnr.wa.gov\fffpp for more information.

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Check one of these boxes

- ☐ I choose to enroll in the Family Forest Fish Passage Program and would like to have my potential barrier evaluated for eligibility.
  I understand that by checking this box I may be required to provide cost-share associated with the barrier removal or replacement.
- ☐ I choose not to enroll in the Family Forest Fish Passage Program and accept responsibility for removing or repairing any artificial fish barrier on my forest roads at my own expense.
- ☐ This barrier is already enrolled in the Family Fish Passage Program.

ORPHANED ROADS

State law requires DNR to keep an inventory of orphaned roads that pose a risk to public safety or to public resources. Your help with this inventory is requested.

Orphaned roads are:

- Roads on your forest land that have not been used for forest activities since 1974. Forest Practices activities include timber cutting, timber hauling, tree planting, brush control, precommercial thinning, timber salvage, etc.

*Check one **of these boxes***

☒ I do not have orphaned roads that I think pose a risk to public resources or public safety – such as houses, highways, county roads, streams, ponds, or wetlands.

☐ I have orphaned roads that I think may pose a risk to public resources or public safety – such as houses, highways, county roads, streams, ponds or wetlands. *(Please show the locations of all these orphaned roads on a separate DNR Activity Map. This is not the same map that shows your harvest)*

☐ I need help identifying orphaned roads.

ROAD MAINTENANCE OBLIGATIONS

All forest landowners have a legal obligation to maintain all their forest roads on all their forest land to the extent necessary to prevent damage to public resources. This includes forest roads not shown on this Checklist. Maintenance rules are in WAC 222-24-052. Best Management Practices (BMP's) for road maintenance are in the Forest Practices Board Manual Section 3. Both are in the forest practices rule book or on the DNR website at:http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesRules/Pages/Home.aspx

Road maintenance includes:

- Inspecting forest roads and fixing damage before, during, and after hauling timber and/or rock
- Keeping drainage structures (relief culverts, ditches, water bars, dips, etc.) and water crossings functional
- Making sure water from roads and ditches do not flow directly into streams, ponds, or wetlands

☐ My road(s) are maintained to Forest Practices standards.

LANDOWNER INFORMATION

I certify that at the time I submit this FPA/N I am a small forest landowner because:

- I have an average annual timber harvest level of two million board feet or less from my own forest land in Washington
  State; and
- I have not exceeded this average annual harvest level in the last three years; and
- I will not exceed this average annual harvest level for the next ten years.

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Printed Name of Landowner: West Side Logging, LLC.

Landowner Signature(s): _____

Complete this section only if you are not submitting an FPA/N

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

E-Mail Address (optional): _____ Phone Number: _____

Printed Name of Contact Person (If different from landowner): _____

E-Mail Address (optional): _____ Phone Number: _____

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WASHINGTON STATE DEPT OF
NATURAL RESOURCES

For DNR Use Only	
Checklist #:	

SMALL FOREST LANDOWNER CHECKLIST RMAP

WHEN TO SUBMIT A CHECKLIST RMAP

Submit this checklist with your Forest Practices Application/Notification (FPA/N) for harvest or salvage. If you have already submitted a Checklist for these roads, please contact the DNR region office. The Checklist is for existing roads on your forest land that have been used by anyone for a forest practice since 1974. Do not include haul roads on your neighbor's property. Do not include skid trails.

THIS CHECKLIST APPLIES TO *(Check one)*

☒ The forest roads on my forest land that I will use for this FPA/N. Minimum Required

☐ I assessed all the forest roads on my forest land. Assessing all your forest roads is optional. If you choose this, you will not be required to submit additional checklists with future FPA/N's. If you check this box, include a DNR Activity Map(s) that shows all your forest roads. Maps are available at DNR region offices and on the DNR website at: http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesApplications/Pages/fp_fpars.aspx. You need to know the legal description (section, township, and range) of your roads in order to request a map.

The approximate total number of miles of forest road assessed in this Checklist is: 0
This information will be used for statewide statistics.

FOREST ROAD ASSESSMENT

Please complete this section after you have assessed your forest roads.

☐ I need help with this section. *(If you check this box, you may leave the rest of the boxes in this section blank. DNR will contact you)*

The following boxes describe common sediment and road issues. Check all that apply.

