Engineering Report
CP007

Cutblocks: B14, B15, W14, W16

Prepared By: George Knoll, RPF

Date: March 27, 2015

Digitally signed by George Knoll
Date: 2015.03.27 14:18:15 -07'00'

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Contents

Introduction

K2 Forestry Services Ltd. was contracted to provide multiphase development for the Sproat FDU Area of the Alberni Valley Community Forest (AVCF) tenure. A reconnaissance was conducted in August 2014 to summarize all resource features and determine development opportunities for the area. The following Engineering Report summarizes the engineering specifics related to developing Cutting Permit 007 including Cutblocks B14, B15, W14, and W16. The report includes: a general description of the area, safety highlights, block description, engineering rationale and cruising summary. Related documents including the Harvest Instructions Map can be viewed in the Appendices. Table 1 and 2 below illustrate the general specifics of the area.

Table 1. CP 007 Overview

Attributes	Description
Tenure	K2D, Alberni Valley Community Forest Corporation
General Location and Access	Bookhout Creek
Mapsheet	92F025
Forest Region/ District	Coast/South Island
Timber Supply Area/ Block	Strathcona / B Kyuquot

Table 2. Block B14, B15, W14, W16 Breakdown

Block	Timbermark	Gross Ha	Harvest Area (Ha)	Clearcut	Partial Cut	WTRA	TLA	Road RoW (K2D/0R1)
B14	K2D/007	21.7	15.3	15.3	0	3.9	0.5	2.0
B15	K2D/007	9.3	7.6	7.6	0	1.2	0	0.5
W14	K2D/007	6.6	5.2	3.4	1.8	0.8	0	0.6
W16	K2D/007	20.2	15.8	15.8	0	2.5	0	1.9

Safety Highlights

Falling

CP-007 (B14, B15, W14, and W16) can be mechanically felled, but hand-falling may be required for areas identified as steep hoe-chuck on the Harvest Instructions Map. These areas exceed the safe working slope guidelines for ground-based mechanical harvesters and contain shallow soils over bedrock (unsafe for tracked machines)

There are several other falling hazards associated with CP007 which include:

Partial Cut retention areas. Trees targeted for removal are painted on three sides with blue painted dots. Trees will need to be directionally felled which may brush standing timber or cause canopy disturbance (broken branches) which creates overhead hazards.

Very minor sign of scattered Root Rot pockets are located within these blocks. Timber in these areas exhibit a thinning canopy with a snag component and fallen timber with intact root-balls laying on the forest floor. Unstable root systems, leaning trees and hung up branches all create an overhead hazard for crews working near these root rot centers.

Falling of Snags & Danger Trees

In accordance with the Cutting Permit Authority and Work Safe BC Regulations, all snags and danger trees that endanger workers within a distance of 50m outside the cutblock boundaries, or within one and a half tree lengths, (whichever is greater), are approved for these harvest instructions except for boundary adjacent ITLP property (Blk W14 FC 10 to FC 11). Snags along this edge cannot be felled without the consent of the adjacent land owner. All danger trees and snags outside the cutblock boundaries that are required to be felled must be recorded on a map and provided to AVCF once falling has been completed. AVCF will be notified immediately if danger trees and/or snags are identified in groups and removal will result in the cutblock boundary being substantially impacted. Felled snags and danger trees up to 50m outside of the falling boundary meeting utilization specifications will be recovered.

One falling exception applies to Wildlife Tree Retention Areas (WTRA) - Snags or danger trees can be felled within a WTRA for safety reasons although only the portion of the felled snag or danger tree that falls outside the WTRA can be recovered.

NOTE: a high voltage power line is located along Block W14 from FC 11 to FC 13. Falling within 1 and1/2 tree lengths of this powerline must be conducted by a certified arborist and/or with machine assist with positive directional control.

Steep Grades

No road segments greater than 18% exist within the settings. There is a section of steep grade on the Weiner connector. Prior to commencing log hauling operations the contractor must perform a risk assessment of the current conditions and adjust hauling activities to fit the traction conditions. Hauling will not be permitted when ice and or snow is on the logging roads leading to or in the given setting (very low traction level). This has been determined using FERIC step grade decent guidelines. The Ministry of Transportation guidelines are to be followed once hauling on the highway.

Rainfall Shutdown

CP-007 (all Blocks) are to follow the following guidelines during operations:

- Shutdown Criteria: Activities must shut down if: The total rainfall reaches 36 mm in 24 hours. Onsite rain gauges should be used and monitored daily.
- Start-Up Criteria: Activities may start up when the total rainfall is equal to or less than 30 mm in 24 hours. Adequate recovery time should be given before harvesting operations commence after a shutdown.

Adjacent Tenure Holders

Island Timberland (ITLP) maintains tenure adjacent to cutblock W14 (see HI map for location). Access to Blocks B14, B15 and W16 is along Branch AS12, currently under permit to Western Forest Products ~ Port Alberni Forest Operation (WFP-PAFO). This road is utilized by WFP- PAFO and ITLP to access their tenures. Industrial road activity on Branch AS12 is infrequent but all tenure holders should be proactive in notifying adjacent neighbors of intended activity to ensure the safety of crews, contractors and members of the general public. Access to block W14 is from WC 1, currently under road permit to the Alberni Valley Community Forest.

Recreational Use

Several trail networks lie adjacent to the proposed harvest areas in CP-007 (refer to Harvest Instruction Maps). The hiking trails are active and appear well maintained. Evidence of all-terrain vehicles (ATV) use was noted along numerous old road grades in and adjacent to these blocks. Adequate signs are to be posted to inform the public user groups of active blasting, logging and hauling during operations. Branch

AS12 will need to be closed to the public during these activities. All harvesting and road operations are to maintain the integrity of the trail network where operationally feasible and ensure no danger trees, snags or debris are left on or surrounding the trails.

The AVCF Sproat Lake FDU is located in provincial hunting region 1-7. Local hunters frequent the area in the fall (Sept 10th – Dec 10th) and spring (April 1st – June 15th) during the hunting season in search for upland game birds, deer, wolf, cougar and bear. Ensure signs are posted at key locations prior to CP-007 development to notify hunters of forest activities in the area. In the fall, mushroom pickers were also observed utilizing adjacent road systems on AVCF's tenure to access suitable timber for mushroom harvesting.

Steep Slopes In Block

The settings are to be mechanically felled. Hand falling may be required for steeper slope areas that cannot be safely reached with the processor. Once felled the proposed harvest areas are to be hoe-chucked. Some areas of hoe-chuck may contain steeper slopes. These areas have been addressed on the harvest instructions map with a safety hazard alert (areas over 35% steep hoe- chuck). All ground-based operations must be conducted in compliance with the Occupational Health and Safety Regulations pertaining to slope limitations. The contractor is to satisfy themselves, by ground inspection that all identified ground-based logging areas are operable and can be harvested in a manner the will not compromise worker safety. Old grades and benches are to be utilized to reduce hazards.

Cutting Permit 007 Overview

Cutting Permit 007 (Blocks B14, B15, W14, and W16) is located approximately 18 km west of Port Alberni in the Sproat Lake Forest Development Unit of the Alberni Valley Community Forest Tenure. Access from Highway 4 is across from the West Bay Hotel. Alternate access is via the Island Timberlands High Level Road system (AS 12) from the Ash Mainline. Refer to Appendix 1 for Overview Map. Final block selection and layout targeted stands with merchantable volume and size and was based on utilizing ground based harvest systems and existing roads and trails as much as possible. Block boundaries were designed to meet visual quality objectives from Highway 4 and Sproat Lake while not restricting harvest opportunities as well as maintain water quality, biodiversity and recreation opportunities.

Table 3: Cutting Permit Area Attributes

Attributes	Block B14	Block B15	Block W14	Block W16
Stand Type	Second Growth	Second Growth	Second Growth	Second Growth
General Species Composition	$Fd_{67\%}Cw_{10\%}Hw_{15\%}Ba_{3\%}$ $Dr_{5\%}$	$Fd_{79\%}Cw_{15\%}Hw_{2\%}Ba_{3\%}$ $Dr_{1\%}$	$Fd_{99\%}Cw_{1\%}$	$Fd_{81\%}Cw_{4\%}$ $Dr_{15\%}$
BEC information	CWHxm 01 (03) CWHmm1 01	CWHmm1 01	CWHxm 01(03)	CWHxm 01 (03)
Forest Health	Minor occurrence of Phellinus root rot	Minor occurrence of Phellinus root rot	Minor occurrence of Phellinus root rot	Minor occurrence of Phellinus root rot
Windthrow Risk	Low to Moderate Risk	Low to Moderate Risk	Low to Moderate Risk	Low to Moderate Risk

B14 Engineering Rationale

Block B14 is located mid-slope at an elevation range of 420m to 580m with a South aspect. The topography is broken with bench features throughout and minor rock protrusions near the road cutbanks. There are four streams located in the vicinity of the harvest area, including Boukhout Creek. Boukhout Creek is classified as an S2 Gully and is located outside the harvest area. Stream 15-4 is an S3 stream located on the western edge of the cutblock and is also outside the harvest area. Streams 14-1

and 14-2 are classified as S4 streams as they are located within the Sproat Lake Community Watershed. Falling and skidding across stream 14-1 and 14-2 is prohibited, except for at designated crossings as shown on the Harvest Plan map.

One Wildlife Tree Retention Area (WTRA) and three Timbered Leave Areas (TLA) have been established. The WTRA is located along the eastern boundary adjacent to Bookhout Creek and contributes to the retention targets and also serves as the Riparian Reserve Zone for this fish-bearing stream.

This block is to be harvested as a clearcut, with exception of the marked TLA's, using a ground based system. The entire block can be mechanically felled with the exception of areas marked as steep – hoechucking areas, which may require handfalling due to obstacles such as steep terrain and rock outcrops.

Individual retention of western red cedar and small non-merchantable douglas-fir is allowed along stream 14-1 and 14-2 as well as small (0.1ha) concentrated patches throughout the block. Retention trees must be free of bark damage and consist of trees with good health and vigour.

B15 Engineering Rationale

Block B15 is located mid-slope at an elevation range of 580m to 650m with a South aspect. The topography is generally rolling terrain with some steep hoe-chuck area above AS 12C. There are several areas marked out as sensitive soil (refer to Harvest Plan map). These areas contain standing water and deep soil, skidding of logs through these areas is to be avoided or conducted in dry weather conditions.

There are four streams located in the vicinity of the harvest area. Stream B15-4 is an S3 stream located on the western edge of the cutblock and is located outside the harvest area. Streams B15-1, B15-2 and B15-3 are classified as S4 streams as they are located within the Sproat Lake Community Watershed. Falling and skidding across streams B15-1, B15-2 and B15-3 is prohibited, except for at designated crossings as shown on the Harvest Plan map.

One Wildlife Tree Retention Area (WTRA) has been established. The WTRA is located along the western boundary adjacent to stream B15-4 and contributes to the retention targets of the cutblock.

This block is to be harvested as a clearcut using a ground based system. The entire block can be mechanically felled with the exception of areas marked as steep –hoechucking areas, which may require handfalling due to obstacles such as steep terrain.

Individual retention of western red cedar and small non-merchantable douglas-fir is allowed along stream B15-1, B15-2 and B15-3 as well as small (0.1ha), concentrated patches throughout the block. Retention trees must be free of bark damage and consist of trees with good health and vigour.

W14 Engineering Rationale

Block W14 is located on lower slopes at an elevation range of 100m to 150m with a South aspect. The topography is generally rolling terrain.

There are three streams located in the vicinity of the harvest area. Stream W14-1 and stream 1 are S4 streams and are located outside the harvest area. Stream W14-2 is classified as an S4 stream and contains a partial cut prescription on both sides of it, marked out in orange and black candy-stripe ribbon. Trees marked for removal within this area are painted with blue dots. Falling and skidding across stream W14-2 is prohibited.

One Wildlife Tree Retention Area (WTRA) has been established. The WTRA is located along FC 9 to FC 10 and contains some remnant fir vets, which contribute to stand level diversity.

The block includes a clearcut treatment unit (3.4ha) and a partial cut area (1.8ha). The partial cut areas are marked in the field with orange and black candy-stripe ribbon and trees marked for removal have been painted with blue dots. Harvest blue dotted trees only. Non-marked leave trees may be substituted for safety reasons but alternative trees of the same diameter and species must be retained. The area along the powerlines from FC 11 to FC 13 is prescribed as clearcut. Any non-merch trees that are not a hazard to blowdown onto the powerline may be left standing along this edge. These retention trees must be free of bark damage and consist of trees with good health and vigour.

The area along the powerline is a safety hazard to falling operations. Falling within 1 and ½ tree lengths of the powerlines must be done by a certified arborist and/or with machine assist with positive directional control. These areas are identified on the harvesting map. The remainder of the block can be mechanically felled with the exception of the partial cut areas, where the blue painted trees may need to be hand-felled into the clearcut corridors.

W16 Engineering Rationale

Block W16 is located mid-slope at an elevation range of 300m to 420m with a South aspect. The topography is generally rolling terrain with some steep hoe-chuck area above ASH 6 with scattered exposed rock.

There are four streams located in the vicinity of the harvest area. Streams W16-2, W16-3, W16-4 and W16-5 are classified as S4 streams as they are located within the Sproat Lake Community Watershed. Falling and skidding across these streams is prohibited, except for at designated crossings as shown on the Harvest Plan map.

One Wildlife Tree Retention Area (WTRA) has been established. The WTRA is located along the western boundary adjacent to a S3 stream and contributes to the retention targets of the cutblock.

This block is to be harvested as a clearcut using a ground based system. The entire block can be mechanically felled with the exception of areas marked as steep –hoechucking areas, which may require handfalling due to obstacles such as steep terrain.

Individual retention of western red cedar and small non-merchantable douglas-fir is allowed along stream W16-2, W16-3, W16-4 and W16-5 as well as small (0.1ha), concentrated patches throughout the block. Retention trees must be free of bark damage and consist of trees with good health and vigour.

Road Construction

Road construction for these four blocks is a combination of re-construction and new construction. Table 4 summarizes each segment of road and its construction type. Road quarries are marked on the road construction maps.

Table 4: Road Construction Summary

Road Name	From Station:	To Station:	Section Length (m):	Status:	Timber mark:
ASH 12A	0	76	76	De-activated. Re-construction includes re-surfacing, installation of culverts, brushing and widening roadside vegetation.	K2D 0R1
ASH 12B	0	232	232	De-activated. Re-construction includes re-surfacing, installation of culverts, brushing and widening roadside vegetation.	K2D 0R1
ASH 12C	0	591	591	De-activated. Minor Re-construction includes installation of culverts and brushing and widening roadside vegetation.	K2D 0R1
ASH 6	0	1176	1176	De-activated. Re-construction includes re-surfacing, installation of culverts, brushing and widening roadside vegetation.	K2D 0R1
ASH 6B	0	728	728	New construction.	K2D 0R1
WC 3	846	1371	525	New construction.	K2D 0R1
Total All Roads			**3328**		

Cruising

CP 007 was cruised to Ministry of Forests Standards with full measure and count plots established on a 100m x 100m cruise grid. This methodology resulted in a total of 56 plots (22 count and 34 full-measure) for an average of 1.3 plots per hectare and an average of 4.4 cruised trees per plot. The four blocks were compiled as four individual timber types (each block was its own type). The following table summarizes the results of the cruise plan (excluding any outside RoW leading to the blocks).

Table 5: Cruise Summary

Attributes	Block B14	Block B15	Block W14	Block W16
Net harvest area **(includes RoW volume not already removed)**	15.3	7.6	5.8	15.8
Species Composition	$Fd_{67\%}Cw_{10\%}Hw_{15\%}Ba_{3\%}Dr_{5\%}$	$Fd_{79\%}Cw_{15\%}Hw_{2\%}Ba_{3\%}Dr_{1\%}$	$Fd_{99\%}Cw_{1\%}$	$Fd_{81\%}Cw_{4\%}Dr_{15\%}$
Avg m^3/ha	523.5	431.2	524.5	405.5
Cruised Harvest Volume	8009.6m^3	3277.1m^3	3042.1m^3	6406.9m^3

Refer to Appendix 8 for the Cruise Report.

Appendices

Appendix 1: CP 007 Overview Map

NAD83 BLOCK	BC ALBERS Easting	BC ALBERS Northing	GEOGRAPHIC Latitude	GEOGRAPHIC Longitude
B14	1068773	476374	49° 17' 58.5"	125° 03' 18.8"
B15	1068070	476893	49° 18' 15.6"	125° 03' 53.3
W14	1073513	475898	49° 17' 40.9"	124° 59' 24.8"
W16	1072138	476934	49° 18' 15.1"	125° 00' 32.1"

Alberni Valley Community Forest K2D

Overview Map

N

1:25,000

Licensee: Alberni Valley Community Forest Corporation
Forest Region: Coast
Forest District: South Island
Reference Map: 92F024, 025, 026 F035, 036
Datum: NAD 83
Projection: BC Albers
Drafted: Feb 20, 2015
By: econ

- Block, Clear Cut
- Block, Partial Cut
- Block, Existing
- WTRA
- Park
- CommFor
- Highway
- Road, existing
- Road, Reactivation
- Road, New
- Watercourse

Great Central Lake
Boot Lagoon
Ward Lake
Sproat Lake
Alberni Valley Community Forest
Blk B15
Blk B14
Blk W16
Blk W14
Blk W18
Blk W15
Blk W13
Blk W12
Blk W11
Blk W10
Blk B13
Blk B11
Blk B12
Blk B4
Blk B3
Blk B1
Blk B2
Blk B6
Blk B7
Blk B8
Blk F3
Blk F2
Blk F1
AS12
AS12C
AS6
AS6B
WC3
WC
WC1
Weiner Conn
B11-51
B4-27
AW21
W1479
Hwy 4
Bookhout Creek
TAYLOR ARM PARK

Appendix 2: Harvest Map and Instructions

Falling Type	Ha	Volume
Handfalling	0	0
Mechanical	15.3	8017
TOTAL	**15.3**	**8017**
CRUISE VOL/HA (m3)		524
ENG VOL/HA (m3)		524
HAUL DISTANCE		

HARVEST METHODS		
System	**Ha**	**Volume**
R/W	0.0	0
Snorkel	0.0	0
Hoe Chuck	15.3	8017
Grapple	0.0	0
High Lead	0.0	0
Helicopter	0.0	0
Harvest Area	**15.3**	**8017**
R/W Removed	2.0	
WTRA	3.9	
TLA	0.5	
Gross Area	**21.7**	**8017**

VOLUME BY TIMBERMARK				SPECIES	
Timbermark	**Type**	**Ha**	**Vol**	**%**	
K2D 007	CROWN	15.3	8017	Ba	3
			0	Hw	15
			0	Ced	10
			0	Cy	
TOTAL		**15.3**	**8017**	Fd	67
Field Work:	K2 Forestry			Dr	5
Checked By:	G.Knoll,RPF			Pw	
AVCF CORP:			DATE	OG	
				SG	100%
AVCF CORP:			DATE	CONTRACTOR	DATE

PROFESSIONAL SEAL AND SIGNATURE

Digitally signed by George Knoll
Date: 2015.02.24 07:52:41 -08'00'

I certify that I have reviewed this document, and while I did not personally supervise the work described, I have determined that this work has been done to the standards expected of a member of the Association of British Columbia Forest Professionals.

NAD83 BLOCK	BC ALBERS Easting	BC ALBERS Northing	GEOGRAPHIC Latitude	GEOGRAPHIC Longitude
B14	1068773	476374	49° 17' 58.5"	125° 03' 18.8"
B15	1068070	476893	49° 18' 15.6"	125° 03' 53.3
W14	1073513	475898	49° 17' 40.9"	124° 59' 24.8"
W16	1072138	476934	49° 18' 15.1"	125° 00' 32.1"

Harvesting Feature
- TAUP
- Block
- HC Hoechuck, Clear Cut
- HC Hoechuck, Select
- Yarding Direction
- Slope > 35% in Ground Skidding Areas
- Sensitive Soils Area

Attention!

Refer to Back for Detailed Operating and Safety Instructions

Stream Classification
- 3 S1-S4 Stream
- 6 S5-S6 Stream
- NCD
- Stream, Non Classified

Other Feature
- Riparian Management Zone
- Riparian Reserve Zone
- Wildlife Tree Retention Area
- Timber Leave Area
- Non Productive, Rock
- Non Productive, Wetland
- Park
- Community Forest

MAP 1 of 1

Alberni Valley Community Forest K2D
Sproat FDU

Harvesting Plan Map
Block B14

N

1:5,000

0 50 100 Meters

Licensee:	Alberni Valley Community Forest Corporation
Forest Region:	Coast
Forest District:	South Island
Reference Map:	92F024, 025, 026 F035, 036
Datum:	NAD 83
Projection:	BC Albers
TSA:	38 Arrowsmith
TSB:	A
FIZ:	B
P.S.Y.U.:	471
Inv. Reg.:	5
Comp.:	4B (Sproat), 4C (Taylor)
Drafted:	February 23, 2015
By:	econ

- Falling Corner
- Landing, Perm., Temp.
- Station
- Culvert: New, Existing
- Bridge: New, Out
- Quarry
- Designated Crossing
- Spoil Site
- Swamp
- Wildlife Tree

Roads & Trails
- Highway / FSR
- Road, existing
- Road, engineered
- Road, to be re-activated
- Road, overgrown
- >10% Adverse Grade
- >18% Favourable Grade
- Old Grade
- Hiking Trail
- Rock Bluff
- Hydro Line

HARVESTING INSTRUCTIONS – OPENING # B14

ACCESS ROAD: AS12 **CUTTING PERMIT: N0. 7** **TIMBERMARK: K2D 007**

EMPLOYEE REQUIREMENTS

1) All employees, supervisors and contractors associated with these Harvesting Instructions shall be fully advised of its contents and requirements.
2) All litter including cable, oil buckets, grease tubes, newspapers and lunch garbage is to be removed from the site and disposed of appropriately.

WATER QUALITY

1) The overall objective of this cutblock is timber harvesting without impacting water quality.
2) All ditches and culverts **must** remain as free flowing as possible through all phases of harvesting.
3) Cutblock B 14 lies within the Sproat Lake Community Watershed, sedimentation into streams is to be minimized to the fullest extent possible.
4) Cutblock B 14 is within a Rainfall Shutdown Area with the following shutdown/start-up Criteria:
Shutdown Criteria: Activities must shut down if: The total rainfall reaches **75mm in 24 hours**. Onsite rain gauges should be used and monitored daily.
Start-Up Criteria: Activities may start-up when: The total rainfall is equal to or less than 30mm in 24 hours, or the water balance falls below 75mm. Soil drainage rate is 40mm in 24hrs. Refer to the Return to work guide in the tender document for more information.

FORESTRY

1) Invasive Plants: Broom occurs along sections of the high way on route to the setting. Follow FSP measures for invasive plants. Cut and remove plants in association with road reactivation, clean machinery as required. Monitor and treat broom and other invasive species during early establishment. Grass seed exposed soil on or adjacent to roads, trails, and landing sites as soon as possible following harvest.

FIRST NATIONS

1) This cutblock is in the Hupacusath traditional territory. If any additional potential culturally modified tree (CMT) (whether live or dead and standing or fallen) or any other cultural feature is encountered within the opening during any harvesting phase, operations will cease in the immediate vicinity of the CMT or cultural feature. Hupacusath First Nations is to be notified immediately upon discovery of any potential CMT or cultural feature.

FALLING of SNAGS and DANGER TREES

1) In accordance with WSBC Regulations, snags and danger trees within the cutblock and outside the cutblock boundaries for a distance of not more than 50 meters that endanger workers are approved for falling under the logging plan for this cutblock. Danger trees and snags outside this 50 meter hazard area that are required to be felled should be recorded on a map for future reference. Sanitation falling will proceed if the occasional stem is required to be removed along the cutblock boundary. The Ministry of Forests will be notified if danger trees and/or snags are identified in groups and removal will result in the cutblock boundary being substantially impacted. Snags and danger trees meeting utilization specifications will be recovered.
2) If a bear den or raptor nest is encountered during falling operations, the tree will be reserved from falling along with a protection patch of timber surrounding it. AVCF is to be notified immediately. If the bear den tree is partially cut operations will proceed in conformance with WSBC regulations.
3) Wildlife Tree Patches or Wildlife Tree Retention Areas have been established, and are marked on the 1:5000 map. Any danger trees felled within the WTP or WTRA will be left as Coarse Woody Debris.

CUTBLOCK BOUNDARY TREATMENTS

1) All marked boundary trees except snags and danger trees must remain standing during and after the completion of harvesting. Trees adjacent to edges that cannot be felled into the setting will require approval from AVCF prior to falling. AVCF is to be notified immediately.
2) Leave trees may be substituted if, for safety reasons, a faller feels it is necessary to do so, but alternate leave trees must be retained and should be well rooted and of the same species and diameter

YARDING and LOADING PRESCRIPTIONS

1) No roadside landing of logs within 3 meters of any streambank along all roadsides. All drainage structures will be maintained and remain functional.
2) Avoid excessive ground lead gouging due to surface erosion potential. If soil disturbance occurs, then grass seeding will be required.
3) During the bark peeling stage of growth, the tree bole is highly susceptible to damage. Contact with retention trees during harvesting operation should be avoided between April 1 st and June 15 th.
4) Leave trees may be substituted if, for safety reasons, a faller feels it is necessary to do so, but alternative trees must be retained and should be well rooted and of the same species, diameter and vigor.
5) No more than 10% of the retention trees in the aggregate or dispersed retention areas or single retention trees in this cutblock may have significant damage.
Significant damage to Hw, Fd, and Cw is defined as a tree with:
One or more wounds (i.e. exposed cambium) that girdle more than 1/3 the circumference of the stem.
Any wounds on a supporting root within one metre of the stem. A gouge – a wound that penetrates (splintered) into the sapwood or deeper.
Additionally, for Hw and Cw only: A wound >400cm^2 on the stem.

SAFETY

Road and in-block safety hazards associated with block B14 have been identified on the harvest and road instruction maps. In the event additional in-block safety hazards (temporary or permanent) are encountered or develop during road construction or harvesting phases, a plan must be developed to address the hazard. Any identified permanent hazards must be reported back to AVCF (using Hazard/Issue Report Form).

STEEP GRADES

Road segments with gradients > 18% have been identified on the Overview Map. Prior to commencing log hauling operations the contractor must perform a risk assessment of the current conditions and adjust hauling activities to suit the traction conditions. Hauling for B14 is not permitted when ice and or snow is on the logging roads leading to or in the given setting (very low traction level). This has been determined using FERRIC steep grade decent guidelines. The Ministry of Transportation guidelines are to be followed when hauling on the highway.

SPECIFIC BLOCK COMMENTS

MACHINE OPERATORS WILL MONITOR SOILS FOR COMPACTION DURING RAIN EVENTS, AND MOVE TO DRIER AREAS WITHIN THE CUTBLOCK SHOULD COMPACTION AND/OR RUTTING OCCUR.

HARVESTING ISSUES

MACHINE OPERATORS SHOULD BE AWARE OF STEEP HOE CHUCK AREAS WITHIN THE CUTBLOCK FALLING BOUNDARY. THESE AREAS ARE IDENTIFIED ON THE HARVESTING MAP.

RIPARIAN MANAGEMENT STRATEGIES

Creek I.D.	CLASS	MANAGEMENT STRATEGIES FOR RIPARIAN MANAGEMENT ZONES (RMZ) INCLUDING PROTECTING STREAM
	NCD	- NCD(s) within the harvest area will be FX and YX. No RMZ is required. - Note all streams lie within the Sproat Lake Community Watershed, minimize sedimentation at all costs.
		STREAM REACH AND RMA IS OUTSIDE OF THE HARVEST AREA
		STREAM REACH OUTSIDE HARVEST AREA, PORTIONS OF THE RMA WITHIN THE HARVEST AREA
Bookhout Creek	S2	FA YA NC
B15-4	S3	FA YA NC
		PORTIONS OF STREAM REACH AND RMA ARE WITHIN THE HARVEST AREA
B14-1	S4	FA YA, YX at designated machine crossings only. NC
B14-2	S4	FA YA, YX at designated machine crossings only. NC
		PRESCRIPTION DEFINITIONS
	YX	Yard across Acceptable
	FX	Fall Across Accepable
	FA/BL	Fall Away. Timber is to be felled away. Leaners and hazard trees that cannot be safely felled away shall be felled and left bridging the stream.
	FA	Fall Away. Timber is to be felled away.
	YA	Yard Away. Timber is to be yarded away. In order to improve deflection, cables are allowed to be suspended above the stream. **Non-fish streams**: merchantable leaners and danger trees that have been felled across the stream will, by necessity, be yarded across the stream. **Fish streams**: Leaners and danger trees which have been felled across the stream will be left unless detrimental to the stream.
	HH	100% harvested (no retention of saplings)
	RS	Retain saplings on the streambanks (non-merchantible)
	FE	Feathered edge.
	BPT	Blue painted trees (selected for removal). Faller's choice of alternate tree if unable to fall painted tree safely.
	NHZ	No harvest zone. Trees are to be felled away from the zone. Safe trees that cannot be felled away are to be left as part of the NHZ. Danger trees **must** be felled and will be left for future LWD or be removed if detrimental to the stream.
	MFZ	Machine free zone.
	MC	Machine Clean transportable introduced large woody debris (LWD) and accumulations concurrent with yarding.
	HC	Hand Clean introduced transportable debris.
	NC	No cleaning required. Keep channel free on introduced debris concurrent with yarding.

Falling Type	Ha	Volume
Handfalling	0	0
Mechanical	7.6	3276
TOTAL	**7.6**	**3276**
CRUISE VOL/HA (m3)		431
ENG VOL/HA (m3)		431
HAUL DISTANCE		

HARVEST METHODS		
System	Ha	Volume
R/W	0.0	0
Snorkel	0.0	0
Hoe Chuck	7.6	3276
Grapple	0.0	0
High Lead	0.0	0
Helicopter	0.0	0
Harvest Area	**7.6**	**3276**
R/W Removed	0.5	
WTRA	1.2	
TLA	0.0	
Gross Area	**9.3**	**3276**

VOLUME BY TIMBERMARK			
Timbermark	Type	Ha	Vol
K2D 007	CROWN	7.6	3276
			0
			0
			0
TOTAL		**7.6**	**3276**
Field Work:	K2 Forestry		
Checked By:	G.Knoll,RPF		
AVCF CORP:			DATE
AVCF CORP:			DATE

SPECIES	%
Ba	3
Hw	2
Ced	15
Cy	
Fd	78
Dr	2
Pw	
OG	
SG	100%

CONTRACTOR DATE

PROFESSIONAL SEAL AND SIGNATURE

Digitally signed by George Knoll
Date: 2015.02.24 07:59:12 -08'00'

I certify that I have reviewed this document, and while I did not personally supervise the work described, I have determined that this work has been done to the standards expected of a member of the Association of British Columbia Forest Professionals.

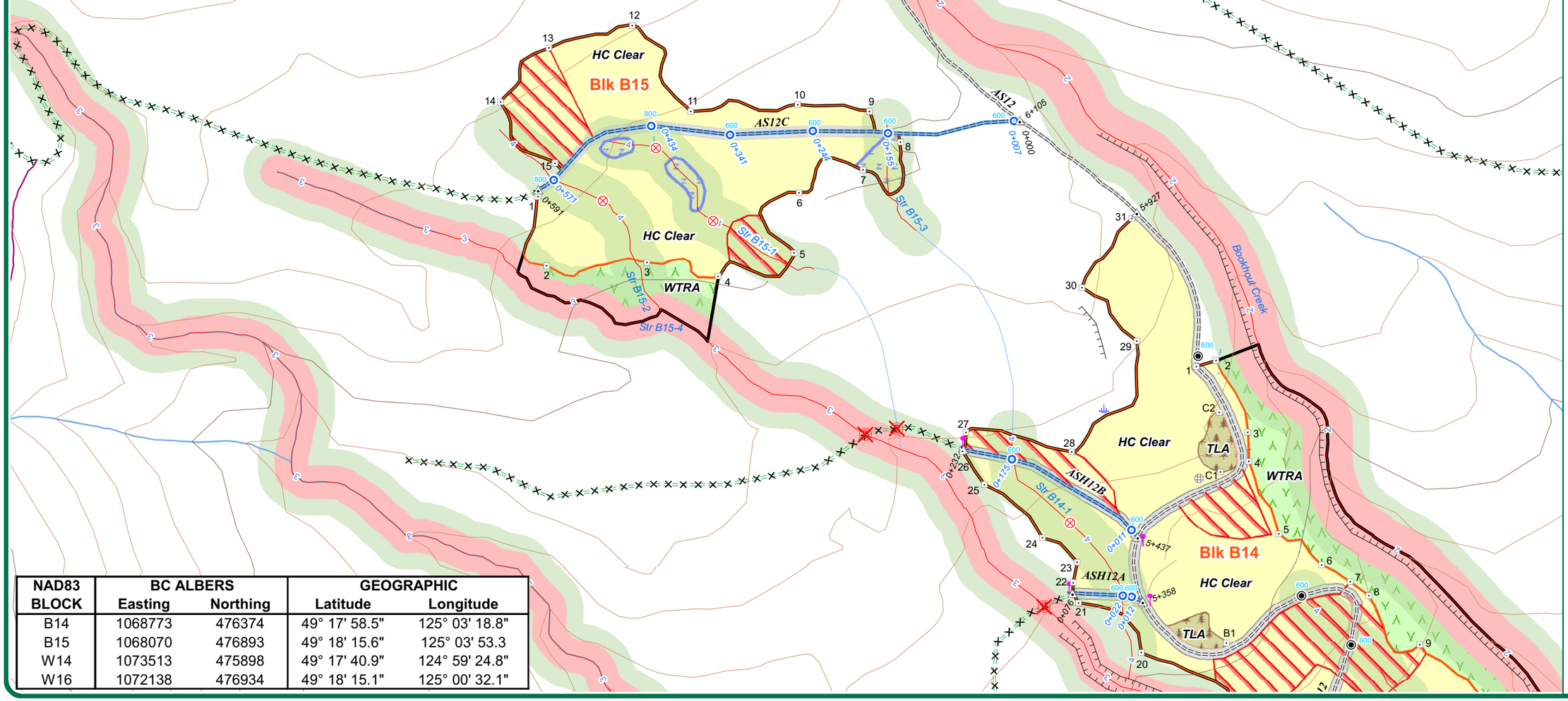
Harvesting Feature
- TAUP
- Block
- HC Hoechuck, Clear Cut
- HC Hoechuck, Select
- Yarding Direction
- Slope > 35% in Ground Skidding Areas
- Sensitive Soils Area

Attention!

Refer to Back for Detailed Operating and Safety Instructions

Stream Classification
- 3 S1-S4 Stream
- 6 S5-S6 Stream
- NCD
- Stream, Non Classified

Other Feature
- Riparian Management Zone
- Riparian Reserve Zone
- Wildlife Tree Retention Area
- Timber Leave Area
- Non Productive, Rock
- Non Productive, Wetland
- Park
- Community Forest



NAD83 BLOCK	BC ALBERS Easting	Northing	GEOGRAPHIC Latitude	Longitude
B14	1068773	476374	49° 17' 58.5"	125° 03' 18.8"
B15	1068070	476893	49° 18' 15.6"	125° 03' 53.3
W14	1073513	475898	49° 17' 40.9"	124° 59' 24.8"
W16	1072138	476934	49° 18' 15.1"	125° 00' 32.1"

MAP 1 of 1

Alberni Valley Community Forest K2D
Sproat FDU

Harvesting Plan Map
Block B15

N

1:5,000

0 50 100 Meters

Licensee:	Alberni Valley Community Forest Corporation
Forest Region:	Coast
Forest District:	South Island
Reference Map:	92F024, 025, 026 F035, 036
Datum:	NAD 83
Projection:	BC Albers
TSA:	38 Arrowsmith
TSB:	A
FIZ:	B
P.S.Y.U.:	471
Inv. Reg.:	5
Comp.:	4B (Sproat), 4C (Taylor)
Drafted:	February 23, 2015
By:	econ

- Falling Corner
- Landing, Perm., Temp.
- Station
- Culvert: New, Existing
- Bridge: New, Out
- Quarry
- Designated Crossing
- Spoil Site
- Swamp
- Wildlife Tree

Roads & Trails
- Highway / FSR
- Road, existing
- Road, engineered
- Road, to be re-activated
- Road, overgrown
- >10% Adverse Grade
- >18% Favourable Grade
- Old Grade
- Hiking Trail
- Rock Bluff
- Hydro Line

HARVESTING INSTRUCTIONS – OPENING # B15

ACCESS ROAD: AS12 **CUTTING PERMIT: N0. 7** **TIMBERMARK: K2D 007**

EMPLOYEE REQUIREMENTS

1) All employees, supervisors and contractors associated with these Harvesting Instructions shall be fully advised of its contents and requirements.
2) All litter including cable, oil buckets, grease tubes, newspapers and lunch garbage is to be removed from the site and disposed of appropriately.

WATER QUALITY

1) The overall objective of this cutblock is timber harvesting without impacting water quality.
2) All ditches and culverts **must** remain as free flowing as possible through all phases of harvesting.
3) Cutblock B 15 lies within the Sproat Lake Community Watershed, sedimentation into streams is to be minimized to the fullest extent possible.
4) Cutblock B 15 is withina Rainfall Shutdown Area with the following shutdown/start-up Criteria:
Shutdown Criteria: Activities must shut down if: The total rainfall reaches **75mm in 24 hours**. Onsite rain gauges should be used and monitored daily.
Start-Up Criteria: Activities may start-up when: The total rainfall is equal to or less than 30mm in 24 hours, or the water balance falls below 75mm. Soil drainage rate is 40mm in 24hrs. Refer to the Return to work guide in the tender document for more information.

FORESTRY

1) Invasive Plants: Broom occurs along sections of the high way on route to the setting. Follow FSP measures for invasive plants. Cut and remove plants in association with road reactivation, clean machinery as required. Monitor and treat broom and other invasive species during early establishment. Grass seed exposed soil on or adjacent to roads, trails, and landing sites as soon as possible following harvest.

FIRST NATIONS

1) This cutblock is in the Hupacusath traditional territory. If any additional potential culturally modified tree (CMT) (whether live or dead and standing or fallen) or any other cultural feature is encountered within the opening during any harvesting phase, operations will cease in the immediate vicinity of the CMT or cultural feature. Hupacusath First Nations is to be notified immediately upon discovery of any potential CMT or cultural feature.

FALLING of SNAGS and DANGER TREES

1) In accordance with WSBC Regulations, snags and danger trees within the cutblock and outside the cutblock boundaries for a distance of not more than 50 meters that endanger workers are approved for falling under the logging plan for this cutblock. Danger trees and snags outside this 50 meter hazard area that are required to be felled should be recorded on a map for future reference. Sanitation falling will proceed if the occasional stem is required to be removed along the cutblock boundary. The Ministry of Forests will be notified if danger trees and/or snags are identified in groups and removal will result in the cutblock boundary being substantially impacted. Snags and danger trees meeting utilization specifications will be recovered.
2) If a bear den or raptor nest is encountered during falling operations, the tree will be reserved from falling along with a protection patch of timber surrounding it. AVCF is to be notified immediately. If the bear den tree is partially cut operations will proceed in conformance with WSBC regulations.
3) Wildlife Tree Patches or Wildlife Tree Retention Areas have been established, and are marked on the 1:5000 map. Any danger trees felled within the WTP or WTRA will be left as Coarse Woody Debris.

CUTBLOCK BOUNDARY TREATMENTS

1) All marked boundary trees except snags and danger trees must remain standing during and after the completion of harvesting. Trees adjacent to edges that cannot be felled into the setting will require approval from AVCF prior to falling. AVCF is to be notified immediately.
2) Leave trees may be substituted if, for safety reasons, a faller feels it is necessary to do so, but alternate leave trees must be retained and should be well rooted and of the same species and diameter

YARDING and LOADING PRESCRIPTIONS

1) No roadside landing of logs within 3 meters of any streambank along all roadsides. All drainage structures will be maintained and remain functional.
2) Avoid excessive ground lead gouging due to surface erosion potential. If soil disturbance occurs, then grass seeding will be required.
3) During the bark peeling stage of growth, the tree bole is highly susceptible to damage. Contact with retention trees during harvesting operation should be avoided between April 1 st and June 15 th.
4) Leave trees may be substituted if, for safety reasons, a faller feels it is necessary to do so, but alternative trees must be retained and should be well rooted and of the same species, diameter and vigor.
5) No more than 10% of the retention trees in the aggregate or dispersed retention areas or single retention trees in this cutblock may have significant damage.
Significant damage to Hw, Fd, and Cw is defined as a tree with:
One or more wounds (i.e. exposed cambium) that girdle more than 1/3 the circumference of the stem.
Any wounds on a supporting root within one metre of the stem. A gouge – a wound that penetrates (splintered) into the sapwood or deeper.
Additionally, for Hw and Cw only: A wound >400cm^2 on the stem.

SAFETY

Road and in-block safety hazards associated with block B15 have been identified on the harvest and road instruction maps. In the event additional in-block safety hazards (temporary or permanent) are encountered or develop during road construction or harvesting phases, a plan must be developed to address the hazard. Any identified permanent hazards must be reported back to AVCF (using Hazard/Issue Report Form).

STEEP GRADES

Road segments with gradients > 18% have been identified on the Overview Map. Prior to commencing log hauling operations the contractor must perform a risk assessment of the current conditions and adjust hauling activities to suit the traction conditions. Hauling for B15 is not permitted when ice and or snow is on the logging roads leading to or in the given setting (very low traction level). This has been determined using FERRIC steep grade decent guidelines. The Ministry of Transportation guidelines are to be followed when hauling on the highway.

SPECIFIC BLOCK COMMENTS

MACHINE OPERATORS WILL MONITOR SOILS FOR COMPACTION DURING RAIN EVENTS, AND MOVE TO DRIER AREAS WITHIN THE CUTBLOCK SHOULD COMPACTION AND/OR RUTTING OCCUR. NOTE THE SENSITIVE SOILS AREAS HIGHLIGHTED ON THE HARVEST PLAN MAP.

HARVESTING ISSUES

MACHINE OPERATORS SHOULD BE AWARE OF STEEP HOE CHUCK AREAS WITHIN THE CUTBLOCK FALLING BOUNDARY. THESE AREAS ARE IDENTIFIED ON THE HARVESTING MAP.

RIPARIAN MANAGEMENT STRATEGIES

Creek I.D.	CLASS	MANAGEMENT STRATEGIES FOR RIPARIAN MANAGEMENT ZONES (RMZ) INCLUDING PROTECTING STREAM
	NCD	- NCD(s) within the harvest area will be FX and YX. No RMZ is required. - Note all streams lie within the Sproat Lake Community Watershed, minimize sedimentation at all costs.
		STREAM REACH AND RMA IS OUTSIDE OF THE HARVEST AREA
		STREAM REACH OUTSIDE HARVEST AREA, PORTIONS OF THE RMA WITHIN THE HARVEST AREA
B15-4	S3	FA YA NC
		PORTIONS OF STREAM REACH AND RMA ARE WITHIN THE HARVEST AREA
B15-1	S4	FA YA, YX at designated machine crossings only. NC
B15-2	S4	FA YA, YX at designated machine crossings only. NC
B15-3	S4	FX YX NC
		PRESCRIPTION DEFINITIONS
	YX	Yard across Acceptable
	FX	Fall Across Accepable
	FA/BL	Fall Away. Timber is to be felled away. Leaners and hazard trees that cannot be safely felled away shall be felled and left bridging the stream.
	FA	Fall Away. Timber is to be felled away.
	YA	Yard Away. Timber is to be yarded away. In order to improve deflection, cables are allowed to be suspended above the stream. **Non-fish streams**: merchantable leaners and danger trees that have been felled across the stream will, by necessity, be yarded across the stream. **Fish streams**: Leaners and danger trees which have been felled across the stream will be left unless detrimental to the stream.
	HH	100% harvested (no retention of saplings)
	RS	Retain saplings on the streambanks (non-merchantible)
	FE	Feathered edge.
	BPT	Blue painted trees (selected for removal). Faller's choice of alternate tree if unable to fall painted tree safely.
	NHZ	No harvest zone. Trees are to be felled away from the zone. Safe trees that cannot be felled away are to be left as part of the NHZ. Danger trees **must** be felled and will be left for future LWD or be removed if detrimental to the stream.
	MFZ	Machine free zone.
	MC	Machine Clean transportable introduced large woody debris (LWD) and accumulations concurrent with yarding.
	HC	Hand Clean introduced transportable debris.
	NC	No cleaning required. Keep channel free on introduced debris concurrent with yarding.

Falling Type	Ha	Volume
Handfalling	0	0
Mechanical	5.8	3045
TOTAL	**5.8**	**3045**
CRUISE VOL/HA (m3)		525
ENG VOL/HA (m3)		525
HAUL DISTANCE		

HARVEST METHODS		
System	**Ha**	**Volume**
R/W	0.6	315
Snorkel	0.0	0
Hoe Chuck	5.2	2730
Grapple	0.0	0
High Lead	0.0	0
Helicopter	0.0	0
Harvest Area	**5.8**	**3045**
R/W Removed	0.0	
WTRA	0.8	
TLA	0.0	
Gross Area	**6.6**	**3045**

VOLUME BY TIMBERMARK			
Timbermark	**Type**	**Ha**	**Vol**
K2D 007	CROWN	5.2	2730
K2D 0R1	RoW	0.6	315
			0
			0
TOTAL		**5.8**	**3045**
Field Work:	K2 Forestry		
Checked By:	G.Knoll,RPF		
AVCF CORP:			DATE
AVCF CORP:			DATE

SPECIES	
%	
Ba	
Hw	
Ced	1
Cy	
Fd	99
Dr	
Pw	
OG	
SG	100%

PROFESSIONAL SEAL AND SIGNATURE

Digitally signed by George Knoll
Date: 2015.02.25 08:05:25 -08'00'

I certify that I have reviewed this document, and while I did not personally supervise the work described, I have determined that this work has been done to the standards expected of a member of the Association of British Columbia Forest Professionals.

CONTRACTOR DATE

Harvesting Feature

- TAUP
- Block
- HC Hoechuck, Clear Cut
- HC Hoechuck, Select
- Yarding Direction
- Slope > 35% in Ground Skidding Areas
- Sensitive Soils Area
- Powerline Area

Stream Classification

- S1-S4 Stream
- S5-S6 Stream
- NCD
- Stream, Non Classified

Other Feature

- Riparian Management Zone
- Riparian Reserve Zone
- Wildlife Tree Retention Area
- Timber Leave Area
- Non Productive, Rock
- Non Productive, Wetland
- Park
- Community Forest

Attention!

