

**Carrier Lumber Ltd.
Valemount Community Forest Company Ltd.**

Robson Valley TSA Portion of the Prince George Natural Resource District

(FSPTS # 119)



FOREST STEWARDSHIP PLAN 2017

**Updated with Amendment ARA# 1
Submission Document – June 5, 2018.**

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1 INTERPRETATION

1.1 In this Forest Stewardship Plan:

“**Commencement of Term**” means the date the Term of this FSP begins, as specified in Paragraph 2.3.

“**Agreements**” means the Forest Licences listed in Table 1.

“**Agreement holders**” means the companies listed in Table 1.

“**Archaeological Resource Assessment**” means an inventory of an archaeological resource and an evaluation of the potential for adverse impacts.

“**FDU**” means a Forest Development Unit as defined in the Forest Planning and Practices Regulation BC. Reg. 14/2004 consolidated to March 18, 2005.

“**FPC**” means the Forest Practices Code of British Columbia Act RSBC 1996 c 159.

“**FPPR**” means the Forest Planning and Practices Regulation BC. Reg. 14/2004 consolidated to March 18, 2005.

“**FRPA**” means the Forest and Range Practices Act SBC, 2002 consolidated to November 24, 2005.

“**FSP**” means this Forest Stewardship Plan.

“**Forest Health Factors**” means biotic and abiotic influences on the forest that are usually naturally occurring components of forest ecosystems. Biotic influences include fungi, insects, plants, other animals, bacteria, and nematodes. Abiotic influences include frost, snow, fire, wind, sun, drought, pollution, nutrient problems, and human-caused injury.

“**Mature Seral Condition**” means forest stands with trees between 80 and 120 years old, depending on species, site conditions, and biogeoclimatic zone.

“**Merchantable Trees**” means a tree with the minimum diameter at breast height meeting the timber merchantability specifications for appraisal purposes. These are as follows; PI = 12.5cm and all other species = 17.5cm

“**Qualified Registered Professional (QRP)**” means a person holding an accreditation bestowed to them by a professional association constituted under an Act.

“**Qualified Person (QP)**” means a person who possesses the specified knowledge, skills, training, experience and other requirements to perform a specified type of works as set out by the Agreement Holder or while under the supervision of a Qualified Registered Professional.

“**Survival**” (of a species) means the continuation of life or existence of a species not individuals.

“**Term**” means the period specified in Paragraph 2.2.

1.2 In this FSP, the singular includes the plural and the plural includes the singular, unless the context indicates otherwise.

2 DATE OF SUBMISSION, COMMENCEMENT OF TERM & TERM OF THE FSP

2.1 The date of submission of this Forest Stewardship Plan (this “FSP”) is, April 3, 2017.

2.2 The Term of this FSP will be 5 years from the Commencement of Term.

2.3 The Commencement of Term for this FSP is May 18, 2017.

3 APPLICATION OF THE FOREST STEWARDSHIP PLAN

3.1 FSP Agreement Holders.

This FSP applies to the Agreement Holders and Agreements indicated in the following table:

Table 1.0, Agreement Holders

FDU Name	Agreement Holder	Agreement
1	Carrier Lumber Ltd.	FL A15430
1	Carrier Lumber Ltd.	FL A15429
1	Valemount Community Forest Company Ltd.	FL A93987
1	Hauer Bros. Lumber Ltd.	FL A17800
2	Valemount Community Forest Company Ltd.	K2T K5Q

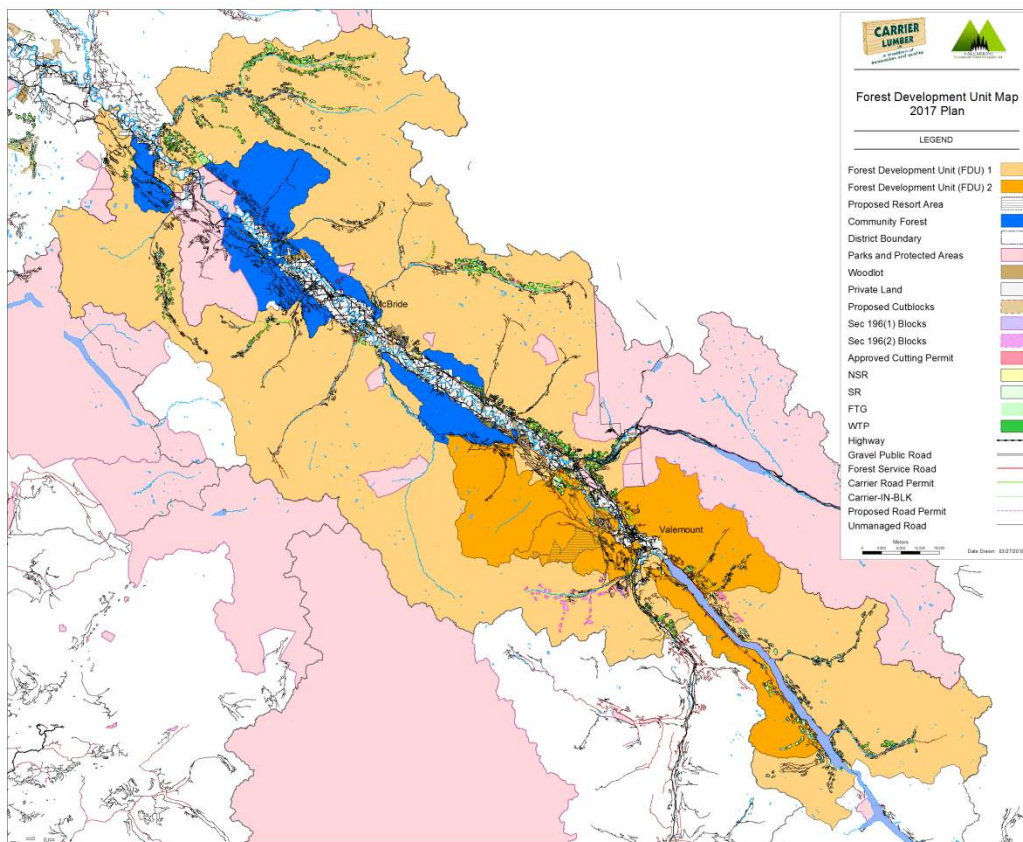
3.2 For the purposes of section 197 (4), (5), and (7) of the FRPA,

- (a) the results, strategies, measures and stocking requirements of this FSP apply to all new cutting permits after the Date of Commencement of this FSP.
- (b) the results, strategies and measures of this FSP apply to any road that is the subject of a road permit granted to an Agreement Holder if the road permit was granted under the Forest Practices Code Act or its' Regulations, and is still in effect on the Commencement of Term of this FSP.
- (c) the stocking standards in this FSP apply to all cutblocks subject to a site plan associated with an approved cutting permit on or after the commencement of term of this FSP.
- (d) The Chief Forester Standards for Seed Use will be used for all blocks planted after April 1, 2005.

3.3 For the purposes of section 196 (1) and (2) of the FRPA, Appendix B indicates which Cutting Permit Blocks, Road Permits and proposed cutblocks apply.

4 FOREST DEVELOPMENT UNITS

4.1 FDU Location map.



Woodlots and private land and any other lands with legal encumbrances, which preclude harvesting by an Agreement Holder under their agreements that fall within the FDU area, are not to be considered part of the FDU area and may or may not be shown on the FSP maps.

4.2 The following areas, as indicated on the FSP content maps (1:100,000 scale), are included within the FDUs and are considered to have received the Minister's approval under the FRPA: areas referred to in section 196 (1) of the FRPA; areas referred to in section 196 (2) of the FRPA; cutting permits and road permits.

4.3 The maps included in this FSP show the location of the following items that were in effect on the Date of Submission:

- (a) Ungulate winter range areas, wildlife habitat areas, fisheries sensitive watersheds, lakeshore management zones, scenic areas, L1 lakes, community watersheds, old growth management areas, areas where commercial timber harvesting is prohibited by an enactment.
- (b) The areas subject to an Agreement Holders cutting permit or a road permit.

