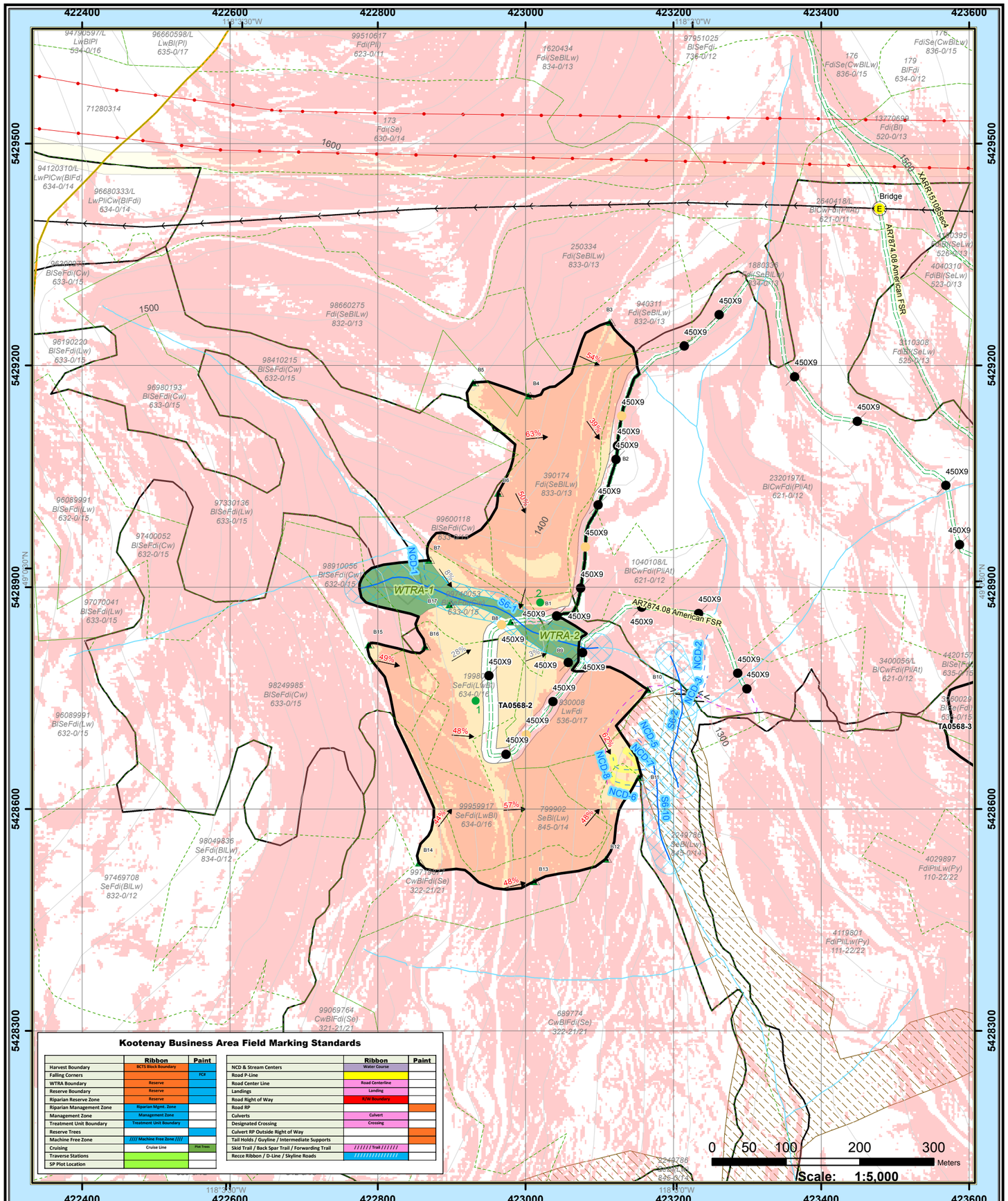

Kootenay Business Area Field Marking Standards

	Ribbon	Paint
Harvest Boundary	BCTS Block Boundary	FCF
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	/ / / / / / / / / / / / / / /	