Refer to Back for Detailed Operating and Safety Instructions

FALLING PRESCRIPTION:

Falling within 1 1/2 tree lengths of powerlines must be done by an arborist and/or with machine assist with positive directional control.

FALLING PRESCRIPTION:

Partial Cut Areas (HC Select): Harvest Blue Dotted Trees Only

NAD83 BLOCK	BC ALBERS Easting	BC ALBERS Northing	GEOGRAPHIC Latitude	GEOGRAPHIC Longitude
B14	1068773	476374	49° 17' 58.5"	125° 03' 18.8"
B15	1068070	476893	49° 18' 15.6"	125° 03' 53.3
W14	1073513	475898	49° 17' 40.9"	124° 59' 24.8"
W16	1072138	476934	49° 18' 15.1"	125° 00' 32.1"

MAP 1 of 1

Alberni Valley Community Forest K2D
Sproat FDU

Harvesting Plan Map
Block W14

N

1:5,000

0 50 100 Meters

Licensee:	Alberni Valley Community Forest Corporation
Forest Region:	Coast
Forest District:	South Island
Reference Map:	92F024, 025, 026 F035, 036
Datum:	NAD 83
Projection:	BC Albers
TSA:	38 Arrowsmith
TSB:	A
FIZ:	B
P.S.Y.U.:	471
Inv. Reg.:	5
Comp.:	4B (Sproat), 4C (Taylor)
Drafted:	February 23, 2015
By:	econ

- Falling Corner
- Landing, Perm., Temp.
- Station
- Culvert: New, Existing
- Bridge: New, Out
- Quarry
- Designated Crossing
- Spoil Site
- Swamp
- Wildlife Tree

Roads & Trails

- Highway / FSR
- Road, existing
- Road, engineered
- Road, to be re-activated
- Road, overgrown
- >10% Adverse Grade
- >18% Favourable Grade
- Old Grade
- Hiking Trail
- Rock Bluff
- Hydro Line

HARVESTING INSTRUCTIONS – OPENING # W14

ACCESS ROAD: WC 3 **CUTTING PERMIT: N0. 7** **TIMBERMARK: K2D 007**

EMPLOYEE REQUIREMENTS

1) All employees, supervisors and contractors associated with these Harvesting Instructions shall be fully advised of its contents and requirements.
2) All litter including cable, oil buckets, grease tubes, newspapers and lunch garbage is to be removed from the site and disposed of appropriately.

WATER QUALITY

1) The overall objective of this cutblock is timber harvesting without impacting water quality.
2) All ditches and culverts **must** remain as free flowing as possible through all phases of harvesting.
3) Cutblock W14 lies within the Sproat Lake Community Watershed, sedimentation into streams is to be minimized to the fullest extent possible.
4) Cutblock W14 is within a Rainfall Shutdown Area with the following shutdown/start-up Criteria:
Shutdown Criteria: Activities must shut down if: The total rainfall reaches **75mm in 24 hours**. Onsite rain gauges should be used and monitored daily.
Start-Up Criteria: Activities may start-up when: The total rainfall is equal to or less than 30mm in 24 hours, or the water balance falls below 75mm. Soil drainage rate is 40mm in 24hrs. Refer to the Return to work guide in the tender document for more information.

FORESTRY

1) Invasive Plants: Broom occurs along sections of the high way on route to the setting. Follow FSP measures for invasive plants. Cut and remove plants in association with road reactivation, clean machinery as required. Monitor and treat broom and other invasive species during early establishment. Grass seed exposed soil on or adjacent to roads, trails, and landing sites as soon as possible following harvest.

FIRST NATIONS

1) This cutblock is in the Hupacusath traditional territory. If any additional potential culturally modified tree (CMT) (whether live or dead and standing or fallen) or any other cultural feature is encountered within the opening during any harvesting phase, operations will cease in the immediate vicinity of the CMT or cultural feature. Hupacusath First Nations is to be notified immediately upon discovery of any potential CMT or cultural feature.

FALLING of SNAGS and DANGER TREES

1) In accordance with WSBC Regulations, snags and danger trees within the cutblock and outside the cutblock boundaries for a distance of not more than 50 meters that endanger workers are approved for falling under the logging plan for this cutblock. **EXCEPT FOR AREAS ADJACENT TO ITLP PROPERTY FROM FC 10 TO 11.** Danger trees and snags outside this 50 meter hazard area that are required to be felled should be recorded on a map for future reference. Sanitation falling will proceed if the occasional stem is required to be removed along the cutblock boundary. The Ministry of Forests will be notified if danger trees and/or snags are identified in groups and removal will result in the cutblock boundary being substantially impacted. Snags and danger trees meeting utilization specifications will be recovered.
2) If a bear den or raptor nest is encountered during falling operations, the tree will be reserved from falling along with a protection patch of timber surrounding it. AVCF is to be notified immediately. If the bear den tree is partially cut operations will proceed in conformance with WSBC regulations.
3) Wildlife Tree Patches or Wildlife Tree Retention Areas have been established, and are marked on the 1:5000 map. Any danger trees felled within the WTP or WTRA will be left as Coarse Woody Debris.

CUTBLOCK BOUNDARY TREATMENTS

1) All marked boundary trees except snags and danger trees must remain standing during and after the completion of harvesting. Trees adjacent to edges that cannot be felled into the setting will require approval from AVCF prior to falling. AVCF is to be notified immediately.
2) Leave trees may be substituted if, for safety reasons, a faller feels it is necessary to do so, but alternate leave trees must be retained and should be well rooted and of the same species and diameter

YARDING and LOADING PRESCRIPTIONS

1) No roadside landing of logs within 3 meters of any streambank along all roadsides. All drainage structures will be maintained and remain functional.
2) Avoid excessive ground lead gouging due to surface erosion potential. If soil disturbance occurs, then grass seeding will be required.
3) During the bark peeling stage of growth, the tree bole is highly susceptible to damage. Contact with retention trees during harvesting operation should be avoided between April 1 st and June 15 th.
4) Leave trees may be substituted if, for safety reasons, a faller feels it is necessary to do so, but alternative trees must be retained and should be well rooted and of the same species, diameter and vigor.
5) No more than 10% of the retention trees in the aggregate or dispersed retention areas or single retention trees in this cutblock may have significant damage.
Significant damage to Hw, Fd, and Cw is defined as a tree with:
One or more wounds (i.e. exposed cambium) that girdle more than 1/3 the circumference of the stem.
Any wounds on a supporting root within one metre of the stem. A gouge – a wound that penetrates (splintered) into the sapwood or deeper.
Additionally, for Hw and Cw only: A wound >400cm^2 on the stem.

SAFETY

Road and in-block safety hazards associated with block W14 have been identified on the harvest and road instruction maps. In the event additional in-block safety hazards (temporary or permanent) are encountered or develop during road construction or harvesting phases, a plan must be developed to address the hazard. Any identified permanent hazards must be reported back to AVCF (using Hazard/Issue Report Form).

STEEP GRADES

No Road segments with gradients > 18% access this block. Prior to commencing log hauling operations the contractor must perform a risk assessment of the current conditions and adjust hauling activities to suit the traction conditions. Hauling for W14 is not permitted when ice and or snow is on the logging roads leading to or in the given setting (very low traction level). This has been determined using FERRIC steep grade decent guidelines. The Ministry of Transportation guidelines are to be followed when hauling on the highway.

SPECIFIC BLOCK COMMENTS

MACHINE OPERATORS WILL MONITOR SOILS FOR COMPACTION DURING RAIN EVENTS, AND MOVE TO DRIER AREAS WITHIN THE CUTBLOCK SHOULD COMPACTION AND/OR RUTTING OCCUR. PARTIAL CUT AREAS MARKED OUT WITH BLACK AND ORANGE CANDY-STRIPE RIBBON. HARVEST BLUE-PAINTED TREES ONLY. NON-MARKED LEAVE TREES MAY BE SUBSTITUTED FOR SAFETY REASONS BUT ALTERNATIVE TREES OF THE SAME DIAMETER AND SPECIES MUST BE RETAINED. THE AREA ALONG THE POWERLINES FROM FC 11 TO FC 13 IS PRESCRIBED AS CLEARCUT. ANY NON-MERCH TREES THAT ARE NOT A HAZARD TO BLOWDOWN ONTO THE POWERLINE MAY BE LEFT ALONG THIS EDGE.

HARVESTING ISSUES

MACHINE OPERATORS SHOULD BE AWARE OF POWERLINES LOCATED ALONG THE EDGE OF THE CUTBLOCK. FALLING WITHIN 1 AND ½ TREE LENGTHS MUST BE DONE BY A CERTIFIED ARBORIST AND/OR WITH MACHINE ASSIST WITH POSITIVE DIRECTIONAL CONTROL. THESE AREAS ARE IDENTIFIED ON THE HARVESTING MAP.

RIPARIAN MANAGEMENT STRATEGIES

Creek I.D.	CLASS	MANAGEMENT STRATEGIES FOR RIPARIAN MANAGEMENT ZONES (RMZ) INCLUDING PROTECTING STREAM
	NCD	- NCD(s) within the harvest area will be FX and YX. No RMZ is required. - Note all streams lie within the Sproat Lake Community Watershed, minimize sedimentation at all costs.
		STREAM REACH AND RMA IS OUTSIDE OF THE HARVEST AREA
		STREAM REACH OUTSIDE HARVEST AREA, PORTIONS OF THE RMA WITHIN THE HARVEST AREA
W14-1	S4	FA YA NC
Stream 1	S4	FA YA NC
		PORTIONS OF STREAM REACH AND RMA ARE WITHIN THE HARVEST AREA
W14-2	S4	FA YA NC. Partial cut in the RMA. Harvest Blue Painted trees only.
		PRESCRIPTION DEFINITIONS
	YX	Yard across Acceptable
	FX	Fall Across Accepable
	FA/BL	Fall Away. Timber is to be felled away. Leaners and hazard trees that cannot be safely felled away shall be felled and left bridging the stream.
	FA	Fall Away. Timber is to be felled away.
	YA	Yard Away. Timber is to be yarded away. In order to improve deflection, cables are allowed to be suspended above the stream. **Non-fish streams**: merchantable leaners and danger trees that have been felled across the stream will, by necessity, be yarded across the stream. **Fish streams**: Leaners and danger trees which have been felled across the stream will be left unless detrimental to the stream.
	HH	100% harvested (no retention of saplings)
	RS	Retain saplings on the streambanks (non-merchantible)
	FE	Feathered edge.
	BPT	Blue painted trees (selected for removal). Faller's choice of alternate tree if unable to fall painted tree safely.
	NHZ	No harvest zone. Trees are to be felled away from the zone. Safe trees that cannot be felled away are to be left as part of the NHZ. Danger trees **must** be felled and will be left for future LWD or be removed if detrimental to the stream.
	MFZ	Machine free zone.
	MC	Machine Clean transportable introduced large woody debris (LWD) and accumulations concurrent with yarding.
	HC	Hand Clean introduced transportable debris.
	NC	No cleaning required. Keep channel free on introduced debris concurrent with yarding.

Falling Type	Ha	Volume
Handfalling	0	0
Mechanical	15.8	6415
TOTAL	**15.8**	**6415**
CRUISE VOL/HA (m3)		406
ENG VOL/HA (m3)		406
HAUL DISTANCE		

HARVEST METHODS		
System	**Ha**	**Volume**
R/W	0.0	0
Snorkel	0.0	0
Hoe Chuck	15.8	6415
Grapple	0.0	0
High Lead	0.0	0
Helicopter	0.0	0
Harvest Area	**15.8**	**6415**
R/W Removed	1.9	
WTRA	2.5	
TLA	0.0	
Gross Area	**20.2**	**6415**

VOLUME BY TIMBERMARK			
Timbermark	**Type**	**Ha**	**Vol**
K2D 007	CROWN	15.8	6415
			0
			0
			0
TOTAL		**15.8**	**6415**
Field Work:	K2 Forestry		
Checked By:	G.Knoll,RPF		
AVCF CORP:			DATE
AVCF CORP:			DATE

SPECIES	
	%
Ba	
Hw	
Ced	4
Cy	
Fd	86
Dr	10
Pw	
OG	
SG	100%
CONTRACTOR	DATE

PROFESSIONAL SEAL AND SIGNATURE

Digitally signed by George Knoll
Date: 2015.02.24 14:08:27 -08'00'

I certify that I have reviewed this document, and while I did not personally supervise the work described, I have determined that this work has been done to the standards expected of a member of the Association of British Columbia Forest Professionals.

Hazard:
- Scattered rocky patches
- Steep cutbank (rock)
- Steep hoechuck

Attention!

Refer to Back for Detailed Operating and Safety Instructions

Harvesting Feature
- TAUP
- Block
- HC Hoechuck, Clear Cut
- HC Hoechuck, Select
- Yarding Direction
- Slope > 35% in Ground Skidding Areas
- Sensitive Soils Area

Stream Classification
- S1-S4 Stream
- S5-S6 Stream
- NCD
- Stream, Non Classified

Other Feature
- Riparian Management Zone
- Riparian Reserve Zone
- Wildlife Tree Retention Area
- Timber Leave Area
- Non Productive, Rock
- Non Productive, Wetland
- Park
- Community Forest

NAD83 BLOCK	BC ALBERS Easting	BC ALBERS Northing	GEOGRAPHIC Latitude	GEOGRAPHIC Longitude
B14	1068773	476374	49° 17' 58.5"	125° 03' 18.8"
B15	1068070	476893	49° 18' 15.6"	125° 03' 53.3
W14	1073513	475898	49° 17' 40.9"	124° 59' 24.8"
W16	1072138	476934	49° 18' 15.1"	125° 00' 32.1"

MAP 1 of 1

Alberni Valley Community Forest K2D
Sproat FDU

Harvesting Plan Map
Block W16

1:5,000
0 50 100 Meters

Licensee:	Alberni Valley Community Forest Corporation
Forest Region:	Coast
Forest District:	South Island
Reference Map:	92F024, 025, 026 F035, 036
Datum:	NAD 83
Projection:	BC Albers
TSA:	38 Arrowsmith
TSB:	A
FIZ:	B
P.S.Y.U.:	471
Inv. Reg.:	5
Comp.:	4B (Sproat), 4C (Taylor)
Drafted:	February 23, 2015
By:	econ

- Falling Corner
- Landing, Perm., Temp.
- Station
- Culvert: New, Existing
- Bridge: New, Out
- Quarry
- Designated Crossing
- Spoil Site
- Swamp
- Wildlife Tree

Roads & Trails
- Highway / FSR
- Road, existing
- Road, engineered
- Road, to be re-activated
- Road, overgrown
- >10% Adverse Grade
- >18% Favourable Grade
- Old Grade
- Hiking Trail
- Rock Bluff
- Hydro Line

HARVESTING INSTRUCTIONS – OPENING # W16

ACCESS ROAD: ASH 6 **CUTTING PERMIT: N0. 7** **TIMBERMARK: K2D 007**

EMPLOYEE REQUIREMENTS

1) All employees, supervisors and contractors associated with these Harvesting Instructions shall be fully advised of its contents and requirements.
2) All litter including cable, oil buckets, grease tubes, newspapers and lunch garbage is to be removed from the site and disposed of appropriately.

WATER QUALITY

1) The overall objective of this cutblock is timber harvesting without impacting water quality.
2) All ditches and culverts **must** remain as free flowing as possible through all phases of harvesting.
3) Cutblock W16 lies within the Sproat Lake Community Watershed, sedimentation into streams is to be minimized to the fullest extent possible.
4) Cutblock W16 is within a Rainfall Shutdown Area with the following shutdown/start-up Criteria:
Shutdown Criteria: Activities must shut down if: The total rainfall reaches **75mm in 24 hours**. Onsite rain gauges should be used and monitored daily.
Start-Up Criteria: Activities may start-up when: The total rainfall is equal to or less than 30mm in 24 hours, or the water balance falls below 75mm. Soil drainage rate is 40mm in 24hrs. Refer to the Return to work guide in the tender document for more information.

FORESTRY

1) Invasive Plants: Broom occurs along sections of the high way on route to the setting. Follow FSP measures for invasive plants. Cut and remove plants in association with road reactivation, clean machinery as required. Monitor and treat broom and other invasive species during early establishment. Grass seed exposed soil on or adjacent to roads, trails, and landing sites as soon as possible following harvest.

FIRST NATIONS

1) This cutblock is in the Hupacusath traditional territory. If any additional potential culturally modified tree (CMT) (whether live or dead and standing or fallen) or any other cultural feature is encountered within the opening during any harvesting phase, operations will cease in the immediate vicinity of the CMT or cultural feature. Hupacusath First Nations is to be notified immediately upon discovery of any potential CMT or cultural feature.

FALLING of SNAGS and DANGER TREES

1) In accordance with WSBC Regulations, snags and danger trees within the cutblock and outside the cutblock boundaries for a distance of not more than 50 meters that endanger workers are approved for falling under the logging plan for this cutblock. Danger trees and snags outside this 50 meter hazard area that are required to be felled should be recorded on a map for future reference. Sanitation falling will proceed if the occasional stem is required to be removed along the cutblock boundary. The Ministry of Forests will be notified if danger trees and/or snags are identified in groups and removal will result in the cutblock boundary being substantially impacted. Snags and danger trees meeting utilization specifications will be recovered.
2) If a bear den or raptor nest is encountered during falling operations, the tree will be reserved from falling along with a protection patch of timber surrounding it. AVCF is to be notified immediately. If the bear den tree is partially cut operations will proceed in conformance with WSBC regulations.
3) Wildlife Tree Patches or Wildlife Tree Retention Areas have been established, and are marked on the 1:5000 map. Any danger trees felled within the WTP or WTRA will be left as Coarse Woody Debris.

CUTBLOCK BOUNDARY TREATMENTS

1) All marked boundary trees except snags and danger trees must remain standing during and after the completion of harvesting. Trees adjacent to edges that cannot be felled into the setting will require approval from AVCF prior to falling. AVCF is to be notified immediately.
2) Leave trees may be substituted if, for safety reasons, a faller feels it is necessary to do so, but alternate leave trees must be retained and should be well rooted and of the same species and diameter

YARDING and LOADING PRESCRIPTIONS

1) No roadside landing of logs within 3 meters of any streambank along all roadsides. All drainage structures will be maintained and remain functional.
2) Avoid excessive ground lead gouging due to surface erosion potential. If soil disturbance occurs, then grass seeding will be required.
3) During the bark peeling stage of growth, the tree bole is highly susceptible to damage. Contact with retention trees during harvesting operation should be avoided between April 1 st and June 15 th.
4) Leave trees may be substituted if, for safety reasons, a faller feels it is necessary to do so, but alternative trees must be retained and should be well rooted and of the same species, diameter and vigor.
5) No more than 10% of the retention trees in the aggregate or dispersed retention areas or single retention trees in this cutblock may have significant damage.
Significant damage to Hw, Fd, and Cw is defined as a tree with:
One or more wounds (i.e. exposed cambium) that girdle more than 1/3 the circumference of the stem.
Any wounds on a supporting root within one metre of the stem. A gouge – a wound that penetrates (splintered) into the sapwood or deeper.
Additionally, for Hw and Cw only: A wound >400cm^2 on the stem.

SAFETY

Road and in-block safety hazards associated with block W16 have been identified on the harvest and road instruction maps. In the event additional in-block safety hazards (temporary or permanent) are encountered or develop during road construction or harvesting phases, a plan must be developed to address the hazard. Any identified permanent hazards must be reported back to AVCF (using Hazard/Issue Report Form).

STEEP GRADES

Road segments with gradients > 18% have been identified on the Overview Map. Prior to commencing log hauling operations the contractor must perform a risk assessment of the current conditions and adjust hauling activities to suit the traction conditions. Hauling for W16 is not permitted when ice and or snow is on the logging roads leading to or in the given setting (very low traction level). This has been determined using FERRIC steep grade decent guidelines. The Ministry of Transportation guidelines are to be followed when hauling on the highway.

SPECIFIC BLOCK COMMENTS

MACHINE OPERATORS WILL MONITOR SOILS FOR COMPACTION DURING RAIN EVENTS, AND MOVE TO DRIER AREAS WITHIN THE CUTBLOCK SHOULD COMPACTION AND/OR RUTTING OCCUR.

HARVESTING ISSUES

MACHINE OPERATORS SHOULD BE AWARE OF STEEP HOE CHUCK AREAS WITHIN THE CUTBLOCK FALLING BOUNDARY. THESE AREAS ARE IDENTIFIED ON THE HARVESTING MAP.

RIPARIAN MANAGEMENT STRATEGIES

Creek I.D.	CLASS	MANAGEMENT STRATEGIES FOR RIPARIAN MANAGEMENT ZONES (RMZ) INCLUDING PROTECTING STREAM
16-1 16-5	NCD	- NCD(s) within the harvest area will be FX and YX. No RMZ is required. - Note all streams lie within the Sproat Lake Community Watershed, minimize sedimentation at all costs.
		STREAM REACH AND RMA IS OUTSIDE OF THE HARVEST AREA
		STREAM REACH OUTSIDE HARVEST AREA, PORTIONS OF THE RMA WITHIN THE HARVEST AREA
West Un-named creek	S3	FA YA NC
		PORTIONS OF STREAM REACH AND RMA ARE WITHIN THE HARVEST AREA
16-2	S4	FA YA, YX at designated machine crossings only. NC
16-3	S4	FA YA, YX at designated machine crossings only. NC
16-4	S4	FA YA, YX at designated machine crossings only. NC
		PRESCRIPTION DEFINITIONS
	YX	Yard across Acceptable
	FX	Fall Across Accepable
	FA/BL	Fall Away. Timber is to be felled away. Leaners and hazard trees that cannot be safely felled away shall be felled and left bridging the stream.
	FA	Fall Away. Timber is to be felled away.
	YA	Yard Away. Timber is to be yarded away. In order to improve deflection, cables are allowed to be suspended above the stream. **Non-fish streams**: merchantable leaners and danger trees that have been felled across the stream will, by necessity, be yarded across the stream. **Fish streams**: Leaners and danger trees which have been felled across the stream will be left unless detrimental to the stream.
	HH	100% harvested (no retention of saplings)
	RS	Retain saplings on the streambanks (non-merchantible)
	FE	Feathered edge.
	BPT	Blue painted trees (selected for removal). Faller's choice of alternate tree if unable to fall painted tree safely.
	NHZ	No harvest zone. Trees are to be felled away from the zone. Safe trees that cannot be felled away are to be left as part of the NHZ. Danger trees **must** be felled and will be left for future LWD or be removed if detrimental to the stream.
	MFZ	Machine free zone.
	MC	Machine Clean transportable introduced large woody debris (LWD) and accumulations concurrent with yarding.
	HC	Hand Clean introduced transportable debris.
	NC	No cleaning required. Keep channel free on introduced debris concurrent with yarding.

Appendix 3: Road Construction Map and Instructions

MAP 1 of 1

Alberni Valley Community Forest K2D

Sproat FDU

Road Reactivation & Road Construction

Block B14

Licensee:	Alberni Valley Community Forest Corporation
Forest Region:	Coast
Forest District:	South Island
Reference Map:	92F024, 025, 026 F035, 036
Datum:	NAD 83
Projection:	BC Albers, Geographic
TSA:	38 Arrowsmith
TSB:	A
FIZ:	B
P.S.Y.U.:	471
Inv. Reg.:	5
Comp.:	4B (Sproat), 4C (Taylor)
Drafted:	Feb 20, 2015
By:	econ

N

1:5,000

0 50 100 200 Meters

Timbermark K2D-0R1

BLOCK	Easting	Northing	Latitude	Longitude
B14	1068773	476374	49° 17' 58.5"	125° 03' 18.8"
B15	1068070	476893	49° 18' 15.6"	125° 03' 53.3
W14	1073513	475898	49° 17' 40.9"	124° 59' 24.8"
W16	1072138	476934	49° 18' 15.1"	125° 00' 32.1"

Attention!

Refer to Back for Detailed Operating and Safety Instructions

- Falling Corner
- Landing, Perm., Temp.
- Station
- Culvert: New, Existing
- Bridge: New, Out
- Quarry
- Designated Crossing
- Spoil Site
- Swamp
- Wildlife Tree

- Ditch Cleaning
- End Haul
- >10% Adverse Grade
- >18% Favourable Grade
- Road, to be constructed
- Road, to be re-activated
- Steep Areas, >35% in Ground Based Areas
- Sensitive Soils Area

Road Feature

- Highway
- Road, existing
- Road, temporary
- Trail, existing
- Trail, temp
- Old Grade
- Recreation Trail

Water Feature

- S1-S4 Stream
- S5-S6 Stream
- NCD Non Classified Drainage
- Unclassified Creek
- Wetland
- Lake

Other Feature

- Block, new
- Block, existing
- Riparian Management Zone
- Riparian Reserve Zone
- Wildlife Tree Retention Area
- Timber Leave Area
- Park
- Community Forest

ROAD NAME	START	END	TOTAL	TYPE OF WORKS\COMMENTS
ASH 12A	0+000	0+076	0+076	Install culverts, widening of roadside timber, re-surfacing with shotrock ballast
ASH 12B	0+000	0+232	0+232	Install culverts, widening of roadside timber, re-surfacing with shotrock ballast
TOTAL REACTIVATION			0+308	

CULVERTS		
SIZE	TYPE	NUMBER
500	CMP	
600	CMP	4
800	CMP	
1000	CMP	
	TOTAL:	4
Field Work:	K2 Forestry	
Checked By:	G.Knoll,RPF	

AVCF CORP: DATE

AVCF CORP: DATE

PROFESSIONAL SEAL AND SIGNATURE

Digitally signed by George Knoll
Date: 2015.02.24 09:38:57 -08'00'

I certify that I have reviewed this document, and while I did not personally supervise the work described, I have determined that this work has been done to the standards expected of a member of the Association of British Columbia Forest Professionals.

CONTRACTOR DATE

ROAD INSTRUCTIONS – OPENING # B14

ACCESS ROAD: AS12 **ROAD PERMIT: R18553** **TIMBERMARK: K2D 0R1**

ROAD CONSTRUCTION SUMMARY

Road Name	Start Station	End Station	Type of Works/Comments
AS 12A	0+000	0+076	Re-construction. Install culverts, widening of roadside timber, re-surfacing with shotrock ballast.
AS 12B	0+000	0+232	Re-construction. Install culverts, widening of roadside timber, re-surfacing with shotrock ballast.

STREAM CROSSINGS and CULVERT INSTALLATIONS

Road Name	Station	Riparian ID	Riparian Class	Debris Transport Potential	Culvert/ Bridge Size	Designed Peak Flow	Special instructions for operations within or adjacent to RMA
AS 12A	0+012	-	-	-	600	X-Drain	OPENING B14 LIES WITHIN THE SPROAT LAKE COMMUNITY WATERSHED. ALL STREAM CROSSINGS ARE TO BE ARMORED WITH COARSE ROCK MATERIAL TO MINIMIZE THE TRANSPORT OF FINES DOWN STREAM.
AS 12A	0+022	B14-1	S4	Low	600	Q100	
AS 12B	0+011	-	-	-	600	X-Drain	
AS 12B	0+175	B14-1	S4	Low	600	Q100	

EMPLOYEE REQUIREMENTS

1) All employees, supervisors and contractors associated with these Road Instructions shall be fully advised of its contents and requirements.
2) All litter including cable, oil buckets, grease tubes, newspapers and lunch garbage is to be removed from the site and disposed of appropriately.

WATER QUALITY

1) The overall objective of this cutblock is timber harvesting without impacting water quality.
2) Cutblock B 14 lies within the Sproat Lake Community Watershed, sedimentation into streams is to be minimized to the fullest extent possible, follow the listed SOP's below:
a.Ditch Cleaning: where needed, ditches are to be cleaned when conditions are dry. Ditchspoil is not to be windrowed along the road shoulder. On moderate slopes, the ditchspoil could be thinly spread on the slope below the road, but not heaped or piled against trees. Where the road is on steep slopes, the ditchspoil should be endhauled to a suitable spoil site.
b. Culvert replacement: Where required culvert replacements are to be done during dry weather (except for emergency repairs or replacements). The inlet and outlet areas on new culverts, and the adjacent fill slopes, are to be armoured to prevent erosion or sloughing into the creek.
c. Rock Ballasting of road surface: For new road construction, where the road is close to a stream channel,the road surface is to be ballasted with clean rock. The road surface is also to be rock ballasted for 30 metres either side of stream culverts.
d. Road grading practices: grading is to be avoided during heavy rain. e. Shutdown or harvest completion: In preparation for a shutdown for a period longer than 30 days or at a harvest completion, the following measures will be taken:
i. No excavated or endhauled material will be left piled in such a way as to become unstable duringthe shutdown period. Spoil sites, piles and fills willbe sloped uniformly to prevent instability.
ii. Ditches and culverts will be left clear and functional, with adequate inlet basins to minimize the potential for plugging.
iii. On sections of steep grades, cross ditches and back-up swales will be constructed where needed to minimize ditch erosion.
iv. If road construction has reached a drainage course but a drainage structure has not been installed prior to shutdown, the drainage course will be left open and unimpeded.
v. Where exposed silty soils could erode and enter surface streams or ditches connected to streams, silt fences, hay bales or erosion blankets will be applied as needed for temporary protection.
4) Cutblock B 14 is withina Rainfall Shutdown Area with the following shutdown/start-up Criteria:
Shutdown Criteria: Activities must shut down if: The total rainfall reaches **75mm in 24 hours**. Onsite rain gages should be used and monitored daily.
Start-Up Criteria: Activities may start-up when: The total rainfall is equal to or less than 30mm in 24 hours, or the water balance falls below 75mm. Soil drainage rate is 40mm in 24hrs. Refer to the Return to work guide in the tender document for more information.

FORESTRY

1) Invasive Plants: Broom occurs along sections of the high way on route to the setting. Follow FSP measures for invasive plants. Cut and remove plants in association with road reactivation, clean machinery as required. Monitor and treat broom and other invasive species during early establishment. Grass seed exposed soil on or adjacent to roads, trails, and landing sites as soon as possible following harvest.

FIRST NATIONS

1) This cutblock is in the Hupacusath traditional territory. If any additional potential culturally modified tree (CMT) (whether live or dead and standing or fallen) or any other cultural feature is encountered within the opening during any harvesting phase, operations will cease in the immediate vicinity of the CMT or cultural feature. Hupacusath First Nations is to be notified immediately upon discovery of any potential CMT or cultural feature.

FALLING of SNAGS and DANGER TREES

1) In accordance with the WCB Regulations, snags and danger trees within the cutblock and outside the cutblock boundaries for a distance of not more than 50 meters that endanger workers are approved for falling under the logging plan for this cutblock. Danger trees and snags outside this 50 meter hazard area that are required to be felled should be recorded on a map for future reference. Sanitation falling will proceed if the occasional stem is required to be removed along the cutblock boundary. The Ministry of Forests will be notified if danger trees and/or snags are identified in groups and removal will result in the cutblock boundary being substantially impacted. Snags and danger trees meeting utilization specifications will be recovered.
2) If a bear den or raptor nest is encountered during falling operations, the tree will be reserved from falling along with a protection patch of timber surrounding it. AVCF is to be notified immediately. If the bear den tree is partially cut operations will proceed in conformance with WCB regulations.
3) Wildlife Tree Patches or Wildlife Tree Retention Areas have been established, and are marked on the 1:5000 map. Any danger trees felled within the WTP or WTRA will be left as Coarse Woody Debris.

CUTBLOCK BOUNDARY TREATMENTS

1) All marked boundary trees except snags and danger trees must remain standing during and after the completion of harvesting. Trees adjacent to edges that cannot be felled into the setting will require approval from AVCF prior to falling. AVCF is to be notified immediately.
2) Leave trees may be substituted if, for safety reasons, a faller feels it is necessary to do so, but alternate leave trees must be retained and should be well rooted and of the same species and diameter

ROAD CONSTRUCTION PRESCRIPTIONS

1) R/W clearing widths to be 20 meters unless a larger width is required for safety or otherwise prescribed.
2) Prior approval must be obtained from AVCF if falling beyond right-of-way clearing is required for spoil sites or quarries.
3) Proposed cross-drain culvert locations are approximate. Site specific installation to within ±25m is acceptable. Installation beyond this distance constitutes a 'change of plan' and requires prior approval from AVCF.
4) Equipment must not be fuelled or serviced within the riparian management area (RMA) of a stream, lake or wetland. Do not park any equipment within an RMA overnight.
5) Ensure that licensed water works are notified of road activities 48 hours prior to activity.
6) RMA distances: STREAMS: S1 - 70 meters, S2 – 50 meters, S3 – 40 meters, S4 – 30 meters, S5 – 30 meters, S6 – 20 meters, LAKES: L1 – 10 meters, L3 – 30 meters, WETLANDS: W1, W5 – 50meters, W3 – 30 meters.
7) Avoid quarry locations within the RMA of any stream; where avoidance is not practical, quarries may be located within the RMA of a S6 stream if no impacts (i.e. increased sedimentation) will occur to the stream. All other streams (i.e. S1 to S5) require prior approval from AVCF before a quarry may be located within its RMA. Do not deck or process wood within RMA's.

SAFETY

Road and in-block safety hazards associated with block B14 have been identified on the harvest and road instruction maps. In the event additional in-block safety hazards (temporary or permanent) are encountered or develop during road construction or harvesting phases, a plan must be developed to address the hazard. Any identified permanent hazards must be reported back to AVCF (using Hazard/Issue Report Form).

MAP 1 of 1

Alberni Valley Community Forest K2D

Sproat FDU

Road Reactivation & Road Construction

Block B15

Licensee:	Alberni Valley Community Forest Corporation
Forest Region:	Coast
Forest District:	South Island
Reference Map:	92F024, 025, 026 F035, 036
Datum:	NAD 83
Projection:	BC Albers, Geographic
TSA:	38 Arrowsmith
TSB:	A
FIZ:	B
P.S.Y.U.:	471
Inv. Reg.:	5
Comp.:	4B (Sproat), 4C (Taylor)
Drafted:	Feb 20, 2015
By:	econ

N

1:5,000

0 50 100 200 Meters

Timbermark K2D-0R1

BLOCK	Easting	Northing	Latitude	Longitude
B14	1068773	476374	49° 17' 58.5"	125° 03' 18.8"
B15	1068070	476893	49° 18' 15.6"	125° 03' 53.3
W14	1073513	475898	49° 17' 40.9"	124° 59' 24.8"
W16	1072138	476934	49° 18' 15.1"	125° 00' 32.1"

Attention!

Refer to Back for Detailed Operating and Safety Instructions

- Falling Corner
- Landing, Perm., Temp.
- Station
- Culvert: New, Existing
- Bridge: New, Out
- Quarry
- Designated Crossing
- Spoil Site
- Swamp
- Wildlife Tree

- Ditch Cleaning
- End Haul
- >10% Adverse Grade
- >18% Favourable Grade
- Road, to be constructed
- Road, to be re-activated
- Steep Areas, >35% in Ground Based Areas
- Sensitive Soils Area

Road Feature

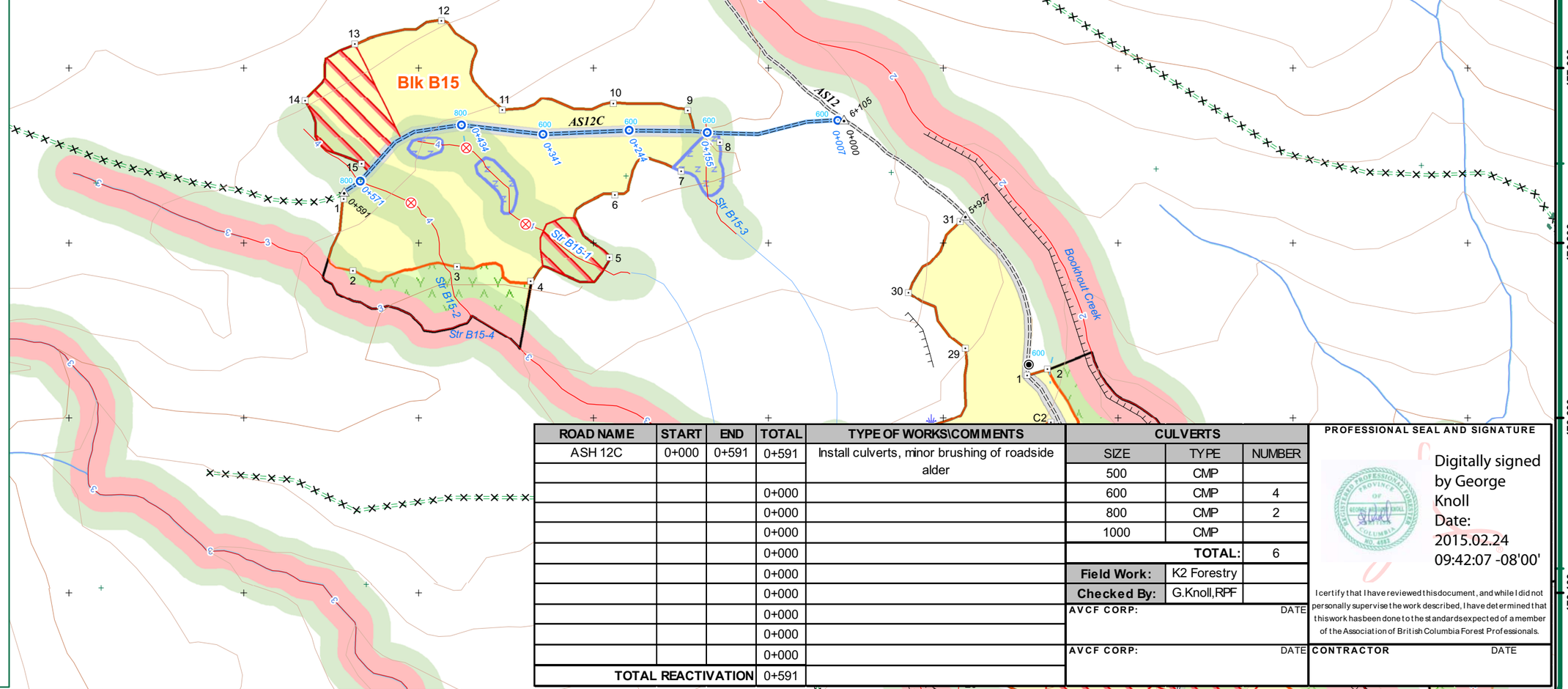
- Highway
- Road, existing
- Road, temporary
- Trail, existing
- Trail, temp
- Old Grade
- Recreation Trail

Water Feature

- S1-S4 Stream
- S5-S6 Stream
- NCD Non Classified Drainage
- Unclassified Creek
- Wetland
- Lake

Other Feature

- Block, new
- Block, existing
- Riparian Management Zone
- Riparian Reserve Zone
- Wildlife Tree Retention Area
- Timber Leave Area
- Park
- Community Forest



ROAD NAME	START	END	TOTAL	TYPE OF WORKS\COMMENTS
ASH 12C	0+000	0+591	0+591	Install culverts, minor brushing of roadside alder
			0+000	
			0+000	
			0+000	
			0+000	
			0+000	
			0+000	
			0+000	
			0+000	
			0+000	
TOTAL REACTIVATION			0+591	

CULVERTS		
SIZE	TYPE	NUMBER
500	CMP	
600	CMP	4
800	CMP	2
1000	CMP	
	TOTAL:	6
Field Work:	K2 Forestry	
Checked By:	G.Knoll,RPF	

AVCF CORP: DATE

AVCF CORP: DATE

PROFESSIONAL SEAL AND SIGNATURE

Digitally signed by George Knoll
Date: 2015.02.24 09:42:07 -08'00'

I certify that I have reviewed this document, and while I did not personally supervise the work described, I have determined that this work has been done to the standards expected of a member of the Association of British Columbia Forest Professionals.

CONTRACTOR DATE

ROAD INSTRUCTIONS – OPENING # B15

ACCESS ROAD: AS12 **ROAD PERMIT: R18553** **TIMBERMARK: K2D 0R1**

ROAD CONSTRUCTION SUMMARY

Road Name	Start Station	End Station	Type of Works/Comments
AS 12C	0+000	0+591	Re-construction. Install culverts, minor brushing of roadside alder.

STREAM CROSSINGS and CULVERT INSTALLATIONS

Road Name	Station	Riparian ID	Riparian Class	Debris Transport Potential	Culvert/ Bridge Size	Designed Peak Flow	Special instructions for operations within or adjacent to RMA
AS 12C	0+007	-	-	-	600	X-Drain	OPENING B15 LIES WITHIN THE SPROAT LAKE COMMUNITY WATERSHED. ALL STREAM CROSSINGS ARE TO BE ARMORED WITH COARSE ROCK MATERIAL TO MINIMIZE THE TRANSPORT OF FINES DOWN STREAM.
AS 12C	0+155	-	-	-	600	X-Drain	
AS 12C	0+244	-	-	-	600	X-Drain	
AS 12C	0+341	-	-	-	600	X-Drain	
AS 12C	0+434	NCD	NCD	Low	800	Q100	
AS 12C	0+571	B15-2	S4	Low	800	Q100	

EMPLOYEE REQUIREMENTS

1) All employees, supervisors and contractors associated with these Road Instructions shall be fully advised of its contents and requirements.
2) All litter including cable, oil buckets, grease tubes, newspapers and lunch garbage is to be removed from the site and disposed of appropriately.

WATER QUALITY

1) The overall objective of this cutblock is timber harvesting without impacting water quality.
2) Cutblock B 15 lies within the Sproat Lake Community Watershed, sedimentation into streams is to be minimized to the fullest extent possible, follow the listed SOP's below:
a.Ditch Cleaning: where needed, ditches are to be cleaned when conditions are dry. Ditchspoil is not to be windrowed along the road shoulder. On moderate slopes, the ditchspoil could be thinly spread on the slope below the road, but not heaped or piled against trees. Where the road is on steep slopes, the ditchspoil should be endhauled to a suitable spoil site.
b. Culvert replacement: Where required culvert replacements are to be done during dry weather (except for emergency repairs or replacements). The inlet and outlet areas on new culverts, and the adjacent fill slopes, are to be armoured to prevent erosion or sloughing into the creek.
c. Rock Ballasting of road surface: For new road construction, where the road is close to a stream channel,the road surface is to be ballasted with clean rock. The road surface is also to be rock ballasted for 30 metres either side of stream culverts.
d. Road grading practices: grading is to be avoided during heavy rain. e. Shutdown or harvest completion: In preparation for a shutdown for a period longer than 30 days or at a harvest completion, the following measures will be taken:
i. No excavated or endhauled material will be left piled in such a way as to become unstable duringthe shutdown period. Spoil sites, piles and fills willbe sloped uniformly to prevent instability.
ii. Ditches and culverts will be left clear and functional, with adequate inlet basins to minimize the potential for plugging.
iii. On sections of steep grades, cross ditches and back-up swales will be constructed where needed to minimize ditch erosion.
iv. If road construction has reached a drainage course but a drainage structure has not been installed prior to shutdown, the drainage course will be left open and unimpeded.
v. Where exposed silty soils could erode and enter surface streams or ditches connected to streams, silt fences, hay bales or erosion blankets will be applied as needed for temporary protection.
4) Cutblock B 15 is withina Rainfall Shutdown Area with the following shutdown/start-up Criteria:
Shutdown Criteria: Activities must shut down if: The total rainfall reaches **75mm in 24 hours**. Onsite rain gages should be used and monitored daily.
Start-Up Criteria: Activities may start-up when: The total rainfall is equal to or less than 30mm in 24 hours, or the water balance falls below 75mm. Soil drainage rate is 40mm in 24hrs. Refer to the Return to work guide in the tender document for more information.

FORESTRY

1) Invasive Plants: Broom occurs along sections of the high way on route to the setting. Follow FSP measures for invasive plants. Cut and remove plants in association with road reactivation, clean machinery as required. Monitor and treat broom and other invasive species during early establishment. Grass seed exposed soil on or adjacent to roads, trails, and landing sites as soon as possible following harvest.

FIRST NATIONS

1) This cutblock is in the Hupacusath traditional territory. If any additional potential culturally modified tree (CMT) (whether live or dead and standing or fallen) or any other cultural feature is encountered within the opening during any harvesting phase, operations will cease in the immediate vicinity of the CMT or cultural feature. Hupacusath First Nations is to be notified immediately upon discovery of any potential CMT or cultural feature.

FALLING of SNAGS and DANGER TREES

1) In accordance with the WCB Regulations, snags and danger trees within the cutblock and outside the cutblock boundaries for a distance of not more than 50 meters that endanger workers are approved for falling under the logging plan for this cutblock. Danger trees and snags outside this 50 meter hazard area that are required to be felled should be recorded on a map for future reference. Sanitation falling will proceed if the occasional stem is required to be removed along the cutblock boundary. The Ministry of Forests will be notified if danger trees and/or snags are identified in groups and removal will result in the cutblock boundary being substantially impacted. Snags and danger trees meeting utilization specifications will be recovered.
2) If a bear den or raptor nest is encountered during falling operations, the tree will be reserved from falling along with a protection patch of timber surrounding it. AVCF is to be notified immediately. If the bear den tree is partially cut operations will proceed in conformance with WCB regulations.
3) Wildlife Tree Patches or Wildlife Tree Retention Areas have been established, and are marked on the 1:5000 map. Any danger trees felled within the WTP or WTRA will be left as Coarse Woody Debris.

CUTBLOCK BOUNDARY TREATMENTS

1) All marked boundary trees except snags and danger trees must remain standing during and after the completion of harvesting. Trees adjacent to edges that cannot be felled into the setting will require approval from AVCF prior to falling. AVCF is to be notified immediately.
2) Leave trees may be substituted if, for safety reasons, a faller feels it is necessary to do so, but alternate leave trees must be retained and should be well rooted and of the same species and diameter

ROAD CONSTRUCTION PRESCRIPTIONS

1) R/W clearing widths to be 20 meters unless a larger width is required for safety or otherwise prescribed.
2) Prior approval must be obtained from AVCF if falling beyond right-of-way clearing is required for spoil sites or quarries.
3) Proposed cross-drain culvert locations are approximate. Site specific installation to within ±25m is acceptable. Installation beyond this distance constitutes a 'change of plan' and requires prior approval from AVCF.
4) Equipment must not be fuelled or serviced within the riparian management area (RMA) of a stream, lake or wetland. Do not park any equipment within an RMA overnight.
5) Ensure that licensed water works are notified of road activities 48 hours prior to activity.
6) RMA distances: STREAMS: S1 - 70 meters, S2 – 50 meters, S3 – 40 meters, S4 – 30 meters, S5 – 30 meters, S6 – 20 meters, LAKES: L1 – 10 meters, L3 – 30 meters, WETLANDS: W1, W5 – 50meters, W3 – 30 meters.
7) Avoid quarry locations within the RMA of any stream; where avoidance is not practical, quarries may be located within the RMA of a S6 stream if no impacts (i.e. increased sedimentation) will occur to the stream. All other streams (i.e. S1 to S5) require prior approval from AVCF before a quarry may be located within its RMA. Do not deck or process wood within RMA's.