5 RESULTS AND STRATEGIES

5.1 Objectives Set By Government for Wildlife and Biodiversity – landscape level

5.1.1 In relation to the objective set by government for wildlife and biodiversity at the landscape level set out in section 9 of the FFPR, the results/strategies that apply to the areas of the primary forest activity in the FDU are the same as the results/strategies set out in sections 5.1.2 through 5.1.4.

5.1.2 Order Establishing Provincial Non-Spatial Old Growth Order Objectives

In respect to the order established under FPC 4(1) and (2): Order Establishing Provincial Non-Spatial Old Growth Objectives (Provincial Non-Spatial Order or PNSO) (dated June 30, 2004), as well as, Draft Old Growth Management Areas (OGMA) identified for the South Trench Landscape Unit (LU) on June 2, 2005 under provision A8 of the PNSO the following result/strategy applies:

- (a) The Agreement Holders will carry out new harvesting and/or new road construction consistent with the objectives set out in the PNSO, within the FDUs of this FSP.
- (b) On an annual basis the Agreement Holder will evaluate LU's managed under the PNSO to determine whether there are any units in deficit of old growth targets.
- (c) LU's where old growth targets are in a deficit situation within one or more BEC variants, as identified in the PNSO, will be considered eligible for the creation of Draft Old Growth Management Areas under provision A8.
- (d) Draft Old Growth Management Areas will be created and maintained using the following criteria:
 - i. Utilize as much old (age class 9) as possible to achieve the target
 - ii. Avoid fragmented polygons, larger contiguous areas are preferred
 - iii. Utilize age class 8 and 7 in order to increase the amount of old in the shortest timeframe possible
 - iv. Minimize the amount of younger age classes (6 or less)
 - v. Incorporate younger age classes where they are directly adjacent the older ages and including them will maintain a larger contiguous area or increase the biodiversity value of a specific OGMA
 - vi. Distribute the areas throughout the Crown Forested Landbase (CFLB) within both the Timber Harvest Landbase (THLB) and Non-Contributing Timber Harvest Landbase (NTHLB)
 - vii. Incorporate a range of elevations
 - viii. Consider partially constrained areas such as Visual Quality Objective polygons and Ungulate Winter Range areas
 - ix. Incorporate Non-Productive areas or areas not within the CFLB to create a spatial polygon that is logical or connects multiple polygons forming a larger contiguous area

- x. Where variants are small in size and old targets are unachievable, combine the variant area to an adjacent unit and spatially identify the target area for both variants combined.
- (e) Until such time as the Draft OGMA are approved by a Delegated Decision Maker (DDM) or where the OGMA's do not become approved, the PNSO old growth objective will continue to be applied and LU's with BEC variants in deficit will not have any new cutting permits or road permits approved in areas of old forest, within those variants as defined in the PNSO, until such time as the variant is no longer in deficit or other provisions of the PNSO are utilized and approved.
- (f) The Agreement Holder(s), proposing Draft OGMA's for a LU, will hold and maintain all data in regards to the establishment of the Draft OGMA's or revisions to Draft OGMA's and will provide the data to FLNRO in the timeframe outlined in the Draft OGMA proposal submission and its subsequent approval.
- (g) Where LU's have one or more BEC variants in deficit and there are more than one Agreement Holder(s) or FSP holder(s) (multiple holders) within those variants, the multiple holders will work collaboratively with FLNRO to develop Draft OGMA's.
- (h) Despite 5.1.2 (a) where an Agreement Holder has a cutting permit or road permit issued prior to the Provincial Non-Spatial Order coming into effect, the objectives of the order will not apply to that cutting permit or road permit.

5.1.3 **Robson Valley Landuse Objectives**

In respect to the following orders established under FPC 4(1) and (2):

Order to Establish the Crescent Spur, Lower Morkill Cushing, Forgetmenot, Upper Morkill, North Trench and Goat Landscape Unit Objectives (dated January 30, 2006),

Order to Establish the East Kinbasket, West Kinbasket, Hugh Allan, Foster and Dawson Landscape Unit Objectives (dated May 26, 2005),

Order to Establish the Kiwa-Tete and Canoe Landscape Unit Objectives (dated January 30, 2006), and

Order to Establish Landscape Unit Objectives for the Canoe Mountain Zone (dated April 7, 2003)

The following result/strategy applies:

- (a) The Agreement Holders will carry out new harvesting and/or new road construction complying with the objectives set out in these orders within the FDUs of this FSP.

5.1.4 **Maximum Cutblock Size and Harvesting Adjacent Cutblocks**

In relation to sections 64 and 65 of the FPPR, the results/strategies that apply to the FDUs are:

- (a) The requirements of those sections as they were on the Date of Submission of this FSP.
- (b) With respect to section 65, the term adjacent is considered to be sufficiently close to a cutblock when the distance between two cutblocks (planned or existing) is less than 60 meters.

5.2 **Objectives Set By Government for Wildlife and Biodiversity – stand level**

5.2.1 For the purposes of section 12.5 (1) of the FPPR, in relation to the objective set by government for wildlife and biodiversity at the stand level set out in section 9.1 of the FPPR, the results/strategies that apply to areas of the primary forest activity in the FDUs are:

- (a) if an Agreement Holder completes harvesting in one or more cutblocks during the 12 month period beginning on April 1 of any calendar year, the Agreement Holder will ensure that, at the end of that 12 month period, the total area covered by wildlife tree retention areas at the completion of harvesting that relate to the cutblocks is a minimum of 7% of the total area of the cutblocks, and;
- (b) if an Agreement Holder harvests timber in a cutblock that is greater than 15 hectares in size, the Agreement Holder must ensure that, at the completion of harvesting, the total amount of wildlife tree retention areas that relates to the cutblock is a minimum of 3.5% of the area of the cutblock.

5.2.2 For the purposes of section 12.5 (2) of the FPPR, in relation to the objective set by government for wildlife and biodiversity at the stand level set out in section 9.1 of the FPPR, the results or strategies that apply to areas of the primary forest activity in the FDUs are that the Agreement Holders will not harvest timber from a wildlife tree retention area unless:

- (a) the trees on the net area to be reforested of the cutblock to which the wildlife tree retention area relates have developed attributes that are consistent with a mature seral condition, or
- (b) an Agreement Holder specifies one or more wildlife tree retention areas that provide an area or number of trees, that is equivalent to the portion of the wildlife tree retention area or number of trees from which the timber is being harvested.

5.3 **Objectives Set by Government for Soils**

5.3.1 For the objective for soils that is set out in Section 5 of the FPPR, The Agreement Holders adopt, as a result/strategy, Section 35 and 36 and consistent with 12(2) of the FPPR as those sections were on the date of this FSP was submitted for approval.

5.4 **Objectives Set By Government for Wildlife**

5.4.1 In respect of the notice entitled “Indicators of the Amount, Distribution, and Attributes of Wildlife Habitat Required for the Survival of Species at Risk in the Headwaters Forest District”, issued in December 2004 in accordance with section 7 of the FPPR, the Agreement Holders of this FSP will participate and reach an agreement with other forest

tenure agreement holders within the Headwaters portion of the Prince George Natural Resource District, to ensure no harvesting or road construction will occur on:

- a) The lesser of 5,600 ha or the amount present on the Commencement of Term, of mature timber harvesting landbase in the Headwaters portion of the Prince George Natural Resource District, that meets the distribution and attributes set out in the Notice for the Mountain Caribou ecotype for the Term of this FSP. The results/strategy that applies for the FDU is:
 - i. Determine if the roads or cutblocks proposed for harvesting are within a herd distribution boundary (excluding an herd status of trace and extirpated) with a Mountain Caribou Ecotype, as set out on the Commencement of Term of this FSP or as amended by government after that date and the Agreement Holders notified of the amendment.
 - ii. Where the attributes outlined in the Notice are met and will impact a road or cutblock within a herd distribution boundary as described in i the Agreement Holders will ensure a Caribou wildlife habitat assessment is conducted by a Qualified Registered Professional prior to harvesting of roads or cutblocks.
 - iii. The wildlife habitat assessment will evaluate and develop recommendations for management of calving sites, rutting areas, connectivity, and mineral licks.
 - iv. Forest operations will comply with the caribou wildlife habitat assessment recommendations.
- 5.4.2 If agreement cannot be reached with other forest tenure agreement holders as noted in 5.4.1 then the Agreement Holders of this FSP will ensure no harvesting or road construction will occur on a prorated share (% of mature THLB within the herd distribution boundary within the Agreement Holders operating area over the proportion of mature THLB within the herd distribution boundary within the Robson Valley TSA) of the amounts noted in 5.4.1.
- 5.4.3 In relation to the general wildlife measures referred to in section 69 of the FPPR for ungulate winter range, the Orders listed in Table 2 apply to the FSP and the results/strategies are the requirements of the Orders:

Table 2

UWR-ID	Species	Name TFL, TSA, District	Date Order Takes Effect (d/m/y)
U-7-003	Mountain Caribou	Fort St. James / Prince George / Mount Robson Planning Units	17/12/09
U-7-010	Mule Deer	Robson Valley TSA	06/04,2006

- 5.4.4 In relation to the Wildlife Habitat Area for Bull Trout established through the Government Actions Regulation under Orders 7-004 through to 7-011 effective October 31, 2013, the results/strategies are the General Wildlife Measures established in the Order.