BC Timber Sales - Kootenay Business Area

HARVEST PLAN MAP

Cabin Forestry

TSL: TA0568
BLOCK: 2
Generated On: 9/30/2019

Pre Number:
UBI: BF6GG
Generated By: LBULMER

Location: Sheep
Mapsheet: 082E010
Latitude: 49° 00' 26.7" N
Longitude: 118° 03' 10.5" W

Maximun Elevation: 1490
Minimun Elevation: 1290

Projection: UTM
Datum: NAD 83

- Blk_Contractor
- Reserve
- WTRA
- Non Productive
- NP Wet/ Water
- Recreation Sites and Reserves
- OGMA
- Wetlands

Harvest Strategies

- Special Management Area
- Machine Free Zone
- Riparian Reserve Zone
- Riparian Management Zone
- Proposed Temporary Landing
- Existing Permanent Landing
- Proposed Permanent Landing
- LiDAR > 35% Steep Slope

- Proposed Permanent Roads
- Proposed Temporary Roads
- Existing Roads
- Electrical Substation
- Mines; Pit; Abandoned Pit or Mine
- Campsite
- Golf Course
- Park or Field
- Cemetary
- Dump/Sewage;
- Fence
- Transmission Lines
- Pipeline

Harvest Method

- GROUND
- CABLE
- CABLE/ GROUND

- Stream
- Intermittent Stream
- Contours
- Cruise Slope
- Existing Trails
- Fence Line
- Gully, Draw
- Seepage
- Potential Skid Direction, Fav
- Potential Skid Direction, Ad
- Existing Skid Trails
- Proposed Skid Trails
- Falling Corner
- Proposed Culvert
- Existing Culvert
- Existing Bridge

- Common Junction
- CRS
- Designated Skid Crossing
- Ecology Plot
- Gravel Pit
- Leave Tree
- Mine Shaft
- Survey Pin
- Reach Break
- Rock
- Seepage
- Slide
- Cabin
- Wildlife Feature

Harvest Plan Area Summary (ha)

Harvest Unit	Method	Area	Strategy
1	Ground	13.6	Standard Practice
MFZ	Ground	0.1	Machine Free Zone
RMZ	Ground	0.3	Riparian Management Zone
		14.0	Total Harvest Area
Road R/W		1.2	Excluded from Harvest Area
WTRA		1.2	Excluded from Harvest Area
		16.4	Total Block Area

1.5 RIPARIAN ASSESSMENT

Block	Riparian I.D. and Class	RMA	SU	Width (m)	BA or SPH Retained	Comments (Indicate if in a Community Watershed)
2	S6-1	RMZ	WTRA-1 &2	20	>75% of BA	Stream S6-1 is in the WTRA (WTRAs 1 and 2) that splits the northern and southern portions of the block. Stream S6-1 disappears below ground east of the lower road in the block and appears top resurface outside the block, approximately 100m to the east, as stream S6-2 (American Creek). The stream has been flagged in the field with purple watercourse ribbon. Within the block harvest area, the 20m riparian management zone (RMZ) is flagged in the field with blue-glo ribbon with black Riparian Management Zone letters. Where present and operationally feasible, all non-merchantable stems (<12.5 cm DBH) with good form, health, and vigour will be reserved within the 20m RMZ within the block harvest area. The stream is not in a fisheries sensitive watershed, identified domestic watershed, or a community watershed.
2	S6-2	RMZ	Outside Block	20	N/A	S6-2 stream is located to the east of the block. The entire RMZ of S6-2 is located outside the proposed block harvest area. The stream has been flagged in the field with purple watercourse ribbon. The stream is not in a fisheries sensitive watershed, identified domestic watershed, or a community watershed.
2	S6-10	RMZ	Outside Block	20	100% of BA	Stream S6-10 is located outside the block along the southeastern boundary. The entire RMZ of S6-10 is located outside the proposed block harvest area. The stream has been flagged in the field with purple watercourse ribbon. The stream is not in a fisheries sensitive watershed, identified domestic watershed, or a community watershed.
2	NCD-1	-	WTRA-1	-	-	NCD-1 is in WTRA-1, outside the block harvest area. The NCD flows into stream S6-1.
2	NCD-2, 3 & 5	-	Outside Block	-	-	NCDs 2, 3 & 5 are located to the east of the block and have been flagged in the field with purple watercourse ribbon.
2	NCD-6, 7 & 8	MFZ	1	5	-	NCDs 6, 7 & 8 are in the southeast portion of the block harvest area. All three have been flagged in the field with purple watercourse ribbon. The NCDs have also been marked in the field with blue ribbon with black slashes and black Machine Free Zone lettering. Trees must be felled and skidded away from NCD where practicable. Do not skid up and down adjacent to the NCD. Where present and operationally feasible, all non-merchantable stems (<12.5 cm DBH) with good form, health, and vigour will be reserved within the 5m MFZ, where operationally feasible.

