Supporting Document for the Forest Stewardship Plan

For operations within the Coast Mountains Natural Resource District under:

Forest Licence A73726, A90734 and Forestry Licence To Cut A77424, A91358

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SD1 INTRODUCTION

This document is provided in support to the Forest Stewardship Plan (FSP) for the operations of Kalum Ventures Limited (KVL), and Kitselas First Nation and Kitselas Forestry Limited Partnership (Kitselas) for the areas to by managed under their tenures within the Coast Mountains Natural Resource District (CMNRD). These operations will occur within Forest Development Units (FDU) located in the CMNRD. KVL and Kitselas are collectively referred to as the FSP Holders. This supporting document is organized as follows:

Section SD1: Introduction and context of this FSP within the current planning framework that exists on the FSP area.

Section SD2: Information directly related to the results and strategies in the FSP. Information is provided describing how the results or strategies are consistent with the related objective and a rationale as to why the result or strategy was created.

Section SD3: General descriptions and discussion of issues with respect to the eleven resource values that have been identified in the Forest and Range Practices Act, including information that relates the results and strategies to these resource values. The general discussion allows a more conversational description of the intent of the FSP and adds clarity and context to the enforceable results and strategies noted in the FSP. It is the FSP Holders' intent that this will simplify the FSP for the layperson.

Section SD4: Additional information for those parts of the FSP that are not related to the FRPA legal objectives.

Section SD5: Public, Agency and First Nation referral, comment, review and response information.

Section SD6: A description of the sources of information used in preparing the FSP.

This Supporting Document is not considered part of the FSP. Nonetheless, it is important to have this document in hand when reviewing the FSP, as it provides context for the results and strategies described in the FSP.

SD1.1 Interpretation

All references to the *Forest Act* mean the *Forest Act (RSBC 1996, Chapter 157)* current to April 26, 2017.

All references to the *Forest and Range Practices Act*, or to FRPA, mean the *Forest and Range Practices Act (SBC 2002, Chapter 69)* current to April 26, 2017.

All references to the *Forest Planning and Practices Regulation*, or to FPPR, mean the *Forest Planning and Practices Regulation (BC Reg 41/2016)* consolidated to May 2, 2017.

All references to the *Government Actions Regulation*, or to GAR, mean the *Government Actions Regulation (BC Reg 582/2004)* consolidated to May 2, 2017.

All references to the *Invasive Plant Regulation* mean the *Invasive Plant Regulation (BC Reg 18/2004)* consolidated to May 2, 2017.

All references to the *Land Act* mean the *Land Act (RSBC 1996, Chapter 245)* current to April 26, 2017.

All references to the *Wildlife Act* mean the *Wildlife Act (RSBC 1996, Chapter 488)* current to April 26, 2017.

All references to the *Kalum Sustainable Resource Management Plan*, or Kalum SRMP, mean the *Kalum Sustainable Resource Management Plan (April 2006)* and as amended by Order to May 5, 2017.

All references to the *Kalum Land and Resource Management Plan*, or Kalum LRMP, mean the *Kalum*

Land and Resource Management Plan (May 2002).

As a result of a government re-organization, certain ministries have been renamed.

- The Ministry of Water, Land, and Air Protection (MWLAP) was renamed as the Ministry of Environment (MOE).
- The Ministry of Forests and Range (MOFR) was renamed Ministry of Forests, Range and Natural Resource Operations (MFLNRO).

References to the old ministry names in this document generally are kept when they refer to actions or items that pre-date the name change. However, the names should be considered synonymous and any errors in references are unintentional.

Forest District boundaries have changed. The area previously covered by the Kalum Forest District is now covered by the Coast Mountains Natural Resource District. References to the Kalum Forest District in this document can be interpreted to mean the Coast Mountains Natural Resource District.

Unless otherwise noted, statements and information provided are current to May 2017. Every effort has been made to ensure that current data have been used in map generation and analyses: i.e. current to May 2017. While this does not mean that the data is up-to-date or completely accurate, it is the best available information.

SD1.2 Context of the FSP within the existing planning framework

The FSP applies on FDUs within the CMNRD, on lands within the Kalum Timber Supply Area and Tree Farm Licence 1. Several strategic planning initiatives have occurred within this area.

SD1.2.1 Kalum Sustainable Resource Management Plan

The Kalum Sustainable Resource Management Plan covers the Kalum Timber Supply Area and Tree Farm Licences 1 and 41. The SRMP is based on the Kalum Land and Resource Management Plan, a publicly-developed land-use plan.

The SRMP was approved by a delegate of the Minister of Agriculture and Lands in April 2006 and the SRMP objectives were declared as "Land Use Objectives" under section 93.4(1) of the *Land Act.* Therefore, the Kalum SRMP provides legal objectives under FRPA. The land-use objectives from the SRMP are listed in the FSP document and results and strategies are provided in the FSP that are consistent with the SRMP objectives.

SD1.2.2 Kalum Land and Resource Management Plan

The Kalum Land and Resource Management Plan (LRMP) covers the Kalum Timber Supply Area and Tree Farm Licences 1 and 41. The LRMP was approved by the provincial cabinet in 2002 but was not designated as a "higher level plan" as defined in the *Forest Practices Code Act of BC* (FPC), nor in the FRPA. Therefore, the Kalum LRMP does not provide any legal objectives under FRPA and as a result, no land-use objectives from the LRMP are listed in the FSP document.

The LRMP did receive cabinet approval, sending a clear message that it provides guidance for forest management considerations. Therefore, since not all of the LRMP was translated into the Kalum SRMP, it is still incumbent on both The FSP Holders' professional staff and the delegated decision maker that the information in the LRMP be considered in the formulation and review of those parts of the FSP that overlap the LRMP area and are related to forestry operations.

SD1.2.3 Interim Land and Marine Resources Plan of the Allied Tsimshian Tribes of Lax Kw'alaams

The Interim Land and Marine Resources Plan (ILMRP) applies to the Traditional Territory of the Allied Tsimshian Tribes of Lax Kw'alaams ("Lax Kw'alaams") and was prepared in June 2004 by Lax Kw'alaams. This ILMRP identifies Lax Kw'alaams' management directions for specific

resource values and land use designations over the Traditional Territory.

The FSP area overlaps with Stewardship Areas, the Skeena River Corridor Special Management Areas, and the Klaxghels (Lakelse Lake) Special Management Areas identified in the ILMRP. The FSP Holders have development results and strategies related to wildlife, biodiversity, riparian areas and cultural heritage resources (CHR) that are in line with the management intent of the ILRMP areas. In addition, legally designated areas that coincide with the ILRMP area are also consistent with the management intent, including:

- parks and protected areas;
- Kalum SRMP special resource management areas for the Skeena Islands and Lakelse;
- old growth management areas; and
- moose ungulate winter range.

SD1.2.4 Thunderbird Integrated Resource Management Plan

The Thunderbird Integrated Resource Management Plan (TIRMP) was a pre-*Forest Practices Code* plan. Nonetheless, the plan was prepared through a consensus based, multi-interest public planning body so it was important to review and incorporate the management intent of the TIRMP into the Kalum LRMP. It was determined that the intent of the TIRMP would be addressed through implementation of:

1) Forests practices legislation and regulations;

2) General resource management direction that applies to the whole Kalum LRMP area; and

3) Designation of a Special Resource Management (SRM) Zones (subzones 1 and 2) within the Kalum LRMP and SRMP for the Lakelse River corridor.

The Kalum LRMP also adopted two protected areas from the TIRMP area: Hai Lake/Mt. Herman and Lakelse Lake Wetlands. These areas have now been designated as provincial parks.

SD1.2.5 Fiddler Creek Total Resource Plan

The Fiddler Creek Total Resource Plan (TRP) was completed in 1995 by the Ministry of Forests in consultation with Skeena Cellulose Inc. and the Gitxsan and Kitselas First Nations. The Fiddler TRP is intended to provide direction for operational planning and forest practices. It was approved by the District Manager in 1995 but has not been incorporated into the Kalum LRMP, nor has it been designated a higher level plan.

The purpose of the Fiddler TRP was to manage all resources, including timber, wildlife habitat, biodiversity, visual landscape, recreation and aboriginal interests.

The Fiddler TRP divided the area into four management zones with objectives as follows:

Zone 1 - Critical Habitat Zone: The objective for this area was to maintain wildlife rearing and feeding areas and manage riparian areas for water quality, fish habitat and biodiversity. Section 2 of the FSP describes the results and strategies for riparian areas and for wildlife and biodiversity objectives (FPPR sections 7(1), 8, 9, and 9.1); these will capture the intent of the TRP objective.

Zone 2 - Fish and Wildlife Special Management Zone: The objective was to provide areas for feeding, rearing, travel and shelter ranging from the valley bottom to alpine areas and to conserve fish habitat areas. Section 2 of the FSP describes the results and strategies for riparian areas and for wildlife and biodiversity (FPPR s. 7(1), s. 8, s. 9, and s. 9.1); these will capture the intent of this objective.

Zone 3 - Visually Sensitive Zone: The objective was to minimize the visual impact from Highway 16. The area was broken down into three subzones: subzone 3A has a retention Visual Quality Objective (VQO), subzone 3B has a partial retention VQO and subzone 3C has a modification VQO. These VQOs have been established for the scenic area that covers

the Fiddler TRP area and Section 2 of the FSP describes the results and strategies for visual quality (FPPR s. 10); these will capture this objective.

Zone 4 - Working Forest Zone: The objective was to maintain a wood supply for the forest industry while mitigating long term detrimental impacts on biodiversity and wildlife habitat. This is consistent with the objectives of FRPA.

During the preparation of the Fiddler TRP, the Lax'Skiik of the Gitxsan provided the Ministry of Forests with an infrastructure map (January 1995) which included trails throughout the area. The importance of these trails to the Lax'Skiik is recognized by the FSP Holders, and when harvesting is proposed in their vicinity, it is expected that information on these trails will be provided by the Ministry to the FSP Holders. The management strategy for conserving these trails may vary from designing a reserve corridor to retaining stand structure through partial cutting. The level of retention will generally depend on the level of current use and relative importance to the trail infrastructure. The advent of the *Forest Practices Code* and its evolution into the *FRPA* means that the resource zoning and management guidance from the Fiddler TRP has been captured by the results and strategies in this FSP.

SD1.2.7 Provincial Park Management Direction Statements

There are 12 provincial parks, protected areas, and ecological reserves that overlap with the FDUs:

- Hai Lake/Mount Herman Provincial Park
- Kitsumkalum Lake North Protected Area
- Kitsumkalum Lake Provincial Park
- Kleanza Creek Provincial Park
- Lakelse Lake Provincial Park
- Lakelse Lake Wetlands Provincial Park
- Lower Skeena River Provincial Park
- Lundmark Bog Protected Area
- Skeena River Ecological Reserve
- Sleeping Beauty Mountain Provincial Park
- Swan Creek Protected Area
- Williams Creek Ecological Reserve

There are seven parks and protected areas adjacent to the FDUs:

- Burnie-Shea Park
- Exchamsiks River Provincial Park
- Exchamsiks River Protected Area
- Gitnadoiks River Protected Area
- Gitnadoiks River Provincial Park
- Nisga'a Memorial Lava Bed Provincial Park
- Seven Sisters Park and Protected Area

No conservancies overlap with or are adjacent to the FDUs.

Of these parks, only Exchamsiks River, Kleanza Creek, Lakelse Lake, Nisga'a Memorial Lava Bed, Burnie-Shea, and Seven Sisters Provincial Parks have a management direction statement or management plan in place. In general, operations are not expected to occur within parks or protected areas; however, should there be a reason to do so, activities will be consistent with the FSP and management direction statement or management plan.

SD1.2.8 Gitwangak Land Use Plan

The FSP Holders understand that a Gitwangak Land Use Plan has been prepared by the Simgiget'm Gitwangak Watershed Society. As of May 2017, the plan has not been provided; however, the following table addresses those components that the FSP Holders understand to be identified in the plan and how those components, in general, are addressed by the FSP and Supporting Document.

Gitwangak Land Use Plan Component	Applicable Portion of FSP
Cultural Heritage Sites	Information sharing and management of cultural heritage resources (including sites) are addressed through Results and Strategies **KK17-26, KK17-28** Section SD3.7 of this Supporting Document provides further information on cultural heritage resource and management by the FSP Holders.
Old Growth Management Areas	Retention of old growth forest in OGMAs is addressed through Result **KK17-13**.
Water Management Units	The FSP Holders are not aware of the location of water management units that overlap with the FDU(s). The FSP Holders will establish appropriate riparian buffers as per FPPR practice requirements 47 to 49 and Result **KK17-08**. Section SD3.4 of this Supporting Document provides further information on management of water and riparian resources by the FSP Holders.
Moose Winter Range	The FSP Holders will adhere to the general wildlife measures in designated moose Ungulate Winter Range as per Order U-6-009. In addition, Result **KK17-05** describes stocking standards that will promote moose browse within UWR. Section SD3.3.3.2 of this Supporting Document provides more information on management of moose habitat by the FSP Holders.
Mountain Goat Winter Range	The FSP Holders will adhere to the general wildlife measures in identified mountain goat Ungulate Winter Range as per Order U-6-001. Section SD3.3.3.1 of this Supporting Document provides more information on management of mountain goat habitat by the FSP Holders.
Grizzly Habitat	Grizzly bear habitat is addressed through Results and Strategies **KK17-05** (stocking standards to promote forage supply) and **KK17-06** (limits on harvest operations within proposed Grizzly Bear Wildlife Habitat Areas), as well as other. Section SD3.3.1.5 of this Supporting Document provides more information on management of grizzly bear habitat by the FSP Holders.
Ecosystem Network and Buffer	The FSP Holders are not aware of the location of ecosystem network mapping that overlaps with the FDUs. Biodiversity objectives are managed through patch and seral distribution requirements as stated in Strategy and Result **KK17-11** and **KK17-12**. Results and Strategies for old growth retention (**KK17-13**) and wildlife tree retention (**KK17-15**), among others, will also contribute to biodiversity on the landscape. Section SD3.6 of this Supporting Document provides more information on biodiversity management by the FSP Holders.
Cedar/Kiteen Special Management Zones	The Kalum SRMP identifies a special resource management zone for the Cedar and Kiteen wildlife movement corridor. Result **KK17-17** sets the limitations on harvesting in this SRMZ.
Goshawk Habitat	It is the FSP Holders practice to report goshawk nests when identified. Section SD3.3.2 of this Supporting Document provides more information on goshawks.

Gitwangak Land Use Plan Component	Applicable Portion of FSP
Gitwangak Cedar Stand	While the FSP Holders are not aware of the location of the Gitwangak Cedar Stand, they manage for cedar by retaining smaller diameter cedar in during logging, where possible; and ensuring cedar forms a component of the regenerating forest where ecologically appropriate – thus ensuring a continual supply of cedar for cultural purposes.
Special Habitat for General Wildlife	A number of results and strategies in the FSP address objectives for wildlife, as described in this table and in Section SD3 of this Supporting Document for moose, grizzly bear and biodiversity.
Wildlife	

SD1.2.9 Provincial Timber Management Goals, Objectives & Targets

The document *2017 Provincial Timber Management Goals, Objectives and Targets* defines the goals, objectives, targets and strategies for timber management in the context of other natural resource values in BC. Generally, MFLNRO will be responsible for taking action on the objectives, targets and strategies, but the FSP Holders' practices may reflect the intent of the goals and in some cases the specific strategies. A report on the status of the goals, objectives and targets in the CMNRD is expected in August 2017. In response to the District Report, the FSP Holders expect that, as part of the regional Steering Committee, they will collaborate with other licencees and District representatives to develop local targets and strategies.

SD1.3 Acronyms

Acronyms used in the FSP or Supporting Document are as follows:

AIA: Archaeological Impact Assessment
AOA: Archaeological Overview Assessment
ATV: All-Terrain Vehicles
BA: Basal Area
BCTS: British Columbia Timber Sales
BEC: Biogeoclimatic Ecosystem Classification
C&E: Compliance and Enforcement
CDC: Conservation Data Centre
CHR: Cultural Heritage Resource
CHRR: Cultural Heritage Resource Review
CMNRD: Coast Mountains Natural Resource District
CMT: Culturally Modified Tree
CP: Cutting Permit
CWD: Coarse Woody Debris
CWH: Coastal Western Hemlock
DDM: Delegated Decision Maker
DFO: Fisheries and Oceans Canada
ECA: Equivalent Clearcut Area
FDP: Forest Development Plan
FDU: Forest Development Unit
FL: Forest Licence
FLTC: Forestry Licence to Cut
FMSS: Fire Management Stocking Standard
FPPR: Forest Planning and Practices Regulation

FRPA: Forest and Range Practices Act
FSP: Forest Stewardship Plan
FSR: Forest Service Road
GAR: Government Actions Regulation
GWM: General Wildlife Measure
ICH: Interior Cedar-Hemlock
ILMB: Integrated Land Management Bureau
IPMA: Invasive Plant Management Area
IWMS: Identified Wildlife Management Strategy
LRMP: Land and Resource Management Plan
LU: Landscape Unit
MAg: Ministry (or Minister) of Agriculture
MH: Mountain Hemlock
MOE: Ministry (or Minister) of Environment
MOF: Ministry (or Minister) of Forests
MOFR: Ministry (or Minister) of Forests and Range
MFLNRO: Ministry (or Minister) of Forests, Lands and Natural Resource Operations
MFLNRORD: Ministry (or Minister) of Forests, Lands, Natural Resource Operations and Rural Development
MOTSA: Ministry (or Minister) of Tourism, Sports, and the Arts
MSRM: Ministry (or Minister) of Sustainable Resource Management
MWLAP: Ministry (or Minister) of Water, Land and Air Protection
NA: Nass Area
NAR: Net Area to be Reforested
NDT: Natural Disturbance Type
NLG: Nisga'a Lisims Government
NSR: Not sufficiently restocked
NWA: Nass Wildlife Area
NWC: Nass Wildlife Committee
NWIPC: Northwest Invasive Plant Council
OGMA: Old Growth Management Area
OSBG: Objectives Set by Government
QP: Qualified Professional
RESULTS: Reporting Silviculture Updates and Land Status Tracking System
RMA: Riparian Management Area
RMZ: Riparian Management Zone
RP: Road Permit
RPBio: Registered Professional Biologist
RPF: Registered Professional Forester
RRZ: Riparian Reserve Zone
RUP: Road Use Permit
SP: Site Plan
SPAR: Seed Planning and Registry System
SRMP: Sustainable Resource Management Plan
SRMZ Special Resource Management Zone
SU: Standards Unit
TFL: Tree Farm Licence
TIRMP: Thunderbird Integrated Resource Management Plan

TRP:	Total Resource Plan
TSA:	Timber Supply Area
TSFA:	Terrain Stability Field Assessment
TSL:	Timber Sale Licence
UWR:	Ungulate Winter Range
VIA:	Visual Impact Assessment
VQO:	Visual Quality Objective
VSC:	Visual Sensitivity Class
WAP:	Watershed Assessment Procedure
WHA:	Wildlife Habitat Area
WTA:	Wildfire Threat Assessment
WTP:	Wildlife Tree Patch
WTRA:	Wildlife Tree Retention Area

SD2 INFORMATION DIRECTLY RELATED TO THE RESULTS AND STRATEGIES

This section provides information on: how the results or strategies described in the FSP are consistent with objectives set by government; why the results or strategies have been selected and how they relate to the resource values identified in the FRPA.

Many results or strategies apply to more than one forest value. A table showing the results or strategies that are applicable to each forest value is provided in Section SD2.2.

The following paragraphs are reproduced from the FSP document to remind the reader of the structure of Objectives, Strategies, and Result.

Objectives are descriptions of how overall goals are to be achieved. In this case, the goals are increased flexibility in forest management, decreased administrative complexity and environmental protection. Objectives can vary from place to place depending on the circumstances of the area. The FRPA established three types of objectives:

Objectives set in regulation: These objectives are explicitly stated in the FPPR and apply provincially.

Objectives enabled by regulation: The Government Action Regulation (GAR) provides authority to the Ministers responsible for the *Forest Act*, *Land Act* and *Wildlife Act* to establish objectives for certain items described in the regulation. These objectives can be applied at many different scales.

Notices providing information on habitat amount, distribution and attributes have been provided for several wildlife species under FPPR s. 7(2) (“Section 7" notices).

Under GAR, Wildlife Habitat Areas and Ungulate Winter Range have been established for areas that overlap with the FDUs.

See the Supporting Document to this FSP for further discussion of these items.

Land-use objectives: These are objectives specific to a certain area that have been established through a Landscape Unit Plan or some sort of higher-level plan such as a Land and Resource Management Plan or Sustainable Resource Management Plan. The Minister responsible for the *Land Act* sets these objectives.

The Kalum Sustainable Resource Management Plan (SRMP) was approved in April 2006, using the cabinet-approved Kalum Land and Resource Management Plan (LRMP) as its basis. The objectives within the SRMP are considered land-use objectives under the FRPA.

Strategies and Results

For each objective set by government, there must be at least one strategy or result specified that is consistent with that objective. Having a strategy and a result, or multiple strategies and/or results, is acceptable, but is not required. In certain cases, specified in the FPPR, a strategy or result is not required if default practice requirements in the legislation will be followed.

Strategies are measurable or verifiable steps or practices that will be carried out in order to achieve consistency with a particular established objective, and the situations or circumstances that determine where in a FDU the steps or practices will be applied.

Results are measurable or verifiable outcomes in respect of a particular established objective, and the situations or circumstances that determine where in a FDU the outcomes will be applied.

Practice Requirements

Some Practice Requirements can be affected by strategies or results. Under the FPPR, there are practices requirements described that must be followed. However, some of these practice requirements are optional if in the FSP there are strategies or results provided for objectives that also meet the intent of

the practice. Conversely, some of these optional practice requirements, if committed to in the FSP, relieve the FSP Holders from having to provide strategies or results for certain objectives. These practice requirements are considered to achieve some of the objectives set by government. It is up to the FSP Holders to indicate whether the strategies and results in the FSP allows the FSP to be exempted from following these optional practice requirements, or whether, by following certain practice requirements, the FSP does not require strategies or results for certain objectives.

SD2.1 Rationales for Results and Strategies

This section provides information describing the rationale for creating a result or strategy and how the result or strategy is consistent with its related objective. The result or strategy is not reproduced here, as it is expected that this document will be reviewed with the FSP in hand.

FSP Reference number: **KK17-01** *Result*

This result comes from recommendations in the TIRMP and Kalum LRMP. Alwyn Creek flows into the Lakelse River system and has deep glaciomarine soils that have proven highly unstable under certain conditions. A watershed assessment was completed for the Alwyn Creek watershed in 1995. This was a hydrologic assessment with an objective to define the current state of the watershed and provide guidance regarding further logging within it. The study showed that the Alwyn Creek watershed produces high levels of suspended sediment due to the fine-textured soils within the basin.

The source of sediment in Alwyn Creek is from the following:

- Roads and trails adjacent to the creek;
- Ditch lines directing surface runoff water into the creek;
- Earth slumps, failures and cut banks along the length of the creek;
- Recreational vehicle crossings of the creeks; and
- Channel erosion from peak flows.

The LRMP recommendation was for the Forest Service and the private landowners to take the lead role in protecting and mitigating water quality concerns in Alwyn Creek. This would be achieved by ensuring that existing roads and trails are deactivated prior to the construction of any new roads, reducing the current equivalent clear-cut area levels particularly above and around sensitive soil types and by initiating a detailed road and channel assessment to determine the nature and extent of sediment sources and mobility within the watershed.

Consistency with the soils objective is achieved by addressing an area of known soil sensitivity that was singled out through public planning processes.

FSP Reference number: **KK17-02** *Strategy*

This strategy has been paraphrased from wording in the Kalum LRMP. Consistency with the soils objective is achieved through taking action on roads, which are known conduits for the movement of erodible soils; regular inspections will allow the risk of erosion to be mitigated.

FSP Reference number: **KK17-03** *Result*

The Stocking Standards in this FSP are based on established standards that have undergone extensive review, including the consideration of economically and ecologically viable species and the forest health risks associated with those species.

Consistency with the timber objective and Objective 6 from the Kalum SRMP is achieved by confirming the need to reforest areas that are harvested, so there will be timber for the forest industry in the future, and maintain a natural composition of dominant tree species through ecologically based standards.

FSP Reference number: **KK17-04** *Strategy*

This strategy introduces a Fire Management Stocking Standard requiring minimum stocking of ecologically appropriate deciduous species in order to reduce the risk of wildfire in cut blocks close to

urban area, structures and infrastructure. On blocks where FMSS are applied, economically viable timber may be reduced; however, the FMSS should enhance the timber value by protecting adjacent stands from fire. This strategy is considered consistent with the timber objective.

FSP Reference number: KK17-05 Result

This result is based on an amalgamation of the Section 2.2.11 of the Kalum LRMP pertaining to grizzly bears and the habitat attributes for moose as described in the *Notice – Indicators of the Amount, Distribution, and Attributes of Wildlife Habitat Required for the Winter Survival of Ungulate Species* for TFL 1, TFL 41 and the Kalum TSA. This result is consistent with Objective 8 in the Kalum SRMP as it takes the stocking standards directly from Table 8 of the SRMP. It is also consistent with Moose Ungulate Winter Range Order 6-009, specifically General Wildlife Measure 3 which calls for moose forage to be restored after harvesting.

Reduced stocking requirements and minimum inter-tree spacing was determined through the LRMP to reflect the needs of grizzly bear and this was incorporated into the accepted stocking standards for the Kalum Forest District (now the Coast Mountains Natural Resource District).

Maintenance or increased potential for forage and browse species within moose UWR can also be achieved through the application of reduced stocking and/or cluster planting on the moist, rich sites that occur within the UWR areas, providing a benefit to moose within their winter range[1].

Consistency with the wildlife objective is achieved through this result's establishment of criteria for maintaining forage opportunities for identified species.

FSP Reference number: **KK17-06** *Strategy*

The strategy limits harvesting of timber within proposed grizzly bear Wildlife Habitat Areas within the Kalum TSA. While the proposed WHA are not legally designated as of June 2016, MFLNRO has shared a draft Order for these areas with the FSP Holders. In an effort to meet the intent of the proposed WHA and the proposed General Wildlife Measures as per the draft Order, the FSP Holders has adopted this strategy. If the WHA are legally designated during the term of this FSP, the FSP Holders will adhere to general wildlife measures established by order.

The strategy achieves consistency with the wildlife objective by maintaining habitat for grizzly bear, an identified species, and the habitat requirements for grizzly bear given in the *Notice – Indicators of the Amount, Distribution, and Attributes of Wildlife Habitat Required for the Survival of Species At Risk in the Kalum Forest District*.

FSP Reference number: **KK17-07** *Result*

This wording for this result flows directly from Objective 11 of the Kalum SRMP. The wording allows for proportional targets based on the amount of the FDU that overlaps with the Grizzly Bear Identified Watershed.

The seral requirements of this objective will also benefit Moose, which are dependent on forage opportunities similar to that of Grizzly Bear.

Consistency with the Kalum SRMP is achieved by using wording that derives directly from the Kalum SRMP objective, and consistency with the wildlife objective is achieved through this result's balancing of seral stages to ensure continued forage opportunities for identified species.

FSP Reference number: **KK17-08** *Result*

In accordance with the FPPR section 12(3), the retention of trees within Riparian Management Zones (RMZ) is addressed. A method for approximating basal area is provided and the result is worded to reflect the need for flexibility with respect to site specific conditions. The result also ensures consistency with practice requirements, specifically FPPR s. 52(2)(a), by requiring retention on the lower 100 m of S6

[1] B. Pollard, RPBio. Personal communication. January 14, 2005

streams that are directly tributary to S1, S2 and S3 streams. Since this result will provide for l retention on S5 and some S6 streams, it will benefit the coastal tailed frog, an Identified Species At Risk which is reliant on steep mountain streams. The timing of the application of this result recognizes the ongoing nature of forest planning and prevents additional constraints and costs from being applied to blocks that have already been started.

Providing for the retention of trees within RMZs achieves consistency with the objective for riparian areas (FPPR s. 8).

FSP Reference number: **KK17-09** *Result*

This result has been taken from the Kalum SRMP (Objective 17). The use of clearcut equivalency is a useful surrogate for maintenance of flow regimes. Where a Watershed Assessment Procedure is conducted that indicates a better threshold or parameter, it will be adopted for the appropriate watershed(s).

Consistency with the objective for water in community watersheds (FPPR s. 8.2) and for Objective 17 in the Kalum SRMP is achieved by ensuring that a well-defined parameter is used to monitor the potential impact on the watershed.

FSP Reference number: **KK17-10** *Result*

Due to the small size of the Virginia Brook and Drake Community Watersheds, the FSP Holders has committed to no harvesting (with exceptions to prevent timber loss and for road construction), which should ensure the hydrological function of the watershed without an undue impact on timber supply.

This result is consistent with the objective for water in community watersheds (FPPR s. 8.2) and for Objective 17 of the Kalum SRMP, by ensuring that no hydrological impact occurs within these watersheds from primary forest activities carried out by the FSP Holders.

FSP Reference number: **KK17-11** *Strategy and* **KK17-12** *Result*

This strategy and result will allow a distribution of areas of different sizes over an extended period of time. In other words, it provides for a temporal and spatial distribution of seral stages and patch sizes.

The process in this result and strategy is based on the well-established science of Natural Disturbance Types (NDT) and the temporal and spatial distribution of disturbance, as described in the *Biodiversity Guidebook* (September 1995) and updated in the *Landscape Unit Planning Guidebook* (1999), and uses the analysis as described in the LUP guidebook.

This strategy and result are consistent with the habitat requirements for grizzly bear and Marbled Murrelet, as described in the notices for these species under section 7 of the FPPR. Moose will also benefit from a range of seral stages, particularly with respect to continued forage opportunities.

The strategy and result are also consistent with the seral stage and the patch distribution requirements of the Kalum SRMP (Objectives 1 and 7, respectively).

FSP Reference number: **KK17-13** *Result*

This result provides wording that paraphrases, and is therefore consistent with, the wording of Kalum SRMP Objective 3 for Old Growth Management Areas (OGMAs).

FSP Reference number: **KK17-14** *Strategy*

This strategy provides a mechanism for disturbing an Old Growth Management Area to allow operational flexibility. The strategy was developed based on Kalum SRMP Objective 4 and the Skeena Region Old Growth Management Area Amendment Policy (August 2010) which provides further guidance on how to amend OGMAs.

Consistency with Kalum SRMP Objective 4 is achieved by allowing activities in Old Growth Management Areas while also ensuring that old seral stage forest is maintained by requiring the selection of replacement areas.

FSP Reference number: **KK17-15** *Result*

This result is guided by and consistent with Objective 5 from the Kalum SRMP: the WTRA targets are as per Table 6 from the Kalum SRMP. This result also provides for management of WTRAs consistent with the FRPA objective for stand level biodiversity (FPPR s.9.1).

FSP Reference number: **KK17-16** *Strategy*

This result allows the FSP Holders to move wildlife tree retention areas designated by other licensees provided the specified criteria are met. This result ensures that stand level biodiversity is maintained through the retention of wildlife trees while also allowing operational flexibility.

In some instances, wildlife tree retention on blocks may have been set well in excess of the requirements in the Kalum SRMP, and this result therefore allows for the re-balancing of wildlife tree areas with targets. This result is, therefore also consistent with the timber objective.

FSP Reference number: **KK17-17** *Result*

This result has been taken directly from the Kalum SRMP (Objective 8) and is consistent with the wildlife objective and associated notices under FPPR s. 7 by providing for a travel corridor between habitat areas.

Consistency with the Kalum SRMP is achieved by using wording that derives directly from the Kalum SRMP objective.

FSP Reference number: **KK17-18** *Result*

This result has been taken directly from the Kalum SRMP (Objective 9) and is consistent with the wildlife objective and associated notice under FPPR s. 7 by providing for a travel corridor between habitat areas.

Consistency with the Kalum SRMP is achieved by using wording that derives directly from the Kalum SRMP objective.

FSP Reference number: **KK17-19** *Result*

This result provides for management of forest activities on the Skeena Islands. The approach taken is to limit the amount of impact on the rare plant communities by retaining older seral stages and other features that provide habitat value or contribute to the recruitment of old seral stage forest. The Result is consistent with an Order to amend Objective 10 to the Kalum SRMP for the Skeena Islands Area, effective December 7, 2017.

FSP Reference number: **KK17-20** *Result*

This result is taken from the Kalum SRMP (Objective 12), which recognizes the importance of the Lakelse River area for fish and recreation. Consistency with the biodiversity objectives is achieved by detailing seral, patch and wildlife tree retention requirements on a specific area that has been identified as of particular importance through public planning processes.

Consistency with the Kalum SRMP is achieved by using the same wording as in Kalum SRMP Objective 12.

FSP Reference number: **KK17-21** *Strategy*

This result provides wording that describes the process of allowing road construction through the Upper Kitsumkalum Special Resource Management Zone, as allowed by Kalum SRMP Objective 13.

FSP Reference number: **KK17-22** *Result*

This result paraphrases and is therefore consistent with the wording of Kalum SRMP Objective 14 for activities in the Miligit Creek Sensitive Area.

FSP Reference number: **KK17-23** *Strategy and* **KK17-24** *Result*

This strategy and result are based on the Visual Impact Assessment guidebook (January 2001), with the addition of a viewpoint selection process. **KK17-23** includes a minimum viewing time that is based on the Visual Landscape Inventory: Procedures and Standards Manual (May 1997).

Result **KK17-24** indicates that block configuration will be consistent with the visual design.

To ensure there is not an undue impact on timber supply, **KK17-23** also includes a clause that exempts the FSP Holders from having to consider the impact of a utility corridor when determining consistency with the VQO. This is also consistent with a regional policy for utility corridors and VQOs.

Consistency with the objective set by government for visual quality is achieved through the application of an established method for visual management.

FSP Reference number: **KK17-25** *Result*

This result provides wording that paraphrases and is therefore consistent with, the wording of Kalum SRMP Objective 15 for activities along the Upper Copper River.

FSP Reference number: **KK17-26** *Strategy*

This strategy allows the identification, review, and update of traditional use and cultural heritage information that is used in the development (and if necessary, amendment) of this FSP.

A First Nation/NLG and the FSP Holder(s) may develop a specific process to guide information sharing. Strategy **KK17-26** was updated to recognize this possibility in response to a request from a First Nation during information sharing for the FSP.

Consistency with the cultural heritage resources objective is achieved by providing a method for continual updates to known cultural heritage resource information.

FSP Reference number: **KK17-27** *Strategy*

It is important to recognize that the Nisga'a Nation has rights beyond access to cultural heritage resources derived from lands within the FDUs. This strategy can serve to address foreseen infringement upon those rights and is not limited to discussion of cultural heritage resources.