5.5 Objectives Set By Government For Water, Fish, Wildlife, And Biodiversity Within Riparian Areas

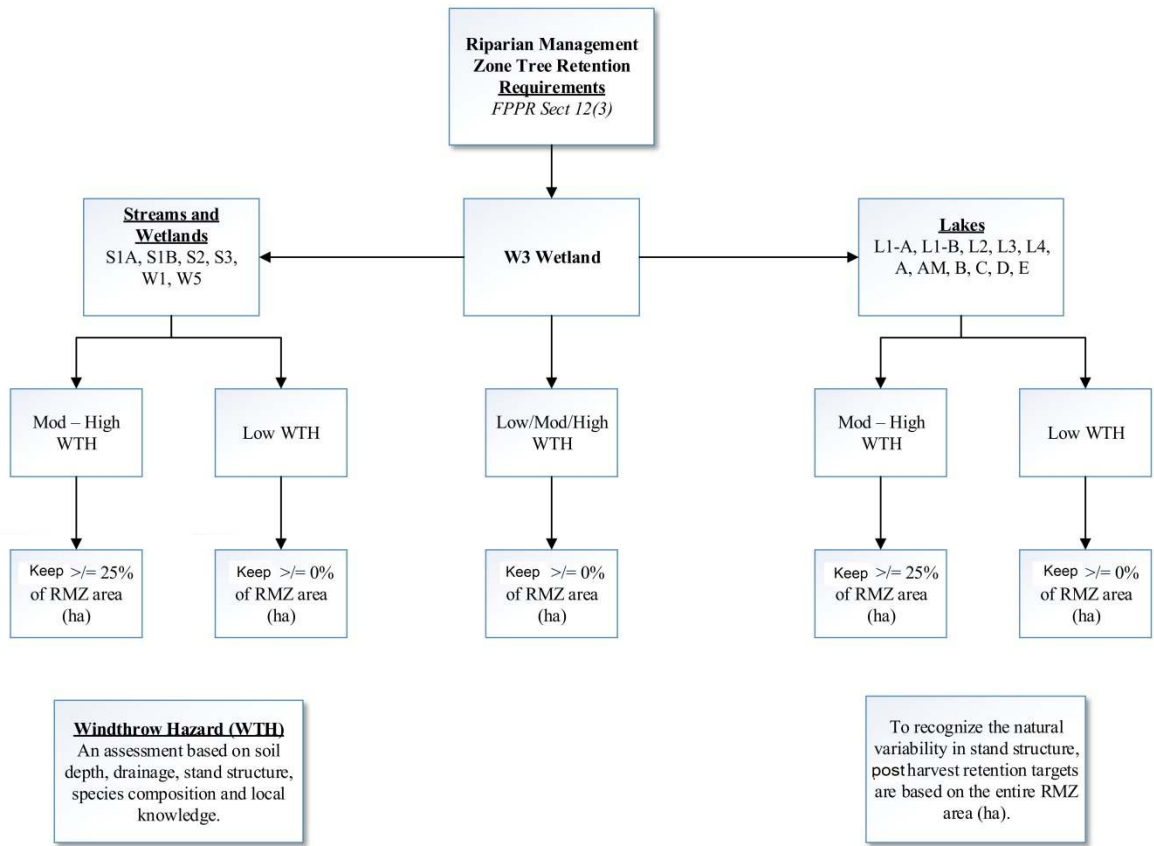
- 5.5.1 In relation to the objective set by government for water, fish, wildlife, and biodiversity within riparian areas set out in section 8 of the FPPR, the results/strategies that apply to the areas of primary forest activity in the FDUs are the requirements of section 47 to 51 and 53 of the FPPR.
- 5.5.2 For the purposes of section 12.3 (6) of FPPR and to meet the requirements of 12 (3) of the FPPR for retention of trees in riparian management zones (RMZ), the following results/strategies that apply to areas of primary forest activity in the FDUs are:
- (a) within 10m of an S6 stream the Agreement Holders will:
 - (i) complete a riparian assessment¹, and
 - (ii) ensure the riparian assessment is completed by a Qualified Person
 - (b) the riparian assessment will be completed where the S6 stream reach:
 - (i) has a direct connection to a fish stream reach,
 - (ii) is no greater than 500m slope distance in length,
 - (iii) has an average channel width of greater than 0.5m wide, and
 - (iv) is perennial.
 - (c) where a riparian assessment is completed for the purposes of 5.5.2 (a) the Agreement Holders will comply with recommendations from the assessment.

¹Riparian assessment is an inventory of riparian attributes, including the vegetation composition of the RMZ, used to determine the riparian feature class and an evaluation of the potential for retention of trees for the purposes of 5.5.2 (a)

- (d) within 5 m of an S4, S5 and S6 stream, retain over the length of the stream reach, brush species, advanced regeneration, non-merchantable conifers, and non-commercial stems, except where an Agreement Holder is
 - (i) establishing stream crossings,
 - (ii) carrying out hand falling,
 - (iii) carrying out cable or aerial yarding across or adjacent to the stream
 - (iv) removing trees to address a safety concern, or
 - (v) carrying out vegetation management treatments to meet free growing requirements, and
- (e) within 10m of an S4 stream, retain an average of not less than 15 merchantable trees on either side of the stream per 100 m, over the length of the stream reach, unless
 - (i) the trees to be retained are infested or diseased by a forest health agent that would spread if the trees were not removed,
 - (ii) within 5 m of either side of a skid crossing, or within the right-of-way of a stream crossing,
 - (iii) the stream reach is located in a harvest unit that is being harvested by a cable or an aerial yarding system,

- (iv) there are an insufficient number of merchantable trees found within 10 m of the stream in which case the existing pre-harvest merchantable trees within 10m of the stream will be retained, or
 - (v) the trees are removed because they are danger trees or the trees have roots that are embedded in the stream bank.
- (f) targets set out in flowchart 1 are for all wetland classes, lake classes, and stream classes (S1A, S1B, S2, and S3),

Flowchart 1



-
- 5.5.3 Despite 5.5.1 and 5.5.2 in relation to the objective set by government for water, fish, wildlife, and biodiversity within riparian areas set out in section 8 of the FPPR the following orders apply:
- (a) Order to Establish the East Kinbasket, West kinbasket, Hugh Allen, Foster and Dawson Landscape Unit Objectives, effective May 26, 2005.
 - (b) Order to Establish the Kiwa-Tete and Canoe Landscape Unit Objectives, effective January 30, 2006.
- 5.5.4 In relation to 5.5.3 (a) and 5.5.3 (b), the streams listed in Table 3 will maintain an enhanced riparian / wildlife corridor, in addition to the riparian management zone. The two areas combined, are referred to as the “Total Wildlife Corridor Width” and the results/strategies which apply are the following:
- (a) Harvesting in the enhanced riparian / wildlife corridor, as identified in Table 3, outside of the reserve zone is limited to:
 - i. No more than 30% of a corridor segment (as defined in the orders), in less than 3 meter green up condition at any one time.
 - ii. No contiguous clearcuts along the length of the corridor greater than 200m in length.
 - iii. For non-clearcut silviculture systems within the area harvested, maintain at least 40% basal area of the pre-harvest stand.
 - (b) Construction of permanent or temporary roads is not to be undertaken in enhanced riparian / wildlife corridors unless there are no other practicable options. Any temporary roads that are built in enhanced riparian / wildlife corridors must be deactivated, rehabilitated and planted within two years of primary forest activities.
 - (c) If forest health sanitation or road building must occur within enhanced riparian / wildlife corridors, and where more than 30% of any one segment of enhanced riparian / wildlife corridor is proposed for removal, written notification must be provided the District Manager of FLNRO.