Management Strategies:

An existing skid trail is proposed to be used for harvesting areas below >60% slopes in the southeast area of the block. The trail crosses stream S6-2 and NCDs 2 and 3 at designated skid trail crossings marked in the field with pink ribbon with black slashes and black Trail lettering. It is recommended to place a temporary skid culvert (logs placed in the draw, or an old culvert) in the watercourses to prevent a potential diversion of flow. The crossings require removal after harvesting. No additional management is required for the three watercourses. See Non-Merchantable Section and the Harvest /Operational Constraints Section below for S6-1 and NCDs 6, 7, and 8 inside the harvest area.

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 standards acceptable of a Registered Professional forester.

Peter Share, RPF
RPF PRINTED NAME

September 27, 2019
DATE SIGNED

RPF'S SIGNATURE and SEAL

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:

1. Public Traffic on mainlines from hunters, campers, other recreationalists and local residents.
2. Two Hydro transmission lines and an oil pipeline cross the American FSR at approximately 2km prior to accessing the block.
3. Steep Slope areas for ground based harvesting exist in the block.
4. Be aware of potential for increased number of danger trees, as well as loose soils, exposed cobbles and boulders due to the fire.

Remedial Actions

1. 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.
2. Log haulers and lowbed drivers need to be aware of the three hazards and need to insure adequate clearance heights are achievable under the Powerlines and the crossing site for the oil line is safe for crossing, or if weight restrictions apply.
3. These areas are delineated on the HP map and personnel will be made aware of this hazard.
4. Workers need to be made aware of danger trees, loose soil, exposed cobbles and boulders created by fire.

Leave Tree Specifications

Layer 1 Reserved Timber[1]

Block	HU	Selection Priority	Species	Size	Stems per Hectare			Distribution[2]			
					Target	Min	Max	S	G	I	R
2	1	The block cruise shows Fdi of the size required exists only in the northern portion of block. If any Fdi of the required size are found in the southern area of the block then they should all be retained.	Fdi	>62.5cm DBH	4	2	6	X	X	X	X

Additional Requirements/Notes:X

1 Refer to *Appendix I* for *Table of Reserve Timber Abbreviations and Definitions* [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.

Other Reserved Timber[1]

Non-Merchantable

Blk	HU	Location(s)	Species	Size	Stems per Ha	
					Target	Minimum
2	1	MFZ on S6-1, NCD-6, NCD-7 & NCD-8	All non-merch timber and understory vegetation	<12.5cm dbh	All, where present and feasible.	All, where present and feasible.

Non recoverable Burnt & Dead Trees to be Stubbed (where Mechanical Falling is utilized)

Block	HU	Species	Size	Stubbing Height	Stems per Hectare			Distribution[2]			
					Target	Min	Max	S	G	I	R
2	1	All	>/=35cmdbh	3-5m	7	5	10	v	v	v	

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).

