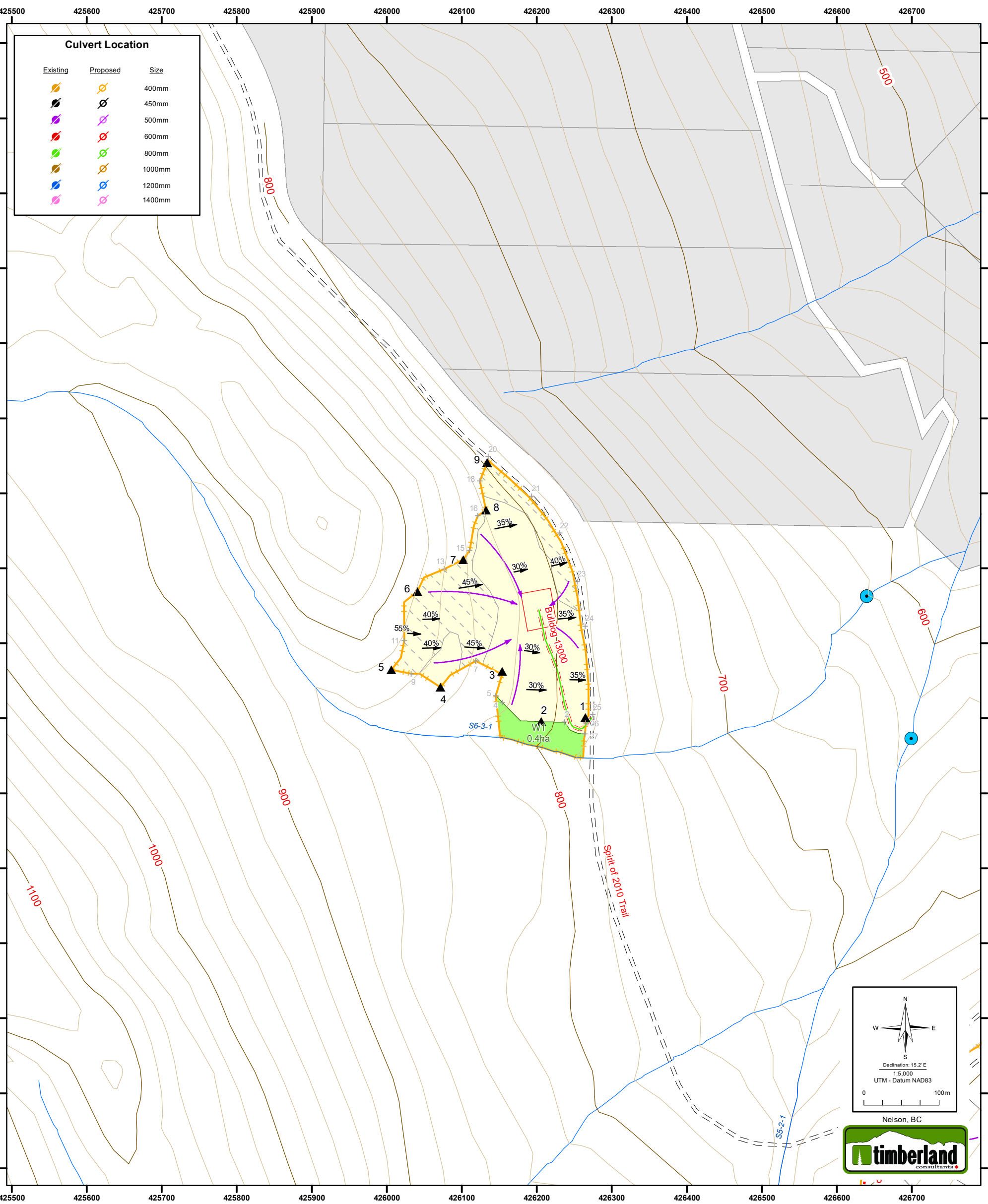




Date: 3/15/2021	Drawn By: AT	Elevation (min / max): 760-1000m	Lat/Long: 49° 22' 10" / 118° 00' 29" Boulder 9
Mapsheets: 82E 040	Ridge Cliff Slope Break Rock #	Reach Break Wet Area Fish Barrier	
Existing Cutblock	Existing Road Proposed Road	Existing Landing Perm. Landing	
Wildlife Tree Retention Area	Existing Trail Proposed Skid Trail	Steep Slopes >35% Temp. Landing	
OGMA Non-Merch	Prop. Backspar Trail Prop. Yarder Trail	SP Plot Cable Stick Nest	
Cutblock Boundary	MFZ RMZ Skid Direction	Creek Intermittent Creek	
Bench Draw	Yarding Direction Intermediate Structure	Slope and Direction Prop. Skid Crossing	
Station +12	Falling Corner FC2	Perm./Temp Access Licensee Construct	
Path: G:\PROJ\T16011_BCTS\A95559_PupRail\Maps\HP\A95559_i4_Map_HP_BK3.mxd			