Similar to **KK17-26**, this strategy allows the identification, review and update of traditional use and cultural heritage information that is used in the development (and if necessary, amendment) of this FSP. This strategy is focused on gathering of similar information from the Nisga'a Lisims Government (NLG). The NLG is not a First Nation but has valuable insight into the cultural heritage resources of continuing importance to the Nisga'a people outside of Nisga'a Lands.

Consistency with the cultural heritage resources objective is achieved by providing a method for continual updates to known cultural heritage resource information

FSP Reference number: **KK17-28** *Result*

This strategy allows the identification and review of cultural heritage information that has not been captured in the development of this FSP or through information sharing as per **KK17-26** and **KK17-27.**

This strategy also confirms that new cultural heritage information identified through **KK17-28** will be shared with the affected First Nation(s) or Nisga'a Lisims Government, provided to the District Manager, and documented and reviewed by the FSP Holders. For the purposes of confidentiality and protection of cultural heritage features, information provided to the District Manager may be purposefully vague.

Consistency with the cultural heritage resources objective is achieved by providing for stand-level mitigation of identified cultural heritage resources when necessary.

FSP Reference number: **KK17-29** *Result*

Cedar provides a valuable resource for traditional cultural activities; bark provides textiles and the logs provide building (canoes, planks) and spiritual materials (totem poles). The stocking standards in this FSP prescribe cedar where ecologically appropriate, so a continued supply of trees for bark stripping and the supply of lumber (the modern form of planks) is assured. However, to ensure the supply of larger logs for canoes, planks or poles, this result has been prepared to ensure that in forest stands that have cedar retention in wildlife tree retention areas (WTRAs) and RMZs, removal of some of these stems for cultural purposes is an acceptable activity.

The intent of KK17-29 is to provide a mechanism for the FSP Holders to harvest cedar for a First Nation from a reserve zone. This creates an efficient way for a First Nation to get access to cedar while operational personnel are already present in a block.

To ensure that the biological function of a reserve is not impaired[2], a limit is placed on the amount that can be removed by the FSP Holders on behalf of a First Nation.

Consistency with the cultural heritage resources objective is achieved by providing a method for ensuring that a supply of raw materials for traditional cultural heritage activities be maintained.

FSP Reference number: **KK17-30** *Result*

This result provides assurance that windthrow risk is being managed in the Nass Area as defined in the Nisga'a Final Agreement. The issue of windthrow management, particularly in the vicinity of Lava Lake was raised by the Nisga'a Lisims Government in late comments provided to FLNRORD.

> Note: An earlier KK17-30 Strategy regarding CMTs was shared with First Nations and publicly advertised; however, that earlier version has been removed from the FSP as representatives of Ministry of FLNRORD felt it was not consistent with the CHR Objective (FPPR s 10).

FSP Reference number: KK17-31 Result

The identified recreation sites or trails all share a "Trail Management" objective. This result is basically a paraphrasing of this common objective so it will apply to all these sites and trails, with a clarification regarding the potential for trail re-establishment or relocation.

To ensure the recreation experience is recognized, development activities within 50 m of the trail, trail crossings, and access barriers will only proceed after a referral to or, in some cases, an authorization from the Ministry responsible for the trail[3].

Consistency with the recreation site and trail objectives is achieved as the wording is taken directly from the objectives.

FSP Reference number: **KK17-32** *Result*

The identified recreation sites have similar "Site Management" objectives to retain natural vegetation and shorelines near waterbodies. This result is basically a paraphrasing of this common objective so that it will apply for all these sites.

To ensure that the recreation experience is recognized, development activities within the remainder of the listed recreation sites will be reserved from disturbance unless authorized by the Ministry responsible for the site.

Consistency with the recreation site objectives is achieved; the wording is taken directly from the objectives.

FSP Reference number: **KK17-33** *Strategy*

This strategy provides a process for ensuring that any forestry activities that may occur in the Red Sand

[2] B. Pollard, RPBio. Personal communication. August 16, 2005

[3] As of March 2012, the responsible Ministry is Forests, Lands and Natural Resource Operations

Lake Forest Interpretive Site are consistent with the objective and that they are clearly described and included with an application to carry out road construction or logging.

FSP Reference number: **KK17-34** *Result*

The identified recreation sites have “Access” objectives. The result indicates that the stated access objectives will be followed and, therefore, is consistent with the recreation site and trails objectives. A clarification regarding the potential need for access outside of the window for planning or silviculture is also included.

Consistency with the recreation site and trail objectives is achieved; the wording is taken directly from the objectives.

FSP Reference number: **KK17-35** *Result*

The recreation sites and trails have a “Recreation Experience” objective that is related to general access to them. This result confirms the minimum level of access that will be maintained to these sites or trails, ensuring consistency with the objective of providing access to a recreation experience.

SD2.2 Consistency of Results and Strategies across the known FRPA Objectives

In addition to a strategy or result having to be consistent with the objective for which it was written for, the strategies and results should not create any inconsistency with any of the other known objectives set by government. The FSP has been reviewed with this consideration in mind, and there are no obvious contradictions or conflicts between the results and strategies.

The consistency of each result and strategy on the established objectives that apply in the FSP is summarized in the following table.

In addition to the table below, **Appendix SDA** provides an evaluation tool for the Delegated Decision Maker in determining how the strategies and/or results in the FSP are consistent with the objectives set by government, and how they are measurable or verifiable.

FSP Result or strategy, or FPPR Practice Requirement	Objective Set by Government[1], or related Notice, Order, or Land Use Objective **Y** = Identified as consistent with the Objective																											
	FPPR s. 5	FPPR s. 6	FPPR s. 7(1)	Grizzly Bear Notice	Marbled Murrelet Notice	FPPR s. 8	FPPR s. 8.2	FPPR s. 9	FPPR s. 9.1	FPPR s. 9.2(2)	FPPR s. 10	FPPR s. 12(3)	Recreation Objectives	Kalum SRMP Obj 1	Kalum SRMP Obj 3	Kalum SRMP Obj 4	Kalum SRMP Obj 5	Kalum SRMP Obj 6	Kalum SRMP Obj 7	Kalum SRMP Obj 8	Kalum SRMP Obj 9	Kalum SRMP Obj 10	Kalum SRMP Obj 11	Kalum SRMP Obj 12	Kalum SRMP Obj 13	Kalum SRMP Obj 14	Kalum SRMP Obj 15	Kalum SRMP Obj 17
KK17-01	Y					Y																						
KK17-02	Y																											
KK17-03		Y						Y										Y										
KK17-04		Y																										
KK17-05			Y	Y				Y															Y					
KK17-06			Y	Y				Y															Y					
KK17-07			Y	Y				Y															Y					
KK17-08						Y			Y			Y																	
KK17-09	Y						Y																					Y
KK17-10	Y						Y																					Y
KK17-11		Y	Y	Y	Y			Y						Y					Y									
KK17-12		Y	Y	Y	Y			Y						Y					Y									
KK17-13			Y	Y	Y			Y							Y	Y												
KK17-14		Y	Y	Y	Y										Y	Y												
KK17-15									Y								Y											
KK17-16		Y							Y								Y											
KK17-17			Y	Y				Y												Y								
KK17-18			Y	Y				Y													Y							
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KK17-34													Y															
KK17-35													Y															
FPPR s.35,36	Y																											
FPPR s.47-51, 52(2), 53						Y																						
FPPR s.59-61							Y																					
FPPR s.64, 65								Y																				

Note 1: The following objectives, Notices, or Orders are not applicable to this FSP: FPPR s. 8.1: Mountain Goat UWR Section 7 Notice; Moose UWR Section 7 Notice, Coastal Tailed Frog Section 7 Notice; Old Growth Order; and Kalum SRMP Objectives 2 and 16.

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SD3 RELATING THE RESULTS AND STRATEGIES TO THE FRPA RESOURCE VALUES

This section provides background information on the resource values described in the FRPA legislation (FRPA section 149[4]) and how the results and strategies described in the FSP relate to these values. Each value is described in general, followed by a more specific description of the management considerations related to the value. Linkages to the results and strategies in the FSP are noted.

This section may also include discussion of forest management aspects or activities that do not appear in the FSP. This reflects the fact that while the FSP can only address legal objectives that have been set by government, there are other activities and actions that are carried out by the forest manager.

Where information exists, reference is made to the outcomes and recommendations of Multiple Resource Value Assessments (MRVA) and Forest and Range Evaluation Program (FREP) reports. The MRVA and FREP reports provide information on the outcomes of the FSPs and practices of forest professionals and can be used in an ongoing manner to inform, clarify, or assess the state of a particular value. The most recent MRVA report for the Kalum TSA was released on December 2013. A more recent FREP report, *FREP Report 41 Assistant Deputy Minister Resource Stewardship Report* (2016-2017), exists; however, the results in this report are compiled at the broader scale of the Skeena Natural Resource Region and may not be as applicable to this FSP. Where possible the more specific MRVA report results are referenced. In instances where the MRVA report did not include results for a resource value, the FREP report is referenced.

SD3.1 Soils

Maintenance of forest soil is facilitated by keeping soil where it is. This is accomplished through results and strategies that are consistent with the objective for soils, as described in Section 2 of the FSP.

The soils on the FSP area are predominated by podzols[5] and are typical of the cool, moist climate, deep snow packs and short growing season. The structure of the soils and its parent material is highly variable over the landscape, with clay or silt-dominated soils being the most sensitive to erosion.

The FSP Holders has elected to follow the practice requirements outlined in section 35 and 36 of the FPPR to ensure consistency with the objective for soils. These practice requirements describe limits for allowable soil disturbance on a site and limits on the area that can be converted to roads or landings. This information will be noted within SPs and site rehabilitation measures will be employed where appropriate. Logging systems and seasonal restrictions will be prescribed to limit soil impacts to the accepted levels.

Management for soil conservation can include consideration of terrain stability, road construction and road maintenance activities.

SD3.1.1 Terrain Stability

In general, the intent of the FSP Holders' operations is to avoid areas having a high potential for landslides. When potentially unstable areas are unavoidable, operations will be prescribed and conducted in a manner that limits the risk of landslides and soil erosion. For instance, when operations are planned in areas with potential instability, risk of soil erosion or of potential impact

[4] Soils, Timber, Wildlife, Water, Fish, Biodiversity, Cultural heritage resources, Recreation resources, Resource features, Visual quality, and Forage.

[5] Coarse, well-drained soil formed under cool, moist conditions that has its upper layers leached of organic matter and primary minerals

on the environment can be limited by following the results and recommendations of detailed TSFAs.

Overview terrain stability and hazard mapping exists for several areas, including portions of the FDUs. Where overview assessments have not been completed, mapping is available that identifies areas where slopes exceed 60%. In addition, at times, local knowledge of terrain allows differentiation between stable and potentially unstable areas.

Terrain stability analysis will be incorporated into landscape level planning so that where appropriate, sensitive terrain units can be included into riparian reserves, old growth/biodiversity reserves, WTRAs or visual reserves, thereby achieving multiple objectives.

Where planned operations encroach on areas identified as potentially unstable or unstable terrain, detailed site assessments can be carried out with recommendations prepared by a qualified professional. Recommendations prepared are then reviewed for incorporation into applicable planning (e.g. Road Designs or SPs).

TSFA and/or site specific operational prescriptions may be prepared for areas planned for development that have unstable or potentially unstable terrain or that have high or very high soil erosion potential. Part of the TSFA report will include an evaluation of cut block/opening shape and size or of proposed road locations, with a focus on their effects on soil erosion potential. TSFAs identify mitigation measures to minimize erosion and landslide potential within, adjacent to, and down slope of areas proposed for development. These protective measures may include: relocating a section of road or block boundary; end hauling; full suspension cable harvesting; timing restrictions; road deactivation, or other measures to maintain slope stability.

Sites requiring TSFAs are identified by field personnel in the planning or layout stage and will be undertaken concurrent with block and road layout.

Where a TSFA is completed for an area, operations will be consistent with the assessment's results and recommendations.

SD3.1.2 Road Construction

Road layout, design and survey will be completed to the satisfaction of the FSP Holders prior to construction or modification. Investigative field inspections and reviews by qualified professionals will be done as appropriate. It is the FSP Holders' goal to have mainline and operational road construction take place during favorable weather conditions. All road construction will maintain natural drainage patterns, with the use of appropriate drainage structures in order to minimize siltation and to maintain the natural flow of water. In all areas, fisheries habitat will be protected from adverse effects caused by road construction, modification and maintenance. Where unavoidable, impacts will be minimized. Overland and end-haul techniques will be used where necessary in order to minimize disturbance to subsurface drainage and to avoid loading fill slopes with unfavorable material.

Forest roads will be deactivated when they are no longer in regular use and are not regularly maintained. Generally, drainage structures that present serious maintenance problems on limited access roads will be removed or fail-safed. Features such as water bars, rolling dips and fords will be constructed where necessary to establish natural drainage and disperse water flow. These features will be designed to permit vehicular traffic. Periodic maintenance will be conducted for limited access roads.

Road condition and access requirements will guide the level of deactivation for roads that are permitted by the FSP Holders. Roads may be active or inactive as dictated by operational needs and special resource concerns such as protection of wildlife and trail use objectives. Inactive roads may have limited access or be inaccessible if they are closed to vehicular traffic. On roads that are deactivated, the objective will be to provide adequate drainage and slope stabilization that will protect the road for future management use. Additional deactivation efforts (i.e. culverts and bridge superstructure removal, fill material stabilization or reclamation, reforestation or revegetation) may be required for other forest management reasons.

SD3.1.3 Road Maintenance

For the term of the Plan, all active road systems under permit within the FSP Holders' planning areas will be maintained in accordance with the *FRPA.* Specifically, the structural integrity of the road prism is protected, drainage systems are functional, and the road is safe for industrial users Road inspections and maintenance will be carried out as needed and at least annually on all non-deactivated roads within the FSP Holders' operating area, as per strategy **KK17-02** of this FSP.

The objective for active roads is to maintain the integrity of the road prism and drainage structures. Practices that can help alleviate soil disturbance or transport risk include:

- Disturbed cut and fill slopes of roadways, that are prone to surface soil erosion and that may contribute to siltation of streams, may be grass seeded (ideally, on the first growing season following construction or maintenance to promote revegetation and minimize siltation of surface water).
- Grass seeding and fertilizer applications in areas affecting domestic water supplies should be scheduled and conducted so there is no impact on water users.
- Regular inspections of all drainage structures, bridges, roadways and ditchlines will take place. These inspections will be sufficient to produce a maintenance schedule that will address the problems identified such that road maintenance objectives are met. Formal inspections are to occur at least annually for all inactive roads and quarterly for all active roads, unless a risk assessment determines that another inspection frequency is appropriate. Informal inspections will also be regularly conducted on all active and limited access roads. An annual inspection will occur shortly after snowmelt (May to June) such that any required maintenance may be done prior to the peak rainfall season (October to November). Grass seeding may be done as required concurrently with this inspection. Inspection of drainage structures should record the condition, maintenance requirements, and priority along with any remarks that may serve the road maintenance program. If maintenance is completed at the time of the inspection, it should be noted to allow historical tracking of drainage structure performance. Regular (at least annual) roadway inspections of roadways and ditchlines will record the maintenance requirements and priority along with any remarks that may serve the maintenance program. In particular, the road surface, ditchlines, cut and fill slopes, and hazards along the right-of-way are to be inspected.

In addition to the practices requirements, note that management for soils also occurs through results and strategies that are provided in other sections within this FSP: **KK17-09** places limits on the total clearcut area within a community watershed, thereby managing peak water flows and reducing the potential for erosion of soils in the watershed.

SD3.1.4 MRVA/FREP: Soils

According to FREP Report 41, within the Skeena Natural Resource Region, there is not enough historical information to determine a stewardship trend for soils. Nonetheless, the following practices were listed in the report as opportunities for improving the management of soils:

- Plan operations in and outside roadside work areas to minimize soil disturbance.
- Implement road and structure rehabilitation for permanent deactivation.

This supporting document discusses practices to minimize soil disturbance in the preceding sections. Road inspections carried out as part of **KK17-02** will identify road maintenance requirements, including road and structure rehabilitation where it is deemed necessary by inspection.

SD3.2 Timber

The timber inventory in the FDUs consists primarily of western hemlock (*Tsuga heterophylla*) and amabalis ("balsam") fir (*Abies amabalis*). Western red cedar (*Thuja plicata*), Sitka (hybrid) spruce (*Picea sitchensis var.*), mountain hemlock (*Tsuga mertensiana*) and lodgepole pine (*Pinus contorta*) are also found throughout the FDUs in lesser amounts. There are also small amounts of black cottonwood (*Populus trichocarpa)*, balsam poplar (*Populus balsamifera*), red alder (*Alnus rubra*) and birch (*Betula papyrifera*) that may be of commercial value as well. Harvesting of this inventory will be conducted in a cost-effective manner that maintains the integrity of other associated resource values within the operating area. Harvesting techniques that maximize the economic, environmental and safe utilization of the timber resource will be encouraged.

The timber in the Kalum TSA is challenging from a processing standpoint. Timber quality is relatively poor with high proportions of decay due to the age of most forest stands. Timber management focuses on providing a secure landbase and maintaining the health and productivity of the forest resource so that a sustainable and viable forest industry is supported. Management strategies for logging are designed to avoid inconsistency with other forest resource objectives. These considerations translate into significant challenges with respect to finding areas that are economically operable.

At the landscape level, a multi-pass system will be considered to reduce the rate of logging in developed areas and to establish primary access across the representative profile of the commercial forest landbase. The number of logging passes will be contingent on stand conditions, resource management objectives and silviculture needs. The FSP Holders will strive to log the timber profile within all planning areas, with stand cutting priority influenced by forest health objectives. Market conditions will additionally influence the feasibility and timing of logging stands that have constraints due to access, quality or quantity. Landscape fragmentation consequences are to be evaluated to ensure a balanced achievement of resource objectives. This is addressed through strategy **KK17-11** and result **KK17-12**.

In general, cutblocks are designed so that economic timber is not isolated from subsequent logging opportunities. Clearcut blocks will conform to landforms or timber types and will vary in size and distribution to provide a range of opening sizes across the FDUs. Logging proposals will conform to 'Total Chance Planning' principles in which road locations and logging systems are optimized. The logging method that best meets the constraints imposed by soil and terrain conditions, timber quality, known resource objectives and economic feasibility will be favored.

Silviculture systems employed will be designed to be ecologically suitable in recognition of known resource values, and economic and resource objectives. Non-clearcut systems will be considered for use where stand structure allows and where resource values such as water quality or wildlife habitat would be adversely affected by clearcut logging. The falling selection for these systems may be based on species, tree health, defect, diameter, age, windfirmness or a combination of such factors. Generally, the FSP Holders plan to clearcut the forest types of even-aged, mixed coniferous species within its FDUs. Regeneration will occur at or near the time of logging and will promote an ecologically appropriate mix of species such as; hemlock, cedar, balsam, spruce and pine as per result **KK17-03**. Clearcut systems will incorporate strategies such as single tree and patch retention to address biodiversity and other resource objectives.

Forest health agents of importance within the FSP area include insect pests of mature and immature trees and pathogens affecting roots, stems and foliage of managed tree species. Mammals such as voles, hares and porcupines are also of concern as are abiotic factors such as frost, fire and windstorms. Forest health considerations such as pests and disease agents, or abiotic factors such as windthrow or fire may also influence cutblock design and reforestation prescriptions.

SD3.2.1 Pests and Disease

The FSP Holders are committed to managing the health of forest stands. The primary forest health management objective is to maintain, recover or enhance the short and long term productivity of the timber resource by minimizing losses caused by insect, disease, windthrow and other damaging agents to levels that are socially acceptable and economical. As early

detection is one of the keys to preventing major outbreaks, stands are assessed on a regular basis through periodic surveys. If an epidemic outbreak of insects or disease is detected, the FSP Holders, in consultation with other agencies, will determine the appropriate course of action. Strategic planning for forest health is guided by a Forest Health Strategy which is regularly prepared for the Coast Mountains Natural Resource District.

The FSP Holders are committed to a program of pest management which will minimize losses due to insects and diseases. Detection, prevention, control and monitoring of insect and disease infestations will be a co-operative effort between the FSP Holders and the Ministry of Forests, Lands and Natural Resource Operations (MFLNRO) and is in the preparation of all operational plans.

Site-level planning will endeavor to anticipate all insect and disease infestations, both current and potential, beyond the free growing time frame with all agents identified and appropriate prescriptions stated clearly. Pest incidence will be assessed during silviculture surveys and periodic site visits. If a specific pest concern is noted on a cutblock during a survey, a subsequent pest assessment will normally be scheduled.

Spruce leader weevil (*Pissodes strobi)* is one of the more common pests in plantations, particularly in the southern part of the district. The approach taken within this FSP to minimize spruce leader weevil, is to limit the amount of spruce being planted in areas susceptible to weevil attack (generally based on BEC Zone and elevation), and to source spruce seeds that are weevil resistant. This minimizes the risk of a plantation not successfully regenerating if the weevil damages the spruce. This limitation on spruce planting is reflected in the stocking standards included in the FSP (Section 3.2).

Hemlock dwarf mistletoe (*Arceuthobium tsugense*) is present throughout the district. Dwarf mistletoe spread rate is fastest in multi-storied stand conditions where mistletoe seeds from infected overstory trees drop onto susceptible understory trees. Two or three meter knockdown during logging is one method intended to slow down the rate of spread of dwarf mistletoe. In areas proposed for partial cutting or commercial thinning, trees infected with mistletoe should be targeted for removal. An alternative treatment is to promote non-susceptible species such as cedar on sites anticipated to have high risk to mistletoe infection.

Since timber adjacent to cutblocks will have some level of infection, it will be difficult to eliminate mistletoe infection from managed stands. Highly productive sites have been shown to outgrow branch-infested mistletoe, making management of mistletoe less important in these areas.

Voles (*Microtus spp*.) can cause considerable damage to young plantations. Voles may eat new shoots or more commonly girdle young seedlings. Options for reducing the damage from this pest are limited. Newly planted seedling can be sprayed with a repellent. When planting in areas where voles are known to be a concern, protective collars can be placed around the seedlings. This is a high maintenance solution and has only proven effective in some cases. Other potential strategies include: retaining perch trees or installing artificial perching structures can encourage vole predation by raptors; or reducing cover for voles by brushing newly planted areas, as brushing makes the voles visible to predators. Overall, however, the primary strategy is to align planting activities with the boom and bust population cycle that voles typically follow. For example, fill planting may be prescribed for areas once vole populations are at the low end of their cycle or planting can be delayed in the spring until after leaf out so voles have alternative food.

Porcupine (*Erethizon dorsatum*) feeding on conifers is not a significant problem at the forest level but can be significant at the stand level. Some methods to minimize porcupine damage are to plant a variety of tree species on a block and favour tree species less susceptible to damage during juvenile spacing activities. Less susceptible species may include western red cedar and amabalis fir.

Northern pitch moth (*Petrova albicapitana*), **Comandra blister rust** (*Cronartium comandrae*), and **Stalactiform blister rust** (*Cronartium coleosporiodes*) have been attacking second growth pine stands in the Nass TSA. Since the FSP area adjoins the Nass TSA and there are a number

of pine leading second growth stands close to becoming free growing and reaching green-up, these pests are of concern. The pitch moth typically weakens the leader/main stem making it susceptible to wind and snow breakage. *Cronartium* rusts typically weaken and deform stems and have a higher probability of causing mortality. Seedling to juvenile trees and overmature trees suffer the most damage from the cankers. The 2007 Forest Health Strategy ranked Comandra as a moderate risk. The risk is mitigated through the limitations on lodgepole pine in the stocking standards included in the FSP (Section 3.2).

Dothistroma needle blight (*Mycosphaerella pini*) is a concern; many young pine plantations have been attacked. There has been an aggressive effort to inventory the attacked areas and set priority for treatment, which consists mostly of underplanting non-susceptible species. It is believed that Dothistroma is usually endemic in the forest, but a series of warm, wet summers, combined with the prevalence of stands at a susceptible age has allowed it to grow significantly. The MFLNRO has a program in place to address the hardest-hit stands and for continued monitoring. While Dothistroma is widespread in the FDU, there does not seem to be significant mortality. Damage is light to moderate on the majority of the FDU with the exception of flat areas near major river systems (personal observation, Rico Jorimann). The risk associated with Dothistroma is mitigated through the limitations on lodgepole pine in the stocking standards included in the FSP (Section 3.2).

Mountain pine beetle (*Dendroctonus ponderosae*) have been attacking and killing pine stands within the interior of British Columbia. Several years ago, active infestations were reported in Rosswood, Nisga'a Lands, Lower Nass, and the Copper River valley; these areas have been subject to a fall and burn program. Current infestations are minor but mountain pine beetle remains endemic throughout the district and it is possible an outbreak could occur in the FDUs. If epidemic populations do develop within the FSP area, a strategy involving additional salvage logging and/or fall and burn may be necessary.

Tomentosus root rot (*Inonotus tomentosus*) and **Annosus** root disease (*Heterobasidion annosum*) are root diseases that naturally persist in forests throughout the Coast Mountains Natural Resource District. Management strategies include clearing the infested areas as part of normal logging and reforesting the infection centers with less susceptible species. For Tomentosus root rot centers, Sitka spruce and lodgepole pine are the most susceptible species; western red cedar, western hemlock and amabalis fir suffer less damage and are the preferred species to manage.

For Annosus root disease centers in the FDU, lodgepole pine, cedar and deciduous species are the preferred species to manage, with hemlock and spruce being more susceptible and amabalis being the most susceptible. Stocking standards have been developed and included within the FSP (Section 3.2) for sites within the Coastal Western Hemlock ws1 BEC unit that have a high incidence of Annosus root disease.

Other potentially viable treatments for root rot infections include stumping and knock over logging, but these practices are expensive and would generally make harvesting the area uneconomical. As well, stumping and knock over logging may result in significant site degradation on areas with steep slopes or fine textured soils. The preferred management of root rot diseases is to promote less susceptible species.

Spruce beetle (*Dendroctonus rufipennis)* bores into the cambium of downed and standing spruce to lay its eggs. This beetle prefers downed material including recent windthrow, logs, stumps and debris from logging, but will also attack living trees when populations are high. Stands that have the highest hazard for spruce beetle include those with more than 300 cubic metres of spruce per hectare, spruce with dbh of 41 cm or greater, and creek bottoms that contain more than 65 percent spruce. In the Skeena Region, higher than normal populations of spruce beetle have been detected but an outbreak has not yet occurred. The District Manager of the Coast Mountains Natural Resource District issued an expectations letter in July 2016 in conjunction with Beneficial Management Practices for the Skeena Region that provides guidance should an outbreak occur. Various suppression options are listed in the Beneficial Management Practices including trap trees, sanitation harvesting, reducing windthrow and others. The FSP Holders will

document and report spruce beetle infestations.

SD3.2.2 Windthrow

Windthrow is of general concern throughout the Coast Mountain Natural Resource District. Strong inflow and outflow winds as well as localized gusting winds can produce significant amounts of windthrown timber. Of particular concern is the stability of residual timber in partial cut stands, interior reserves in clear-cut areas and riparian reserve areas. The FSP Holders' manage windthrow by minimizing the occurrence and salvaging accessible windthrow.

1. **Minimizing the amount of windthrow** is achieved by taking into consideration the direction of prevailing winds and windthrow risk when prescribing silviculture systems and designing cut block boundaries. Site specific measures will be determined during block layout and prescribed in silviculture prescriptions.
2. **Salvaging wind thrown timber** where it occurs will be undertaken where economical. Areas of wind thrown timber larger than one (1) hectare in size are usually laid out and logged quickly. Where large blowdown events occur, adjacent susceptible timber may be proposed for logging concurrent with salvage of the windthrown timber.

   Removal of windthrown trees within RMAs will be considered where the integrity of stream banks can be protected. Where there are standing, undamaged trees within RMAs, retention of these trees will provide a natural wind firm feathered boundary and valuable riparian habitat. Windthrown trees that have entered a stream channel will only be removed if they are determined to be negatively impacting the stream habitat and/or channel stability, or they can be removed without negatively impacting stream channel stability and water quality.

SD3.2.3 Fire Protection

The FSP Holders are committed to ensuring fuels created by logging operations do not pose an unacceptable risk to identified forest resources. All logging activities will ensure that excess slash can be disposed of in a safe, orderly manner limiting both fire and insect hazards. Upon completion of logging, completed blocks and roadways will be assessed to determine the requirement for reforestation and hazard abatement treatments. Consideration is also given to large woody debris retention for the maintenance of biodiversity and soil nutrients. Appropriate treatments will be carried out to satisfy protection, silvicultural and ecological management objectives.

Forests in the FSP area generally consist of decadent hemlock/balsam stands with some areas containing minor components of spruce, cedar or pine. Logging slash can create a high fire hazard unless managed appropriately.

To minimize fire hazard, the following fuel management strategies may be used:

1. Salvage wind thrown timber wherever economical and environmentally practicable.

2. Pile roadside slash and landing accumulations concurrently with logging operations. Where possible, slash piles will be burned or disposed of in the first or second fall after harvest when there is a reduced fire hazard and venting conditions are appropriate. In areas where smoke is a concern, the FSP Holders will coordinate any hazard abatement with the appropriate organizations and/or individuals. The size and number of debris piles being burned at one time may be reduced in areas where smoke management is a concern.

3. To reduce wildfire risk close to existing development, the FSP Holders have adopted a Fire Management Stocking Standard (FMSS) (strategy **KK17-04** and **Appendix A** of the FSP). When at least 50 percent of a Standards Unit is located within 500 metres of a structure or infrastructure (electrical substation, pump station etc.) the forested area within the vicinity of the structure or infrastructure will be assessed for wildfire threat to determine whether Fire

Management Stocking Standards are appropriate on the Standards Unit. "Structures or infrastructure" are those that are known, legally established, in usable condition, vulnerable to fire and known to have been used within the year previous to site plan field data gathering. Where there are three or more known instances of structures or infrastructure within 500 metres of a planned harvest area, then a Wildfire Threat Assessment (WTA) will be conducted. If there are one or two such structures, a WTA may be conducted at the discretion of the prescribing forester. A WTA means that a Wildland Urban Interface Wildfire Threat Assessment Worksheet (January 24, 2013) will be completed, a copy of which is provided in Appendix sdD. If the WTA determines that the Wildland Urban Interface Threat Class is high or extreme, Fire Management Stocking Standards (FMSS) will be used. Fire Management Stocking Standards attempt to balance timber values with reduced wildfire behavior. Deciduous stocking is strongly linked with reduced fire behavior and FMSS consider ecologically appropriate deciduous species to be preferred, and apply minimum requirements for deciduous stocking.[6]

The FSP Holders will also submit a contact list annually to the MFLNRO's Northwest Fire Centre.

Prescribed (broadcast) burning is an option primarily used for different purposes such as reducing the duff layer, creating plantable spots or reducing fuel loads or creating conditions for growth of early seral stage species (e.g. berries for First Nations cultural use). At this time, the FSP Holders do not plan to use prescribed burning on any areas. If fuel loading becomes a concern or site preparation for reforestation is required, broadcast burning may be an option.

SD3.2.4 Harvest of Second Growth Forest

In 2011, the members of the Kalum TSA Steering Committee (Ministry of Forests, Lands, and Natural Resource Operations; BC Timber Sales; and licencees) prepared the document *Guiding Principles and Considerations when Planning the Harvest of Second Growth in the Kalum Resource District* (now part of the CMNRD). The guiding principles were developed because second growth forests in the Kitsumkalum Valley, Kitimat Valley and other areas were not yet mature, but were reaching a harvestable size. The FSP Holders were involved in the development of the Guiding Principles.

Kitselas Forestry has had limited operations in second growth forests that were previously commercially harvested; therefore, they have not had a significant opportunity to employ the guiding principles.

Large portions of the Kitsumkalum Valley were commercially harvested starting in the 1950s. The Kitsumkalum Valley encompasses a large portion of KVL's FDU. In response, KVL has developed the following silvicultural, operational and wildlife measures for re-establishing structural diversity (i.e., multi-storied, multi-age stands) in second growth forests harvested under their licences. The approach has been developed in partnership with a regional subject matter expert[7].

- A group selection silviculture system (locally referred to as 'pod' logging) is used. This system involves harvesting patches or 'pods' from 0.1 to 0.6 hectares within a block, with a targeted retention of 60 to 70 percent of the block. The aim is to allow light into the stands to encourage continued growth of the adjacent forest (crop trees and understory vegetation); establish a multi-storied stand; and allow subsequent entries into the block.
- Trails are developed during the first entry that can be used on subsequent entries. Operationally, the valley-bottom lands allow for ground based operations that make the group selection system economically viable.
- Site plans may call for the creation of snags or dens constructed of non-merchantable woody

[6] Fire Management Stocking Standards Guidance Document 2016

[7] Dr. David Coates, RPF, Research Silviculturist, MFLNRO

debris to support wildlife and wildlife habitat. The multi-age and multi-storied forests, should also support wildlife by increasing the structural diversity and habitat in the stands.

Note that management for timber also occurs through strategies and results not otherwise mentioned in this section:

- **KK17-14** provides a mechanism for disturbing an Old Growth Management Area to allow operational flexibility.
- **KK17-16** provides a mechanism for disturbing a wildlife tree retention area to allow operational flexibility.

SD3.3 Wildlife

Under the *FRPA*, identified wildlife species that require management will be managed through an FSP, a Wildlife Habitat Area (WHA), or a General Wildlife Measure (GWM).

On May 3, 2004, under section 11 (now section 13) of the *Government Actions Regulation* (GAR*)*, the Minister of WLAP identified species of wildlife that require management. Further amendments to this list were made on May 30, 2005 and June 5, 2006 and a nomenclature update was made on July 18, 2011.

WHAs for coastal tailed frog and GWMs for mountain goat and moose Ungulate Winter Range have been established within the FDUs.

When a Notice of Habitat Attributes, Amount and Distribution is given under FPPR s. 7 for a species, the FSP must describe strategies or results that are consistent with that Notice. If there is no Notice, strategies or results are not required.

Results or strategies in the FSP that are prepared to be consistent with the wildlife objective are centered on habitat maintenance strategies intended to sustain viable populations of native wildlife species within their natural ranges. Rare, endangered or regionally significant species are to be protected or enhanced. The successful achievement of the wildlife objective is also linked to the implementation of biodiversity and riparian management strategies. For example, the establishment of RMAs, sensitive areas, old growth preserves and conservation areas and group and single tree retention will provide critical components of wildlife habitat such as wildlife trees, vertical structure, snags, coarse woody debris sources, a variety of forest edge types and migration and dispersal corridors.

SD3.3.1 Species at Risk

Of the species at risk identified under GAR s. 13, bull trout, coastal tailed frog, fisher, Great Blue Heron, grizzly bear, Marbled Murrelet, and wolverine are identified as occurring within the CMNRD. Caribou (northern mountain population) may also occur within the eastern reaches of the CMNRD, but according to information provided within the MOE website for Identified Wildlife, the potential range does not overlap with the FDUs.