Table 3

Waterbody	Applied Enhanced Riparian (m)	Original FPC Riparian Management Area (m)	Total Wildlife Corridor Width (m)
Yellowjacket Creek	50	50	100
Dave Henry Creek	50	50	100
Bulldog Creek	0	50	50
Ptarmigan Creek	30	70	100
Hugh Allan Creek	30	70	100
Blackman Creek	0	50	50
Iroquois Creek	10	30	40
East Iroquois Creek	10	30	40
Foster Creek	0	70	70
Kiwa Creek	30	70	100
Tete Creek	30	70	100
McLennan Creek	30	70	100
Gold Creek	0	40	40
Kimmel Creek	0	50	50
Zillmer Creek	0	50	50
Canoe Creek	30	70	100
Camp Creek	30	70	100

5.6 Objectives Set by Government for Visual Quality

- 5.6.1 In relation to the objectives set by government for visual quality set out in section 9.2 of the FPPR and the objectives referred to in section 181 of the FRPA for Visual Quality Objective (VQO) within an identified scenic area the result/strategy is:
- To design a cutblock or road to comply with the category of visually altered forest landscape (as set out in section 1.1 of the Forest Planning and Practices Regulation) by a Qualified Person.
 - Conduct harvesting and/or road building so that the post-altered forest landscape in which the cutblock or road is located will comply with the design, meeting the category of visually altered forest landscape.
- 5.6.2 Despite 5.6.1 within the Valemount Glacier Destination Resort (VGDR) area of FDU 2 with regards to Visual Landscape Inventory (VLI) polygons 1768, 1769, 1774, and 1991 the result/strategy is:
- Conduct a Visual Impact Assessment (VIA), by a Qualified Person, of the proposed VGDR area prior to development to determine the current category of visually altered forest landscape.
 - Assess the impacts of the development by overlaying the planned openings (ski runs, parking lots, etc) to determine the effect of the planned VGDR development on the category of visually altered forest landscape.
 - Where the category of visually altered forest landscape for either of these polygons is exceeded by the VGDR development, no further alteration will occur within the exceeded polygon by the agreement holders of this FSP through a cutting authority unless that cutting authority is for the purposes of VGDR development.
 - Where the category of visually altered forest landscape for either of these polygons is not exceeded by the VGDR development, additional harvesting and road building can

occur so that the post-altered forest landscape in which the cutblock or road is located will meet the category of visually altered forest landscape as determined through a VIA.

5.7 Objectives Set By Government for Cultural Heritage Resources

- 5.7.1 In relation to the objective set by government for cultural heritage resources set out in the section 10 of the FPPR, the results/strategies that apply to the FDUs are:
- (a) before an agreement holder harvests a cutblock and/or constructs a road, the agreement holder will:
 - (i) identify the aboriginal people within the area influenced by these activities, through the use of the First Nations Consultative Areas Database (CAD) for BC, and
 - (ii) prior to applying for cutting permits (CP) and road permits (RP) from FLNRO, communicate with the identified aboriginal people through an information sharing process illustrating the location and type of activities that are planned to occur.
 - (iii) maintain a record of information sharing actions and results;
 - (iv) provide a copy of the record from (iii) to FLNRO during the CP or RP application process;
 - (v) ensure that an archaeological resource assessment is conducted by a Qualified Person within areas:
 - (A) That contain previously identified cultural heritage resources, or;
 - (B) Which are identified as having “high potential” within an established archaeological predictive map or model for the area, or;
 - (C) Where site-specific information within a proposed harvest area or road construction area, regarding cultural heritage resources, is provided or made available to an agreement holder of this FSP by the aboriginal people or government employee prior to harvesting and/or road construction.
 - (b) Where an agreement holder receives site specific information concerning a cultural heritage resource, described in (a), that is of continuing importance to aboriginal people the agreement holder, will:
 - (i) Make a record of the communication with the affected aboriginal people or person.
 - (ii) Identify the location of the cultural heritage resource in question, both on a map and on the ground;
 - (iii) evaluate the direct impact of the planned development on the cultural heritage resource;
 - (iv) The agreement holder, in agreement with the aboriginal people or person, will conserve or protect, the cultural heritage resource at the known location, considering:
 - (A) the relative value or importance of the cultural heritage resource to a traditional use by the aboriginal people;
 - (B) the relative abundance or scarcity of the cultural heritage resource;
 - (C) the historical extent of the traditional use of the cultural heritage resource, and;

- (D) the impact on the FSP holders' government granted timber harvesting rights in conserving or protecting the cultural heritage resource,
- (v) Despite 5.7.1 d), where an agreement holder is unable to identify the location of the cultural resource on the ground or come to an agreement with the aboriginal people for the level or method of conservation or protection, the agreement holder will follow the management recommendations from the archaeological resource assessment of the area in question.
- (c) All harvesting, road construction, and mechanical site preparation activities will comply with the recommendations given in an archaeological resource assessment referred to in subparagraph (a), and
- (d) Where a previously unidentified cultural heritage resource feature is encountered during harvesting, road construction, or mechanical site preparation, operations will cease to the extent necessary to protect the feature, until an archaeological resource assessment can be carried out and/or the feature is protected from harvesting, road construction, or mechanical site preparation.
- (e) Where an archaeological resource assessment is conducted for 5.7.1 (d) the agreement holder will comply with the recommendations of the assessment prior to the continuation of operations.

5.8 Objectives in respect of Recreation Resources

- 5.8.1 In relation to the objectives referred to in section 181 of the FRPA for recreation sites, trails, and interpretative sites, the results/strategies that apply to the FDU's and to the Agreement Holder in respect of cutting permits and road permits held by that holder are:
- (a) If harvesting or road construction is proposed within 100 m of a recreation site or recreation trail identified on the FSP maps, the Agreement Holder will ensure:
 - (i) to discuss with the designated Recreation Officer, forest health concerns identified (if any) within the 100m buffer of the sites or trails described in (a) and subsequent management activities.
 - (ii) no harvesting, other than for road construction, will occur where less than 10% of the total stems per hectare within the stand are damaged from forest health factors;
 - (iii) partial cutting, which is defined to be the removal of up to 50% of the basal area of a stand using single tree selection and/or the use of a patch cutting system with opening sizes of less than one hectare, will be used if damage from forest health factors, within the stand, are greater than or equal to 10% of the total stems per hectare;
 - (iv) clear cutting will be used if damage from forest health factors, within the stand, are greater than 40% of the total stems per hectare;
 - (v) temporary road construction or access control will be implemented,
 - (vi) any damage to the recreation site or trail due to road construction or harvest activities by an Agreement Holder of this FSP within the 100 m buffer will be communicated to the designated Recreation Officer and repaired or mitigated within a timeframe agreed upon between the Agreement Holder and the designated Recreation Officer.

