



SITE PLAN

This document fulfils the requirements of Section 10 of the Forest and Range Practices Act and Section 34 of the Forest Planning and Practices Regulation.

ADMINISTRATION

REGION	DISTRICT	T.S.A.	GEOGRAPHIC LOCATION			DOCUMENT DRAFT DATE		
Kootenay Boundary	Rocky Mountain	Cbk	Upper Joseph Creek			September 9, 2019		
LICENCEE		LICENCE	C.P.	BLK	BCGS MAPSHEET & OPENING #	LU	FDU	SUPPLY BLOCK
Galloway Lumber Co. Ltd.		F.L. A19042	197	3485	82G032	C12	1-Watershed	F

STANDARDS UNIT AREA DESCRIPTION (ha)

Timber Type Description: The stand is predominantly lodgepole pine.					
SU	GROSS	NON-PRODUCTIVE		RESERVES	NET AREA TO BE REFORESTED (NAR)
		NAT	UNN		
1	33.2		1.9	2.2	29.1
TOTAL	33.2		1.9	2.2	29.1

FOREST STEWARDSHIP PLAN OBJECTIVES, RESULTS AND/OR STRATEGIES

Objective / Measure / Value	Applicable (Yes/No)	Result and /or Strategy Description/Rationale
BEO	Yes	The BEO for this FDU/LU combination is intermediate. This Site Plan is consistent with the BEO.
Old and Mature Forest	No	The block is not within a non-legal old seral forest patch, as per the approved Forest Stewardship Plan.
Caribou	No	
Green-Up	No	This block, and adjacent cutblocks, does not exceed the maximum cutblock size as per <i>FPPR</i> section 64.
Grizzly Bear and Connectivity	No	Important grizzly bear habitat has not yet been mapped. The spatial deployment of old forests has been placed in connectivity corridors where available. The block is not within a regional connectivity corridor.
Consumptive Use Streams	No	
ERDZ-T	No	
Interpretive Forest Sites, Recreation Sites and Recreation Trails	No	
Scenic Areas	Yes	Approximately 6.3ha of the upper portion of the block is within a VQO polygon rated as Partial Retention. The Site Plan is consistent with the VQO and the FSP with respect to scenic values.
Soils	Yes	See Soil Disturbance Limits section below for results and strategies.
Wildlife Habitat Area's	Yes	The block is within WHA 4-180 established under the <i>Government Actions Regulation</i> for Grizzly Bear. The Site Plan is consistent with this order.
Riparian	Yes	The block is consistent with the Forest Stewardship Plan with respect to riparian values.
Community Watershed	Yes	Applies to Watershed FDU only.
Biodiversity-Landscape Level	Yes	This Site Plan is consistent with the Forest Stewardship Plan.
Biodiversity-Stand Level	Yes	This Site Plan is consistent with the Forest Stewardship Plan. The Forest Stewardship Plan requires that 7% of the gross cutting permit area and 3.5% of the gross cutblock area must be retained in Wildlife Tree Retention Areas (WTRA). The CP and this cutblock are consistent with the FSP requirement for WTRA's.
Cultural Heritage Resources	No	No Cultural Heritage Resources have been identified for this area.
Stocking Standards	Yes	The stocking standards are consistent with the FSP.
Invasive Plants	No	Invasive plants have not been identified for this area. Measures contained within the approved FSP, including re-vegetation requirements, will minimize the potential for spread of noxious weeds onto exposed mineral soil.

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Natural Range Barriers	No	Natural range barriers have not been identified for this area. To the best of the licensee's knowledge harvesting of the block will not remove, or render ineffective, a natural range barrier.
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CRITICAL SITE CONDITIONS THAT AFFECT THE TIMING OF OPERATIONS, and how they affect them.

SU 1	<ul style="list-style-type: none"> There is a temporary spur road located in the lower portion of the block. This road and landing must be fully rehabilitated post-harvest. There is a machine buffer located in the lower portion of the block.
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SOIL DISTURBANCE LIMITS AND MAXIMUM PERMANENT ACCESS STRUCTURES

SU	Sensitive Soils (Y/N)	Maximum Allowable Soil Disturbance (%) ¹	Maximum Amount Soil Disturbance Limits may be Exceeded to Construct Temporary Access Structures (%) ¹	Proportion of the Total Area Occupied by Permanent Access (%) ²	Maximum Allowable Soil Disturbance for Roadside Work Areas (%) ¹
1	No	10	5	5.7	25
Comments:		1: based on a percentage of the net area to reforest. 2: based on a percentage of the gross cutblock area, including any reserves.			