As of May 2017, notices under FPPR s. 7(2)(b) providing descriptions of the habitat area, distribution, and attributes for the identified species at risk in the CMNRD have been issued by the MWLAP (now MOE) for:

- coastal tailed frog
- grizzly bear
- Marbled Murrelet

Notices for bull trout, fisher, Great Blue Heron or wolverine have not been issued, so strategies or results for these wildlife species are not required in the FSP. Between the strategies and results that address the coastal tailed frog, grizzly bear, and Marbled Murrelet, as well as those for ungulate winter range, plus the other strategies within this FSP that address water and biodiversity issues, management is occurring that benefits all the identified species.

The following table provides additional information on the species within the CMNRD and a complete listing of the species at risk identified under GAR s. 13 for BC is provided in **Appendix sdB (Table sdB-1)**.

Category / Species	Date designated	Notice of Habitat Attributes, Amount & Distribution in place?
Amphibians		
Coastal tailed frog	May 2004	Yes
Birds		
Great Blue Heron, (*herodias* subspecies)	June 2006	No
Marbled Murrelet	May 2004	Yes
Fish		
Bull trout	June 2006	No
Invertebrates		
None	n/a	n/a
Mammals		
Caribou (northern mountain population)	May 2004	No
Fisher	June 2006	No
Grizzly bear	May 2004	Yes
Wolverine *(luscus* subspecies)	May 2004	No
Plants		
None	n/a	n/a
Plant Communities		
None	n/a	n/a
Reptiles		
None	n/a	n/a

In addition to the wildlife species identified through FRPA, there are also “red” or “blue” listed species identified through the Conservation Data Center (CDC) and these are also often referred to as “species at risk”. As of August 2017, the CDC lists two animal and nine plant species as red-listed (extirpated, endangered, or threatened), and 24 animal and 18 plant species as blue-listed (of special concern) within the CMNRD. In addition, there are 68 plant communities (ecosystem associations) that are either red-listed (21) or blue-listed (47). These species and communities are provided in **Appendix SDB**. Specific information regarding the distribution of these CDC species and associations within the FDUs was not available. The FSP Holders are aware of these species and associations and will make note of any occurrences. However, from the perspective of FRPA, these CDC species are not addressed in the FSP unless they are also identified under the GAR.

SD3.3.1.1 Bull Trout

Bull trout are cold water specialists, well-distributed across BC, particularly in interior watersheds. Bull trout have historically been confused with Dolly Varden and continue to be difficult to differentiate. There are three distinct life strategies with bull trout: full time stream residents; adfluvial (spawn in tributary streams and reside in lakes) and fluvial (spawn in tributaries, live in mainstream rivers). The five habitat features that primarily influence bull trout distribution and abundance are: channel and hydraulic stability; substrate; cover; temperature and the presence of migration corridors. Influences on habitat are likely to come from elimination of or restriction to habitat; sediment input; or habitat loss[8].

[8] Accounts and Measures for Managing Identified Wildlife – Bull Trout.

Although specific habitat amount, attributes or distribution information for bull trout has not been established for the CMNRD, results and strategies in this FSP that are consistent with objectives set by government for biodiversity and riparian areas also serve to protect channel stability, substrate, cover, temperature and connectivity, which will benefit bull trout and other fish species. All streams that are designated as fish bearing are afforded appropriate protection through the default practice requirements under *FRPA*.

SD3.3.1.2 Coastal Tailed Frog

The coastal tailed frog is the only known stream breeding frog in Canada and is currently blue-listed and considered at risk. It has two discrete distributions in BC, occurring predominantly along the Coast Range, with a small population in the Southern Interior Mountains of the Kootenays. For coastal BC, the tailed frog distribution coincides with the CWH BEC Zone. The known northern limits of distribution are found in the CMNRD and are encompassed within the FDUs.

The coastal tailed frog primarily inhabits headwater gullies of cool and permanent mountain streams. Creek size and fine sediment levels appear highly influential to tailed frog populations. The creek substrates and gully sidewalls must be relatively stable as events such as debris flows and sediment laden floods impart a high mortality on larval populations. A stable creek has a low percentage of fine sediments with boulders and cobbles comprising the channel bed. This substrate provides tadpoles forage sites and cover from predators and bedload transport events. Adults will feed on terrestrial invertebrates at night, retreating under cover in or next to streams during the day. Bedrock types also likely play a significant role in tailed frog distribution with populations most prevalent in competent, coarse-grained intrusive rocks and scarce or absent in friable, fined-grained sedimentary rocks. Tadpole numbers also appear correlated to creek size, occurring in creeks ranging from one to 12 meters in width. Wider creeks have a greater carrying capacity and may flush out any sediment inputs more effectively.

The tailed frog is likely to occur in all of the FSP Holders' planning areas, specifically where coarse-grained bedrock geology is present. Management of suitable habitat will revolve around the maintenance of natural stream channel sediment levels and transport regimes and the conservation of forested buffers along the stream. Strategies such as riparian reserves, fall away and yard away techniques, machine free zones in RMAs and ditchline sediment traps on roadways will be employed.

Since the coastal tailed frog is dependent on small forest streams, the default riparian management area (RMA) widths (FPPR s.47 to 49) will capture a significant portion of the small forest stream habitat for coastal tailed frog (usually stream class 3, 4, 5, or 6). In addition, the Kalum LRMP and then the Kalum SRMP have identified special areas for the frog; culminating with the designation of ten Wildlife Habitat Areas (WHA) within the CMNRD. The FSP overlaps with the following nine coastal tailed frog WHA:

- 6-058 (Ascaphus)
- 6-059 (Trapline)
- 6-060 (Hardscrabble)
- 6-061 (Shannon)
- 6-062
- 6-063 (Copper)
- 6-064 (Kleanza)
- 6-065 (Shames) - very small overlap with KVL FDU
- 6-066 (Gosling)

The FSP does not provide results or strategies for tailed frog as this WHA designation has been determined to meet the required amount of tailed frog habitat in the Kalum TSA. The goals of these WHAs are to ensure that there are legacy areas where stream stability, maintenance of water temperature, riparian habitat and microclimate, and coarse woody debris for adult frog dispersion are the focus[9]. General Wildlife Measures are provided in the Orders establishing coastal tailed frog WHAs.

[9] Hetherington, A. Personal communication. Jan 14, 2005

Over the remainder of the FDUs, it is worthwhile to note that the practice requirements for riparian areas (as described in FPPR s. 47 – 52), plus the retention of trees as described in result **KK17-08**, will also provide for the needs of the coastal tailed frog.

SD3.3.1.3 Fisher

Fishers are large fur-bearing mammals of the weasel family with a wide distribution across the interior of BC. The CMNRD is on the fringe of fisher distribution. Fishers are solitary and do not interact with other fishers except at mating or as mothers raising their young. Fishers are omnivores but are preferentially carnivorous. Their preferred prey is porcupine and hare, but fishers will change their diet as necessary depending on prey availability. Most foraging occurs within mature or old-growth forests, though fishers may also make use of other forest types, depending on availability of prey. The key habitat features for fisher are availability of coarse woody debris, large wildlife trees, and canopy coverage in winter[10].

For fishers, the predominant impacts of clearcut logging are the reduction of canopy coverage and forest interior conditions leading to reduced connectivity of suitable habitat. The maintenance of connective corridors, specifically along riparian areas, within wetland forest types and to upland habitats is extremely important for maintaining habitat opportunities. The default riparian practices in the FPPR provide for the maintenance of RMAs along streams, lakes and wetlands. Critical habitat for fisher is generally riparian associated, with suitable resting and maternal denning sites possibly being limiting factors. Large CWD is important for both winter rest sites and as habitat for prey species. Maternal den sites are predominantly located in large, declining cottonwood. Fishers (as well as marten and other furbearers) may avoid large openings (25 ha +) because of the lack of cover and susceptibility to being preyed upon by predators, therefore the maintenance of corridors or screening patches will reduce sighting distances and link unharvested forest stands. The patch size distribution targets identified through strategy **KK17-11** will also ensure that there are smaller openings. WTRAs (result **KK17-15**) typically include large veterans and deciduous species that provide important opportunities for denning and cover habitat and they provide sources of CWD for resting and foraging sites.

Fishers can also act as a representative furbearing species so managing for fisher habitat will also provide some habitat value for other furbearers. This is a particularly important consideration for areas where trapping of wildlife is an economic or cultural consideration.

As an example of management activities, Kalum Ventures has over the past several years been creating potential den sites that could be used by fisher, marten, or other furbearers from coarse woody debris within second growth harvest areas, and have been monitoring their usage over the past two seasons. Initial information from this monitoring is that we are creating more piles than necessary, and they are bigger than they need to be. We want to continue to monitor this, and think that two more seasons will allow us to have adequate evidence to determine if a result or strategy is necessary and if so how it would be worded.

We have also reviewed information on management practices related to fur-bearers[11][12], and see that while there is limited information for our operating areas, our activities are consistent with the information from other areas. In particular, we note that the concern around fur-bearer habitat is most related to advanced second-growth areas. In areas where primary forestry is still being undertaken in old-growth, there is significant habitat for marten and other fur-bearers in riparian areas, residual coarse woody debris, and nearby forests. As a result, and since we are actively managing and monitoring for fur-bearers on second-growth at this time, we believe it would be premature to include a result or strategy in the FSP until there is clear evidence for doing so.

[10] Accounts and Measures for Managing Identified Wildlife - Fisher

[11] Seip et al. *Use of constructed coarse woody debris corridors in a clearcut by American martens (Martes americana) and their prey*. In *Forestry*, 2018; **00**, 1-8.

[12] Anon. *A Compendium of Wildlife Guidelines for Industrial Development Projects in the North Area, British Columbia (Interim Guidance)*. Ministry of Forests, Lands and Natural Resource Operations, 2014.

SD3.3.1.4 Great Blue Heron

The great blue heron is dependent on lakes and ponds and is generally a lowland species. Following the default RMA widths (FPPR s. 47 to 49), as referenced in section 2 of the FSP, especially with respect to protection around lakes, will capture a significant portion of this habitat.

Breeding habitat is often lowland sites with deciduous forest, preferably red alder.[13] These sites often overlap with moose Ungulate Winter Range areas, so it is expected that the GWM in the UWR Order for moose will also benefit the Great Blue Heron.

SD3.3.1.5 Grizzly Bear

The grizzly bear is a species for which conservation is of international importance. Its range has been greatly reduced in North America in areas to the south and east of BC. Grizzly bears depend on diverse habitats and do not tolerate human encounters well.

Valley-bottom salmon streams and productive riparian forests provide important forage species such as devils club, red elderberry, currants, and skunk cabbage. Avalanche tracks, subalpine, and alpine meadows are likewise important upland habitats. Suitable grizzly bear habitat may be found throughout the FDUs.

Conservation strategies for integrated grizzly bear and timber management strive to provide connectivity of habitats and conditions conducive to the survival, growth and productivity of grizzly bear forage species throughout the harvest rotation. Rich and productive valley-bottom sites may be managed to contain clusters of mature conifers with frequent groupings of deciduous trees and brushy areas, in conjunction with the preservation of riparian reserves and wet ecosystems. Silvicultural strategies such as; variable spacing and grouping of trees during reforestation and selective vegetation management and spacing techniques may be used. This is described in result **KK17-05**. Stand retention during logging may also be used on these valley-bottom sites, as well as on the forested buffers of avalanche tracks and subalpine meadows.

The Kalum LRMP includes objectives and strategies for managing grizzly bear habitat within identified Grizzly Bear Watershed Units. The FDUs overlap the following Grizzly Bear Watershed Units:

Grizzly Bear Watershed Units within the FDUs

FDU	Grizzly Bear Watershed Units
KVL	15 Skeena River West 27 Little Oliver – Skeena River East 28 Fiddler 29 Maroon – Wesach 30 Shames – Zymacord 31 Erlandsen 34 Exstew 35 Star – Alice – Deep 36 Nelson 37 Mayo 38 Beaver 39 Cedar 41 Ishkheenickh 42 Upper Tseax
Kitselas	13 McKay - Davies 14 Lakelse-Cecil 15 Skeena River West 16 Dasque-Whitebottom

[13] IWMS (2004). Accounts and Measures for Identified Wildlife – Great Blue Heron

FDU	Grizzly Bear Watershed Units
	21 Little Wedeene 22 Wedeene 23 Williams 24 Eight Mile - Mattson 25 Copper 26 Kleanza 27 Little Oliver – Skeena River East 28 Fiddler 29 Maroon – Wesach 35 Star – Alice – Deep
KK	27 Little Oliver – Skeena River East

Within this FSP, management of grizzly bear habitat will be focused on the grizzly bear identified watersheds and proposed grizzly bear Wildlife Habitat Areas. Within identified watersheds, management will occur by maintaining forage within critical habitats. This means cluster planting and/or reduced stocking in several rich and wet ecosystems; the stocking levels for managing grizzly bear habitat as identified in the SRMP are used in the stocking standards in the FSP (see result **KK17-05** and Appendix A in the FSP). When ecosystem classification identifies a complex (mappable or not) that contains a significant amount of an identified richer or wet ecosystem, the intent is that this area will be included in a standards unit that manages for grizzly bear habitat.

Within proposed grizzly bear WHA, management for grizzly bear will occur by limiting timber harvesting within these areas as per strategy **KK17-06.** The proposed WHA identify critical habitat[14] for grizzly bears, including core areas (foraging areas) and security areas (adjacent forest cover). The identification of WHA is a fine filter management tool for grizzly bears, and is meant to work with landscape and operational level planning to achieve conservation objectives for grizzly bear.

In addition, grizzly bear forage and habitat will also be maintained through result **KK17-07** and strategy **KK17-11** and result **KK17-12**, which ensure a distribution of patch sizes and seral stages on the landscape. The existing no-harvest zones (parks, protected areas, conservancies, ecological reserves, old-growth management areas) provide long-term habitat areas for grizzly bear. In addition, the wildlife corridors identified for the Williams-Clore pass (result **KK17-18**), and the restrictions on the Kiteen-Cedar pass and Lakelse River area as described in result **KK17-17** and **KK17-20** respectively provide protection for grizzly bear movement and potential habitat (as well as for other species). An important clarification regarding the allowable partial cutting systems as referred to in **KK17-17** is that they need to maintain the intent of the corridor, which is to provide for wildlife movement. As an example, a 15 hectare block with one seed tree per hectare will not likely be consistent with the intent of the corridor.

Other possible measures that would favour maintenance of grizzly bear forage or critical habitat types include:

- returning areas to a young seral state by harvesting at age class 4;
- opening the forest floor to more light and extending the window for forage production, through pre-commercial and commercial thinning, selection or variable retention harvesting, or pruning;
- acceptance of small not sufficiently restocked (NSR) patches if they contribute to maintenance of forage; and
- using prescribed fire to open the forest floor to more light and to create a nitrogen flush for forage production.

SD3.3.1.6 Marbled Murrelet

[14] Kalum LRMP defined critical habitat as high value forage areas.

The Marbled Murrelet is dependent on large trees within old forests for its nest sites. In addition to the old forest that exists outside of the timber harvesting landbase, the strategy **KK17-11**, which maintains the old growth proportion by landscape unit, will ensure that this old forest structure is maintained. In addition, this strategy will ensure a distribution of patch sizes is found on the landscape; this should reduce the amount of forest fragmentation, which is likely better for the Murrelet.[15] In addition, the existence of OGMAs should ensure that there are areas reserved with potential nesting sites (OGMA retention is addressed through **KK17-13** and **KK17-14** in the FSP).

The farthest distance that the Marbled Murrelet might be encountered from tide water is 80 km. The establishment of the Foch-Gilttoyees Park and its connectivity to the Gitnadoiks Park result in a significant amount of old growth set aside from sea level to alpine that is well within the range of the Marbled Murrelet. Other areas that have been set aside, such as the Nalbeelah Wetlands Provincial Park, Exchamsiks Protected Area, Eagle Bay Provincial Park and Lakelse Wetlands Provincial Park also contribute.

SD3.3.1.7 Wolverine

The wolverine is not dependent on any particular habitat type, with the possible exception of denning requirements. This carnivore is primarily a carrion feeder that often depends on ungulates as a food source.[16] As a result, wolverines' range will often overlap with moose or mountain goat winter range, so it is expected that the management strategies for moose and goat winter range will also benefit wolverines.

SD3.3.2 Regionally important species

Under section 13(2) of the GAR, the Ministry of Environment can identify regionally important species.

As of May 2017, there have been no regionally important species identified for the CMNRD. However, there have been some indications that the Northern Goshawk, *atricapillus* subspecies (Blue listed in BC as of May 2017) may be identified at some point in the next several years, due to a significant decline in the use of known nest sites. The cause of this decline is not yet known but may be a combination of disturbance to habitat through harvesting and a possibly increase in mortality of nestlings from black fly attacks. [17]

Measures to address Northern Goshawk may include[18]:

- maintaining a spatial and temporal distribution of closed canopy forests (i.e., it is recommended that more than 30% of the foraging area surrounding breeding areas is maintained in suitable mature-old forest of 80+ years);
- designation of nesting or fledging areas with constraints on amount or timing of industrial activities;
- establishment of breeding habitat areas of closed canopy, mature-old forest (120+ years) greater than 100 hectares; or
- establishment of larger (e.g., 200-300 hectare) mid-slope forest anchor areas to recruit breeding pairs of the birds.

MFLNRO has recommended interim measures to licensees including[19]:

- that field crew are able to identify nests;
- available information on existing nest sites is reviewed prior to conducting site planning;
- report new breeding areas to MFLNRO representatives; and

[15] Accounts and Measures for Identified Wildlife – Marbled Murrelet, 2004
[16] Accounts and Measures for Identified Wildlife – Wolverine, 2004
[17] Wildlife Dynamics Consulting. 2015
[18] Stuart-Smith et al. 2012.
[19] MFLNRO. Goshawk Expectations Letter, May 29, 2016.

- take steps to avoid, minimise or otherwise mitigation adverse impacts to breeding areas.

No specific strategies or results are included in the FSP until such time as a legal designation occurs.

SD3.3.3 Specified ungulate species and associated Ungulate Winter Range

Under section 13(3) of the GAR, the following are identified as ungulate species for which an ungulate winter range may be required:

- mule and black-tailed deer
- white-tailed deer
- elk
- mountain goat
- caribou
- bighorn sheep
- thinhorn sheep
- moose

Of the above ungulate species, deer, mountain goat and moose are found within the FDUs. Only mountain goat and moose are identified as requiring ungulate winter range management in the Kalum TSA.

Notices providing descriptions of the habitat area, distribution and attributes for ungulate species in the Kalum TSA were made available in December 2004 for Mountain Goat and Moose. UWR and GWMs have been established by order for mountain goat and moose in the FDU. As a result, there is no longer a requirement to provide results or strategies for mountain goat or moose in this FSP.

SD3.3.3.1 Mountain Goat Ungulate Winter Range

Important mountain goat habitat is known to occur throughout the Kalum TSA. Due to snow shedding properties, steep bedrock slopes with sharp ledges and overhangs, particularly southern exposures, are favored habitats to evade predators. Vertical ravines and canyons may serve as traditional seasonal movement areas.

As summer progresses, goats will move upslope to alpine meadow habitats to feed on shrubs, grasses, sedges and forbs. Goat populations tend to condense as winter approaches, retreating to lower elevations below timber line to escape heavy snows and cold temperatures. Winter foraging will occur in very close proximity to steep escape terrain, including areas of old growth forests where browse species such as coniferous trees, lichens, forbs and mosses may be available. The rut may occur from late October to early December, with spring birthing and nursing in May or June typically being associated with extreme terrain. The over wintering and early spring birthing habitats are the most critical to goat populations and may be a concern for forest management and development activities.

In November 2005, Order U-6-001 established mountain goat Ungulate Winter Range. The UWR polygons established in the Order protect these areas of critical goat habitat and include General Wildlife Measures to reduce disturbance to goat populations by managing access to and in areas adjacent to UWR polygons, and to protect and conserve mature forest cover adjacent to identified escape terrain and seasonal movement areas.

The UWR Order replaces the “Section 7 Notice” for mountain goat, relieving the FSP Holders of the need to prepare strategies or results. The FSP maps show the goat UWR. The General Wildlife Measures meet the objective for mountain goats. The order supersedes the requirements of the FSP.

SD3.3.3.2 Moose Ungulate Winter Range

In April 2015, Order U-6-009 established moose Ungulate Winter Ranges. UWR polygons and General Wildlife Measures established in the Order are intended to reduce disturbance to moose populations by managing access to and in areas adjacent to UWR polygons, and to protect or conserve moose habitat requirements including forage and forest cover for snow interception, security cover, and thermal cover.

The UWR Order replaces the "Section 7 Notice" for moose, relieving the FSP Holders of the need to prepare strategies or results. The FSP maps show the moose UWR, and the order provides General Wildlife Measures which meet the objective for moose. The order supersedes the requirements of the FSP.

Maintenance of forage and browse species within moose UWR can also be achieved through the application of reduced stocking and/or cluster planting on the moist rich sites that occur within the UWR areas. Result **KK17-05** describes stocking that is applicable to moose as well as grizzly bear. This is consistent with the GWM in Order U-6-009.

Given the considerable overlap of large portions of moose UWR with the Skeena Islands Area, **KK17-19** (which provides direction for this area, as per Kalum SRMP Objective 10) provides benefits for moose as well as for rare plant communities. The wildlife corridors identified for the Williams-Clore pass (result **KK17-18**) and the restrictions on the Kiteen-Cedar pass as described in result **KK17-17** will provide protection for moose movement (as well as for other species).

SD3.3.4 Wildlife Habitat Areas

In accordance with Section 10 of the GAR, the MOE can specify WHAs and objectives for WHAs.

There are ten WHAs established in the Kalum portion of the CMNRD for the coastal tailed frog. Nine of these fall within the FDUs, and are shown on the FSP maps. These areas are discussed in greater detail in Section SD 3.3.1.2.

Proposed WHAs for grizzly bear have been identified and overlap with the FDUs. These areas are discussed in greater detail in Section SD 3.3.1.5.

SD3.3.5 Wildlife Habitat Features

In accordance with GAR section 11, the MOE can specify wildlife habitat features. As of May 2017, there are no wildlife habitat features set for the area covered by the FSP.

SD3.3.6 General Wildlife Measures

In accordance with GAR section 9, the MOE can specify GWMs.

In June 2004, an updated version of the IWMS was released, providing accounting of and including measures for, the management of species at risk identified in the May 6, 2004 notice.

These accounts and measures are not established under GAR s. 9 but are excellent background information, and have influenced the results and strategies for wildlife in this FSP.

GWMs for mountain goat UWR were established in November 2005 through Order U-6-001.

GWMs for coastal tailed frog WHA were established in April 2006 through Orders 6-058 to 6-067.

General Wildlife Measures for moose UWR were established in April 22, 2015 through Order U-6-009.

SD3.4 Water

The focus of water resource management is on the maintenance of water quality and quantity for domestic, recreational, agricultural and industrial use and for wildlife and fisheries needs. Under FRPA, the hydrological integrity of watersheds is protected and riparian areas maintained. Actions such as the establishment of RMAs, machine free zones, fall and yard away techniques around watercourses, terrain assessments and prescriptions (e.g. to avoid moderate to highly unstable sites), riparian classification (e.g. to determine fisheries values) and total chance planning (e.g. to provide optimum road placements and to minimize the total amount of road) function to protect water quality.

Water quality and quantity also has value to the local fish populations. Fisheries values can be very high within the FDUs. Proper identification and classification of all riparian areas will enable protection of sensitive fish populations and habitats and by extension, will also protect water quality.

Riparian classification of streams, lakes and wetlands will be initially identified at the landscape planning level and where available are shown on the FSP maps. Generally, at this planning level all streams are conservatively classified using a default system of stream gradient and estimated width criteria unless the stream has been inventoried (e.g. Skeena River). Non-inventoried streams with less than a 20% gradient and without discernible obstructions are by default, classified as fish bearing streams. Non-inventoried streams which exceed the 20% gradient criteria are classified as non-fish bearing streams. Non-fish bearing stream reaches that are deemed to be especially important may be managed as fish bearing where appropriate. The classification on the FSP maps indicates whether the stream classification was inventoried or derived. Fisheries values are further assessed at the stand level during the development activities. Stream gradients, widths and fish habitat suitability are confirmed on the ground at this time.

Water protection issues focus on the maintenance of water quality throughout the area in this plan. It is the intent of the FSP Holders to conduct activities in a manner that limits adverse effects on water quality and maintains the aquatic biological productivity of fish streams. By following the practice requirements (FPPR s. 47 to 49) and result **KK17-08** in the FSP for riparian management areas, adequate buffers will be retained along streams, wetlands and lakes to protect water quality and fish habitat.

There are many ways to conduct development activities to minimize adverse effects on water quality. Some examples include:

1. For roads in a partially built state, maintain drainage and stability at season's end.
2. Conduct road construction operations during appropriate construction windows.
3. Conduct road construction operations in snow-free conditions (except winter roads).
4. Ensure adequate yarding deflection has been achieved during the engineering phase.
5. Conduct winter ground-based harvesting operations on frozen ground and/or sufficient snowpack in areas of wet ground and/or fine-textured soils.
6. Use site sensitive, ground-based harvesting systems during summer operations where soil conditions dictate.
7. Use fall away and skid/yard away techniques to protect understory vegetation and stream bank integrity.
8. Establish machine free zones of appropriate width on either side of streams.
9. Establish appropriate riparian reserves along high value fish bearing streams, lakes and wetlands.
10. Use partial overstory removal in RMZs to promote wind firmness of riparian reserves (e.g. feathered or notched edges).
11. Retain individual trees or wildlife tree patches to provide large organic debris recruitment.

Immediate action will be taken to mitigate any adverse impacts on water quality and fish habitat that may occur during forestry operations.

SD3.4.1 Riparian Management Areas

Riparian areas along streams, lakes and wetlands are important for protecting water quality, fisheries and wildlife values. *FRPA* provides for the maintenance of RMAs along streams and rivers and around wetlands and lakes.

Riparian classes and widths of RMAs are established in accordance with *FPPR.* Classes S1 to S4 apply to streams that are within community watersheds or are fish streams and classes S5 and S6 apply to streams outside community watersheds that are not fish streams.

Riparian Management Areas (RMAs) are areas adjacent to streams, lakes and wetlands that are classifiable under the *FRPA.* RMAs contain both high value timber and non-timber resources. Depending on the riparian classification, the RMA consists of a Riparian Reserve Zone (RRZ) and/or a Riparian Management Zone (RMZ). The identification and assessment of the RMA habitat and its incorporation into operational plans is critical to the management and conservation of riparian resources.

RMAs provide for the protection and management of fisheries, important wildlife habitats and water quality. All classifiable riparian features will have an RMA established. Streamside tree retention, particularly mature hardwoods, is encouraged to maintain streambank stability and stream temperature control, and to provide a source of wildlife use trees and future large woody debris. Riparian vegetation is often more important in maintaining streambank stability in alluvial channels - composted of erodible materials - than in non-alluvial channels, with their non-erodible materials such as coarse colluvial or morainal deposits. The degree of retention within any specific RMZ will be dependent on the riparian classification, the values present and the risks to those values (e.g. due to windthrow potential). Site specific prescriptions will be developed to meet fisheries and riparian area objectives at the stand level.

The FSP Holders have elected to follow the practice requirements outlined in sections 47 through 51, section 52(2), and section 53 of the FPPR, as noted in Section 2 of the FSP. This is consistent with the objective set by government for water within riparian areas (FPPR section 8).

These “defaults” can be summarised as follows (refer to the actual legislation for full details):

Streams

Riparian Class	Stream width	Fish stream	RMA - Riparian Management Area (slope distance)	RRZ - Riparian Reserve Zone (slope distance)	RMZ - Riparian Management Zone (slope distance)
S1-A	≥ 100 m	Yes	100 m	0	100 m
S1-B	≥20 and ≤100 m	Yes	70 m	50 m	20 m
S2	5 - 20 m	Yes	50 m	30 m	20 m
S3	≥1.5 and ≤5 m	Yes	40 m	20 m	20 m
S4	< 1.5 m	Yes	30 m	0	30 m
S5	> 3 m	No	30 m	0	30 m
S6	≤3 m	No	20 m	0	20 m

Retain enough trees (in riparian management zones) to maintain channel stability along S4, S5, and S6 streams that are direct tributaries to S1, S2, or S3 streams as per FRRP s. 52 (2).

Wetlands

Riparian Class	Wetland area	RMA (slope distance)	RRZ (slope distance)	RMZ (slope distance)
W1	> 5 ha	50 m	10 m	40 m
W2	1 – 5 ha (g /dm/ds)	30 m	10 m	20 m
W3	1 – 5 ha (other)	30 m	0	30 m
W4	≥0.25 and <1 ha (CWHxm/dm/ds); 0.5 – 1 ha (other)	30 m	0	30 m
W5	Complex of wetlands ≥ 5ha	50 m	10 m	40 m

Lakes

Riparian Class	Lake area	RMA (slope distance)	RRZ (slope distance)	RMZ (slope distance)
L1-A	≥ 1000 ha, or designated	0	0	0
L1-B	≥5 and <1000 ha	10 m	10 m	0
L2	1 – 5 ha (CWHxm/dm/ds)	30 m	10 m	20 m
L3	1 – 5 ha (other)	30 m	0	30 m
L4	0.5 - 1 ha (CWHxm/dm/ds)	30 m	0	30 m

Retain trees in riparian reserve zones (unless specific conditions apply)
Locate roads outside of riparian management areas, except at stream crossing

Where wildlife trees and/or wildlife tree patches are required to be retained within a cut block, the RMA will be reviewed for wildlife trees and/or wildlife tree retention area designation prior to considering areas outside the RMA.

Part of the challenge when managing and conserving RMA habitat in the CMNRD is managing the risk of windthrow. Windthrow can contribute to short-term inputs of large woody debris, particularly in steeper gradient small streams and in areas where retained buffers are 10 m or less[20]. However, windthrow can also contribute to bank and channel disruption and increased fine sediments to a channel. In some cases, it may be more beneficial to clear cut immediately up to the riparian feature to avoid having retained timber blow down and negatively impact water quality or the habitat. In other cases, the habitat value may be high enough to warrant prescribing a wider RMZ than the minimum. Strategies for reducing the risk of windthrow will be considered where the windthrow risk in the RRZ is moderate to high. Any windthrow management strategy will consider the non-timber resource values in the RMA.

Fall and yard away is employed where possible on S5 and S6 streams. Any yarding over fish streams will include full suspension or other measures that protect bank stability and do not introduce deleterious substances into the stream. Safety and windthrow potential will also be considered before prescribing retention of trees that cannot be felled and yarded away since in some cases controlled falling and yarding may have less impact on the stream's habitat than uncontrolled windthrow. Where falling and yarding away is not possible, actions will be taken to limit the impact on stream banks. This may include: falling trees across so that the butt log clears the channel or the stem spans both stream banks; lifting out only those portions of the stem that can be removed without damaging the stream channel; retaining portions of the log on site as large organic debris (as long as the remaining portion of the log does not obstruct stream flow or fish passage). If the stream is within a gully then the management of the gully system must be assessed on a site specific basis.

Stream clean-out will be considered where harvesting debris enters the high-water mark of a stream channel and has the potential to negatively impact either:

- stream bank or channel stability, or
- immediate or downstream water quality or fish habitat.

Where introduced harvesting debris is stable and will not negatively impact the riparian resource it will not be required to be removed.

When harvesting and/or debris removal is planned within a gully, a gully assessment can help determine how to conduct operations within the gully.

[20] Bahuguna et. al. 2010, Johnston et. al. 2011

General Management Practices

The following identifies some of the common practices that will generally be prescribed in RMZs.

Riparian Classification	General Management Practices
S1, S2, S3 streams	The primary objective of the RMZ for these streams is to reduce the risk of windthrow in the reserve zone and provide opportunities for meeting wildlife tree objectives. Generally, no harvesting will occur in RRZs except for: road construction; clearing of full suspension yarding corridors; falling of danger trees or other activities to meet the management objectives of non-timber resources. Salvage operations may occur where the operation results in a condition that is consistent with the management objectives of non-timber resources in the RRZ. Where there is a moderate to high risk of windthrow in the RRZ, feathering of the RMZ will be considered where suitable wind firm trees exist in the RMZ. Where no suitable wind firm trees exist, other treatments such as top pruning or crown thinning treatments may be prescribed within the RMZ and/or RRZ. Where these treatments are not suitable for protecting the RRZ from windthrow, options for the relocation and/or redesign of the boundary will be considered. Retention within the RMZ will be as per Result **KK17-08** and the provisions of the practice requirements.
S4 streams	Where required to maintain streambank stability, protect fish habitat, maintain downstream water quality and where wind firm trees exist, a sufficient number of trees will be retained. Otherwise all merchantable trees may be logged. Non-merchantable trees, understory deciduous trees, shrubs and herbaceous vegetation within ~5 m of the stream channel will be retained to the fullest extent possible. Retention within the RMZ will be as per Result **KK17-08** and the provisions of the practice requirements.
S5, S6 streams	Where required to maintain streambank stability, maintain downstream water quality and where wind firm trees exist, a sufficient number of trees will be retained, otherwise all merchantable trees may be logged. Non-merchantable trees, understory deciduous trees, shrubs, and herbaceous vegetation within ~5 m of the stream channel may be retained if practical. Retention within the RMZ will be as per Result **KK17-08** and the provisions of the practice requirements.
Wetlands and Lakes (all classes)	For those lakes and wetlands that have a RRZ, the primary objective of the RMZ is to maintain the integrity of the RRZ. Where there is a moderate to high risk of windthrow in the RRZ, feathering of the RMZ will be considered if suitable wind firm trees exist in the RMZ. Where suitable wind firm trees do not exist for protecting the RRZ from windthrow, relocating and/or redesigning the boundary will be considered. For lakes and wetlands without a RRZ, the RMZ will function to maintain important wildlife habitat values adjacent to the riparian feature. The distribution and level of retention within the RMZ will be dependent on: the site characteristics; stand conditions; windthrow hazard management and wildlife habitat features. Important wildlife features such as: major game trails; licks; denning sites and moist understory vegetation habitat will be buffered to maintain cover or visual screening. For lakes and wetlands without a RRZ, understory deciduous trees, shrubs and herbaceous vegetation within ~5 m of the lake or wetland feature will be retained to the fullest extent possible. Retention within the RMZ will be as per Result **KK17-08** and the provisions of the practice requirements.

SD3.4.2 Lakeshore Management Zones

In accordance with the GAR Section 6, the Ministry of Forests, Lands and Natural Resource Operations can specify lakeshore management areas and objectives. As of May 2017, no lakeshore management zones have been established within FDUs.