5.9 Objectives in respect of Fisheries Sensitive Watershed Objectives

- 5.9.1 In relation to the objective set by government for fisheries sensitive watersheds (FSW) set out in Section 8.1 of the FPPR, the notice entitled “Fisheries Sensitive Watersheds Prince George Resource District” issued in March of 2013, establishing fisheries sensitive watersheds. The following order applies to the FDU 1 of this FSP:
- (a) GAR Orders F-7-003 Milk River FSW and F-7-004 Goat River FSW.
- 5.9.2 In relation to the objective relating to Equivalent Clearcut Area (ECA) as set out in the Order specified in 5.9.1 (a), the results/ strategies that apply are the requirements of the Order.
- 5.9.3 In relation to the objective relating to the maintenance of long term woody debris (LWD) as set out in the Order specified in 5.9.1 (a), the results/ strategies that apply to all new development approved as of the Commencement of Term for this FSP, are the requirements of the Order.
- 5.9.4 Despite section 5.9.3 in reference to 90% of the riparian area remaining in an undisturbed state, where the riparian area is disturbed to a level greater than 10% prior to the Order coming into force, the previously disturbed area will not contribute to an undisturbed condition until such time as it has the attributes of an old growth forest.
- 5.9.5 In relation to 5.9.1 (a), the strategies to address the objective relating to the production of fine sediments at active road crossings on fish streams, and direct tributaries to fish streams such that sediment production is kept below a moderate rating are:
- (a) On existing infrastructure subject to a road permit or road use permit and for crossings to be established on new road construction subject to a road permit, either of which may be granted to an Agreement Holder that meets the definition of an active road as defined in the Order:
- i. The risk of sedimentation for each site is determined through either an inspection of existing infrastructure or an erosion and sediment control plan developed for new construction.
 - ii. Based on the risk of sedimentation from risk factors identified in (i), the Agreement Holder will determine and implement an inspection frequency for each crossing to monitor sediment production.
 - iii. Where sedimentation risk factors are identified in (ii) for existing infrastructure, that would contribute to a moderate or greater sedimentation rating, an erosion and sediment control plan will be developed by the Agreement Holder within 60 days from the date of inspection.
 - iv. Where sedimentation risk factors are identified in (ii) for new construction, that would contribute to a moderate or greater sedimentation rating, an erosion and sediment control plan will be developed by the Agreement Holder prior to construction identifying sediment mitigation measures to maintain a sediment production rating below moderate.
- (b) Erosion and sediment control plans referenced in 5.9.5 (a) will be implemented by the Agreement Holder according to timelines described therein.

- 5.9.6 In relation to the objective relating to the maintenance of fish habitat and fish movement as set out in the Order specified in 5.9.1 (a), the results/ strategies that apply are the requirements of the Orders.

5.10 Order of the Minister of Agriculture and Lands: Establishing Land Use Objectives under Section 93.4 of the Land Act for the Purposes of the Forest and Range Practices

- 5.10.1 For the Agreement Holder, in relation to the objectives referred to in section 93.4 of the Land Act for agriculture development areas (ADA's) and settlement reserve areas (SRA's), the result/strategies are the requirements of the Order Establishing Land Use Objectives under Section 93.4 of the Land Act for the purposes of the Forest and Range Practices Act for the Headwaters Forest District, effective November 21st, 2006.

6 MEASURES

6.1 Measures for Preventing the Introduction or Spread of Invasive Plants

- 6.1.1 In relation to the measures referred to in section 17 of the FPPR for preventing the introduction or spread of invasive plants, the measures for all FDUs are
- (a) Invasive Plants are those plants listed in the Invasive Plants Regulation.
 - (b) On an annual basis the Agreement Holder will train staff and contractors through annual training in:
 - i. identifying priority invasive plants that exist or threaten to establish within the Agreement Holder's area, and
 - ii. Prevention mechanisms such as
 - (A) Discussion around not parking equipment in areas infested with invasive plants
 - (B) Checking that soil and surfacing material used on projects are free from invasive plants
 - (C) Minimizing soil disturbance (i.e. keep landings, turnarounds, etc as small as possible) or
 - (D) Re-vegetate disturbed areas as soon as possible.
 - (c) on an annual basis, the area of known and newly identified sites of invasive plants, and sites with a priority rating of high and extremely high risk to invasive plant establishment, as outlined in Table 3 through cutblock harvesting/road construction by the Agreement Holders, will be identified using information gathered from provincial resources and/or Agreement Holder staff;
 - (d) where the Agreement Holders staff or contractors identify new sites of priority invasive plants, within the Agreement Holders area, a record containing site location and plant species will be documented and reported to the FLNRO invasive plant specialist through an agreed upon process for reporting.
 - (e) within the sites in subparagraph (c), areas disturbed by the Agreement Holder through road/landing construction that have not been or are not to be reforested, within harvested cutblocks and road right-of-ways, will be re-vegetated within one year of completion of the cutblock harvesting/road construction to minimize seedbed available for colonization by invasive plants, and;
 - (f) the seed mix used in re-vegetation activities described in (e) shall meet or exceed Canada #No. 1 Ground Cover Mixture specifications as defined by the Seeds Act.

Table 3

PRIORITY RATING	DEFINITION
Extremely High Risk	These sites are less than or equal to 0.25 ha and there is a good expectation of control. This priority also includes sites that are threatening a large neighbouring economic base, for example, seed and other high value crops.
High Risk	These sites are less than or equal to 0.5 ha and must have a reasonably good expectation of control.

6.2 Measures to Mitigate the Loss of Natural Range Barriers

- 6.2.1 In relation to the measures referred to in section 18 of the FPPR to mitigate the effect of removing or rendering ineffective natural range barriers, the measures within the FDUs are:
- (a) In this section the term natural range barriers refers to a river, rock face, dense timber, or any other naturally occurring feature that stops or significantly impedes livestock movement to and from an adjacent area;
 - (b) On an annual basis, the agreement holders will obtain the most recent range tenure holder information from the District range staff and update contact information and spatial datasets accordingly;
 - (c) Prior to permit submission for cutblocks and/or road construction, any range tenure holder identified under (a) that holds a range tenure overlapping the proposed submission areas will be contacted by the agreement holder to communicate development plans and asked to provide input on potential impacts to natural range barriers;
 - (d) Despite (c) once a range tenure holder has identified areas with potential impacts to natural range barriers, future communications between the range tenure holder and the Agreement Holder will be specific to the areas of impact identified by the range tenure holder.
 - (e) If a range tenure holder informs the Agreement Holder of new areas of impact to natural range barriers, those areas will be included in future communication of development plans.
 - (f) Where the range tenure holder indicates that harvesting or road construction will remove or render ineffective a natural range barrier, mitigation measures and implementation timelines will be agreed upon by the range tenure holder and the agreement holder prior to permit submission.
 - (g) Where an agreement between an Agreement Holder and a range tenure holder cannot be reached, the Agreement Holder will request that the District Manager or District Range Officer, of the relevant natural resource district, facilitate discussion between the two tenure holders in an effort to resolve the dispute.
 - (h) Where a resolution is unable to be reached under (f), the Agreement Holder will request recommended measures for action from the District Range Officer and those measures will be implemented within the timeframe specified.

7 STOCKING REQUIREMENTS

Legal Reference: FPPR Section 16

7.1 General Standards

Where an Agreement Holder is required under the Act and regulations to establish a free growing stand in respect of timber harvesting governed by this FSP, the Agreement Holder will on all cutblocks, subject to Paragraph 7.2, do so in accordance with the regeneration and free growing stocking standards in Appendix A.

7.1.1 Crop Tree/Brush Ratio (Applies to Appendix A: Regeneration and Free to Grow Stocking Standards)

% Height Above Brush	Biogeoclimatic Zone
125	ESSF
150	ICH, SBS

7.1.2 The maximum countable coniferous stems per hectare in all site series is 10,000.

7.1.3 M value stated is the maximum number of well spaced or well spaced Free Growing trees that may be counted in a 3.99 metre radius plot in a survey used to assess Free Growing or Regeneration Stocking Standards.