STOCKING STANDARDS

STOCKING STANDARDS

FSP Stocking Standards ID Number			1062159			Natural Stand SPZ					EK		
SU	Species		Well Spaced/ha			Minimum Inter-Tree Distance (m)	Regen Delay (max years)	Min. Tree Height at Free Growing (m)			Tree Height to Brush (min %)	Post Spacing	
	PREFERRED	ACCEPTABLE	TSSpa	MSSpa	MSSp			Pl, Lw	Fd	OS		Min	Max
1	Pl, Sx, Bl	Fd, Lw	1200	700	600	2.0	7	1.6	1.0	0.8	125	1200	3000-4000
<ul style="list-style-type: none">Maximum density = 10,000sph where lodgepole pine is <80%Pl in the inventory; maximum density = 25,000sph where lodgepole pine is >80% in the inventory.TSSpa = target stocking standard preferred and acceptable; MSSpa = minimum stocking standard preferred and acceptable; MSSp = minimum stocking standard preferred*Stocking standards footnotes apply.													

Person Completing this Site Plan:	Geoff Byford, R.P.F. September 9, 2019
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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



The Following is Attached For Information Only and Does Not Form Part of the Site Plan

PRACTICE REQUIREMENTS			
Objective / Measure / Value	FPPR Section	Applicable (Yes/No)	Result and /or Strategy Description/Rationale
SOILS			
Soil Disturbance Limits	35	Yes	The Site Plan is consistent with <i>FPPR section 35</i> .
Permanent Access Structure Limits	36	Yes	The Site Plan is consistent with <i>FPPR section 36</i> .
Landslides	37	No	
Natural Surface Drainage Patterns	39	Yes	Natural surface drainage patterns will be maintained as per <i>FPPR section 39</i> .
Revegetation	40	Yes	Exposed mineral soil on the cut and fill slopes of the newly constructed road must be re-vegetated within 2 years post-construction (1 year if invasive plants present).
TIMBER AND FOREST HEALTH			
Modification of Insect Behaviour	41	No	Yes, if pheromone baited.
Use of Seed	43	Yes	The Site Plan is consistent with <i>FPPR section 43</i> .
Free Growing Stands Generally	44	Yes	The Site Plan is consistent with <i>FPPR section 44</i> .
RIPARIAN AREAS			
Stream Riparian Classes	47	Yes	The Site Plan is consistent with <i>FPPR section 47</i> .
Wetland Riparian Classes	48	No	
Lake Riparian Classes	49	No	
Restrictions in a Riparian Management Area	50	No	
Restrictions in a Riparian Reserve Zone	51	No	
Restrictions in a Riparian Management Zone	12(3), 52	No	
Temperature Sensitive Streams	53	No	
Stream Crossings	55	No	
Fish Passage	56	No	
Protection of Fish and Fish Habitat	57	No	
WATERSHEDS			
Protecting Water Quality	59	Yes	The Site Plan is consistent with <i>FPPR section 59</i> .
Licensed Waterworks	60	No	
Excavated or Bladed Trails	61	Yes	The Site Plan is consistent with <i>FPPR section 61</i> .
Roads in a Community Watershed	62	No	
BIODIVERSITY			
Maximum Cutblock Size	64	No	
Harvesting Adjacent to Another Cutblock	65	No	
Wildlife Tree Retention	66	Yes	The Site Plan meets the requirements for wildlife tree retention contained in the Forest Stewardship Plan.
Restriction on Harvesting	67	No	
Coarse Woody Debris	68	Yes	The Site Plan meets the requirements for coarse woody debris contained in the Forest Stewardship Plan.

GENERAL WILDLIFE MEASURES AND RESOURCE FEATURES			
General Wildlife Measures	69	No	
Ungulate Winter Ranges	GAR	No	
Wildlife Habitat Features	GAR	No	
Migratory Birds	MBA	Yes	The block lies within very low to low potential polygons for containing migratory nesting birds based on VRI data. Harvest timing restrictions are not required.
DUE DILIGENCE			
Terrain Hazard	FRPA 46(1) FPPR 47	No	
Surface Erosion Potential	FRPA 46(1) FPPR 61	No	
Archaeological Impact Assessment	HCA*13	No	
Forest Health	FRPA 26 & 27	Yes	A forest health assessment has been completed for this block. The Site Plan is consistent with this assessment.