SAFETY

Road and in-block safety hazards associated with block B15 have been identified on the harvest and road instruction maps. In the event additional in-block safety hazards (temporary or permanent) are encountered or develop during road construction or harvesting phases, a plan must be developed to address the hazard. Any identified permanent hazards must be reported back to AVCF (using Hazard/Issue Report Form).

MAP 1 of 1

Alberni Valley Community Forest K2D

Sproat FDU

Road Reactivation & Road Construction

Block W14

Licensee:	Alberni Valley Community Forest Corporation
Forest Region:	Coast
Forest District:	South Island
Reference Map:	92F024, 025, 026 F035, 036
Datum:	NAD 83
Projection:	BC Albers, Geographic
TSA:	38 Arrowsmith
TSB:	A
FIZ:	B
P.S.Y.U.:	471
Inv. Reg.:	5
Comp.:	4B (Sproat), 4C (Taylor)
Drafted:	Feb 20, 2015
By:	econ

N

1:5,000

0 50 100 200 Meters

Timbermark K2D-0R1

BLOCK	Easting	Northing	Latitude	Longitude
B14	1068773	476374	49° 17' 58.5"	125° 03' 18.8"
B15	1068070	476893	49° 18' 15.6"	125° 03' 53.3
W14	1073513	475898	49° 17' 40.9"	124° 59' 24.8"
W16	1072138	476934	49° 18' 15.1"	125° 00' 32.1"

Attention!

Refer to Back for Detailed Operating and Safety Instructions

FALLING PRESCRIPTION:

Partial Cut Areas (HC Select): Harvest Blue Dotted Trees Only

FALLING PRESCRIPTION:

Falling within 1 1/2 tree lengths of powerlines must be done by an arborist and/or with machine assist with positive directional control.

Island Timberlands Private Land

Blk W14

Blk W13

HC Select

HC Clear

WTRA

Str W14-1

Str W14-2

WC3

WC3-1

Tr3-1

Trib 1

Stream 1

TF18A

WC

FC 10 FC 11 FC 12 FC 13 FC 15 FC 17 FC 18 FC 19 FC 20 FC 21 FC 22 FC 23 FC 24 FC 25

ROAD NAME	START	END	TOTAL	TYPE OF WORKS\COMMENTS
WC 3	0+846	1+371	0+525	New Road Construction

CULVERTS		
SIZE	TYPE	NUMBER
500	CMP	
600	CMP	3
800	CMP	
1000	CMP	
	TOTAL:	3

Field Work:	K2 Forestry
Checked By:	G.Knoll,RPF

AVCF CORP: DATE

AVCF CORP: DATE

PROFESSIONAL SEAL AND SIGNATURE

Digitally signed by George Knoll
Date: 2015.02.24 16:30:41 -08'00'

I certify that I have reviewed this document, and while I did not personally supervise the work described, I have determined that this work has been done to the standards expected of a member of the Association of British Columbia Forest Professionals.

CONTRACTOR DATE

- Falling Corner
- Landing, Perm., Temp.
- Station
- Culvert: New, Existing
- Bridge: New, Out
- Quarry
- Designated Crossing
- Spoil Site
- Swamp
- Wildlife Tree
- Ditch Cleaning
- End Haul
- >10% Adverse Grade
- >18% Favourable Grade
- Road, to be constructed
- Road, to be re-activated
- Steep Areas, >35% in Ground Based Areas
- Sensitive Soils Area

Road Feature

- Highway
- Road, existing
- Road, temporary
- Trail, existing
- Trail, temp
- Old Grade
- Recreation Trail

Water Feature

- S1-S4 Stream
- S5-S6 Stream
- NCD Non Classified Drainage
- Unclassified Creek
- Wetland
- Lake

Other Feature

- Block, new
- Block, existing
- Riparian Management Zone
- Riparian Reserve Zone
- Wildlife Tree Retention Area
- Timber Leave Area
- Park
- Community Forest

125°0'0"W 124°59'45"W 124°59'30"W 124°59'15"W 124°59'0"W 124°58'45"W 124°58'30"W

1,072,800 1,073,000 1,073,200 1,073,400 1,073,600 1,073,800 1,074,000 1,074,200 1,074,400 1,074,600 1,074,800

476,200 476,000 475,800 475,600 475,400 475,200

49°17'45"N 49°17'30"N 49°17'15"N

ROAD INSTRUCTIONS – OPENING # W14

ACCESS ROAD: WC 3 **ROAD PERMIT: R18553** **TIMBERMARK: K2D 0R1**

ROAD CONSTRUCTION SUMMARY

Road Name	Start Station	End Station	Type of Works/Comments
WC 3	0+846	1+371	New Construction

STREAM CROSSINGS and CULVERT INSTALLATIONS

Road Name	Station	Riparian ID	Riparian Class	Debris Transport Potential	Culvert/ Bridge Size	Designed Peak Flow	Special instructions for operations within or adjacent to RMA
WC 3	1+094	-	-	-	600	X-Drain	OPENING W14 LIES WITHIN THE SPROAT LAKE COMMUNITY WATERSHED. ALL STREAM CROSSINGS ARE TO BE ARMORED WITH COARSE ROCK MATERIAL TO MINIMIZE THE TRANSPORT OF FINES DOWN STREAM.
WC 3	1+218	-	-	-	600	X-Drain	
WC 3	1+347	W14-2	S4	Low	600	X-Drain	

EMPLOYEE REQUIREMENTS

1) All employees, supervisors and contractors associated with these Road Instructions shall be fully advised of its contents and requirements.
2) All litter including cable, oil buckets, grease tubes, newspapers and lunch garbage is to be removed from the site and disposed of appropriately.

WATER QUALITY

1) The overall objective of this cutblock is timber harvesting without impacting water quality.
2) Cutblock W14 lies within the Sproat Lake Community Watershed, sedimentation into streams is to be minimized to the fullest extent possible, follow the listed SOP's below:
a.Ditch Cleaning: where needed, ditches are to be cleaned when conditions are dry. Ditchspoil is not to be windrowed along the road shoulder. On moderate slopes, the ditchspoil could be thinly spread on the slope below the road, but not heaped or piled against trees. Where the road is on steep slopes, the ditchspoil should be endhauled to a suitable spoil site.
b. Culvert replacement: Where required culvert replacements are to be done during dry weather (except for emergency repairs or replacements). The inlet and outlet areas on new culverts, and the adjacent fill slopes, are to be armoured to prevent erosion or sloughing into the creek.
c. Rock Ballasting of road surface: For new road construction, where the road is close to a stream channel,the road surface is to be ballasted with clean rock. The road surface is also to be rock ballasted for 30 metres either side of stream culverts.
d. Road grading practices: grading is to be avoided during heavy rain. e. Shutdown or harvest completion: In preparation for a shutdown for a period longer than 30 days or at a harvest completion, the following measures will be taken:
i. No excavated or endhauled material will be left piled in such a way as to become unstable duringthe shutdown period. Spoil sites, piles and fills willbe sloped uniformly to prevent instability.
ii. Ditches and culverts will be left clear and functional, with adequate inlet basins to minimize the potential for plugging.
iii. On sections of steep grades, cross ditches and back-up swales will be constructed where needed to minimize ditch erosion.
iv. If road construction has reached a drainage course but a drainage structure has not been installed prior to shutdown, the drainage course will be left open and unimpeded.
v. Where exposed silty soils could erode and enter surface streams or ditches connected to streams, silt fences, hay bales or erosion blankets will be applied as needed for temporary protection.
4) Cutblock W14 is withina Rainfall Shutdown Area with the following shutdown/start-up Criteria:
Shutdown Criteria: Activities must shut down if: The total rainfall reaches **75mm in 24 hours**. Onsite rain gages should be used and monitored daily.
Start-Up Criteria: Activities may start-up when: The total rainfall is equal to or less than 30mm in 24 hours, or the water balance falls below 75mm. Soil drainage rate is 40mm in 24hrs. Refer to the Return to work guide in the tender document for more information.

FORESTRY

1) Invasive Plants: Broom occurs along sections of the high way on route to the setting. Follow FSP measures for invasive plants. Cut and remove plants in association with road reactivation, clean machinery as required. Monitor and treat broom and other invasive species during early establishment. Grass seed exposed soil on or adjacent to roads, trails, and landing sites as soon as possible following harvest.

FIRST NATIONS

1) This cutblock is in the Hupacusath traditional territory. If any additional potential culturally modified tree (CMT) (whether live or dead and standing or fallen) or any other cultural feature is encountered within the opening during any harvesting phase, operations will cease in the immediate vicinity of the CMT or cultural feature. Hupacusath First Nations is to be notified immediately upon discovery of any potential CMT or cultural feature.

FALLING of SNAGS and DANGER TREES

1) In accordance with WSBC Regulations, snags and danger trees within the cutblock and outside the cutblock boundaries for a distance of not more than 50 meters that endanger workers are approved for falling under the logging plan for this cutblock. **EXCEPT FOR AREAS ADJACENT TO ITLP PROPERTY FROM FC 10 TO 11.** Danger trees and snags outside this 50 meter hazard area that are required to be felled should be recorded on a map for future reference. Sanitation falling will proceed if the occasional stem is required to be removed along the cutblock boundary. The Ministry of Forests will be notified if danger trees and/or snags are identified in groups and removal will result in the cutblock boundary being substantially impacted. Snags and danger trees meeting utilization specifications will be recovered.
2) If a bear den or raptor nest is encountered during falling operations, the tree will be reserved from falling along with a protection patch of timber surrounding it. AVCF is to be notified immediately. If the bear den tree is partially cut operations will proceed in conformance with WSBC regulations.
3) Wildlife Tree Patches or Wildlife Tree Retention Areas have been established, and are marked on the 1:5000 map. Any danger trees felled within the WTP or WTRA will be left as Coarse Woody Debris.

CUTBLOCK BOUNDARY TREATMENTS

1) All marked boundary trees except snags and danger trees must remain standing during and after the completion of harvesting. Trees adjacent to edges that cannot be felled into the setting will require approval from AVCF prior to falling. AVCF is to be notified immediately.
2) Leave trees may be substituted if, for safety reasons, a faller feels it is necessary to do so, but alternate leave trees must be retained and should be well rooted and of the same species and diameter

ROAD CONSTRUCTION PRESCRIPTIONS

1) R/W clearing widths to be 20 meters unless a larger width is required for safety or otherwise prescribed.
2) Prior approval must be obtained from AVCF if falling beyond right-of-way clearing is required for spoil sites or quarries.
3) Proposed cross-drain culvert locations are approximate. Site specific installation to within ±25m is acceptable. Installation beyond this distance constitutes a 'change of plan' and requires prior approval from AVCF.
4) Equipment must not be fuelled or serviced within the riparian management area (RMA) of a stream, lake or wetland. Do not park any equipment within an RMA overnight.
5) Ensure that licensed water works are notified of road activities 48 hours prior to activity.
6) RMA distances: STREAMS: S1 - 70 meters, S2 – 50 meters, S3 – 40 meters, S4 – 30 meters, S5 – 30 meters, S6 – 20 meters, LAKES: L1 – 10 meters, L3 – 30 meters, WETLANDS: W1, W5 – 50meters, W3 – 30 meters.
7) Avoid quarry locations within the RMA of any stream; where avoidance is not practical, quarries may be located within the RMA of a S6 stream if no impacts (i.e. increased sedimentation) will occur to the stream. All other streams (i.e. S1 to S5) require prior approval from AVCF before a quarry may be located within its RMA. Do not deck or process wood within RMA's.

SAFETY

Road and in-block safety hazards associated with block W14 have been identified on the harvest and road instruction maps. In the event additional in-block safety hazards (temporary or permanent) are encountered or develop during road construction or harvesting phases, a plan must be developed to address the hazard. Any identified permanent hazards must be reported back to AVCF (using Hazard/Issue Report Form).

MAP 1 of 1

Alberni Valley Community Forest K2D

Sproat FDU

Road Reactivation & Road Construction

Block W16

Licensee:	Alberni Valley Community Forest Corporation
Forest Region:	Coast
Forest District:	South Island
Reference Map:	92F024, 025, 026 F035, 036
Datum:	NAD 83
Projection:	BC Albers, Geographic
TSA:	38 Arrowsmith
TSB:	A
FIZ:	B
P.S.Y.U.:	471
Inv. Reg.:	5
Comp.:	4B (Sproat), 4C (Taylor)
Drafted:	Feb 20, 2015
By:	econ

N

1:5,000

0 50 100 200 Meters

Timbermark K2D-0R1

BLOCK	Easting	Northing	Latitude	Longitude
B14	1068773	476374	49° 17' 58.5"	125° 03' 18.8"
B15	1068070	476893	49° 18' 15.6"	125° 03' 53.3
W14	1073513	475898	49° 17' 40.9"	124° 59' 24.8"
W16	1072138	476934	49° 18' 15.1"	125° 00' 32.1"

Attention!

Refer to Back for Detailed Operating and Safety Instructions

- Falling Corner
- Landing, Perm., Temp.
- Station
- Culvert: New, Existing
- Bridge: New, Out
- Quarry
- Designated Crossing
- Spoil Site
- Swamp
- Wildlife Tree

- Ditch Cleaning
- End Haul
- >10% Adverse Grade
- >18% Favourable Grade
- Road, to be constructed
- Road, to be re-activated
- Steep Areas, >35% in Ground Based Areas
- Sensitive Soils Area

Road Feature

- Highway
- Road, existing
- Road, temporary
- Trail, existing
- Trail, temp
- Old Grade
- Recreation Trail

Water Feature

- S1-S4 Stream
- S5-S6 Stream
- NCD Non Classified Drainage
- Unclassified Creek
- Wetland
- Lake

Other Feature

- Block, new
- Block, existing
- Riparian Management Zone
- Riparian Reserve Zone
- Wildlife Tree Retention Area
- Timber Leave Area
- Park
- Community Forest

ROAD NAME	START	END	TOTAL	TYPE OF WORKS\COMMENTS
ASH 6	0+000	1+176	1+176	Re-Construction - Install culverts, minor brushing of roadside alder, re-surfacing required
ASH 6B	0+000	0+728	0+728	New Construction of old road grade

CULVERTS		
SIZE	TYPE	NUMBER
500	CMP	
600	CMP	14
800	CMP	1
1000	CMP	
	TOTAL:	15
Field Work:	K2 Forestry	
Checked By:	G.Knoll,RPF	

AVCF CORP: DATE

AVCF CORP: DATE

PROFESSIONAL SEAL AND SIGNATURE

Digitally signed by George Knoll
Date: 2015.02.24 14:18:18 -08'00'

I certify that I have reviewed this document, and while I did not personally supervise the work described, I have determined that this work has been done to the standards expected of a member of the Association of British Columbia Forest Professionals.

CONTRACTOR DATE

ROAD INSTRUCTIONS – OPENING # W16

ACCESS ROAD: ASH 6 **ROAD PERMIT: R18553** **TIMBERMARK: K2D 0R1**

ROAD CONSTRUCTION SUMMARY

Road Name	Start Station	End Station	Type of Works/Comments
ASH 6	0+000	1+176	Re-construction. Install culverts, widening of roadside timber, re-surfacing with shotrock ballast.
ASH 6B	0+000	0+728	New construction.

STREAM CROSSINGS and CULVERT INSTALLATIONS

Road Name	Station	Riparian ID	Riparian Class	Culvert/ Bridge Size	Designed Peak Flow	Road Name	Station	Riparian ID	Riparian Class	Culvert/ Bridge Size	Designed Peak Flow
ASH 6	0+075	-	-	600	X-Drain	ASH 6B	0+029	-	-	600	X-Drain
ASH 6	0+155	-	-	600	X-Drain	ASH 6B	0+121	16-4	S4	600	Q100
ASH 6	0+284	-	-	600	X-Drain	ASH 6B	0+233	16-3	S4	600	Q100
ASH 6	0+357	NCD	NCD	600	Q100	ASH 6B	0+285	NCD	NCD	600	Q100
ASH 6	0+610	-	-	600	X-Drain	ASH 6B	0+687	-	-	600	X-Drain
ASH 6	0+768	-	-	600	X-Drain	ASH 6B	0+705	16-5	NCD	600	Q100
ASH 6	0+840	16-3	S4	800	Q100	**Special instructions for operations within or adjacent to RMA**					
ASH 6	0+992	-	-	600	X-Drain	OPENING W16 LIES WITHIN THE SPROAT LAKE COMMUNITY WATERSHED. ALL STREAM CROSSINGS ARE TO BE ARMORED WITH COARSE ROCK MATERIAL TO MINIMIZE THE TRANSPORT OF FINES DOWN STREAM.					
ASH 6	1+093	-	-	600	X-Drain						

EMPLOYEE REQUIREMENTS

1) All employees, supervisors and contractors associated with these Road Instructions shall be fully advised of its contents and requirements.
2) All litter including cable, oil buckets, grease tubes, newspapers and lunch garbage is to be removed from the site and disposed of appropriately.

WATER QUALITY

1) The overall objective of this cutblock is timber harvesting without impacting water quality.
2) Cutblock W16 lies within the Sproat Lake Community Watershed, sedimentation into streams is to be minimized to the fullest extent possible, follow the listed SOP's below:
a.Ditch Cleaning: where needed, ditches are to be cleaned when conditions are dry. Ditchspoil is not to be windrowed along the road shoulder. On moderate slopes, the ditchspoil could be thinly spread on the slope below the road, but not heaped or piled against trees. Where the road is on steep slopes, the ditchspoil should be endhauled to a suitable spoil site.
b. Culvert replacement: Where required culvert replacements are to be done during dry weather (except for emergency repairs or replacements). The inlet and outlet areas on new culverts, and the adjacent fill slopes, are to be armoured to prevent erosion or sloughing into the creek.
c. Rock Ballasting of road surface: For new road construction, where the road is close to a stream channel,the road surface is to be ballasted with clean rock. The road surface is also to be rock ballasted for 30 metres either side of stream culverts.
d. Road grading practices: grading is to be avoided during heavy rain. e. Shutdown or harvest completion: In preparation for a shutdown for a period longer than 30 days or at a harvest completion, the following measures will be taken:
i. No excavated or endhauled material will be left piled in such a way as to become unstable duringthe shutdown period. Spoil sites, piles and fills willbe sloped uniformly to prevent instability.
ii. Ditches and culverts will be left clear and functional, with adequate inlet basins to minimize the potential for plugging.
iii. On sections of steep grades, cross ditches and back-up swales will be constructed where needed to minimize ditch erosion.
iv. If road construction has reached a drainage course but a drainage structure has not been installed prior to shutdown, the drainage course will be left open and unimpeded.
v. Where exposed silty soils could erode and enter surface streams or ditches connected to streams, silt fences, hay bales or erosion blankets will be applied as needed for temporary protection.
4) Cutblock W16 is withina Rainfall Shutdown Area with the following shutdown/start-up Criteria:
Shutdown Criteria: Activities must shut down if: The total rainfall reaches **75mm in 24 hours**. Onsite rain gages should be used and monitored daily.
Start-Up Criteria: Activities may start-up when: The total rainfall is equal to or less than 30mm in 24 hours, or the water balance falls below 75mm. Soil drainage rate is 40mm in 24hrs. Refer to the Return to work guide in the tender document for more information.

FORESTRY

1) Invasive Plants: Broom occurs along sections of the high way on route to the setting. Follow FSP measures for invasive plants. Cut and remove plants in association with road reactivation, clean machinery as required. Monitor and treat broom and other invasive species during early establishment. Grass seed exposed soil on or adjacent to roads, trails, and landing sites as soon as possible following harvest.

FIRST NATIONS

1) This cutblock is in the Hupacusath traditional territory. If any additional potential culturally modified tree (CMT) (whether live or dead and standing or fallen) or any other cultural feature is encountered within the opening during any harvesting phase, operations will cease in the immediate vicinity of the CMT or cultural feature. Hupacusath First Nations is to be notified immediately upon discovery of any potential CMT or cultural feature.

FALLING of SNAGS and DANGER TREES

1) In accordance with the WCB Regulations, snags and danger trees within the cutblock and outside the cutblock boundaries for a distance of not more than 50 meters that endanger workers are approved for falling under the logging plan for this cutblock. Danger trees and snags outside this 50 meter hazard area that are required to be felled should be recorded on a map for future reference. Sanitation falling will proceed if the occasional stem is required to be removed along the cutblock boundary. The Ministry of Forests will be notified if danger trees and/or snags are identified in groups and removal will result in the cutblock boundary being substantially impacted. Snags and danger trees meeting utilization specifications will be recovered.
2) If a bear den or raptor nest is encountered during falling operations, the tree will be reserved from falling along with a protection patch of timber surrounding it. AVCF is to be notified immediately. If the bear den tree is partially cut operations will proceed in conformance with WCB regulations.
3) Wildlife Tree Patches or Wildlife Tree Retention Areas have been established, and are marked on the 1:5000 map. Any danger trees felled within the WTP or WTRA will be left as Coarse Woody Debris.

CUTBLOCK BOUNDARY TREATMENTS

1) All marked boundary trees except snags and danger trees must remain standing during and after the completion of harvesting. Trees adjacent to edges that cannot be felled into the setting will require approval from AVCF prior to falling. AVCF is to be notified immediately.
2) Leave trees may be substituted if, for safety reasons, a faller feels it is necessary to do so, but alternate leave trees must be retained and should be well rooted and of the same species and diameter

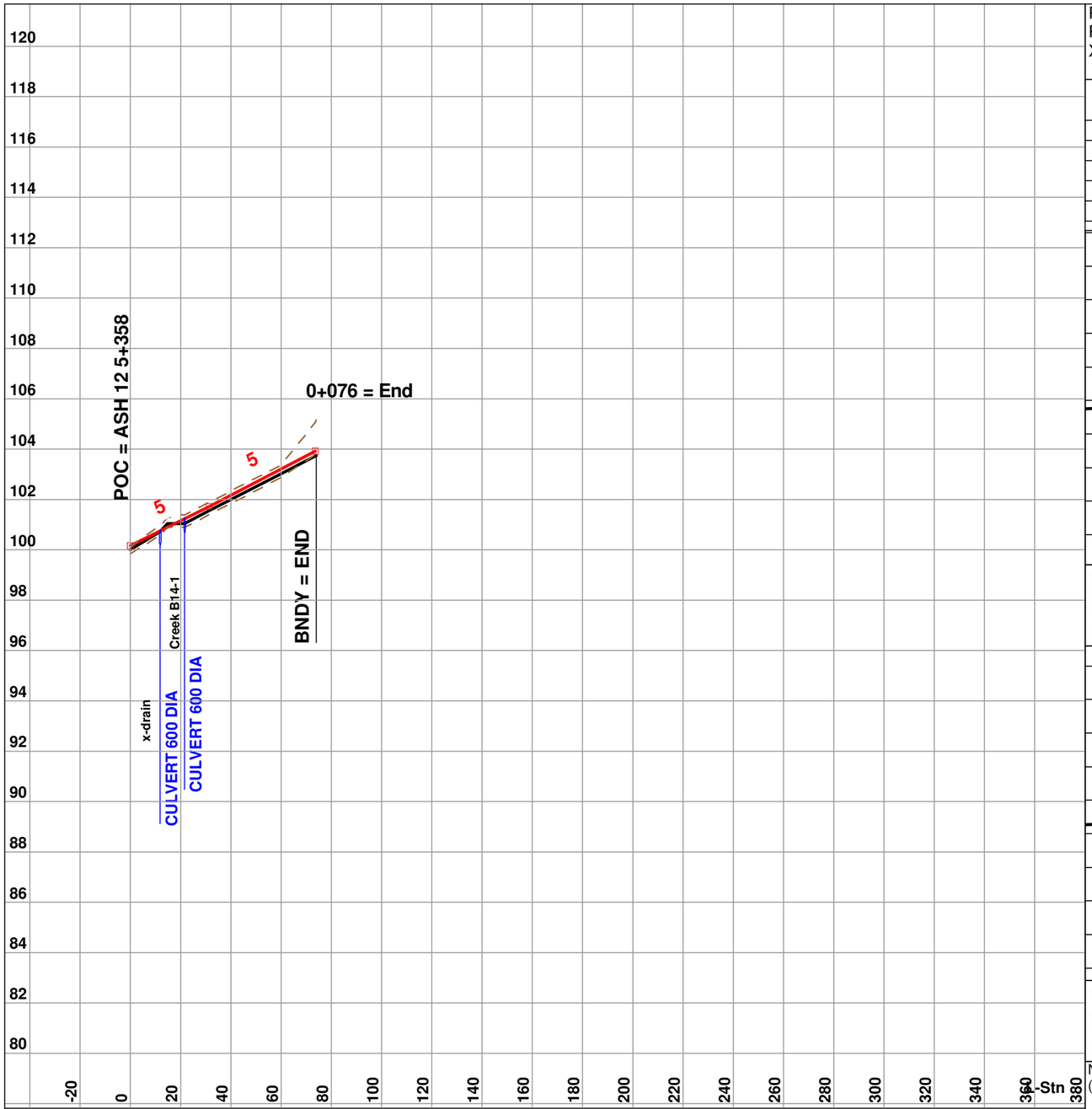
ROAD CONSTRUCTION PRESCRIPTIONS

1) R/W clearing widths to be 20 meters unless a larger width is required for safety or otherwise prescribed.
2) Prior approval must be obtained from AVCF if falling beyond right-of-way clearing is required for spoil sites or quarries.
3) Proposed cross-drain culvert locations are approximate. Site specific installation to within ±25m is acceptable. Installation beyond this distance constitutes a 'change of plan' and requires prior approval from AVCF.
4) Equipment must not be fuelled or serviced within the riparian management area (RMA) of a stream, lake or wetland. Do not park any equipment within an RMA overnight.
5) Ensure that licensed water works are notified of road activities 48 hours prior to activity.
6) RMA distances: STREAMS: S1 - 70 meters, S2 – 50 meters, S3 – 40 meters, S4 – 30 meters, S5 – 30 meters, S6 – 20 meters, LAKES: L1 – 10 meters, L3 – 30 meters, WETLANDS: W1, W5 – 50meters, W3 – 30 meters.
7) Avoid quarry locations within the RMA of any stream; where avoidance is not practical, quarries may be located within the RMA of a S6 stream if no impacts (i.e. increased sedimentation) will occur to the stream. All other streams (i.e. S1 to S5) require prior approval from AVCF before a quarry may be located within its RMA. Do not deck or process wood within RMA's.

SAFETY

Road and in-block safety hazards associated with block W16 have been identified on the harvest and road instruction maps. In the event additional in-block safety hazards (temporary or permanent) are encountered or develop during road construction or harvesting phases, a plan must be developed to address the hazard. Any identified permanent hazards must be reported back to AVCF (using Hazard/Issue Report Form).

Appendix 4: Road Designs



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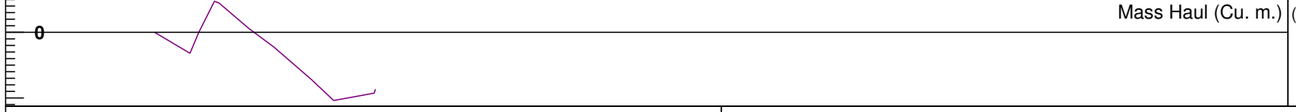
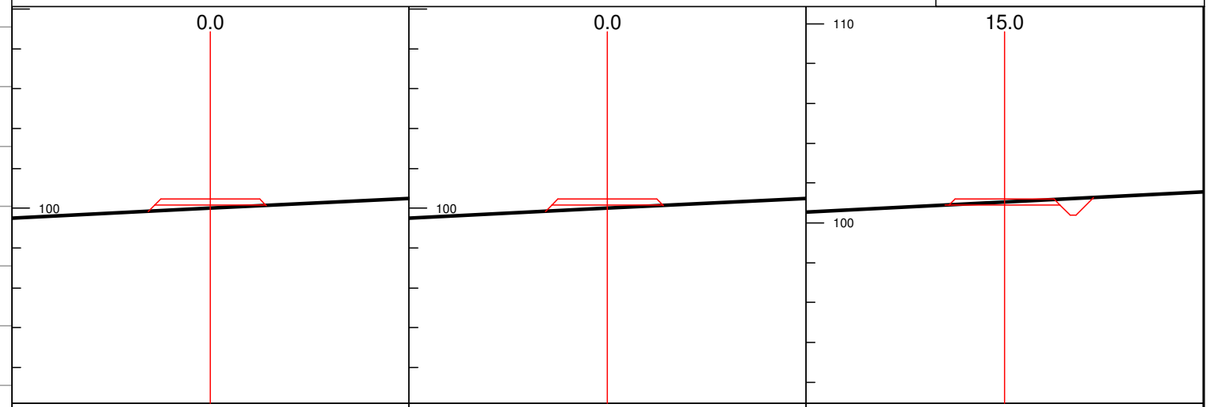


Profile Vert Scale 1:200
Profile Horz Scale 1:2000
X-section Scale 1:300

Alberni Valley Community Forest

LEGEND

- Rock Layer
- Profile Subgrade
- Profile/Plan P-line Topography
- Profile/Plan Slope Stakes
- Culverts



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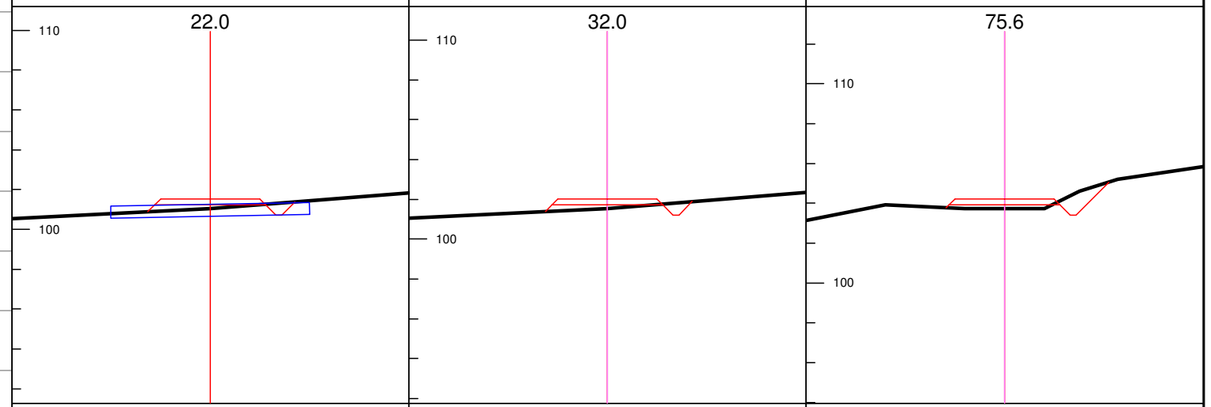
Cut Dp:	-0.2	Srf Wd.:	5.0

L-Ssl:	-5	H. Offset:	0.0
L-Ssr:	5	SrfDepth1:	0.3
Cut Dp:	-0.2	Srf Wd.:	5.0

L-Ssl:	-5	H. Offset:	0.0
L-Ssr:	5	SrfDepth1:	0.3
Cut Dp:	0.1	Srf Wd.:	5.0



L-Ssl:	-5	H. Offset:	0.0
L-Ssr:	8	SrfDepth1:	0.3
Cut Dp:	-0.2	Srf Wd.:	5.0

L-Ssl:	-5	H. Offset:	0.0
L-Ssr:	8	SrfDepth1:	0.3
Cut Dp:	-0.2	Srf Wd.:	5.0

L-Ssl:	0	H. Offset:	0.0
L-Ssr:	0	SrfDepth1:	0.3
Cut Dp:	-0.2	Srf Wd.:	5.0

Notes:
(1) Side Slopes are derived from an average of the first slope % measured off of centerline in 20 meter segments.
(2) 5.6m running surface width.
(3) Cross-drain culvert locations are approximate.
(4) Refer to the Road Instruction map for additional detail.

Culvert Summary

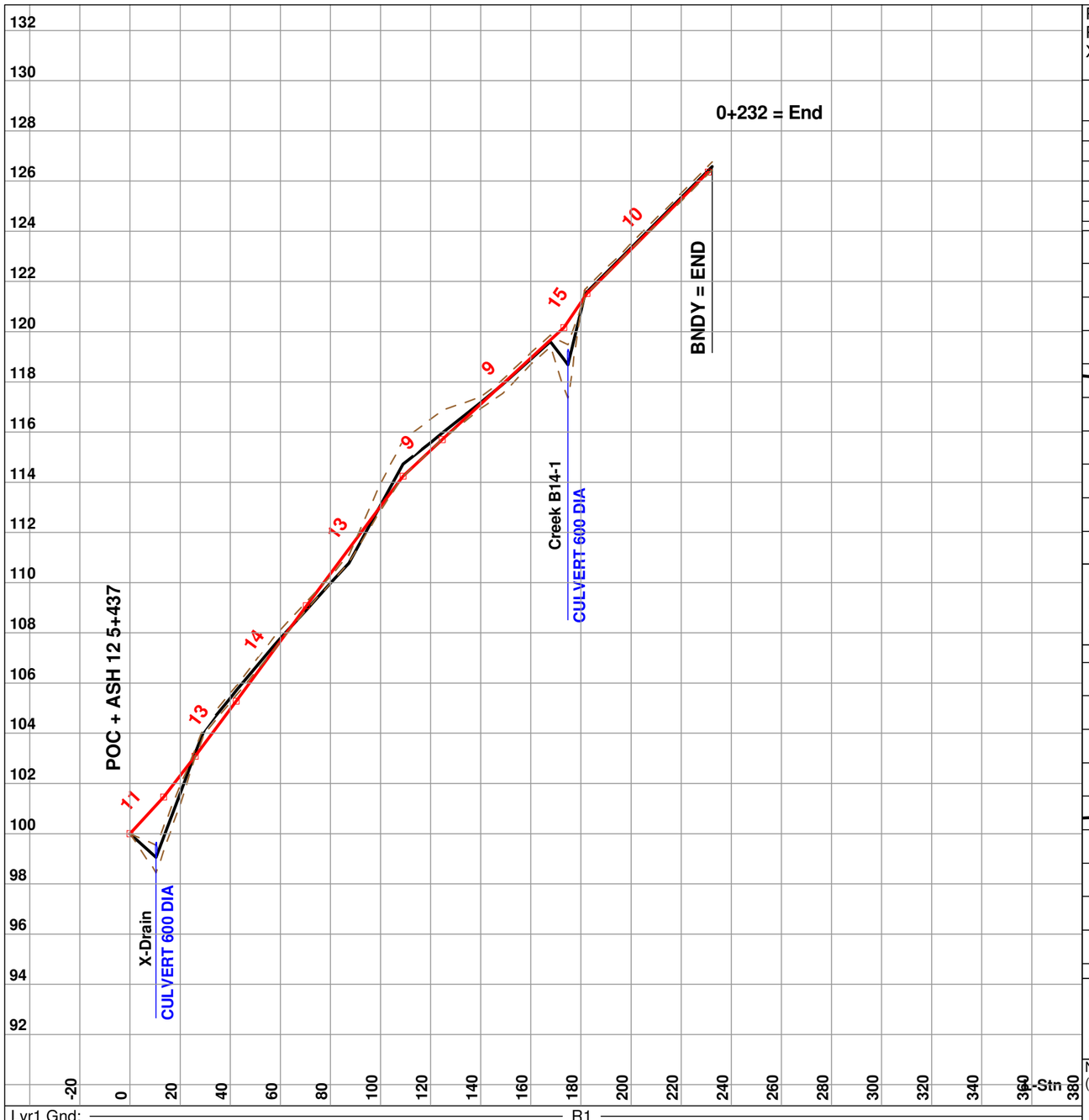
P-Stn m.	Cul DIA mm.	Cul Len m.
12.0	600	10.0
22.0	600	10.0

Designed by: K2 Forestry Services Ltd.

Re-Construction 0+000 to 0+076

Cutblock: B14 Road: ASH 12A

15/02/24

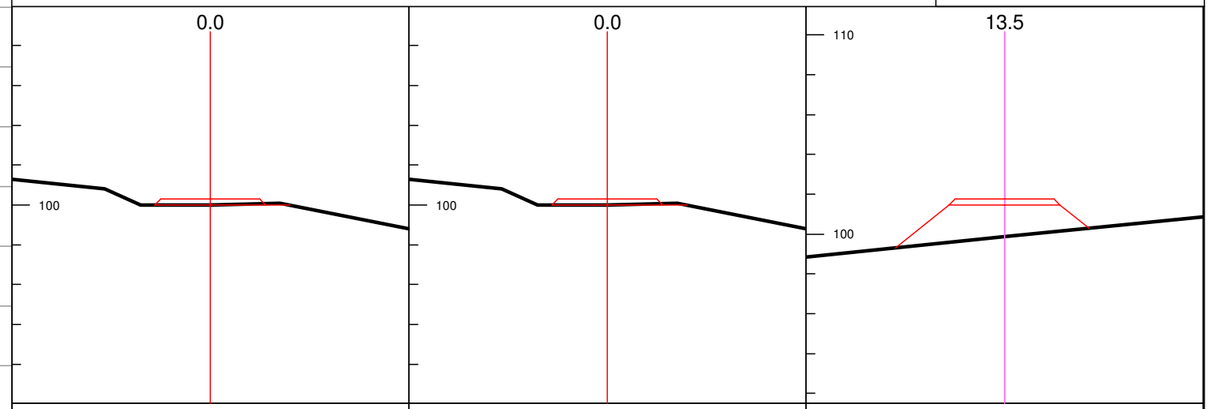


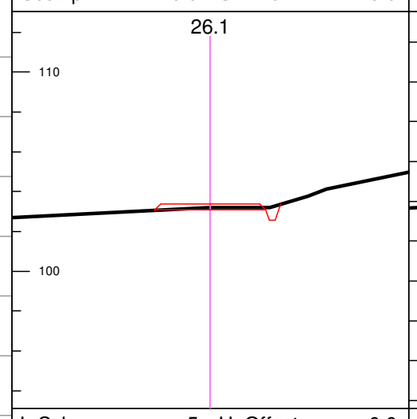
Profile Vert Scale 1:200
Profile Horz Scale 1:2000
X-section Scale 1:300

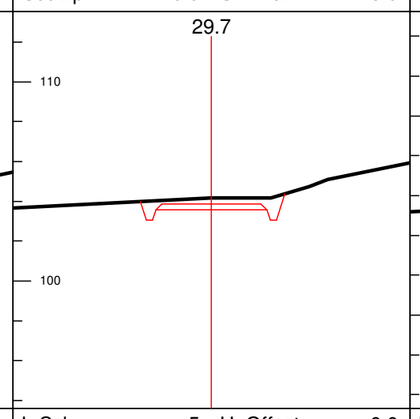
Alberni Valley Community Forest

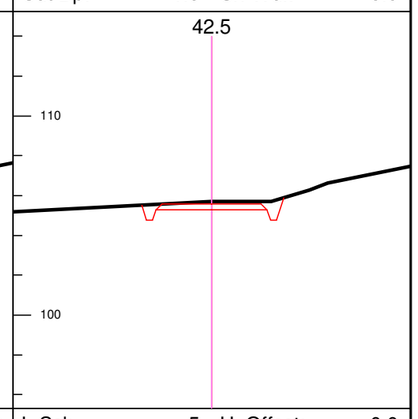
LEGEND

- Rock Layer
- Profile Subgrade
- Profile/Plan P-line Topography
- Profile/Plan Slope Stakes
- Culverts









Notes:
(1) Side Slopes are derived from an average of the first slope % measured off of centerline in 20 meter segments.
(2) 5.6m running surface width.
(3) Cross-drain culvert locations are approximate.
(4) Refer to the Road Instruction map for additional detail.

Culvert Summary

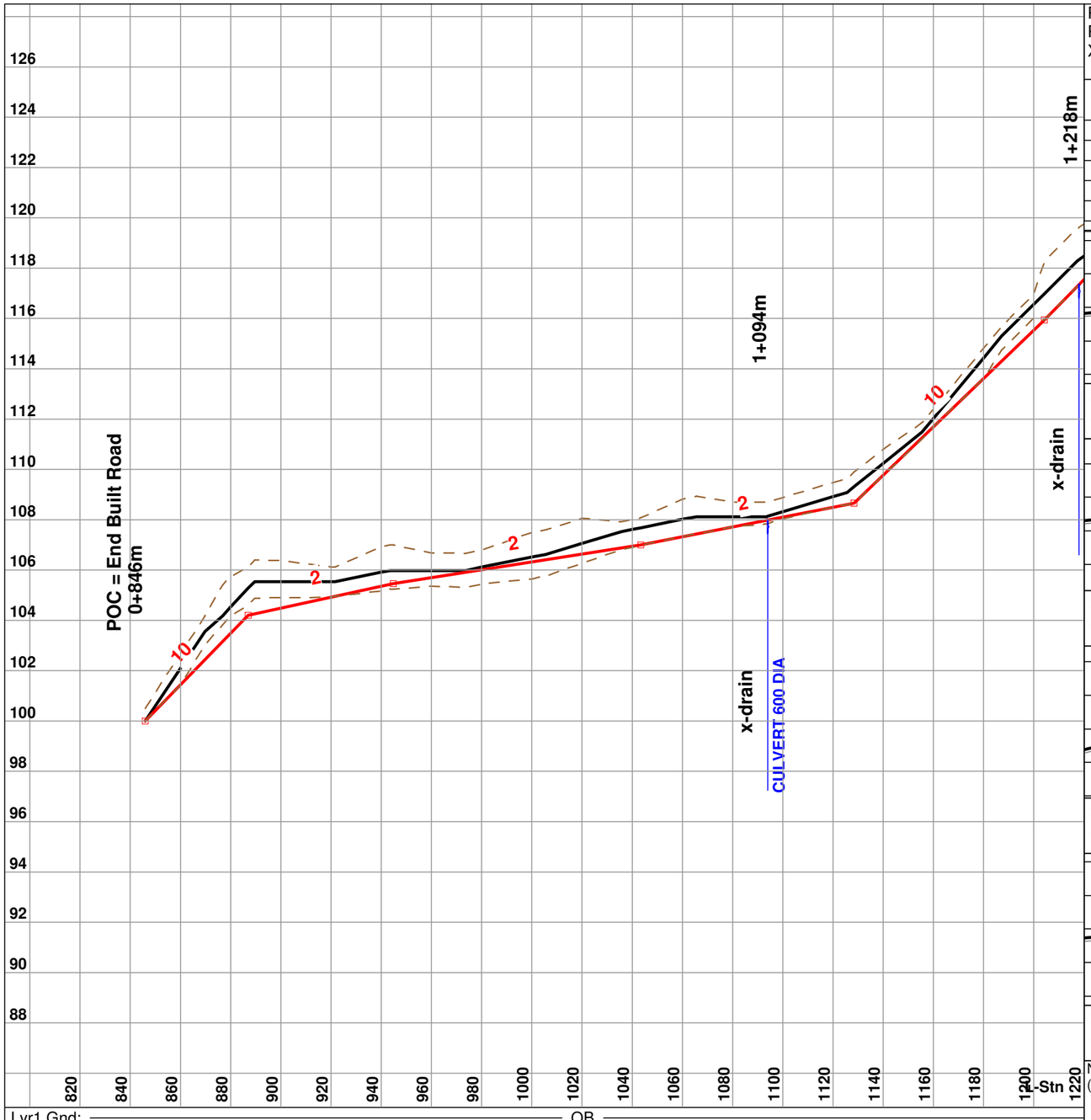
P-Stn m.	Cul DIA mm.	Cul Len m.
10.5	600	10.0
174.9	600	10.0

Designed by: K2 Forestry Services Ltd.

Re-Construction 0+000 to 0+232

Cutblock: B14 Road: ASH 12B

15/02/24

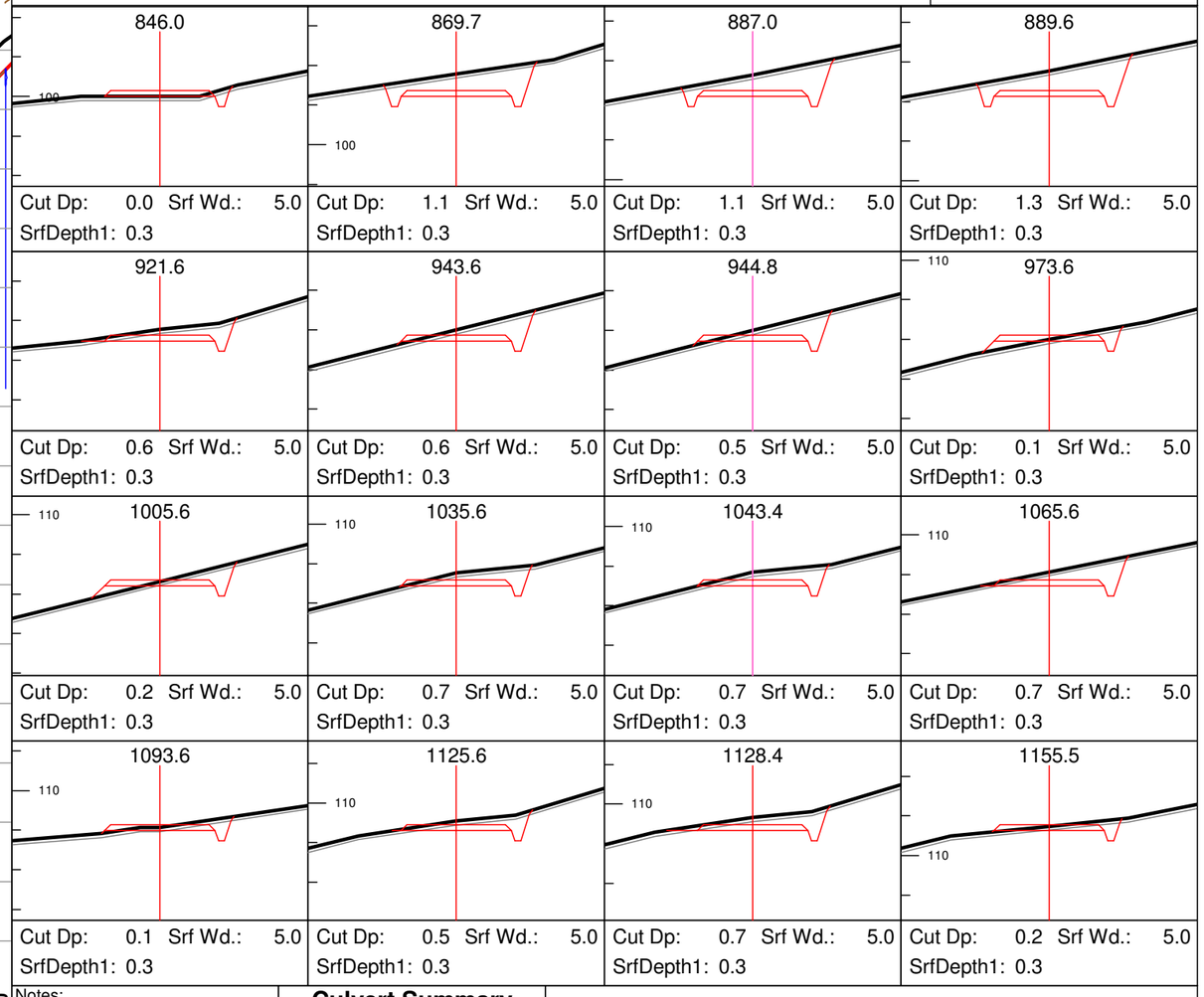


Profile Vert Scale 1:200
Profile Horz Scale 1:2000
X-section Scale 1:300

Alberni Valley Community Forest

LEGEND

- Rock Layer
- Profile Subgrade
- Profile/Plan P-line Topography
- Profile/Plan Slope Stakes
- Culverts



Notes:
(1) Side Slopes are derived from an average of the first slope % measured off of centerline in 20 meter segments.
(2) 5.6m running surface width.
(3) Cross-drain culvert locations are approximate.
(4) Refer to the Road Instruction map for additional detail.