7.2 Variations from General Standards

Despite Paragraph 7.1, the Agreement Holder may apply the following stocking standards in the following circumstances:

- 7.2.1 Regeneration delay of 4 years may be extended to 7 years where natural ingress is used to achieve regeneration standards.
- 7.2.2 In areas with a 20% incidence of White Pine Weevil (*Pissodes strobi*) Aspen and Birch will not be considered detrimental competition to spruce crop trees, as long as, the Height Diameter Ratio of the spruce crop tree (with an undamaged top) is less than 60 at the time of the free growing survey.
- 7.2.3 Aspen, cottonwood, and birch as well as willow and alder within the 5 meter machine free zone of a temperature sensitive stream, or a S4 stream, are not considered deleterious brush competition when conducting a free growing survey.
- 7.2.4 Within all mule deer UWR Units, Douglas fir is a preferred species for the purposes of the regeneration delay standards, and an approved species for the purposes of the free growing standards, despite the species listed in the applicable regeneration delay and free growing standards.
- 7.2.5 Where the MITD is 1.6 metres the MITD may be reduced to 1.0 metre for optimum microsite selection for mounded areas where Mechanical Site Preparation occurs.
- 7.2.6 Deviation From Potential (DFP) stocking assessment method is permissible:
 - (a) Where there are areas within a cutblock a Qualified Person reasonably expects the residual stems to adversely affect the density, survival and performance of conifer seedlings, and the residual stems are the result of either:
 - i. previously disturbed or salvaged areas lacking full prescriptions, or
 - ii. areas with moderate to high retention of live residual stems for non-timber objectives.

- (b) The affected area, or areas identified in (a), will be stratified from the original standard unit into a new standard unit, and the Deviation From Potential (DFP) stocking assessment method will be used.
- (c) Standard unit eligibility criteria, and survey standards for this method are as specified in Appendix C, "Deviation From Potential Stocking Standards/Criteria".

7.2.9 Where *Armillaria* root rot is detected within an even-aged stand broadleaf species (Aspen, Birch or Cottonwood) will be considered acceptable species within the stocking standards. Aspen, birch and cottonwood will not be considered detrimental competition to a crop tree in standards units where *Armillaria* Root Rot (*Armillaria ostoyae*) is present, when the Height Diameter Ratio of the crop tree is less than 60 and the crop tree is free from infection at the time of the free growing survey. This variation is to be applied only when the stocking status of a standard unit or stratum is at risk of being NSR or not free growing because of an incident of *Armillaria* Root Rot.

The results of root rot surveys and/or silviculture surveys will be used to stratify the standard unit boundaries where possible.

7.2.10 Within the VGDR tenure area, openings created for the purpose of VGDR operations which require tree removal will be conducted utilizing a cutting authority under this FSP. Openings that are created for the VGDR operations will not be reforested as reforestation will be inconsistent with the objectives of the VGDR; therefore, the stocking standards from this FSP will not apply.

7.3 Incorporation of Climate Change principals & Actions.

7.3.1 Species Shift.

The Agreement holder will review silviculture species shift information on an annual basis to keep current with FLNRO policy guidance on the issue of species shift and will implement changes to the stocking standards and species selection as is deemed professionally prudent.

7.3.2 Climate Change.

The Agreement Holder will work collaboratively with FLNRO to identify, assess, and target harvesting of attacked or imminently attackable commercial species.

7.3.3 Forest Health impacts.

The Agreement holder will work collaboratively with FLNRO in considering the effects of current and emerging forest health issues and the implementation of increased stocking levels to offset perceived stocking challenges.

8 CUMULATIVE EFFECTS OF MULTIPLE FSP'S

Legal Reference: FPPR Section 19

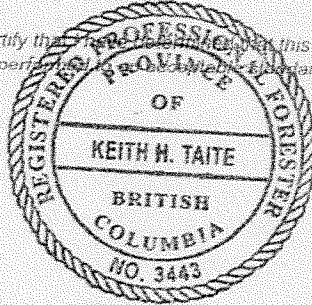
The Robson Valley TSA is comprised of smaller units called Planning Cells. The licensees and the Ministry of Forest and Range in the Robson Valley have used these Planning Cells to establish operating areas for each licensee. Although the licensees do not have exclusive rights to harvest within the operating areas, it has been mutually agreed that for ease of planning, development and maintenance, licensees will generally operate within their allocated operating areas. There have been numerous occasions for a variety of reasons where planning cells have been re-allocated or different licensees have operated within the same planning cells. It is for these reasons that the Agreement Holders have expanded the FDU beyond the planning cells which are currently allocated to the Agreement Holders.

Although the FDU includes planning cells which are currently allocated to other licensees, the Agreement Holders will not plan operations outside of the planning cells that are allocated to the Agreement Holders unless it is approved by the District Manager.

SIGNATURES of Persons required to prepare the plan:

Preparing Forester

"I certify that this work was performed in accordance with the standard"



A handwritten signature in black ink that reads "Keith Taite".

KEITH TAITE, R.P.F.
Planning Forester

Licensee Acknowledgement

"Authorized signature on behalf of Carrier Lumber Ltd."

A handwritten signature in black ink that reads "Jason Gordon".

JASON GORDON, R.P.F.
Woodlands Manager

Licensee Acknowledgement

"Authorized signature on behalf of Valermount Community Forest Company Ltd."

A handwritten signature in black ink that reads "Craig Pyror".

CRAIG PYROR, R.F.T.

Manager

II) UN-EVEN AGED STANDARDS

Zone	Var	Site Series	M Val	Regeneration Delay Standards										Free Growing Standards															
				Regen Company ID	Layer	Target WS (sph)	Min P&A	Min WSP	MITD (m)	Max Regen Delay (yrs)	Preferred Spp	Acceptable Spp	Layer	Target WS (sph)	Mih WS (sph)	H11 Sp1 (m)	H2 Sp2 (m)	H3 Sp3 (m)	H4 Sp4 (m)	H5 Sp5 (m)	H6 Sp6 (m)	H7 Sp7 (m)	H8 Sp8 (m)						
ICH	wk3	wk3	04	1058160	1	600	300	250	4	FDI PLI HW	CW BL SX	A1 A2 A3 A4 A5 A6 A7	1	600	300	FDI	PLI	HW	CW	BL	SX	H17 Sp7 (m)	H18 Sp8 (m)						
					2	800	400	300					1.6	FDI	PLI	HW	CW	BL	SX										
					3	1000	500	400					1.6	FDI	PLI	HW	CW	BL	SX										
					4	1200	700	600					1.6	FDI1.4	PLI2.0	HW1.0	CW1.0	BL1.0	SX1.0										
ICH	mm	mm	05	1058161	1	600	300	250	4	CW SX FDI HW	PLI BL AI Ep		1	600	300	FDI	PLI	HW	CW	BL	SX	AI	Ep						
					2	800	400	300					1.6	FDI	PLI	HW	CW	BL	SX	AI	Ep								
					3	1000	500	400					1.6	FDI	PLI	HW	CW	BL	SX	AI	Ep								
					4	1200	700	600					1.6	FDI1.4	PLI2.0	HW1.0	CW1.0	BL1.0	SX1.0	AI2.0	Ep2.0								
ICH	mm	mm	03	1058162	1	600	300	250	4	FDI HW PLI SX	BL CW AI Ep		1	600	300	FDI	PLI	HW	CW	BL	SX	AI	Ep						
					2	800	400	300					1.6	FDI	PLI	HW	CW	BL	SX	AI	Ep								
					3	1000	500	400					1.6	FDI	PLI	HW	CW	BL	SX	AI	Ep								
					4	1200	700	600					1.6	FDI1.4	PLI2.0	HW1.0	CW1.0	BL1.0	SX1.0	AI2.0	Ep2.0								
ICH	wk3	wk3	05	1058163	1	600	300	250	4	CW SX FDI PLI	BL HW AI Ep		1	600	300	FDI	PLI	HW	CW	BL	SX	AI	Ep						
					2	800	400	300					1.6	FDI	PLI	HW	CW	BL	SX	AI	Ep								
					3	1000	500	400					1.6	FDI	PLI	HW	CW	BL	SX	AI	Ep								
					4	1200	700	600					1.6	FDI1.4	PLI2.0	HW1.0	CW1.0	BL1.0	SX1.0	AI2.0	Ep2.0								
SBS	dh1	dh1	05	1058164	1	600	300	250	4	PLI	SX SB		1	600	300	PLI	SX	SB											
					2	800	400	300					1.6	PLI	SX	SB													
					3	1000	500	400					1.6	PLI	SX	SB													
					4	1200	700	600					1.6	PLI2.0	SX1.0	SB1.0													
SBS	dh1	dh1	04	1058165	1	600	300	250	4	FDI PLI SX BL	AI Ep		1	600	300	FDI	PLI	SX	BL	AI	Ep								
					2	800	400	300					1.6	FDI	PLI	SX	BL	AI	Ep										
					3	1000	500	400					1.6	FDI	PLI	SX	BL	AI	Ep										
					4	1200	700	600					1.6	FDI1.4	PLI2.0	SX1.0	BL1.0	AI2.0	Ep2.0										
SBS	vk	vk	07	1058166	1	600	300	250	4	SX PLI BL			1	600	300	SX	PLI	BL											
					2	800	400	300					1.6	SX	PLI	BL													
					3	1000	500	400					1.6	SX	PLI	BL													
					4	1200	700	600					1.6	SX1.0	PLI2.0	BL1.0													
ICH	mm	mm	02	1058167	1	400	200	200	4	FDI PLI HW	SX BL CW		1	400	200	FDI	PLI	HW	SX	BL	CW								
					2	600	300	250					1.6	FDI	PLI	HW	SX	BL	CW										
					3	800	400	300					1.6	FDI	PLI	HW	SX	BL	CW										
					4	1000	500	400					1.6	FDI1.0	PLI1.4	HW0.8	CW0.8	BL0.8	SX0.8										
ICH	mm	mm	06	1058168	1	400	200	200	4	CW SX PLI HW	BL Act		1	400	200	CW	SX	PLI	HW	BL	Act								
					2	600	300	250					1.6	CW	SX	PLI	HW	BL	Act										
					3	800	400	300					1.6	CW	SX	PLI	HW	BL	Act										
					4	1000	500	400					1.6	CW0.8	SX0.8	PLI1.4	HW0.8	BL0.8	Act1.4										
ICH	wk3	wk3	06	105169	1	400	200	200	4	CW SX PLI	BL HW AI Act Ep		1	400	200	CW	SX	PLI	BL	HW	AI	Act	Ep						
					2	600	300	250					1.6	CW	SX	PLI	BL	HW	AI	Act	Ep								
					3	800	400	300					1.6	CW	SX	PLI	BL	HW	AI	Act	Ep								
					4	1000	500	400					1.6	CW0.8	SX0.8	PLI1.4	HW0.8	BL0.8	AI1.4	Act1.4	Ep1.4								
SBS	dh1	dh1	03	1058170	1	400	200	200	4	FDI LW PLI	PW		1	400	200	FDI	LW	PLI	PW										
					2	600	300	250					1.6	FDI	LW	PLI	PW												
					3	800	400	300					1.6	FDI	LW	PLI	PW												
					4	1000	500	400					1.6	FDI1.0	LW1.4	PLI1.4	PW1.4												
SBS	dh1	dh1	07	1058171	1	400	200	200	4	FDI PLI SX BL	AI Act Ep		1	400	200	FDI	PLI	SX	BL	AI	Act	Ep							
					2	600	300	250					1.6	FDI	PLI	SX	BL	AI	Act	Ep									
					3	800	400	300					1.6	FDI	PLI	SX	BL	AI	Act	Ep									
					4	1000	500	400					1.6	FDI1.0	PLI1.4	SX0.8	BL0.8	AI1.4	Act1.4	Ep1.4									