SOIL DESCRIPTION								
SU	SURFACE 0-15 cm		SUBSOIL 16-60cm		DEPTH TO UNFAVOURABLE SUBSTRATE		HUMUS FORM	
	TEXTURE	C.F. (%)	TEXTURE	C.F. (%)	DEPTH	TYPE	DEPTH (cm)	TYPE
					(cm)			
1	SiL	30-40	SiL	40-50	-	None noted	3-5	Mor

SITE DISTURBANCE			
HAZARD RATINGS			
<i>(if logging methods other than cable or aerial are proposed)</i>			
SU	SOIL COMPACTION	SOIL DISPLACEMENT	SURFACE SOIL EROSION
1	High	Moderate	High
SLOPE INSTABILITY INDICATORS			
SOIL DISTURBANCE LIMITS(as per section 35 of the <i>Forest Planning and Practices Regulation</i>)			
SU	MAXIMUM ALLOWABLE SOIL DISTURBANCE WITHIN THE NET AREA TO REFOREST (%)	MAXIMUM EXTENT SOIL DISTURBANCE LIMITS MAY BE TEMPORARILY EXCEEDED TO CONSTRUCT TEMPORARY ACCESS STRUCTURES (%)	
1	10.0	5.0	

REHABILITATION TIME FOR TEMPORARY ACCESS STRUCTURES

MAXIMUM ALLOWABLE TIME TO COMPLETE REHAB (MEASURED FROM COMPLETION OF HARVEST): ONE YEAR.

PROPORTION OF THE TOTAL AREA OCCUPIED BY PERMANENT ACCESS (%)

TOTAL	COMMENTS
5.7	PAS as per map.

RIPARIAN MANAGEMENT STRATEGIES

SU	WATERBODY NAME / TYPE	RIPARIAN CLASSIFICATION			
		RIPARIAN CLASSIFICATION	RIPARIAN RESERVE ZONE RRZ (M)	RIPARIAN MANAGEMENT ZONE RMZ (M)	RIPARIAN MANAGEMENT AREA RMA (M)
1	Joseph Creek	S3	20	20	40
1	Un-named Stream	S4	0	30	30
1	Un-named drainage	NCD	0	0	0

Joseph Creek is located west of the block. The cutblock is not within the RMA of this stream.

There is an un-named, non-fish bearing S4/NCD stream located adjacent to the western block boundary. The cutblock is not within the RMA of this stream.

There is an un-named NCD located adjacent to the northern block boundary.

OBJECTIVES FOR WILDLIFE TREE RETENTION

SU	BEC	BEO	APPLICABLE PERFORMANCE STANDARD FOR WILDLIFE TREE RETENTION (%)	AREA OF WTP's IN AND ADJACENT TO THE CUTBLOCK (ha)	PERCENTAGE OF CUTBLOCK AREA IN WTP'S (%)	PERCENTAGE OF LEAVE TREES CONTRIBUTING TO WILDLIFE TREE RETENTION OBJECTIVES	TOTAL PERCENTAGE OF WILDLIFE TREES IN OR ADJACENT TO THE CUTBLOCK
1	ESSFdk1	Intermediate	7.0	2.2	6.6	0	6.6

Four WTRA's have been established for the cutting permit area. The total CP level WTRA retention is 7.1%.

OBJECTIVES FOR COARSE WOODY DEBRIS

Coarse woody debris objectives will be met with existing on-site levels of downed material. Recruitment of coarse woody debris will also be provided from mortality of reserve stems over the rotation. Anticipate a range of piece sizes greater than 10cm in diameter, including stumps greater than 10cm tall, including, at a minimum, 4 logs per hectare, each being a minimum of 2m in length and 30cm in diameter at one end. Anticipate a volume range of 5-15m³/ha. Some localized areas may have greater or lesser amounts of CWD, depending on its amount pre-harvest, and operational considerations such as the amount of stem breakage, skidtrail location, etc.