- ☐ Water from the road or ditch runs directly into typed water.
- ☐ Water flows under, over, or around the culvert.
- ☐ The culvert keeps filling with dirt.
- ☐ The road has large cracks or ruts.
- ☐ The road has sinkholes. *(Not a pothole – but a hole that you can't drive over)*
- ☐ Dirt from the uphill side of the road keeps falling into the ditch-line before regularly scheduled maintenance.
- ☐ Dirt from the cut-slope keeps falling downhill into or near a stream, pond, or wetland.
- ☐ There are indications of past surface erosion

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☐ The road crosses typed water (a culvert, bridge, or ford exists).
☐ I have assessed my forest roads and they do not have any of the above issues.

FAMILY FOREST FISH PASSAGE PROGRAM

This is a program to fix fish passage barriers, such as culverts. Not all culverts are fish passage barriers. For an evaluation of your potential fish passage barrier please contact the DNR's Small Forest Landowner Office in Olympia at (360) 902-1404 or go to www.dnr.wa.gov\fffpp for more information.

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Check one of these boxes

- ☐ I choose to enroll in the Family Forest Fish Passage Program and would like to have my potential barrier evaluated for eligibility.
  I understand that by checking this box I may be required to provide cost-share associated with the barrier removal or replacement.
- ☐ I choose not to enroll in the Family Forest Fish Passage Program and accept responsibility for removing or repairing any artificial fish barrier on my forest roads at my own expense.
- ☐ This barrier is already enrolled in the Family Fish Passage Program.

ORPHANED ROADS

State law requires DNR to keep an inventory of orphaned roads that pose a risk to public safety or to public resources. Your help with this inventory is requested.

Orphaned roads are:

- Roads on your forest land that have not been used for forest activities since 1974. Forest Practices activities include timber cutting, timber hauling, tree planting, brush control, precommercial thinning, timber salvage, etc.

*Check one **of these boxes***

☒ I do not have orphaned roads that I think pose a risk to public resources or public safety – such as houses, highways, county roads, streams, ponds, or wetlands.

☐ I have orphaned roads that I think may pose a risk to public resources or public safety – such as houses, highways, county roads, streams, ponds or wetlands. *(Please show the locations of all these orphaned roads on a separate DNR Activity Map. This is not the same map that shows your harvest)*

☐ I need help identifying orphaned roads.

ROAD MAINTENANCE OBLIGATIONS

All forest landowners have a legal obligation to maintain all their forest roads on all their forest land to the extent necessary to prevent damage to public resources. This includes forest roads not shown on this Checklist. Maintenance rules are in WAC 222-24-052. Best Management Practices (BMP's) for road maintenance are in the Forest Practices Board Manual Section 3. Both are in the forest practices rule book or on the DNR website at:http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesRules/Pages/Home.aspx

Road maintenance includes:

- Inspecting forest roads and fixing damage before, during, and after hauling timber and/or rock
- Keeping drainage structures (relief culverts, ditches, water bars, dips, etc.) and water crossings functional
- Making sure water from roads and ditches do not flow directly into streams, ponds, or wetlands

☐ My road(s) are maintained to Forest Practices standards.

LANDOWNER INFORMATION

I certify that at the time I submit this FPA/N I am a small forest landowner because:

- I have an average annual timber harvest level of two million board feet or less from my own forest land in Washington State; and
- I have not exceeded this average annual harvest level in the last three years; and
- I will not exceed this average annual harvest level for the next ten years.

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Printed Name of Landowner: Timberline Logging, LLC.

Landowner Signature(s): Paul Potter

Complete this section only if you are not submitting an FPA/N

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

E-Mail Address (optional): _____ Phone Number: _____

Printed Name of Contact Person (If different from landowner): _____

E-Mail Address (optional): _____ Phone Number: _____

2817112

Forest Practices Application/Notification

Notice of Decision

FPA/N No:	2817112
Effective Date:	8/29/2019
Expiration Date:	8/29/2022
Shut Down Zone:	656
EARR Tax Credit:	[x] Eligible [ ] Non-eligible
Reference:	Cavanaugh A

Decision

[ ] Notification	Operations shall not begin before the effective date.
[x] Approved	This Forest Practices Application is subject to the conditions listed below.
[ ] Disapproved	This Forest Practices Application is disapproved for the reasons listed below.
[ ] Closed	Applicant has withdrawn FPA/N.