1.5 RIPARIAN ASSESSMENT						
Block	Riparian I.D. and Class	RMA	SU	Width (m)	SPH Retained	Comments (Indicate if in a Community Watershed)
3	S6-3-1	RMZ	N/A	20	-	S6-3-1 and all of its RMZ are located out of block or within WTRA. This development is not located in a Community Watershed.

Safety Highlights:

In addition to the standard safety hazards and risks associated with all aspects of forest management, the following safety hazard(s) apply to this block and must be enforced and practiced:

- Public Traffic on mainlines from hunters, campers, other recreationalists and local residents.
- Steep slopes in ground-based harvest areas.

Remedial Action

- Personnel will be informed of this hazard and signage will be posted near the proposed development when harvesting and road-building activities are being conducted.
- Personnel will be informed of this hazard. These areas are displayed on the HP map.

Leave Tree Specifications:

Table 1. - Layer 1 Reserved Timber ¹											
Block	HU	Selection Priority	Species	Size	Stems per Hectare			Distribution ²			
					Target	Minimum	Maximum	S	G	I	R
3	1	<ul style="list-style-type: none">Fd, Lw, CwLargest diameter stems	Fd, Lw, Cw, At, Ep	Fd, Cw >/=50cm dbh Lw >/= 45cm dbh At, Ep >/=20cm dbh	5	Where present and practicable.	10	√	√	√	
Additional Requirements/Notes: Note: Some areas of HU1 may have little or no potential reserve trees. The target value should be an average over the HU area.											
¹ Refer to <i>Appendix I for Table of Reserve Timber Abbreviations and Definitions</i> ² Distribution Types: S: Single Trees, G: Groups 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.											
Table2. – Other Reserved Timber ¹											
Non-Merchantable											
Block	HU	Location(s)	Species	Size	Stems per Hectare		Minimum				
					Target	Minimum					
3	1	HU1	All	Non-merchantable stems <12.5cm dbh	All, where present and operationally feasible		All, where present and operationally feasible				
Dead Trees to be Stubbed (where Mechanical Falling is utilized)											
Block	HU	Species	Size	Stubbing Height	Stems per Hectare			Distribution ²			
					Target	Minimum	Maximum	S	G	I	R
3	1	All *	>/=35cmbdh	3-5m	7	5	10	√	√	√	
Additional Requirements: 1. Stub trees must not pose a hazard to worker safety. 2. In selecting dead trees for stubbing, give selection priority to trees with signs of wildlife use (e.g. cavity nests, holes, and dens). *Avoid Douglas-fir and Spruce, where practicable.											
Coarse Woody Debris											
Block	HU	Species	Size	M ³ per Hectare			Distribution ²				
				Target	Minimum	Maximum	S	G	I	R	
3	1	All **	Retain CWD and wildlife trees that are representative (spp, age and size) of pre-harvest levels/conditions.	15	10		√	√	√		
¹ Refer to <i>Appendix I for Table of Reserve Timber Abbreviations and Definitions</i> ² Distribution Types: S: Single Stems/Logs, G: Groups of Stems/Logs, I: Irregularly Distributed, R: Regularly Distributed											
Note: Manage CWD levels to pre-harvest levels, except in areas where concentrations are too high for effective planting and/or successful regeneration. Safety is a priority when conducting operations near reserved timber. Refer to TSL Schedule “A”, Section 2.00 regarding Dangerous Trees. As a reference 1 large telephone pole roughly equals 1m3. **Select dead and dry material over green material; Retain material from species other than Douglas-fir and spruce; and Leave Douglas-fir and spruce stump heights as low to the ground as possible.											

Harvest / Operational Constraints:

-Ground skidding across natural drainage paths should be avoided where practical. If this cannot be avoided, harvesting should be conducted during the drier months of the year, on a compressed snowpack, or effort made to ensure timber is skidded butt-first to minimize potential ground disturbance within such drainage features.