Coarse woody debris objectives will be met using current utilization standards.

FOREST HEALTH MANAGEMENT STRATEGIES

MANAGEMENT STRATEGIES TO REDUCE FOREST HEALTH RISKS

Armillaria root disease is suspected but not confirmed on-site at less than 2% of the stand infected. Establishing a mixed species stand will minimize the impact of this disease on the next rotation.

Lodgepole pine dwarf mistletoe is present within the stand. Removal of all lodgepole pine will minimize spread of this disease in to the regenerating stand.

MANAGEMENT STRATEGIES FOR ARCHAEOLOGICAL SITES

MANAGEMENT STRATEGIES TO MANAGE AND CONSERVE ARCHAEOLOGICAL SITES

An Archaeological Overview Assessment was completed on LU C12. No areas of archaeological potential were identified within the vicinity of the cutblock.

PREVIOUS STAND INFORMATION

PREVIOUS STAND TYPE	TIMBER TYPE		CLASSES			Crown Closure	Site Index	Src Code
	Spp 1	Spp 2	Age	Height	Stocking			
MAT	Pl		6	3	0	7	17	H

ECOLOGICAL DESCRIPTION						
EU	SU	NDT	BEC ZONE	SUBZONE VARIANT	SITE SERIES (% composition)	GRID LOCATION (SMR / SNR)
1	1	3	ESSF	dk1	101 (104)	(3)4/C(D)

TERRAIN DESCRIPTION								
SU	SLOPE (%) DOMINANT (RANGE)	L/U	ASPECT	SLOPE POSITION	GULLIED (Y/N)	DRAINAGE	ELEVATION (m)	
							MIN	MAX
1	25 (10-50)	L/U	NW	Mid/toe	N	Well	1635	1840

MANAGEMENT STRATEGIES FOR TEMPORARY ACCESS STRUCTURES	
Bladed trails may be required to harvest this opening. The maximum amount of bladed trail must be consistent with the soil disturbance limits and the Logging Plan for this block.	

SILVICULTURAL SYSTEM for SU 1		
CATEGORY	SYSTEM VARIANT	CUT PHASE
Clearcut	With reserves	removal
STAND STRUCTURAL OBJECTIVES		
POST HARVEST		
CHARACTERISTICS OF LEAVE TREES: <ul style="list-style-type: none"> Reserve all Lw and Fd>35cm dbh up to 1 tree lengths spacing. The target tree density for all reserves is 15-25sph. Leave tree density should not exceed 25sph. Anticipate voids >5 hectare where no reserve trees exist or where they occur at densities less than 15sph. Expect reserve tree distribution to be non-uniform. Reserves may be left as individual stems or in groups of 3-5 trees. Anticipate 1-5sph within the block. Reserve all Lw and Fd vets. Reserve all deciduous stems, except where required to be felled for safety or operational reasons. Preference will be given to retaining the oldest, largest stems in the stand. Stems will be windfirm and relatively free of insects and disease. Retain good quality spruce and Douglas-fir understory, where operationally feasible, particularly adjacent to new and proposed roads and within one tree length of the WTRA in the central portion of the block. 		
FUNCTION OF LEAVE TREES: <ol style="list-style-type: none"> To provide seed and shelter for natural regeneration. To provide for recruitment of wildlife trees and coarse woody debris over time. To maintain/recruit an old growth component of Douglas-fir and western larch. 		

STANDARD HARVESTING CONDITIONS	
DANGER SNAGS Where practicable, danger trees will be felled: <ol style="list-style-type: none"> progressively with the felling of other timber, and before felling adjacent live trees, and into open areas. Danger trees outside a cutblock, within wildlife tree patches or within riparian reserve zones that are required to be felled for compliance with the Occupational Health and Safety Regulation may be felled at the discretion of the contractor and a Galloway Lumber Co. Ltd. representative.	

SITE PREPARATION METHOD/CONSTRAINTS					
SU	OBJECTIVES	TYPE	METHOD	% of SU	Comments
1	To achieve adequate mineral soil exposure and cone distribution to achieve natural regeneration of Lodgepole pine or to reduce vegetation competition sufficiently to provide plantable spots for artificial reforestation.	Mechanical	Disk Trench/Drag Scarify.	100	
CONSTRAINTS		Anticipate moist soils in the lower portion of the block.			