

RIPARIAN ASSESSMENT

Block	Riparian I.D. and Class	RMA	SU	Width (m)	BA or SPH Retained	Comments (Indicate if in a Community Watershed)
1	S1R1, S2R1, S2R2, S2R3,S3R1, S5R1 S6R1S6R2A, S7R1 : S6	≥5m Machine Free Zone 20m RMZ	1,2,3		Minimal	<p>Completion of stream and RMZ assessments revealed that in the case of all identified reaches, timber within RMZs is damaged by wildfire. Severity of damage is variable, however in all cases, both safety and blowdown concerns were noted. Throughout the block, many trees have damaged roots systems resulting in poor stability and high risk of windthrow. Safety of workers is of concern as trees may fall suddenly. Windthrow resulting from fire damage was noted by layout crews throughout the block.</p> <p>To mitigate the hazard to workers and the possibility of damage to stream channels as result of adjacent trees being windthrown, minimal retention within the RMZ's of all identified reaches is prescribed. All structurally damaged overstory trees within the RMZ's are to be removed. Where roots are embedded into the stream channel, trees are to be stubbed to reduce the risk of windthrow.</p> <p>Within 20m of all stream reaches, retain all green-topped Lw and/or Fd that are structurally sound and have >50% of the root system intact and that do not present a hazard to crews. Retain any trees that do not meet utilization standards for pulp or sawlogs due to large defect where structurally intact and roots are >50% intact and do not pose a hazard to field crews.</p>

Management Strategies:

Designated Crossings

In all cases, the crossing of streams are to be only at designated locations as marked on the SP/HP map. Harvesting supervisors are to verify that mapped crossing locations remain suitable at time of harvest and if not, choose an alternative suitable location. The number of crossing locations is to be minimized with random crossing locations prohibited. Skid crossings acceptable to BCTS must be used at all designated crossing locations.

Drainage Structures

Culverts of the sizes indicated in the Road site plan are to be installed at specified locations to ensure maintenance of drainage patterns. Additional cross drains are to be installed where necessary following guidance provided in the FLNRO Engineering manual.

Culverts installed on any temporary road or permanent road prescribed for deactivation after completion of operations are to be removed and cross ditches installed to ensure maintenance of natural drainage patterns. Deactivation must be in accordance with a deactivation plan prepared by a QRP.

Trail Management

All bladed skid trails are to be rehabilitated at completion of operations where soil conditions permit. To mitigate possible erosion, roughing of the soil surface and mixing of organic debris with soil is desirable to assist in water infiltration and faster reestablishment of natural vegetation. Rehabbed trails are to be seeded as per the site plan.

Stream Clean Out

Any slash or debris introduced into a stream channel must be carefully removed concurrent (prior to freshet or demobilization of equipment, whichever is earlier) with harvesting. Remove all introduced debris >1m in length. Remove all introduced segments of tree stems or log ends of any length resulting from processing that enters a stream channel. Place removed debris where it will not re-enter the stream as result of downslope movement or stream peak flows. Do not remove pre-harvest embedded debris or large natural woody debris. All fine debris is to be hand cleaned. Do not use machinery where streambanks or natural large woody debris will be disturbed.

Safety Highlights:

Fire Damaged Stands:

Block has been damaged by wildfire. Trees have been structurally compromised. Fire damaged trees pose high risk of tree-fall due to damaged root systems. Increasing wind speeds elevate the risk of sudden tree fall posing a danger to workers and machinery. In areas of greater fire severity, trees may suddenly break due to burnt out boles, damaged branches creating widowmakers/overhead hazards. Dangers trees must be removed a safe distance from all landings/decking areas where they cannot strike workers.

Steep Slopes:

Harvesting on slopes >35% will be required in limited areas of the block. Prior to machinery working on steep slopes, a steep slope hazard assessment is to be completed and documented in accordance with WCB regulations and requirements. Areas >35% slope are identified on the harvest plan map.

Boulders/ Rolling hazard:

On steeper ground, boulders may present a rolling hazard to field workers and equipment downslope.

Heavy Windthrow:

Windthrow has occurred throughout the block with localized areas where it is severe. **The HP/SP map indicates an “Area of Concern” where severe windthrow has occurred.** An attempt at cleaning up this windthrow is to be made however the site supervisor must assess safety hazards to workers, machinery, and the environment. There may be watercourses obscured by downed trees so caution must be used so as not to damage possible stream channels.

Leave Tree Specifications:

Table 1 – Layer 1 Reserve Timber ¹										
SU	Selection Priority	Species	Size	Stems per Hectare to Retain			Distribution ²			
				Target	Min	Max	S	G	I	R
1	1	Lw/Fd	≥30cm dbh	30sph	0sph	40sph	X	X	X	
2,3	1	Lw/Fd	≥30cm dbh	10sph	0sph	10sph	X	X	X	
1, 2, 3	1	Lw/Fd	>= 45cm	5sph	0sph	5sph	X	X	X	

Additional Requirements/ Comments:

1.