Culvert Summary

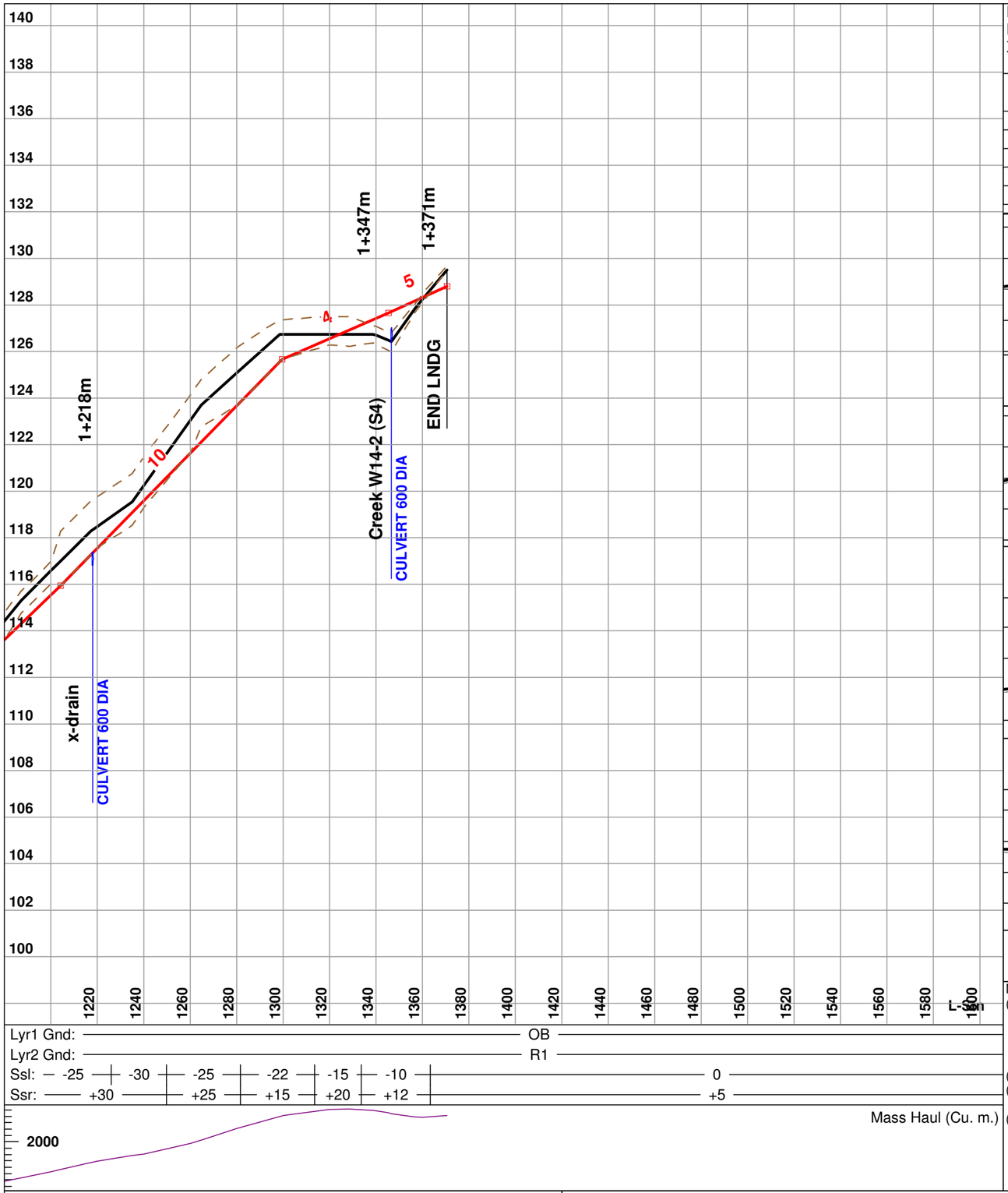
P-Stn m.	Cul DIA mm.	Cul Len m.
1094.0	600	10.0
1218.0	600	10.0

Designed by: K2 Forestry Services Ltd.

New Construction 0+846 to 1+371

Cutblock: W14 Road: WC 3

15/02/25

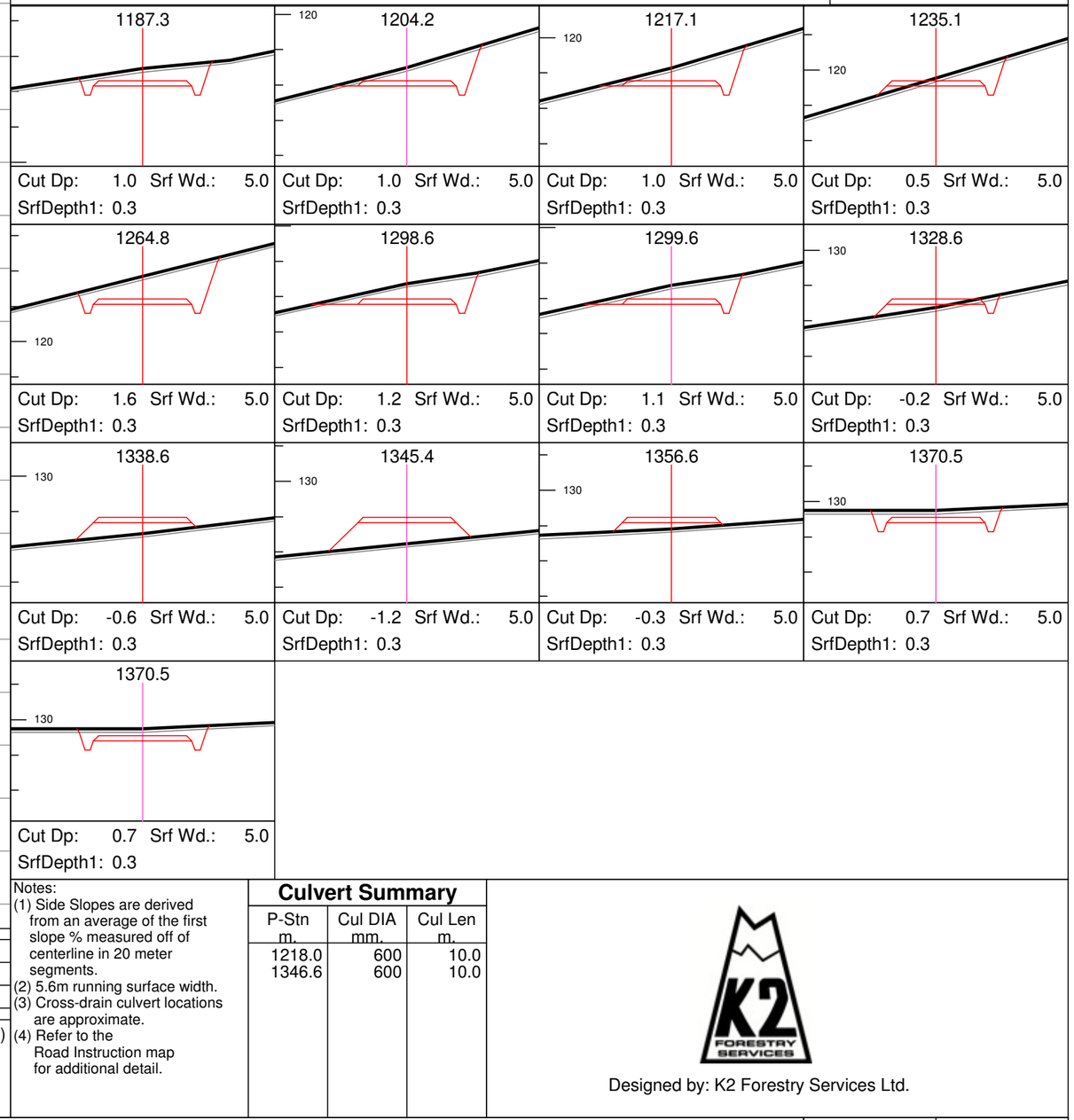


Profile Vert Scale 1:200
Profile Horz Scale 1:2000
X-section Scale 1:300

Alberni Valley Community Forest

LEGEND

- Rock Layer
- Profile Subgrade
- Profile/Plan P-line Topography
- Profile/Plan Slope Stakes
- Culverts



Notes:
(1) Side Slopes are derived from an average of the first slope % measured off of centerline in 20 meter segments.
(2) 5.6m running surface width.
(3) Cross-drain culvert locations are approximate.
(4) Refer to the Road Instruction map for additional detail.

Culvert Summary

P-Stn m.	Cul DIA mm.	Cul Len m.
1218.0	600	10.0
1346.6	600	10.0

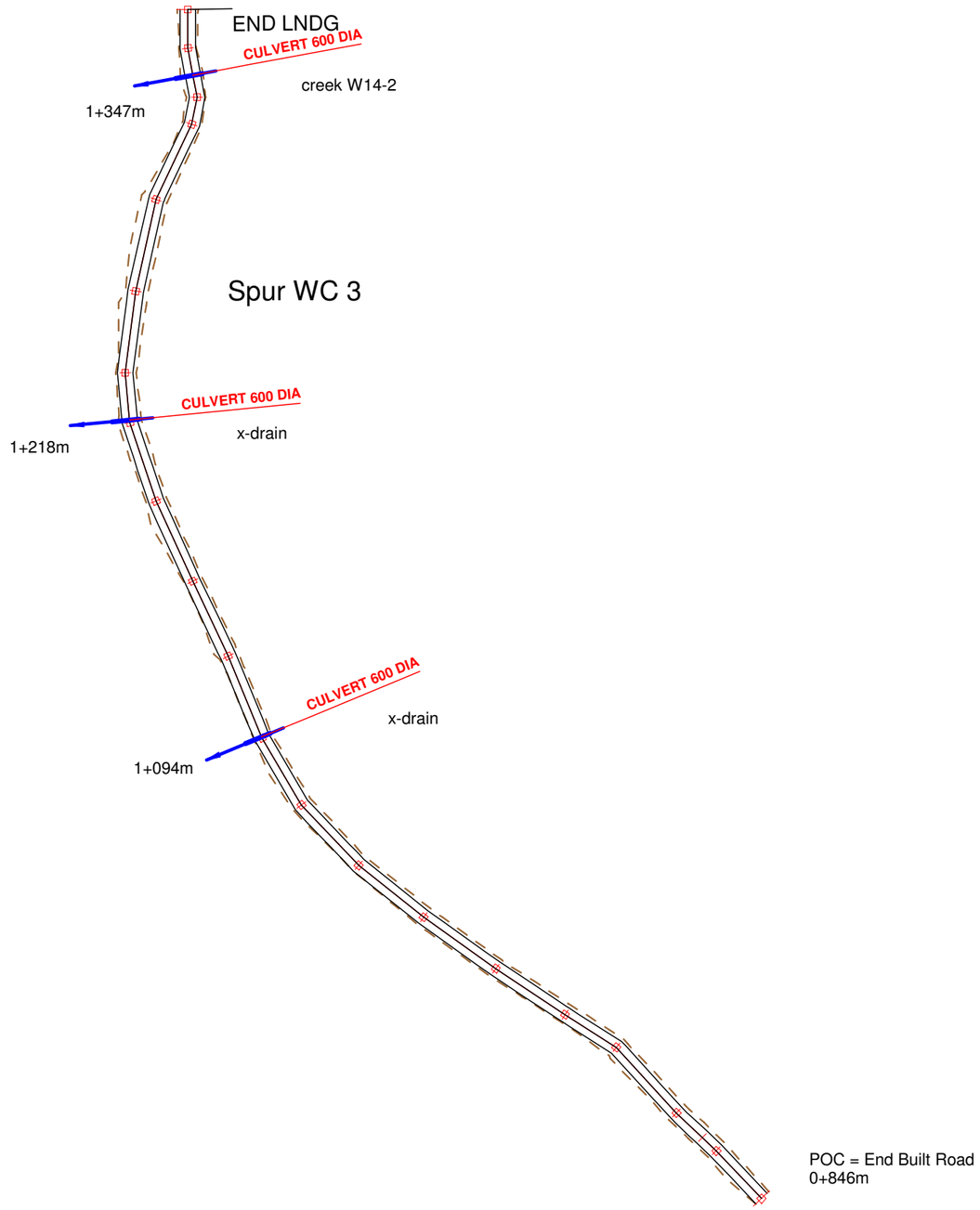
Designed by: K2 Forestry Services Ltd.

New Construction 0+846 to 1+371

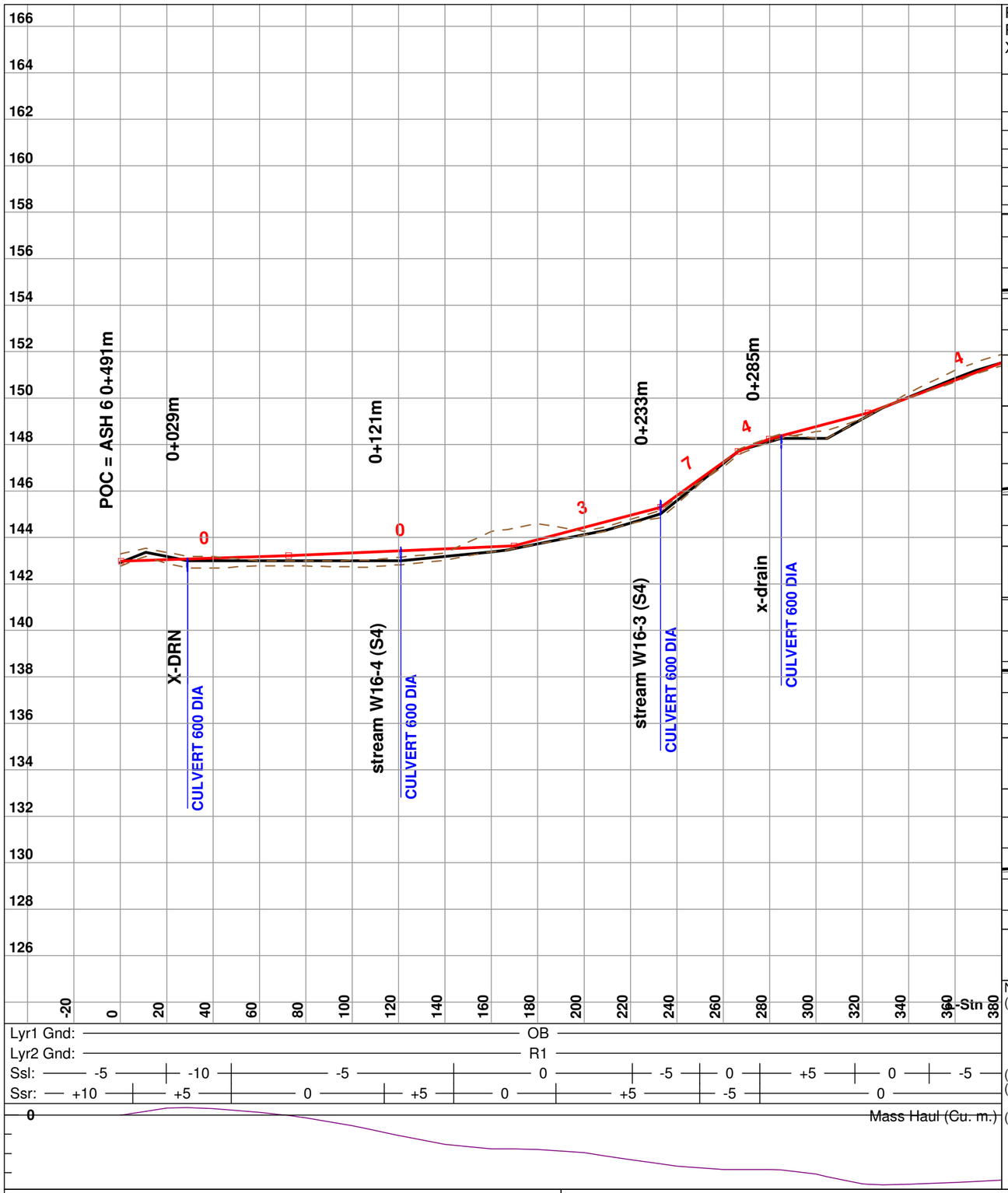
Cutblock: W14 Road: WC 3

15/02/25

ROADENG Plan	Scale 1:2000	P. 1
G:\Cutblocks\092c086\863220\GIS_Data\Community Forest\Area 2\RdEng\WC3		15/02/25



ROADENG Data											P. 1
G:\Cutblocks\092c086\863220\GIS_Data\Community Forest\Area 2\RdEng\WC3											15/02/25
P-Stn m.	Lyr1 Gnd	Lyr2 Gnd	L-Ssl %	L-Ssr %	Bank Ht. L m.	Bank Ht. R m.	SG Cut V. Cu. m.	SG Fill V. Cu. m.	Cul DIA mm.	Mass H. Cu. m.	
846.0	OB	R1	0	0		0.0				0.0	
869.7	OB	R1	-15	15	0.1	1.2	107.7	0.0		107.7	
876.7	OB	R1	-10	30	0.2	1.7	64.2	0.0		171.9	
889.6	OB	R1	-18	20	0.1	1.6	120.6	0.0		292.5	
921.6	OB	R1	-15	10	-0.3	0.6	235.0	0.0		527.5	
943.6	OB	R1	-25	25	-0.3	1.0	98.7	0.7		625.5	
973.6	OB	R1	-20	18		0.2	89.0	8.8		705.7	
1005.6	OB	R1	-25	25	-0.3	0.7	71.0	21.1		755.5	
1035.6	OB	R1	-25	10	-0.3	0.5	109.5	7.5		857.6	
1065.6	OB	R1	-20	20	-0.3	1.0	142.7	0.0		1000.3	
1093.6	OB	R1	0	15		0.2	104.0	0.4		1103.9	
1094.0	OB	R1	0	15		0.2	0.8	0.0		1104.6	
1125.6	OB	R1	-15	10	-0.3	0.5	84.9	0.3	600	1189.2	
1155.5	OB	R1	-10	10	-0.3	0.1	98.8	0.2		1287.8	
1187.3	OB	R1	-15	10	0.0	0.9	143.7	0.0		1431.5	
1217.1	OB	R1	-25	30	-0.3	1.8	238.6	0.0		1670.1	
1218.0	OB	R1	-25	30	-0.3	1.7	7.3	0.0		1677.4	
1235.1	OB	R1	-30	30	-0.3	1.1	105.9	2.7	600	1780.6	
1264.8	OB	R1	-25	25	0.2	2.1	248.7	2.1		2027.3	
1298.6	OB	R1	-22	15	-0.3	1.3	370.5	0.0		2397.8	
1328.6	OB	R1	-15	20		0.0	126.7	9.0		2515.5	
1338.6	OB	R1	-10	12			4.6	26.5		2493.6	
1346.6	OB	R1	-10	10			0.0	51.4		2442.2	
1356.6	OB	R1	-5	7			0.0	55.3	600	2386.9	
1370.5	OB	R1	0	5	0.2	0.4	32.8	7.3		2412.5	

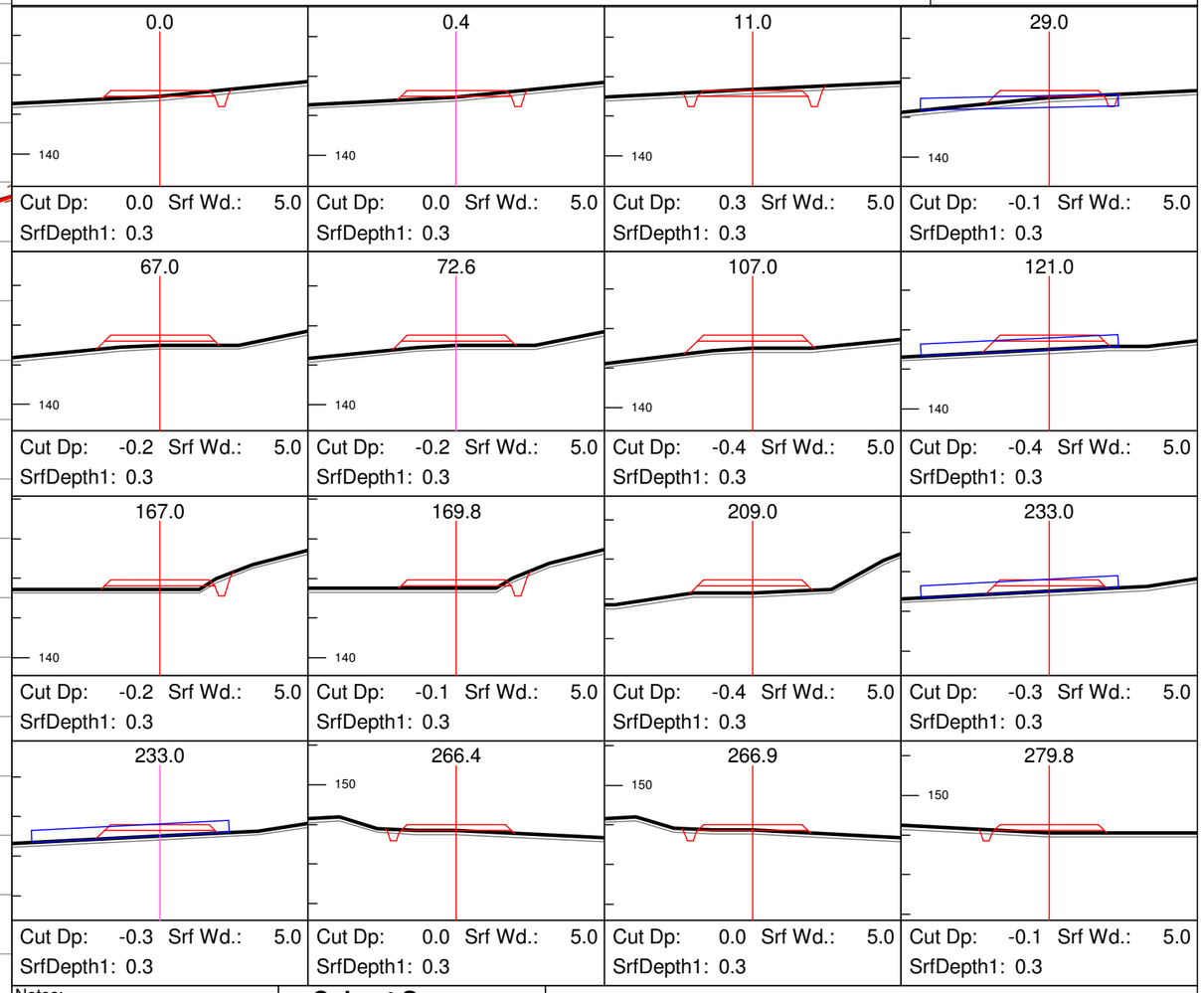


Profile Vert Scale 1:200
Profile Horz Scale 1:2000
X-section Scale 1:300

Alberni Valley Community Forest

LEGEND

- Rock Layer
- Profile Subgrade
- Profile/Plan P-line Topography
- Profile/Plan Slope Stakes
- Culverts



Notes:
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(2) 5.6m running surface width.
(3) Cross-drain culvert locations are approximate.
(4) Refer to the Road Instruction map for additional detail.

Culvert Summary

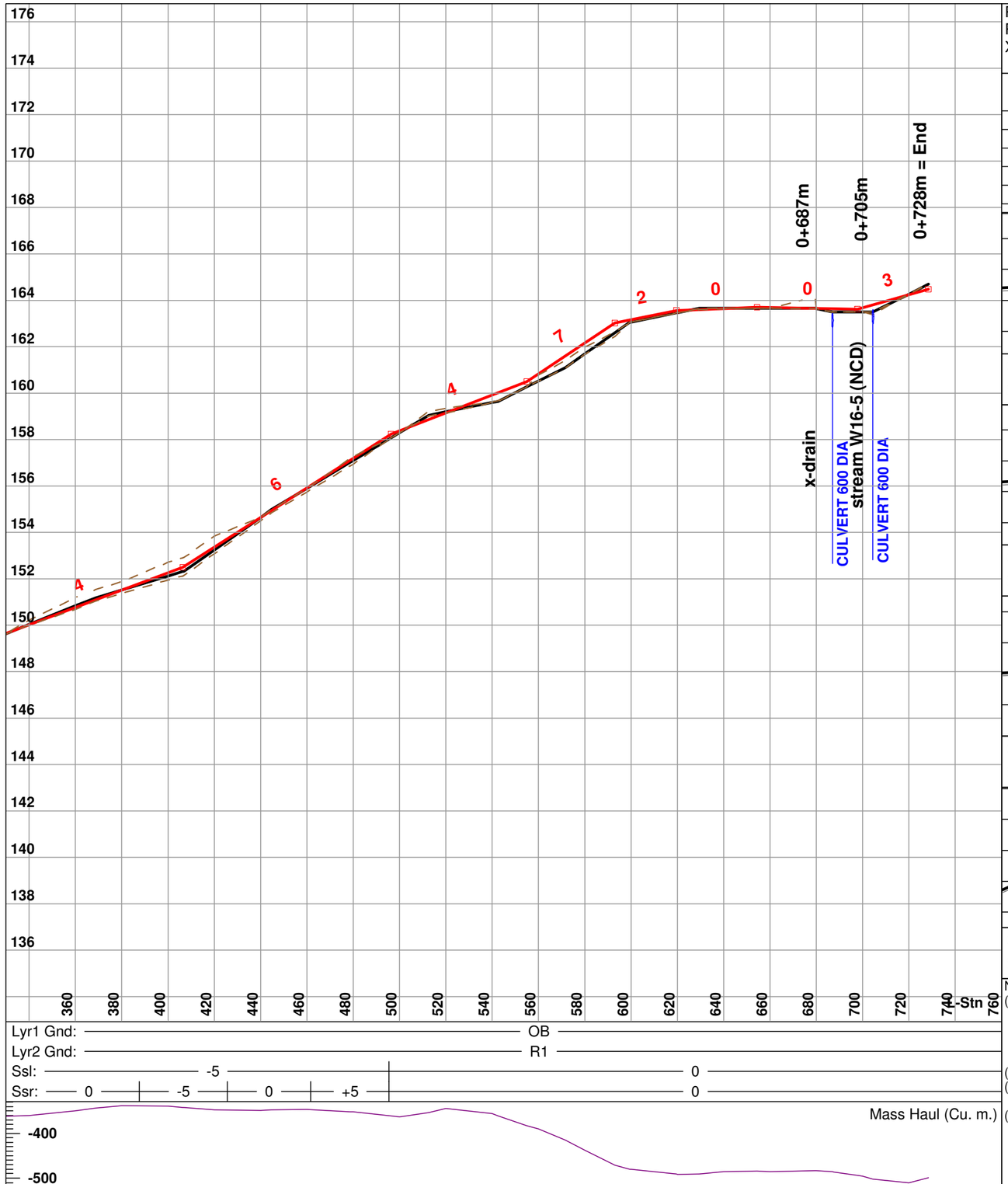
P-Stn m.	Cul DIA mm.	Cul Len m.
29.0	600	10.0
121.0	600	10.0
233.0	600	10.0
285.0	600	10.0

Designed by: K2 Forestry Services Ltd.

New Construction 0+000 to 0+728

Cutblock: W16 Road: ASH 6B

15/02/25

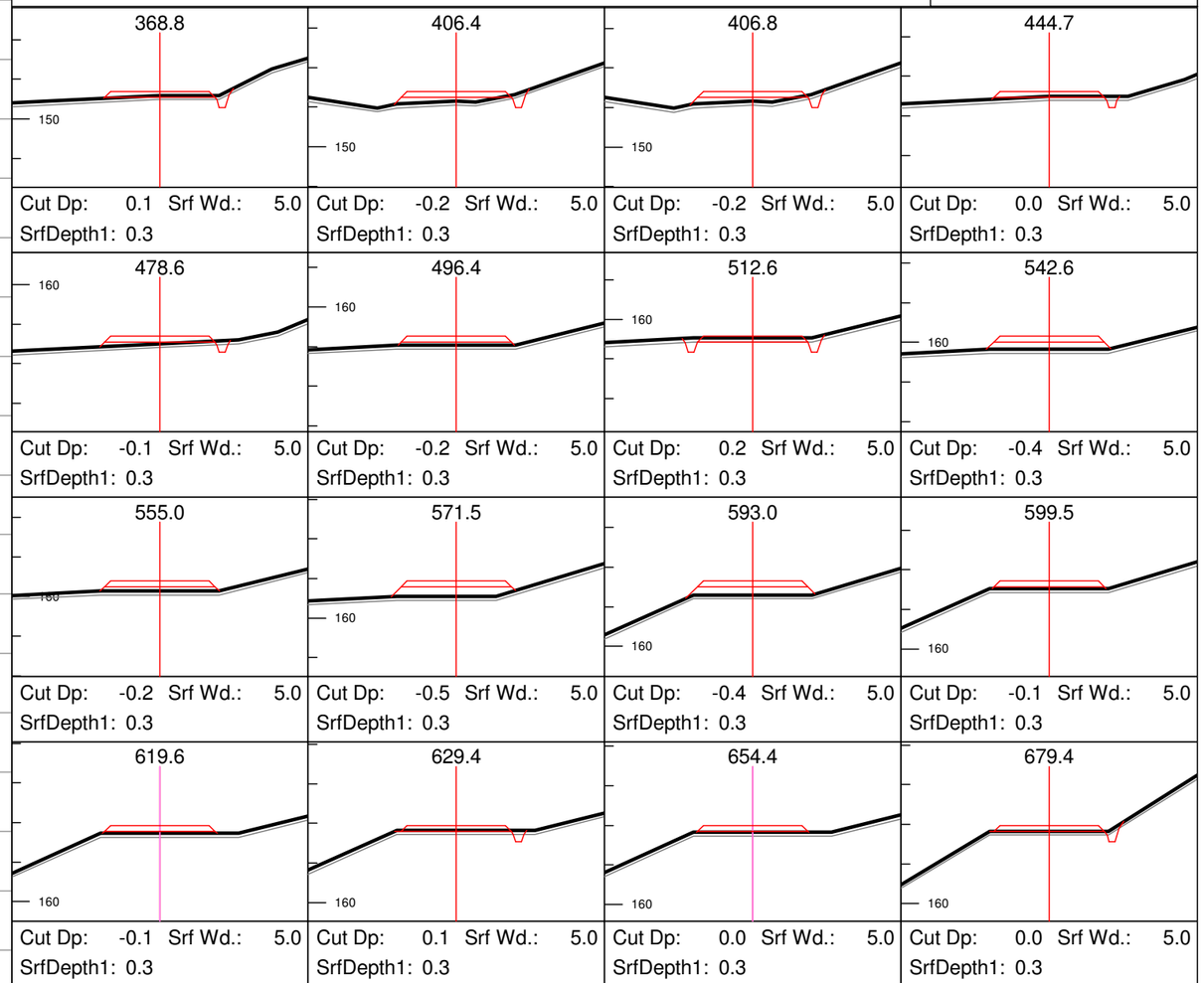


Profile Vert Scale 1:200
Profile Horz Scale 1:2000
X-section Scale 1:300

Alberni Valley Community Forest

LEGEND

- Rock Layer
- Profile Subgrade
- Profile/Plan P-line Topography
- Profile/Plan Slope Stakes
- Culverts



Notes:
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(2) 5.6m running surface width.
(3) Cross-drain culvert locations are approximate.
(4) Refer to the Road Instruction map for additional detail.

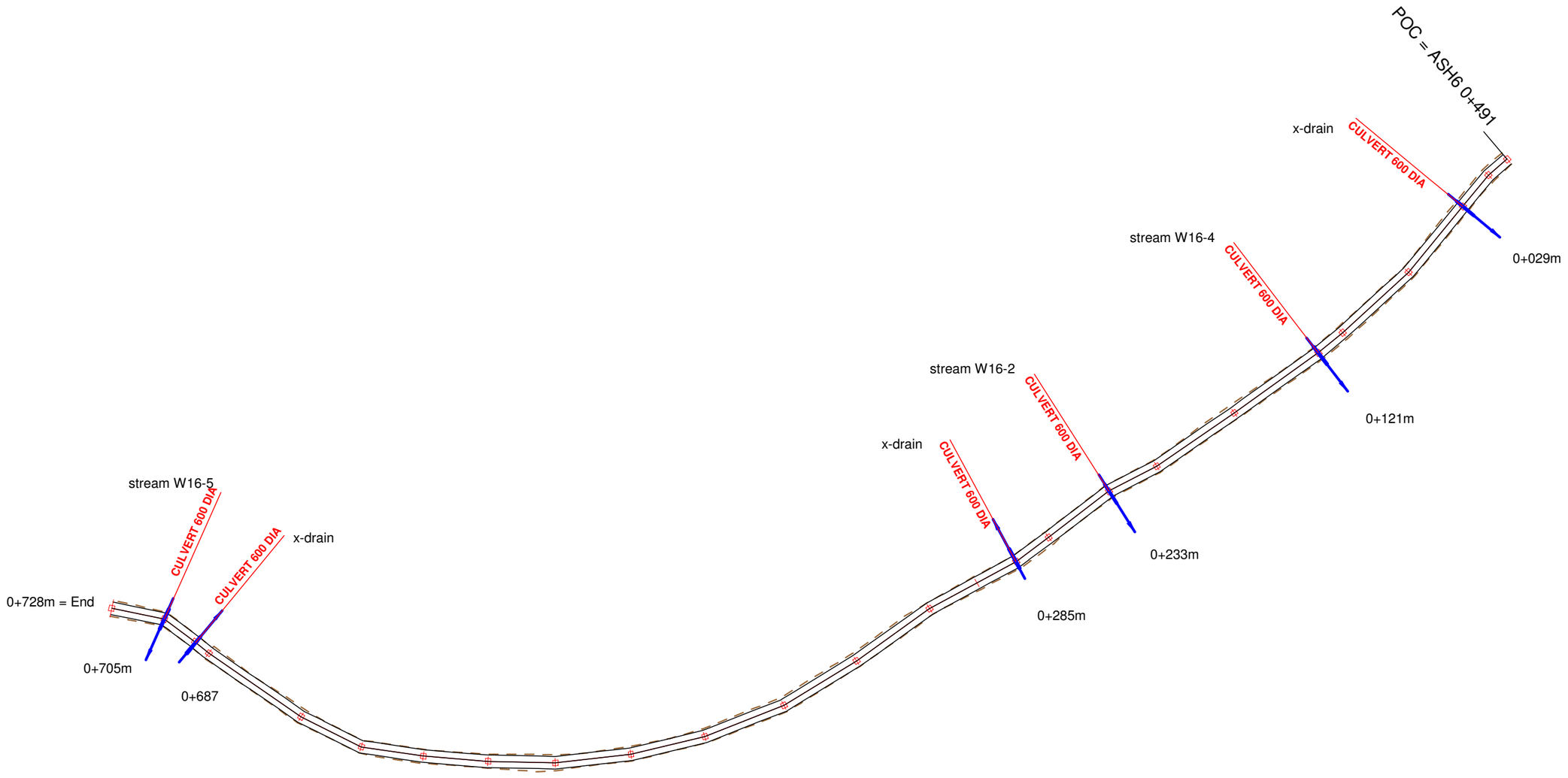
Culvert Summary

P-Stn m.	Cul DIA mm.	Cul Len m.
687.0	600	10.0
704.4	600	10.0

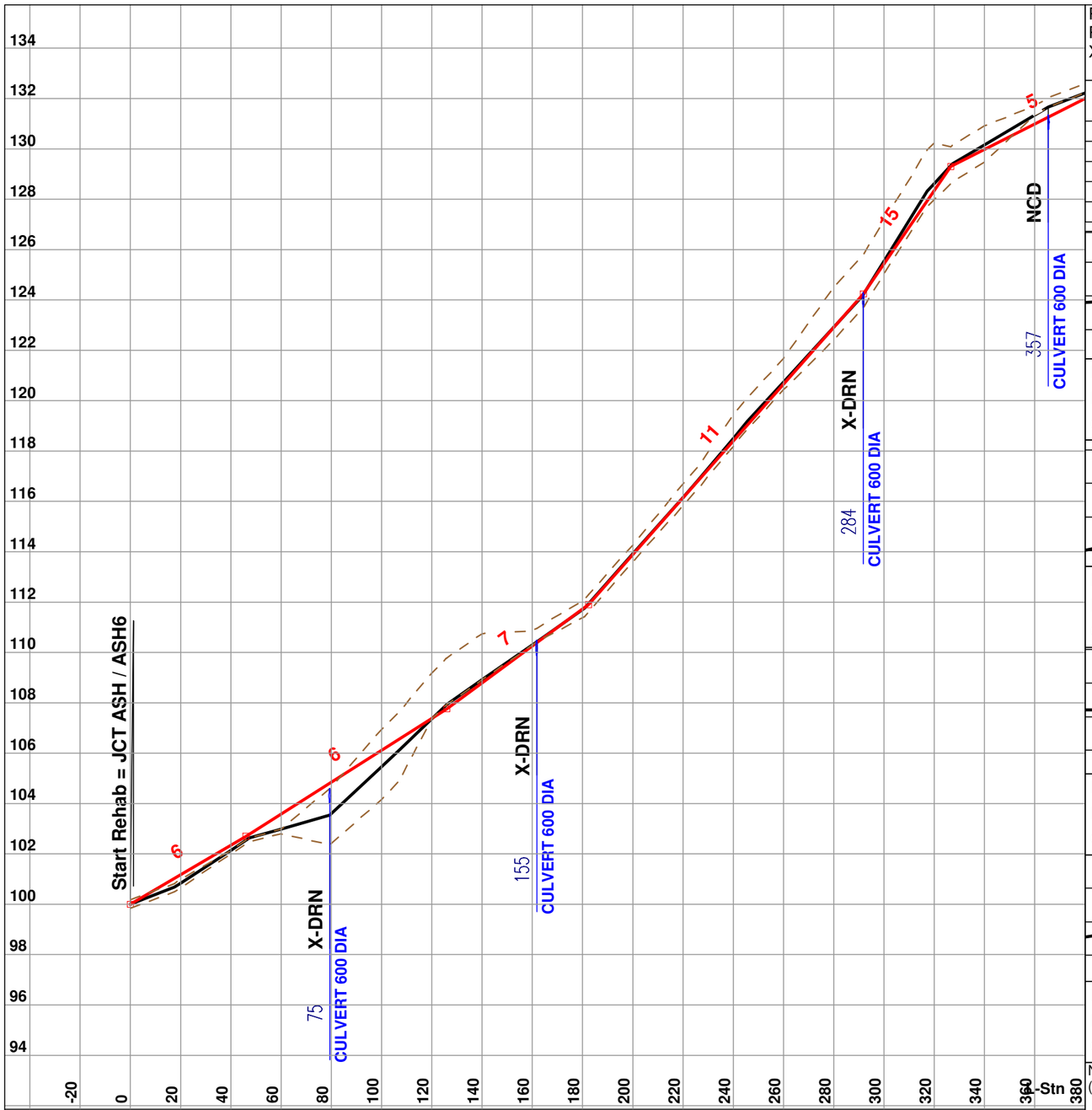
Designed by: K2 Forestry Services Ltd.