Coarse Woody Debris

Block	HU	Species	Size	M³ * per Hectare		Distribution[2]			
				Target	Minimum	S	G	I	R
2	1	All	Retain CWD and wildlife trees that are representative (spp, age and size) of pre-harvest levels/conditions.	15	10	v	v	v	

1 Refer to *Appendix I* for *Table of Reserve Timber Abbreviations and Definitions* [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. The licensee must retain a minimum of 4 full length logs per hectare, having a minimum dbh of 7.5cm. However, levels are expected to be higher due to non-merchantable log grades (firmwood rejects and some dry grade 4), as well as timber that is not salvagable due to the fire, or blowdown left on site. Efforts will be made to ensure these logs are not broken at time of harvesting. Logs may consist of a variety of species and shall be evenly distributed across the cutblock. Safety is a priority when conducting operations near reserved timber. Refer to TSL Schedule "A", Section 2.00 regarding Dangerous Trees. *** 1m3 represents approximately one large telephone pole.**

Harvest / Operational Constraints:

1. All road and trail drainage systems should be maintained and kept clear of debris during and subsequent to harvesting operations, including at and down slope of cross drain discharge locations.
2. Harvesting and road building activities should be modified or suspended when there is abundant hill slope runoff occurring at the site or when wet soils/seepage is encountered.

Timber Harvesting

- A 5m MFZ has been has been marked in the field with blue ribbon with black slashes and black Machine Free Zone lettering on NCDs 6, 7 & 8.
- The 20m riparian management zone (RMZ) of stream S6-1 within the block harvest area is flagged in the field with blue-glo ribbon with black Riparian Management Zone letters.
- Where present and operationally feasible, all non-merchantable stems (<12.5 cm DBH) with good form, health, and vigour will be reserved within the 20m RMZ area of S6-1 and the 5m MFZ of NCDs 6, 7, and 8 in the block harvest area.
- Trees must be felled away from all riparian features. All natural drainage patterns (including all NCDs and S6 streams as well as all dry swales) should be maintained and left free of excess debris (slash or soil) that could result in a redirection of seasonal surface runoff.
- Ground skidding and yarding across natural drainage paths should be avoided where practical. Do not skid up and down adjacent to NCDs 6, 7 & 8, or the RMZ of stream S6-1. 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/yarded butt-first to minimize potential ground disturbance within such drainage features.
- Timber harvesting should not be conducted under excessively wet site conditions, such as during spring snow melt or periods of heavy and prolonged rainfall.
- A post-harvest inspection of the block should be completed to remove logging debris from the wetted perimeter of all watercourses and subtle drainage features to ensure an accumulation of coarse woody debris does not result in a drainage diversion.

Permanent Road:

- Appropriate drainage control measures should be implemented to ensure all natural drainage paths are maintained.
- An occurrence of invasive plants on the access route to the block are Diffuse knapweed (DK), Hound's-tongue (HT), St. John's wort/Saint John's wort/Goatweed (SJ), Plumeless thistle (PT), and Spotted Knapweed (SK) at approximately 11 km of the Santa Rosa Road. This occurrence is located approximately 15 km from the block but is on the access route to the block. Contractors need to be made aware of this invasive plant occurrence during pre-works and appropriate measures applied to prevent spreading of the invasive species to the block during operational activities. **Operations regarding Invasive Plants will follow the procedures set out in the BCTS Environmental Procedure "Invasive Plants EFP #09".**

Temporary Access Structures:

- An existing skid trail is proposed to be used for harvesting areas below >60% slopes in the southeast area of the block. The existing skid trail crosses stream S6-2 and NCDs 2 and 3, all located outside the block. Designated skid trail crossings on the three riparian features are marked in the field with pink ribbon with black slashes and black Trail lettering. It is recommended to place a temporary skid culvert (logs placed in the draw, or an old culvert) in the riparian features to prevent a potential diversion of flow. The crossings will require removal after harvesting. The portion of the trail inside the block will require full rehabilitation upon the completion of harvesting. Surface drainage needs to be restored. Excess material that could cause redirection of natural drainage patterns should not be left at swale or gully crossing locations. All access structures constructed in the block will be managed to ensure natural drainage patterns are maintained and erosion measures are installed prior to spring freshet.