SD3.4.3 Community watersheds

In accordance with GAR Section 8, the Minister responsible for the *Land* Act can designate a community watershed, and the Minister responsible for the *Water* Act can specify water quality objectives for a community watershed.

The following is a list of known community Watersheds in the CMNRD (and the community the water is supplied to):

Community Watershed	Community supplied	Within FDUs?
Rosswood (Clear Creek)	Rosswood	Yes – KVL
Deep Creek	Terrace	Yes – KVL, small overlap with Kitselas
Drake Creek	Thornhill	Yes – Kitselas
Eneeksagilaguaw Creek	Kitsumkalum	Yes – KVL
Gossen	Gossen	Yes - Kitselas
Gitzyon Creek	New Aiyansh	No
Hatchery Creek	Lakelse	Yes – Kitselas
Kas Miintl Am Hawak Creek	Gitwinksihlkw	No
Kleanza (Singlehurst Creek)	Kleanza/ Usk	Yes – Kitselas
Usk (Skovens Brook)	Usk	Yes – Kitselas
Spring Creek	Terrace	Yes – KVL
Virginia Brook	Thornhill	Yes – Kitselas
Wathl Creek	Kitamaat Village	No

As of May 2017, there are no established water quality objectives for community watersheds within the area covered by this FSP.

Under strategy **KK17-09**, logging within a community watershed must remain under an equivalent clearcut area (ECA) threshold, unless a Watershed Assessment Procedure (WAP) is completed that determines a different threshold level or different parameter to use. A WAP identifies the possible type and extent of stream channel impacts associated with past forest harvesting activities and provides tools to recognize the possible hydrologic implications of proposed activities. A modified Level 1 (reconnaissance level) Coastal WAP was completed for the Deep Creek Community Watershed as part of the Kalum Watershed Restoration Program Project. The purpose of a reconnaissance level analysis is to focus subsequent field-based assessments (Level 2). The results of the Coastal WAP did not identify any logging related impacts within the Newtown Creek planning area portion of the Deep Creek Community Watershed. It was therefore determined that a Level 2 analysis was not necessary for the Deep Creek Community Watershed.

Due to the small size of the Virginia Brook and Drake Community Watersheds, the FSP Holders have committed to no harvesting under result **KK17-10** (with exceptions to prevent timber loss and for road construction), which should ensure the hydrological function of the watershed without an undue impact on timber supply.

Downstream from several of the community watershed boundaries there are a number of domestic water supply licence holders and Fisheries and Oceans Canada has a water licence for use in the Deep Creek Fish Hatchery. There are also a number of other domestic water supply intakes within the CMNRD and locations of domestic water licensees are identified on the FSP maps.

SD3.4.4 Other watersheds

Preliminary (non-legal) water quality objectives were identified for the Lakelse Lake and lower Kitimat River areas. These are not related to community watersheds and were introduced in the 1980s. The objectives for soils and water and the associated results and strategies should successfully address these non-legal objectives.

The Lakelse River and Williams Creek are not designated or proposed community watersheds; however, water quality concerns are an issue for the protection of fish. Special practices were recommended through the Kalum LRMP around the Lakelse River (result **KK17-20**). A Lakelse Lake Sockeye Recovery Plan is in place. It includes the Williams Creek area and sediment source mapping and channel assessment work that is under way will provide insight into Williams Creek water quality. Preliminary results indicate that sediment sources are predominantly natural, and that recent (post 1980s) forestry activities have had minimal input to sedimentation in the Williams Creek watershed[21].

SD3.4.5 MRVA/FREP: Riparian and Water Quality

SD3.4.4.1 Riparian

According to the MRVA report of December 2013 and FREP Report 27 of December 2010, the overall stewardship trend for riparian areas within the Kalum TSA was shown to be declining between the FPC era (1997-2004) and the FRPA era (2005-present). However, the FSP Holders reviewed FREP stream monitoring data for the CMNRD current to 2017, which suggests that the trend between eras may be neutral in the areas covered by this FSP. This data includes a larger sample size that is roughly equal for both eras (approximately 60 streams in each era). The FSP Holders will review future MRVA and FREP reports to determine if their analysis is consistent with that provided by the Province.

Across both eras, monitoring results have found that the majority of non-functioning streams are small streams. Small streams are those streams with a channel width of three metres or less (S4, S6 and some S3 streams). Small streams are more abundant, accounting for a major portion of the stream length in a watershed, and often more sensitive than larger streams[22]. Non-functioning streams in the Kalum TSA have been attributed to stream bank disturbance due to windthrow in riparian areas, debris deposited into the stream bed from logging and fine sediments introduced into the stream.

Recommendations in the MRVA and FREP reports include:

- Limiting the introduction of logging-related woody debris in channels (leave natural debris in place).
- Avoiding physical contact with the streambed and stream banks (e.g., through falling and yarding away from channels whenever feasible).
- Minimizing fine sediment delivery to channels from roads and stream crossings throughout the entire road life cycle.
- Windthrow management should be considered in high windthrow risk situations.

[21] Lakelse Watershed Society el at (2005). Recovering Lakelse Lake Sockeye Salmon. p8

[22] FREP 2017. FREP Extension Note 38: The Importance of Small Streams in British Columbia

- When riparian management area retention requirements are low, retain understory vegetation (trees and shrubs) to maintain deep roots near the bank and decrease the amount of disturbance to the bank.

To a large extent, prescriptions that are incorporated into the FSP Holders' Site Plans address the recommendations listed above. These prescriptions are reflected in results or strategies in the FSP and by practices described in this Supporting Document, including:

- Falling and yarding away from channels and channel clean-up, where feasible as described above in section SD3.4.1. While eliminating cross-stream yarding may consistently improve the MRVA/FREP results, it is a necessary operational tool in limited instances.
- Road maintenance will reduce sediment delivery to channels. Strategy **KK17-02** and section SD3.1.3 describe road inspections and maintenance practices.
- Windthrow management and retention of non-merchantable trees and understory is a common practice of the FSP Holders as discussed in sections SD3.4.1 and SD3.5.1.

SD3.4.4.1 Water Quality

According to the MRVA report of December 2013, within the Kalum TSA, the overall stewardship trend for water quality is neutral.

Recommendations in the MRVA report include:

- Reduce the impact of resource roads on water quality by improving road maintenance by armouring, seeding and protecting bare soil, and using cross ditches and kick outs.

This supporting document discusses road maintenance in section SD3.1.3.

Note that management for water also occurs through strategies and results that are provided in other sections within this FSP:

- Result **KK17-01** places limitations on cumulative harvest impacts in Alwyn Creek, and therefore limits the potential for sediment to RMAs
- Result **KK17-19** limits activities within an area adjacent to the Skeena River, therefore providing protection to the riparian area of the river.
- Result **KK17-20** limits activities within an area adjacent to the Lakelse River, therefore providing protection to the riparian area around that river.

SD3.5 Fish

The fisheries resource in the CMNRD is an important resource in the area. Anadromous salmonids are found in nearly all main river systems. Non-anadromous salmonids are also present in most large creeks and rivers that have a low gradient (<20%). The resource supports a commercial, recreational and First Nations' fisheries.

The Ministry of Environment (MOE) and the federal Fisheries and Oceans Canada (DFO) are the government agencies responsible for managing fisheries. These agencies have the mandate to ensure that the productive capacity of fish bearing waters is maintained. The FSP Holders are committed to maintaining the aquatic biological productivity of all anadromous and resident fish bearing streams within their FDUs. This will be achieved through the identification of fish streams and proper planning designed to avoid damage to fish habitat.

Riparian inventories that provide riparian classifications within the FDUs have been conducted. These assessments gathered together existing information, local knowledge and topography, allowing riparian classification. The FSP Holders have erred on the side of caution when assigning classifications and it is likely that we have identified more fish bearing streams than actually exist. This classification strategy ensures a conservative approach to managing fisheries resources. Block specific riparian assessments are also completed as required as part of the site plan fieldwork. These assessments will confirm overview riparian classifications as well as classify additional riparian features not found at the overview

scale.

In May 2005, timing windows for in-stream work were published by the MWLAP[23]. These timing windows provide guidance for limiting the risk to damage to fish or eggs in the streambed. In-stream work windows within the FDUs are highly variable as they are dependent on the species of fish present as well as the conditions specific to the site and the nature of the works. The FSP Holders will work with the DFO and/or MOE to ensure that appropriate timing windows and measures are followed when working in fish streams.

The terms and conditions identified in the Terms and Condition for Changes In and About a Stream for the Skeena Region (November 2004) will be considered as "best available information". Any operations conducted outside these identified windows will include additional measures, as required, to ensure fish and fish habitats are protected.

Road construction, modification, maintenance, deactivation and logging operations will use techniques required to limit sediment entering known fish streams or streams that flow directly into known fish streams.

During operations, the FSP Holders will provide contractors with any special practices and measures to ensure stream bank integrity is maintained and fish habitat is protected. Regular road maintenance, repair and cleaning of debris from culverts and streams and careful logging practices are all ways to ensure that fish habitat is not adversely impacted.

SD3.5.1 Riparian Management

Riparian areas occur adjacent to streams, lakes and wetlands. These include areas dominated by continuous high moisture content and the adjacent upland vegetation that exerts an influence upon them. Riparian management focuses on the maintenance of riparian zones for fishery, water and wildlife resources. The primary objective is to minimize or prevent impacts to these important resources.

The FSP provides for two components for RMAs, RRZs and RMZs (see tables in Section SD3.4 above). Usually, logging is not permitted in RRZs; however, logging can occur in RMZs although constraints may apply.

SD3.5.1.1 Streams

The critical consideration for streams is maintenance of stream bank integrity. Generally, this is accomplished through the RMA which is defined in the criteria for riparian areas (as per FPPR s. 47 to 49). For streams without an RRZ, the FSP Holders will maintain streambank integrity through careful logging practices (e.g. fall and yard away), location of machine-free zones, or retention of some amount of trees around the stream, as described in result **KK17-08**. This last method is commonly referred to as basal area (BA) retention. The amount of retention will vary for different stream types, but the most important streams that BA retention would apply to are S4 streams, as they are fish-bearing but do not have an RRZ.

For S1, S2, and S3 streams, no logging will be planned in the RRZs. A range of BA retention in RMZs may occur depending upon the windthrow hazard. While the limits are defined in Result **KK17-08**, the location of the retention is a site specific issue and will be determined at the field layout stage. Reserve zones for S4, S5 and S6 streams are not required, but may be established in order to maintain windfirm trees for streambank stability. This will also be assessed at the field layout phase.

Forest development may occur in close proximity or adjacent to all stream classes (S1 - S6). However, S6 streams represent the majority of the streams encountered throughout the FDUs. The BA retention prescribed at the stand level (e.g. site plan) may vary and is dependent on a

[23] Skeena Region Reduced Risk In-stream Work Windows and Measures

multitude of site specific factors, including:

1. logging system;
2. existing topography of adjacent wetted perimeter and upland ground;
3. windthrow risk;
4. timber soundness/safety concerns;
5. stream/ reach value;
6. wildlife habitat value; and
7. erosion/ sedimentation/ stability risk.

For all stream classes, the FSP Holders do not attempt to address the level of BA retention in RMZs in a spatially uniform manner. RMZ retention is accomplished by extending reserve (no harvest) zone boundaries into management zone areas. Extended reserve zones are a common occurrence since site specific factors, such as natural topographic features (e.g. top of gorge/gully) and stand structural changes play a significant role in the location of logging boundaries.

To manage and conserve the timber and non-timber resources within RMAs, various management prescriptions will be prescribed, and where logging is planned, a variety of silviculture systems and/or treatments will be prescribed. As a minimum, the widths of RMAs will follow those specified in the FSP. Wider RMAs will be prescribed when required to manage and conserve high valued riparian habitat (e.g. a sensitive fish population) or to protect unstable stream banks. Site specific strategies will be determined during site plan and/or road layout and design preparation.

During the planning stage, streams and riparian areas within or adjacent to proposed cutblocks and roads will be identified and classified in accordance with this FSP. The location of fish bearing streams will be clearly marked on operational maps and where necessary, appropriate machine free zones may also be prescribed. The FSP also provides for RRZs and RMZs. Stream classifications shown on maps are based on Resource Inventory Committee (RIC) and non-RIC standard fisheries inventories and field assessments of individual cutblocks.

SD3.5.1.2 Wetlands and Lakes

The same approach to riparian zone boundary determination, as described above in Section SD3.5.1.1 will be used for wetlands and lakes. Stand structural changes and natural topographic features also play key roles in the location of management zone boundaries.

For all classes of wetlands and lakes, the minimum level of BA retention is noted in Result **KK17-08.**

SD3.5.2 Fisheries Sensitive Watersheds

In accordance with Section 14 of the *Government Actions Regulation*, the Minister responsible for the *Wildlife Act* can identify a fisheries sensitive watershed and set objectives for such a watershed. However, there are no fisheries sensitive watersheds in the area covered by the FSP.

Note that management for fish also occurs through results and strategies that are provided in other sections within this FSP:

- Result **KK17-01** places limitations on cumulative harvest impacts in Alwyn Creek and therefore limits the potential for sediment to RMAs.
- Result **KK17-19** limits activities within an area adjacent to the Skeena River, therefore providing protection to the riparian area of the river.
- Result **KK17-20** limits activities within an area adjacent to the Lakelse River.

SD3.6 Biodiversity

Biodiversity (biological diversity) means the diversity of plants, animals and other living organisms in all their forms and levels of organization, including genes, species, ecosystems[24] and the evolutionary and functional processes that link them. Two levels of biodiversity are considered; landscape and stand level. At the landscape level, watershed areas are amalgamated into Landscape Units (LU), which are assigned either a low, medium, or high biodiversity emphasis in which "high" has the greatest importance for managing and conserving biological diversity[25]. Stand level biodiversity is more site specific and includes the requirement to retain wildlife trees across the landscape but also may include designating old growth management areas (OGMAs).

Biodiversity conservation in managed forests is based on evolving ecosystem management concepts that assume the needs of most organisms will be met by maintaining a range of habitats across a broad geographic distribution. As we cannot practically manage for all species on all areas individually we must manage at a variety of scales and across a variety of landscapes. Strategies for individual species may be specifically designed as required. Section SD3.3 of this document describes management considerations for wildlife species that have been identified under FRPA as requiring management. At the provincial and regional scale, biodiversity is considered in the establishment of protected areas such as parks and wilderness areas. At the sub-regional level, the LU has been defined to address biodiversity conservation.

Within the FSP, biodiversity management is applied at the stand level and at the landscape level.

SD3.6.1 Landscape-level Biodiversity

A fundamental component of landscape level biodiversity is the LU and planning at the landscape level requires the determination of biodiversity emphasis for these LUs. Biodiversity emphasis assignments outline three broad options (low, intermediate, high) that reflect the provision of different levels of natural biodiversity for select LUs. The Kalum SRMP describes the biodiversity emphasis for LUs within the SRMP area. The *Order Establishing Provincial Non-Spatial Old Growth Objectives*, effective June 30, 2004, established LUs and biodiversity emphasis for each of them. These biodiversity emphasis assignments consider management opportunities and objectives for known resources and seek to balance risks to biodiversity against the social and economic objectives of the crown at a provincial level.

The following Landscape Units overlap the FDUs:

Landscape Unit	Biodiversity Emphasis Option	Overlaps FDU
Beaver	Intermediate	KVL
Clore	Intermediate	Kitselas
Dasque	Low	Kitselas
Exstew	Intermediate	KVL (minor overlap)
Hot Springs	Low	Kitselas
Kalum	Intermediate	KVL, KK
Kiteen	Low	KVL
Kitimat	Low	Kitselas
Kleanza - Treasure	Low	Kitselas
Lakelse	Intermediate	Kitselas
Nelson - Fiddler	Low	Kitselas
Nelson Fiddler	Low	KVL
Skeena River Kalum	High	KVL, Kitselas, KK
Tseaux	Intermediate	KVL
Wedeene	Intermediate	Kitselas

[24] FPPR section 1
[25] Ministry of Forests. Biodiversity Guidebook. 1995

SD3.6.1.1 Old Growth

The *Order Establishing Provincial Non-Spatial Old Growth Objectives*, effective June 30, 2004, established LUs and biodiversity emphasis for each of them and retention levels for old growth by natural disturbance type (NDT).

The old growth targets in the order have been superseded by the spatial designation of OGMAs in the Kalum SRMP. As a result, there is no longer a requirement for a result or strategy in the FSP to address the Old Growth order.

An OGMA Amendment Policy (August 2010) has been adopted for the Skeena Region. This policy provides additional guidance to proponents requesting an amendment to an existing OGMA. Aspects of this policy have been incorporated into strategy **KK17-14**.

Result **KK17-13** and strategy **KK17-14** are provided to ensure consistency of the FSP with the Kalum SRMP Objectives 3 and 4 for OGMA designated under the Kalum SRMP. In addition, strategy **KK17-11** and result **KK17-12** also incorporate the amount of old growth in the analysis of seral stages by LU.

SD3.6.1.2 Distribution of Patch Sizes

At the landscape level, natural openings will develop over time. These openings would be of various sizes, depending on how they originated (fire, wind, landslides, and avalanches). A forest management approach taken in this FSP is to provide for a distribution of different sized openings over time; i.e. a temporal and spatial distribution of blocks.

Strategy **KK17-11** and Result **KK17-12** provide for a distribution of patch sizes and seral stages within LUs in the FDUs. Target patch size and seral stage distributions will be identified and the goal is to plan development within operating areas so the distributions move towards target levels over time. They may not be achieved during the term of this FSP.

Cutblock design, including size, shape and pattern, will promote a range of small to medium sized, similarly aged forest patches on the landscape. Small scale disturbances will be mimicked through dispersed small clearcutting and clearcutting with WTRAs. Some larger patches will be cut and aggregated to form larger openings, particularly at lower elevations and on drier aspects where fire disturbance was an historic influence. In areas of dispersed harvesting, the size range of leave areas will approximate that of logged openings. Landforms, features and site sensitivity to development will be considered in cutblock design.

SD3.6.1.3 Skeena Islands

The Kalum SRMP (April 2006) established an objective (Objective 10) to conserve the rare ecosystems on the Skeena Islands. Currently the following rare ecosystems have been identified on the Skeena Island:

- Red listed high bench Sitka spruce / salmonberry (CWHws1/07, CWHvm1/09), and
- Blue listed middle bench black cottonwood-red-osier dogwood (CWHws1/08, CWHvm1/10).

Logging during the 1950s and 1960s altered the forest cover of the Skeena Islands floodplain from highly productive coniferous stands to primarily deciduous-dominated forests. Recruitment of old growth and conifer-dominated stands has been identified as a planning priority for the Skeena Islands. Large confers (whether alive, standing or dead and down) provide: wildlife habitat; CWD for conifer establishment; and structure to back channels providing fish habitat. Old black cottonwood and red alder tree retention and recruitment is also identified as important for biodiversity and wildlife habitat value.[26]

An Order to amend Objective 10 to the Kalum SRMP for the Skeena Islands Area was made effective December 7, 2017. The Order amends the Skeena Islands Area to include a simplified

[26] de Groot, Haeussler and Yole 2005

set of conservation polygons compared to the original “High”, “Medium” and “Low” conservation value rankings. High Conservation Areas have been identified in which the objective is to retain 100% of the Crown forest. Within the rest of the Skeena Island Area, the objective is to retain features that provide habitat value or contribute to the recruitment of old seral stage by maintaining a 50 m harvest free buffer around these features. The features requiring a buffer include: back channels; coniferous stumps, logs, and snags greater than 50 cm in diameter; and coniferous trees greater than 50 cm diameter at breast height.

Result **KK17-19** is consistent with the effective Order.

SD3.6.1.4 MRVA/FREP: Landscape Level Biodiversity

FREP Report 41 provided a landscape-level biodiversity assessment for the 10 largest BEC subzones in the Skeena Natural Resource Region. This assessment did not provide an ecological score/ impact rating or trend similar to other resource values, but was intended to allow stand level results to be seen in a landscape context.

The approach to utilize natural disturbance regimes for patch and seral distribution in this FSP is consistent with the approach in the FREP Report.

SD3.6.2 Stand-level Biodiversity

SD3.6.2.1 Stocking Standards

To ensure that tree species and understory vegetation diversity is promoted, result **KK17-03** provides for stocking standards that prescribe ecologically acceptable species that are appropriate for the specific site being harvested. See section SD4.1.2 for more information on these stocking standards.

SD3.6.2.2 Wildlife Tree

At the stand level, important stand structural attributes will be preserved through the retention of wildlife tree patches and individual wildlife trees. Snags, culls and veterans provide valuable habitat for cavity nesting birds, raptors and small mammals while contributing to vertical density. Measures that were previously listed under water (Section SD3.4), wildlife (Section SD3.3) and fish (Section SD3.5) contribute to the management of biodiversity.

To achieve stand level biodiversity objectives within the FDUs, wildlife tree retention is described in result **KK17-15** and will follow the guidance from Table 6 in the Kalum SRMP. In accordance with this table, the amount of individual wildlife trees or groups of trees in WTRAs to be retained within cutblocks and/or adjacent to cutblocks is described by LU. The retention amounts in the SRMP were directed by the Kalum LRMP and allow for the retention amount to be calculated over a “cut block aggregate” – a grouping of blocks that are close to each other. Since the SRMP provides direction on wildlife tree retention on all the LUs in the FDUs, the FSP Holders are exempt from the practices requirements (FPPR s. 66, 67) for wildlife tree retention (as per Section 2 of the FSP).

WTRAs are planned on a site-specific basis and usually identified first during the reconnaissance phase of block layout. Wherever possible, WTRAs will be located in constrained areas such as: inoperable areas; RMAs; unstable terrain, gullies and scenic areas.

The following are characteristics and habitat attributes[27] that are sought when evaluating the wildlife habitat of individual trees:

- internal decay;
- crevices;

[27] Kalum SRMP, page 15, footnote 18

- large brooms;
- active or recent use;
- current insect infestation;
- large nests;
- hunting perches;
- bear dens;
- largest tree on site; and
- locally important tree species.

Additional considerations[28] for WTRAs include the following:

- Distribute windfirm patches throughout the block with distances between patches (or to other suitable leave areas outside the block) not normally exceeding 500 meters. It is recognized that windfirmness cannot be guaranteed.
- Allow natural processes (insect, diseases, blowdown) to occur within WTRAs unless infestation or infection within the WTRA threaten to spread to the adjacent forested areas. Where intervention is required, treatment should try to retain a diversity of structural attributes (for example, see Kalum SRMP Objective 5), or a suitable replacement WTRA will be located, as per strategy **KK17-16**.
- Where possible, place WTRAs to include rare plant species and ecosystems (listed in the most updated version with the BC Conservation Data Centre or otherwise determined as rare/uncommon).

Areas with a range of tree species and sizes will be prescribed for WTRA designation before areas with a simple stand structure. WTRAs will be designed to protect those trees with valuable wildlife tree attributes. If there are no wildlife trees within or adjacent to a cutblock, then WTRAs will be located for long-term recruitment of wildlife trees and/or CWD or as a minimum be representative of the pre-harvest stand conditions. This may result in the inclusion of both deciduous and coniferous species in the WTRA. Where practicable, WTRAs will be located in areas that would contribute to the conservation of rare plant communities and ecosystems, or of riparian areas.

WTRAs will be located and designed to reduce the risk of windthrow. In high windthrow risk areas, WTRAs will be designated in the most wind firm timber, or WTRAs will be designated in areas of lower habitat value but in a more wind firm location. Timber with a relatively low height to diameter ratio will be identified for WTRA designation wherever practicable. It is expected and biologically acceptable to have some windthrow on the fringe of WTRAs.

Moving Wildlife Tree Retention Areas

Wildlife tree retention areas should be retained for a minimum of one rotation (i.e., the related cut-block reaches mature seral condition). Since one of the objectives of retaining WTRAs is to recruit future CWD, WTRAs will not be replaced if they are subject to windthrow and not salvaged.

In some instances, the FSP Holders may want to move a WTRA before the related cut-block reaches a mature seral condition. If the WTRA being moved was designated by the FSP Holders, the new area selected will be consistent with Table 6 in the Kalum SRMP as per **KK17-15.**

If the WTRA being moved was designated by another licencee, then the FSP Holders will need to determine if the other licencee is subject to practice requirement FPPR s. 67. If so, the WTRA can only be moved if an exemption is provided by the Minister under FPPR s. 91 (2). If not, then a new area will be selected that is consistent with Table 6 in the Kalum SRMP as per **KK17-16.** In some instances, wildlife tree retention on blocks may have been set well in excess of the requirements in the Kalum SRMP; therefore, by select replacement areas as per Table 6, this result allows for the re-balancing of wildlife tree areas with targets.

[28] Kalum SRMP, page 16

SD3.6.2.3 Coarse Woody Debris

Coarse woody debris (CWD) is important for many types of organisms in order to maintain a presence within the area. The timber stands within the FDUs are predominantly over-mature and decadent. These stands exhibit various stages of decay, which contributes to higher amounts of CWD onsite prior to logging. The nature of these forests means that a high level of non-merchantable material is typically left on site. During logging, additional breakage of trees occurs and is often left onsite as most is unmerchantable.

Thriftier second growth stands will retain less CWD after logging compared to the typical over mature hemlock/balsam stands in the district. Managing the recruitment of CWD is most important within managed second growth stands where CWD may be otherwise limited. Required levels of CWD retention are described in section 68 of the FPPR.

Where site occupancy and fire hazard are not significant concerns, the FSP Holders will attempt to avoid practices such as piling and burning (except for landings) and will not conduct broadcast burning within the FDUs. These actions will provide essential habitat for those organisms that are dependent on CWD.

SD3.6.2.4 MRVA/FREP: Stand-level Biodiversity

According to the MRVA report of December 2013, the overall stewardship trend within the Kalum TSA for stand-level biodiversity is shown to be increasing. This is largely attributed to tree retention in harvested blocks at levels greater than 3.5 percent.

Recommendations in the MRVA report include:

- Leave treed retention on each cut block.
- Retain larger patches of trees, with a species composition and large tree/ large snag density similar to that present prior to harvesting.
- Continue to retain good quality coarse woody debris (i.e., large pieces that are greater than 20 cm diameter and 10 m in length).

This supporting document discusses tree retention and coarse woody debris in sections SD3.6.2.2 and SD3.6.2.3.

Note that management for biodiversity also occurs through strategies and results that are provided in other sections within this FSP:

- Results **KK17-03** and **KK17-05** provide for stocking standards which are biologically based and will ensure that appropriate forest species choices are made.
- Strategy **KK17-06** places limitations on harvesting in proposed grizzly bear Wildlife Habitat Area, thereby conserving habitat diversity.
- Result **KK17-08** describes retention levels in RMZs, which will provide additional diversity within RMAs.
- Strategy **KK17-11** and result **KK17-12** provide for a distribution of seral stages and patch sizes across larger areas, providing for diversity at the landscape level.

SD3.7 Cultural Heritage Resources

Cultural heritage resources include activities or items that are of continuing importance to a group of people, whether First Nations or non-First Nations. Cultural heritage resources can include:

- traditional uses and practices;
- sites or areas that are of cultural importance; and
- archaeological sites, although these will be managed through the *Heritage Conservation Act*.

Aboriginal interests and traditional practices generally include the use of lands for specific activities

integral to their culture. Archaeological resources are sites that contain evidence of past human activity. Sites that are dated prior to 1846 are considered to be archaeological sites.

The Kalum TSA is rich in First Nations culture and heritage. The FDUs fall within the traditional territories of the Gitga'at, Gitxsan, Haisla, Kitselas, Kitsumkalum, Lax Kw'alaams, Metlakatla, Office of the Wet'suwet'en, Skin Tyee, and Wet'suwet'en First Nations.

They also include lands subject to treaty rights under the *Nisga'a Final Agreement (1999)*.

The FDUs also overlap with Kitselas and Kitsumkalum Treaty Settlement Lands as defined under their respective Agreements in Principle (signed August 4, 2015). If a treaty is signed, it will supersede the FSP for any associated lands. Prior to a treaty being signed, conditions regarding activities in Settlement Lands may be imposed through regulatory means: should this occur the FSP Holders will be expected to conform to those conditions.

Information sharing about this FSP with these First Nations and NLG is an ongoing process in order to ensure an understanding of the FSP process and the cultural heritage resources that are of continuing importance to First Nations and NLG. Information sharing generally occurs in the following ways:

- During FSP preparation as described in section SD5 of this document.
- Prior to forest development in a First Nation's Territory or the Nass Area/Nass Wildlife Area, as described in Strategy **KK17-26** and **KK17-27.**
- Operationally, prior to cutting permit application as part of a cultural heritage resource review (CHRR), as described in Strategy **KK17-28**.
- At any other time during operations if cultural heritage information is identified, as described in Strategy **KK17-28.**

In addition to the results and strategies in the FSP, information sharing with First Nations may be guided by a process or agreement specific to a First Nation/NLG and the FSP Holder(s). This process would be jointly developed and agreed to by both parties.

The FSP is shared (referred) to First Nations and NLG for input and comment before submission to the Ministry of Forests, Lands, and Natural Resource Operations. Any sensitive information is held in confidence, and is only used in the development of appropriate strategies or results. These strategies or results may not show up under the cultural heritage heading, as they may relate to First Nation concerns over wildlife, fish, or another forest value. Section SD5 describes the interaction between the FSP Holders and the First Nations/NLG that have made claim to the area covered by this FSP or have a treaty interest that overlaps with the FSP.

The FSP Holders has also elected through **KK17-26** to **KK17-29** to ensure that cultural heritage is considered in all activities.

Under strategy **KK17-26**, information is requested regularly to ensure that the FSP Holders stays current with local First Nations' knowledge. Strategy **KK17-27** also allows the gathering of similar information from the NLG. The NLG is not a First Nation but obviously has valuable insight into the cultural heritage resources of continuing importance to the Nisga'a people outside of Nisga'a Lands. **KK17-26** and **KK17-27** provides the FSP Holders and First Nations/NLG with an opportunity to discuss general and site specific information related to proposed forest developments.

Through the information sharing process, specific sites or features that are of ongoing cultural importance can be identified. Normally, those sites or features will be identified by a First Nation. In addition to these sites or features that have a specific location, a First Nation may also identify cultural heritage resources that are non-spatial in extent. An example of a specific site would be a location where berry-picking has regularly occurred. An example of a non-spatial feature would be the activity of berry-picking. For both spatial and non-spatial cultural heritage resources, mitigative measures or actions can be put in place.

As described in **KK17-28**, a cultural heritage resource review (CHRR) will be carried out for blocks where cultural heritage resource information is lacking (or has not been made available to the FSP Holders through other processes). This will involve a review of sources that may provide information on CHR as well as a site visit to the block to identify CHR that may be present. Available information that may be reviewed includes archaeological overview assessments, archaeological impact assessments, traditional

use studies, information gathered for nearby blocks, and information gathered as per **KK17-26** and **KK17-27.** If cultural heritage resources are identified within an area proposed for road construction or timber harvesting, development options will be reviewed to determine what changes can be made to mitigate any detrimental impacts to the cultural heritage resources.

During the CHRR, if there is potential to impact a CHR of ongoing importance to Frist Nations/NLG then information sharing will occur with a First Nation/NLG.

KK17-28 also describes a 'chance find procedure' if CHR are identified by operational personnel. If any new cultural heritage information is identified by operational personnel then this information and mitigation will be shared with the First Nation/NLG. This would apply even if a cutting authority is already issued.

The term 'shared', as it is used in **KK17-28,** means that information will be communicated to a First Nation and further engagement, such as discussions regarding the management of the CHR, may occur with the First Nation/NLG. The strategy does not explicitly state that discussions will occur because they may not be warranted or feasible in all cases. For instance, a First Nation may have a protocol in place to address a particular CHR and this protocol may have been shared with the FSP Holders as part of **KK17-26**. If the FSP Holders then identifies that type of CHR within their block and implements the First Nations protocol, further discussion is likely not required and information sharing would take the form of a notification.

When field layout crews are aware and trained in identification of cultural features, a FSP Holder minimizes the risk that cultural heritage resources will remain unidentified. In discussions with some First Nations, some concern has been raised with how to verify standards for this type of training, so this has led the FSP Holders to not include a reference to training in the FSP at this time. The FSP Holders will continue to follow internal due diligence procedures in the interim.

Options for archaeological features are typically presented in the archaeological impact assessment reports. Where archaeological resources that are automatically protected by the *Heritage Conservation Act* need to be altered, an Alteration Permit will be applied for and affected parties consulted with. Actions around non-archaeological cultural heritage resources will be described and provided to the District Manager at or before a request is made for a cutting authority.

Result **KK17-29** reflects input from several First Nations on the cultural importance of Cedar and CMTs to traditional activities.

In addition to information sharing, First Nations groups and NLG are consulted regarding resource use and developments on their traditional territories or the Nass Area and Nass Wildlife Area. This consultation is conducted by the Provincial Government in accordance with Provincial policy. First Nations and NLG will be consulted with respect to this FSP to ensure that proposals are sensitive to aboriginal rights, aboriginal uses of the lands, and treaty rights.

SD3.7.1 Traditional Uses and Activities

The following are some examples of traditional uses or activities that have been identified and their potential for being impacted by forestry activities are also described.

Trapping

There are several species identified through Objectives Set by Government (OSBGs) and Wildlife Notices for management under an FSP. Fisher is one of these species and the FSP supporting document describes management initiatives that will support Fisher habitat. The premise is that managing for their habitat will also ensure that habitat needs of almost all the other species in the area will be met. Therefore, the trapped species are indirectly managed.

Despite habitat maintenance, trapping pressures may negatively affect a species. This is beyond an FSP and would be handled through wildlife regulations or in the case of cultural sustenance hunting, through voluntary limitation of trapping.

It is still valuable to note if there are areas of particular importance for cultural hunting activities. For example, information on whether trapped species are abundant or declining can help to

determine if there is a need to provide feedback to the MOE for adjustment of regulations or to a First Nation community for voluntary restrictions.

Other information of value is the location of trapping cabins (may be captured through "camps/campsites", below).

The continued opportunity for this cultural activity is captured in the FSP through the results and strategies for wildlife (see Section SD3.3 above) which, through management of "keystone" species, ensures that there is a continued supply of wildlife species for trapping.

Logging

The form and purpose of traditional logging is important to identify, as is the cultural desire of the First Nations (i.e., is it to be able to continue to carry out logging in a traditional style, or is it to ensure continued access to the materials once made available via traditional logging activities?).

The general intent of logging by First Nations was to provide building materials (i.e. for long houses, drying racks, etc.), or to provide logs for totem poles or canoes. These uses can be addressed within the FSP and a particularly useful piece of information would be the amount of materials needed.

Cedar is the primary tree species used by First Nations and often resulted in the marking of trees that became Culturally Modified Trees (CMTs).