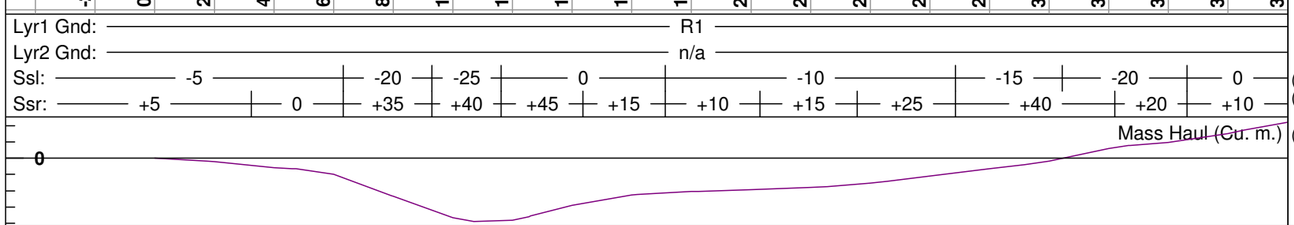
New Construction 0+000 to 0+728 | **Cutblock: W16 Road: ASH 6B** | Page 2 of 2 | 15/02/25

ROADENG Plan	Scale 1:2000	P. 1
G:\Cutblocks\092c086\863220\GIS_Data\Community Forest\Area 1\RoadEng\ASH6B		15/02/25



P-Stn m.	Lyr1 Gnd	Lyr2 Gnd	L-Ssl %	L-Ssr %	Bank Ht. L m.	Bank Ht. R m.	SG Cut V. Cu. m.	SG Fill V. Cu. m.	Cul DIA mm.	Mass H. Cu. m.
0.0	OB	R1	-5	10		-0.2				0.0
11.0	OB	R1	-5	5	-0.3	0.0	19.5	1.9		17.6
29.0	OB	R1	-10	5		-0.4	24.7	4.2		
67.0	OB	R1	-5	0			6.4	40.2	600	38.1
107.0	OB	R1	-5	0			0.0	77.9		4.4
121.0	OB	R1	-5	5			0.0	35.6		-73.5
167.0	OB	R1	0	0		0.1	10.8	78.8	600	-109.2
209.0	OB	R1	0	5			15.6	51.0		-177.2
233.0	OB	R1	-5	5			0.0	41.7		-212.5
266.9	OB	R1	0	-5	-0.4		1.1	30.1	600	-254.2
284.8	OB	R1	5	0	-0.4		5.6	6.2		-283.2
304.8	OB	R1	0	0			2.3	40.0	600	-283.9
328.8	OB	R1	0	0			0.0	40.4		-321.6
368.8	OB	R1	-5	0		-0.1	19.5	0.9		-362.0
406.8	OB	R1	-5	-5		-0.2	18.8	17.7		-343.4
444.7	OB	R1	-5	0		-0.5	17.0	21.9		-342.3
478.6	OB	R1	-5	5		-0.4	6.3	10.3		-347.2
512.6	OB	R1	0	0	-0.3	-0.2	14.8	17.3		-351.3
542.6	OB	R1	0	0			16.3	23.7		-353.8
571.5	OB	R1	0	0			0.0	54.0		-361.2
599.5	OB	R1	0	0			0.0	65.2		-415.2
629.4	OB	R1	0	0		-0.4	3.0	13.3		-480.4
679.4	OB	R1	0	0		-0.1	11.7	4.4		-490.7
687.0	OB	R1	0	0			0.1	2.7		-483.3
687.4	OB	R1	0	0			0.0	0.3	600	-485.9
704.4	OB	R1	0	0			0.0	15.9		-486.3
728.4	OB	R1	0	0	-0.3	-0.3	17.1	14.1	600	-502.2
										-499.1



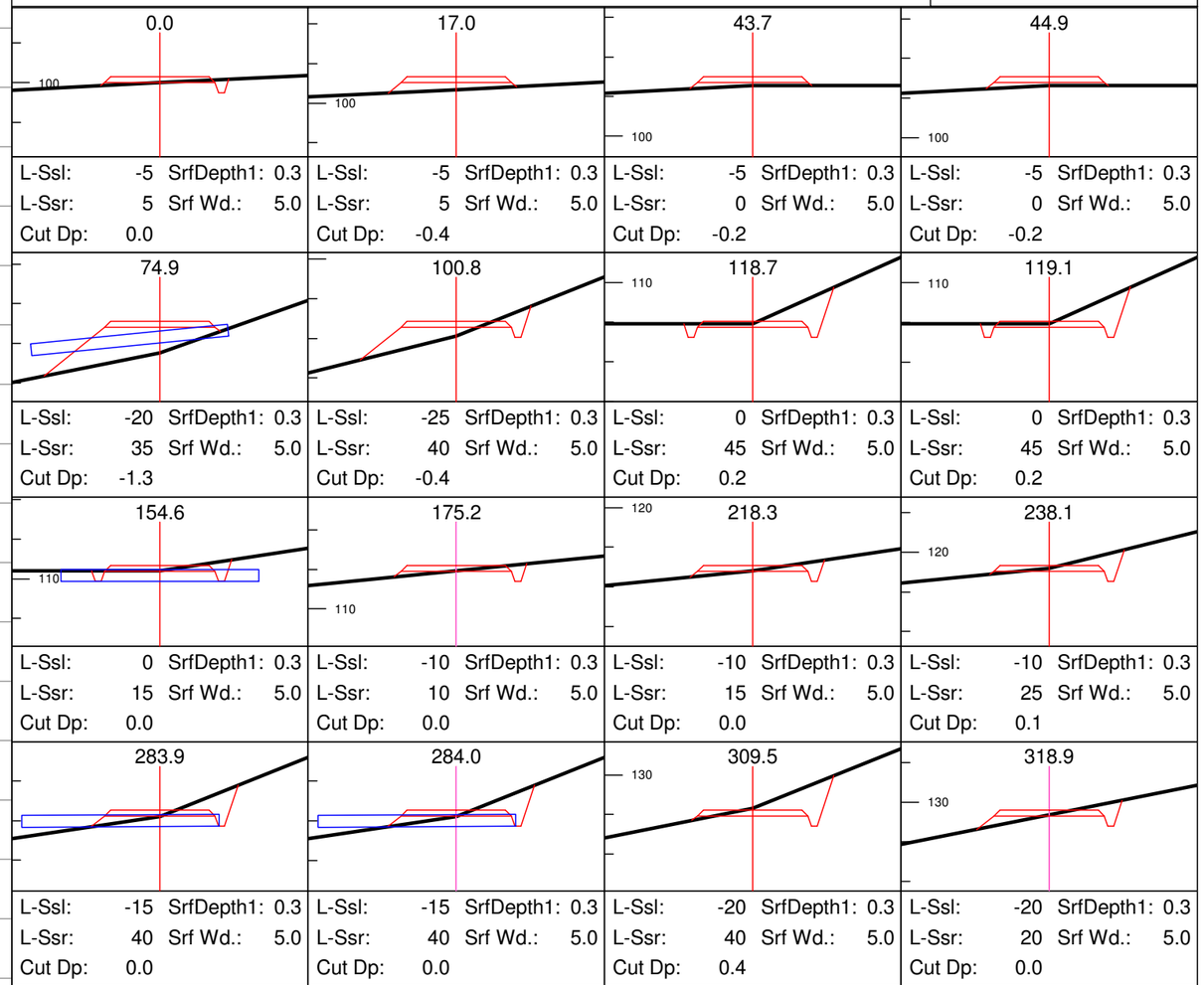


Profile Vert Scale 1:200
Profile Horz Scale 1:2000
X-section Scale 1:300

Alberni Valley Community Forest

LEGEND

- Rock Layer
- Profile Subgrade
- Profile/Plan P-line Topography
- Profile/Plan Slope Stakes
- Culverts



Notes:
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Culvert Summary

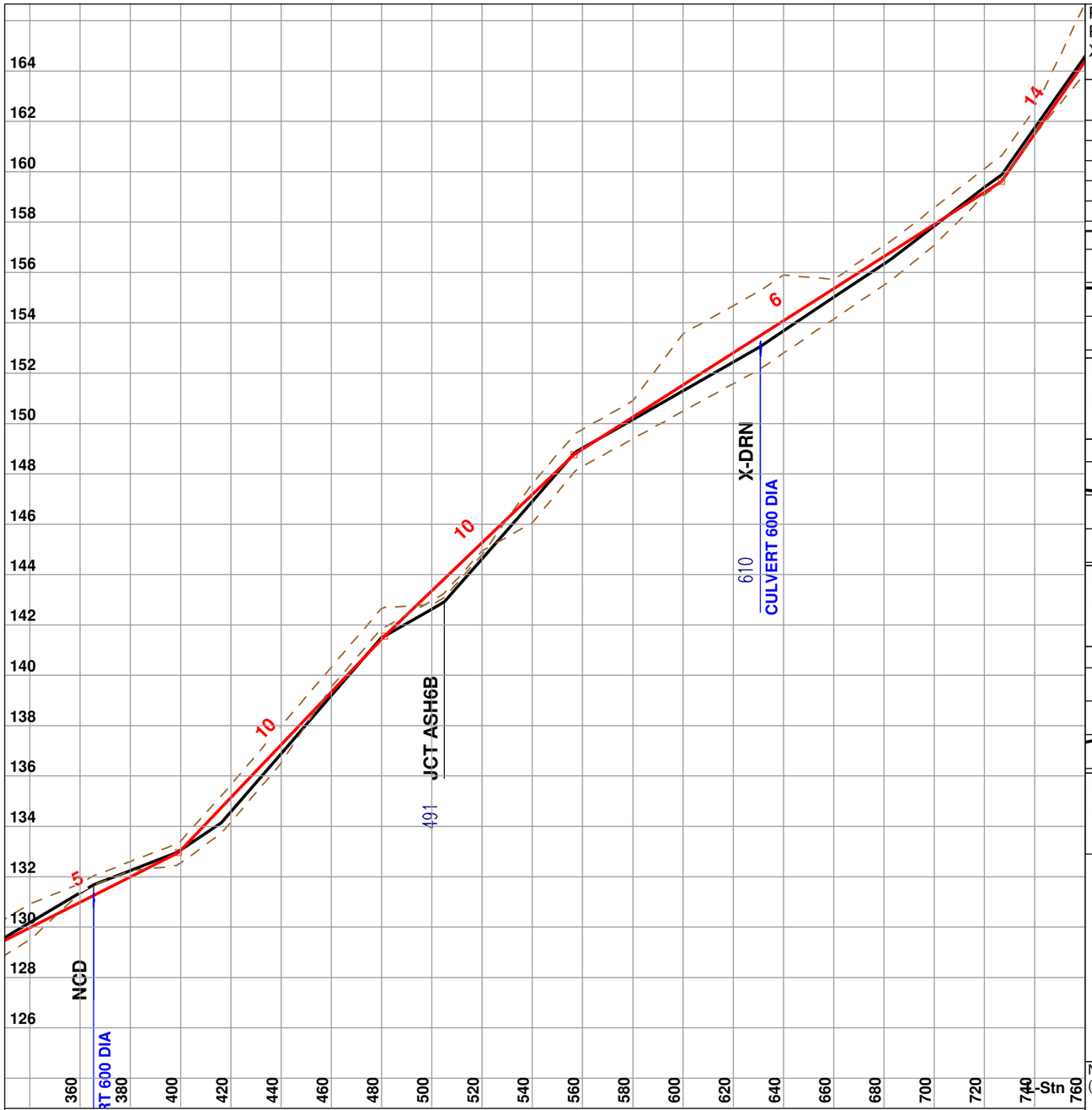
P-Stn m.	Cul DIA mm.	Cul Len m.
74.9	600	10.0
154.6	600	10.0
283.9	600	10.0
357.4	600	10.0

Designed by: K2 Forestry Services Ltd.

Re-Construction 0+000 to 1+176

Cutblock: W16 Road: ASH 6

15/02/25

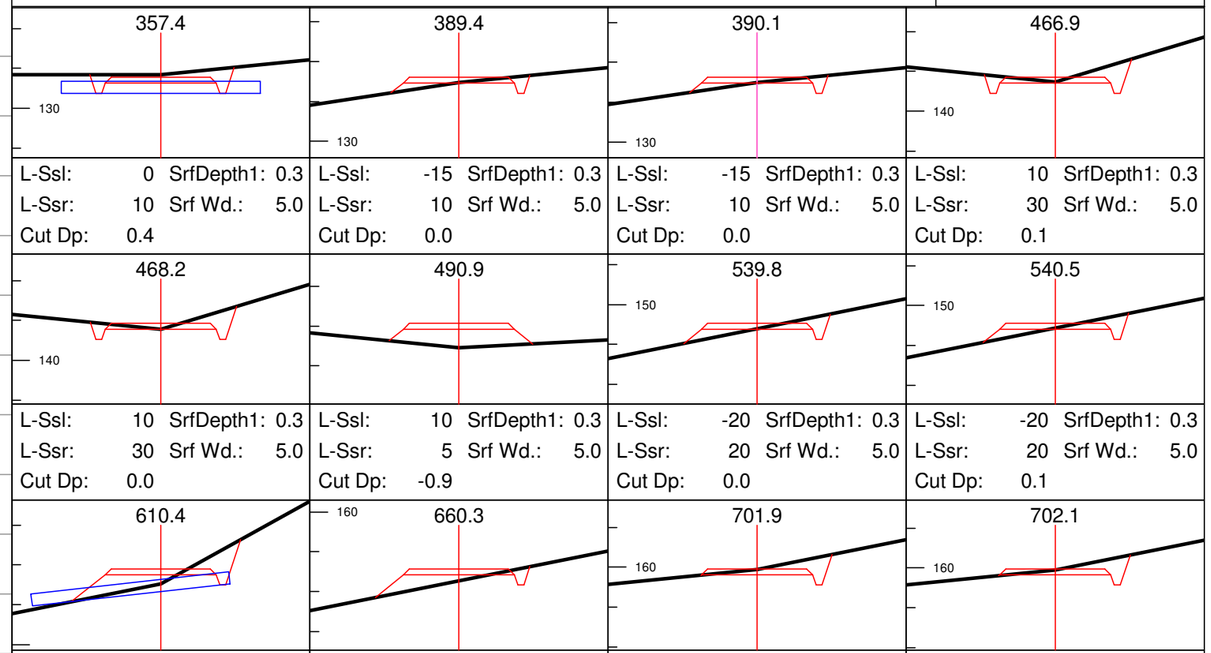


Profile Vert Scale 1:200
Profile Horz Scale 1:2000
X-section Scale 1:300

Alberni Valley Community Forest

LEGEND

- Rock Layer
- Profile Subgrade
- Profile/Plan P-line Topography
- Profile/Plan Slope Stakes
- Culverts



Notes:
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(2) 5.6m running surface width.
(3) Cross-drain culvert locations are approximate.
(4) Refer to the Road Instruction map for additional detail.

Culvert Summary

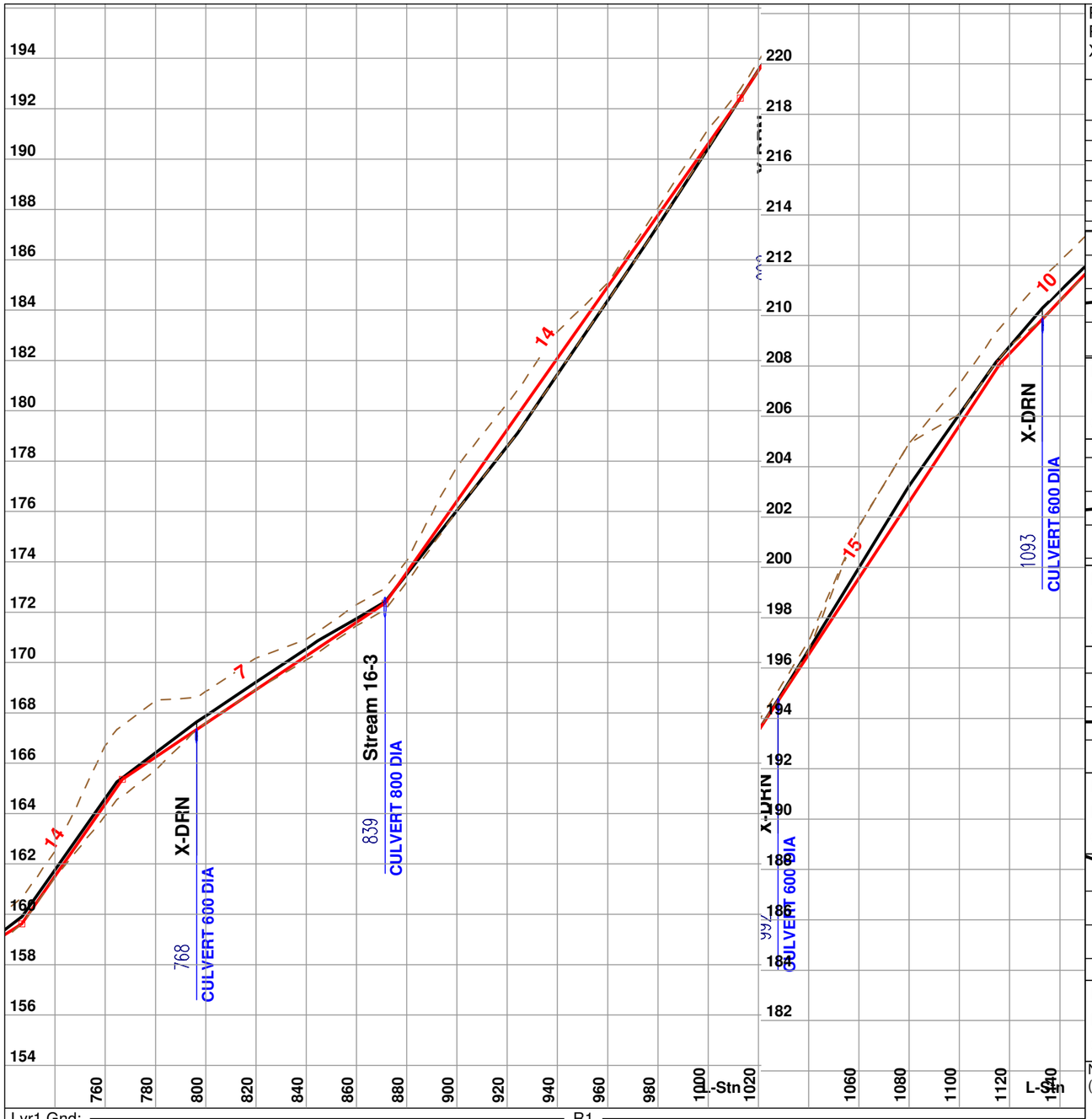
P-Stn m.	Cul DIA mm.	Cul Len m.
357.4	600	10.0
610.4	600	10.0

Designed by: K2 Forestry Services Ltd.

Re-Construction 0+000 to 1+176

Cutblock: W16 Road: ASH 6

15/02/25

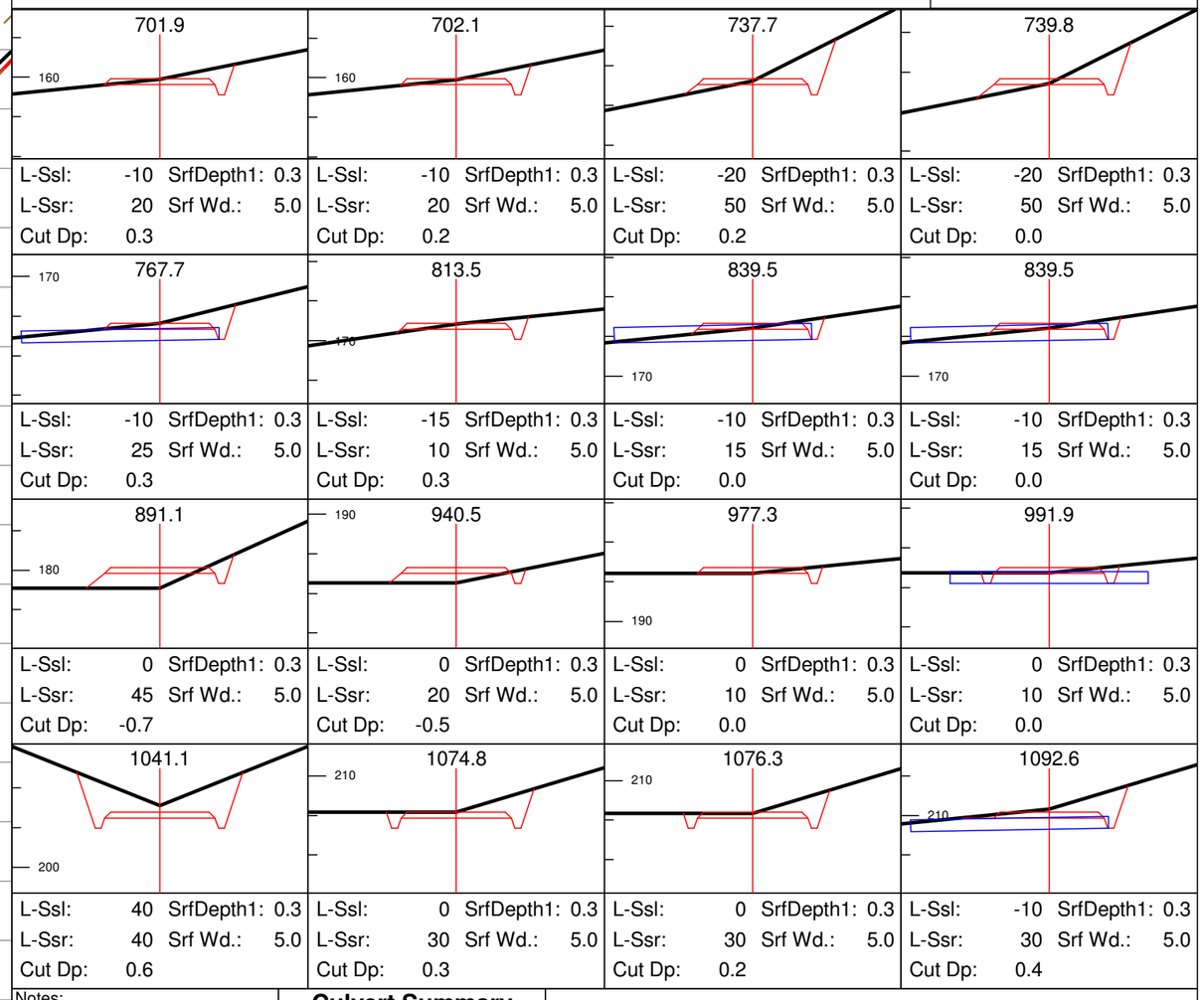


Profile Vert Scale 1:200
Profile Horz Scale 1:2000
X-section Scale 1:300

Alberni Valley Community Forest

LEGEND

- Rock Layer
- Profile Subgrade
- Profile/Plan P-line Topography
- Profile/Plan Slope Stakes
- Culverts

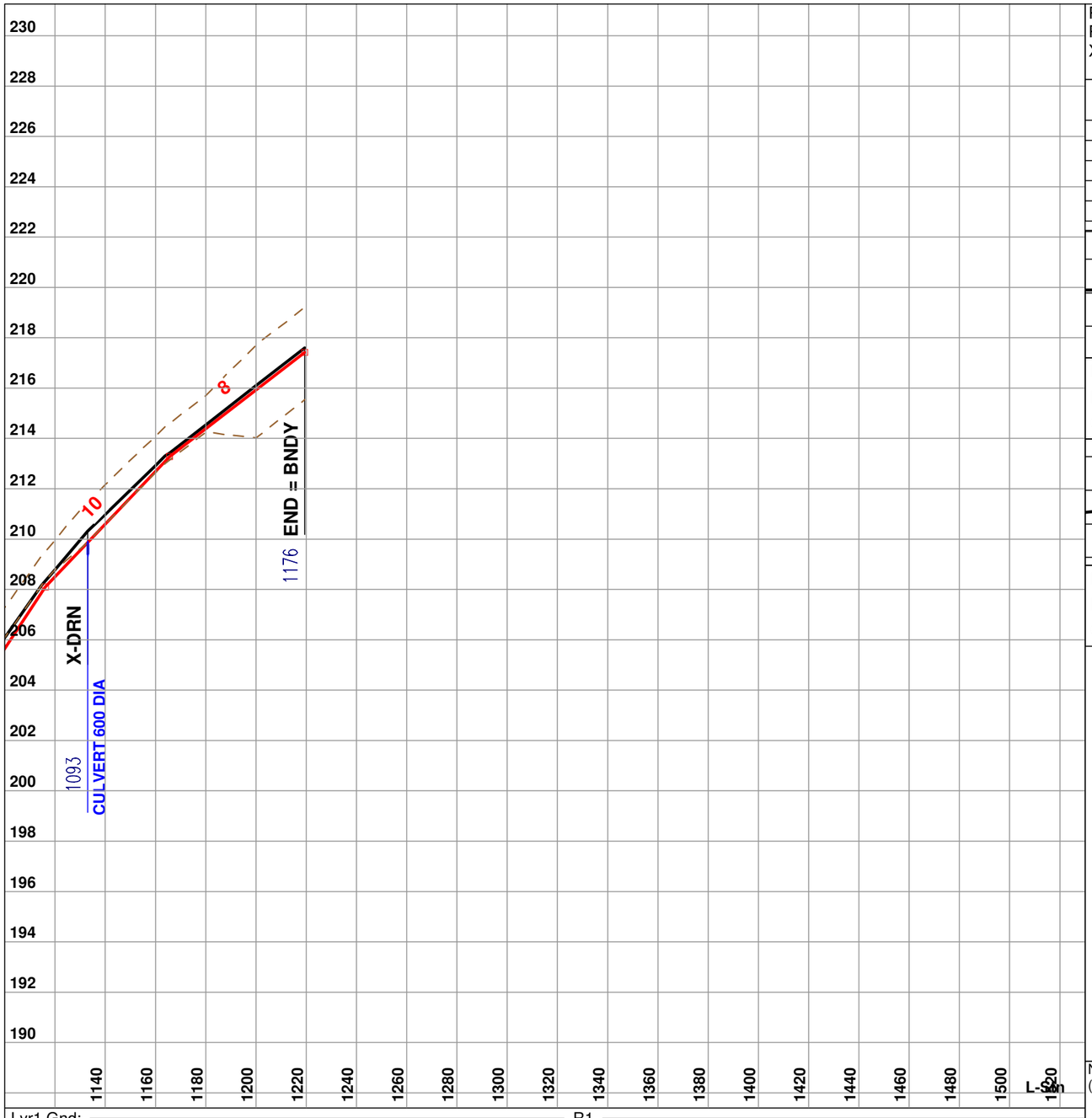


Notes:
(1) Side Slopes are derived from an average of the first slope % measured off of centerline in 20 meter segments.
(2) 5.6m running surface width.
(3) Cross-drain culvert locations are approximate.
(4) Refer to the Road Instruction map for additional detail.

Culvert Summary

P-Stn m.	Cul DIA mm.	Cul Len m.
767.7	600	10.0
839.5	800	10.0
991.9	600	10.0
1092.6	600	10.0

Designed by: K2 Forestry Services Ltd.

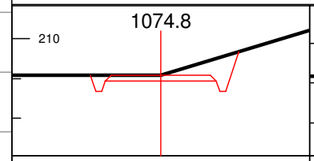


Profile Vert Scale 1:200
Profile Horz Scale 1:2000
X-section Scale 1:300

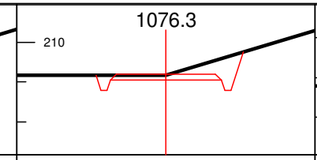
Alberni Valley Community Forest

LEGEND

- Rock Layer
- Profile Subgrade
- Profile/Plan P-line Topography
- Profile/Plan Slope Stakes
- Culverts



L-Ssl:	0	SrfDepth1:	0.3
L-Ssr:	30	Srf Wd.:	5.0
Cut Dp:	0.3		



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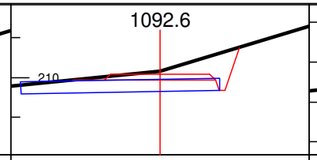
L-Ssr:	30	Srf Wd.:	5.0
Cut Dp:	0.2		



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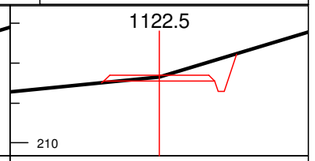
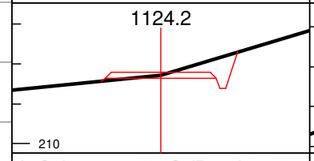
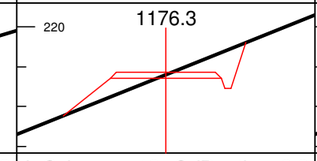
L-Ssr:	30	Srf Wd.:	5.0
Cut Dp:	0.4		



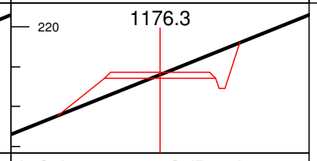
L-Ssl:	-10	SrfDepth1:	0.3
L-Ssr:	30	Srf Wd.:	5.0
Cut Dp:	0.2		



L-Ssl:	-10	SrfDepth1:	0.3
L-Ssr:	30	Srf Wd.:	5.0
Cut Dp:	0.1		



L-Ssl:	-40	SrfDepth1:	0.3
L-Ssr:	40	Srf Wd.:	5.0
Cut Dp:	0.2		



L-Ssl:	-40	SrfDepth1:	0.3
L-Ssr:	40	Srf Wd.:	5.0
Cut Dp:	0.2		

Notes:
(1) Side Slopes are derived from an average of the first slope % measured off of centerline in 20 meter segments.
(2) 5.6m running surface width.
(3) Cross-drain culvert locations are approximate.
(4) Refer to the Road Instruction map for additional detail.

Culvert Summary

P-Stn m.	Cul DIA mm.	Cul Len m.
1092.6	600	10.0

Designed by: K2 Forestry Services Ltd.

Re-Construction 0+000 to 1+176

Cutblock: W16 Road: ASH 6

15/02/25

Appendix 5: Site Plans and Site Plan maps

CUTBLOCK AND ROAD SITE PLAN

CUTBLOCK IDENTIFICATION				
Licence: K2D/AVCF	Cutting Permit: 7	Block: B14	Timber Mark K2D 007	FDU: A (Sproat)
Silviculture System: Clearcut	Opening Number: 92F.025	Location: Sproat Lake	Lattitude: 49° 17' 56''	Longitude: 125°03' 16''
TAUP(ha): 21.7	NAR (ha): 15.3	NP NAT (ha): 4.4	NP UNN (ha /%): 2.0/9.3%	P.A.S. Limit (%): 7 %

Road Name	Section	Length	Location
AS 12A	0+000 to 0+076 Re-Construction	76 m	125°3'26''W // 49°17'58''N
AS 12B	0+000 to 0+232 Re-construction	232m	125°3'26''W // 49°18'01''N

SOIL DISTURBANCE				
SU	Compaction	Displacement	Surface Erosion	Soil Disturbance Limit (%)
A	Moderate	Moderate	High	5
B	Moderate	Moderate	High	5
COMMENTS	Use puncheon or rubber matting in sensitive areas and **stop work if the following soil disturbances cannot be avoided**: >Wheel/Track Ruts, Compacted Areas, Gouges, Scalps< Rehabilitate compacted areas and roadsides by de-compacting with hoe (preferably grapple attachment) while avoiding scalps larger than 1.5 x 1.5 m. Grass seed exposed mineral soil within 1 year of completion of harvest. Wide gouge and wide scalp are not countable soil disturbance categories in de-stumping areas. Maximum Roadside Disturbance Limit: 25%			

RESULTS & STRATEGIES	
RESULT OR STRATEGY	HOW THE STRATEGY OR RESULT APPLIES TO THE SITE
5.1.1a Order Establishing Sproat Lake Landscape Unit and Objective – Objective 1: Old Growth Management Areas (OGMAs)	• The proposed harvest area is within the Sproat Lake Landscape Unit. • OGMAs have been established for the Sproat Lake Landscape Unit on July 18, 2005. • No OGMAS are located beside or close to B14.
5.1.1b Order Establishing Sproat Lake Landscape Unit and Objective – Objective 2: Wildlife Tree Retention (WTR)	• The proposed harvest area is within the Sproat Lake Landscape Unit. • A 3.9 ha WTRA has been retained adjacent to the block, meeting the minimum requirements of 7% and 12% as set out in the approved landscape unit plan for areas within the CWH mm and xm BEC subzone. This WTRA contains second growth Fd (Cw) representative of the pre-harvest stand. • AVCF will ensure that the 5 year average of WTR will met the minimum requirements set out in the approved landscape unit plan for areas within the CWH mm BEC subzone by ensuring that each individual block meets this target. • AVCF will ensure that the WTR are distributed across the landscape by ensuring that each WTR is directly adjacent to their corresponding cutblock, which is planned to be distributed

CUTBLOCK AND ROAD SITE PLAN

	across the license area. Permissible activities that may occur for this WTRA include: ○ Removal of danger trees, ○ WTPs with a high likelihood of windthrow may be pruned or topped to maintain the integrity of the WTP.
5.1.1c Order Establishing Sproat Lake Landscape Unit and Objective – Objective 3: Special Management Zone 17 (SMZ 17)	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.1.2a Vancouver Island Land Use Plan Higher Level Plan Order – Objective 1a: Sustain forest ecosystem structure and function in SMZs	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.1.2b Vancouver Island Land Use Plan Higher Level Plan Order – Objective 1b: Sustain forest ecosystem structure and function in SMZs.	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.1.2c Vancouver Island Land Use Plan Higher Level Plan Order – Objective 1c: Sustain forest ecosystem structure and function in SMZs.	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.1.2d Vancouver Island Land Use Plan Higher Level Plan Order – Objective 2: Recovering damaged timber within SMZs.	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.2.1 Soils (FPPR s.35-36)	• Soil disturbance limits comply with Section 35 of the FPPR. Limits are listed in SOIL DISTURBANCE section of the Site Plan. • Permanent access structures for the development are 9.3%, exceeding the 7% limit set in FPPR S.36. This is due to the size of the block and previously built roads and is not to be considered avoidable site degredation.
5.2.2 Wildlife – MAMU (FPPR s.7)	• The Notice specifies the amount, distribution and attributes of wildlife habitat required for Marbled Murrelet and consequently a result or strategy is required. The harvest area is a second growth Douglas fir stand; poor Murrelet habitat.
5.2.3 Water, Fish, Wildlife and Biodiversity within Riparian Areas (FPPR s.47-52)	• For each riparian class of stream found in and adjacent to the harvest area, the minimum riparian management area (RMA) width, riparian reserve zone (RRZ) width and riparian management zone (RMZ) width, on each side of the stream, are as per the table in FPPR 47(4).

CUTBLOCK AND ROAD SITE PLAN

	• All RMA infringements on streams and wetlands are due to stream crossings that cannot be avoided and or there is no other practical option for locating the road FPPR 50(1)(a), FPPR 50(1)(b), FPPR 51(1)(c).
5.2.4 Community Watersheds (FPPR s.8.2)	• The proposed harvest area is within the Sproat Lake Community Watershed. • CWAP recommendations have been followed and assessments completed to ensure low to moderate material adverse hydrological effects will occur as a result of forest practices.
5.2.5 Wildlife and Biodiversity – Landscape Level (FPPR s.64-65)	• The net area to be reforested is in accordance with the FPPR Sections 64 (less than 40ha) and 65 (it is not adjacent an existing cutblock).
5.2.6 Wildlife and Biodiversity – Stand Level (FPPR s.66-67)	• Wildlife tree retention targets are in accordance with the results or strategy for the approved Sproat Lake Landscape Unit Plan Objective 2. (FSP s. 5.1.1b) • No signs of bear dens were observed during field work.
5.2.7 Cultural Heritage Resources (FPPR s.10)	• It is the responsibility of the licensee to ensure all First Nations parties with aboriginal title are accommodated. Information sharing with the Hupacasath First Nations has occurred and is being completed by the AVCF manager. • If, during harvesting, any evidence of traditional use or cultural heritage values is found within or surrounding the area, notify the AVCF Manager and the Ministry of Forests Aboriginal Liaison Officer and cease work.
5.3.1 Visual Quality Objectives (FPPR s.7 – GAR Order)	• A visual impact assessment (VIA) was completed by ECON Forest Consulting on Feb 24th 2015. This block is located outside of any defined visual resource polygons. The VIA reviewed the potential for viewing from the travel corridors of Highway 4 and Sproat Lake recreation areas. The block is not visible from the viewpoints.

CUTBLOCK AND ROAD SITE PLAN

STOCKING STANDARDS

SU	Standards ID	NAR (ha)	Biogeoclimatic Ecosystem Classification				Regeneration Method	Preferred Species	Acceptable Species
			Zone	Subzone	Variant	Site Series			
A	1037530	10.2	CWH	xm	1	$01_{90}03_{10}$	Plant	Fd	Hw Cw Pw[22]
B	1037503	5.1	CWH	mm	1	01_{100}	Plant	Fd,Cw	Hw[11]

([22]) Risk of white pine blister rust. ([11])

SU	Regen. Date (yrs)	FG Date Late (yrs)	MITD (m)	TSS (sph)	MSSp (sph)	MSSp (sph)	Min. FG Ht. by Species		Crop Tree to Brush Ratio %)
							Species	Ht (m)	
A	3	11	2.0	900	500	400	Fd Hw Cw Pw	3.0 2.0 1.5 2.5	150
B	6	11	2.0	900	500	400	Fd Hw Cw	3.0 2.0 1.5	150

CUTBLOCK AND ROAD SITE PLAN

CRITICAL FACTORS AND REGENERATION COMMENTS

Harvesting: Block boundaries are established with orange flagging, orange tags, and falling corners. Boundary trees may be harvested when they are adjacent to an existing road or block. All other boundary trees should not be felled or damaged.

This block will be harvested and regenerated using a clearcut silvicultural system with internal and external wildlife tree retention. The block is designed for ground based harvesting. Road access is off an existing road (AS12) and re-construction of ASH 12A and 12B.

Windthrow: A windthrow assessment was completed by K2 Forestry Services on Feb 20th 2015. Block B14 has been assessed as having a moderate to low windthrow risk. No treatments required. See windthrow plan for further details.

Terrain Stability: It was determined that a terrain stability assessment was not required, this was based on the following rationale:

- Slopes are less than 60% and average 20% within the block;
- No current or previous signs of instability;
- Roads are already constructed and stable

Recreation: The Sproat Lookout Trail Network is located to the East of Bookhout Creek. The trails appear to be active and well maintained. Anticipate high public traffic in the surrounding areas as these roads are high use by Quads, recreational users and hunters. Adequate signs are to be posted to inform the public user groups of active blasting, logging and hauling during operations. Branch AS12 will need to be closed to the public during these activities.

Root Rot: Very minor signs of root rot were noted during the survey. Endemic spot infections may exist but no treatment is prescribed.

Coarse Woody Debris: Retain a minimum of 4 logs/ha each being at least 5m in length and 30 cm in diameter at one end.

Wildlife Tree Retention Areas: WTRA totaling 3.9 ha have been designated for B14. This is equivalent to 17.9% of the total area to be harvested.

Invasive Plants: Broom occurs along sections of the highway and hauling roads on route to B14. Monitor and treat broom and other invasive species during early establishment. Grass seed exposed soil on or adjacent to roads, trails, and landing sites as soon as possible following harvest.

Natural Range Barriers: Natural range barriers do not apply to the proposed harvest area.

Brush Competition: Expect moderate to heavy brush competition from bracken fern. Monitor and treat brush as required to establish new stand of conifers.

Regeneration: Plant promptly following harvesting to minimize the potential need for future brushing treatments. Focus Cw on water receiving sites.

CUTBLOCK AND ROAD SITE PLAN

Recommended Planting Prescription:

SU	NAR (ha)	Species	Percent (%)	Stock Type	Stems/ha	Total Stems
A	10.2	Fd Cw	90 10	412 or Larger	1080 120	11016 1224
B	5.1	Fd Cw	80 20	412 or Larger	960 240	4896 1224
A more detailed planting prescription is to be completed during the Post-Harvest Assessment.						

RIPARIAN MANAGEMENT					
Riparian Class of Feature	S4 S4 S3 S2	Designation on Map	B14-1 B14-2 B15-4 Bookhout Creek	Falling and/or Skidding or Yarding Across a Stream	No No No No

Stream B14-1 and B14-2 are direct tributary's to stream B15-4, an S3 non-fish stream. B15-4 is gullied and greater than 20% gradient below this cutblock.

Stream B14-1 and B14-2 are to be fall away yard away, except where designated crossings are identified on the Harvest Map. Designated crossings are allowed for harvest flexibility and are to be rehabilitated post-harvest.

Retain cedar and non-merchantable stems within the RMZ where operationally practicable.

CUTBLOCK AND ROAD SITE PLAN

RPF SIGNATURE AND SEAL		
Prepared By:	George Knoll Name (Printed)	 Digitally signed by George Knoll Date: 2015.02.25 09:19:24 -08'00'
Signing RPF:	George Knoll RPF Name (Printed)	
23/02/15 Date Signed (dd/mm/yy)	4582 RPF Number	RPF Signature and Seal

"I certify that the work described herein fulfills the standards expected of a member of the Association of British Columbia Forest Professionals and that I did personally supervise the work."

SITE DEGRADATION ESTIMATE

A: DESCRIPTION OF AREA

TENURE
AVCF

CP
07

BLOCK	Ha
B14	21.7

B: Natural Non-Productive

Type	Ha
CREEK	0.00
SWAMPS	0.00
SLIDES	0.00
ROCK OPENINGS	0.00
OTHER / RESERVES	4.4
	Total NNP 4.4

C: UNNATURAL NON-PRODUCTIVE (before Rehab.)

Type	START	END	AMOUNT	LENGTH (M)	SLOPE	WIDTH (M)	Ha	%
AS 12	4494	5722	1	1228	8	12	1.47	
AS 12	5722	5927	1	205	8	6	.123	
AS 12A	0	76	1	76	8	12	.0912	
AS 12B	0	232	1	232	8	12	.278	
Totals							2.0	9.3

D: SUMMARY

TYPE	Ha	%
GROSS AREA	21.7	100
NATURAL NON-PRODUCTIVE AREA	4.4	20.2
UNNATURAL NON-PRODUCTIVE AREA	2.0	9.3
REHABILITATION AREA	0.0	0.00
NET AREA TO BE REFORESTED	15.3	70.5

E: COMMENTS:

Due to size, topography and existing built roads, PAS exceeds 7%. This is not considered avoidable site degradation

PREPARED BY: G.Knoll **DATE:** 20-Feb-2015

Block ID	SU	NAR (ha)	ECO Site	SS ID	TSS	MSS (PA)	MSS (P)	Prefferred (Min Hgt)	Acceptable (Min Hgt)	MITD (m)
B14	A	10.2	CWHxm 01(9) 03(1)	1037530	900	500	400	Fd(3.0)	Hw (2.0), Cw (1.5), Pw [22](2.5)	2
	B	5.1	CWHmm1 01	1037503	900	500	400	Fd(3.0) Cw (1.5)	Hw (2.0)	2
	NAR	*15.3*								
	PAS	2								
	TLA	0.5								
	WTRA	3.9								
	TAUP	*21.7*								

[22] Risk of white pine blister rust

Licensee: Alberni Valley Community Forest Corporation
Forest Region: Coast
Forest District: South Island
Reference Map: 92F024, 025, 026 F035, 036
Datum: NAD 83
Projection: BC Albers
TSA: 38 Arrowsmith
TSB: A
FIZ: B
P.S.Y.U.: 471
Inv. Reg.: 5
Comp.: 4B (Sproat), 4C (Taylor)
Drafted: Feb 23, 2015
By: econ

Alberni Valley Community Forest K2D Sproat FDU

Site Plan

Block B14

1:5,000

0 50 100 Meters

Roads & Trails
- Highway
- Road, existing
- Road, engineered
- Road, to be re-activated
- Road, de-activated
- Trail, temp
- Old Grade
- Hiking Trail
- Rock Bluff
- Hydro Line

Stream Classification
- S1-S4 Stream
- S5-S6 Stream
- NCD
- Stream, Not Classified

- Falling Corner
- Landing, Perm., Temp.
- Station
- Culvert: New, Existing
- Bridge: New, Out
- Quarry
- Designated Crossing
- Spoil Site
- Swamp
- Wildlife Tree

Standard Unit
- SU-A
- SU-B
- TAUP
- Block, New
- Block, Existing
- Community Forest

Other Features
- Steep Area >35%
- Sensitive Soils Area
- Riparian Management Zone
- Riparian Reserve Zone
- Wildlife Tree Retention Area
- Timber Leave Area
- Non Productive, Rock
- Non Productive, Wetland
- Park

Blk B14
SU-A
SU-B
TLA A
TLA B
TLA C
WTRA
ASH12A
ASH12B
AS12
AS12A
Str B14-1
Str B14-2
Str B15-1
Str B15-2
Str B15-4
Bookhout Creek

CUTBLOCK AND ROAD SITE PLAN

CUTBLOCK IDENTIFICATION				
Licence: K2D/AVCF	Cutting Permit: 7	Block: B15	Timber Mark K2D 007	FDU: A (Sproat)
Silviculture System: Clearcut	Opening Number: 92F.025	Location: Sproat Lake	Lattitude: 49° 18' 15''	Longitude: 125°03' 52''
TAUP(ha): 9.3	NAR (ha): 7.6	NP NAT (ha): 1.2	NP UNN (ha /%): 0.5/5.3%	P.A.S. Limit (%): 7 %

Road Name	Section	Length	Location
AS 12C	0+000 to 0+591 Re-Construction	591 m	125°3'33''W // 49°18'17''N

SOIL DISTURBANCE				
SU	Compaction	Displacement	Surface Erosion	Soil Disturbance Limit (%)
A	High	Moderate	High	5
COMMENTS	Use puncheon or rubber matting in sensitive areas and **stop work if the following soil disturbances cannot be avoided**: >Wheel/Track Ruts, Compacted Areas, Gouges, Scalps< Rehabilitate compacted areas and roadsides by de-compacting with hoe (preferably grapple attachment) while avoiding scalps larger than 1.5 x 1.5 m. Grass seed exposed mineral soil within 1 year of completion of harvest. Wide gouge and wide scalp are not countable soil disturbance categories in de-stumping areas. Maximum Roadside Disturbance Limit: 25%			

RESULTS & STRATEGIES	
RESULT OR STRATEGY	HOW THE STRATEGY OR RESULT APPLIES TO THE SITE
5.1.1a Order Establishing Sproat Lake Landscape Unit and Objective – Objective 1: Old Growth Management Areas (OGMAs)	• The proposed harvest area is within the Sproat Lake Landscape Unit. • OGMAs have been established for the Sproat Lake Landscape Unit on July 18, 2005. • No OGMAS are located beside or close to B15.
5.1.1b Order Establishing Sproat Lake Landscape Unit and Objective – Objective 2: Wildlife Tree Retention (WTR)	• The proposed harvest area is within the Sproat Lake Landscape Unit. • A 1.2 ha WTRA has been retained adjacent to the block, meeting the minimum requirements of 7% set out in the approved landscape unit plan for areas within the CWH mm BEC subzone. This WTRA contains second growth Fd (Cw) representative of the pre-harvest stand. • AVCF will ensure that the 5 year average of WTR will met the minimum requirements set out in the approved landscape unit plan for areas within the CWH mm BEC subzone by ensuring that each individual block meets this target. • AVCF will ensure that the WTR are distributed across the landscape by ensuring that each WTR is directly adjacent to their corresponding cutblock, which is planned to be distributed across the license area. Permissible activities that may occur for this WTRA include: ○ Removal of danger trees, ○ WTPs with a high likelihood of windthrow may be pruned or topped to maintain the integrity of the WTP.

CUTBLOCK AND ROAD SITE PLAN

5.1.1c Order Establishing Sproat Lake Landscape Unit and Objective – Objective 3: Special Management Zone 17 (SMZ 17)	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.1.2a Vancouver Island Land Use Plan Higher Level Plan Order – Objective 1a: Sustain forest ecosystem structure and function in SMZs	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.1.2b Vancouver Island Land Use Plan Higher Level Plan Order – Objective 1b: Sustain forest ecosystem structure and function in SMZs.	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.1.2c Vancouver Island Land Use Plan Higher Level Plan Order – Objective 1c: Sustain forest ecosystem structure and function in SMZs.	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.1.2d Vancouver Island Land Use Plan Higher Level Plan Order – Objective 2: Recovering damaged timber within SMZs.	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.2.1 Soils (FPPR s.35-36)	• Soil disturbance limits comply with Section 35 of the FPPR. Limits are listed in SOIL DISTURBANCE section of the Site Plan. • Permanent access structures comply with Section 36 of the FPPR. Permanent access structures for the development are 6.1%.
5.2.2 Wildlife – MAMU (FPPR s.7)	• The Notice specifies the amount, distribution and attributes of wildlife habitat required for Marbled Murrelet and consequently a result or strategy is required. The harvest area is a second growth Douglas fir stand; poor Murrelet habitat.
5.2.3 Water, Fish, Wildlife and Biodiversity within Riparian Areas (FPPR s.47-52)	• For each riparian class of stream found in and adjacent to the harvest area, the minimum riparian management area (RMA) width, riparian reserve zone (RRZ) width and riparian management zone (RMZ) width, on each side of the stream, are as per the table in FPPR 47(4).

CUTBLOCK AND ROAD SITE PLAN

	• All RMA infringements on streams and wetlands are due to stream crossings that cannot be avoided and or there is no other practical option for locating the road FPPR 50(1)(a), FPPR 50(1)(b), FPPR 51(1)(c).
5.2.4 Community Watersheds (FPPR s.8.2)	• The proposed harvest area is within the Sproat Lake Community Watershed. • CWAP recommendations have been followed and assessments completed to ensure low to moderate material adverse hydrological effects will occur as a result of forest practices.
5.2.5 Wildlife and Biodiversity – Landscape Level (FPPR s.64-65)	• The net area to be reforested is in accordance with the FPPR Sections 64 (less than 40ha) and 65 (it is not adjacent an existing cutblock).
5.2.6 Wildlife and Biodiversity – Stand Level (FPPR s.66-67)	• Wildlife tree retention targets are in accordance with the results or strategy for the approved Sproat Lake Landscape Unit Plan Objective 2. (FSP s. 5.1.1b) • No signs of bear dens were observed during field work.
5.2.7 Cultural Heritage Resources (FPPR s.10)	• It is the responsibility of the licensee to ensure all First Nations parties with aboriginal title are accommodated. Information sharing with the Hupacasath First Nations has occurred and is being completed by the AVCF manager. • If, during harvesting, any evidence of traditional use or cultural heritage values is found within or surrounding the area, notify the AVCF Manager and the Ministry of Forests Aboriginal Liaison Officer and cease work.
5.3.1 Visual Quality Objectives (FPPR s.7 – GAR Order)	• A visual impact assessment (VIA) was completed by ECON Forest Consulting on Feb 24th 2015. This block is located outside of any defined visual resource polygons. The VIA reviewed the potential for viewing from the travel corridors of Highway 4 and Sproat Lake recreation areas. The block is not visible from the viewpoints.

CUTBLOCK AND ROAD SITE PLAN

STOCKING STANDARDS									
SU	Standards ID	NAR (ha)	Biogeoclimatic Ecosystem Classification				Regeneration Method	Preferred Species	Acceptable Species
			Zone	Subzone	Variant	Site Series			
A	1037503	7.6	CWH	mm	1	01_{100}	Plant	Fd,Cw	Hw^{11}

SU	Regen. Date (yrs)	FG Date Late (yrs)	MITD (m)	TSS (sph)	MSSp (sph)	MSSp (sph)	Min. FG Ht. by Species		Crop Tree to Brush Ratio %)
							Species	Ht (m)	
A	6	11	2.0	900	500	400	Fd Hw Cw	3.0 2.0 1.5	150

CUTBLOCK AND ROAD SITE PLAN

CRITICAL FACTORS AND REGENERATION COMMENTS

Harvesting: Block boundaries are established with orange flagging, orange tags, and falling corners. Boundary trees may be harvested when they are adjacent to an existing road or block. All other boundary trees should not be felled or damaged.