FPA/N Classification

[ ] Class II [x] Class III [ ] Class IVG [ ] Class IVS

Number of Years Granted on Multi-Year Request

[ ] 4 years [ ] 5 years

Conditions on Approval / Reasons for Disapproval

-Upon completing annual maintenance checks of the ford crossing over streams "L" and "M" the proponent shall report the status and functionality of the ford to the Department of Natural Resources in writing or by phone on October 1st of every calender year throughout the duration of FPA 2817112.

-Forest Practices activity excluding road maintenance shall be limited to the dates of May 15th to September 30th. This condition may be waived by the forest practice forester in writing if favorable conditions are present.

-Activities related to cable yarding shall not concentrate water to corridors or typed streams. Water bars and slash shall be used to prevent erosion, and prevent concentration of surface run-off.

-Contact the Department of Natural Resources, at least two (2) business days (Monday through Friday) prior to the start of operations. Call (360) 856-3500 for the Northwest Region Office - Forest Practices, or directly by cellular telephone to the Forest Practice Forester, and provide the application number and legal description for your operation.

*Note: WAC-222-30-100(8), WAC-222-30-070(11), WAC-222-30-060(8), WAC-222-30-050(6)
WAC-222-24-030(11) restricting the timing of forest practices in the vicinity of Marbled Murrelet habitat all apply to this proposal.

Issued By: Ian McLelland **Region:** Northwest

Title: Samish Forest Practice Forester **Date:** 8/29/2019

Copies to: **[x] Landowner, Timber Owner and Operator.**

Issued in person: **[ ] Landowner [ ]Timber Owner [ ] Operator By:**_____

Appeal Information

You have thirty (30) days to appeal this Decision and any related State Environmental Policy Act determinations to the Pollution Control Hearings Board in writing at the following addresses:
Physical address: 1111 Israel Rd. SW, Ste 301, Tumwater, WA 98501
Mailing address: P.O. BOX 40903, OLYMPIA, WA 98504-0903
Information regarding the Pollution Control Hearings Board can be found at: http://www.eluho.wa.gov/
At the same time you file an appeal with the Pollution Control Hearings Board, also send a copy of the appeal to the Department of Natural Resources' region office and the Office of the Attorney General at the following addresses:

Office of the Attorney General
Natural Resources Division
1125 Washington Street SE
PO Box 40100
Olympia, WA 98504-0100

And

Department Of Natural Resources
Northwest Region
919 N Township Street
Sedro-Woolley, WA 98284

Other Applicable Laws

Operating as described in this application/notification does not ensure compliance with the Endangered Species Act, or other federal, state, or local laws.

Transfer of Forest Practices Application/Notification (WAC 222-20-010)

Use the "Notice of Transfer of Approved Forest Practices Application/Notification" form. This form is available at region offices and on the Forest Practices website: **http://www.dnr.wa.gov/businesspermits/forestpractices**. Notify DNR of new Operators within 48 hours.

Continuing Forest Land Obligations (RCW 76.09.060, RCW 76.09.070, RCW 76.09.390, and WAC 222-20-055)

Obligations include reforestation, road maintenance and abandonment plans, conversions of forest land to non-forestry use and/or harvest strategies on perennial non-fish habitat (Type Np) waters in Eastern Washington.

Before the sale or transfer of land or perpetual timber rights subject to continuing forest land obligations, the seller must notify the buyer of such an obligation on a form titled "Notice of Continuing Forest Land Obligation". The seller and buyer must both sign the "Notice of Continuing Forest Land Obligation" form and send it to the DNR Region Office for retention. This form is available at DNR region offices.

If the seller fails to notify the buyer about the continuing forest land obligation, the seller must pay the buyer's costs related to continuing forest land obligations, including all legal costs and reasonable attorneys' fees incurred by the buyer in enforcing the continuing forest land obligation against the seller.