This cultural activity has been captured in the FSP through result **KK17-29** which provides for opportunities for continued First Nations' access to cedar.

Plant Gathering

If specific areas can be identified that have a cultural value as plant gathering sites (e.g. berry picking), there is the potential to address them through a result or strategy. Therefore, it is important to discuss and determine the expectations for management of identified sites. Alternatively, if plant gathering is determined to be a landscape level value, there may not be a site-specific result necessary; a seral stage requirement could ensure that opportunities for plant gathering continue over the long-term.

Gathering of Cedar bark falls within this category and is a significant activity carried out by First Nations that often resulted in CMTs. For more discussion on Cedar and CMTs, see **Sections SD3.7.2** and **SD3.7.3** below.

Other information of value is the location of processing sites for berries (may be captured through "camps/ campsites", below).

This cultural activity has been captured in the FSP through strategy **KK17-11** and result **KK17-12** which ensure that there will be a distribution of seral stages across the landscape.

Jigging Areas

In current times, jigging is usually in relation to halibut fishing and to a lesser extent, cod. In both cases, jigging is a marine activity. Forestry activities under an FSP are unlikely to affect jigging opportunities, other than through the location of log holding areas. The identification and approval of these areas (foreshore lease approvals) is handled outside of the FSP process.

Since the FDUs do not include any marine areas, this resource does not apply to this FSP.

Fishing Areas

Fishing areas are probably identified in one of two ways; very specific sites that are of cultural importance (e.g. netting sites) or valleys/ river/creek systems that are identified as having been of cultural importance for fishing. These are generally handled through set-backs and riparian management zones. For specifically identified sites, it is important to discuss and determine the expectations for management of the sites (e.g. there may be a desire to manage activities around a historical processing area related to a netting site).

See Section SD3.5 above for a description of how the fish resource is managed by the FSP Holders.

This cultural activity has been captured in the FSP through the results and strategies for riparian areas (FPPR s 8).

Camps & Campsites

Specific camps or campsites, if identified as being of cultural importance, can be addressed through the FSP. It is important to determine the management expectations for these sites. If the sites are pre-contact, they would also be covered by the *Heritage Conservation Act*.

Hunting

There are several species identified through OSBGs and Wildlife Notices for management under an FSP. Management does not focus on the species but rather, on their habitat. These are generally keystone species and the premise is that managing for their habitat will also ensure that habitat needs of almost all the other species in the area will be met. Therefore, the species will continue. Despite habitat maintenance, hunting pressures may negatively affect a species. This is beyond an FSP and would be handled through hunting regulations or, in the case of cultural sustenance hunting, through voluntary limitation of hunting.

It is still valuable to note if there are areas of particular importance for cultural hunting activities. For example, information on goats may affect spatial designation of Ungulate Winter Range.

The continued opportunity for this cultural activity is captured in the FSP through the results and strategies for wildlife which, through management of "keystone" species, ensures that there is a continued supply of wildlife species for hunting.

Salmon

Salmon is of significant cultural importance and is generally handled within the FSP in two ways: (1) identification of fishing areas (see above); or (2) maintenance of salmon stocks through fish habitat maintenance. Item (2) can be addressed in FSPs through riparian area management or management of soils to limit sediment input.

This cultural resource has been captured in the FSP through the results and strategies for riparian areas (FPPR s 8).

Shellfish

Similar to jigging, shellfish gathering is a marine activity. Forestry activities under a FSP are unlikely to affect shellfish opportunities, other than through the location of log dumping sites. The identification and approval of these areas (foreshore lease approvals) is handled outside of the FSP process. Since the FDUs do not include any marine areas, this resource does not apply to this FSP.

Other information of value is the location of shellfish processing sites. Again, this is unlikely to be affected by activities governed by the FSP.

Medicine

This topic includes the identification and collection of resources that can be used for traditional medicines. Generally, these will be medicinal plants. This item will be handled similarly to the traditional use of plant gathering (see above).

If specific areas that have cultural value as medicinal resource gathering sites or processing sites can be identified, there is the potential to address them through a result or strategy. Therefore, it is important to discuss and determine the expectations for management of identified sites. Alternatively, if medicinal resource gathering is determined to be a landscape level value, then a site-specific result may not be necessary; a landscape level strategy to ensure long-term opportunities for medicinal resource gathering may suffice.

The opportunity for continued access to medicinal plants has been captured in the FSP through

strategy **KK17-11** and result **KK17-12**, which ensure that there will be a distribution of seral stages across the landscape.

Herring/ Roe

Similar to jigging and shellfish gathering, the harvest of herring and roe is a marine activity. Forestry activities under an FSP are unlikely to affect herring/roe opportunities, other than through the location of log holding areas or log dumping sites. The identification and approval of these areas (foreshore lease approvals) is handled outside of the FSP process.

One aspect of roe on kelp collection would be the potential for heli-drop sites affecting the collection sites: if this information is available, there is the potential that it can be dealt with through the FSP.

Other information of value is the location of shellfish processing sites; again, this is unlikely to be affected by activities governed by the FSP, since the FDUs do not include any marine areas.

SD3.7.2 Cedar

All of the First Nations with territory overlapping the FDUs have identified western red cedar as a tree species of continuing cultural importance. Their primary desire has been to ensure that cedar is maintained on First Nations' traditional territories in amounts and of the proper attributes to allow ongoing cultural use.

Cedar provides a valuable resource for traditional cultural activities: bark provides textiles and the logs provide building materials (canoes, planks) and spiritual materials (totem poles). The stocking standards in this FSP prescribe cedar where ecologically appropriate so a continued supply of trees for bark stripping purposes is ensured as is the supply of lumber (the modern form of planks). To ensure the supply of larger logs for canoes, planks, or poles, result **KK17-29** has been prepared to ensure that in forest stands that have cedar retention in WTRAs and RMZs, removal of some of these stems for cultural purposes is an acceptable activity. This provides a method for ensuring that a supply of raw materials for traditional cultural heritage activities will be maintained.

The Kalum TSA has a range of parks and protected areas and also has spatially identified old growth areas. These areas will allow First Nations sustenance and traditional and cultural uses to occur on a substantial land base. This ensures that cedar is represented across the landscape.

SD3.7.3 Culturally-Modified Trees

For the purposes of this FSP, a CMT is considered to be a tree modified through a cultural activity of a First Nation. These trees are split into two classes; pre-contact (i.e. before 1846) and post-contact (after 1846). There is limited discussion of pre-contact CMTs in the FSP as they are considered to be archaeological features and are protected and managed by the *Heritage Conservation Act*. Post-contact CMTs have no formal protection or designation. Several First Nations have internal policies on post-contact CMTs most including some level of protection and buffering. However, there does not seem to be an established, consistent approach for dealing with post-contact CMTs. In this FSP, strategies **KK17-26** and **KK17-28** allow for the identification, discussion, and management of cultural heritage resources, which includes both pre-and post-contact CMTs. .

SD3.7.4 MRVA/FREP: Cultural Heritage Resources

According to the FREP Report 41, within the Skeena Natural Resource Region more sampling is required to determine a trend for cultural heritage values. Nonetheless, the following practices were listed in the report as opportunities for improving the management of cultural heritage resources:

- Review cultural heritage resource documentation during planning and operations.

- Identifying cultural features with flagging tape during the pre-harvest site inspection for easy recognition during operations.
- Avoid cultural features through the use of windfirm reserves such as wildlife tree patches, machine-free zones, and block boundary modifications.
- Combining reserves with visual quality objectives, retention, or other reserve needs.
- Stubbing dead culturally modified trees above cultural marks to avoid future windfall or breakage.
- Avoiding skidding across cultural trails (or in some cases, use of designated crossings).
- Considering harvesting during winter (e.g., frozen ground to protect cultural plants).

This supporting document discusses management of cultural heritage resources in the preceding sections. Where appropriate the above listed practices are potential tools that may be prescribed as a result of the cultural heritage resource review described in strategy **KK17-28**.

SD3.8 Recreation Resources

Many areas within the FDUs are used recreationally for fishing, hunting, harvesting of botanical forest products, snowmobiling and woodcutting.

According to the FRPA, the FSP must provide strategies and results to be consistent with the higher level plan objectives that have been established on recreational sites and trails. Therefore, responsibility for approving the strategies or results rests with the MFLNRO Delegated Decision Maker.

The FSP Holders will conserve identified recreation resource values throughout their FDUs. They will maintain the recreation resource by complying with the higher level plans established for the network of recreation sites and trails that overlap with the FDUs. The impact timber harvesting operations may have on high value recreation areas will be managed by assessing the potential impacts and prescribe mitigating measures where necessary and practical. Recreation inventories, where they exist, can be checked to identify the recreation feature significance and recreation management class for an area. Measures to protect specific recreation features and resources can be identified in the Site Plan. The FSP Holders' operations proposed within or adjacent to established sites and trails will be consistent with the management objectives (Higher Level Plans) for these features. Generally, this means no logging will occur within 10 metres of the feature. If additional measures are required to conserve the value of the recreation feature and where practical, partial cutting or additional buffering may be used adjacent to the 10-metre reserve. These activities will be developed in communication with the Ministry representative responsible for the trail. Where new sites or trails are being considered for establishment, the FSP Holders will not propose operations that will conflict with draft management objectives for those features.

There are recreation areas that are regularly used that do not have higher level plan objectives (e.g. Lakelse Lake). No results or strategies are required for these sites, though they are shown on the FSP maps.

SD3.8.1 Recreation Sites and Trails with Higher Level Plan Objectives

As of May 2017, the following sites and trails on the FSP area are established with objectives in place:

- Big Cedar Recreation Trail
- Bornite Mountain Recreation Trail
- Clearwater Lakes Recreation Site
- Gunsight Peak Recreation Trail
- Maroon Mountain Recreation Trail
- Onion Lake Recreation Ski Trails and Stadium
- Pine Lake Recreation Site
- Pine Lake Recreation Trail
- Red Sand Lake Interpretive Forest Site
- Sterling Mountain Recreation Trail

- Thornhill Mountain Recreation Trail
- West Lake Recreation Site

As of May 2017, the following sites and trails on the FSP area are established, but do not have objectives in place:

- Claque Mountain Snowmobile Trail
- Claque Mountain Hiking Trail
- Copper Mountain Recreation Site
- Harvey Recreation Site
- Kalum Lake Boat Launch
- Kitimat Main Parking Area
- La La Valley Recreation Trail
- Lakelse River Recreation Site
- Lucky 7 Recreation Trail
- Mount Remo Recreation Trail
- Salmon Run Recreation Site
- Steinhoe Ridge Recreation Trail
- Sterling Mountain Parking Lot
- Terrace Mountain Bike Trails
- Terrace Mountain Hiking Trails
- Terrace Mountain Recreation Site
- Thomas Recreation Site
- Trapline Mountain Recreation Site
- Wesach Mountain Recreation Trail

As of May 2017, the following sites and trails on the FSP are pending or identified as recreation reserves, but are not yet established with objectives:

- Limonite Recreation Site
- Middle Lake Recreation Site
- Sandur Motorcross Recreation Trail (anticipated to be established by Fall 2017)
- Telkwa Pass Recreation Trail
- Thunderbird Recreation Trails (anticipated to be established by Fall 2017)
- Top Lake Recreation Site
- Upper Limonite Recreation Site

The Deception Lake recreation site has been decommissioned as is designated as a recreation reserve. Hai Lake and Sleeping Beauty recreation trails are now part of provincial parks. Oscar Peak, La La Valley Strawberry Site and a portion of La La Valley Trail have been retired.

Results **KK17-31**, **KK17-32**, **KK17-33**, **KK17-34** and **KK17-35** have been included in the FSP, and basically paraphrase the recreation objectives.

The following table provides additional information for each established site and trail including objectives.

Site or Trail	KVL FDU	Kitselas FDU	KK FDU	Date Established	Recreation Experience Objective	Site or Trail Management Objective	Access objectives
Big Cedar Recreation Trail	Yes	No	No	31/01/1998	Appropriate semi-primitive motorized winter recreational activities	Active trail and natural vegetation will be retained within ten metres either side of the trail centerline	Winter motorized access from November 1 to June 30; all motorized activities restricted from July 1 to October 31
Bornite Mountain Recreation Trail	No	Yes	No	31/01/1998	Semi-primitive non-motorized	Active trail and natural vegetation will be retained within ten metres either side of the trail centerline	Non-motorized
Claque Mountain Hiking Trail	No	Yes	No	Unknown	No established objectives	No established objectives	No established objectives
Claque Mountain Snowmobile Trail	No	Yes	No	Unknown	No established objectives	No established objectives	No established objectives
Clearwater Lakes Recreation Site	No	Yes	No	20/06/1996	Semi-primitive non-motorized	Campsite and trail will be retained. Lake shoreline and natural vegetation will be conserved.	Non-motorized
Copper Mountain Recreation Site	No	Yes	No	02/11/2005	No established objectives	No established objectives	No established objectives
Gunsight Lake Trail	No	Yes	No	20/06/1996	Semi-primitive non-motorized	Active trail and natural vegetation will be retained within ten metres either side of the trail centerline	Non-motorized
Harvey Recreation Site	No	Yes	No	13/10/2009	No Established Objectives	No Established Objectives	No Established Objectives
Kalum Lake Boat Launch	Yes	No	No	02/02/2010	No established objectives	No established objectives	No established objectives
Kitimat Main Parking Area	No	Yes	No	Unknown	No established objectives	No established objectives	No established objectives

Site or Trail	KVL FDU	Kitselas FDU	KK FDU	Date Established	Recreation Experience Objective	Site or Trail Management Objective	Access objectives
La La Valley Recreation Trail	Yes	No	No	11/19/2015	No established objectives	No established objectives	No established objectives
Lakelse River Recreation Site	No	Yes	No	13/08/1981	No established objectives	No established objectives	No established objectives
Lucky 7 Recreation Trail	No	Yes	No	05/05/2009	No established objectives	No established objectives	No established objectives
Maroon Mountain Recreation Trail	Yes	No	No	20/06/1996	Semi-primitive non-motorized	Active trail and natural vegetation will be retained within ten metres either side of the trail centerline	Non-motorized
Mount Remo Recreation Trail	Yes	No	No	02/02/2010	No established objectives	No established objectives	No established objectives
Onion Lake Recreation Ski Trails	No	Yes	No	21/05/1999 (varied 19/11/2008 to include Section 25, Doggie Trail)	The natural vegetation will be managed within boundaries of the established trail system. Maintain opportunities for cross country skiing and snowshoeing along the trail system in winter. Maintain opportunities for hiking, mountain biking, horseback riding and appropriate motorized recreation use along the trail system in summer. Maintain appropriate access for forest tenure holders to timber resources along the trail system and adjoining lands.		
Onion Lake Ski Trails Stadium Recreation Site	No	Yes	No	17/10/2007	The natural vegetation will be managed within boundaries of the established trail system. Maintain opportunities for cross country skiing and snowshoeing along the trail system in winter. Maintain opportunities for hiking, mountain biking, horseback riding and appropriate motorized recreation use along the trail system in summer. Maintain appropriate access for forest tenure holders to timber resources along the trail system and adjoining lands.		
Pine Lake Recreation Site	Yes	No	No	20/06/1996	Roaded	Shoreline, and natural vegetation will be retained within site boundaries	n/a

Site or Trail	KVL FDU	Kitselas FDU	KK FDU	Date Established	Recreation Experience Objective	Site or Trail Management Objective	Access objectives
Pine Lake Trail	Yes	No	No	20/06/1996	Semi-primitive non-motorized	Active trail, lake shoreline and natural vegetation will be retained within 10 metres on either side of the trail centerline	Non-motorized
Red Sand Lake Interpretive Forest Site (includes Hart Farm Recreation Site, Red Sand Intro Recreation Trail and Red Sand Lake Operational Trail)	Yes	No	No	21/05/1999	Roaded	Shoreline and natural vegetation will be conserved within the site boundaries Small scale timber harvesting and silviculture practices will exist on the site as part of forest interpretation and education Forest interpretation activities and education on local ecosystems and forest practices will be provided through brochures, self-guided interpretive trails and signage	n/a
Salmon Run Recreation Site	No	Yes	No	13/10/2009	No Established Objectives	No Established Objectives	No Established Objectives
Steinhoe Ridge Recreation Trail	Yes	No	Yes	13/05/2011	No established objectives	No established objectives	No established objectives
Sterling Mountain Parking Lot Recreation Site	Yes	No	No	20/06/1996	No Established Objectives	No Established Objectives	No Established Objectives

Site or Trail	KVL FDU	Kitselas FDU	KK FDU	Date Established	Recreation Experience Objective	Site or Trail Management Objective	Access objectives
Sterling Mountain Recreation Trail	Yes	No	No	6/20/1996	Appropriate semi-primitive motorized winter recreational activities	Active trail and natural vegetation will be retained within ten metres either side of the trail centerline	Winter motorized access from November 1 to June 30; all motorized activities restricted from July 1 to October 31
Terrace Mountain Bike Recreation Trails	No	No	Yes	13/05/2011	No established objectives	No established objectives	No established objectives
Terrace Mountain Hiking Recreation Trails	No	No	Yes	Unknown	No established objectives	No established objectives	No established objectives
Terrace Mountain Recreation Site	No	No	Yes	01/05/2007	No established objectives	No established objectives	No established objectives
Thomas Recreation Site	No	Yes	No	13/10/2009	No Established Objectives	No Established Objectives	No Established Objectives
Thornhill Mountain Recreation Trail	No	Yes	No	31/01/1998	Semi-primitive non-motorized	Active trail and natural vegetation will be retained within ten metres either side of the trail centerline	Non-motorized
Trapline Mountain Recreation Site	No	Yes	No	01/05/2007	No established objectives	No established objectives	No established objectives
Wesach Mountain Recreation Trail	Yes	No	No	02/02/2010	No established objectives	No established objectives	No established objectives
West Lake Recreation Site	No	Yes	No	01/05/1997	Roaded	River and creek shoreline and natural vegetation will be retained within site boundaries.	n/a

Source: Objectives for recreational sites and trails have been established by order, available through Recreation Sites and Trails BC. The existence of established objectives was confirmed through discussion

with a representative for the North Coast, Queen Charlotte Islands, and Kalum Recreation District[29].

Note that management for recreation also occurs through results and strategies provided in other sections within this FSP:

- The strategy and results for visuals (**KK17-23**, **KK17-24**) will also have a positive effect on the recreation resource.

SD3.9 Resource Features

Section 5 of the *GAR* allows the identification of the following as resource features:

- surface or subsurface elements of a karst system;
- a range development;
- Crown land that is being used for research or experimental purposes;
- permanent sample sites used as snow courses by the Federal or Provincial government for the purpose of measuring the water content of the snow pack on a given area;
- a cultural heritage resource that is the focus of a traditional use by an aboriginal people and that is not regulated by the *Heritage Conservation Act*;
- an interpretative forest site, recreation site or recreation trail;
- a trail or other recreation facility referred to in section 56 [*interpretive forest sites, recreation sites and recreation trails*] of the Act that is authorized by the minister or under another enactment;
- a recreation feature that the minister considers to be of significant recreational value.

Cultural heritage features are discussed under Section SD3.7 of this Supporting Document.

Interpretative forest sites, recreation sites and recreation trails, including a trail or other recreation facility referred to in Section 56 of the FRPA, or a recreation feature that the minister considers to be of significant recreational value, are discussed under Section SD3.8 of this supporting document.

Results or strategies are not necessary or required to provide strategic management of the remaining resource features.

As of May 2017, for the area covered by this FSP, no resource features have been identified with respect to:

- surface or subsurface elements of a karst system;
- a range development;
- Crown land that is being used for research or experimental purposes; or
- permanent sample sites used as snow courses.

Various research trials and plots have been established throughout the CMNRD, including permanent sample plots (PSP). The locations of many of these are not mapped; However, they have been summarized in a document titled "*Kalum Forest District – Operational Trial and Study Synthesis*" (March 2002). The FSP Holders is not aware of any update to this document.

Permanent sample plots have been established within the CMNRD; some dating back to the 1920's and are maintained by MFLNRO. PSPs are important because they have provided the province with a data set on natural stands that has been gathered and re-measured over time. While PSPs have no official protection, MFLNRO recommends that harvesting plans identify any impact on PSPs and that the Ministry is contacted to make a determination on the importance of the PSP. To this end the sample plots have been identified on the FSP Maps.

Where practicable and feasible, the FSP Holders will avoid impacting trials and studies that have the potential to continue providing research opportunities.

[29] C. Johansen. Personal communication. Various dates

SD3.10 Visual Quality

Landscape inventories exist for the Kalum TSA and TFL 1. These inventories were used to designate scenic areas and preparing VQOs. VQOs are objectives defining an acceptable level of alteration to a specific visual landscape unit based on the physical characteristics and public concern.

The District Manager has "made known" established Scenic Areas with established VQOs throughout the CMNRD. Prior to any development in a known scenic area, the planned development is reviewed to assess the potential impacts on the visual resource.

As of May 2017, VQOs are in place for these scenic areas within the area covered by this FSP:

- Highway 16 through the CMNRD
- Kitsumkalum Mountain
- Highway 37 South, Terrace to Kitimat
- Highway 113, Kalum TSA lands from Terrace to Cedar River

The following scenic areas do not have visual quality objectives, but have established visual sensitivity classes:

- Highway 113 (Nisga'a Highway), TFL 1 lands from Terrace to Cedar River

For scenic areas without established VQOs, VSC will be used as a surrogate, as follows:

VSC	VQO Surrogate
1	Retention
2	Partial Retention
3	Modification
4	Modification
5	Maximum Modification

Visual Impact Assessments (VIAs) will be completed where development is proposed within known scenic areas (as per strategy **KK17-23** and result **KK17-24**. VIAs will be used to illustrate that the VQO will be met. To maximize timber development in scenic areas, the FSP Holders will use visual landscape design techniques when designing cut blocks in highly sensitive areas. Properly designed blocks will blend development into the natural landscape. Where visual landscapes are highly sensitive, a variety of silviculture systems will be prescribed to minimize the visual impact.

The following are definitions for the individual VQO classes from the FRPA, the guidelines from the Visual Impact Assessment Guidebook (2nd Edition, January 2001) for the allowable percent alteration in perspective view for each VQO. The goal is to meet the legal definition of the VQO (FPPR s. 1), whereas the percent alteration guidelines helps provide context around the relative scale of alteration on a visual landscape from clear cut or seed tree silviculture systems. It is important to remember that the percentages provided are guidelines and have no legal standing (the differing percentages in the VIA guidebook and the Kalum SRMP emphasize this point). Partial cutting systems have no alteration guidelines as the impacts will vary with the uniformity of logging and the percent of basal area removal rather than the size of the activity area. Refer to the VIA Guidebook for specific details.

VQO	**VQO definition (legal)** (FPPR s. 1.1)	**VQO definition** (Kalum SRMP)	**% alteration guideline** (Kalum SRMP)	**% alteration guideline** (VIA Guidebook)
Preservation	Consisting of an altered forest landscape in which the alteration, when assessed from a significant public viewpoint, is (i) very small in scale, and (ii) not easily distinguishable from the pre-harvest landscape.	Allows activities such as maintenance of minimal facilities (recreation sites and trails) that enhance [the] natural visual unit.	0 – 1	0
Retention	Consisting of an altered forest landscape in which the alteration, when assessed from a significant public viewpoint, is (i) difficult to see, (ii) small in scale, and (iii) natural in appearance.	The goal is to repeat the line, form, colour and texture of the visual unit.	1 - 5	0 - 1.5
Partial Retention	Consisting of an altered forest landscape in which the alteration, when assessed from a significant viewpoint, is (i) easy to see, (ii) small to medium in scale, and (iii) natural and not rectilinear or geometric in shape.	Repetition of the line, form, colours and texture is important to ensure a blending with the dominant elements.	6 – 15	1.6 - 7.0
Modification	Consisting of an altered forest landscape in which the alteration, when assessed from a significant public viewpoint, (i) is very easy to see, and (ii) is (A) large in scale and natural in its appearance, or (B) small to medium in scale but with some angular characteristics.	The alteration must borrow from natural line and form to such an extent and on such a scale that are comparable to natural occurrences or events.	16 – 25	7.1 - 18.0
Maximum Modification	Consisting of an altered forest landscape in which the alteration, when assessed from a significant public viewpoint, (i) is very easy to see, and (ii) is (A) very large in scale, (B) rectilinear and geometric in shape, or (C) both.	Alterations may be out of scale or show detail quite different from natural occurrences or events.	26 – 40	18.1 - 30.0

The FSP defines viewpoint criteria and includes a minimum viewing time that is based on the *Visual Landscape Inventory: Procedures and Standards Manual (May 1997).* If there are no areas that meet the criteria for a viewpoint, a VIA will still be done; the lack of a viewpoint will be factored into the assessment of how consistent the block design is with the VQO.

The Kalum SRMP provides for a de facto visual quality objective for the Upper Copper River. Result

KK17-25 addresses this requirement. Should a VIA be carried out to meet the requirements of this result, then the viewpoint should be taken from the opposite bank of the Copper River at water level.

Natural events or other developments, such as linear corridors, on the landscape may cause disturbance to the landscape and have an effect on VQO's. To ensure there is not an undue impact on timber supply from these events or developments, **KK17-23** includes a clause that exempts the FSP Holders from having to consider the impact of a utility corridor when determining consistency with the VQO. This is consistent with the District Manager Policy – Utility Corridors Impacts to Visual Quality Polygons (2014).

SD3.10.1 MRVA/FREP: Visual Quality Objectives

According to the MRVA report of December 2013, the overall stewardship trend for visual quality objectives within the Kalum TSA is shown to be increasing.

Recommendations in the MRVA report include:

- Use techniques to create more natural looking openings.
- Use partial cutting to retain higher levels of stems.
- Reduce opening size in Retention and Partial Retention VQO areas.

This section of the supporting document discusses visual quality objectives and visual design techniques.

SD3.11 Forage and Associated Plant Communities

Forage in the context of this FSP is related to food required for livestock (i.e. for Range activities). There are no objectives for Forage. Subsequently, there are no results or strategies required. Nonetheless, some of the results or strategies within the FSP may have an impact on forage for wild species.

Forage for wild species occurs naturally. Forage for grizzly bear and moose UWR is managed within this FSP through reduced stocking requirements and minimum inter-tree distance when activities occur on certain plant associations. Wildlife movement through low elevation passes is maintained, allowing species to forage over their normal range. These results and strategies are captured in the FSP (results **KK17-05, KK17-18, and KK17-17**.

SD3.12 Cross Reference of Results and Strategies to all of the FRPA Resource Values

The following table shows how the results and strategies relate to the 11 forest values as described under the *Forest and Range Practices Act*.

(Y = Result or strategy relates to this value)

FSP Result or strategy Reference #	Soils	Timber	Wildlife	Water	Fish	Biodiversity	Cultural Heritage Resources	Recreation Resources	Resource Features	Visual Quality	Forage
KK17-01	Y			Y	Y	Y					
KK17-02	Y										
KK17-03		Y				Y					
KK17-04		Y									
KK17-05			Y			Y					
KK17-06			Y			Y					
KK17-07			Y			Y					
KK17-08			Y	Y	Y	Y					
KK17-09	Y			Y							
KK17-10	Y			Y							
KK17-11		Y	Y			Y					
KK17-12		Y	Y			Y					
KK17-13			Y			Y					
KK17-14		Y	Y			Y					
KK17-15			Y			Y					
KK17-16		Y	Y			Y					
KK17-17			Y			Y					
KK17-18			Y			Y					
KK17-19			Y	Y	Y	Y					
KK17-20			Y	Y	Y	Y					
KK17-21						Y					
KK17-22			Y			Y					
KK17-23								Y		Y	
KK17-24								Y		Y	
KK17-25				Y				Y		Y	
KK17-26							Y				
KK17-27							Y				
KK17-28							Y				
KK17-29							Y				
KK17-30							Y				
KK17-31								Y			
KK17-32								Y			
KK17-33								Y			
KK17-34								Y			
KK17-35								Y			

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SD4 ADDITIONAL INFORMATION

SD4.1 Additional FSP Information

SD4.1.1 Areas Under Cutting Authority (TSL, CP, FSR, RP)

The FSP maps show the blocks and roads that are currently under Cutting Permit (CP) or Road Permit (RP) and are under stewardship of the FSP Holders. In addition, cutblocks that are held by others under Timber Sales Licence, Cutting Permit, Forest Service Roads or Road Permit are also shown on the FSP maps.

SD4.1.2 Stocking Standards

The Stocking Standards in this FSP are based on established standards that have undergone extensive review, including the consideration of economically and ecologically viable species and the forest health risks associated with those species.

All the licensees in the CMNRD worked together and created one set of stocking standards that was approved for each licensee's forest development plan (FDP). This set of stocking standards was approved by the District Manager on March 11, 2003 and formed the basis of the stocking standards in the FSP Holders' previously approved FSP.

Notable changes to these originally approved socking standards have been introduced in this FSP or previous amendments to the FSPs for KVL and Kitselas.

1. The restrictions on spruce have been revised within the stocking standards based upon the risk to spruce from spruce leader weevil (generally based on Biogeoclimatic Zone and elevation) and weevil resistance of planted spruce seed sources. The FSP adds Table A5: Spruce Leader Weevil Hazard Ratings by BEC and Table A6: Maximum % of Spruce by Hazard. The spruce leader weevil hazard ratings in Table A5 were determined from local knowledge and field observations as well as review of available literature including: Heppner and Turner (2006); Hodgkinson, White, and Stock (2011); and Krakowski and King (2011). The first two documents (Extension Notes) measure hazard rating based on biogeoclimatic subzones in the Coastal and the Northern Interior regions. In both Extension Notes the number of degree days over 7.2 degrees was noted as the most critical factor when determining the weevil attack rate. For the coast, high hazard is identified on sites where it exceeds 888 degree-days per year above a 7.2 degree threshold and the Northern Interior it is on sites exceeding 820 degree-days per year above a 7.2 degree threshold. The Krakowski and King research applies to the Nass Skeena area only. This research attempted to correlate the characteristics of various spruce providence trials to attack severity. Although several correlations were found elevation was the best predictor of attack severity: sites below 350 m elevation had moderate to high attack severity and sites above this elevation range had attack severities from very low to moderate. As the Krakowski and King research is based on a review of provenance trials within the Nass Skeena area it appears to be the most relevant to the area of this FSP. This FSP modifies the 350 m elevation cut off between moderate and high hazard for the CWHws1 to 400 m based on personal observations (Rico Jorimann 2015) and as an accommodation to the risk of climate change affecting the spruce weevil hazard in this subzone.

   Table A6: Maximum % of Spruce by Hazard introduces the concept of resistant stock types to the FSP, this is based on King (2014); and Ying and Ebata (1994). This research found significant differences in performance between different spruce seed sources and this FSP attempts to identify best management practices by promoting spruce seed sources identified within the research. Best management practice is to plant with "A" class stock in areas with

low frost risk and where "A" class stock is available and allowable. Sitka spruce (hybrid) or identified provenances also show improved weevil resistance over coastal Sitka spruce provenances and perform better than "A" class stock in higher elevations and areas with a risk of frost. Identified provenances are those that have been shown to be resistant (e.g. Douglas Creek, Exstew, Cedarvale) by the King report. Because the majority of seedlots have not been genetically tested, spruce populations (shown as Ss or Sxs in the Seed Planning and Registry System [SPAR]) greater than 150 km drainage distance from the ocean will be assumed to be Sxs[30].

2. Standards within the CWHws1 for sites with a high incidence of Annosus root disease have been introduced. These standards promote less susceptible species and reduce the risk of future losses to Annosus root disease as well as increasing the minimum height required at free growing to ensure that incidence of Annosus is fully expressed. While relatively rare in the FDU, stands with high Annosus root disease incidence present a risk to future timber supply. Commonly accepted methods of control include 'push over' logging and stumping but both methods are difficult and expensive to implement for the majority of sites within the FDU. There are two strains of Annosus, but only the S-type strain has been detected in British Columbia[31], the S-type strain of Annosus affects most conifers but deciduous species are immune[32]. Cedar is considered a secondary host or to be moderately susceptible, lodgepole pine is considered a secondary host and to be tolerant of Annosus root disease, hemlock and spruce are considered highly susceptible in the FDUs but are significantly less susceptible than amabalis fir[33]. Birch, alder and cottonwood are not noted as species susceptible to Annosus within British Columbia. This FSP allows birch, alder and cottonwood to contribute to minimum stocking in stands with a high Annosus root disease incidence and where these species are considered ecologically appropriate within the stocking standards. Although lodgepole pine is noted as tolerant to Annosus root disease (S-type) its use has not been promoted further by this FSP due to the risk of Dothistroma and its poorer long term growth potential on many sites within the FDUs.

3. This FSP also makes changes with respect to western hemlock and mountain hemlock for transitional areas between the CWHws2 and the MHmm2. Although there is often a large transitional area between the CWHws2 and the MHmm2 where both western hemlock and mountain hemlock exist in significant amounts, western hemlock was not considered acceptable within the MHmm2 and mountain hemlock was not considered acceptable on zonal sites within the CWHws2. This FSP corrects this short coming by accepting western hemlock within some site series in the MHmm2 and mountain hemlock within some site series of the CWHws2 with some advisory footnotes. Western hemlock is only considered acceptable within the MHmm2 at lower elevations of the biogeoclimatic unit and restricted to sites where the species occurs as a major species in a pre-harvest, natural stand. Mountain hemlock is only considered acceptable within the CWHws2 at higher elevations of the Biogeoclimatic unit and restricted to sites where the species occurs as a major species in a pre-harvest, natural stand.

4. This FSP also introduces western larch and Douglas fir as acceptable species within certain sites in the ICHmc2 as per the most recent Chief Foresters Stocking Standards. To accommodate a changing climate, it is expected that tree species suited to lower elevations will migrate upwards in elevation and tree species at lower latitudes will move north. Douglas-fir and western larch which are non-indigenous species to the ICHmc2 sites will be classed as acceptable species only if approved in the Chief Forester's Standards for Seed Use.

5. Spruce in the CWHvm1 has been moved from acceptable to preferred, allowing it to contribute to target stocking. This is based on the experience of foresters on the offshore

[30] O'Neil et al., 2002; Bennuah et al., 2004; and Hamilton et al., 2012
[31] D.J. Morrison and A. L. Johnson, 1999.
[32] Field Guide to Forest Damage in British Columbia
[33] D.J. M Morrison, M. D. Larock and A.J. Waters, 1986.

portion of the FSP area, where the spruce leader weevil has only a limited effect on regenerated spruce. This is also consistent with the approach for spruce in the North Coast. A footnote is maintained that restricts the total amount of spruce that can be tallied.