This block will be harvested and regenerated using a clearcut silvicultural system with external wildlife tree retention. The block is designed for ground based harvesting. Road access is off an existing road (AS12C) that requires new culverts and minor brushing of roadside alder.

Windthrow: A windthrow assessment was completed by K2 Forestry Services on Feb 19th 2015. Block B15 has been assessed as having a moderate to low windthrow risk. No treatments required. See windthrow plan for further details.

Terrain Stability: It was determined that a terrain stability assessment was not required, this was based on the following rationale:

- Slopes are less than 60% and average15% within the block;
- No current or previous signs of instability;
- Roads are already constructed and stable

Recreation: The Sproat Lookout Trail Network is located to the East of Bookhout Creek. The trails appear to be active and well maintained. Anticipate high public traffic in the surrounding areas as these roads are high use by Quads, recreational users and hunters. Adequate signs are to be posted to inform the public user groups of active blasting, logging and hauling during operations. Branch AS12 will need to be closed to the public during these activities.

Root Rot: Very minor signs of root rot were noted during the survey. Endemic spot infections may exist but no treatment is prescribed.

Coarse Woody Debris: Retain a minimum of 4 logs/ha each being at least 5m in length and 30 cm in diameter at one end.

Wildlife Tree Retention Areas: WTRA totaling 1.2 ha have been designated for B15. This is equivalent to 14.8% of the total area to be harvested.

Invasive Plants: Broom occurs along sections of the highway and hauling roads on route to B15. Monitor and treat broom and other invasive species during early establishment. Grass seed exposed soil on or adjacent to roads, trails, and landing sites as soon as possible following harvest.

Natural Range Barriers: Natural range barriers do not apply to the proposed harvest area.

Brush Competition: Expect moderate to heavy brush competition from bracken fern and alder ingress. Monitor and treat brush as required to establish new stand of conifers.

Regeneration: Plant promptly following harvesting to minimize the potential need for future brushing treatments. Focus Cw on water receiving sites.

CUTBLOCK AND ROAD SITE PLAN

Recommended Planting Prescription:

SU	NAR (ha)	Species	Percent (%)	Stock Type	Stems/ha	Total Stems
A	7.6	Fd Cw	80 20	412 or Larger	960 240	7296 1824
A more detailed planting prescription is to be completed during the Post-Harvest Assessment.						

RIPARIAN MANAGEMENT					
Riparian Class of Feature	S4 S4 S4 S3	Designation on Map	B15-1 B15-2 B15-3 B15-4	Falling and/or Skidding or Yarding Across a Stream	No No Yes No

Stream B15-1, B15-2 and B15-3 are direct tributary's to stream B15-4, an S3 non-fish stream. B15-4 is gullied and greater than 20% gradient below this cutblock.

Stream B15-1 and B15-2 are to be fall away yard away, except where designated crossings are identified on the Harvest Map. Designated crossings are allowed for harvest flexibility and are to be rehabilitated post-harvest.

Stream B15-3 is also a direct tributary to stream B15-4. It is to be fall across yard across.

Retain cedar and non-merchantable stems within the RMZ where operationally practicable.

CUTBLOCK AND ROAD SITE PLAN

RPF SIGNATURE AND SEAL		
Prepared By:	George Knoll Name (Printed)	 Digitally signed by George Knoll Date: 2015.02.25 09:27:06 -08'00'
Signing RPF:	George Knoll RPF Name (Printed)	
23/02/15 Date Signed (dd/mm/yy)	4582 RPF Number	RPF Signature and Seal

"I certify that the work described herein fulfills the standards expected of a member of the Association of British Columbia Forest Professionals and that I did personally supervise the work."

SITE DEGRADATION ESTIMATE

A: DESCRIPTION OF AREA

TENURE
AVCF

CP
07

BLOCK	Ha
B15	9.3

B: Natural Non-Productive

Type	Ha
CREEK	0.00
SWAMPS	0.00
SLIDES	0.00
ROCK OPENINGS	0.00
OTHER / RESERVES	1.2
	Total NNP 1.2

C: UNNATURAL NON-PRODUCTIVE (before Rehab.)

Type	START	END	AMOUNT	LENGTH (M)	SLOPE	WIDTH (M)	Ha	%
AS 12C	145	170	1	25	8	6	.015	
AS 12C	170	556	1	386	8	12	.463	
AS 12C	556	591	1	35	8	6	.021	
Totals							0.5	5.3

D: SUMMARY

TYPE	Ha	%
GROSS AREA	9.3	100
NATURAL NON-PRODUCTIVE AREA	1.2	12.9
UNNATURAL NON-PRODUCTIVE AREA	0.5	5.3
REHABILITATION AREA	0.0	0.00
NET AREA TO BE REFORESTED	7.6	81.8

E: COMMENTS:

PREPARED BY: G.Knoll **DATE:** 19-Feb-2015

Block ID	SU	NAR (ha)	ECO Site CWH xm	SS ID	TSS	MSS (PA)	MSS (P)	Prefferred (Min Hgt)	Acceptable (Min Hgt)	MITD (m)
B15	A	7.6	CWHmm1 01	1037503	900	500	400	Fd(3.0) Cw (1.5)	Hw (2.0)	2
	NAR	*7.6*								
	PAS	0.5								
	TLA	0								
	WTRA	1.2								
	TAUP	*9.3*								

Licensee: Alberni Valley Community Forest Corporation
Forest Region: Coast
Forest District: South Island
Reference Map: 92F024, 025, 026 F035, 036
Datum: NAD 83
Projection: BC Albers
TSA: 38 Arrowsmith
TSB: A
FIZ: B
P.S.Y.U.: 471
Inv. Reg.: 5
Comp.: 4B (Sproat), 4C (Taylor)
Drafted: Feb 23, 2015
By: econ

Alberni Valley Community Forest K2D Sproat FDU

Site Plan

Block B15

1:5,000

0 50 100 Meters

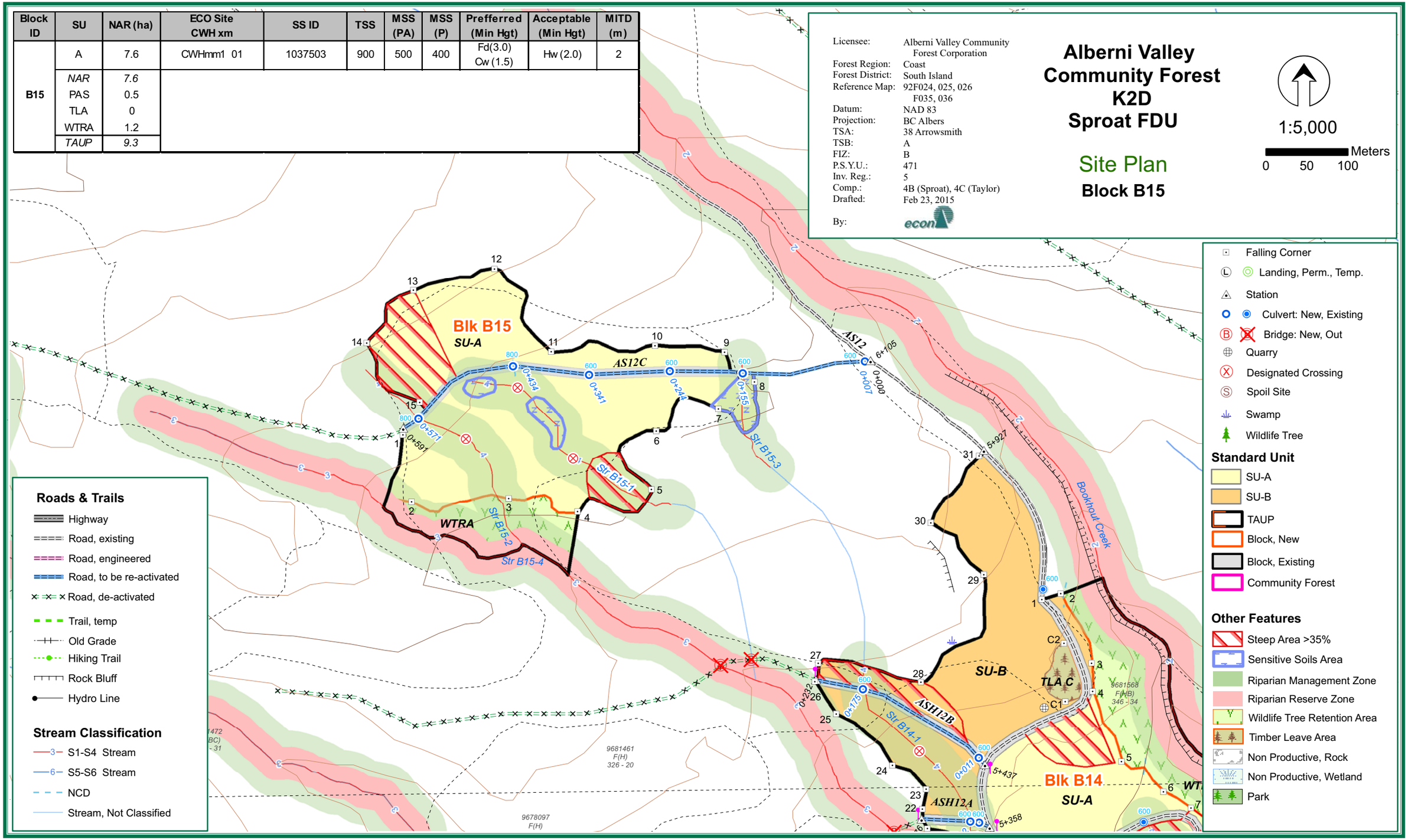
Roads & Trails
- Highway
- Road, existing
- Road, engineered
- Road, to be re-activated
- Road, de-activated
- Trail, temp
- Old Grade
- Hiking Trail
- Rock Bluff
- Hydro Line

Stream Classification
- S1-S4 Stream
- S5-S6 Stream
- NCD
- Stream, Not Classified

- Falling Corner
- Landing, Perm., Temp.
- Station
- Culvert: New, Existing
- Bridge: New, Out
- Quarry
- Designated Crossing
- Spoil Site
- Swamp
- Wildlife Tree

Standard Unit
- SU-A
- SU-B
- TAUP
- Block, New
- Block, Existing
- Community Forest

Other Features
- Steep Area >35%
- Sensitive Soils Area
- Riparian Management Zone
- Riparian Reserve Zone
- Wildlife Tree Retention Area
- Timber Leave Area
- Non Productive, Rock
- Non Productive, Wetland
- Park



CUTBLOCK AND ROAD SITE PLAN

CUTBLOCK IDENTIFICATION				
Licence: K2D/AVCF	Cutting Permit: 7	Block: W14	Timber Mark K2D 007	FDU: A (Sproat)
Silviculture System: Retention	Opening Number: 92F.025	Location: Sproat Lake	Lattitude: 49° 17' 40''	Longitude: 124°59' 24''
TAUP(ha): 6.6	NAR (ha): 5.2	NP NAT (ha): 0.8	NP UNN (ha /%): 0.6/9.5%	P.A.S. Limit (%): 7 %

Road Name	Section	Length	Location
WC 3	0+846 to1+371 New Construction	525 m	124°59'24''W // 49°17'40''N

SOIL DISTURBANCE				
SU	Compaction	Displacement	Surface Erosion	Soil Disturbance Limit (%)
A	Low	Moderate	High	5
B	Low	Moderate	High	5
COMMENTS	Use puncheon or rubber matting in sensitive areas and **stop work if the following soil disturbances cannot be avoided**: >Wheel/Track Ruts, Compacted Areas, Gouges, Scalps< Rehabilitate compacted areas and roadsides by de-compacting with hoe (preferably grapple attachment) while avoiding scalps larger than 1.5 x 1.5 m. Grass seed exposed mineral soil within 1 year of completion of harvest. Wide gouge and wide scalp are not countable soil disturbance categories in de-stumping areas. Maximum Roadside Disturbance Limit: 25%			

RESULTS & STRATEGIES	
RESULT OR STRATEGY	HOW THE STRATEGY OR RESULT APPLIES TO THE SITE
5.1.1a Order Establishing Sproat Lake Landscape Unit and Objective – Objective 1: Old Growth Management Areas (OGMAs)	• The proposed harvest area is within the Sproat Lake Landscape Unit. • OGMAs have been established for the Sproat Lake Landscape Unit on July 18, 2005. • No OGMAS are located beside or close to W14.
5.1.1b Order Establishing Sproat Lake Landscape Unit and Objective – Objective 2: Wildlife Tree Retention (WTR)	• The proposed harvest area is within the Sproat Lake Landscape Unit. • A 0.8 ha WTRA has been retained adjacent to the block, meeting the minimum requirements of 12% set out in the approved landscape unit plan for areas within the CWH xm BEC subzone. This WTRA contains second growth Fd (Cw) representative of the pre-harvest stand. • AVCF will ensure that the 5 year average of WTR will met the minimum requirements set out in the approved landscape unit plan for areas within the CWH mm BEC subzone by ensuring that each individual block meets this target. • AVCF will ensure that the WTR are distributed across the landscape by ensuring that each WTR is directly adjacent to their corresponding cutblock, which is planned to be distributed across the license area. Permissible activities that may occur for this WTRA include: ○ Removal of danger trees,

CUTBLOCK AND ROAD SITE PLAN

	○ WTPs with a high likelihood of windthrow may be pruned or topped to maintain the integrity of the WTP.
5.1.1c Order Establishing Sproat Lake Landscape Unit and Objective – Objective 3: Special Management Zone 17 (SMZ 17)	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.1.2a Vancouver Island Land Use Plan Higher Level Plan Order – Objective 1a: Sustain forest ecosystem structure and function in SMZs	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.1.2b Vancouver Island Land Use Plan Higher Level Plan Order – Objective 1b: Sustain forest ecosystem structure and function in SMZs.	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.1.2c Vancouver Island Land Use Plan Higher Level Plan Order – Objective 1c: Sustain forest ecosystem structure and function in SMZs.	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.1.2d Vancouver Island Land Use Plan Higher Level Plan Order – Objective 2: Recovering damaged timber within SMZs.	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.2.1 Soils (FPPR s.35-36)	• Soil disturbance limits comply with Section 35 of the FPPR. Limits are listed in SOIL DISTURBANCE section of the Site Plan. • Permanent access structures for the development are 9.5%, exceeding the 7% limit set in FPPR S.36. This is due to the size of the block and previously built roads and is not to be considered avoidable site degredation.
5.2.2 Wildlife – MAMU (FPPR s.7)	• The Notice specifies the amount, distribution and attributes of wildlife habitat required for Marbled Murrelet and consequently a result or strategy is required. The harvest area is a second growth Douglas fir stand; poor Murrelet habitat.
5.2.3 Water, Fish, Wildlife and Biodiversity within Riparian Areas (FPPR s.47-52)	• For each riparian class of stream found in and adjacent to the harvest area, the minimum riparian management area (RMA) width, riparian reserve zone (RRZ) width and riparian management zone (RMZ) width, on each side of the stream, are as per the table in FPPR 47(4).

CUTBLOCK AND ROAD SITE PLAN

	• All RMA infringements on streams and wetlands are due to stream crossings that cannot be avoided and or there is no other practical option for locating the road FPPR 50(1)(a), FPPR 50(1)(b), FPPR 51(1)(c).
5.2.4 Community Watersheds (FPPR s.8.2)	• The proposed harvest area is within the Sproat Lake Community Watershed. • CWAP recommendations have been followed and assessments completed to ensure low to moderate material adverse hydrological effects will occur as a result of forest practices.
5.2.5 Wildlife and Biodiversity – Landscape Level (FPPR s.64-65)	• The net area to be reforested is in accordance with the FPPR Sections 64 (less than 40ha) and 65 (it is not adjacent an existing cutblock).
5.2.6 Wildlife and Biodiversity – Stand Level (FPPR s.66-67)	• Wildlife tree retention targets are in accordance with the results or strategy for the approved Sproat Lake Landscape Unit Plan Objective 2. (FSP s. 5.1.1b) • No signs of bear dens were observed during field work.
5.2.7 Cultural Heritage Resources (FPPR s.10)	• It is the responsibility of the licensee to ensure all First Nations parties with aboriginal title are accommodated. Information sharing with the Hupacasath First Nations has occurred and is being completed by the AVCF manager. • If, during harvesting, any evidence of traditional use or cultural heritage values is found within or surrounding the area, notify the AVCF Manager and the Ministry of Forests Aboriginal Liaison Officer and cease work.
5.3.1 Visual Quality Objectives (FPPR s.7 – GAR Order)	• A visual impact assessment (VIA) was completed by ECON Forest Consulting on Feb 24th 2015. This block is located outside of any defined visual resource polygons. The VIA reviewed the potential for viewing from the travel corridors of Highway 4 and Sproat Lake recreation areas. The block is not visible from the viewpoints.

CUTBLOCK AND ROAD SITE PLAN

STOCKING STANDARDS

SU	Standards ID	NAR (ha)	Biogeoclimatic Ecosystem Classification				Regeneration Method	Preferred Species	Acceptable Species
			Zone	Subzone	Variant	Site Series			
A	1037530	3.4	CWH	xm	1	$01_{80}03_{20}$	Plant	Fd	Hw, Cw, Pw[22]
B	1046873	1.8	CWH	xm	1	$01_{80}03_{20}$	Plant as required	Fd	Hw, Cw, Pw[22]

([22]) Risk of white pine blister rust. SU B is a partial cut area. Trees marked for removal are painted with blue dots. Fill planting with Fd will be determined post-harvest to ensure minimum adequate site occupancy and stocking such that a free growing stand is maintained.

SU	Regen. Date (yrs)	FG Date Late (yrs)	MITD (m)	TSS (sph)	MSSp (sph)	MSSp (sph)	Min. FG Ht. by Species		Crop Tree to Brush Ratio %)
							Species	Ht (m)	
A	3	11	2.0	900	500	400	Fd Hw Cw Pw	3.0 2.0 1.5 2.5	150
B	n/a	n/a	n/a	400	200	200	n/a	n/a	n/a

CUTBLOCK AND ROAD SITE PLAN

CRITICAL FACTORS AND REGENERATION COMMENTS

Harvesting: Block boundaries are established with orange flagging, orange tags, and falling corners. Boundary trees may be harvested when they are adjacent to an existing road or block. All other boundary trees should not be felled or damaged.

Partial cut areas are flagged with orange and black candy-strip ribbon and trees marked for removal are painted with blue dots. Non-marked leave trees may be substituted for safety reasons but alternative trees of the same diameter and species must be retained in their place.

This block will be harvested and regenerated using a retention silvicultural system with external wildlife tree retention. The block is designed for ground based harvesting. Road access is off a new proposed road (WC 3).

Windthrow: A windthrow assessment was completed by K2 Forestry Services on Feb 25th, 2015. Block W14 has been assessed as having a moderate to low windthrow risk. No treatments required. See windthrow plan for further details.

Terrain Stability: It was determined that a terrain stability assessment was not required, this was based on the following rationale:

- Slopes are less than 60% and average15% within the block;
- No current or previous signs of instability;
- Roads are already constructed and stable

Recreation Anticipate high public traffic in the surrounding areas as these roads are high use by Quads, recreational users and hunters. Adequate signs are to be posted to inform the public user groups of active blasting, logging and hauling during operations. Branch WC 3 will need to be closed to the public during these activities.

Root Rot: Very minor signs of root rot were noted during the survey. Endemic spot infections may exist but no treatment is prescribed.

Coarse Woody Debris: Retain a minimum of 4 logs/ha each being at least 5m in length and 30 cm in diameter at one end.

Wildlife Tree Retention Areas: WTRA totaling 0.8 ha have been designated for W14. This is equivalent to 12.1% of the total area to be harvested.

Invasive Plants: Broom occurs along sections of the highway and hauling roads on route to W16. Monitor and treat broom and other invasive species during early establishment. Grass seed exposed soil on or adjacent to roads, trails, and landing sites as soon as possible following harvest.

Natural Range Barriers: Natural range barriers do not apply to the proposed harvest area.

Brush Competition: Expect moderate to heavy brush competition from bracken fern and alder ingress. Monitor and treat brush as required to establish new stand of conifers.

Regeneration: Plant promptly following harvesting to minimize the potential need for future brushing treatments. Focus Cw on water receiving sites.

CUTBLOCK AND ROAD SITE PLAN

Recommended Planting Prescription:

SU	NAR (ha)	Species	Percent (%)	Stock Type	Stems/ha	Total Stems
A	3.4	Fd Cw	90 10	412 or Larger	1080 120	3672 408
B	1.8	Fd Cw	90 10	412 or Larger	n/a	n/a

A more detailed planting prescription is to be completed during the Post-Harvest Assessment. SU B is a partial cut area. Planting may be required to ensure minimum stocking standards are met.

RIPARIAN MANAGEMENT					
Riparian Class of Feature	S4 S4 S4	Designation on Map	W14-1 W14-2 Stream 1	Falling and/or Skidding or Yarding Across a Stream	No No No

Stream W14-1, W14-2 and stream 1 are small S4 streams, non-fish bearing and ephemeral. The substrate is rocky and the streams are dry the majority of the time. They are prescribed fall away yard away. These streams are direct tributary to Weiner Creek. Harvesting operations must minimize sedimentation into these creeks.

Retain cedar and non-merchantable stems within the RMZ where operationally practicable.

CUTBLOCK AND ROAD SITE PLAN

RPF SIGNATURE AND SEAL		
Prepared By:	George Knoll Name (Printed)	 Digitally signed by George Knoll Date: 2015.02.25 09:23:38 -08'00'
Signing RPF:	George Knoll RPF Name (Printed)	
25/02/15 Date Signed (dd/mm/yy)	4582 RPF Number	RPF Signature and Seal

"I certify that the work described herein fulfills the standards expected of a member of the Association of British Columbia Forest Professionals and that I did personally supervise the work."

SITE DEGRADATION ESTIMATE

A: DESCRIPTION OF AREA

TENURE
AVCF

CP
07

BLOCK	Ha
W14	6.6

B: Natural Non-Productive

Type	Ha
CREEK	0.00
SWAMPS	0.00
SLIDES	0.00
ROCK OPENINGS	0.00
OTHER / RESERVES	0.8
	Total NNP 0.8

C: UNNATURAL NON-PRODUCTIVE (before Rehab.)

Type	START	END	AMOUNT	LENGTH (M)	SLOPE	WIDTH (M)	Ha	%
WC 3	846	1371	1	525	8	12	0.63	
Totals							0.63	9.5

D: SUMMARY

TYPE	Ha	%
GROSS AREA	6.6	100
NATURAL NON-PRODUCTIVE AREA	0.8	12.1
UNNATURAL NON-PRODUCTIVE AREA	0.6	9.5
REHABILITATION AREA	0.0	0.00
NET AREA TO BE REFORESTED	5.2	78.4

E: COMMENTS:

Due to size, topography and existing built roads, PAS exceeds 7%. This is not considered avoidable site degradation

PREPARED BY: G.Knoll **DATE:** 25-Feb-2015

Block ID	SU	NAR (ha)	ECO Site CWH xm	SS ID	TSS	MSS (PA)	MSS (P)	Prefferred (Min Hgt)	Acceptable (Min Hgt)	MITD (m)
W14	A	3.4	01(8) 03(2)	1037530	900	500	400	Fd(3.0)	Hw (2.0), Cw (1.5), Pw [22](2.5)	2
	B	1.8	01(8) 03(2)	1046873	400	200	200			
	NAR	*5.2*	SU-B contains Stocking Standards for Specified Areas							
	PAS	0.6	[22] Risk of white pine blister rust							
	TLA	0								
	WTRA	0.8								
	TAUP	*6.6*								

Licensee: Alberni Valley Community Forest Corporation
Forest Region: Coast
Forest District: South Island
Reference Map: 92F024, 025, 026 F035, 036
Datum: NAD 83
Projection: BC Albers
TSA: 38 Arrowsmith
TSB: A
FIZ: B
P.S.Y.U.: 471
Inv. Reg.: 5
Comp.: 4B (Sproat), 4C (Taylor)
Drafted: Feb 23, 2015
By: econ

Alberni Valley Community Forest K2D Sproat FDU

Site Plan

Block W14

1:5,000

Meters 0 50 100

Partial Cut Areas (SU-B): Harvest Blue Dotted Trees Only

Blk W14

Blk W13

Island Timberlands Private Land

Roads & Trails
- Highway
- Road, existing
- Road, engineered
- Road, to be re-activated
- Road, de-activated
- Trail, temp
- Old Grade
- Hiking Trail
- Rock Bluff
- Hydro Line

Stream Classification
- S1-S4 Stream
- S5-S6 Stream
- NCD
- Stream, Not Classified

- Falling Corner
- Landing, Perm., Temp.
- Station
- Culvert: New, Existing
- Bridge: New, Out
- Quarry
- Designated Crossing
- Spoil Site
- Swamp
- Wildlife Tree

Standard Unit
- SU-A
- SU-B
- TAUP
- Block, New
- Block, Existing
- Community Forest

Other Features
- Steep Area >35%
- Sensitive Soils Area
- Powerline Area
- Riparian Management Zone
- Riparian Reserve Zone
- Wildlife Tree Retention Area
- Timber Leave Area
- Non Productive, Rock
- Non Productive, Wetland
- Park

CUTBLOCK AND ROAD SITE PLAN

CUTBLOCK IDENTIFICATION				
Licence: K2D/AVCF	Cutting Permit: 7	Block: W16	Timber Mark K2D 007	FDU: A (Sproat)
Silviculture System: Clearcut	Opening Number: 92F.025	Location: Sproat Lake	Lattitude: 49° 18' 16''	Longitude: 125°00' 28''
TAUP(ha): 20.2	NAR (ha): 15.8	NP NAT (ha): 2.5	NP UNN (ha /%): 1.9/9.0%	P.A.S. Limit (%): 7 %

Road Name	Section	Length	Location
ASH 6B	0+000 to 0+728 New Construction	728 m	125°00'21''W // 49°18'16''N
ASH 6	0+000 to 1+176 Re-Construction	1176m	125°00'21''W // 49°18'16''N

SOIL DISTURBANCE				
SU	Compaction	Displacement	Surface Erosion	Soil Disturbance Limit (%)
A	Low	Moderate	Moderate	5
COMMENTS	Use puncheon or rubber matting in sensitive areas and **stop work if the following soil disturbances cannot be avoided**: >Wheel/Track Ruts, Compacted Areas, Gouges, Scalps< Rehabilitate compacted areas and roadsides by de-compacting with hoe (preferably grapple attachment) while avoiding scalps larger than 1.5 x 1.5 m. Grass seed exposed mineral soil within 1 year of completion of harvest. Wide gouge and wide scalp are not countable soil disturbance categories in de-stumping areas. Maximum Roadside Disturbance Limit: 25%			

RESULTS & STRATEGIES	
RESULT OR STRATEGY	HOW THE STRATEGY OR RESULT APPLIES TO THE SITE
5.1.1a Order Establishing Sproat Lake Landscape Unit and Objective – Objective 1: Old Growth Management Areas (OGMAs)	• The proposed harvest area is within the Sproat Lake Landscape Unit. • OGMAs have been established for the Sproat Lake Landscape Unit on July 18, 2005. • No OGMAS are located beside or close to W16.
5.1.1b Order Establishing Sproat Lake Landscape Unit and Objective – Objective 2: Wildlife Tree Retention (WTR)	• The proposed harvest area is within the Sproat Lake Landscape Unit. • A 2.5 ha WTRA has been retained adjacent to the block, meeting the minimum requirements of 12% set out in the approved landscape unit plan for areas within the CWH xm BEC subzone. This WTRA contains second growth Fd (Cw) representative of the pre-harvest stand. • AVCF will ensure that the 5 year average of WTR will met the minimum requirements set out in the approved landscape unit plan for areas within the CWH mm BEC subzone by ensuring that each individual block meets this target. • AVCF will ensure that the WTR are distributed across the landscape by ensuring that each WTR is directly adjacent to their corresponding cutblock, which is planned to be distributed across the license area. Permissible activities that may occur for this WTRA include:

CUTBLOCK AND ROAD SITE PLAN

	○ Removal of danger trees, ○ WTPs with a high likelihood of windthrow may be pruned or topped to maintain the integrity of the WTP.
5.1.1c Order Establishing Sproat Lake Landscape Unit and Objective – Objective 3: Special Management Zone 17 (SMZ 17)	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.1.2a Vancouver Island Land Use Plan Higher Level Plan Order – Objective 1a: Sustain forest ecosystem structure and function in SMZs	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.1.2b Vancouver Island Land Use Plan Higher Level Plan Order – Objective 1b: Sustain forest ecosystem structure and function in SMZs.	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.1.2c Vancouver Island Land Use Plan Higher Level Plan Order – Objective 1c: Sustain forest ecosystem structure and function in SMZs.	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.1.2d Vancouver Island Land Use Plan Higher Level Plan Order – Objective 2: Recovering damaged timber within SMZs.	• The proposed harvest area does not lie within a SMZ, results and strategies do not apply.
5.2.1 Soils (FPPR s.35-36)	• Soil disturbance limits comply with Section 35 of the FPPR. Limits are listed in SOIL DISTURBANCE section of the Site Plan. • Permanent access structures for the development are 9.0%, exceeding the 7% limit set in FPPR S.36. This is due to the size of the block and previously built roads and is not to be considered avoidable site degredation.
5.2.2 Wildlife – MAMU (FPPR s.7)	• The Notice specifies the amount, distribution and attributes of wildlife habitat required for Marbled Murrelet and consequently a result or strategy is required. The harvest area is a second growth Douglas fir stand; poor Murrelet habitat.
5.2.3 Water, Fish, Wildlife and Biodiversity within Riparian Areas (FPPR s.47-52)	• For each riparian class of stream found in and adjacent to the harvest area, the minimum riparian management area (RMA) width, riparian reserve zone (RRZ) width and riparian management zone (RMZ) width, on each side of the stream, are as per the table in FPPR 47(4).

CUTBLOCK AND ROAD SITE PLAN

	• All RMA infringements on streams and wetlands are due to stream crossings that cannot be avoided and or there is no other practical option for locating the road FPPR 50(1)(a), FPPR 50(1)(b), FPPR 51(1)(c).
5.2.4 Community Watersheds (FPPR s.8.2)	• The proposed harvest area is within the Sproat Lake Community Watershed. • CWAP recommendations have been followed and assessments completed to ensure low to moderate material adverse hydrological effects will occur as a result of forest practices.
5.2.5 Wildlife and Biodiversity – Landscape Level (FPPR s.64-65)	• The net area to be reforested is in accordance with the FPPR Sections 64 (less than 40ha) and 65 (it is not adjacent an existing cutblock).
5.2.6 Wildlife and Biodiversity – Stand Level (FPPR s.66-67)	• Wildlife tree retention targets are in accordance with the results or strategy for the approved Sproat Lake Landscape Unit Plan Objective 2. (FSP s. 5.1.1b) • No signs of bear dens were observed during field work.
5.2.7 Cultural Heritage Resources (FPPR s.10)	• It is the responsibility of the licensee to ensure all First Nations parties with aboriginal title are accommodated. Information sharing with the Hupacasath First Nations has occurred and is being completed by the AVCF manager. • If, during harvesting, any evidence of traditional use or cultural heritage values is found within or surrounding the area, notify the AVCF Manager and the Ministry of Forests Aboriginal Liaison Officer and cease work.
5.3.1 Visual Quality Objectives (FPPR s.7 – GAR Order)	• A visual impact assessment (VIA) was completed by ECON Forest Consulting on Feb 24th 2015. This block is located outside of any defined visual resource polygons. The VIA reviewed the potential for viewing from the travel corridors of Highway 4 and Sproat Lake recreation areas. The block is not visible from the viewpoints.

CUTBLOCK AND ROAD SITE PLAN

STOCKING STANDARDS

SU	Standards ID	NAR (ha)	Biogeoclimatic Ecosystem Classification				Regeneration Method	Preferred Species	Acceptable Species
			Zone	Subzone	Variant	Site Series			
A	1037531	15.8	CWH	xm	1	$03_{80}01_{20}$	Plant	Fd, Pl	Cw, Hw[*], Pw[22]

([22]) Risk of white pine blister rust. ([*])*Species are listed as tertiary in the Vancouver Forest Region (VFR) recommended stocking standards, but not listed as acceptable species. They have been included as acceptable for a minor portion of the stand if a cruise report indicates it was present as merchantable volume in the pre-harvest stand. The percentage of the free-growing stand that may be comprised of the species will be on a sliding scale within 5 percentage points leading up to the 20%. For example, if a cruise report showed 15% Hw merchantable volume in the pre-harvest stand, within 5 percentage points leading up to the 15% of the free growing stand could be Hw.*

SU	Regen. Date (yrs)	FG Date Late (yrs)	MITD (m)	TSS (sph)	MSSp (sph)	MSSp (sph)	Min. FG Ht. by Species		Crop Tree to Brush Ratio %)
							Species	Ht (m)	
A	8	11	2.0	800	400	400	Fd Hw Cw Pl Pw	2.0 1.25 1.0 1.25 2.5	150

CUTBLOCK AND ROAD SITE PLAN

CRITICAL FACTORS AND REGENERATION COMMENTS

Harvesting: Block boundaries are established with orange flagging, orange tags, and falling corners. Boundary trees may be harvested when they are adjacent to an existing road or block. All other boundary trees should not be felled or damaged.

This block will be harvested and regenerated using a clearcut silvicultural system with external wildlife tree retention. The block is designed for ground based harvesting. Road access is off an existing road (ASH 6) that requires new culverts, spot ballasting and minor brushing of roadside alder and new construction of ASH 6B, which is an old road grade.

Windthrow: A windthrow assessment was completed by K2 Forestry Services on Feb 23rd, 2015. Block W16 has been assessed as having a moderate to low windthrow risk. No treatments required. See windthrow plan for further details.

Terrain Stability: It was determined that a terrain stability assessment was not required, this was based on the following rationale:

- Slopes are less than 60% and average15% within the block;
- No current or previous signs of instability;
- Roads are already constructed and stable

Recreation Anticipate high public traffic in the surrounding areas as these roads are high use by Quads, recreational users and hunters. Adequate signs are to be posted to inform the public user groups of active blasting, logging and hauling during operations. Branch AS12 will need to be closed to the public during these activities.

Root Rot: Very minor signs of root rot were noted during the survey. Endemic spot infections may exist but no treatment is prescribed.

Coarse Woody Debris: Retain a minimum of 4 logs/ha each being at least 5m in length and 30 cm in diameter at one end.

Wildlife Tree Retention Areas: WTRA totaling 2.5 ha have been designated for W16. This is equivalent to 12.3% of the total area to be harvested.

Invasive Plants: Broom occurs along sections of the highway and hauling roads on route to W16. Monitor and treat broom and other invasive species during early establishment. Grass seed exposed soil on or adjacent to roads, trails, and landing sites as soon as possible following harvest.

Natural Range Barriers: Natural range barriers do not apply to the proposed harvest area.

Brush Competition: Expect moderate to heavy brush competition from bracken fern and alder ingress. Monitor and treat brush as required to establish new stand of conifers.

Regeneration: Plant promptly following harvesting to minimize the potential need for future brushing treatments. Focus Cw on water receiving sites.

CUTBLOCK AND ROAD SITE PLAN

Recommended Planting Prescription:

SU	NAR (ha)	Species	Percent (%)	Stock Type	Stems/ha	Total Stems
A	15.8	Fd Cw	90 10	412 or Larger	1080 120	17064 1896
A more detailed planting prescription is to be completed during the Post-Harvest Assessment.						

RIPARIAN MANAGEMENT					
Riparian Class of Feature	NCD S4 S4 S4 NCD	Designation on Map	16-1 16-2 16-3 16-4 16-5	Falling and/or Skidding or Yarding Across a Stream	Yes No No No Yes

Stream 16-1 and 16-5 are small ephemeral NCD's. They are to be fall across yard across

Stream 16-2, 16-3 and 16-4 are small S4 streams, non-fish bearing and ephemeral. The substrate is rocky and the streams are dry the majority of the time. They are prescribed fall away yard away with designated crossings to be used for harvesting flexibility.

Retain cedar and non-merchantable stems within the RMZ where operationally practicable.

CUTBLOCK AND ROAD SITE PLAN

RPF SIGNATURE AND SEAL		
Prepared By:	George Knoll Name (Printed)	 Digitally signed by George Knoll Date: 2015.02.25 09:28:31 -08'00'
Signing RPF:	George Knoll RPF Name (Printed)	
24/02/15 Date Signed (dd/mm/yy)	4582 RPF Number	RPF Signature and Seal

"I certify that the work described herein fulfills the standards expected of a member of the Association of British Columbia Forest Professionals and that I did personally supervise the work."

SITE DEGRADATION ESTIMATE

A: DESCRIPTION OF AREA

TENURE
AVCF

CP
07

BLOCK	Ha
W16	20.2

B: Natural Non-Productive

Type	Ha
CREEK	0.00
SWAMPS	0.00
SLIDES	0.00
ROCK OPENINGS	0.00
OTHER / RESERVES	2.5
	Total NNP 2.5

C: UNNATURAL NON-PRODUCTIVE (before Rehab.)

Type	START	END	AMOUNT	LENGTH (M)	SLOPE	WIDTH (M)	Ha	%
ASH 6	155	310	1	155	8	6	.093	
ASH 6	310	1113	1	803	8	12	.9636	
ASH 6	1113	1176	1	63	8	6	.0378	
ASH 6B	0	559	1	559	8	12	.6708	
ASH 6B	679	728	1	49	8	12	.0588	
Totals							1.82	9.0

D: SUMMARY

TYPE	Ha	%
GROSS AREA	20.2	100
NATURAL NON-PRODUCTIVE AREA	2.5	12.3
UNNATURAL NON-PRODUCTIVE AREA	1.9	9.0
REHABILITATION AREA	0.0	0.00
NET AREA TO BE REFORESTED	15.8	78.7

E: COMMENTS:

Due to size, topography and existing built roads, PAS exceeds 7%. This is not considered avoidable site degradation

PREPARED BY: G.Knoll **DATE:** 20-Feb-2015

Block ID	SU	NAR (ha)	ECO Site CWH xm	SS ID	TSS	MSS (PA)	MSS (P)	Prefferred (Min Hgt)	Acceptable (Min Hgt)	MITD (m)
W16	A	15.8	03(8) 01(2)	1037531	800	400	400	Fd(2.0), Pl(1.25)	Cw (1.0), Hw *(1.25), Pw [2](2.5)	2
	NAR	*15.8*								
	PAS	1.9								
	TLA	0								
	WTRA	2.5								
	TAUP	*20.2*								

[2] Pw is considered an acceptable species where root rot is prevalent, up to 20%of stand

* Species are listed as tertiary in the Vancouver Forest Region (VFR) recommended stocking standards, but not listed as acceptable species. They have been included as acceptable for a minor portion of the stand if a cruise report indicates it was present as merchantable volume in the pre-harvest stand. The percentage of the free-growing stand that may be comprised of the species will be on a sliding scale within 5 percentage points leading up to the 20%. For example, if a cruise report showed 15%Hw merchantable volume in the pre-harvest stand, within 5 percentage points leading up to the 15%of the free-growing stand could be Hw.

Licensee: Alberni Valley Community Forest Corporation
Forest Region: Coast
Forest District: South Island
Reference Map: 92F024, 025, 026 F035, 036
Datum: NAD 83
Projection: BC Albers
TSA: 38 Arrowsmith
TSB: A
FIZ: B
P.S.Y.U.: 471
Inv. Reg.: 5
Comp.: 4B (Sproat), 4C (Taylor)
Drafted: Feb 23, 2015
By: econ

Alberni Valley Community Forest K2D Sproat FDU

Site Plan

Block W16

1:5,000

0 50 100 Meters

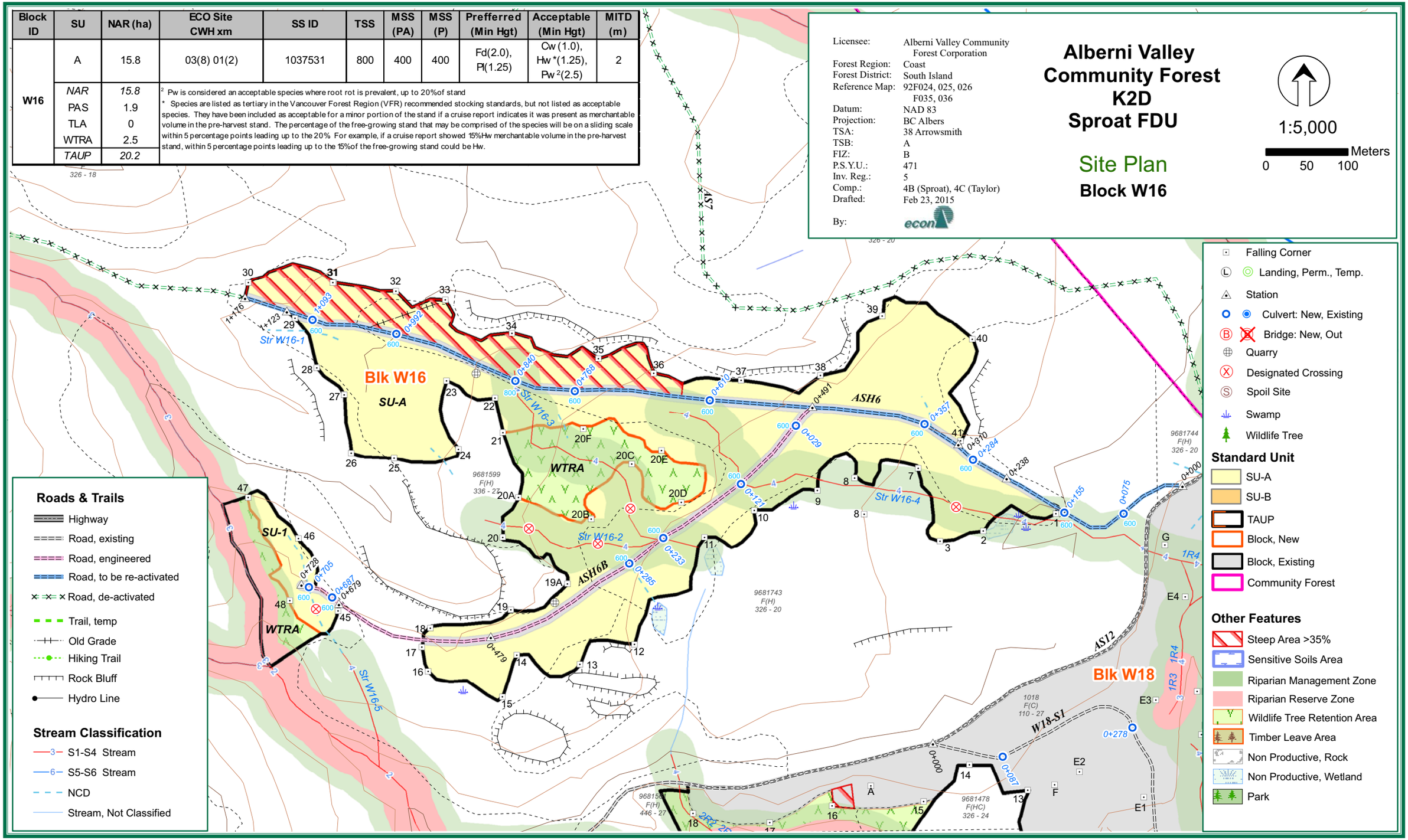
Roads & Trails
- Highway
- Road, existing
- Road, engineered
- Road, to be re-activated
- Road, de-activated
- Trail, temp
- Old Grade
- Hiking Trail
- Rock Bluff
- Hydro Line

Stream Classification
- S1-S4 Stream
- S5-S6 Stream
- NCD
- Stream, Not Classified

- Falling Corner
- Landing, Perm., Temp.
- Station
- Culvert: New, Existing
- Bridge: New, Out
- Quarry
- Designated Crossing
- Spoil Site
- Swamp
- Wildlife Tree

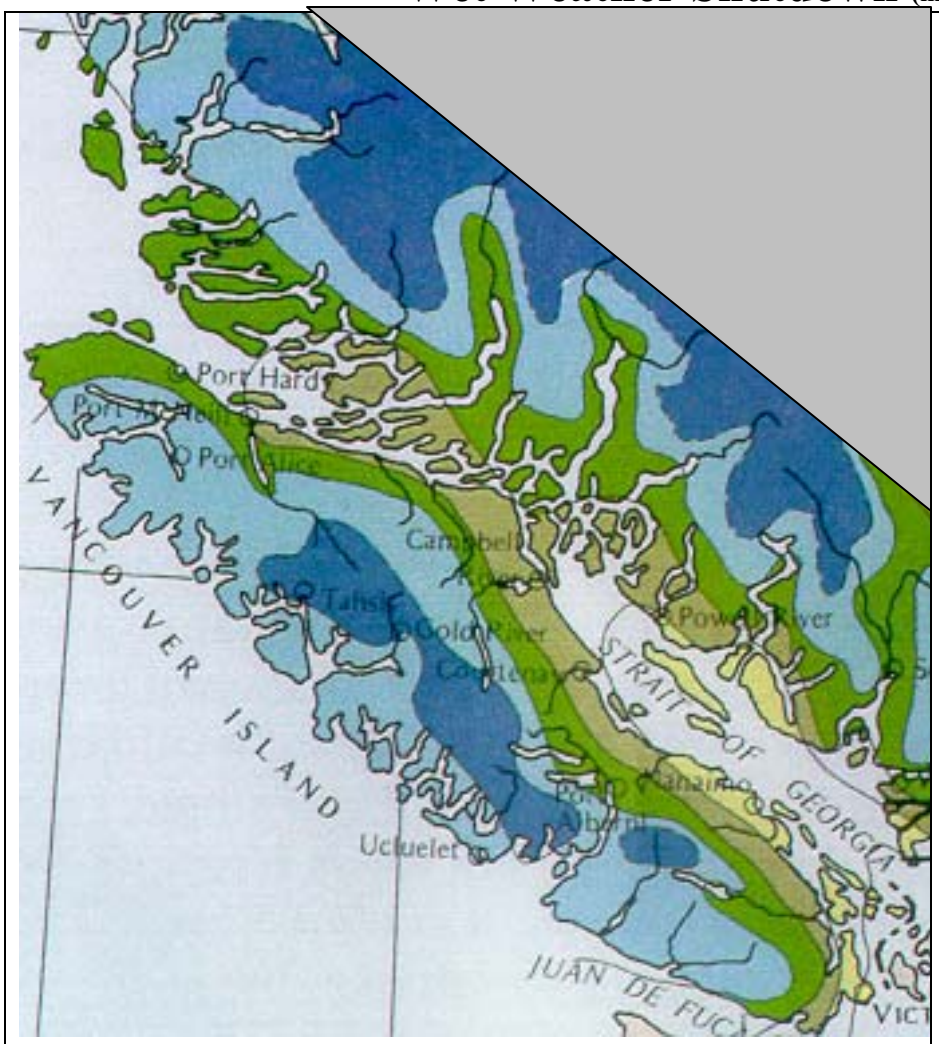
Standard Unit
- SU-A
- SU-B
- TAUP
- Block, New
- Block, Existing
- Community Forest