Zone Var	Site M Series Val	Regeneration Delay Standards										Free Growing Standards																															
		Regen Company ID	Layer	Target WS (sph)	Min WS P&A	Min WS P&A	MITD (m)	Max Regen Delay (yrs)	P1	P2	P3	P4	A1	A2	A3	A4	A5	A6	A7	Layer	Target WS (sph)	Min WS (sph)	H1 Sp1 (m)	H2 Sp2 (m)	H3 Sp3 (m)	H4 Sp4 (m)	H5 Sp5 (m)	H6 Sp6 (m)	H7 Sp7 (m)	H8 Sp8 (m)													
ESSF mm1 01			1	600	300	250														1	600	300	SX	PLI	BL																		
ESSF mm1 04	6	1058172	2	800	400	300	1.6	4	SX	PLI	BL									2	800	400	SX	PLI	BL																		
ESSF mm1 05			3	1000	500	400	1.6													3	1000	500	SX	PLI	BL																		
ESSF mm1 06			4	1200	700	600	1.6													4	1200	700	SX0.8	PLI1.6	BL0.8																		
ESSF mm1 02			1	400	200	200														1	400	200	SX	PLI	BL																		
ESSF mm1 03	5	1058173	2	600	300	250	1.6	4	SX	PLI	BL									2	600	300	SX	PLI	BL																		
			3	800	400	300	1.6													3	800	400	SX	PLI	BL																		
			4	1000	500	400	1.6													4	1000	500	SX0.6	PLI1.2	BL0.6																		

APPENDIX B: CUTTING PERMIT BLOCKS AND ROAD PERMITS PROTECTED UNDER FRPA 196(1) AND PROPOSED CATEGORY 'A' CUTBLOCKS PROTECTED UNDER FRPA 196(2)

FDU 1	CUTTING PERMIT	Block ID	Status
	SO1	W2	CP
	SO1	A58	196(2)
	VA2	A63	196(2)
	VA2	A65	196(2)
	VA2	C1	196(2)
	VA1	C3	196(1)
	VA2	C5	196(2)
	VA2	C6	196(2)
	VA2	C7	196(2)
	VA2	C8	196(2)
	VA2	C10	196(2)
	VA2	C11	196(2)
	VA2	C19	196(2)
	VA2	C20	196(2)
	VA2	C21	196(2)
	VA2	C22	196(2)
	VA2	C23	196(2)
	VA2	C24	196(2)
	VA2	C25	196(2)
	VA2	C30	196(2)
	VA2	C31	196(2)
	VA2	C32	196(2)
	VA2	C33	196(2)
	VA2	C34	196(2)
	VA2	C40	196(2)
	VA2	C41	196(2)
	VA2	C42	196(2)
	VA2	C50	196(2)
	VA2	C52	196(2)
	VA2	C54	196(2)
	VA2	C56	196(2)
	VA2	C60	196(2)
	VA2	C62	196(2)
	VA2	C64	196(2)
	VA1	C70	196(1)
	VA1	C71	196(1)
	VA2	C72	196(2)
	VA2	C74	196(2)
	VA2	E50	196(2)
	VA2	E51	196(2)
	VA2	E52	196(2)
	VA2	E53	196(2)
	VA2	E54	196(2)
	VA2	Y38	196(2)
	VA2	Y39	196(2)
	VA2	Y40	196(2)

FDU	AREA	Road ID	STATUS
	UPPER CANOE	R12972	RP, 196(1) 196(2)
	CAMP/ALBREDA	R10090	RP, 196(1) 196(2)
	WEST CANOE	R03383	RP, 196(1) 196(2)
	DAVE HENRY	R12249	RP, 196(1) 196(2)
	YELLOWJACKET	R09242	RP, 196(1) 196(2)
	KIWA	R14714	RP, 196(1) 196(2)
	HELLROARING	R03387	RP
	LOWER MORKILL	R08628	RP, 196(1) 196(2)

APPENDIX C: DEVIATION FROM POTENTIAL STOCKING STANDARDS/CRITERIA

I) A DFP-BASED STOCKING STANDARD

1. Definitions

- 1.1 Overstory component: The overstory component is all live trees with diameter (dbh) \geq 12.5 cm.
- 1.2 Understory component: The understory component is all live trees with dbh $<$ 12.5 cm.
- 1.3 DFP is obtained from the second approximation DFP table (Table 1).

2. Situations and circumstances

This standard can be applied to areas with 5-20 m²/ha retained tree basal area, with an even-aged target stocking standard \geq 1000 well-spaced trees per hectare, where timber production is a dominant goal.

3. Understory MSSp requirement

- 3.1 For the understory component, preferred species are those listed as preferred in the approved even-aged stocking standards for the given BEC unit and site series.
- 3.2 Preferred species must be \geq 50% of the well-spaced (or free-growing) stems tallied in the stratum.