6. A Fire Management Stocking Standard has been introduced to reduce the wildlife hazard risk near structures or infrastructure. More information on the FMSS is provided in Section SD3.2.3.
7. Western hemlock has been changed to preferred in ICHmc2 04 because of its good silviculture performance, the potential for significant naturally regenerating hemlock in this site series, and because spruce and cedar are also at significant risk to loss. Including hemlock as preferred in this site series decreases the risk of stand loss by increasing species diversity. Forest ecosystems are often not uniform and can vary over small distances and this is the basis for the inclusion of wording around the ability to have complexes of site series. Currently, the FSP Holders record-keeping system does not allow the reporting of these complexes, so the dominant site series stocking standard will be reported; however, information on the complexes will be available in the FSP Holders site plans.
8. A requirement to meet regeneration delay has been removed from **KK17-03** and the stocking standard tables in Appendix A of the FSP have been updated to clarify that regeneration delay dates provided are guidance. This minor change recognises that variation from the regeneration date can be accepted as long as the free-growing date is achieved. The obligation under FPPR s. 44(1)(a) around regeneration date is met when the prescribing forester sets the regeneration date in the site plan.

Guidelines are well-established for good health, form, and vigor for even-aged stands and layers 3 and 4 of uneven-aged stands. For layers 1 and 2 in uneven-aged management stands the criteria for good health, form, and vigor are not well-defined[34], so the following information is provided in support of the application of the FSP stocking standards to uneven-aged management. The multi-layer stocking standards provided in this FSP are consistent with the standards approved for licensees in the CMNRD. With respect to inter-tree distance for Layer 4 in these multi-layer stands, it is set at 1.0 m when planting has occurred in order to maximize suitable microsites (when planting is prescribed the reforestation strategy is to plant two to three seedlings per removed stem with planting microsites generally clustered around the stumps of removed stems).

Amendment 1 to the FSP in September 2020 enabled Section 197(5) of FRPA to allow the FSP Holders to amend the stocking standards for blocks already in existence (under a forest development plan) to conform to the stocking standards approved in the FSP. This was a minor administrative amendment that did not require approval from the District Manager[35].

SD4.1.3 Invasive Plants

Forest operations can influence the spread and establishment of invasive species through: seed transport on vehicles, equipment and clothing from one location to another; and soil disturbance that may allow invasive species to more easily establish.

The FSP must address invasive plants (FPPR s. 17) and the basis for the following measures for control of the invasive plant species identified in the *Invasive Plants Regulation* is a report on the subject prepared by Acer Resource Consulting Ltd.[36] – see **Appendix SDC**. While several options are presented in the report, only the ones considered practical and effective to prevent the introduction or spread of invasive species are used.

[34] J. Corstanje RPF, Practices Forester, BCTS. Personal Communication, March 28, 2006
[35] FSP Tracking System Newsletter, May 4 2010, Resource Tenures Branch
[36] B. Pollard, RPBio, January 2005

Use certified seed only in erosion control and grass-seeding activities.

Uncertified seed can contain weed plant seeds. Avoid planting invasive species by using only seed which has been certified as weed-free. Perennial native grasses and legumes should be used for re-vegetation purposes. As a minimum, the seed grade used should be Canada Common #1 Forage Mixture.

Road construction, logging and silviculture machinery that is to be transported from more than 200 km away from the CMNRD, and that is to do work under the authority of this FSP, must be washed before entering the FDU.

Invasive species' seeds can adhere to equipment, so any heavy duty equipment is to be washed, including skidders, brushers and other vehicles and equipment that are being transported more than **200 km** to the FSP area. This includes undercarriages, tire treads, mud flaps, and tracks. Road construction, logging, and silviculture machinery includes skidders, brushers, excavators, drills, loaders, and other heavy machinery. It also includes pickup trucks and ATVs if the vehicle has been off pavement.

In addition to these measures, the Invasive Alien Plant Program (IAPP) database may be consulted to identify if there are any documented occurrences of invasive plants near or within a proposed harvest area. Field personnel that notice occurrences of invasive plants near or within harvest area may take note and pass this along to the Northwest Invasive Plan Council (NWICP) or through the BC Report-A-Weed application[37].

The NWICP, a not-for-profit that provides support for invasive plant management in northwest BC, has identified the species listed in **Appendix SDC** as management priorities within the Stikine-Skeena South Invasive Plant Management Area (IPMA)[38]. NWIPC has divided the species into the following three management priorities:

- Regional early detection, rapid response (or "EDRR") species are those that have less than 10 active sites within the IPMA. These sites are actively managed by the NWIPC with the intent of eradicating new incursions of the species.
- High priority species are those that are currently identified within the IPMA and are being actively managed or would require active management if they were identified. These species are managed by the NWIPC to prevent spread and eradicate over time.
- Low priority species may be found in disturbed areas including agricultural settings, forestry operations, gravel pits, around industrial sites and storage yards. The NWIPC may manage these species if control action would help to prevent further spread, and after EDRR and high priority species management goals are met.

If an EDRR or high priority species is known to occur near a proposed harvest area, additional measures may be prescribed in the Site Plan. Field personnel may also choose to prioritize reporting of EDRR and high priority species.

SD4.1.4 Natural Range Barriers

Where applicable (FRPA s. 48), the FSP must specify measures to mitigate the effect of removing or rendering ineffective natural range barriers (FPPR s. 18). Section 3.4 of the FSP describes these measures.

For the purposes of this FSP, the definition of Natural Range Barrier is taken from the Glossary of Forestry Terms in BC (March 2008): "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".

[37] https://www.for.gov.bc.ca/hra/plants/raw.htm

[38] IPMA defined by the North West Invasive Plant Council: http://nwipc.org/documents/private/NWIPC_IPMA_Map.jpg

As of October 2015, the FDU overlaps with one range tenure (# RAN077588) in the eastern portion of the Kitselas FDU within TFL 1. The range tenure appears to be a grazing tenure for 10 horses. The western boundary of the range tenure follows the Clore River, Copper River and Limonite Creek. The natural boundary created by these rivers and creek may be considered a natural range barrier. At the time of writing this supporting document, none of the activities under this FSP are expected to remove or render ineffective a natural range barrier; however, wording has been provided as a measure in the FSP for ongoing consideration of natural range barriers.

SD4.1.5 Cumulative Effect

SD4.1.5.1 Multiple FSPs

Where applicable, the FSP must address the cumulative effect of multiple FSPs in an area (FPPR s. 19).

There are four effective FSPs that overlap with this FSP. The results and strategies from all of these FSPs have been compared and activities under the FSPs are not inconsistent with each other. The FSPs also share similar approaches to landscape level issues, including proportionality for old growth and seral stage analyses, so are consistent with each other in this respect as well.

A&A Trading and Terrace Community Forest

A&A Trading Ltd and Terrace Community Forest have an effective FSP (effective December 19, 2016) for operations in the Kalum TSA (excluding TFL lands), overlapping with this FSP along the Kitsumkalum River valley, Skeena River, and Kitimat River Valley.

The results and strategies from both of these FSPs have been compared, and activities under the A&A Trading and TCF FSP and this FSP will be consistent. The results and strategies that apply to the area of overlap between this FSP and the A&A Trading and TCF FSP are the same or very similar and there are no notable differences.

BC Timber Sales

BC Timber Sales has an effective FSP (effective July 4, 2016) for its operations within the Coast Mountains Natural Resource District (BCTS Kalum South FDU) that completely overlaps this FSP in the Cascadia and Kalum TSAs (including TFL 1 lands).

The results and strategies from both of these FSPs have been compared, and activities under the BCTS FSP and this FSP will be consistent. There are a number of differences between the two FSPs, however, most are simply differences in wording that do not create inconsistencies. Points of clarification between the plans are worthwhile with respect to the following results and strategies:

- Result **KK17-01** for Alwyn Creek watershed. The BCTS FSP does not have a similar result. Since the result is measured at the watershed level, if BCTS were to conduct activities prior to the FSP Holders this may preclude operations in this watershed by the FSP Holders.
- Strategy **KK17-02** with respect to road inspections. The BCTS FSP does not contain a similar strategy or result but adopts the FPPR practice requirements 35 and 36 for soils. The FSP Holders will apply strategy **KK17-02** in addition to these practice requirements so this does not create an inconsistency with the BCTS FSP.
- Strategy **KK17-04** with respect to Fire Management Stocking Standards. The BCTS FSP does not contain a similar strategy or result but does address wildfire management in Section 5.1.15 of their FSP. BCTS does not promote deciduous species but indicates that deciduous will be used in accordance with existing standards. This strategy is measured at the stand level; therefore, the approach to fire management on the FSP Holders' cutting authorities will not create any inconsistencies with the BCTS FSP.
- Strategies **KK17-26, KK17-27** and **KK17-28** with respect to cultural heritage resources. The BCTS FSP includes a single strategy with respect to cultural heritage resources. The

approaches are different in the two FSPs; however, both approaches are consistent with cultural heritage resource objective (FPPR s. 10).

- Strategy **KK17-16** for activities in a wildlife tree retention area. The approach to WTRA amendments is somewhat different in the BCTS FSP, and BCTS has not exempted from FPPR s. 67. Within **KK17-16,** paragraph (2) provides consistency with the BCTS FSP by requiring an exemption from the Minister as per FPPR s. 67.
- BCTS has adopted a strategy with respect to Permanent Sample Plots. This FSP does not include a similar strategy. The FSP Holders will avoid impacting PSPs where possible, so this does not create an inconsistency between the FSPs.

Coast Tsimshian Resources

Coast Tsimshian Resources has an effective FSP (effective March 26, 2007) for operations in the TFL 1 and the Kalum TSA, overlapping with this FSP along the Kitsumkalum River valley, Skeena River. CTR has a replacement FSP currently under review by the Ministry of Forests, Lands and Natural Resource Operations. A copy of this FSP has been shared with the FSP Holders for comparison.

The results and strategies from this FSP and the draft CTR FSP have been compared, and activities under both FSPs will be consistent, as the results and strategies that apply to the area of overlap are the same or very similar and there are no notable differences.

SD4.1.5.2 Forest and Range Evaluation Program

The Multiple Resource Value Assessment (MRVA) Report and other reports produced by the Forest and Range Evaluation Program provide information on the ecological state of the 11 resource values in FRPA and evaluate whether the objectives in relation to these values are being achieved. The MRVA reports provide information on the outcomes of the FSPs and practices of forest professionals and can be used in an ongoing manner to inform, clarify, or assess cumulative effects. Recent MRVA and FREP reports applicable to the FSP area have been reviewed and are addressed in section SD3.

SD4.1.6 Advertisement, Referrals, Reviews, and Comments

This FSP is made available to interested parties and to the general public for review and comment through advertisements that are placed in local newspapers. The FSP may also be provided to government agencies. Following the public review period, the MFLNRO reviews the plan as well as any documented comments received from other government agencies, the general public and First Nations groups. Any written comments that are received by the FSP Holders and how they have been addressed will be forwarded to the District Manager of the CMNRD for consideration when making a decision regarding approval of the FSP.

Specific details are provided in Section SD5 of this document.

SD4.1.6.1 Advertisements

Summaries of local newspaper insertions and website posting advertising the 60-day review period are included in Section SD5 when the FSP is submitted to the Delegated Decision Maker for approval.

SD4.1.6.2 Review and Comment / Documentation and Referral

Any comments received during the 60 day review period are reviewed by the FSP Holders. Summary of the comments and the FSP Holders' decisions relating to those comments are included in Section SD5 when the FSP is submitted to the Delegated Decision Maker for approval.

SD4.1.6.3 Public

A summary of written comments that are received from the general public, and FSP Holders' review of these comments, are provided in Section SD5 when the FSP is submitted to the Delegated Decision Maker for approval.

SD4.1.6.4 First Nations

The FSP Holders corresponds and may meet with First Nation groups and Nisga'a Lisims Government regarding this plan. Summaries of meetings, comments and responses are provided in Section SD5 when the FSP is submitted to the Delegated Decision Maker for approval.

SD4.1.6.5 Agencies

If applicable, information related to meetings, correspondence and discussions between the various governmental agencies and the FSP Holders are provided in Section SD5 when the FSP is submitted to the Delegated Decision Maker for approval.

SD4.1.7 FSP Maps

The boundaries of the FDUs were chosen primarily to match internal administrative boundaries and the asserted territories of Kitselas and Kitsumkalum First Nations. Other factors that may influenced the shape of the FDUs include watershed boundaries, trapline boundaries and other First Nations' asserted traditional territories.

SD4.2 Items Not Addressed in FRPA

SD4.2.1 Botanical Forest Products

While the FRPA legislation is silent on the need to address botanical forest products, it is expected that this may be identified as a resource feature in the future. Therefore, it is worthwhile mentioning that the botanical forest products in the FDUs are currently restricted to mushroom picking and sustenance harvest of medicinal plants.

SD4.2.1.1 Medicinal Plants

Through the review of traditional use information for First Nation groups, there has been some limited information identifying possible areas that were used for gathering medicinal plants. Unfortunately, the area information is quite general and the species of plants gathered at these sites is not clear. Generally, the maintenance of representative mature and immature timber types over the landscape, should ensure that medicinal plants are available for gathering.

SD4.2.1.2 Mushrooms

Mushroom picking is a highly variable and unregulated activity that can be very lucrative when the harvest is good and prices are high. While there are several mushroom species that qualify as botanical forest products on the FSP area, **pine mushroom** (*Tricholoma magnivelare*) is the most popular. Pine mushroom harvesting provides income to both local and transient mushroom pickers and buyers. The forest and pine mushroom industries can be in conflict since logging may remove pine mushroom host trees, reducing picking opportunities. Alternatively, timber development increases the area accessible by road, which increases the area accessible to the average mushroom picker. Regulation of pine mushroom activities to allow better monitoring of the industry has been discussed intermittently.

Recent research suggests that most pine mushrooms grow in soils with a poor nutrient and submesic moisture regime. Although these sites are not the most productive for timber

production, merchantable timber exists on these sites. However, this information is still somewhat uncertain as ground-truthing is difficult; many people are unwilling to share information regarding where they have found mushrooms. This has made managing forests to maintain options for mushroom picking difficult.

A recurring suggestion from mushroom pickers or the general public is to consider designating pine mushroom habitat areas as old growth management areas providing long term protection for these areas. This strategy of preserving mushroom ground may be short sighted, since mushroom production peaks in thrifty stands of timber approximately 50 to 200 years old. The best strategy for the resource includes timber harvesting practices that maintains a constant amount of forests in the maximum mushroom producing age group. For example, harvesting 10 percent of the mushroom ground every 20 years will ensure there is a continuous supply of thrifty forests. Strategy **KK17-11** and result **KK17-12** aid in achieving this goal.

The specific location of where botanical forest products are harvested is generally not shared between mushroom pickers and forest planners. It is critical that interested persons provide input during the FSP public review and comment period to mitigate any impacts timber development may have on all forest resources, including pine mushroom habitat.

SD5 PUBLIC, AGENCY AND FIRST NATION REVIEW AND COMMENT SUMMARY

The Forest Stewardship Plan is made available to interested parties and to the general public for review and comment. The general public is made aware that the FSP is available for review through advertisements that are placed in local newspapers. The FSP Holders will information share and may meet with First Nations' groups to discuss the plan.

Written comments that are received by the FSP Holders during the public review and how they have been addressed will be provided as part of this document when it is submitted for to the MLNRO for approval. This will include summaries of communications with First Nations' and their outcomes.

As a result of review and comment on this FSP by First Nations, government agencies, stakeholders, or the general public, changes or updates may be made to the review version of the FSP or this supporting document. Details of these changes or updates are provided behind Tab 5 to this document.

SD5.1 Advertisements

Newspaper insertions advertising the 60-day review period from June 16 to August 15, 2017 appeared in the following local newspapers:

- The Northern Connector on June 16, 2017; and
- The Terrace Standard on June 21, 2017.

The FSP and Supporting Documents were also posted to Westland Resources Limited website for review and comment on June 16, 2017.

Copies of these advertisements are provided behind Tab 1 of this document.

SD5.2 Review and Comment / Documentation and Referral

SD5.2.1 Public Review

Copies of letters or emails sent to non-First Nation or non-Agency stakeholders, and any subsequent correspondence are provided behind Tab 2 of this document when it is submitted to the MLFNRO for approval.

SD5.2.1.1 General Public

Members of the public are expected to provide comment through the public review period of the plan.

No comments were received from the general public during the public review period.

SD5.2.1.2 Recreation Groups

Commercial Recreation

Commercial recreation groups in the area are expected to provide comment through the public review of the plan. In some cases, letters were sent to groups holding commercial recreation tenures that overlap the FDU, informing them that the FSP was available for review and comment. Copies of letters or emails sent to commercial recreation groups are provided behind Tab 2 of this document.

No comments were received from commercial recreation groups or tenure holders during the public review period.

Non-commercial Recreation

Individual recreationists are expected to provide comment through the public review of the plan.

No comments were received from individual recreationists during the public review period.

SD5.2.1.3 Trapline Holders, Guide-Outfitters

Letters are sent to trapline holders and guide-outfitters whose areas overlap the FDUs, informing them that the FSP is available for review and comment.

The following comment was received:

- A trapline holder requested to be notified prior to harvesting in their trapline area. A commitment was made to notify the trapline holder at the cutting permit stage if activities are to occur in their area. There were no changes made to the FSP.

SD5.2.1.4 Other Forest Tenure Holders

Notifications were sent to the forest licensees whose normal operating areas overlap with or are adjacent to this FSP (A&A Trading, BC Timber Sales, Coast Tsimshian Resources, and Terrace Community Forest). Copies of the emails sent to forest licensees are provided behind Tab 2 of this document.

No comments were received from forest licensees during the public review period.

SD5.2.1.5 Kalum LRMP Plan Implementation Committee

A notification letter was sent of the Kalum LRMP Plan Implementation Committee.

A representative of the FSP Holders attended an information meeting with the Committee to discuss the FSP. The Committee provided comment on the FSP and Supporting Documents and the FSP Holders responded (provided behind Tab 2). No changes were made to the FSP as a result of comments from the committee.

SD5.2.2 First Nations and NLG

Letters were sent to First Nations groups and NLG whose traditional territory/treaty interest overlaps with the FDUs. A summary of communications as well as the correspondence, meeting notes, and file notes of discussions between the FSP Holder and First Nation groups or NLG are provided behind Tab 3 of this document when it is submitted to the MLFNRO for approval. The FDUs overlap with the traditional territory of the following First Nations groups:

- Gitga'at First Nation
- Gitxsan Hereditary Chiefs: Haakasxw and Gitwangak Gitxsan (Luulak, Sakum Higookxw, Tenim Gyet, and Wii Hlengwax)
- Haisla Nation
- Kitselas First Nation
- Kitsumkalum First Nation
- Lax Kw'alaams First Nation
- Metlakatla First Nation
- Office of the Wet'suwet'en
- Skin Tyee Nation
- Wet'suwet'en First Nation

The FSP also overlaps with the treaty interests of the Nisga'a Lisims Government.

SD5.2.2.1 Gitga'at First Nation

The FSP overlaps with a small portion of Gitga'at First Nation Territory. An information sharing package was sent to Gitga'at First Nation regarding the FSP. Gitga'at provided comments on the FSP and confirmed that the FSP overlaps with a portion of Gitga'at Territory. The FSP Holders responded to the comments from Gitga'at. No changes were made to the FSP as a result of comments from Gitga'at.

SD5.2.2.2 Gitxsan Hereditary Chiefs

The FSP overlaps with the following Gitxsan Wilp (Houses) and Laxyip (House Territories):

- Wilp Haakasxw: Xsansisnak (Kitselas FDU only)
- Wilp Luulak: Xsi Galdii Ess (Kitselas FDU only)
- Wilp Sakum Higookxw: Luu Mii Xsu Gwin Gaat (Kitselas FDU only)
- Wilp Tenim Gyet: Tsihl Gwellii (KVL FDU only)
- Wilp Wii Hlengwax: Gwi Tsoo (KVL FDU only)

An information sharing package was sent to Sim'oogit Haakasxw regarding the FSP. Subsequent communication was had by phone and some concerns of Sim'oogit Haakasxw were discussed. No changes were made to the FSP as a result of discussion.

An information sharing package was sent to the Simgiget'm Gitwangak Society as representative of the Gitwangak Wilp (Luulak, Sakum Higookxw, Tenim Gyet, and Wii Hlengwax). Subsequent communication between the Simgiget'm Gitwangak Society and the FSP Holders related to engagement protocols. At the time of submission, no comments specific to the FSP were received by the FSP Holders.

SD5.2.2.3 Haisla Nation

The FSP overlaps with Haisla First Nation Territory. An information sharing package was sent to Haisla First Nation regarding the FSP and the FSP Holders subsequently followed up by phone and email. At the time of submission, no comments were received by the FSP Holders.

SD5.2.2.4 Kitselas First Nation

The FSP encompasses a large portion of the Kitselas First Nation's Territory, as one of the FSP Holders is Kitselas First Nation. An information sharing package was sent to the Kitselas Department of Lands and Resources. A meeting was held with Kitselas Department of Lands and Resources to discuss the FSP, in particular any changes that were proposed from the previously approved FSP. No changes were made to the FSP in response to comments from this meeting.

SD5.2.2.5 Kitsumkalum First Nation

The FSP encompasses a large portion of the Kitsumkalum First Nation's Territory, as one of the FSP Holders is Kalum Ventures Limited the forestry management arm of the Kitsumkalum First Nation. An information sharing package was sent to the Kitsumkalum Environment, Lands and Referrals office. A meeting was held with Kitsumkalum Environment, Lands and Referrals to discuss the FSP. The FSP Holders provided a response to comments made in this meeting and made the following changes to the Supporting Document: section SD3.2.3 was added describing second growth harvest; and section SD4.1.3 was updated with further invasive species information.

SD5.2.2.6 Lax Kw'alaams First Nation

The FSP overlaps with Lax Kw'alaams First Nation's Territory. An information sharing package was sent to Lax Kw'alaams First Nation regarding the FSP. Subsequent communications with Lax Kw'alaams occurred by email. At the time of submission, no comments related to the FSP were received by the FSP Holders.

SD5.2.2.7 Metlakatla First Nation

The FSP overlaps with Metlakatla First Nation's Territory. An information sharing package was sent to Metlakatla First Nation regarding the FSP. A meeting was held with a Metlakatla representative to discuss the FSP. The FSP Holders provided a response to comments made in this meeting and made the following changes to the FSP and Supporting Document: Strategy KK17-26 was updated to acknowledge that a specific information sharing process may be developed between First Nation and the FSP Holders; and Result KK17-29 was updated to clarify that this result applies to cedar harvested by the FSP Holders on behalf of a First Nation.

SD5.2.2.8 Nisga'a Lisims Government

The FSP overlaps with the Nass Area and Nass Wildlife Area. An information sharing package was sent to the Nisga'a Lisims Government regarding the FSP and the FSP Holders subsequently followed up by phone and email. NLG provided a letter requesting a meeting to discuss the FSP. At the time of submission, a meeting with NLG was not yet scheduled.

SD5.2.2.9 Office of the Wet'suwet'en

The FSP overlaps with the Office of the Wet'suwet'en Territory. An information sharing package was sent to the Office of the Wet'suwet'en regarding the FSP. A representative of the Office of the Wet'suwet'en reviewed the FSP and provided comments by email. The FSP Holders provided a response to these comments. No changes were made to the FSP as a result of comments from Office of the Wet'suwet'en.

SD5.2.2.10 Skin Tyee Nation

The FSP overlaps with Skin Tyee Nation Territory. An information sharing package was sent to Skin Tyee Nation regarding the FSP and the FSP Holders subsequently followed up by email. At the time of submission, no comments were received by the FSP Holders.

SD5.2.2.11 Wet'suwet'en First Nation

The FSP overlaps with the Wet'suwet'en First Nation Territory. An information sharing package was sent to the Wet'suwet'en First Nation regarding the FSP. A representative provided information on Wet'suwet'en concerns in the FSP area of overlap. The FSP Holders provided a response to these concerns. No changes were made to the FSP as a result of comments from Wet'suwet'en.

SD5.2.3 Agencies

Referral to provincial and federal agencies is carried out if requested by the Delegated Decision Maker (as per FPPR s. 21(a)) or if the FSP Holders feel there is a need to refer to an agency. Information related to meetings, correspondence, and discussions between the various governmental agencies and the FSP Holders is provided behind Tab 4 of this document when it is submitted to the MLFNRO for approval.

SD5.2.3.3 BC Ministry of Forests, Lands and Natural Resource Operations

An expectations meeting was held with Coast Mountains Natural Resource District staff on May 5, 2017. Since then, professionals working on behalf of the FSP Holders have maintained informal contact with MFLNRO staff to ensure that information and understandings are current.

SD5.3 Summary of Revisions

A summary of any revisions that are made to the FSP is provided behind Tab 5 when this document is submitted to MLFNRO.

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SD6 SOURCES OF INFORMATION

Information is current to May 2017

Information Source	Publisher	Date of Publication
BIODIVERSITY		
Biodiversity Guidebook https://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/biodiv/biotoc.htm	MOF	September 1995
Landscape Unit Planning Guidebook https://www.for.gov.bc.ca/tasb/slrp/srmp/~Background/docs/LUGuide.pdf	MOF and MOE, Lands and Parks	1999
Managing and Tracking Wildlife Tree Retention Areas under the FRPA, FRPA General Bulleting No 15 https://www.for.gov.bc.ca/ftp/hth/external/!publish/Web/frpa-admin/frpa-implementation/bulletins/frpa-general-no-15-managing-and-tracking-wildlife-tree-retention-areas-under-FRPA-Apr-18-2008.pdf	MFLNRO	July 2014
Old Growth Management Area Amendment Policy, Skeena Region (Drafted by Skeena Region Forest Licensees and BC Timber Sales Skeena and Babine) http://www.env.gov.bc.ca/wld/documents/frpa/2010%20OGMA%20Amendment%20Policy%20Skeena.pdf	MFLNRO	August 2010
Order Establishing Provincial Non-Spatial Old Growth Objectives https://www.for.gov.bc.ca/tasb/slrp/policies-guides/old-growth/Old_Growth_Order_May18th_FINAL.pdf	MSRM	June 30, 2004
Wildlife Tree Retention: Guidance for District and Licensee Staff, FRPA General Bulleting No 8 https://www.for.gov.bc.ca/ftp/HTH/external/!publish/web/frpa-admin/frpa-implementation/bulletins/frpa-general-no-8-wildlife-tree-retention-area-dec-2011.pdf	MFLNRO	December 2011
CULTURAL HERITAGE RESOURCES, ARCHAEOLOGY		
Archaeological Overview Assessment for the Kalum TSA – prepared for the Kalum Forest District by Millennia Research	MOFR	1994
Archaeological Overview Assessment for TFL 1 – prepared for Skeena Cellulose Inc.	I.R. Wilson Archaeological Consultants	1995
Archaeology Branch – Remote Access to Archaeological Data; Archaeological Impact Assessment Guidelines https://www.for.gov.bc.ca/archaeology/index.htm	MFLNRO	Website last visited November4, 2016
Guidelines for Managing Cedar for Cultural Purposes http://www.for.gov.bc.ca/ftp/DSI/external/!publish/Stewardship/SIFD_Objectives_Matrix/7_Cultural_Heritage/Guidelines/Cedar_Guidelines_MOF_Consultation_Final_Jan_2005.pdf	MOF, Coastal Forest Region	January 2005
Metlakatla CMT Policy	Metlakatla Stewardship Office	Provided July 2017
ECOSYSTEM CLASSIFICATION		

Information Source	Publisher	Date of Publication
A Field Guide to Site Identification and Interpretation for the Prince Rupert Forest Region (Land Management Handbook 26)http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh26.htm	MOF	1993
BEC Map for the Kalum Subunit, Coast Mountains Resource District http://www.for.gov.bc.ca/hre/becweb/Downloads/Downloads_BGCmaps/field/DKM_Kalum_Field_South.pdf	MOF	May 2014
FIRST NATIONS		
Information on the Delgamuukw decision http://sisis.nativeweb.org/clark/gitksan.html	NativeWeb	Website visited November 4, 2016
FISHERIES AND WATERSHEDS		
Coastal Watershed Assessment Procedure Guidebook, 2nd Edition, Version 2.1 https://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/wap/wapgdbk-web.pdf	Forest Practices	August 1999
Coastal Watershed Procedure – Deep Creek and Spring Creek Community Watershed & Addendum to the March 5, 2003 report: Coastal Watershed Procedure – Deep Creek and Spring Creek Community Watersheds	Brian Roberts, M.Sc., P.Ag., G.I.T., BC Timber Sales	March 5, 2003 January 19, 2004
Community Watershed database https://catalogue.data.gov.bc.ca/dataset/community-watersheds-current	MOE	Accessed November 4, 2016
Order – Fisheries Sensitive Watersheds – Skeena Region http://www.env.gov.bc.ca/wld/frpa/fsw/order/f-6-001_f-6-005.pdf	MOE	Dec 28, 2005
Eulachon fishery – Pacific Region http://www.pac.dfo-mpo.gc.ca/fm-gp/commercial/pelagic-pelagique/eulachon-eulakane/index-eng.html	DFO	Website last visited November 4, 2016
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APPENDIX SDA: EVALUATION TOOL

This evaluation tool is provided to assist the Delegated Decision Maker (DDM) in determining consistency of the results and strategies in the FSP with the Objectives set by Government. The discussion of how to measure and/or verify a strategy or result is only provided to demonstrate that they are measurable or verifiable - it is not meant to constrain the Ministry of Forests, Lands and Natural Resource Operations in any way.

The structure of the tool is a table format that first describes an objective set by government, and then lists the strategies and/or results that are consistent with that objective. Where a reference number is **bolded**, the result or strategy was created specifically for that objective. Where a reference number is not bolded, it was created for another objective, but is noted as being consistent with the current objective as well.

Soil

FSP Ref #	Strategy or Result?	How it is Consistent with the Objective(s)	How it can be Measured or Verified
Objective(s):	FPPR s. 5: "The objective set by government for soils is, without unduly reducing the supply of timber from British Columbia's forests, to conserve the productivity and the hydrologic function of soils. "		
KK17-01	Result	Addresses an area of known soil sensitivity in an area that has been singled out in various public planning processes. (i.e. Kalum LRMP).	Road account can be reviewed. Can confirm that ECA calculations were done, and results can be reviewed after five years. Can confirm that road & channel assessment was done and operations are consistent with actions identified in the assessment.
KK17-02	Strategy	Takes an action on roads, which are known conduits for the movement of erodible soils. Regular inspections will allow the risk of erosion to be mitigated.	Information can be requested to determine if inspections were scheduled, carried out, and any items identified were prioritized for action.

Timber

FSP Ref #	Strategy or Result?	How it is Consistent with the Objective(s)	How it can be Measured or Verified
Objective(s):	FPPR s. 6: "The objectives set by government for timber are to (a) maintain or enhance an economically valuable supply of commercial timber from British Columbia's forests, and (b) ensure that delivered wood costs, generally, after taking into account the effect on them of the relevant provisions of this regulation and of the Act, are competitive in relation to equivalent costs in relation to regulated primary forest activities in other jurisdictions, and I ensure that the provisions of this regulation and of the Act that pertain to primary forest activities do not unduly constrain the ability of a holder of an agreement under the *Forest Act* to exercise the holder's rights under the agreement."		
KK17-03	Result	Stocking standards as identified are a way of ensuring that new forests will be viable from a commercial perspective, and this will ensure that costs of operating in future forests can be written off against known species of value.	Review of RESULTS and Annual declarations.

FSP Ref #	Strategy or Result?	How it is Consistent with the Objective(s)	How it can be Measured or Verified
KK17-04	Strategy	The Fire Management Stocking Standard (FMSS) protects urban areas/structures/infrastructure. On blocks where FMSS are applied, economically viable timber may be reduced; however, the FMSS should enhance the timber value by protecting adjacent stands from fire.	Review of RESULTS and Annual declarations. Stocking standards are utilized to determine the silviculture plan for an area – this would be referenced in Site Plans. Documentation on file showing how Wildland Urban Interface Threat Class was determined.
Objective(s):	Kalum SRMP - Objective 6: Maintain the natural composition of dominant tree species across each landscape unit and throughout the rotation.		
KK17-03	Result	Stocking standards as identified are biologically based and will ensure that appropriate tree species choices are made.	Review of RESULTS and Annual declarations.

Wildlife

FSP Ref #	Strategy or Result?	How it is Consistent with the Objective(s)	How it can be Measured or Verified
Objective(s):	FPPR s. 7(1): "The objective set by government for wildlife is, without unduly reducing the supply of timber from British Columbia's forests, to conserve sufficient wildlife habitat in terms of amount of area, distribution of areas and attributes of those areas, for (a) the survival of species at risk; (b) the survival of regionally important wildlife; and I the winter survival of specified ungulate species." Sections 9, 10, 11, 12, and 13 of the *Government Actions Regulation* (GAR) allows • the establishment of, and general wildlife measures for, "species at risk", "regionally important species", and "specified ungulate species". • designation of, and objectives for, ungulate winter range (UWR) • designation of "species at risk" *(coastal tailed frog, grizzly bear, and Marbled Murrelet)*, "regionally important species" *(n/a)*, and "specified ungulate species" *(Mountain Goat and Moose)*. As of January 2005, notices providing descriptions of habitat area, distribution, and attributes have been released by the Minister of WLAP for *coastal tailed frog, grizzly bear, and Marbled Murrelet; Mountain Goat and Moose*		
KK17-05 *Note: Applies to the FPPR s. 7 Notices for grizzly bears*	Result	Forage is an essential requirement for the survival of a species, and the revised stocking creates or maintains forage habitat.	Review of RESULTS and Annual declarations.
KK17-06 *Note: Applies to the FPPR s. 7 Notices for grizzly bear*	Strategy	Proposed Grizzly Bear WHA identify important grizzly bear habitat. This strategy is consistent with the objective to conserve habitat for grizzly bear while allowing operational flexibility.	If harvesting occurs or a road is built within a Proposed Grizzly Bear WHA, rationale is provided that explains the need for harvest as per (2a) or road building as per (2b) or QP evaluation as per (2c) is available. In addition, mutual decision between FSP Holder's representative and Ministry as per (2a) is on file.
KK17-11 *Note: Applies to the FPPR s. 7 Notices for grizzly bear and Marbled Murrelet.*	Strategy	Allows the establishment of a range of patch sizes - this is shown to be of benefit to Marbled Murrelet and grizzly bear (as per IWMS habitat characteristics).	Seral, patch analysis results.