Other Features
- Steep Area >35%
- Sensitive Soils Area
- Riparian Management Zone
- Riparian Reserve Zone
- Wildlife Tree Retention Area
- Timber Leave Area
- Non Productive, Rock
- Non Productive, Wetland
- Park



Appendix 6: Wet Weather Shutdown Guidelines

Wet Weather Shutdown (modified Nov 7, 2006)



Zone	Mean Annual Precip (mm)	Shutdown Threshold (mm/24 hours)
1	750	20
2	1500	40
3	2500	60
4	3000	75
5	3500	90

TABLE B Local Soil Type	Multiplier Factor
Very Erodible (e.g. lacustrine)	0.4
Erodible (e.g. organics, sands)	0.6
Least Erodible (e.g. colluvium, till)	0.8
Bedrock	1.0

TABLE C Slope Modifier	Multiplier Factor
0% - 57	1.0
57% - 70%	0.9
71% - 88%	0.8
89% +	0.7

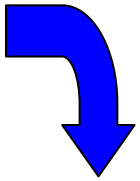
Instructions:

1) Use base shutdown threshold from Table A
2) Multiply by Soil Type Modifier from Table B
3) Multiply result by Slope Modifier from Table C

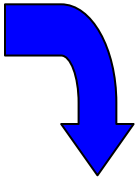
Result is rainfall shutdown threshold in millimeters in a 24 hour period

Example

Zone¤	Table·A:·Mean·Annual·¤	Shutdown· Threshold¤
°¤	Precipitation·(mm)¤	(mm/24·hours)¤
1¤	750¤	20¤
2¤	1500¤	40¤
3¤	2500¤	60¤
4¤	3000¤	75¤
5¤	3500¤	90¤



TABLE·B·Local·Soil·Type¤	Multiplier¤
°¤	Factor¤
Very·Erodible·(e.g.· lacustrine)¤	0.4¤
Erodible·(e.g.·organics,· sands)¤	0.6¤
Least·Erodible·(e.g.· colluvium,·till)¤	0.8¤
Bedrock¤	1.0¤



TABLE·C·Slope·Modifier¤	Multiplier¤
°※	Factor¤
0·%·-·57¤	1.0¤
·57·%·-·70·%¤	0.9¤
71·%·-·88·%¤	0.8¤
89·%·+¤	0.7¤

For Dark Blue Zone 5; 24 Hr Shutdown Criteria = 90 x 0.8 x 0.8 = 58 mm

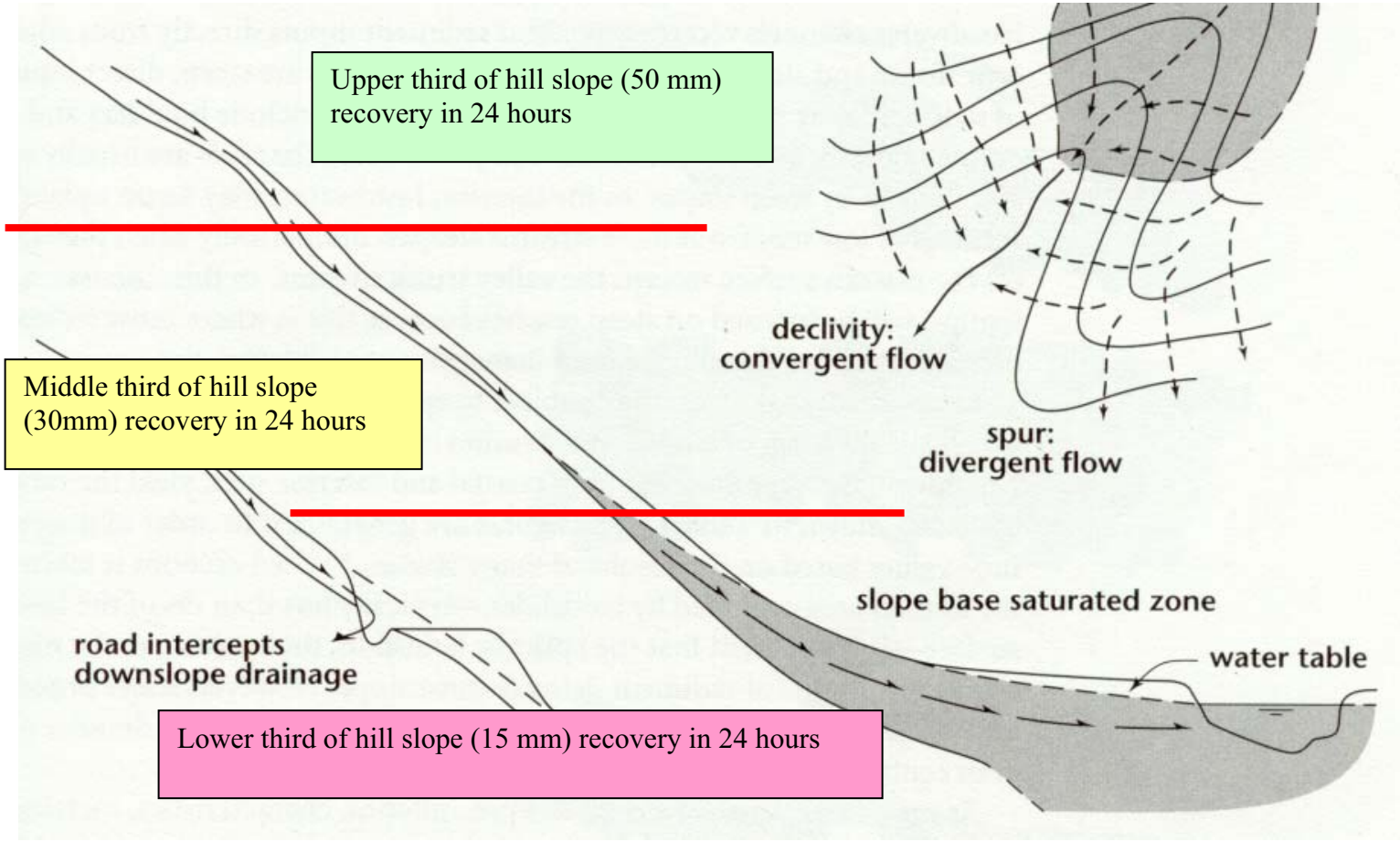
Return to Work Estimation Guide

Water balance returns to normal after a heavy rainfall period subject to a number of variables

- -slope position
- -slope gradient
- -soil type and depth (or proximity to bedrock)

Where a road is located above the worksite, interception by ditch lines may have the effect of increasing the recovery rate for lower slope positions

Using the following sketch as a guide, identify the slope position of the planned activity (upper, middle and lower thirds)
In an **average** situation precipitation input is reduced in a 24 hour period by the indicated values based on slope position



Appendix 7: Best Management Practices for a Community Watershed

(Practices Derived from Econ Forest Consulting Roads Report June 2011 and Sproat Lake CWAP Report 2008)

Best Management Practices for Community Watersheds

Refer also to Section 5.2.4 of the AVCF FSP.

Ditch Cleaning: where needed, ditches are to be cleaned when conditions are dry. Ditch spoil is not to be windrowed along the road shoulder. On moderate slopes, the ditch spoil could be thinly spread on the slope below the road, but not heaped or piled against trees. Where the road is on steep slopes, the ditch spoil should be end hauled to a suitable spoil site.

Culvert replacement: Where required culvert replacements are to be done during dry weather (except for emergency repairs or replacements). The inlet and outlet areas on new culverts, and the adjacent fill slopes, are to be armoured to prevent erosion or sloughing into the creek.

Rock Ballasting of road surface: For new road construction, where the road is close to a stream channel, the road surface is to be ballasted with clean rock. The road surface is also to be rock ballasted for 30 meters either side of stream culverts.

Road grading practices: grading is to be avoided during heavy rain.

Shutdown or harvest completion: In preparation for a shutdown for a period longer than 30 days or at a harvest completion, the following measures will be taken:

> No excavated or end hauled material will be left piled in such a way as to become unstable during the shutdown period. Spoil sites, piles and fills will be sloped uniformly to prevent instability.
>
> Ditches and culverts will be left clear and functional, with adequate inlet basins to minimize the potential for plugging.
>
> On sections of steep grades, cross ditches and back-up swales will be constructed where needed to minimize ditch erosion.
>
> If road construction has reached a drainage course but a drainage structure has not been installed prior to shutdown, the drainage course will be left open and unimpeded.
>
> Where exposed silty soils could erode and enter surface streams or ditches connected to streams, silt fences, hay bales or erosion blankets will be applied as needed for temporary protection.

Appendix 8: Cruise Reports

AVCF

K2D - CP# PRE

Block #: B14, B15, W14, and W16

SUMMARY OF VOLUMES (CGNF)
FULL VOLUMES APPLIED

19-Feb-2015 02:19:32PM

Cruised by: F WARREN AND ASSOCIATES LTD
Compiled by: F Warren And Associates Ltd

Appraisal Summary Report

19-Feb-2015 02:19:32PM

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF
Location :

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage
No Of Blocks : 4

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Utilization Levels:	Minimum DBH	Top Diameter	Stump Height
Mature Blocks: (cm)	17.5	15.0	30
Immature Blocks:(cm)	12.0	10.0	30

Standard Log Length:(m) 10.00

Net Area: [All Treatment Units : 44.5]

All Method Summary

Cruiser Call Variable Length Grades %

Species Code	Description	H	I	J	U	Y	Net Volume (m3) All	Net Volume (m3) Live	Net Volume (m3) DP	Net Volume / ha All	Net Volume / ha Live	Net Volume / ha DP
BA	Balsam			64	36		346	285	61	7.776	6.401	1.375
CE	Cedar			58	40	2	1573	1573	0	35.350	35.350	0.000
FI	Doug-Fir	10	2	56	31	1	16120	15711	409	362.248	353.057	9.190
HE	Hemlock	31	31	19	14	5	1232	1232	0	27.687	27.687	0.000
AL	Alder				74	26	1408	1408	0	31.650	31.650	0.000
MA	Maple					100	57	57	0	1.273	1.273	0.000
	Total						20736	20266	470	465.984	455.419	10.566

Harvesting Method Summaries

Harvest Method	Net Volume	Net Vol /10m Log	Net Vol /Hectare	Hem+ Bal%	Partial Cut%	Slope%	Down Tree%	Heavy Fire%
SC	20736	0.29	465.984	8		14	2	0
Conventional Methods	20736	0.29	465.984	8		14	2	0
All Methods	20736	0.29	465.984	8			2	0

Cutting Authority

95% Confidence Interval	13.5	
Plots/Ha	1.3	
Cruised Trees/Plot	4.4	
Net 2nd Growth-Conifer %	90.6	
Net 2nd Growth-Conifer (m3)	17458	
Net Immature by Block %	B14: 90%	B15: 70% W14:100% W16: 77%
Non Heli Select Conifer (m3/ha)	433.06	
Heli Select Total (decimal)	0.00	
Heli+Skyline Total (decimal)	0.00	
Piece Size - Conifer (m3/10m log)	0.29	
Cruise Date (yy-mm):	15-02	

Plots: 56 # <= 5yrs: 35 # > 5yrs: 0 # > 10yrs: 0 # no date: 21

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Double Sampling Factors

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

	F	C	H	B	D	MB
Utilization Limits						
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0

Type Factors

Forest Types:

1 :Fd (HwCwDrBa)	0.9957	1.3333	2.3810	0.7143	1.1905	1.0000
2 :Fd (CwBaHwDr)	1.0667	3.0000	1.0000	0.5000	0.5000	1.0000
3 :Fd (Cw)	1.0965	0.8333	1.0000	1.0000	1.0000	1.0000
4 :Fd (DrCwMb)	1.1142	0.7368	1.0000	1.0000	0.9211	0.7368

Block Factors

Block B14:
Forest Types:

1 :Fd (HwCwDrBa)	0.9957	1.3333	2.3810	0.7143	1.1905	1.0000
2 :Fd (CwBaHwDr)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3 :Fd (Cw)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4 :Fd (DrCwMb)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Block B15:
Forest Types:

1 :Fd (HwCwDrBa)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2 :Fd (CwBaHwDr)	1.0667	3.0000	1.0000	0.5000	0.5000	1.0000
3 :Fd (Cw)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4 :Fd (DrCwMb)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Block W14:
Forest Types:

1 :Fd (HwCwDrBa)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2 :Fd (CwBaHwDr)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3 :Fd (Cw)	1.0965	0.8333	1.0000	1.0000	1.0000	1.0000
4 :Fd (DrCwMb)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Block W16:
Forest Types:

1 :Fd (HwCwDrBa)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2 :Fd (CwBaHwDr)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3 :Fd (Cw)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4 :Fd (DrCwMb)	1.1142	0.7368	1.0000	1.0000	0.9211	0.7368

Harvest Method Factors

Method: SC: Ground Systems - Clearcut
Forest Types:

1 :Fd (HwCwDrBa)	0.9957	1.3333	2.3810	0.7143	1.1905	1.0000

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Double Sampling Factors

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

	F	C	H	B	D	MB
Utilization Limits						
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0
Method: SC: Ground Systems - Clearcut						
2 :Fd (CwBaHwDr)	1.0667	3.0000	1.0000	0.5000	0.5000	1.0000
3 :Fd (Cw)	1.0965	0.8333	1.0000	1.0000	1.0000	1.0000
4 :Fd (DrCwMb)	1.1142	0.7368	1.0000	1.0000	0.9211	0.7368

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Volume Statistical Analysis

19-Feb-2015 02:19:32PM

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Utilization Levels:	Minimum DBH	Top Diameter	Stump Height
Mature Blocks: (cm)	17.5	15.0	30
Immature Blocks:(cm)	12.0	10.0	30

Standard Log Length:(m) 10.00

Forest Type	Plots Cnt	Plots Mea	Plots Tot	Area ha	Net Volume m3/ha	Proportional Volume	Trees Cnt	Trees Mea	Trees Tot	Standard Deviation	Coeff. of Variation	Sampling Error 1 SE%	Sampling Error 2 SE%
1 :Fd (HwCwDrBa)	11	10	21	15.3	523.5	0.38	57	44	101	327.7612	69.9	14.8	30.8
2 :Fd (CwBaHwDr)	5	5	10	7.6	431.2	0.16	23	19	42	151.3583	38.9	11.6	26.1
3 :Fd (Cw)	1	5	6	5.8	524.5	0.15	6	20	26	177.7885	37.0	13.9	35.7
4 :Fd (DrCwMb)	5	14	19	15.8	405.5	0.32	23	54	77	130.6993	34.0	7.5	15.8
TOTAL	22	34	56	44.5	466.0		109	137	246		39.3	6.7	13.5

Number of live & dead potential trees sampled is 137
Number of dead useless trees sampled is 1
Number of live useless trees sampled is 1
The measured weighted sampling error is 19.5% at the 95% confidence level
The weighted sampling error is 13.5% at the 95% confidence level

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Basal Area Statistical Analysis

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Utilization Levels:	Minimum DBH	Top Diameter	Stump Height
Mature Blocks: (cm)	17.5	15.0	30
Immature Blocks:(cm)	12.0	10.0	30

Standard Log Length:(m) 10.00

Forest Type	Plots Cnt	Plots Mea	Plots Tot	Area ha	Basal Area m2/ha	Proportional Basal Area	Trees Cnt	Trees Mea	Trees Tot	Standard Deviation	Coeff. of Variation	Sampling Error 1 SE%	Sampling Error 2 SE%
1 :Fd (HwCwDrBa)	11	10	21	15.3	67.3	0.38	57	44	101	25.2850	37.6	8.2	17.1
2 :Fd (CwBaHwDr)	5	5	10	7.6	58.8	0.16	23	19	42	15.8941	27.0	8.5	19.3
3 :Fd (Cw)	1	5	6	5.8	60.7	0.13	6	20	26	19.1276	31.5	12.9	33.1
4 :Fd (DrCwMb)	5	14	19	15.8	56.7	0.33	23	54	77	18.9410	33.4	7.7	16.1
TOTAL	22	34	56	44.5	61.2		109	137	246		34.0	4.5	9.1

Number of live & dead potential trees sampled is 137
Number of dead useless trees sampled is 1
Number of live useless trees sampled is 1
The measured weighted sampling error is 15.2% at the 95% confidence level
The weighted sampling error is 9.1% at the 95% confidence level

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

All Method Summary

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

[All Treatment Units : 44.5]

		Total	Conifer	Decid	F	C	H	B	D	MB
Utilization Limits										
Min DBH cm (I)					12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)					30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)					10.0	10.0	10.0	10.0	10.0	10.0
Log Len m					10.0	10.0	10.0	10.0	10.0	10.0
Volume and Size Data										
Gross Merchantable	m3	22044	20404	1640	16997	1670	1340	397	1580	60
Net Merchantable	m3	20736	19271	1465	16120	1573	1232	346	1408	57
Net Merch - All	m3/ha	465.984	433.061	32.924	362.248	35.350	27.687	7.776	31.650	1.273
Net Merch - Live	m3/ha	455.419	422.495	32.924	353.057	35.350	27.687	6.401	31.650	1.273
Net Merch - DP	m3/ha	10.566	10.566		9.190			1.375		
Decay	%	1	1	1	1		0	8	1	
Waste(billing)	%	1	1	5	1		4		5	
Total Cull (DWB)	%	6	6	11	5	6	8	13	11	5
Net Merch Vol/Tree	m3	0.46	0.46	0.39	0.46	0.35	0.92	0.64	0.40	0.23
Avg 10.0 m Log Net	m3	0.29	0.29	0.25	0.28	0.30	0.56	0.40	0.25	0.24
Useless Dead/Living	%	5	6		7					
Net Second Growth	%		90.6		93.1	59.6	100.0	82.3		
All Burn Volume	%									
Heavy Fire Volume	%									
Blowdown Volume	%	2	1	8	1		5		8	
Insect Volume	%									

Cruiser Call Variable Length Grades %

#2 Sawlog	H	10	11		10		31			
#3 Sawlog	I	4	4		2		31			
#4 Sawlog	J	49	53		56	58	19	64		
#5 Utility	U	34	31	71	31	40	14	36	74	
#7 Chipper	Y	3	1	29	1	2	5		26	100

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Harvest Method Summary

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Harvest Method : SC - Ground Systems - Clearcut[All Treatment Units : 44.5]

		Total	Conifer	Decid	F	C	H	B	D	MB
Utilization Limits										
Min DBH cm (I)					12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)					30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)					10.0	10.0	10.0	10.0	10.0	10.0
Log Len m					10.0	10.0	10.0	10.0	10.0	10.0
Volume and Size Data										
Gross Merchantable	m3	22044	20404	1640	16997	1670	1340	397	1580	60
Net Merchantable	m3	20736	19271	1465	16120	1573	1232	346	1408	57
Net Merch - All	m3/ha	465.984	433.061	32.924	362.248	35.350	27.687	7.776	31.650	1.273
Net Merch - Live	m3/ha	455.419	422.495	32.924	353.057	35.350	27.687	6.401	31.650	1.273
Net Merch - DP	m3/ha	10.566	10.566		9.190			1.375		
Decay	%	1	1	1	1		0	8	1	
Waste(billing)	%	1	1	5	1		4		5	
Total Cull (DWB)	%	6	6	11	5	6	8	13	11	5
Net Merch Vol/Tree	m3	0.46	0.46	0.39	0.46	0.35	0.92	0.64	0.40	0.23
Avg 10.0 m Log Net	m3	0.29	0.29	0.25	0.28	0.30	0.56	0.40	0.25	0.24
Useless Dead/Living	%	5	6		7					
Net Second Growth	%		90.6		93.1	59.6	100.0	82.3		
All Burn Volume	%									
Heavy Fire Volume	%									
Blowdown Volume	%	2	1	8	1		5		8	
Insect Volume	%									
% Average Slope		14								

Cruiser Call Variable Length Grades %

#2 Sawlog	H	10	11		10		31			
#3 Sawlog	I	4	4		2		31			
#4 Sawlog	J	49	53		56	58	19	64		
#5 Utility	U	34	31	71	31	40	14	36	74	
#7 Chipper	Y	3	1	29	1	2	5		26	100

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Cutting Permit Summary

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Net Area: [A : 44.5]
Gross Area: [R/W Removed : 4.9][Grand Total : 49.4]

		Total	Conifer	Decid	F	C	H	B	D	MB
Utilization Limits										
Min DBH cm (I)					12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)					30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)					10.0	10.0	10.0	10.0	10.0	10.0
Log Len m					10.0	10.0	10.0	10.0	10.0	10.0
Volume and Size Data										
Gross Merchantable	m3	22044	20404	1640	16997	1670	1340	397	1580	60
Net Merchantable	m3	20736	19271	1465	16120	1573	1232	346	1408	57
Net Merch - All	m3/ha	466	433	33	362	35	28	8	32	1
Distribution	%	100	93	7	78	8	6	2	7	0
Decay	%	1	1	1	1		0	8	1	
Waste	%	1	1	4	1		4		4	
Waste(billing)	%	1	1	5	1		4		5	
Breakage	%	4	4	5	4	6	4	5	5	5
Total Cull (DWB)	%	6	6	11	5	6	8	13	11	5
Stems/Ha (Live & DP)		1020.0	936.2	83.8	794.2	99.8	30.1	12.2	78.3	5.5
Avg DBH (Live & DP)	cm	27.6	27.8	25.4	27.5	27.7	34.2	31.1	25.5	24.5
Snags/Ha		57.2	57.2		57.2					
Avg Snag DBH	cm	12.6	12.6		12.6					
Gross Merch Vol/Tree	m3	0.49	0.49	0.44	0.48	0.38	1.00	0.73	0.45	0.24
Net Merch Vol/Tree	m3	0.46	0.46	0.39	0.46	0.35	0.92	0.64	0.40	0.23
Avg Weight Total Ht	m	26.1	26.4	21.9	26.6	20.2	32.1	24.4	22.1	15.6
Avg Weight Merch Ht	m	21.3	21.8	16.2	21.9	15.9	27.2	20.5	16.4	10.0
Avg 10.0 m Log Net	m3	0.29	0.29	0.25	0.28	0.30	0.56	0.40	0.25	0.24
Avg 10.0 m Log Gross	m3	0.29	0.29	0.27	0.28	0.30	0.59	0.44	0.27	0.24
Avg # of 10.0 m Logs/Tree		1.67	1.67	1.66	1.72	1.24	1.71	1.68	1.70	1.00
Net Immature	%	84.2	90.6		93.1	59.6	100.0	82.3		
Net 2nd Growth	%		90.6							
Average Slope	%	14								
Cruiser Call Variable Length Grades %										
#2 Sawlog	H	10	11		10		31			
#3 Sawlog	I	4	4		2		31			
#4 Sawlog	J	49	53		56	58	19	64		
#5 Utility	U	34	31	71	31	40	14	36	74	
#7 Chipper	Y	3	1	29	1	2	5		26	100
Statistical Summary										
Coeff. of Variation	%	39.3	42.7	252.4	53.0	107.6	110.6	417.5	263.6	679.3
Two Standard Error	%	13.5	14.7	86.6	18.2	36.9	37.9	143.2	90.4	233.0
Number and Type of Plots		MP = 34	CP = 22							
Number of Potential Trees		137								
Plots/Ha		1.3								
Cruised Trees/Plot		4.4								

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Block Summary

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Net Area: Block : (I) - B14:B14, Plots in Block: 21, TUs: [A : 15.3]
Gross Area: [R/W Removed : 2.5][Grand Total : 17.8]

		Total	Conifer	Decid	F	C	H	B	D	MB
Utilization Limits										
Min DBH cm (I)					12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)					30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)					10.0	10.0	10.0	10.0	10.0	10.0
Log Len m					10.0	10.0	10.0	10.0	10.0	10.0
Volume and Size Data										
Gross Merchantable	m3	8532	8037	496	5647	834	1275	280	496	
Net Merchantable	m3	8010	7539	471	5339	789	1176	234	471	
Net Merch - All	m3/ha	524	493	31	349	52	77	15	31	
Distribution	%	100	94	6	67	10	15	3	6	
Decay	%	1	1		1			12		
Waste	%	1	1		0		4			
Waste(billing)	%	1	1		0		4			
Breakage	%	4	4	5	4	5	4	5	5	
Total Cull (DWB)	%	6	6	5	5	5	8	16	5	
Stems/Ha (Live & DP)		1136.1	1086.8	49.3	894.0	130.6	30.9	31.2	49.3	
Avg DBH (Live & DP)	cm	27.5	27.4	29.3	25.6	30.2	52.4	28.5	29.3	
Snags/Ha										
Avg Snag DBH	cm									
Gross Merch Vol/Tree	m3	0.49	0.48	0.66	0.41	0.42	2.69	0.59	0.66	
Net Merch Vol/Tree	m3	0.46	0.45	0.62	0.39	0.40	2.48	0.49	0.62	
Avg Weight Total Ht	m	26.9	27.1	23.4	27.4	18.1	33.1	23.3	23.4	
Avg Weight Merch Ht	m	22.4	22.8	17.6	23.1	13.8	28.0	19.1	17.6	
Avg 10.0 m Log Net	m3	0.30	0.30	0.33	0.25	0.34	0.86	0.34	0.33	
Avg 10.0 m Log Gross	m3	0.30	0.30	0.33	0.26	0.34	0.90	0.39	0.33	
Avg # of 10.0 m Logs/Tree		1.62	1.60	2.00	1.61	1.24	3.00	1.51	2.00	
Net Immature	%	89.5	95.1		97.1	80.3	100.0	73.9		
Net 2nd Growth	%		95.1							
Average Slope	%	13								
Cruiser Call Variable Length Grades %										
#2 Sawlog	H	16	17		17		33			
#3 Sawlog	I	5	5				32			
#4 Sawlog	J	44	48		54	39	20	57		
#5 Utility	U	34	30	86	29	61	15	43	86	
#7 Chipper	Y	1		14					14	
Statistical Summary										
Coeff. of Variation	%	46.7	49.7	183.3	74.7	72.3	61.9	257.4	183.3	
Two Standard Error	%	30.8	32.8	120.9	49.3	47.7	40.8	169.8	120.9	
Number and Type of Plots		MP = 10		CP = 11						
Number of Potential Trees		44								
Plots/Ha		1.4								
Cruised Trees/Plot		4.8								

Slope % Statistics

Min= 0, Max= 35, CV=102.1, Std Error of Mean=2.8, 2SE%=46.5

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Block Summary

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Net Area: Block : (I) - B15:B15, Plots in Block: 10, TUs: [A : 7.6]
Gross Area: [R/W Removed : 0.5][Grand Total : 8.1]

		Total	Conifer	Decid	F	C	H	B	D	MB
Utilization Limits										
Min DBH cm (I)					12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)					30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)					10.0	10.0	10.0	10.0	10.0	10.0
Log Len m					10.0	10.0	10.0	10.0	10.0	10.0
Volume and Size Data										
Gross Merchantable	m3	3489	3437	52	2740	515	65	117	52	
Net Merchantable	m3	3277	3227	50	2580	479	56	112	50	
Net Merch - All	m3/ha	431	425	7	339	63	7	15	7	
Distribution	%	100	98	2	79	15	2	3	2	
Decay	%	1	1		1		10			
Waste	%	1	1		1					
Waste(billing)	%	1	1		1					
Breakage	%	5	5	5	4	7	4	4	5	
Total Cull (DWB)	%	6	6	5	6	7	14	4	5	
Stems/Ha (Live & DP)		819.4	749.7	69.6	574.7	52.8	113.8	8.4	69.6	
Avg DBH (Live & DP)	cm	30.2	31.2	16.0	31.5	45.0	17.7	46.0	16.0	
Snags/Ha										
Avg Snag DBH	cm									
Gross Merch Vol/Tree	m3	0.56	0.60	0.10	0.63	1.28	0.07	1.82	0.10	
Net Merch Vol/Tree	m3	0.53	0.57	0.09	0.59	1.19	0.06	1.75	0.09	
Avg Weight Total Ht	m	26.5	26.7	14.0	27.4	25.0	17.0	27.0	14.0	
Avg Weight Merch Ht	m	22.6	22.8	7.3	23.5	20.3	9.9	23.3	7.3	
Avg 10.0 m Log Net	m3	0.36	0.38	0.10	0.38	0.64	0.07	0.61	0.10	
Avg 10.0 m Log Gross	m3	0.37	0.38	0.10	0.38	0.64	0.07	0.61	0.10	
Avg # of 10.0 m Logs/Tree		1.53	1.58	1.00	1.63	2.00	1.00	3.00	1.00	
Net Immature	%	70.2	71.3		82.7		100.0	100.0		
Net 2nd Growth	%		71.3							
Average Slope	%	13								
Cruiser Call Variable Length Grades %										
#2 Sawlog	H	15	16		20					
#3 Sawlog	I	9	9		11					
#4 Sawlog	J	51	51		45	86		79		
#5 Utility	U	21	22		23	14		21		
#7 Chipper	Y	4	2	100	1		100		100	
Statistical Summary										
Coeff. of Variation	%	25.8	22.5	316.2	17.7	52.7	158.1	316.2	316.2	
Two Standard Error	%	26.1	22.7	319.9	17.9	53.3	159.9	319.9	319.9	
Number and Type of Plots		MP = 5	CP = 5							
Number of Potential Trees		19								
Plots/Ha		1.3								
Cruised Trees/Plot		4.2								

Slope % Statistics

Min= 0, Max= 30, CV=109.0, Std Error of Mean=4.3, 2SE%=78.0

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Block Summary

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Net Area: Block : (I) - W14:W14, Plots in Block: 6, TUs: [A : 5.8]

		Total	Conifer	Decid	F	C	H	B	D	MB
Utilization Limits										
Min DBH cm (I)					12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)					30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)					10.0	10.0	10.0	10.0	10.0	10.0
Log Len m					10.0	10.0	10.0	10.0	10.0	10.0
Volume and Size Data										
Gross Merchantable	m3	3183	3183		3141	42				
Net Merchantable	m3	3042	3042		3003	40				
Net Merch - All	m3/ha	525	525		518	7				
Distribution	%	100	100		99	1				
Decay	%									
Waste	%	0	0		0					
Waste(billing)	%	0	0		0					
Breakage	%	4	4		4	5				
Total Cull (DWB)	%	4	4		4	5				
Stems/Ha (Live & DP)		1043.0	1043.0		891.5	151.6				
Avg DBH (Live & DP)	cm	27.2	27.2		28.9	14.0				
Snags/Ha										
Avg Snag DBH	cm									
Gross Merch Vol/Tree	m3	0.53	0.53		0.61	0.05				
Net Merch Vol/Tree	m3	0.50	0.50		0.58	0.05				
Avg Weight Total Ht	m	28.9	28.9		29.2	9.9				
Avg Weight Merch Ht	m	23.3	23.3		23.5	4.1				
Avg 10.0 m Log Net	m3	0.27	0.27		0.28	0.05				
Avg 10.0 m Log Gross	m3	0.27	0.27		0.28	0.05				
Avg # of 10.0 m Logs/Tree		1.97	1.97		2.14	1.00				
Net Immature	%	100.0	100.0		100.0	100.0				
Net 2nd Growth	%		100.0							
Average Slope	%	17								
Cruiser Call Variable Length Grades %										
#2 Sawlog	H	5	5		5					
#3 Sawlog	I	3	3		3					
#4 Sawlog	J	55	55		56					
#5 Utility	U	37	37		36	100				
Statistical Summary										
Coeff. of Variation	%	31.1	31.1		31.8	244.9				
Two Standard Error	%	35.7	35.7		36.5	281.6				
Number and Type of Plots		MP = 5	CP = 1							
Number of Potential Trees		20								
Plots/Ha		1.0								
Cruised Trees/Plot		4.3								

Slope % Statistics

Min= 0, Max= 24, CV=51.4, Std Error of Mean=3.5, 2SE%=54.0

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Block Summary

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Net Area: Block : (I) - W16:W16, Plots in Block: 19, TUs: [A : 15.8]
Gross Area: [R/W Removed : 1.9][Grand Total : 17.7]

		Total	Conifer	Decid	F	C	H	B	D	MB
Utilization Limits										
Min DBH cm (I)					12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)					30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)					10.0	10.0	10.0	10.0	10.0	10.0
Log Len m					10.0	10.0	10.0	10.0	10.0	10.0
Volume and Size Data										
Gross Merchantable	m3	6840	5748	1092	5469	279			1032	60
Net Merchantable	m3	6407	5463	945	5198	265			888	57
Net Merch - All	m3/ha	406	346	60	329	17			56	4
Distribution	%	100	85	15	81	4			14	1
Decay	%	0	0	2	0				2	
Waste	%	2	1	6	1				7	
Waste(billing)	%	2	1	7	1				8	
Breakage	%	4	4	5	4	5			5	5
Total Cull (DWB)	%	6	5	13	5	5			14	5
Stems/Ha (Live & DP)		995.6	840.8	154.8	767.3	73.5			139.2	15.6
Avg DBH (Live & DP)	cm	26.9	27.1	25.8	27.5	22.6			26.0	24.5
Snags/Ha		161.2	161.2		161.2					
Avg Snag DBH	cm	12.6	12.6		12.6					
Gross Merch Vol/Tree	m3	0.43	0.43	0.45	0.45	0.24			0.47	0.24
Net Merch Vol/Tree	m3	0.41	0.41	0.39	0.43	0.23			0.40	0.23
Avg Weight Total Ht	m	23.5	23.8	21.6	24.0	19.8			22.0	15.6
Avg Weight Merch Ht	m	18.5	18.9	16.0	19.1	15.6			16.4	10.0
Avg 10.0 m Log Net	m3	0.26	0.26	0.24	0.26	0.21			0.24	0.24
Avg 10.0 m Log Gross	m3	0.26	0.26	0.26	0.26	0.21			0.26	0.24
Avg # of 10.0 m Logs/Tree		1.67	1.67	1.69	1.71	1.16			1.77	1.00
Net Immature	%	77.2	90.5		90.1	100.0				
Net 2nd Growth	%		90.5							
Average Slope	%	16								
Cruiser Call Variable Length Grades %										
#2 Sawlog	H	1	1		1					
#4 Sawlog	J	52	62		61	71				
#5 Utility	U	39	34	67	35	18			72	
#7 Chipper	Y	8	3	33	3	11			28	100
Statistical Summary										
Coeff. of Variation	%	28.1	38.0	225.1	41.7	272.0			240.5	435.9
Two Standard Error	%	15.8	21.3	126.4	23.4	152.7			135.1	244.8
Number and Type of Plots		MP = 14	CP = 5							
Number of Potential Trees		54								
Plots/Ha		1.2								
Cruised Trees/Plot		4.1								

Slope % Statistics
Min= 0, Max= 45, CV=84.6, Std Error of Mean=3.1, 2SE%=40.8

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Type Summary

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Net Area: Type 1 (I):Fd (HwCwDrBa), Plots in Type: 21, TUs: [A : 15.3]

		Total	Conifer	Decid	F	C	H	B	D	MB
Utilization Limits										
Min DBH cm (I)					12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)					30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)					10.0	10.0	10.0	10.0	10.0	10.0
Log Len m					10.0	10.0	10.0	10.0	10.0	10.0
Volume and Size Data										
Gross Merchantable	m3	8532	8037	496	5647	834	1275	280	496	
Net Merchantable	m3	8010	7539	471	5339	789	1176	234	471	
Net Merch - All	m3/ha	524	493	31	349	52	77	15	31	
Distribution	%	100	94	6	67	10	15	3	6	
Decay	%	1	1		1			12		
Waste	%	1	1		0		4			
Waste(billing)	%	1	1		0		4			
Breakage	%	4	4	5	4	5	4	5	5	
Total Cull (DWB)	%	6	6	5	5	5	8	16	5	
Stems/Ha (Live & DP)		1136.1	1086.8	49.3	894.0	130.6	30.9	31.2	49.3	
Avg DBH (Live & DP)	cm	27.5	27.4	29.3	25.6	30.2	52.4	28.5	29.3	
Snags/Ha										
Avg Snag DBH	cm									
Gross Merch Vol/Tree	m3	0.49	0.48	0.66	0.41	0.42	2.69	0.59	0.66	
Net Merch Vol/Tree	m3	0.46	0.45	0.62	0.39	0.40	2.48	0.49	0.62	
Avg Weight Total Ht	m	26.9	27.1	23.4	27.4	18.1	33.1	23.3	23.4	
Avg Weight Merch Ht	m	22.4	22.8	17.6	23.1	13.8	28.0	19.1	17.6	
Avg 10.0 m Log Net	m3	0.30	0.30	0.33	0.25	0.34	0.86	0.34	0.33	
Avg 10.0 m Log Gross	m3	0.30	0.30	0.33	0.26	0.34	0.90	0.39	0.33	
Avg # of 10.0 m Logs/Tree		1.62	1.60	2.00	1.61	1.24	3.00	1.51	2.00	
Net Immature	%	89.5	95.1		97.1	80.3	100.0	73.9		
Net 2nd Growth	%		95.1							
Cruiser Call Variable Length Grades %										
#2 Sawlog	H	16	17		17		33			
#3 Sawlog	I	5	5				32			
#4 Sawlog	J	44	48		54	39	20	57		
#5 Utility	U	34	30	86	29	61	15	43	86	
#7 Chipper	Y	1		14					14	
Statistical Summary										
Coeff. of Variation	%	69.9	74.1	316.2	102.1	136.6	212.2	238.9	316.2	
Two Standard Error	%	30.8	32.8	120.9	49.3	47.7	40.8	169.8	120.9	
Number and Type of Plots		MP = 10	CP = 11							
Number of Potential Trees		44								
Plots/Ha		1.4								
Cruised Trees/Plot		4.8								

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Type Summary

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Net Area: Type 2 (I):Fd (CwBaHwDr), Plots in Type: 10, TUs: [A : 7.6]

		Total	Conifer	Decid	F	C	H	B	D	MB
Utilization Limits										
Min DBH cm (I)					12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)					30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)					10.0	10.0	10.0	10.0	10.0	10.0
Log Len m					10.0	10.0	10.0	10.0	10.0	10.0
Volume and Size Data										
Gross Merchantable	m3	3489	3437	52	2740	515	65	117	52	
Net Merchantable	m3	3277	3227	50	2580	479	56	112	50	
Net Merch - All	m3/ha	431	425	7	339	63	7	15	7	
Distribution	%	100	98	2	79	15	2	3	2	
Decay	%	1	1		1		10			
Waste	%	1	1		1					
Waste(billing)	%	1	1		1					
Breakage	%	5	5	5	4	7	4	4	5	
Total Cull (DWB)	%	6	6	5	6	7	14	4	5	
Stems/Ha (Live & DP)		819.4	749.7	69.6	574.7	52.8	113.8	8.4	69.6	
Avg DBH (Live & DP)	cm	30.2	31.2	16.0	31.5	45.0	17.7	46.0	16.0	
Snags/Ha										
Avg Snag DBH	cm									
Gross Merch Vol/Tree	m3	0.56	0.60	0.10	0.63	1.28	0.07	1.82	0.10	
Net Merch Vol/Tree	m3	0.53	0.57	0.09	0.59	1.19	0.06	1.75	0.09	
Avg Weight Total Ht	m	26.5	26.7	14.0	27.4	25.0	17.0	27.0	14.0	
Avg Weight Merch Ht	m	22.6	22.8	7.3	23.5	20.3	9.9	23.3	7.3	
Avg 10.0 m Log Net	m3	0.36	0.38	0.10	0.38	0.64	0.07	0.61	0.10	
Avg 10.0 m Log Gross	m3	0.37	0.38	0.10	0.38	0.64	0.07	0.61	0.10	
Avg # of 10.0 m Logs/Tree		1.53	1.58	1.00	1.63	2.00	1.00	3.00	1.00	
Net Immature	%	70.2	71.3		82.7		100.0	100.0		
Net 2nd Growth	%		71.3							
Cruiser Call Variable Length Grades %										
#2 Sawlog	H	15	16		20					
#3 Sawlog	I	9	9		11					
#4 Sawlog	J	51	51		45	86		79		
#5 Utility	U	21	22		23	14		21		
#7 Chipper	Y	4	2	100	1		100		100	
Statistical Summary										
Coeff. of Variation	%	38.9	33.0	223.6	18.5	223.6	223.6	223.6	223.6	
Two Standard Error	%	26.1	22.7	319.9	17.9	53.3	159.9	319.9	319.9	
Number and Type of Plots		MP = 5	CP = 5							
Number of Potential Trees		19								
Plots/Ha		1.3								
Cruised Trees/Plot		4.2								

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Type Summary

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Net Area: Type 3 (I):Fd (Cw), Plots in Type: 6, TUs: [A : 5.8]

		Total	Conifer	Decid	F	C	H	B	D	MB
Utilization Limits										
Min DBH cm (I)					12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)					30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)					10.0	10.0	10.0	10.0	10.0	10.0
Log Len m					10.0	10.0	10.0	10.0	10.0	10.0
Volume and Size Data										
Gross Merchantable	m3	3183	3183		3141	42				
Net Merchantable	m3	3042	3042		3003	40				
Net Merch - All	m3/ha	525	525		518	7				
Distribution	%	100	100		99	1				
Decay	%									
Waste	%	0	0		0					
Waste(billing)	%	0	0		0					
Breakage	%	4	4		4	5				
Total Cull (DWB)	%	4	4		4	5				
Stems/Ha (Live & DP)		1043.0	1043.0		891.5	151.6				
Avg DBH (Live & DP)	cm	27.2	27.2		28.9	14.0				
Snags/Ha										
Avg Snag DBH	cm									
Gross Merch Vol/Tree	m3	0.53	0.53		0.61	0.05				
Net Merch Vol/Tree	m3	0.50	0.50		0.58	0.05				
Avg Weight Total Ht	m	28.9	28.9		29.2	9.9				
Avg Weight Merch Ht	m	23.3	23.3		23.5	4.1				
Avg 10.0 m Log Net	m3	0.27	0.27		0.28	0.05				
Avg 10.0 m Log Gross	m3	0.27	0.27		0.28	0.05				
Avg # of 10.0 m Logs/Tree		1.97	1.97		2.14	1.00				
Net Immature	%	100.0	100.0		100.0	100.0				
Net 2nd Growth	%		100.0							
Cruiser Call Variable Length Grades %										
#2 Sawlog	H	5	5		5					
#3 Sawlog	I	3	3		3					
#4 Sawlog	J	55	55		56					
#5 Utility	U	37	37		36	100				
Statistical Summary										
Coeff. of Variation	%	37.0	37.0		37.9	223.6				
Two Standard Error	%	35.7	35.7		36.5	281.6				
Number and Type of Plots		MP = 5	CP = 1							
Number of Potential Trees		20								
Plots/Ha		1.0								
Cruised Trees/Plot		4.3								

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Type Summary

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Net Area: Type 4 (I):Fd (DrCwMb), Plots in Type: 19, TUs: [A : 15.8]

		Total	Conifer	Decid	F	C	H	B	D	MB
Utilization Limits										
Min DBH cm (I)					12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)					30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)					10.0	10.0	10.0	10.0	10.0	10.0
Log Len m					10.0	10.0	10.0	10.0	10.0	10.0
Volume and Size Data										
Gross Merchantable	m3	6840	5748	1092	5469	279			1032	60
Net Merchantable	m3	6407	5463	945	5198	265			888	57
Net Merch - All	m3/ha	406	346	60	329	17			56	4
Distribution	%	100	85	15	81	4			14	1
Decay	%	0	0	2	0				2	
Waste	%	2	1	6	1				7	
Waste(billing)	%	2	1	7	1				8	
Breakage	%	4	4	5	4	5			5	5
Total Cull (DWB)	%	6	5	13	5	5			14	5
Stems/Ha (Live & DP)		995.6	840.8	154.8	767.3	73.5			139.2	15.6
Avg DBH (Live & DP)	cm	26.9	27.1	25.8	27.5	22.6			26.0	24.5
Snags/Ha		161.2	161.2		161.2					
Avg Snag DBH	cm	12.6	12.6		12.6					
Gross Merch Vol/Tree	m3	0.43	0.43	0.45	0.45	0.24			0.47	0.24
Net Merch Vol/Tree	m3	0.41	0.41	0.39	0.43	0.23			0.40	0.23
Avg Weight Total Ht	m	23.5	23.8	21.6	24.0	19.8			22.0	15.6
Avg Weight Merch Ht	m	18.5	18.9	16.0	19.1	15.6			16.4	10.0
Avg 10.0 m Log Net	m3	0.26	0.26	0.24	0.26	0.21			0.24	0.24
Avg 10.0 m Log Gross	m3	0.26	0.26	0.26	0.26	0.21			0.26	0.24
Avg # of 10.0 m Logs/Tree		1.67	1.67	1.69	1.71	1.16			1.77	1.00
Net Immature	%	77.2	90.5		90.1	100.0				
Net 2nd Growth	%		90.5							
Cruiser Call Variable Length Grades %										
#2 Sawlog	H	1	1		1					
#4 Sawlog	J	52	62		61	71				
#5 Utility	U	39	34	67	35	18			72	
#7 Chipper	Y	8	3	33	3	11			28	100
Statistical Summary										
Coeff. of Variation	%	34.0	47.7	237.2	53.6	229.7			257.7	374.2
Two Standard Error	%	15.8	21.3	126.4	23.4	152.7			135.1	244.8
Number and Type of Plots		MP = 14	CP = 5							
Number of Potential Trees		54								
Plots/Ha		1.2								
Cruised Trees/Plot		4.1								

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Cutting Permit Stand Table (stems/ha)