□ 4. Overstory timber quality requirement

- 4.1 In a stratum, overstory trees of poor timber quality must be $<$ 20% of overstory basal area or $<$ 3 m²/ha, whichever is greater.
- 4.2 For this standard, a tree is of poor timber quality if it:
 - a) is a deciduous tree species, or
 - b) has a break, fork, or major crook in the lower $\frac{1}{2}$ of the stem, or
 - c) has stem damage exceeding that allowed for the tree species for "Long-term retention" in the Tree Wounding and Decay Guidebook (1997, page x), or
 - d) has less than 25% live crown, or
 - e) is not healthy.

5. Stratum mean DFP requirement

- 5.1 Stratum mean DFP must be \leq 0.2.
- 5.2 The following rules apply to measuring overstory trees. All live overstory trees count in the overstory basal area sweep. No minimum inter-tree distance is applied to overstory trees.
- 5.3 The following rules apply to tallying understory trees.
 - 5.3.1 Minimum inter-tree distance: When tallying understory trees, a minimum inter-tree distance of 1.6 m, or the minimum inter-tree distance specified in the Site Plan applies.
 - 5.3.2 Advance regeneration: To be tallied, advance regeneration must pass the Revised Edition May 2000 Establishment to Free Growing Guidebook: Prince George Forest Region, Appendix 10 advance regeneration acceptability criteria.
 - 5.3.3 Minimum height: To be tallied at regeneration delay, a tree must exceed 30 cm height. To be tallied at free growing, trees must exceed 65% of the minimum free-growing height in the even-aged stocking standards for the species for the site.
 - 5.3.4 Brush: To be tallied at free-growing, a tree must pass either the applicable conifer/brush ratio from the even-aged stocking standards for site, or the Revised Edition May 2000 Establishment to Free Growing Guidebook: Prince George Forest Region, Appendix 9 free-from-brush criteria.
 - 5.3.5 Health: To be tallied at free-growing, a tree must pass the Revised Edition May 2000 Establishment to Free Growing Guidebook: Prince George Forest Region, Appendix 5 free-growing damage criteria.

6. Minimum stratum size

The minimum stratum size is 2 hectare. A contiguous area exceeding 2 hectare that fails any one of the three requirements (mean DFP, overstory timber quality, and understory MSSp) must be delineated as a separate stratum.

7. Milestones

The complete set of requirements (stratum mean DFP, overstory timber quality, and understory MSSp) must be met at regeneration date and at the free-growing date. The regeneration and free-growing dates are the periods specified in the approved even-aged stocking standards for the given BEC unit and site series.

8. Stocking decision rule

The stratum is SR or FG when the MSSp, timber quality, and DFP requirements are all met.

Table 1. DFP by understory tree density and overstory basal area.

2nd Approximation – Deviation From Potential (DFP)									
OS basal area (m2/ha)	Well-spaced trees in plot*								
	0	1	2	3	4	5	6	7	8
0	1.00	0.76	0.52	0.34	0.22	0.13	0.07	0.03	0.00
1	0.98	0.74	0.51	0.34	0.21	0.13	0.07	0.03	0.00
2	0.96	0.73	0.50	0.33	0.21	0.13	0.07	0.03	0.00
3	0.93	0.71	0.49	0.32	0.20	0.12	0.07	0.03	0.00
4	0.90	0.68	0.47	0.31	0.20	0.12	0.06	0.03	0.00
5	0.86	0.65	0.45	0.30	0.19	0.11	0.06	0.02	0.00
6	0.82	0.62	0.43	0.28	0.18	0.11	0.06	0.02	0.00
7	0.77	0.58	0.40	0.27	0.17	0.10	0.05	0.02	0.00
8	0.72	0.55	0.38	0.25	0.16	0.09	0.05	0.02	0.00
9	0.67	0.51	0.35	0.23	0.15	0.09	0.05	0.02	0.00
10	0.62	0.47	0.32	0.21	0.14	0.08	0.04	0.02	0.00
11	0.57	0.43	0.30	0.20	0.12	0.07	0.04	0.02	0.00
12	0.52	0.39	0.27	0.18	0.11	0.07	0.04	0.01	0.00
13	0.47	0.35	0.24	0.16	0.10	0.06	0.03	0.01	0.00
14	0.42	0.32	0.22	0.15	0.09	0.05	0.03	0.01	0.00
15	0.38	0.28	0.20	0.13	0.08	0.05	0.03	0.01	0.00
16	0.33	0.25	0.17	0.11	0.07	0.04	0.02	0.01	0.00
17	0.29	0.22	0.15	0.10	0.06	0.04	0.02	0.01	0.00
18	0.26	0.19	0.13	0.09	0.06	0.03	0.02	0.01	0.00
19	0.22	0.17	0.12	0.08	0.05	0.03	0.02	0.01	0.00
20	0.19	0.14	0.10	0.07	0.04	0.02	0.01	0.01	0.00
21	0.16	0.12	0.08	0.06	0.04	0.02	0.01	0.00	0.00
22	0.13	0.10	0.07	0.05	0.03	0.02	0.01	0.00	0.00
23	0.11	0.08	0.06	0.04	0.02	0.01	0.01	0.00	0.00
24	0.09	0.07	0.05	0.03	0.02	0.01	0.01	0.00	0.00
25	0.07	0.05	0.04	0.02	0.02	0.01	0.00	0.00	0.00
26	0.05	0.04	0.03	0.02	0.01	0.01	0.00	0.00	0.00
27	0.04	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00
28	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00
29	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* total number of well-spaced trees in a 0.005 hectare plot.

II) THE SURVEY PROCEDURE

1. Acceptability criteria for understory trees

For a stratum, specify the understory tree acceptability criteria which may include limitations on tree species, health, brush encroachment, and height.

2. Timber quality class for overstory trees

For a stratum, specify the criteria that will be used to assign overstory trees to the “unacceptable” and “acceptable” timber quality classes. Criteria may include tree species, health, crown condition, wounding, H/D, form, and/or vigor.

3. Number of sample points

In strata smaller than 10 hectares, establish 10 sample points.

In strata larger than 10 hectares, establish one sample point per hectare.

4. Sample point locations

Locate sample points on a grid that uniformly covers the stratum.

5. Select BAF

Select the lowest BAF (basal area factor of prism, m²/ha) that:

- a) will rarely select trees more than 10 m from the sample point, and
- b) will generally select less than 10 “in” trees.

BAFs in the range of 3-5 are commonly used for this survey. The same BAF is used throughout a survey unit. Select a smaller BAF prism (e.g., a 3) for areas with smaller diameters and/or lower densities of retained trees.

6. Plot measurements

At each sample point:

- a) Tally the number of well-spaced trees in a 3.99 m radius plot with dbh (diameter outside bark at 1.3 m) < 12.5 cm that meet the acceptability criteria. Any MITD in the range 1.5-2.0 m can be used.
- b) With the prism, sweep around the sample point and count the number of “in” trees with dbh ≥ 12.5 cm. Exclude from the overstory tally both dead and almost dead trees. Determine the timber quality class of each tree.
- c) Record overstory basal area (m²/ha) for all trees, overstory basal area for trees with acceptable timber quality, and understory tree count (acceptable, total well-spaced trees per plot) at the sample point.

7. Data compilation

For each plot, input to the DFP table:

- a) the total well-spaced acceptable tree tally, and
- b) the total basal area per hectare estimated at the sample point to obtain the DFP for the plot.

Average the DFPs of all plots in the stratum to obtain the mean DFP.

Compute the average basal area (all trees). Compute the average basal area (trees classed as “acceptable” timber quality). Express the basal area of trees with acceptable timber quality as a percent of the total basal area.

Sum the number of well-spaced trees that were tallied in the survey (preferred plus acceptable species).

Sum the number of well-spaced trees of preferred species that were tallied in the survey. Compute the percent of preferred species (the number of preferred well-spaced as a percent of the number of preferred plus acceptable well-spaced).

APPENDIX D: FOREST STEWARDSHIP PLAN MAPS

Summary of FSP Maps

Map Number	FSP Content Maps
1	Morkill - McKale 1:100,000
2	Goat - Dore 1:100,000
3	Holmes - Castle - Raush 1:100,000
4	Valemount - Tete Jaune 1:100,000
5	Kinbasket 1:100,000