-Bladed or Excavated trails may be required, for safety, in areas with steep slopes and in areas that may require adverse skidding.

-Fall and skid away from the Spirit of 2010 Trail. Ensure the trail is kept free of harvest debris at all times.

- Care must be taken to avoid the picnic area on the Spirit of 2010 Trail when constructing the start and switchback location of Bulldog 13000. Also, ensure no damage or debris remains in or near the picnic area.

TSA Recommendations

Road Construction Recommendations

Recommendations related to road construction, maintenance, and deactivation are included in the Road Construction Summary Tables presented in Appendix B.

General Harvesting Recommendations

1. Operations should be modified or suspended when there is abundant hill slope runoff occurring at the site, which is likely to occur during times such as spring breakup or from prolonged heavy precipitation. This is intended to reduce the likelihood of concentrated or redirected drainage as well as erosion and sediment delivery.

2. Machine use should be limited to areas where excessive scour, rutting, or compaction is avoidable. This would generally restrict machine use from areas of moderately steep or steeper slopes as well as areas of wet, soft, or very loose soils. Some modified machine use (e.g. hoe-chucking) may be possible in these areas if excessive disturbance is avoidable.

3. All natural drainage patterns (including all NCDs and S6 streams as well as dry swales and gullies) should be maintained and left free of excess debris (slash or soil) that could result in a redirection of seasonal surface runoff.

4. Excavated or bladed trail construction should be minimized as practical, and avoided in areas of seepage or where shallow subsurface runoff is likely to be intercepted.

5. Trail drainage systems should be in place to prevent the concentration or redirection of runoff during use or prior to full rehabilitation. Trail drainage systems can be enhanced by frequent dips and skid culverts to prevent water concentration and drainage diversions.

6. All trails should be fully rehabilitated upon completion of use and concurrent with operations, ideally prior to the next spring freshet. If any trails are to overwinter then additional precautions should be taken including pulling back all watercourse crossings and any potentially unstable fill slopes, and installing frequent cross-ditches in order to limit the potential for redirected runoff.

7. If stumping is prescribed, the additional machine use should follow the recommendations above with the intent of limiting the potential for disturbance that could result in shallow subsurface or surface runoff interception, concentration, diversion, or acceleration. Stumping should be avoided in machine free zones.

Site Specific Harvesting Recommendations

BLOCK A95559-3 (refer to Figure 4):

There are no specific recommendations for the Block 3 harvest area or THB.

Spur 3-1: Conventional sidecast fill construction is considered appropriate for the majority of the alignment; some additional through-cutting will be required to construct the switchback, and potential blasting as bedrock is <1 m below surficial materials.

SCL recommended these culverts to improve drainage control and reduce the potential for concentrated and diverted runoff (refer to Figure 4):

- Hub 1: Install a 450 mm culvert to align with Rail Trail ditch.
- Hub 7: Install a 450 mm culvert for ditch relief prior to switchback.

All new culverts were flagged in the field by SCL (orange ribbon labelled “culvert”).

Note: At the time of assessment, there was additional flagging beyond the POT (Hub 12) of the mapped Spur 3-1 with alternate p-line options flagged in pink from original layout crew; these should be removed prior to further development to avoid confusion by contractors, etc. Otherwise, there are no recommended changes to the Spur 3-1 alignment location.

Field Reviews

If site conditions encountered vary significantly from those described in this report (e.g. unexpected and significant seepage, unexpected material textures encountered in excavations, etc.), or if any stability or erosional concerns become apparent during operations, then a qualified registered professional should be consulted to determine if an immediate field review is warranted. Timely mitigation of problem sites can significantly reduce potential adverse effects. Sufficient development supervision should be carried out by an experienced and qualified harvesting supervisor to ensure generally accepted good development practices are implemented along with all recommendations presented in this report.

Maintenance and Deactivation Recommendations - General

Refer to the ‘Other Resource Features’ Result and Strategy in the Site Plan for information on Road Maintenance, Deactivation and Revegetation following Road Construction and Deactivation.

Kootenay Business Area Field Marking Standards

	Ribbon	Paint
Harvest Boundary	BCTS Block Boundary	
Falling Corners		FC#
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.

RPF PRINTED NAME

Stefano De Vuono

DATE SIGNED

March 19, 2021

RPF’S SIGNATURE and SEAL