FSP Ref #	Strategy or Result?	How it is Consistent with the Objective(s)	How it can be Measured or Verified
KK17-12 *Note: Applies to the FPPR s. 7 Notices for grizzly bear and Marbled Murrelet.*	Result	Allows the establishment of a range of patch sizes; this is shown to be of benefit to Marbled Murrelet and grizzly bear (as per IWMS habitat characteristics).	The same methodology for LU Seral/Patch distribution is to be used to evaluate movement towards patch size and seral stage distribution on a periodic basis (1 - 5 years). If C&E believes that the result is not being achieved, they can conduct an analysis based on the information provided by the licensee in its last annual reporting.
KK17-13 *Note: Applies to the FPPR s. 7 Notices for grizzly bear and Marbled Murrelet*	Result	Retains old seral stage forest which provides habitat characteristics for grizzly bear and Marbled Murrelet, as identified in the IWMS for these species.	If any harvesting occurs within an OGMA, review circumstances leading to harvest.
Objective(s):	Kalum SRMP - Objective 11: Maintain natural level of forage supply for grizzly bears in the watersheds identified on Map 7 by: a. providing an adequate supply of berry feeding; b. maintaining natural levels of forage supply as present in old growth forests; c. on the rich and wetter sites implement regeneration and free to grow standards consistent with Table 8. Vary from these standards based on site specific factor, provided parts a) and b) in this objective will be achieved; and, d. within McKay-Davies and Copper watersheds, no more than 30% of the forested land base, excluding hardwood, will be between 25 and 100 years old.		
KK17-07	Result	Seral stage distribution has been identified through the SRMP as being of benefit to grizzly bear, and this area was singled out as of particular importance.	Seral stage analysis.
KK17-05	Result	Forage is an essential requirement for the survival of a species, and the revised stocking creates or maintains forage habitat.	If harvesting occurs or a road is built within a Proposed Grizzly Bear WHA, rationale is provided that explains the need for harvest as per (2a) or road building as per (2b) or QP evaluation as per (2c) is available. In addition, mutual decision between FSP Holder's representative and Ministry as per (2a) is on file.

Fish

FSP Ref #	Strategy or Result?	How it is Consistent with the Objective(s)	How it can be Measured or Verified
Objective(s):	FPPR s. 8: "The objective set by government for water, fish, wildlife and biodiversity within riparian areas is, without unduly reducing the supply of timber from British Columbia's forests, to conserve, at the landscape level, the water quality, fish habitat, wildlife habitat and biodiversity associated with those riparian areas."		
KK17-08	Result	Retains basal area in riparian management zones, maintaining water quality, and contributing to fish & wildlife habitat and biodiversity (e.g. also contributes to the habitat attributes for coastal tailed frog).	As per result – Basal Area retention can be represented by area and can be in clumps or distributed along the entire stream.

FSP Ref #	Strategy or Result?	How it is Consistent with the Objective(s)	How it can be Measured or Verified
Objective(s):	FPPR s. 8.1: "(2) Until December 31, 2005 the objective set by government for fish habitat in fisheries sensitive watersheds is to prevent to the extent described in subsection (3) the cumulative hydrological effects of primary forest activities in the fisheries sensitive watershed from resulting in a material adverse impact on the habitat of the fish species for which the fisheries sensitive watershed was established. (3) The objective set by government under subsection (2) applies only to the extent that it does not unduly reduce the supply of timber from British Columbia's forests."		
n/a	n/a	*No Fisheries Sensitive Watersheds within FSP area*	n/a

Water

FSP Ref #	Strategy or Result?	How it is Consistent with the Objective(s)	How it can be Measured or Verified
Objective(s):	FPPR s. 8.2: "(2) The objective set by government for water being diverted for human consumption through a licensed waterworks in a community watershed is to prevent to the extent described in subsection (3) the cumulative hydrological effects of primary forest activities within the community watershed from resulting in (a) a material adverse impact on the quantity of water or the timing of the flow of the water from the waterworks, or (b) the water from the waterworks having a material adverse impact on human health that cannot be addressed by water treatment required under (i) an enactment, or (ii) the license pertaining to the waterworks."		
KK17-09	Result	Ensures that any logging in these Community Watersheds results in no hydrological impact but allows activities to occur, thereby limiting the timber supply impact.	No harvesting begins without having clear-cut equivalency calculated, or an assessment in place and a confirmation that the allowable thresholds have been met.
KK17-10	Result	No harvesting in these very small watersheds results in no hydrological impact, without a timber supply impact (i.e. Virginia Brook and Drake Creek Community watersheds).	No harvesting normally permitted in Virginia Brook and Drake Creek Community Watersheds. If harvesting, there must be a description in the Site Plan that indicates the forest health, fire, wind factors(s) and evidence that there was an agreement between a representative of the FSP Holders and Ministry on the need for timber harvesting.
Objective(s):	Kalum SRMP - Objective 17: Maintain the quality, quantity, and natural flow regimes of water in watersheds identified on Map 9 as newly established Community Watersheds. Ensure a clearcut equivalency of less than 20% of the watershed area in sub-basins larger than 250 hectares, unless a different threshold is determined as being more appropriate as a measure of maintenance of natural flow regimes.		
KK17-09	Result	Ensures that any logging in these Community Watersheds maintains the quality, quantity and natural flow regimes. Wording is similar to objective.	No harvesting begins without having clear-cut equivalency calculated, or an assessment in place and a confirmation that the allowable thresholds have been met.
KK17-10	Result	No harvesting in these very small watersheds results in no hydrological impact, without a timber supply impact (i.e. Virginia Brook and Drake Creek Community watersheds).	No harvesting normally permitted in Virginia Brook and Drake Creek Community Watersheds. If harvesting, there must be a description in the Site Plan that indicates the forest health, fire, wind factors(s) and evidence that there was an agreement between a representative of the FSP Holders and Ministry on the need for timber harvesting.

Biodiversity

FSP Ref #	Strategy or Result?	How it is Consistent with the Objective(s)	How it can be Measured or Verified
Objective(s):	FPPR s. 9: "The objective set by government for wildlife and biodiversity at the landscape level is, without unduly reducing the supply of timber from British Columbia's forests and to the extent practicable, to design areas on which timber harvesting is to be carried out that resemble, both spatially and temporally, the patterns of natural disturbance that occur within the landscape."		
KK17-11	Strategy	Provides for a distribution of seral stages and patch sizes across larger areas, providing for diversity at the landscape level.	Seral, patch analysis results.
KK17-12	Result	Provides for a distribution of seral stages and patch sizes across larger areas, providing for diversity at the landscape level.	The same methodology for LU Seral/Patch distribution is to be used to evaluate movement towards patch size and seral stage distribution on a periodic basis (1 - 5 years). If C&E believes that the result is not being achieved, they can conduct an analysis based on the information provided by the licensee in its last annual reporting.
Objective(s):	FPPR s. 9.1: "The objective set by government for wildlife and biodiversity at the stand level is, without unduly reducing the supply of timber from British Columbia's forests, to retain wildlife trees."		
KK17-15	Result	Wildlife trees to be retained in a harvest unit as per Kalum SRMP	Area of wildlife tree retention is within defined limits.
KK17-16	Strategy	Allows for operational flexibility while also retaining wildlife trees	Harvest of WTRA designated by other licencee is consistent with the FSP of the other licencee, or mature seral condition has been achieved on the cut block.
Objective(s):	**OLD GROWTH ORDER (Higher Level Plan Objectives):** The Minister of Sustainable Resource Management made an *Order Establishing Provincial Non-spatial Old Growth Objectives*, effective June 30, 2004. This Order establishes landscape units (LU) and biodiversity emphasis for each LU, and retention levels for old growth by natural disturbance type. This "Old Growth Order" requires an analysis of each LU with respect to the amount of old-growth remaining by biogeoclimatic ecological classification.		
n/a	n/a	*Not Applicable to this FSP – Superseded by Kalum SRMP*	n/a
Objective(s):	Kalum SRMP - Objective 1: Maintain a range of forest seral stages by biogeoclimatic variant, within each landscape unit, consistent with Tables 1, 2, and 3.		
KK17-11	Strategy	Provides for a distribution of seral stages and patch sizes across larger areas, providing for diversity at the landscape level.	Seral, patch analysis results.
KK17-12	Result	Provides for a distribution of seral stages and patch sizes across larger areas, providing for diversity at the landscape level.	The same methodology for LU Seral/Patch distribution is to be used to evaluate movement towards patch size and seral stage distribution on a periodic basis (1 - 5 years). If C&E believes that the result is not being achieved, they can conduct an analysis based on the information provided by the licensee in its last annual reporting.
Objective(s):	Kalum SRMP - Objective 2: Maintain old seral stage forest within each undeveloped watershed listed in Table 4 and shown on Map 3 consistent with Table 5.		
n/a	n/a	*Not Applicable to this FSP*	n/a

FSP Ref #	Strategy or Result?	How it is Consistent with the Objective(s)	How it can be Measured or Verified
Objective(s):	Kalum SRMP - Objective 3: Maintain or recruit old seral stage forest, reflective of the full range of ecosystems, including some with interior forest conditions, throughout each rotation within the Old Growth Management Areas shown on Map 4. Forest harvesting activities in the OGMAs are limited to insect or disease control measures that are necessary to mitigate severe damage to the habitat attributes in the OGMAs, or other resource values in the landscape.		
KK17-13	Result	Wording is similar to objective.	If any harvesting occurs within an OGMA, review circumstances leading to harvest.
Objective(s):	Kalum SRMP - Objective 4: Provide operational flexibility in managing OGMAs by allowing up to 10 hectares or 10% of the individual OGMA area, whichever is less, to be disturbed for one or more of the following purposes: • allowing road development where no practicable alternative exist; • to better reflect physical features that were intended to form the actual boundaries of the OGMA; • to improve harvest boundary alignment in a way that will contribute to the maintenance of the OGMA; • to address a compelling forest health issue; or, • to shift the location of the contiguous area of the OGMA to improve the retention of old forest attributes as identified through field assessment. The allowable disturbance described above is conditional upon a forest agreement holder identifying and reserving from harvesting an alternative area(s) within the same BEC variant within a landscape unit, provided the alternative area: • is of equal or greater extent in total than the area to be disturbed; and, • will result in equal or greater retention of key old forest attributes that are understood to be important for biodiversity conservation.		
KK17-14	Strategy	Wording is similar to objective.	If any harvesting occurs within an OGMA, review circumstances leading to harvest.
Objective(s):	Kalum SRMP - Objective 5: Maintain structural diversity in managed stands by retaining wildlife tree patches in each cut block, over the rotation, consistent with the targets in Table 6. Shift or vary targets shown in Table 6 among cut blocks within a cut block aggregate based on risks to biodiversity.		
KK17-15	Result	Wildlife trees to be retained in a harvest unit as per Kalum SRMP.	Area of wildlife tree retention is within defined limits.
KK17-16	Strategy	Allows for operational flexibility while also retaining wildlife trees.	Harvest of WTRA designated by other licencee is consistent with the FSP of the other licencee, or mature seral condition has been achieved on the cut block.
Objective(s):	Kalum SRMP - Objective 7: Attain a landscape pattern of patchiness that, over a long term, reflects the natural disturbance patterns as per Table 7.		
KK17-11	Strategy	Provides for a distribution of seral stages and patch sizes across larger areas, providing for diversity at the landscape level.	Seral, patch analysis results.
KK17-12	Result	Provides for a distribution of seral stages and patch sizes across larger areas, providing for diversity at the landscape level.	The same methodology for LU Seral/Patch distribution is to be used to evaluate movement towards patch size and seral stage distribution on a periodic basis (1 - 5 years). If C&E believes that the result is not being achieved, they can conduct an analysis based on the information provided by the licensee in its last annual reporting.

FSP Ref #	Strategy or Result?	How it is Consistent with the Objective(s)	How it can be Measured or Verified
Objective(s):	Kalum SRMP - Objective 8: Maintain forest stand structure and function for continued wildlife movement through the level pass between the Kiteen (Ksi Gahlt'in) and Cedar drainages identified on Map 5. • Within polygon "A", retain 100 % of forested area. • Within polygon "B", timber harvesting will be limited to partial cutting systems.		
KK17-17	Result	Allows for conservation of movement habitat in a low-level pass, which will provide for species survival.	100% of the forested area located in polygon "A" is retained. Within polygon "B", timber harvesting is limited to partial cutting systems (i.e. seed tree; shelterwood; single-tree or group selection; retention).
Objective(s):	Kalum SRMP - Objective 9: Maintain forest stand structure and function to facilitate wildlife movement, in the level pass between the Williams and Thomas/Clore watersheds identified on Map 5.		
KK17-18	Result	Allows for conservation of movement habitat in a low-level pass, which will provide for species survival.	No commercial harvest from within the identified corridor (unless as described).
Objective(s):	Kalum SRMP - Objective 10 (as amended by Land Use Objectives Regulation Order to Amend the Kalum SRMP for the Skeena Islands Area, effective December 7, 2017): Conserve rare plant community complexes on the Skeena Islands identified on Map 6, according to a), b), c) & d): a. Within the High Conservation Areas[1], retain 100% of the Crown forested land. b. Outside the High Conservation Areas, retain a forested, harvest-free 50-metre buffer around all back channels. c. Outside the High Conservation Areas, retain a forested, harvest-free 50-metre buffer around coniferous stumps, logs, and snags greater than 50 cm in diameter and around live coniferous trees greater than 50 cm in diameter at breast height. d. Only where it is otherwise not practicable and the objective to conserve rare plant community complexes can be achieved, may new roads be constructed within the High Conservation Areas to access timber outside those areas. *[1]For the area identified as "Salvus", government-led research activities, including harvesting for research purposes, is allowed.*		
KK17-19	Result	Provides a mechanism for ensuring that rare plant associations are conserved (i.e. plant communities are retained from harvest or important ecosystem features a retained).	No harvest in High Conservation Area except for road building for stated purposes. Site plan indicates how buffers were retained around specified features, and, for any roads built in the High Conservation Area, a rationale is provided
Objective(s):	Kalum SRMP - Objective 12: Maintain wildlife habitat and biodiversity within the Lakelse River Special Resource Management Zone (Map 8). • In Subzone 1 - no harvesting of timber or blowdown salvage will occur. • In Subzone 2 - early seral stage target is a maximum of 27%; the maximum opening size is 15 hectares; a minimum 15 % retention within the cut blocks is required to add structural diversity; and in any five year planning cycle at least 50% of the volume harvested is to be harvested by using a selection silviculture system.		
KK17-20	Result	The early seral stage requirement allows for a balancing of seral stages over time and the limitation of less than 50% clear-cut harvest systems will also buffer the potential for an over-supply of early seral.	In Subzone 2: Early seral stage at less than 27%. Cut blocks less than 15 ha clear-cut (net). At least 15% retention in clear-cut blocks. If any cutting, at least 50% partial cut systems at the end of the FSP term.
Objective(s):	Kalum SRMP - Objective 13: Maintain biological diversity and ecosystem representation within the Upper Kitsumkalum Valley by not harvesting timber within the Upper Kitsumkalum SRMZ (Map 8). Road construction is acceptable to access the timber outside of SRMZ where there is no other practicable route alternative.		
KK17-21	Strategy	Strategy ties to the Timber objective - addresses cost. Strategy also clarifies the intent of "no logging" in the SRMZ: i.e. it does not say "no road construction"	Rationale is provided with the CP/RP
Objective(s):	Kalum SRMP - Objective 14: Conserve uncommon reticulated fens (Map 8) within the Miligit Valley area.		
KK17-22	Result	No logging or road construction with the uncommon reticulated fens in the identified areas.	Identified on FSP maps.

Visual Quality

FSP Ref #	Strategy or Result?	How it is Consistent with the Objective(s)	How it can be Measured or Verified
Objective(s):	FRPA s. 181: "All objectives in respect of areas continued under section 180 that were in effect immediately before the effective date are continued as objectives under this Act." GAR s. 17: "A visual quality class for a scenic area is continued under this regulation as visual quality objective if (a) the visual quality class has been (i) set out before October 24, 2002 in a letter from the district manager to the holder of an agreement under the *Forest Act*, or (ii) included in the most recent tree farm license visual landscape inventory prepared by the holder of a tree farm license and approved by the regional manager, and (b) in existence on the coming into force of this section. (a) FPPR s. 9.2(2): "The objective set by government in relation to visual quality for a scenic area, that was established on or before October 24, 2002, and (b) for which there is no visual quality objective is: to ensure that the altered forest landscape for the scenic area (c) in visual sensitivity class 1 is in either the preservation or retention category, (d) in visual sensitivity class 2 is in either the retention or partial retention category, (e) in visual sensitivity class 3 is in either the partial retention or modification category, (f) in visual sensitivity class 4 is in either the partial retention or modification category, and in visual sensitivity class 5 is in either the modification or maximum modification category."		
KK17-23	Strategy	Consistency is achieved in that the process defines how VSCs will be handled and evaluated as VQOs, and then indicates how management around the VQOs will occur.	VIAs will be done - if concern that VIA were not done or VQO not met, C&E can request the VIA.
KK17-24	Result	Addresses VSCs as well as VQOs	VIAs will be done - if concern that VIA were not done or VQO not met, C&E can request the VIA.
Objective(s):	Kalum SRMP - Objective 15: Maintain a feeling of remoteness and pristine viewscape on the Upper Copper River (Zymoetz River) above the Limonite Creek (within the Kalum SRMP area). The following are practice requirements: a. permit only one bridge crossing at any time; and, b. retain a minimum of 100 meters no harvest reserve on both sides of the river. Less than 100 meters reserve is acceptable where this makes "best" operational/environmental practice, or for other site specific-reasons, provided the objective is met.		
KK17-25	Result	Is consistent with the SRMP and provides for a Preservation VQO along a limited area.	Either a 100 m reserve strip along the river, or a Site Plan describing how the Preservation VQO is achieved.
Objective(s):	Kalum SRMP - Objective 16: Maintain the visual quality of the area visible from the Sue Channel/Hawkesbury Island protected area (Map 8) by: • applying single tree or group selection silviculture system; and, • limiting the maximum opening size to 1-2 tree lengths.		
n/a	n/a	Not Applicable to this FSP	n/a

Cultural Heritage Resources

FSP Ref #	Strategy or Result?	How it is Consistent with the Objective(s)	How it can be Measured or Verified
Objective(s):	FPPR s. 10: "The objective set by government for cultural heritage resources is to conserve, or, if necessary, protect cultural heritage resources that are (a) the focus of a traditional use by an aboriginal people that is of continuing importance to that people, and (b) not regulated under the Heritage Conservation Act."		
KK17-26	Strategy	This strategy allows the identification, review, and update of traditional use and cultural heritage information between First Nations and the FSP Holders prior to development. Consistency with the cultural heritage resources objective is achieved by providing a method for conservation and protection of known cultural heritage resource information, and for continual updates to cultural heritage resource information.	Summaries of the process are provided to the District Manager and copied to the First Nation representative.
KK17-27	Strategy	This strategy allows for information sharing and review between the FSP Holders and the Nisga'a Lisims Government regarding forest development that will be occurring within lands subject to Nisga'a Treaty rights.	At a minimum, information sharing will occur annually if there are planned activities occurring within the next year. Where no activities are planned, a telephone, email or letter exchange will occur.
KK17-28	Strategy	This strategy allows the identification and review of traditional use and cultural heritage information that has not been captured in the development of this FSP or made available through KK17-26. Consistency with the cultural heritage resources objective is achieved by providing for stand-level mitigation of identified cultural heritage resources when necessary.	Information on previously unidentified cultural heritage resource features and a description of any mitigative measures will be provided to the District Manager and First Nations representative.
KK17-29	Result	This result provides for the maintenance of a resource (cedar) for an identified traditional use. Consistency with the cultural heritage resources is achieved by allowing cultural harvest of cedar (a cultural heritage resource of continued importance) within retention areas. Consistency with other objectives (i.e. the objective for water, fish wildlife and biodiversity at the stand level and within riparian areas) is achieved by allowing cedar harvest provided the function of retention area is maintained.	No more removal by the FSP Holders than allowed from retention areas. Measurement method is described.
KK17-30	Result	This result provides for assurance that windthrow risk is being evaluated and managed within the Nass Area of the Nisga'a Final Agreement. Consistency with the cultural heritage resources objective is achieved by this result being provided in response to input from a FN. (Avoidance of windthrow is also consistent with the objective for water, fish wildlife and biodiversity at the stand level and within riparian areas.)	For each block within the Nass Area included in a Cutting Permit, a windthrow assessment card is in the FSP Holder's file. Site Plan shows how windthrow was managed if the area has a moderate or higher risk.

Recreation Resources

FSP Ref #	Strategy or Result?	How it is Consistent with the Objective(s)	How it can be Measured or Verified
Objective(s):	**RECREATION TRAILS & SITES (Higher Level Plan Objectives):** As of March 2012, the following are Recreation Sites/Trails that have established Higher Level Plan Objectives and are within an FDU under this FSP:		
KK17-31	Result	Retention wording is directly from the objectives. Wording regarding the crossing of trails is necessary to ensure no undue impact on timber supply.	No disturbance of trails within 10 m, except where approved. Documentation of referral or consultation with Ministry responsible for the trail can be requested or is provided in Cutting Permit, Road Permit, or Forest Service Road submission.
KK17-32	Result	Retention wording provided to ensure no disturbance of shoreline areas and to maintain natural vegetation within sites	No disturbance of foreshore within 10 m. Documentation of referral or consultation with Ministry responsible for the site can be requested or is provided in Cutting Permit, Road Permit, or Forest Service Road submission.
KK17-33	Strategy	Strategy allows small scale timber harvesting and silvicultural practices within the Red Sand Lake Interpretive Forest Site.	Any planned activity will be referred to the Ministry responsible for the site.
KK17-34	Result	Wording is as per the objective, except for a clarification that allows access (unlikely) for planning or silviculture activities (this is consistent with the need for a competitive timber industry).	If C&E identifies any motorized activity outside of the window, can investigate and confirm if for a planning/silvicultural activity. Exemption provided by the Ministry responsible for the trail.
KK17-35	Result	Ensures access is not denied and that there will be road maintenance; result does not preclude the road being at a better than 4WD status.	Roads under FSP Holder control are at 4WD or better access.

Invasive Species

FSP Measure	How it is Consistent with Legislation?	How it can be Measured or Verified
Invasive Plants:	FRPA s 17: For the purpose of section 47 *[invasive plants]* of the Act, a person who prepares a forest stewardship plan must specify measures in the plan to prevent the introduction or spread of species of plants that are invasive plants under the Invasive Plants Regulation, if the introduction or spread is likely to be the result of the person's forest practices.	
Use certified seed only in erosion control and grass-seeding activities.	Uncertified seed can contain weed plant seeds. Avoid planting invasive species by using only seed which has been certified as weed-free. Perennial native grasses and legumes should be used for re-vegetation purposes	Seed purchase records.
Wash road construction, logging, and silviculture machinery* that is to be transported more than 200 km to the FDU. **Includes skidders, brushers, excavators, drills, loaders, and other heavy machinery. Also includes pickup trucks and ATVs if the vehicle has been off pavement.*	Prevents transport of invasive plants.	Inspection records.

Natural Range Barriers

FSP Measure		How it is Consistent with Legislation?	How it can be Measured or Verified
Natural Range Barrier:	FPPA s 18: "For the purpose of section 48 *[natural range barriers]* of the *Act*, a person who prepares a forest stewardship plan must specify measures to mitigate the effect of removing or rendering ineffective natural range barriers."		
The following steps will be taken by the FSP Holder in the FDU(s) in regard to natural range barriers: 1. Each year under the term of this FSP, the FSP Holder will determine if the FDU(s) overlaps with or is immediately adjacent to range tenures. 2.If the FSP Holder determines that its activities will remove or render ineffective a natural range barrier for a range tenure identified in (1), the FSP Holder will identify appropriate measures to mitigate these effects (e.g., access control at bridges). 3. The FSP Holder will inform the range tenure holder of measures identified in (2) and will consider additional or alternative measures if identified through discussions with the range tenure holder. 4. The FSP Holder will implement the measures identified in (2) or alternative measures identified through discussion with the range tenure holder in (3).		The measures provide a way to deal with any future effects that the FSP Holder may have on natural range barriers associated with existing range tenures or any future range tenures issued within the FSP area.	Query of range tenure data; rational for determination in step (2); measures and communication records with range tenure holder, if measures are determined to be necessary in step (2).

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APPENDIX SDB: IDENTIFIED SPECIES AND PLANT COMMUNITIES AT RISK

Table SDB-1. Species and Plant Communities at Risk Identified through FRPA.

Category/Species	Date Designated	Potentially within FSP Area?[39]	Notice of Habitat Attributes, Amount & Distribution in Place?[40]
Amphibians			
Blotched Tiger Salamander	May 6, 2004	No	No
Coastal/Pacific Tailed Frog	**May 6, 2004**	**Yes**	**Yes**
Coeur d'Alene Salamander	May 6, 2004	No	No
Great Basin Spadefoot	May 6, 2004	No	No
Northern Leopard Frog	May 6, 2004	No	No
Northern Red-legged Frog	May 6, 2004	No	No
Coastal/Pacific Giant Salamander	May 6, 2004	No	No
Rocky Mountain Tailed Frog	May 6, 2004	No	No
Birds			
American White Pelican	June 6, 2006	No	No
Ancient Murrelet	May 6, 2004	No	No
Bay-breasted Warbler	June 6, 2006	No	No
Black-throated Green Warbler	June 6, 2006	No	No
Brewer's Sparrow, *breweri* subspecies	June 6, 2006	No	No
Burrowing Owl	May 6, 2004	No	No
Cape May Warbler	June 6, 2006	No	No
Cassin's Auklet	June 6, 2006	No	No
Connecticut Warbler	June 6, 2006	No	No
Flammulated Owl	May 6, 2004	No	No
Grasshopper Sparrow	June 6, 2006	No	No
Great Blue Heron, *fannini* subspecies	May 6, 2004	No	No
Great Blue Heron, *herodias* subspecies	**June 6, 2006**	**Yes**	**No**
Hairy Woodpecker, *picoideus* subspecies	June 6, 2006	No	No
Lewis's Woodpecker (including Georgia Depression pop'n)	May 6, 2004	No	No
Long-billed Curlew	May 6, 2004	No	No
Marbled Murrelet	**May 6, 2004**	**Yes**	**Yes**
Nelson's Sharp-tailed Sparrow	June 6, 2006	No	No
Northern Goshawk, *laingi* subspecies	May 6, 2004	No	No
Northern Pygmy-owl, *swarthi* subspecies	June 6, 2006	No	No
Northern Saw-whet Owl, *brooksi* subspecies	May 30, 2005	No	No
Prairie Falcon	June 6, 2006	No	No
Sage Thrasher	May 6, 2004	No	No
Sandhill Crane	June 6, 2006	No	No
Sharp-tailed Grouse, *columbianus* subspecies	June 6, 2006	No	No
Short-eared Owl	May 6, 2004	No	No
Spotted Owl	May 6, 2004	No	No
Western Screech-Owl, *macfarlanei* subspecies	May 6, 2004	No	No

[39] Determined through a query of the BC Species and Ecosystems Explorer for species within the Kalum Forest District on November 9, 2016

[40] Management not required under the FSP until this information is in place

Category/Species	Date Designated	Potentially within FSP Area?[39]	Notice of Habitat Attributes, Amount & Distribution in Place?[40]
White-headed Woodpecker	May 6, 2004	No	No
White-tailed Ptarmigan, *saxatilis* subspecies	June 6, 2006	No	No
Williamson's Sapsucker, *natalie* subspecies	June 6, 2006	No	No
Williamson's Sapsucker, *thyroideus* subspecies	June 6, 2006	No	No
Yellow-breasted Chat	May 6, 2004	No	No
Fish			
Bull Trout	**June 6, 2006**	**Yes**	**No**
Cutthroat Trout, *lewisi* subspecies	June 6, 2006	No	No
Vananda LakeCreek Benthic Stickleback	May 6, 2004	No	No
Vananda LakeCreek Limnetic Stickleback	May 6, 2004	No	No
Invertebrates			
Gillett's Checkerspot	June 6, 2006	No	No
Half-moon Hairstreak	June 6, 2006	No	No
Johnson's Haristreak	June 6, 2006	No	No
Quatsino Cave Amphipod	June 6, 2006	No	No
Sonora Skipper	June 6, 2006	No	No
Mammals			
American Badger	May 6, 2004	No	No
American Water Shrew	June 6, 2006		
Bighorn Sheep	June 6, 2006	No	No
Caribou (including northern mountain [pop.15], southern mountain [pop.1], & boreal [pop.14] populations)	**May 6, 2004**	**Yes**	No
Fisher	**June 6, 2006**	**Yes**	**No**
Fringed Myotis	May 6, 2004	No	No
Grizzly Bear	**May 6, 2004**	**Yes**	**Yes**
Keen's Myotis	May 6, 2004	No	No
Pacific Water Shrew	May 6, 2004	No	No
Spotted Bat	May 6, 2004	No	No
Vancouver Island Marmot	May 6, 2004	No	No
Wolverine (subspecies *luscus, vancouverensis*)	**May 6, 2004**	**Yes**	**No**
Plants			
Scouler's Corydalis (*Corydalis scouleri*)	May 6, 2004	No	No
Tall Bugbane (*Actaea elata*)	May 6, 2004	No	No
Plant Communities			
Alkali saltgrass – Nuttall's alkaligrass	June 6, 2006	No	No
Antelope-brush/ bluebunch wheatgrass	June 6, 2006	No	No
Antelope-brush/ needle-and-thread grass	June 6, 2006	No	No
Douglas-fir/ Alaska oniongrass	June 6, 2006	No	No
Douglas-fir/ common juniper/ clad lichens	June 6, 2006	No	No
Douglas-fir/ common snowberry/ arrowleaf balsamroot	June 6, 2006	No	No
Douglas-fir/ dull Oregon-grape	June 6, 2006	No	No
Hybrid white spruce/ ostrich fern	June 6, 2006	No	No
Ponderosa pine/ bluebunch wheatgrass – silky lupine	June 6, 2006	No	No
Vasey's big sagebrush/ pinegrass	June 6, 2006	No	No
Water birch/roses	June 6, 2006	No	No
Western hemlock – Douglas-fir/ electrified cat's-tail moss Dry Submaritime 2	June 6, 2006	No	No
Western redcedar – Douglas-fir/ vine maple	June 6, 2006	No	No
Western redcedar – Douglas-fir/ devil's club	June 6, 2006	No	No
Western redcedar/ devil's club/ ostrich fern	June 6, 2006	No	No

Category/Species	Date Designated	Potentially within FSP Area?[39]	Notice of Habitat Attributes, Amount & Distribution in Place?[40]
Reptiles			
Gopher Snake, *deserticola* subspecies	May 6, 2004	No	No
North American Racer	June 6, 2006	No	No
Western Rattlesnake	June 6, 2006	No	No

Table SDB-2. Species with a BC Conservation Status listing of Red or Blue and/or a species listed on Schedule 1 of the *Species at Risk Act* within the Kalum Forest District[41]

Name	BC Status	Schedule 1, Species at Risk Status	Biogeoclimatic Zone (if available)
Amphibian			
Coastal Tailed Frog	Yellow	1-SC (Jun 2003)	CWH;ESSF;ICH;IDF;MH;MS
Western Toad	Yellow	1-SC (Jan 2005)	BG;BWBS;CDF;CWH;ESSF;ICH;IDF;PP;SBS;SWB
Birds			
Band-tailed Pigeon	Blue	1-SC (Feb 2011)	CDF;CWH;ICH;IDF;MS;SBS
Barn Swallow	Blue	--	BAFA;BG;BWBS;CDF;CWH;ESSF;ICH;IDF;IMA;MH;MS;PP;SBPS;SBS;SWB
Black Swift	Blue	--	BAFA;BG;CDF;CMA;CWH;ESSF;ICH;IDF;IMA;MH;MS;PP;SBPS;SBS;SWB
Common Nighthawk	Yellow	1-T (Feb 2010)	BG;BWBS;CDF;CWH;ESSF;ICH;IDF;MH;MS;PP;SBPS;SBS;SWB
Eared Grebe	Blue	--	BAFA;BG;BWBS;CMA;CWH;ESSF;ICH;IDF;IMA;MH;MS;PP;SBPS;SBS
Great Blue Heron, *herodias* subspecies	Blue	--	BG;ICH;IDF;MS;PP;SBS
Marbled Murrelet	Blue	1-T (Jun 2003)	CDF;CWH;MH
Northern Goshawk, *atricapillus* subspecies	Blue	--	--
Olive-sided Flycatcher	Blue	1-T (Feb 2010)	BWBS;CDF;CWH;ESSF;ICH;IDF;MH;MS;PP;SBPS;SBS;SWB
Peregrine Falcon, *pealei* subspecies	Blue	1-SC (Jun 2003)	CDF;CWH
Rusty Blackbird	Blue	1-SC (Mar 2009)	BG;BWBS;CDF;CWH;ESSF;MS;PP;SBPS;SBS;SWB
Fish			
Bull Trout	Blue	--	BG;BWBS;CWH;ESSF;ICH;IDF;MS;PP;SBPS;SBS;SWB
Cutthroat Trout, *clarkii* subspecies	Blue	--	BWBS;CDF;CWH;ICH;SBS
Eulachon	Blue	--	CWH
Least Cisco	Blue	--	BWBS
Invertebrate			
Afranius Duskywing	Red	--	CMA;CWH;ESSF;ICH;MH
Black Petaltail	Blue	--	CWH
Frigid Lymnaea	Blue	--	BAFA;BWBS;CMA;CWH;ESSF;ICH;MH;SBS;SWB
Northern Abalone	Red	1-E	CDF;CWH
Northern Tightcoil	Blue	--	ESSF;ICH
Western Meadow Fritillary, *sigridae* subspecies	Blue	--	BAFA;BWBS;ESSF;SBS;SWB
Mammals			
Caribou (northern mountain population)	Blue	1-T/SC (Jan 2005)	BWBS;ESSF;MH;SBS
Fisher	Blue	--	BAFA;BWBS;CDF;CMA;CWH;ESSF;ICH;IDF;IMA;MH;MS;PP;SBPS;S

[41] Determined through a query of the BC Species and Ecosystems Explorer for species within the Kalum Forest District on August 30, 2017. This list is restricted to species that breed in the District and does not include migrants. Northern Goshawk, *atricapillus* subspecies was not included on the list for the Kalum Forest District, but is known to occur in the District.