Failure by the seller to send the required notice to the DNR at the time of sale will be prima facie evidence in an action by the buyer against the seller for costs related to the continuing forest land obligation prior to sale.

DNR affidavit of mailing:

On this day 8/30/2019 (date), I placed in the United States mail at Sedro-Woolley (post office location), WA, postage paid, a true and accurate copy of this document. Notice of Decision FPA # 2817112

Braelyn Hamilton (Printed name) (Signature)

FPA/N No: 2817112

Date of Service: 09/12/2019

Request to Amend
Forest Practices Application/Notification

Reference: Cavanaugh A-resubmittal

DNR's Decision

Decision

☒ **Approved** This request for an amendment is approved and subject to the conditions listed below

☐ **Disapproved** This request for an amendment is disapproved for the reasons listed below

Conditions on Approval/Reasons for Disapproval

Appeal Information (RCW 76.09.090(3), WAC 222-46-030(4), and WAC 332-08-215(3)

The Landowner, Timber Owner, or Operator has 15 calendar days from the Date of Service to request a Brief Adjudicative Proceeding for this **amendment which is a Notice to Comply for an authorized deviation.** Appeal requests must:

- Be in writing
- Include signature(s)
- Include the factual basis for the appeal and the issue to be adjudicated
- Sent to the Region Office at 919 N Township St, Sedro-Woolley, WA 98284
- With a copy sent to the Department of Natural Resources, Forest Practices Division, PO Box 47012, Olympia, WA 98504-7012

Issued By: Kevin Killian **Title:** Rivers District Manager

Copies Sent To: *Landowner (via US Mail), Timber Owner (via US Mail), Operator (via US Mail), WDFW, ECY, Affected Indian Tribes, LGE, other*

DNR affidavit of mailing:

On this day 9/13/19 (date), I placed in the United States mail at Sedro- Woolley (post office location), WA, postage paid, a true and accurate copy of this Amendment Request Notice of Decision for FPA # 2817112

Braelyn Hamilton (Printed name)

(Signature)

WASHINGTON STATE DEPT OF
NATURAL RESOURCES

For DNR Region Office Use Only	
Region:	NW

Request to Amend Forest Practices Application/Notification

Use this to request an amendment to an approved Western Washington, Eastern Washington, or Aerial Chemical Applications/Notifications

TYPE OR PRINT IN INK:

1. Landowner, Timber Owner, and Operator information

Legal Name of LANDOWNER	Legal Name of TIMBER OWNER	Legal Name of OPERATOR
West Side Logging, LLC, Timberline Logging Inc., Richmond JPJ	Nielsen Brothers Inc.	West Side Logging, LLC, Timberline Logging Inc., Richmond
Mailing Address: PO Box 2789	Mailing Address: PO Box 2789	Mailing Address: PO Box 2789
City, State, Zip Bellingham, WA 98227	City, State, Zip Bellingham, WA 98227	City, State, Zip Bellingham, WA 98227
Phone (360) 630-0725 Email: SamP@nielsenbrothers.net	Phone ( ) Email:	Phone ( ) Email:

2. Approved FPA/N Number 2817112

3. Describe the proposed amendment to the original FPA/N. You can attach revised pages of an FPA/N, or give specific details. Include a new Activity Map if you are proposing any changes to the original.

Attached is a road abandonement plan for a portion of road B.

4. I affirm that the information contained herein is true, and understand that this proposed forest practice is subject to the Forest Practices Act and Rules, as well as all other federal, state or local regulations. Compliance with the Forest Practices Act and Rules does not ensure compliance with the Endangered Species Act or other federal, state or local laws. I understand this amendment is a request for a Notice to Comply for an authorized deviation as described in WAC 222-20-060.

5. [signature] 9/9/19

Landowner's Signature **Date**

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Road Abandonment Plan FPA# 2817112

Road B: 325 feet of road B will be abandoned following timber harvest operations.

- All culverts will be removed and material will be pulled back to ensure that fill material will not erode into any typed waters.
- Natural drainages will be re-established as best as possible.
- Waterbars will be installed if necessary, during abandonment.
- Exposed soils will be treated with BMPs if necessary.
- Road is gated at entrance so unauthorized use should not be an issue.
- Abandonment will comply with WAC 222-24-052(3)