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

[A : 44.5]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										30.9
15	172.0	37.0			11.9		220.9	53.3	26.3	
20	211.7		19.4		11.3		242.4			
25	70.2	28.3			19.6	5.5	123.6	9.8		
30	90.6	18.7		5.4	31.7		146.5	5.3		
35	87.0	2.8			3.8		93.6	4.9		
40	29.1						29.1			
45	26.6	9.0		1.4			37.0			
50	14.3	1.5	5.6				21.4			
55	7.9	2.5	5.0				15.4			
60	10.4						10.4			
65	3.0						3.0			
70	2.4						2.4			
75										
80	1.1						1.1			
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	726.2	99.8	30.1	6.9	78.3	5.5	946.7			
Dead P	67.9			5.3				73.3		
Dead U	26.3								26.3	
Live U	30.9									30.9
Average DBH(cm) at 5 Levels										
12.5 +	28.2	27.7	34.2	32.9	25.5	24.5	28.2	20.0	13.1	
17.5 +	31.3	33.2	34.2	32.9	26.9	24.5	31.2	28.8		
22.5 +	36.5	33.2	52.4	32.9	28.2	24.5	35.5	28.8		
27.5 +	39.0	37.9	52.4	32.9	29.7		38.4	32.1		
32.5 +	42.7	45.8	52.4	46.0	32.9		43.4	35.4		

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Cutting Permit Stock Table (m3/ha)

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

[A : 44.5]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15	9.5	1.6			1.1		12.2	3.1		
20	43.1		1.3		1.4		45.8			
25	22.5	8.1			7.7	1.3	39.5	2.7		
30	51.1	6.5		3.9	18.9		80.4	1.4		
35	67.7	1.6			2.5		71.8	3.3		
40	28.5						28.5			
45	36.0	10.8		2.5			49.2			
50	26.2	2.2	14.6				42.9			
55	16.7	4.7	11.9				33.3			
60	26.7						26.7			
65	10.1						10.1			
70	10.2						10.2			
75										
80	4.9						4.9			
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	353.1	35.3	27.7	6.4	31.7	1.3	455.4			
Dead P	9.2			1.4				10.6		
			Total Volumes for 7 Levels							
17.5 +	343.5	33.8	27.7	6.4	30.5	1.3	443.2	7.4		
22.5 +	300.5	33.8	26.4	6.4	29.1	1.3	397.5	7.4		
27.5 +	278.0	25.7	26.4	6.4	21.4		357.9	4.7		
32.5 +	226.8	19.3	26.4	2.5	2.5		277.6	3.3		
37.5 +	159.2	17.7	26.4	2.5			205.8			
42.5 +	130.7	17.7	26.4	2.5			177.3			
47.5 +	94.8	6.9	26.4				128.1			

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Cutting Permit Basal Area Table (m2/ha)

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

[A : 44.5]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										0.4
15	2.7	0.6			0.2		3.5	1.0	0.4	
20	6.8		0.5		0.3		7.6			
25	3.4	1.5			1.0	0.3	6.2	0.5		
30	6.4	1.3		0.3	2.1		10.2	0.3		
35	8.5	0.3			0.3		9.1	0.5		
40	3.4						3.4			
45	4.2	1.4		0.2			5.9			
50	2.7	0.3	1.1				4.2			
55	1.8	0.6	1.1				3.5			
60	2.9						2.9			
65	1.0						1.0			
70	1.0						1.0			
75										
80	0.5						0.5			
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	45.3	6.0	2.8	0.6	4.0	0.3	59.0			
Dead P	1.9			0.3				2.3		
Dead U	0.4								0.4	
Live U	0.4									0.4
Average Basal Area (m2) at 5 Levels										
12.5 +	45.3	6.0	2.8	0.6	4.0	0.3	59.0	2.3	0.4	
17.5 +	42.6	5.4	2.8	0.6	3.8	0.3	55.4	1.3		
22.5 +	35.8	5.4	2.3	0.6	3.4	0.3	47.8	1.3		
27.5 +	32.5	3.9	2.3	0.6	2.5		41.7	0.8		
32.5 +	26.1	2.6	2.3	0.2	0.3		31.5	0.5		

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Block Stand Table (stems/ha)

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Block : (I) - B14:B14, Plots in Block: 21, TUs: [A : 15.3]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15	364.7						364.7	65.2		
20	169.5						169.5			
25	31.3	68.8					100.1	28.4		
30	76.8	54.5		15.8	49.3		196.3	15.5		
35	42.3						42.3	14.2		
40	34.3						34.3			
45	16.7						16.7			
50	21.4		16.4				37.8			
55	12.7	7.3	14.6				34.6			
60	5.1						5.1			
65	4.5						4.5			
70	7.0						7.0			
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	786.3	130.6	30.9	15.8	49.3		1012.9			
Dead P	107.8			15.5				123.2		
Dead U										
Live U										
			Average DBH(cm) at 5 Levels							
12.5 +	26.0	30.2	52.4	28.4	29.3		28.0	23.1		
17.5 +	33.1	30.2	52.4	28.4	29.3		33.3	28.8		
22.5 +	39.4	30.2	52.4	28.4	29.3		36.8	28.8		
27.5 +	41.1	34.0	52.4	28.4	29.3		39.3	32.1		
32.5 +	45.8	57.0	52.4				47.5	35.4		

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Block Stand Table (stems/ha)

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Block : (I) - B15:B15, Plots in Block: 10, TUs: [A : 7.6]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15					69.6		69.6	180.9		
20	103.2		113.8				217.0			
25	58.5						58.5			
30	48.5						48.5			
35	92.6						92.6			
40										
45	17.7	52.8		8.4			78.9			
50	16.4						16.4			
55										
60	42.2						42.2			
65	8.6						8.6			
70										
75										
80	6.3						6.3			
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	393.8	52.8	113.8	8.4	69.6		638.5			
Dead P	180.9							180.9		
Dead U										
Live U										
	Average DBH(cm) at 5 Levels									
12.5 +	36.8	45.0	17.7	46.0	16.0		33.4	14.5		
17.5 +	36.8	45.0	17.7	46.0			34.9			
22.5 +	41.2	45.0		46.0			41.9			
27.5 +	44.3	45.0		46.0			44.5			
32.5 +	47.7	45.0		46.0			47.1			

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Block Stand Table (stems/ha)

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Block : (I) - W14:W14, Plots in Block: 6, TUs: [A : 5.8]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15		151.6					151.6			
20	475.5						475.5			
25	71.4						71.4			
30	126.0						126.0			
35	92.6						92.6			
40	27.7						27.7			
45	39.6						39.6			
50	31.6						31.6			
55	27.1						27.1			
60										
65										
70										
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	891.5	151.6					1043.0			
Dead P										
Dead U										
Live U										
		Average DBH(cm) at 5 Levels								
12.5 +	28.9	14.0					27.2			
17.5 +	28.9						28.9			
22.5 +	36.3						36.3			
27.5 +	38.4						38.4			
32.5 +	42.3						42.3			

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Block Stand Table (stems/ha)

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Block : (I) - W16:W16, Plots in Block: 19, TUs: [A : 15.8]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										87.0
15	131.3	48.6					179.9		74.2	
20	207.9				31.8		239.8			
25	113.0	13.0			55.1	15.6	196.7			
30	111.4				41.4		152.8			
35	125.5	7.8			10.8		144.1			
40	38.6						38.6			
45	35.6						35.6			
50		4.1					4.1			
55										
60	4.0						4.0			
65										
70										
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	767.3	73.5			139.2	15.6	995.6			
Dead P										
Dead U	74.2								74.2	
Live U	87.0									87.0
			Average DBH(cm) at 5 Levels							
12.5 +	27.5	22.6			26.0	24.5	26.9		13.1	
17.5 +	29.5	33.6			26.0	24.5	29.0			
22.5 +	33.1	33.6			27.6	24.5	31.9			
27.5 +	35.5	39.6			30.0		34.9			
32.5 +	38.2	39.6			32.9		38.1			

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Block Stock Table (m3/ha)

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Block : (I) - B14:B14, Plots in Block: 21,   TUs: [A : 15.3]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15	19.4						19.4	4.2		
20	34.4						34.4			
25	9.0	19.0					28.0	8.0		
30	43.6	18.8		11.3	30.8		104.5	4.0		
35	32.7						32.7	9.6		
40	36.0						36.0			
45	26.1						26.1			
50	39.5		42.3				81.9			
55	26.7	13.8	34.5				75.0			
60	15.3						15.3			
65	14.8						14.8			
70	29.7						29.7			
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	327.1	51.6	76.9	11.3	30.8		497.7			
Dead P	21.8			4.0				25.8		
			Total Volumes for 7 Levels							
17.5 +	307.7	51.6	76.9	11.3	30.8		478.3	21.6		
22.5 +	273.4	51.6	76.9	11.3	30.8		443.9	21.6		
27.5 +	264.3	32.6	76.9	11.3	30.8		415.9	13.6		
32.5 +	220.8	13.8	76.9				311.4	9.6		
37.5 +	188.1	13.8	76.9				278.7			
42.5 +	152.1	13.8	76.9				242.7			
47.5 +	126.0	13.8	76.9				216.6			

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Block Stock Table (m3/ha)

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Block : (I) - B15:B15, Plots in Block: 10,   TUs: [A : 7.6]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15					6.5		6.5	9.9		
20	15.3		7.4				22.6			
25	19.2						19.2			
30	16.7						16.7			
35	66.0						66.0			
40										
45	20.1	63.1		14.7			97.9			
50	26.7						26.7			
55										
60	107.9						107.9			
65	29.4						29.4			
70										
75										
80	28.4						28.4			
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	329.6	63.1	7.4	14.7	6.5		421.3			
Dead P	9.9							9.9		
			Total Volumes for 7 Levels							
17.5 +	329.6	63.1	7.4	14.7			414.8			
22.5 +	314.4	63.1		14.7			392.1			
27.5 +	295.1	63.1		14.7			372.9			
32.5 +	278.5	63.1		14.7			356.2			
37.5 +	212.5	63.1		14.7			290.3			
42.5 +	212.5	63.1		14.7			290.3			
47.5 +	192.3						192.3			

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Block Stock Table (m3/ha)

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Block : (I) - W14:W14, Plots in Block: 6, TUs: [A : 5.8]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15		6.8					6.8			
20	115.2						115.2			
25	28.2						28.2			
30	83.3						83.3			
35	85.8						85.8			
40	28.8						28.8			
45	57.1						57.1			
50	61.6						61.6			
55	57.5						57.5			
60										
65										
70										
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	517.7	6.8					524.5			
Dead P										
		Total Volumes for 7 Levels								
17.5 +	517.7						517.7			
22.5 +	402.5						402.5			
27.5 +	374.3						374.3			
32.5 +	291.0						291.0			
37.5 +	205.1						205.1			
42.5 +	176.3						176.3			
47.5 +	119.1						119.1			

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Block Stock Table (m3/ha)

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Block : (I) - W16:W16, Plots in Block: 19,   TUs: [A : 15.8]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15	8.0	1.9					9.8			
20	38.5				4.0		42.5			
25	35.0	4.3			21.7	3.6	64.6			
30	63.2				23.4		86.6			
35	95.7	4.5			7.1		107.3			
40	34.7						34.7			
45	45.3						45.3			
50		6.1					6.1			
55										
60	8.6						8.6			
65										
70										
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	329.0	16.8			56.2	3.6	405.5			
Dead P										
			Total Volumes for 7 Levels							
17.5 +	321.0	14.9			56.2	3.6	395.7			
22.5 +	282.5	14.9			52.2	3.6	353.3			
27.5 +	247.5	10.6			30.5		288.6			
32.5 +	184.3	10.6			7.1		202.0			
37.5 +	88.7	6.1					94.7			
42.5 +	54.0	6.1					60.0			
47.5 +	8.6	6.1					14.7			

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Block Basal Area Table (m2/ha)

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Block : (I) - B14:B14, Plots in Block: 21, TUs: [A : 15.3]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15	5.6						5.6	1.4		
20	5.6						5.6			
25	1.4	3.7					5.1	1.4		
30	5.6	3.7		1.0	3.3		13.6	1.0		
35	4.2						4.2	1.4		
40	4.2						4.2			
45	2.8						2.8			
50	4.2		3.3				7.5			
55	2.8	1.9	3.3				8.0			
60	1.4						1.4			
65	1.4						1.4			
70	2.8						2.8			
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	41.8	9.3	6.7	1.0	3.3		62.2			
Dead P	4.2			1.0				5.2		
Dead U										
Live U										
	Average Basal Area (m2) at 5 Levels									
12.5 +	41.8	9.3	6.7	1.0	3.3		62.2	5.2		
17.5 +	36.2	9.3	6.7	1.0	3.3		56.6	3.8		
22.5 +	30.7	9.3	6.7	1.0	3.3		51.0	3.8		
27.5 +	29.3	5.6	6.7	1.0	3.3		45.9	2.4		
32.5 +	23.7	1.9	6.7				32.2	1.4		

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Block Basal Area Table (m2/ha)

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Block : (I) - B15:B15, Plots in Block: 10,   TUs: [A : 7.6]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15					1.4		1.4	3.0		
20	3.0		2.8				5.8			
25	3.0						3.0			
30	3.0						3.0			
35	9.0						9.0			
40										
45	3.0	8.4		1.4			12.8			
50	3.0						3.0			
55										
60	11.9						11.9			
65	3.0						3.0			
70										
75										
80	3.0						3.0			
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	41.8	8.4	2.8	1.4	1.4		55.8			
Dead P	3.0							3.0		
Dead U										
Live U										
	Average Basal Area (m2) at 5 Levels									
12.5 +	41.8	8.4	2.8	1.4	1.4		55.8	3.0		
17.5 +	41.8	8.4	2.8	1.4			54.4			
22.5 +	38.8	8.4		1.4			48.6			
27.5 +	35.8	8.4		1.4			45.6			
32.5 +	32.9	8.4		1.4			42.7			

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Block Basal Area Table (m2/ha)

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Block : (I) - W14:W14, Plots in Block: 6,   TUs: [A : 5.8]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15		2.3					2.3			
20	15.4						15.4			
25	3.1						3.1			
30	9.2						9.2			
35	9.2						9.2			
40	3.1						3.1			
45	6.1						6.1			
50	6.1						6.1			
55	6.1						6.1			
60										
65										
70										
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	58.3	2.3					60.7			
Dead P										
Dead U										
Live U										
		Average Basal Area (m2) at 5 Levels								
12.5 +	58.3	2.3					60.7			
17.5 +	58.3						58.3			
22.5 +	43.0						43.0			
27.5 +	39.9						39.9			
32.5 +	30.7						30.7			

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Block Basal Area Table (m2/ha)

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Block : (I) - W16:W16, Plots in Block: 19,   TUs: [A : 15.8]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										1.0
15	2.2	0.7					3.0		1.0	
20	6.7				0.9		7.6			
25	5.6	0.7			2.8	0.7	9.8			
30	7.8				2.8		10.6			
35	12.3	0.7			0.9		13.9			
40	4.5						4.5			
45	5.6						5.6			
50		0.7					0.7			
55										
60	1.1						1.1			
65										
70										
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	45.7	2.9			7.4	0.7	56.7			
Dead P										
Dead U	1.0								1.0	
Live U	1.0									1.0
			Average Basal Area (m2) at 5 Levels							
12.5 +	45.7	2.9			7.4	0.7	56.7		1.0	
17.5 +	43.5	2.2			7.4	0.7	53.8			
22.5 +	36.8	2.2			6.4	0.7	46.2			
27.5 +	31.2	1.5			3.7		36.4			
32.5 +	23.4	1.5			0.9		25.8			

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Type Stand Table (stems/ha)

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Type 1 (I):Fd (HwCwDrBa), Plots in Type: 21, TUs: [A : 15.3]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15	364.7						364.7	65.2		
20	169.5						169.5			
25	31.3	68.8					100.1	28.4		
30	76.8	54.5		15.8	49.3		196.3	15.5		
35	42.3						42.3	14.2		
40	34.3						34.3			
45	16.7						16.7			
50	21.4		16.4				37.8			
55	12.7	7.3	14.6				34.6			
60	5.1						5.1			
65	4.5						4.5			
70	7.0						7.0			
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	786.3	130.6	30.9	15.8	49.3		1012.9			
Dead P	107.8			15.5				123.2		
Dead U										
Live U										
			Average DBH(cm) at 5 Levels							
12.5 +	26.0	30.2	52.4	28.4	29.3		28.0	23.1		
17.5 +	33.1	30.2	52.4	28.4	29.3		33.3	28.8		
22.5 +	39.4	30.2	52.4	28.4	29.3		36.8	28.8		
27.5 +	41.1	34.0	52.4	28.4	29.3		39.3	32.1		
32.5 +	45.8	57.0	52.4				47.5	35.4		

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Type Stand Table (stems/ha)

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Type 2 (I):Fd (CwBaHwDr), Plots in Type: 10, TUs: [A : 7.6]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15					69.6		69.6	180.9		
20	103.2		113.8				217.0			
25	58.5						58.5			
30	48.5						48.5			
35	92.6						92.6			
40										
45	17.7	52.8		8.4			78.9			
50	16.4						16.4			
55										
60	42.2						42.2			
65	8.6						8.6			
70										
75										
80	6.3						6.3			
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	393.8	52.8	113.8	8.4	69.6		638.5			
Dead P	180.9							180.9		
Dead U										
Live U										
	Average DBH(cm) at 5 Levels									
12.5 +	36.8	45.0	17.7	46.0	16.0		33.4	14.5		
17.5 +	36.8	45.0	17.7	46.0			34.9			
22.5 +	41.2	45.0		46.0			41.9			
27.5 +	44.3	45.0		46.0			44.5			
32.5 +	47.7	45.0		46.0			47.1			

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Type Stand Table (stems/ha)

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Type 3 (I):Fd (Cw), Plots in Type: 6, TUs: [A : 5.8]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15		151.6					151.6			
20	475.5						475.5			
25	71.4						71.4			
30	126.0						126.0			
35	92.6						92.6			
40	27.7						27.7			
45	39.6						39.6			
50	31.6						31.6			
55	27.1						27.1			
60										
65										
70										
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	891.5	151.6					1043.0			
Dead P										
Dead U										
Live U										
			Average DBH(cm) at 5 Levels							
12.5 +	28.9	14.0					27.2			
17.5 +	28.9						28.9			
22.5 +	36.3						36.3			
27.5 +	38.4						38.4			
32.5 +	42.3						42.3			

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Type Stand Table (stems/ha)

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Type 4 (I):Fd (DrCwMb), Plots in Type: 19, TUs: [A : 15.8]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										87.0
15	131.3	48.6					179.9		74.2	
20	207.9				31.8		239.8			
25	113.0	13.0			55.1	15.6	196.7			
30	111.4				41.4		152.8			
35	125.5	7.8			10.8		144.1			
40	38.6						38.6			
45	35.6						35.6			
50		4.1					4.1			
55										
60	4.0						4.0			
65										
70										
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	767.3	73.5			139.2	15.6	995.6			
Dead P										
Dead U	74.2								74.2	
Live U	87.0									87.0
			Average DBH(cm) at 5 Levels							
12.5 +	27.5	22.6			26.0	24.5	26.9		13.1	
17.5 +	29.5	33.6			26.0	24.5	29.0			
22.5 +	33.1	33.6			27.6	24.5	31.9			
27.5 +	35.5	39.6			30.0		34.9			
32.5 +	38.2	39.6			32.9		38.1			

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Type Stock Table (m3/ha)

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Type 1 (I):Fd (HwCwDrBa), Plots in Type: 21, TUs: [A : 15.3]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15	19.4						19.4	4.2		
20	34.4						34.4			
25	9.0	19.0					28.0	8.0		
30	43.6	18.8		11.3	30.8		104.5	4.0		
35	32.7						32.7	9.6		
40	36.0						36.0			
45	26.1						26.1			
50	39.5		42.3				81.9			
55	26.7	13.8	34.5				75.0			
60	15.3						15.3			
65	14.8						14.8			
70	29.7						29.7			
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	327.1	51.6	76.9	11.3	30.8		497.7			
Dead P	21.8			4.0				25.8		
			Total Volumes for 7 Levels							
17.5 +	307.7	51.6	76.9	11.3	30.8		478.3	21.6		
22.5 +	273.4	51.6	76.9	11.3	30.8		443.9	21.6		
27.5 +	264.3	32.6	76.9	11.3	30.8		415.9	13.6		
32.5 +	220.8	13.8	76.9				311.4	9.6		
37.5 +	188.1	13.8	76.9				278.7			
42.5 +	152.1	13.8	76.9				242.7			
47.5 +	126.0	13.8	76.9				216.6			

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Type Stock Table (m3/ha)

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Type 2 (I):Fd (CwBaHwDr), Plots in Type: 10, TUs: [A : 7.6]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15					6.5		6.5	9.9		
20	15.3		7.4				22.6			
25	19.2						19.2			
30	16.7						16.7			
35	66.0						66.0			
40										
45	20.1	63.1		14.7			97.9			
50	26.7						26.7			
55										
60	107.9						107.9			
65	29.4						29.4			
70										
75										
80	28.4						28.4			
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	329.6	63.1	7.4	14.7	6.5		421.3			
Dead P	9.9							9.9		
	Total Volumes for 7 Levels									
17.5 +	329.6	63.1	7.4	14.7			414.8			
22.5 +	314.4	63.1		14.7			392.1			
27.5 +	295.1	63.1		14.7			372.9			
32.5 +	278.5	63.1		14.7			356.2			
37.5 +	212.5	63.1		14.7			290.3			
42.5 +	212.5	63.1		14.7			290.3			
47.5 +	192.3						192.3			

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Type Stock Table (m3/ha)

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Type 3 (I):Fd (Cw), Plots in Type: 6, TUs: [A : 5.8]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15		6.8					6.8			
20	115.2						115.2			
25	28.2						28.2			
30	83.3						83.3			
35	85.8						85.8			
40	28.8						28.8			
45	57.1						57.1			
50	61.6						61.6			
55	57.5						57.5			
60										
65										
70										
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	517.7	6.8					524.5			
Dead P										
		Total Volumes for 7 Levels								
17.5 +	517.7						517.7			
22.5 +	402.5						402.5			
27.5 +	374.3						374.3			
32.5 +	291.0						291.0			
37.5 +	205.1						205.1			
42.5 +	176.3						176.3			
47.5 +	119.1						119.1			

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Type Stock Table (m3/ha)

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Type 4 (I):Fd (DrCwMb), Plots in Type: 19, TUs: [A : 15.8]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15	8.0	1.9					9.8			
20	38.5				4.0		42.5			
25	35.0	4.3			21.7	3.6	64.6			
30	63.2				23.4		86.6			
35	95.7	4.5			7.1		107.3			
40	34.7						34.7			
45	45.3						45.3			
50		6.1					6.1			
55										
60	8.6						8.6			
65										
70										
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	329.0	16.8			56.2	3.6	405.5			
Dead P										
			Total Volumes for 7 Levels							
17.5 +	321.0	14.9			56.2	3.6	395.7			
22.5 +	282.5	14.9			52.2	3.6	353.3			
27.5 +	247.5	10.6			30.5		288.6			
32.5 +	184.3	10.6			7.1		202.0			
37.5 +	88.7	6.1					94.7			
42.5 +	54.0	6.1					60.0			
47.5 +	8.6	6.1					14.7			

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Type Basal Area Table (m2/ha)

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Type 1 (I):Fd (HwCwDrBa), Plots in Type: 21, TUs: [A : 15.3]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15	5.6						5.6	1.4		
20	5.6						5.6			
25	1.4	3.7					5.1	1.4		
30	5.6	3.7		1.0	3.3		13.6	1.0		
35	4.2						4.2	1.4		
40	4.2						4.2			
45	2.8						2.8			
50	4.2		3.3				7.5			
55	2.8	1.9	3.3				8.0			
60	1.4						1.4			
65	1.4						1.4			
70	2.8						2.8			
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	41.8	9.3	6.7	1.0	3.3		62.2			
Dead P	4.2			1.0				5.2		
Dead U										
Live U										
			Average Basal Area (m2) at 5 Levels							
12.5 +	41.8	9.3	6.7	1.0	3.3		62.2	5.2		
17.5 +	36.2	9.3	6.7	1.0	3.3		56.6	3.8		
22.5 +	30.7	9.3	6.7	1.0	3.3		51.0	3.8		
27.5 +	29.3	5.6	6.7	1.0	3.3		45.9	2.4		
32.5 +	23.7	1.9	6.7				32.2	1.4		

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Type Basal Area Table (m2/ha)

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Type 2 (I):Fd (CwBaHwDr), Plots in Type: 10, TUs: [A : 7.6]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15					1.4		1.4	3.0		
20	3.0		2.8				5.8			
25	3.0						3.0			
30	3.0						3.0			
35	9.0						9.0			
40										
45	3.0	8.4		1.4			12.8			
50	3.0						3.0			
55										
60	11.9						11.9			
65	3.0						3.0			
70										
75										
80	3.0						3.0			
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	41.8	8.4	2.8	1.4	1.4		55.8			
Dead P	3.0							3.0		
Dead U										
Live U										
	Average Basal Area (m2) at 5 Levels									
12.5 +	41.8	8.4	2.8	1.4	1.4		55.8	3.0		
17.5 +	41.8	8.4	2.8	1.4			54.4			
22.5 +	38.8	8.4		1.4			48.6			
27.5 +	35.8	8.4		1.4			45.6			
32.5 +	32.9	8.4		1.4			42.7			

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Type Basal Area Table (m2/ha)

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Type 3 (I):Fd (Cw), Plots in Type: 6, TUs: [A : 5.8]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										
15		2.3					2.3			
20	15.4						15.4			
25	3.1						3.1			
30	9.2						9.2			
35	9.2						9.2			
40	3.1						3.1			
45	6.1						6.1			
50	6.1						6.1			
55	6.1						6.1			
60										
65										
70										
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	58.3	2.3					60.7			
Dead P										
Dead U										
Live U										
		Average Basal Area (m2) at 5 Levels								
12.5 +	58.3	2.3					60.7			
17.5 +	58.3						58.3			
22.5 +	43.0						43.0			
27.5 +	39.9						39.9			
32.5 +	30.7						30.7			

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Type Basal Area Table (m2/ha)

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Type 4 (I):Fd (DrCwMb), Plots in Type: 19, TUs: [A : 15.8]

	F	C	H	B	D	MB	Total	DP	DU	LU
Utilization Limits										
Min DBH cm (I)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Stump Ht cm (I)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Top Dia cm (I)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Log Len m	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
DBH Class										
5										
10										1.0
15	2.2	0.7					3.0		1.0	
20	6.7				0.9		7.6			
25	5.6	0.7			2.8	0.7	9.8			
30	7.8				2.8		10.6			
35	12.3	0.7			0.9		13.9			
40	4.5						4.5			
45	5.6						5.6			
50		0.7					0.7			
55										
60	1.1						1.1			
65										
70										
75										
80										
85										
90										
95										
100										
105										
110										
115										
120										
125										
130										
135										
140										
145										
150										
175										
200										
225										
250										
275										
Total	45.7	2.9			7.4	0.7	56.7			
Dead P										
Dead U	1.0								1.0	
Live U	1.0									1.0
			Average Basal Area (m2) at 5 Levels							
12.5 +	45.7	2.9			7.4	0.7	56.7		1.0	
17.5 +	43.5	2.2			7.4	0.7	53.8			
22.5 +	36.8	2.2			6.4	0.7	46.2			
27.5 +	31.2	1.5			3.7		36.4			
32.5 +	23.4	1.5			0.9		25.8			

*** 1 tree(s) changed to tree class 6:because only log was less then 3.00 m ***
FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Field Data & Slope Averages

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Block	Strp	Plot	Type	Meth	Slp%	Strp	Plot	Type	Meth	Slp%	Strp	Plot	Type	Meth	Slp%	Strp	Plot	Type	Meth	Slp%
B14: B14		1	1	SC	20		2	1	SC	35		3	1	SC	28		4	1	SC	18
		5	1	SC	18		6	1	SC	28		7	1	SC	27		8	1	SC	20
		9	1	SC	28		10	1	SC	22		11	1	SC	23	E	2	1	SC	0
	E	5	1	SC	0	E	7	1	SC	0	E	8	1	SC	0	n	1	1	SC	0
	S	4	1	SC	0	S	6	1	SC	0	S	9	1	SC	0	SE	3	1	SC	0
	W	10	1	SC	0															
Summary: Total % Slope:		267		No. of Plots:		21		Weighted Average % Slope:		12.7			Arithmetic Average % Slope:		12.7					
B15: B15		1	2	SC	23		2	2	SC	28		3	2	SC	28		4	2	SC	30
		5	2	SC	17	E	3	2	SC	0	E	4	2	SC	0	E	5	2	SC	0
	S	2	2	SC	0	w	1	2	SC	0										
Summary: Total % Slope:		126		No. of Plots:		10		Weighted Average % Slope:		12.6			Arithmetic Average % Slope:		12.6					
W14: W14		1	3	SC	24		2	3	SC	19		3	3	SC	18		4	3	SC	22
		5	3	SC	17	N	2	3	SC	0										
Summary: Total % Slope:		100		No. of Plots:		6		Weighted Average % Slope:		16.7			Arithmetic Average % Slope:		16.7					
W16: W16		1	4	SC	12		2	4	SC	32		3	4	SC	25		4	4	SC	11
		5	4	SC	18		6	4	SC	15		7	4	SC	8		8	4	SC	15
		9	4	SC	45		10	4	SC	30		11	4	SC	32		12	4	SC	15
		13	4	SC	15		14	4	SC	35	E	3	4	SC	0	N	11	4	SC	0
	NE	2	4	SC	0	S	6	4	SC	0	w	4	4	SC	0					
Summary: Total % Slope:		308		No. of Plots:		19		Weighted Average % Slope:		16.2			Arithmetic Average % Slope:		16.2					

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Field Data & Slope Averages

Average Line Method | Grades: Cruiser Called Alpha | FIZ: B | 19-Feb-2015 02:19:32PM
AVCF | Cruiser Est Decay | PSYU: Nootka | Filename: AVCF_internal.ccp
Licence Number: K2D CP: PRE | Cruiser Est Waste | Region: 2 - West Coast | Compiled by: F Warren And Associates Ltd
Project: K2_AVCF | Computerized Breakage | District: 04 - South Island | Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00 IFS build 5885

Harvest Method Summary

Harvest Method	Total % Slope	No of Plots	Avg % Weighted Slope	Avg % Arithmetic Slope
SC	801	56	14.5	
Total	801	56	14.5	14.3

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Plot Summary

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Utilization Levels:	Minimum DBH	Top Diameter	Stump Height
Mature Blocks: (cm)	17.5	15.0	30
Immature Blocks:(cm)	12.0	10.0	30

Standard Log Length:(m) 10.00

Forest Type	Block	Strip	Plot #	Plot Size	Slope %	Species	# of Stems	Stems / Ha	Avg Diam	Gross Merch	Less Decay	Less DB	Less DWB	Cruise Date	Loss YI	Ref No. OI	Ref No. M
1-Fd (HwCwDrBa)	B14		1	14.000F	20	Doug-Fir	6	2607.95	20.25	518.04	518.04	497.32	497.32		101		
						All Sp.	6	2607.95	20.25	518.04	518.04	497.32	497.32	1502			
			2	14.000F	35	Doug-Fir	2	377.67	30.72	211.58	211.58	203.11	203.11		101		
						All Sp.	2	377.67	30.72	211.58	211.58	203.11	203.11	1502			
			3	14.000F	28	W.R. Cedar	2	500.11	26.70	143.37	143.37	136.21	136.21		201		
						Doug-Fir	2	217.50	40.49	221.45	221.45	212.60	212.60		101		
						All Sp.	4	717.61	31.52	364.83	364.83	348.80	348.80	1502			
			4	14.000F	18	Alder	2	414.15	29.34	272.09	272.09	258.49	258.49				1210
						Doug-Fir	2	427.45	28.88	227.52	193.53	184.43	176.68		101		
						E-Down	1	142.24	35.40	123.43	109.43	104.49	96.74		101		
						Hemlock	1	61.13	54.00	164.97	164.97	158.37	145.10		301		
						All Sp.	5	902.73	31.42	664.58	630.60	601.29	580.27	1502			
			5	14.000F	18	Balsam	1	216.41	28.70	91.67	61.51	56.01	56.01				411
						W.R. Cedar	1	176.27	31.80	82.00	82.00	76.26	76.26				211
						Doug-Fir	1	110.30	40.20	105.94	105.94	100.65	100.65				110
						All Sp.	3	502.98	32.61	279.61	249.45	232.91	232.91	1502			
			6	14.000F	28	Doug-Fir	10	1656.55	32.80	1378.09	1378.09	1322.97	1322.97		101		
						All Sp.	10	1656.55	32.80	1378.09	1378.09	1322.97	1322.97	1502			
			7	14.000F	27	Doug-Fir	4	2177.84	18.09	306.56	295.91	283.65	283.65		101		
						All Sp.	4	2177.84	18.09	306.56	295.91	283.65	283.65	1502			
			8	14.000F	20	Balsam	1	221.00	28.40	164.85	164.85	158.26	158.26		401		
						Doug-Fir	2	648.79	23.44	210.67	210.67	202.25	202.25		101		
						Hemlock	1	68.80	50.90	185.16	185.16	177.75	177.75		301		
						All Sp.	4	938.60	27.56	560.69	560.69	538.26	538.26	1502			
			9	14.000F	28	W.R. Cedar	1	248.18	26.80	75.00	75.00	71.25	71.25		201		
						Doug-Fir	2	654.69	23.34	202.33	202.33	194.24	194.24		101		
						All Sp.	3	902.88	24.34	277.33	277.33	265.49	265.49	1502			
			10	14.000F	22	W.R. Cedar	1	54.86	57.00	108.67	108.67	103.23	103.23		201		
						Doug-Fir	2	100.54	59.55	324.38	324.38	311.41	311.41		101		
						All Sp.	3	155.40	58.66	433.05	433.05	414.64	414.64	1502			
			11	14.000F	C 23	Doug-Fir	2										
						Hemlock	3										
						All Sp.	5							1502			

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Plot Summary

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Utilization Levels:	Minimum DBH	Top Diameter	Stump Height
Mature Blocks: (cm)	17.5	15.0	30
Immature Blocks:(cm)	12.0	10.0	30
Standard Log Length:(m)	10.00		

Forest Type	Block	Strip	Plot #	Size	Slope %	Species	# of Stems	Stems / Ha	Avg Diam	Gross Merch	Less Decay	Less DB	Less DWB	Cruise Date	Loss YI	Ref OI	No. M
1-Fd (HwCwDrBa)	B14	E	2	14.000F C	0	Doug-Fir	3										
						All Sp.	3										
		E	5	14.000F C	0	Doug-Fir	4										
						All Sp.	4										
		E	7	14.000F C	0	Doug-Fir	4										
						Hemlock	1										
						All Sp.	5										
		E	8	14.000F C	0	Doug-Fir	7										
						All Sp.	7										
		n	1	14.000F C	0	Balsam	1										
						W.R. Cedar	3										
						Doug-Fir	1										
						All Sp.	5										
		S	4	14.000F C	0	W.R. Cedar	1										
						Doug-Fir	6										
						All Sp.	7										
		S	6	14.000F C	0	Hemlock	4										
						All Sp.	4										
		S	9	14.000F C	0	W.R. Cedar	2										
						Doug-Fir	4										
						All Sp.	6										
		SE	3	14.000F C	0	W.R. Cedar	3										
						Doug-Fir	3										
						All Sp.	6										
		W	10	14.000F C	0	Alder	3										
						Doug-Fir	2										
						All Sp.	5										
2-Fd (CwBaHwDr)	B15		1	14.000F	23	W.R. Cedar	1	88.03	45.00	113.00	113.00	105.09	105.09				211
						Doug-Fir	3	1038.92	22.69	302.43	290.88	275.76	275.76				110
						E-Down	1	847.82	14.50	60.82	49.26	46.22	46.22				110
						All Sp.	4	1126.95	25.15	415.43	403.88	380.85	380.85	1502			
			2	14.000F	28	Doug-Fir	2	78.81	67.26	276.54	276.54	265.48	265.48		101		
						All Sp.	2	78.81	67.26	276.54	276.54	265.48	265.48	1502			

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Plot Summary

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
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Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Utilization Levels:	Minimum DBH	Top Diameter	Stump Height
Mature Blocks: (cm)	17.5	15.0	30
Immature Blocks:(cm)	12.0	10.0	30

Standard Log Length:(m) 10.00

Forest Type	Block	Strip	Plot #	Size	Slope %	Species	# of Stems	Stems / Ha	Avg Diam	Gross Merch	Less Decay	Less DB	Less DWB	Cruise Date	Loss YI	Ref No. OI	M
2-Fd (CwBaHwDr)	B15		3	14.000F	28	Balsam	1	84.24	46.00	153.36	153.36	147.22	147.22		401		
						Alder	1	696.30	16.00	68.69	68.69	65.26	65.26			1210	
						Doug-Fir	3	165.57	56.83	412.10	412.10	395.61	395.61		101		
						Hemlock	1	568.97	17.70	42.63	38.54	36.83	36.83		301		
						E-Down	1	568.97	17.70	42.63	38.54	36.83	36.83		301		
						All Sp.	6	1515.09	26.57	676.77	672.68	644.92	644.92	1502			
			4	14.000F	30	Doug-Fir	3	552.36	31.11	316.43	316.43	303.77	287.31		101		
						All Sp.	3	552.36	31.11	316.43	316.43	303.77	287.31	1502			
			5	14.000F	17	Doug-Fir	4	858.20	28.82	382.49	382.49	367.19	367.19		101		
						All Sp.	4	858.20	28.82	382.49	382.49	367.19	367.19	1502			
		E	3	14.000F C	0	Doug-Fir	5										
						All Sp.	5										
		E	4	14.000F C	0	Doug-Fir	5										
						All Sp.	5										
		E	5	14.000F C	0	W.R. Cedar	2										
						Doug-Fir	2										
						All Sp.	4										
		S	2	14.000F C	0	Doug-Fir	4										
						All Sp.	4										
		w	1	14.000F C	0	W.R. Cedar	3										
						Doug-Fir	1										
						Hemlock	1										
						All Sp.	5										
3-Fd (Cw)	W14		1	14.000F	24	Doug-Fir	3	670.72	28.24	332.01	332.01	318.73	318.73		101		
						All Sp.	3	670.72	28.24	332.01	332.01	318.73	318.73	1502			
			2	14.000F	19	Doug-Fir	3	766.64	26.41	351.29	351.29	337.24	337.24		101		
						All Sp.	3	766.64	26.41	351.29	351.29	337.24	337.24	1502			
			3	14.000F	18	Doug-Fir	6	1323.42	28.43	793.37	793.37	761.63	761.63		101		
						All Sp.	6	1323.42	28.43	793.37	793.37	761.63	761.63	1502			
			4	14.000F	22	Doug-Fir	4	530.89	36.65	538.53	538.53	516.99	506.88		101		
						All Sp.	4	530.89	36.65	538.53	538.53	516.99	506.88	1502			
			5	14.000F	17	W.R. Cedar	1	909.46	14.00	43.22	43.22	41.06	41.06		201		

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Plot Summary

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Utilization Levels:	Minimum DBH	Top Diameter	Stump Height
Mature Blocks: (cm)	17.5	15.0	30
Immature Blocks:(cm)	12.0	10.0	30

Standard Log Length:(m) 10.00

Forest Type	Block	Strip	Plot #	Plot Size	Slope %	Species	# of Stems	Stems / Ha	Avg Diam	Gross Merch	Less Decay	Less DB	Less DWB	Cruise Date	Loss YI	Ref No. OI	Ref No. M
3-Fd (Cw)	W14		5	14.000F	17	Doug-Fir	3	773.43	26.29	454.43	454.43	436.26	436.26		101		
						All Sp.	4	1682.89	20.58	497.65	497.65	477.31	477.31	1502			
		N	2	14.000F C	0	Doug-Fir	6										
						All Sp.	6										
4-Fd (DrCwMb)	W16		1	14.000F	12	W.R. Cedar	1	78.02	47.80	121.19	121.19	115.13	115.13		201		
						Alder	2	701.47	22.54	210.31	199.63	189.11	189.11				1210
						Doug-Fir	1	219.46	28.50	108.63	108.63	104.28	104.28		101		
						All Sp.	4	998.94	26.72	440.12	429.44	408.53	408.53	1502			
			2	14.000F	32	Doug-Fir	4	947.75	27.43	402.71	402.71	386.60	386.60		101		
						All Sp.	4	947.75	27.43	402.71	402.71	386.60	386.60	1502			
			3	14.000F	25	Doug-Fir	4	1363.14	22.87	427.12	427.12	410.03	410.03		101		
						All Sp.	4	1363.14	22.87	427.12	427.12	410.03	410.03	1502			
			4	14.000F	11	Doug-Fir	2	451.30	28.11	199.31	199.31	191.34	191.34		101		
						All Sp.	2	451.30	28.11	199.31	199.31	191.34	191.34	1502			
			5	14.000F	18	W.R. Cedar	2	395.24	30.03	176.85	176.85	168.01	168.01		201		
						Alder	1	352.11	22.50	106.50	96.39	91.06	91.06				1210
						Doug-Fir	2	279.84	35.69	211.99	211.99	203.51	203.51		101		
						All Sp.	5	1027.18	29.46	495.34	485.23	462.58	462.58	1502			
			6	14.000F	15	Doug-Fir	6	1311.69	28.55	672.24	669.61	642.72	608.06		101		
						All Sp.	6	1311.69	28.55	672.24	669.61	642.72	608.06	1502			
			7	14.000F	8	Doug-Fir	3	776.10	26.25	252.34	252.34	242.25	242.25		101		
						All Sp.	3	776.10	26.25	252.34	252.34	242.25	242.25	1502			
			8	14.000F	15	Doug-Fir	2	223.12	39.97	227.43	227.43	218.33	218.33		101		
						All Sp.	2	223.12	39.97	227.43	227.43	218.33	218.33	1502			
			9	14.000F	45	W.R. Cedar	1	922.59	13.90	37.12	37.12	35.27	35.27		201		
						Doug-Fir	4	439.09	40.30	494.79	494.79	475.00	475.00		101		
						All Sp.	5	1361.68	25.58	531.91	531.91	510.26	510.26	1502			
			10	14.000F	30	Alder	5	1062.17	28.97	676.38	676.07	642.25	574.13				1210
						E-Down	1	246.34	26.90	127.77	127.77	121.38	106.86				1210
						Doug-Fir	1	1038.71	13.10						101		
						All Sp.	6	2100.89	22.56	676.38	676.07	642.25	574.13	1502			
			11	14.000F	32	Doug-Fir	4	872.90	28.58	432.60	432.60	410.97	410.97				110
						All Sp.	4	872.90	28.58	432.60	432.60	410.97	410.97	1502			

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Plot Summary

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Utilization Levels:	Minimum DBH	Top Diameter	Stump Height
Mature Blocks: (cm)	17.5	15.0	30
Immature Blocks:(cm)	12.0	10.0	30

Standard Log Length:(m) 10.00

Forest Type	Block	Strip	Plot #	Plot Size	Slope %	Species	# of Stems	Stems / Ha	Avg Diam	Gross Merch	Less Decay	Less DB	Less DWB	Cruise Date	Loss YI	Ref No. OI	Ref No. M
4-Fd (DrCwMb)	W16		12	14.000F	15	Doug-Fir	3	560.29	30.89	372.51	372.51	357.61	357.61		101		
						All Sp.	3	560.29	30.89	372.51	372.51	357.61	357.61	1502			
			13	14.000F	15	Doug-Fir	3	1285.13	20.40	231.81	231.81	222.54	222.54		101		
						All Sp.	3	1285.13	20.40	231.81	231.81	222.54	222.54	1502			
			14	14.000F	35	Doug-Fir	4	2128.42	18.30	315.68	315.68	303.05	303.05		101		
						Maple	1	296.97	24.50	71.71	71.71	68.13	68.13				1310
						All Sp.	5	2425.38	19.17	387.39	387.39	371.18	371.18	1502			
		E	3	14.000F C	0	Doug-Fir	3										
						All Sp.	3										
		N	11	14.000F C	0	Doug-Fir	3										
						All Sp.	3										
		NE	2	14.000F C	0	Alder	2										
						Doug-Fir	5										
						All Sp.	7										
		S	6	14.000F C	0	Doug-Fir	4										
						All Sp.	4										
		w	4	14.000F C	0	Doug-Fir	6										
						All Sp.	6										

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Plot Frequency Report

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
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19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Measure Plots

Blocks	Timber Type 1	2	3	4
BLOCK B14 (I)				
# of Plots	10			
ha / Plot	1.53			
BLOCK B15 (I)				
# of Plots		5		
ha / Plot		1.52		
BLOCK W14 (I)				
# of Plots			5	
ha / Plot			1.16	
BLOCK W16 (I)				
# of Plots				14
ha / Plot				1.13
Cutting Permit				
# of Plots	10	5	5	14
ha / Plot	1.53	1.52	1.16	1.13

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Plot Frequency Report

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Measure Plots

Harvest Methods	Timber Type 1	2	3	4
METHOD SC				
# of Plots	10	5	5	14
ha / Plot	1.53	1.52	1.16	1.13
All Methods				
# of Plots	10	5	5	14
ha / Plot	1.53	1.52	1.16	1.13

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Plot Frequency Report

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
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19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Count Plots

Blocks	Timber Type 1	2	3	4
BLOCK B14 (I)				
# of Plots	11			
ha / Plot	1.39			
BLOCK B15 (I)				
# of Plots		5		
ha / Plot		1.52		
BLOCK W14 (I)				
# of Plots			1	
ha / Plot			5.80	
BLOCK W16 (I)				
# of Plots				5
ha / Plot				3.16
Cutting Permit				
# of Plots	11	5	1	5
ha / Plot	1.39	1.52	5.80	3.16

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,

Plot Frequency Report

Average Line Method
AVCF
Licence Number: K2D CP: PRE
Project: K2_AVCF

Grades: Cruiser Called Alpha
Cruiser Est Decay
Cruiser Est Waste
Computerized Breakage

FIZ: B
PSYU: Nootka
Region: 2 - West Coast
District: 04 - South Island

19-Feb-2015 02:19:32PM
Filename: AVCF_internal.ccp
Compiled by: F Warren And Associates Ltd
Cruised by: F WARREN AND ASSOCIATES LTD
Version: 2014.00   IFS build 5885

Count Plots

Harvest Methods	Timber Type 1	2	3	4
METHOD SC				
# of Plots	11	5	1	5
ha / Plot	1.39	1.52	5.80	3.16
All Methods				
# of Plots	11	5	1	5
ha / Plot	1.39	1.52	5.80	3.16

FLAGS: Full Volumes, Normal Cruise, All Trees Compiled, Double Sampling Factor Applied, Damage,