Minimum is to be left only where leave-trees of identified species, size class, and structural integrity do not exist within areas of the SU. Leave as many trees meeting the retention requirements as available up to maximum amount.

2.

The above cutspecs include trees that are dead or alive, with selection preference to be given to live trees (green tops/ minor bark char).

3.

Trees that do not meet utilization standards for sawlog or pulp due to large defect are to be retained onsite where safe to leave and not posing a safety hazard. If felled as result of presenting a safety hazard, retain onsite as large woody debris.

4.

All stems retained must be structurally sound, have >50% of the root system intact and not present a hazard to crews on the ground.

5.

Voids >1ha may exist post-harvest dependent on pre-existing stand structure and available leave-trees.

¹ Refer to *Appendix 1 for Table of Reserve timber Abbreviations and Definitions*

² Distribution types: S: Single Tree, G: Group of trees, I: Irregularly distributed, R: Regularly distributed

Note: Safety is a priority when conducting operations near reserved timber. Refer to TSL Schedule “A”, Section 2.00 regarding Dangerous trees.

Table 2- Other Reserved Timber							
Non Merch							
SU	Location	Species	Size	Stems/ha			
1,2,3	Where possible, retain clusters of green advanced regen	Fd, Lw, Sx, Bl	>1.3m height	- up to 3 clusters/ha			
Coarse Woody Debris							
SU	Size	# per Hectare	Distribution				• This is the minimum required as per the 2017-2022 FSP
1,2,3	Min 2m length (≥5m m if available) Min 20cm diameter at one end Target larger logs where they occur and are not suited as sawtimber.	Min 4 logs/ha 1.24m3/ha	S	G	I	R	
			x	x	x		
Dead Trees to be stubbed (where Mechanical Falling is utilized)							
1,2	Stub trees embedded into stream banks where it is safe to do so (ie within MFZ's) and will not pose a hazard to the integrity of the stream channel)	all	x	x	x		• 2 – 5 m stubbing Height • No target.

Harvest / Operational Constraints:

➤

Operate during conditions that prevent excessive soil disturbance. Avoid harvesting during periods of excessive soil moisture such as spring freshet and after heavy rainfall.

➤

Maintain natural drainage patterns during and at completion of harvest. At completion of operations all road sections must be left in a hydrologically stable state.

➤

This block is sensitive to encroachment by invasive species. Ensure that all equipment entering the site is inspected for invasive plant material and washed if material is found. Document inspections and actions taken.

➤

Exposed cutbanks of permanent constructed roads, new landings and deactivated/rehabbed areas are to be re-seeded with a suitable seed mix (as directed by a qualified professional otherwise Canada #1 Forage Mix or better) within 1 year of soil exposure to mitigate the spread of invasive plants and to limit soil erosion.

➤

Any trees that pose a hazard to landing and decking areas are to be removed.

➤

Crossing of streams by equipment must only occur at designated crossings indicated on the SP/HP map or alternatives specified by the harvest supervisor if mapped crossing locations are no longer suitable. The number of stream crossing locations must be minimized.

➤

During operations, supervisors and workers must keep a look out for obvious sedimentation and erosion resulting from operations. Mitigative actions are to be taken to ensure sediment entering streams is minimized.

➤

Where available, leave green alder and/or surviving advanced regen along the edges of roads to provide screening for wildlife. Avoid roadside decking where such screening exists.

Kootenay Business Area Field Marking Standards

	Ribbon	Paint
Harvest Boundary	BCTS Block Boundary	FC#
Falling Corners		
WTRA Boundary	Reserve	
Reserve Boundary	Reserve	
Riparian Reserve Zone	Reserve	
Riparian Management Zone	Riparian Mgmt. Zone	
Management Zone	Management Zone	
Treatment Unit Boundary	Treatment Unit Boundary	
Reserve Trees		
Machine Free Zone	//// Machine Free Zone ////	
Cruising	Cruise Line	Plot Trees
Traverse Stations		
SP Plot Location		

	Ribbon	Paint
NCD & Stream Centers	Water Course	
Road P-Line		
Road Center Line	Road Centerline	
Landings	Landing	
Road Right of Way	R/W Boundary	
Road RP		
Culverts	Culvert	
Designated Crossing	Crossing	
Culvert RP Outside Right of Way		
Tail Holds / Guyline / Intermediate Supports		
Skid Trail / Back Spar Trail / Forwarding Trail	///// Trail /////	
Recce Ribbon / D-Line / Skyline Roads	//////////	

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

Chris Lovesey, RPF # 4803

RPF PRINTED NAME

June 24, 2018

DATE SIGNED

RPF'S SIGNATURE and SEAL



Chris Lovesey