Name	BC Status	Schedule 1, Species at Risk Status	Biogeoclimatic Zone (if available)
			BS;SWB
Grizzly Bear	Blue	--	BAFA;BWBS;CMA;CWH;ESSF;ICH;IDF;IMA;MH;MS;SBPS;SBS;SWB
Little Brown Myotis	Yellow	1-E (Dec 2014)	BG;BWBS;CDF;CWH;ESSF;ICH;IDF;MH;MS;PP;SBPS;SBS;SWB
Mountain Goat	Blue	--	BAFA;BG;BWBS;CDF;CMA;CWH;ESSF;ICH;IDF;IMA;MH;MS;PP;SBPS;SBS;SWB
Stone's Sheep	Blue	--	--
Wolverine, *luscus* subspecies	Blue	--	BAFA;BWBS;CMA;CWH;ESSF;ICH;IDF;IMA;MH;MS;SBPS;SBS;SWB
Plants			
blinking owl (*Solorina spongiosa*)	Red	--	CWHds;CWHvh;CWHvm;CWHws
bog adder's-mouth orchid (*Malaxis paludosa*)	Blue	--	CWHvh;CWHvm;CWHwh;SBSdw;SBSwk
Bryhnia hultenii (*Bryhnia hultenii*)	Red	--	CWH;MH
bullet-proof pixie (*Cladonia macroceras*)	Blue	--	CWHvh;CWHwh;MHmm
Caesar's tarpaper (*Collema bachmanianum*)	Red	--	CWHvm
cryptic paw (*Nephroma occultum*)	Blue	1-SC (Dec 2007)	BWBSmw;CDFmm;CWHvh;CWHvm;SWBmk;SWBmks
Dicranodontium asperulum (*Dicranodontium asperulum*)	Blue	--	CWH;MH
eared tarpaper (*Collema auriforme*)	Red	--	CWHvm;ESSFwvp
Edwards wallflower (*Eutrema edwardsii*)	Blue	--	BAFA;CMA;SWBmk;SWBun
eminent bluegrass (*Arctopoa eminens*)	Red	--	CWHvm
fig-leaf pixie (*Cladonia macrophylla*)	Red	--	BAFAunp;MHmm
frosted glass-whiskers (*Sclerophora peronella*)	Red	--	CWHws
gilled tarpaper (*Collema polycarpon*)	Red	--	CMAunp;CWHvh;CWHws;SBSmc
Hornemann's willowherb (*Epilobium hornemannii ssp. behringianum*)	Blue	--	CWHwh;ICHmm;ICHvc;SWBmk;SWBun
Kamchatka spike-rush (*Eleocharis kamtschatica*)	Blue	--	CWHvh;CWHvm;CWHwh;CWHwm
lance-fruited draba (*Draba thompsonii*)	Blue	--	BAFA;CMA;IMA
oldgrowth specklebelly (*Pseudocyphellaria rainierensis*)	Blue	1-SC (Jul 2012)	CMAunp;CWHvh;CWHvm;MHwh
Orthotrichum rivulare (*Orthotrichum rivulare*)	Blue	--	CWHds;CWHms;CWHwh;CWHxm;PPxh
perfoliate pondweed (*Potamogeton perfoliatus*)	Blue	--	BWBSdk;CWHdm;ICHmw;IDFxh

Name	BC Status	Schedule 1, Species at Risk Status	Biogeoclimatic Zone (if available)
Phipps' hawthorn (*Crataegus phippsii*)	Blue	--	BGxw;IDFxh
pincushion tarpaper (*Collema ceraniscum*)	Red	--	CWHvm
pitted beard (*Usnea cavernosa*)	Blue	--	CWHwh;ESSFwc;ICHmw;MHmm;SWBmk
seaside tarpaper (*Collema fecundum*)	Blue	--	CWHvm;CWHws;ESSFwc;ICHdw;ICHmc;IDFxh
smoker's lung (*Lobaria retigera*)	Blue	--	CWHdm;CWHmm;CWHvh;CWHvm;CWHwh;CWHxm;ESSFmw;ICHmc;IMAunp;MHmm
white adder's-mouth orchid (*Malaxis brachypoda*)	Blue	--	BWBSdk;BWBSmw;CDFmm;CWHdm;CWHvm;CWHwh;CWHws;CWHxm;SBSvk
whitebark pine (*Pinus albicaulis*)	Blue	1-E (Jul 2012)	BAFAun;BAFAunp;CMAunp;CWHdm;CWHds;CWHms;CWHun;CWHvm;CWHws;ESSFdc;ESSFdcp;ESSFdcw;ESSFdk;ESSFdkp;ESSFdku;ESSFdkw;ESSFdm;ESSFdmp;ESSFdmw;ESSFdv;ESSFdvp;ESSFdvw;ESSFmc;ESSFmcp;ESSFmk;ESSFmkp;ESSFmm;ESSFmmp;ESSFmv;ESSFmvp;ESSFmw;ESSFmwp;ESSFmww;ESSFvc;ESSFvcp;ESSFvcw;ESSFwc;ESSFwcp;ESSFwcw;ESSFwk;ESSFwm;ESSFwmp;ESSFwmu;ESSFwmw;ESSFwv;ESSFwvp;ESSFxc;ESSFxcp;ESSFxcw;ESSFxv;ESSFxvp;ESSFxvw;ICHdm;ICHdw;ICHmc;ICHmk;ICHmm;ICHmw;ICHvk;ICHwk;IDFdc;IDFdk;IDFdm;IDFdw;IDFww;IDFxc;IDFxh;IMAun;IMAunp;MHmm;MHmmp;MSdc;MSdk;MSdm;MSdv;MSmw;MSxk;MSxv;SBPSxc;SBSdh;SBSmc;SBSvk;SBSwk
windward rocktripe (*Umbilicaria lambii*)	Blue	--	BWBSdk;CMAunp;ESSFxc;ICHmc

Table SDB-3. Plant Communities with a BC Conservation Status listing of Red or Blue within the Kalum Forest District[42]

Name	BC Status	Biogeoclamatic Zone (if available)
(balsam poplar, black cottonwood) - spruces / red-osier dogwood	Red	ICHwk4/Fm02;SBSdk/08;SBSmc2;SBSwk1/Fm02
amabilis fir - Sitka spruce / devil's club	Blue	CWHvm1/08;CWHvm2/08
amabilis fir - western redcedar / devil's club Moist Submaritime	Blue	CWHms1/06;CWHms2/06;CWHws1/06
amabilis fir - western redcedar / oak fern	Blue	CWHms1/04;CWHms2/04;CWHws1/04;CWHws2/04
beaked ditch-grass Herbaceous Vegetation	Red	CDFmm/Em01;CWH/Em01
black cottonwood - red alder / salmonberry	Blue	CDFmm/08;CWHdm/09;CWHds1/09;CWHds2/09;CWHmm1/09;CWHms1/08;CWHms2/08;CWHvm1/10;CWHwm/06;CWHws1/08;CWHws2/08;CWHxm1/09;CWHxm2/09
black cottonwood - subalpine fir / devil's club	Blue	ICHmc1/Fm03;ICHmc2/Fm03;ICHvc/Fm03;ICHwc/06;ICHwc/Fm03;SBSvk/Fm03
black spruce / buckbean / peat-mosses	Blue	ICHmc2/Wb11;ICHmw3/Wb11;ICHvk2/Wb11;ICHwk3/Wb11;SBSdw2/Wb11;SBSmc2/Wb11;SBSwk1/Wb11
black spruce / skunk cabbage / peat-mosses	Blue	ICHmc2/Ws09;ICHvk2/Ws09;SBSvk/Ws09;SBSwk1/Ws09
buckbean - slender sedge	Blue	CDFmm/Wf06;CWHws1/Wf06;ICHwk1/Wf06;IDFdk2/Wf06;SBSdk/Wf06
dune wildrye - beach pea	Red	CDFmm;CWHdm;CWHds1;CWHms2;CWHvh1;CWHvh2;CWHvm1;CWHwh1;CWHwm;CWHws1;CWHxm1;CWHxm2
few-flowered spike-rush / hook-mosses	Red	ESSFmc/Wf09;ESSFxc/Wf09;ESSFxv1/Wf09;MSdm2/Wf09;MSxv/Wf09;SBPSxc/Wf09;SBSmc2/Wf09
Hudson Bay clubrush / rusty hook-moss	Red	SBSmc2/Wf10;SBSmk2/Wf10
hybrid white spruce - paper birch / devil's club	Blue	ICHmc2/54;SBSmh/07
Labrador-tea / western bog-laurel / peat-mosses	Blue	CDFmm/Wb50;CWHdm/Wb50;CWHvm1/Wb50;CWHxm1/Wb50;CWHxm2/Wb50
lodgepole pine / few-flowered sedge / peat-mosses	Blue	ESSFmc/Wb10;ESSFwc3/Wb10;ICHwk2/Wb10;SBSmc2/Wb10
lodgepole pine / kinnikinnick	Red	CWHws1/02;CWHws2/02
Lyngbye's sedge herbaceous vegetation	Red	CDFmm/Em05;CWH/Em05
mountain alder / common horsetail	Blue	BWBSdk/Fl01;CWHwm/Fl01;ICHvc/Fl01;ICHvk1/Fl01;MSxv/Fl01;SBSvk/Fl01
mountain alder / red-osier dogwood / lady fern	Blue	ICHmc2/Fl02;ICHvc/52;ICHvc/Fl02;ICHwc/52;ICHwc/Fl02;ICHwk1/Fl02;ICHwk4/Fl02;SBSdk/Fl02;SBSmk2/Fl02;SBSvk/Fl02;SBSwk1/Fl02
narrow-leaved cotton-grass - shore sedge	Blue	ESSFdc1/Wf13;ESSFdc3/Wf13;ESSFmc/Wf13;ESSFmw/Wf13;ESSFwc2/Wf13;ESSFxc/Wf13;MSdm1/Wf13;SBSwk2/Wf13
northern mannagrass Fen	Blue	CWHvh2;ESSFdv;MSxv;SBPSxc
purple reedgrass Herbaceous Vegetation	Red	BAFA;IMA/

[42] Determined through a query of the BC Species and Ecosystems Explorer for species within the Kalum Forest District on August 30, 2017. This list is restricted to species that breed in the District and does not include migrants.

Name	BC Status	Biogeoclamatic Zone (if available)
red alder / salmonberry / common horsetail	Blue	CDFmm/09;CDFmm/Fl51;CWHvh1/10;CWHvh1/Fl51;CWHvh2/10;CWHvh2/Fl51;CWHwh1/09;CWHwh1/Fl51
Sandberg's bluegrass - slender wheatgrass	Red	ESSFmc;SBSdk/82;SBSmc2
saskatoon / slender wheatgrass	Red	ESSFmc;ESSFwv;ICHmc1;ICHmc2;SBSdk/81;SBSmc2
scheuchzeria / peat-mosses	Blue	ICHmc2/Wb12;ICHmk3/Wb12;SBSdw3/Wb12;SBSmc2/Wb12;SBSvk/Wb12
scrub birch / water sedge	Blue	BWBSdk/Wf02;BWBSmk/Wf02;BWBSmw/Wf02;ESSFdc1/Wf02;ESSFdc3/Wf02;ESSFdv/Wf02;ESSFdv2/Wf02;ESSFmv2/Wf02;ESSFwc3/Wf02;ESSFwk2/Wf02;ESSFxc/Wf02;ESSFxv2/Wf02;ICHmc2/Wf02;ICHvk2/Wf02;ICHwk2/Wf02;ICHwk3/Wf02;ICHwk4/Wf02;IDFdk1/Wf02;IDFdk3/Wf02;IDFdk4/Wf02;IDFdm2/Wf02;MSdc2/Wf02;MSdk/Wf02;MSdm1/Wf02;MSxk/Wf02;MSxv/Wf02;SBPSdc/Wf02;SBPSmc/Wf02;SBPSmk/Wf02;SBPSxc/Wf02;SBSdk/Wf02;SBSdw1/Wf02;SBSmc2/Wf02;SBSmm/Wf02;SBSvk/Wf02;SBSwk1/Wf02;SBSwk2/Wf02;SWBmk/Wf02
sea plantain - dwarf alkaligrass	Red	CWH/Em04
shore sedge - buckbean / hook-mosses	Blue	BWBSdk/Wf08;BWBSmk/Wf08;ESSFwc3/Wf08;ESSFxc/Wf08;ESSFxv1/Wf08;MSdc1/Wf08;MSdc3/Wf08;MSdm3/Wf08;MSdm3w/Wf08;MSmw1/Wf08;MSxk/Wf08;MSxv/Wf08;SBPSdc/Wf08;SBSdk/Wf08;SBSmc2/Wf08;SBSmk2/Wf08;SBSwk1/Wf08
shore sedge - buckbean / peat-mosses	Blue	CWHws1/Wb13;CWHws2/Wb13;ICHmc1/Wb13;ICHvc/Wb13;ICHwk2/Wb13;SBSmk1/Wb13
Sitka sedge - Pacific water-parsley	Blue	CWHvh2/Wm50;CWHwm/Wm50;CWHxm1/Wm50
Sitka sedge / peat-mosses	Red	CWHvh2/Wf51;CWHvm1/Wf51;CWHvm2/Wf51;CWHwh1/Wf51;CWHwm/Wf51;CWHws2/Wf51;ICHvc/Wf51;ICHwc/Wf51;MHmm1/Wf51
Sitka spruce - mountain hemlock / Pacific reedgrass	Blue	MHwh/03;MHwh1/03
Sitka spruce / false lily-of-the-valley Wet Hypermaritime 1	Red	CWHvh2/08;CWHwh1/07
Sitka spruce / Oregon beaked-moss	Blue	CWHvh1/15;CWHvh2/15;CWHwh1/14
Sitka spruce / Pacific crab apple	Blue	CWHvh1/19;CWHvh2/19;CWHwh1/18
Sitka spruce / Pacific reedgrass	Blue	CWHvh1/16;CWHvh2/16;CWHwh1/15
Sitka spruce / salal	Blue	CWHvh1/14;CWHvh2/14
Sitka spruce / salmonberry Very Wet Maritime	Red	CWHvm1/09
Sitka spruce / salmonberry Wet Maritime	Blue	CWHwm/05
Sitka spruce / salmonberry Wet Submaritime 1	Red	CWHws1/07
Sitka spruce / salmonberry Wet Submaritime 2	Blue	CWHws2/07
Sitka spruce / skunk cabbage	Blue	CWHwm/09
Sitka spruce / slough sedge	Blue	CWHvh1/18;CWHvh2/18;CWHwh1/17
Sitka spruce / sword fern	Blue	CWHvh1/17;CWHvh2/17
Sitka spruce / tall trisetum	Red	CWHvh1/09;CWHvh2/09;CWHwh1/08

Name	BC Status	Biogeoclamatic Zone (if available)
Sitka willow - Pacific willow / skunk cabbage	Red	CDFmm/Ws51;CWH/Ws51;ICH/Ws51
Sitka willow / Sitka sedge	Blue	CWHvm1/Ws06;CWHvm2/Ws06;ICHvk1/Ws06;MSdc1/Ws06;MSdm1/Ws06;MSmw2/Ws06;SBSvk/Ws06;SBSwk1/Ws06
slender sedge / common hook-moss	Blue	BWBSdk/Wf05;BWBSmk/Wf05;ICHdk/Wf05;ICHmc1/Wf05;ICHmc2/Wf05;ICHmw1/Wf05;ICHmw3/Wf05;ICHvk1/Wf05;ICHwk1/Wf05;ICHwk2/Wf05;IDFdk1/Wf05;IDFdk3/Wf05;IDFdk4/Wf05;IDFdm2/Wf05;MSdk/Wf05;MSdm1/Wf05;MSdm2/Wf05;MSdm3/Wf05;MSdm3w/Wf05;SBPSdc/Wf05;SBPSmk/Wf05;SBPSxc/Wf05;SBSdk/Wf05;SBSmc2/Wf05;SBSmk1/Wf05;SBSwk1/Wf05
sweet gale / Sitka sedge	Red	CDFmm/Wf52;CWHmm1/Wf52;CWHmm2/Wf52;CWHvh2/Wf52;CWHwm/Wf52;CWHxm1/Wf52;CWHxm2/Wf52
tufted clubrush / golden star-moss	Blue	BWBSdk/Wf11;ESSFdc1/Wf11;ESSFdc2/Wf11;ESSFdc3/Wf11;ESSFdv/Wf11;ESSFdv2/Wf11;ESSFwc2/Wf11;ESSFwc3/Wf11;ESSFwk1/Wf11;ESSFxc/Wf11;ICHmc2/Wf11;ICHmw1/Wf11;ICHmw3/Wf11;ICHvk1/Wf11;MSdm2/Wf11;SBSdk/Wf11;SBSwk1/Wf11
tufted hairgrass - Douglas' aster	Red	CDFmm/Ed02;CWH/Ed02
tufted hairgrass - meadow barley	Red	CDFmm/Ed01;CWH/Ed01
western hemlock - amabilis fir / deer fern	Blue	CWHvm1/06;CWHvm2/06
western hemlock - lodgepole pine / red-stemmed feathermoss	Blue	CWHws1/03;CWHws2/03
western hemlock - Sitka spruce / lanky moss	Blue	CWHvh1/04;CWHvh2/04;CWHwh1/01;CWHwh2/01
western hemlock - Sitka spruce / step moss	Blue	CWHwm/02
western hemlock - western redcedar / salal Very Wet Maritime	Blue	CWHvm1/03;CWHvm2/03
western hemlock / cloudberry / peat-mosses	Red	ICHmc2/Wb04;ICHvc/Wb04;ICHwc/Wb04
western hemlock / common green peat-moss	Blue	CWHwm/08
western hemlock / kinnikinnick / clad lichens	Blue	ICHmc1/02;ICHmc2/02
western redcedar - Sitka spruce / devil's club Very Wet Hypermaritime 2	Blue	CWHvh2/07
western redcedar - Sitka spruce / skunk cabbage	Blue	CWHdm/12;CWHds1/12;CWHds2/12;CWHmm1/12;CWHms1/11;CWHms2/11;CWHvh1/13;CWHvh2/13;CWHvm1/14;CWHwh1/12;CWHwh2/06;CWHws1/11;CWHxm1/12;CWHxm2/12
western redcedar - Sitka spruce / sword fern	Blue	CWHvh1/05;CWHvh2/05;CWHwh1/03
western redcedar - western hemlock / sword fern	Blue	CWHmm1/04;CWHmm2/04;CWHvm1/04;CWHvm2/04
whitebark pine / clad lichens - curly heron's-bill moss	Blue	ESSFmk/02;ESSFmk/03
yellow-cedar - mountain hemlock / rosy twistedstalk	Blue	MHwh/05;MHwh1/05

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APPENDIX SDC: INVASIVE PLANTS INFORMATION

Stikine Skeena South IPMA Invasive Plant List[43]

NWIPC Management Priority	Species	Listed in the Invasive Plants Regulation
Regional EDRR - species has been identified in Stikine Skeena South IPMA	Black knapweed	Y
	Blueweed*	Y
	Chicory	N
	English Holly*	N
	Field scabious	Y
	Greater knapweed*	N
	Knotweed - Giant*	Y
	Nodding thistle*	Y
	Tansy ragwort*	Y
	Wild Chervil	N
	Yellow flag iris*	Y
Regional EDRR - species has not been identified in Stikine Skeena South IPMA	Baby's-breath	Y
	English ivy	N
	Garden yellow loosestrife	N
	Giant hogweed	N
	Gorse	Y
	Hawkweed, mouse-ear (aka meadow hawkweed)	Y
	Hawkweed, whiplash	N
	Himalayan blackberry	N
	Hoary alyssum	Y
	Knotweed - Bohemian	N
	Meadow knapweed	Y
	Purple loosestrife	Y
	Russian knapweed	Y
	Russian thistle	N
	Scotch thistle	Y
	Spurge, cypress	N
	Spurge, leafy	Y
	Sulphur cinquefoil	Y
	Wild carrot	N
	Wormwood	N
	Yellow floating heart	N
High Priority - species has been identified in Stikine Skeena South IPMA	Brown knapweed	Y
	Common tansy*	Y
	Diffuse knapweed	Y
	Hawkweed, spotted*	N
	Himalayan balsam	N
	Knotweed - Himalayan	N
	Knotweed - Japanese	Y

[43] Adapted from the 2017 Northwest Invasive Plant Council Prioritized Plant Lists by IPMA

NWIPC Management Priority	Species	Listed in the Invasive Plants Regulation
	Marsh plume thistle (aka marsh thistle)	Y
	Mountain bluet	N
	Scotch Broom	Y
	Spotted hawkweed*	N
	Spotted knapweed	Y
	St John's-wort*	Y
	Yellow archangel	N
Lower Priority - species has been identified in Stikine Skeena South IPMA	Bull thistle	Y
	Canada thistle	Y
	Common burdock	Y
	Common comfrey	N
	Dalmatian toadflax	Y
	Hawkweed - orange	Y
	Hawkweed - yellow	N
	Oxeye daisy	Y
	Scentless chamomile	Y
	Yellow toadflax	Y
Lower Priority - species has not been identified in Stikine Skeena South IPMA	Bishop's Goutweed	N
	Bladder campion	N
	Common bugloss	N
	Meadow goat's-beard	N
	Mossy stone crop	N
	Plumeless thistle	Y

Invasive Plant Report

ACER RESOURCE CONSULTING LTD

4820 Halliwell Ave.
Terrace, BC V8G 4R6
phone: 250-638-0110
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bpollard@acerresourceconsulting.com

January 14, 2005

Rick Brouwer, R.P.F.
Northwest Timberlands,
4915 Halliwell Avenue,
Terrace, BC

Dear Rick:

Re: Recommendations for Control of Invasive Plant Species through Responsible Forestry Operations

As we have discussed, the following is a series of recommendations designed to control the spread of noxious weeds. Most are based on controlling weed spread predominant in agricultural areas of the province but can also be applied to any activity where ground disturbing machines are imported temporally from other areas are used, or where site disturbance and re-vegetation could potentially introduce non-native species. The source for most of the recommendations is the Ministry of Highways Standard Specifications, the Ministry of Forests and the Ministry of Agriculture, Food and Fisheries.

1. **Re-seed immediately after soil disturbance.**
Many invasive plants require disturbed soils for establishment. Areas which are prone to disturbance, such as landings and road margins should be re-seeded as soon as possible.

2. **Use certified seed only.**
Uncertified seed can contain weed plant seeds. Avoid planting invasive species by using only seed which has been certified as weed-free. Perennial native grasses and legumes should be used for re-vegetation purposes.

3. **Wash equipment prior to transporting from one geographic area to another.**
Invasive species' seeds can adhere to equipment. Pick-ups, skidders, brushers and other vehicles and equipment should be thoroughly steam-cleaned before moving from one area to another. This includes undercarriages, tire treads, mud flaps, tracks, etc.

4. **Animals used in forestry operations.**
Many invasive plants can be spread by animals in the form of burrs attached to hair or seeds contained in mud and dirt. Animals should be groomed and their feet cleaned prior to transportation. Animals can also transport weed plants internally. Animals such as horses and sheep should be fed a weed-free diet and confined to a small pasture or corral before being moved to another geographic area. Dogs should be brushed to remove burrs and seeds before leaving an area.

5. **Transportation of gravel and fill.**

Fill should not be moved from one geographic area to another, although because of expense, this is seldom a problem with forestry operations.

6. Recreational sites.
Recreational sites can be made accessible through the construction of forestry roads. The influx of vehicles and boats can spread invasive aquatic plants such as Eurasian milfoil. Signs should be posted at recreational sites warning of the dangers of spreading such species.

7. Use of organic products in operations.
If organic materials such as hay bales are to be used for erosion control they must be weed free. Question the distributor or use inorganic products, such as silt fencing.

8. Do not pick or transport any roadside plants.
Many invasive species are escaped cultivars, which may look attractive. Do not re-plant any roadside plants, especially without proper identification. If a plant is to be picked for identification, place in a plastic bag and dispose of by burning. Do not compost!

9. Awareness of invasive species.
Invasive species can often be eradicated if identified and removed at an early stage. Personnel involved in forestry operations should have some awareness of identification and the risks of spreading invasive species. Contractors and others should be informed and have access to management strategies and identification guides.

10. Periodic inspections.
Ditches and stream banks should be periodically inspected for invasive species, as seeds can be spread by running water. Workers involved in stream assessments and ditch maintenance should have some familiarity with weed identification.

Identification guides can be obtained from the Ministry of Forests, the Ministry of Agriculture, Food and Fisheries, or online at www.weedsbc.ca or at www.agf.gov.bc.ca/cropprot/weedguid/weedguid.htm.

A list of plants under regulation by the Invasive Plants Regulation is available online at www.for.gov.bc.ca/tasb/legsregs/frpa/frparegs/invplants/ipr.htm

11. Reporting weed infestations.
Infestations of invasive plants not previously identified in an area should be reported to the Ministry of Forests or to the Ministry of Agriculture, Food and Fisheries.

Please feel free to contact me if you have any further questions.

Sincerely,

Brad T. Pollard, R.P.Bio.
Acer Resource Consulting Ltd.

APPENDIX SDD: WILDLAND URBAN INTERFACE WILDFIRE THREAT ASSESSMENT WORKSHEET

WILDLAND URBAN INTERFACE WILDFIRE THREAT ASSESSMENT WORKSHEET ☐ Pre-treatment ☐ Post-treatment

Plot #:	Community:
Assessor:	Geographic Location/Street Name:
Date:	GPS/UTM:
Photos: Y N #:	Land Ownership: ☐ Crown ☐ Private ☐ I.R. Other (specify)

	COMPONENT /Subcomponent	LEVELS				
	Fuel	**A**	**B**	**C**	**D**	**E**
1	*Duff Depth and Moisture Regime (cm)*	1–<2 3	2–<5 Dry Zonal Wet 5 3 1	5–<10 Dry Zonal Wet 10 6 2	10–20 Dry Zonal Wet 12 8 4	>20 Dry Zonal Wet 15 10 5
2	*Surface Fuels Continuity (% cover)*	<20 0	20–40 2	41–60 3	61–80 4	>80 5
3	*Vegetation Fuel Composition*	Moss, Herbs, Irrigated Crops, Low Flammability Weeds 1	Herbs, Deciduous Shrubs 2	Lichen, Conifer Shrubs 3	Pinegrass, Juniper 4	Sagebrush, Bunchgrass, Antelope Brush, Scotch Broom 5
4	*Fine Woody Debris Continuity (<=7cm) (% cover)*	<1 coverage 1	Scattered, <10 coverage 5	10-25 coverage 7	>25 coverage, < 10 cm deep 10	>25 coverage, > 10 cm deep 15
5	*Large Woody Debris Continuity (>7cm) (% cover)*	<1 coverage 1	Scattered, <10 coverage 2	10-25 coverage 5	> 25 coverage, not elevated 7	>25 coverage, partially elevated 10
6	*Live and Dead Coniferous Crown Closure (%)*	<20 2	20–40 5	41–60 10	61–80 15	>80 10
7	*Live Deciduous Crown Closure (%)*	>80 or <40% coniferous crown closure 0	61-80 2	41–60 3	20–40 4	<20 5
8	*Live and Dead Conifer Crown Base Height (m)*	5+ or <20% conifer crown closure 0	3–5 5	2–<3 7	1–<2 10	< 1 15
9	*Live and Dead Suppressed and Understorey Conifers (stems/ha)*	0-500 2	501-1000 5	1001-2000 10	2001-4000 20	>4000 30
10	*Forest Health (% of dominant and co-dominant stems)*	Standing Dead and Partly Down < 5 or <20 stems/ha 0	Standing Dead and Partly Down 5-25 5	Standing Dead and Partly Down >25-50 10	Standing Dead and Partly Down >50 - 75 20	Standing Dead and Partly Down >75 30
11	*Continuous Forest/Slash Cover within 2km (%)*	0-20 0	21-40 3	41-60 5	61-80 7	>80 10
					Sub Total	**/155***
	Weather	**A**	**B**	**C**	**D**	**E**
12	*Biogeoclimatic Zone*	AT, Irrigated 1	CWH, CDF, MH Dry Zonal Wet 5 3 1	ICH, SBS, ESSF Dry Zonal Wet 10 7 3	IDF, MS, SBPS, CWH ds1 & ds2, BWBS, SWB – Dry Zonal Wet 15 10 5	PP, BG 15
13	*Historical Wildfire Occurrence (by WMB Fire Zone)*	G5, R1, R2, G6, V5, R9, V9, V3, R5, R8, V7 1	G3, G8, R3, R4, V6, G1, G9, V8 5	G7, C5, G4, C4, V1, C1, N6 8	K1, K5, K3, C2, C3, N5, K6, N4, K7, N2 10	N7, K4, K2, N1 15
					Sub Total	**/30**
	Topography	**A**	**B**	**C**	**D**	**E**
14	*Aspects (>15% slope)*	North 0	East 5	<16% slope all aspects 10	West 12	South 15
15	*Slope (%)*	<16 1	16–29 and max score for North slopes 5	30–44 10	45-54 12	>55 15
16	*Terrain*	Flat 1	Rolling 3	Sloped terrain, minor low relief draws 5	Consistent slope, deep draws or shallow gullies 7	Consistent slope, deep gullies 10
17	*Landscape/ Topographic Limitations to Wildfire Spread*	< 5 ha isolated forest land 1	North and/or east aspects dominate, wildfire spread restricted from South and/or West 2	Mountainous terrain, broken topography, regular aspect and slope changes, multiple restrictions to wildfire spread large water bodies 5	Rolling terrain, minor water bodies, minimal aspect and slope changes, minor restrictions to wildfire spread 10	Continuous, consistent topography No restriction to wildfire spread 15
					Sub Total	**/55**
	FUEL, WEATHER AND TOPOGRAPHY				**WILDFIRE BEHAVIOUR THREAT SCORE**	**/240****
	Structural	**A**	**B**	**C**	**D**	**E**
18	*Position of Structure/ Community on Slope*	No Structures Values within 2 km 0	Bottom of slope, valley bottom 5	Mid-slope benchland, elevated valley, <16% slope 10	Mid-slope continuous, >15% slope 12	Upper 1/3 of Slope 15
19	*Type of Development*	No Structures Values within 2 km 0	Perimeter Interface, no inclusions 3	Perimeter Interface, with inclusions 5	Intermix > 1 structure/ha 8	Intermix <1 structure/ha Infrastructure 10
20	*Position of Assessment Area Relative to Values*	No Structures Values within 2 km 0	Above >500 200-500 <200 m 1 10 20	Sidehill >500 200-500 <200 m 1 12 25	Flat/Rolling >500 200-500 <200 m 1 12 25	Below >500 200-500 <200 m 1 15 30
					WILDLAND URBAN INTERFACE WILDFIRE THREAT SCORE	**/55**
					TOTAL WILDFIRE THREAT SCORE	**/295**

*Proceed only if Fuel sub total is>29.

** Proceed to Structural component only if Wildfire Threat Behaviour Score is >95 for untreated polygons.

Wildfire Behaviour Threat Class (check applicable class)

Low	0-40	☐
Moderate	41-95	☐
High	96-149	☐
Extreme	>149	☐

Wildland Urban Interface Threat Class (check applicable class)

Low	0-13	☐
Moderate	14-26	☐
High	27-39	☐
Extreme	>39	☐

Last Updated: January 24, 2013

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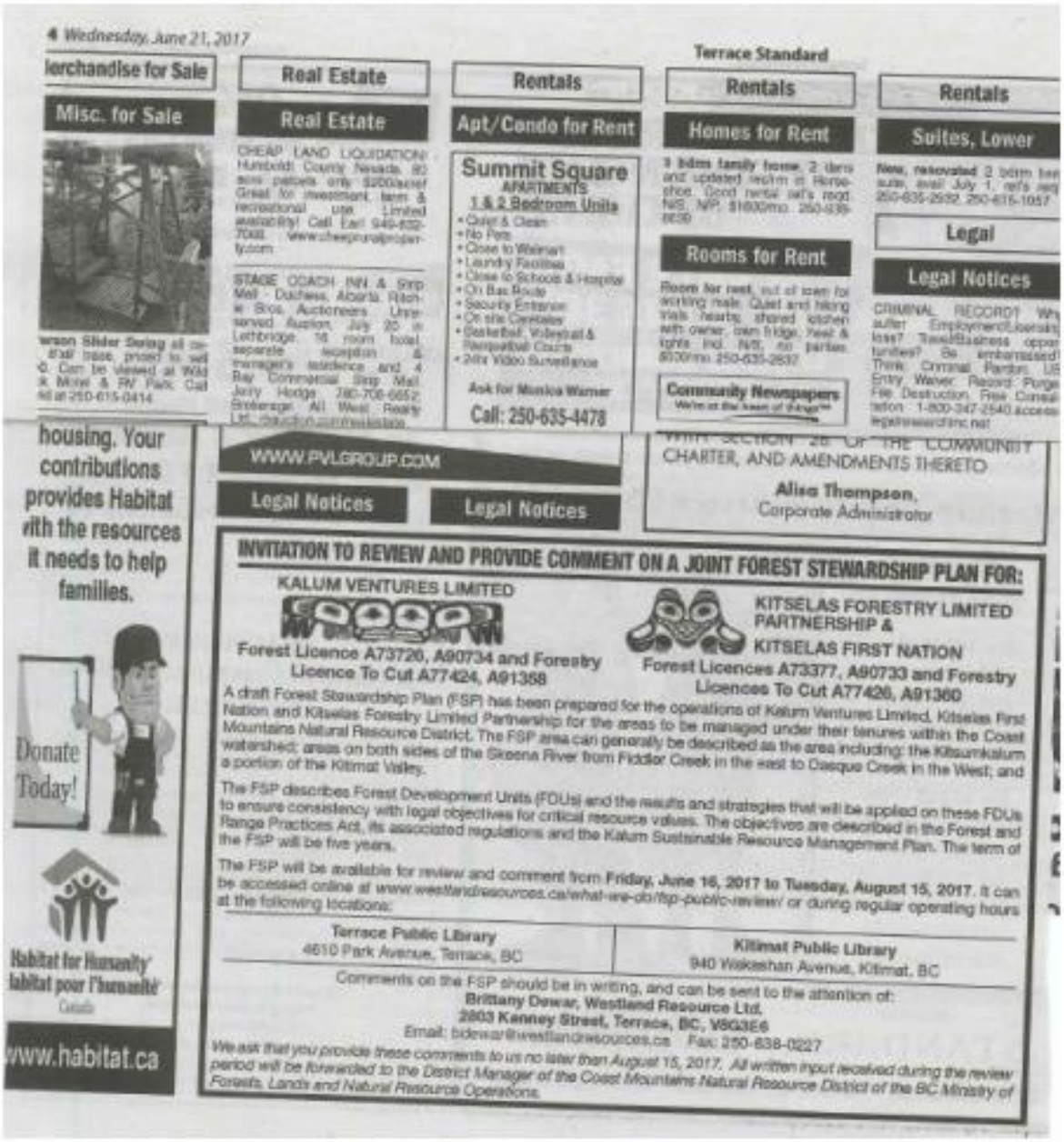
TAB 1 ADVERTISEMENTS

Organized in reverse chronological order, with the most recent information at the front of this section.

The Terrace Standard Advertisement on June 21, 2017



4 Wednesday, June 21, 2017

Terrace Standard

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Misc. for Sale

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Real Estate

Rentals

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CHARTER, AND AMENDMENTS THERETO

Alisa Thompson,
Corporate Administrator

INVITATION TO REVIEW AND PROVIDE COMMENT ON A JOINT FOREST STEWARDSHIP PLAN FOR:

KALUM VENTURES LIMITED

Forest Licence A73720, A90734 and Forestry Licence To Cut A77424, A91358

KITSELAS FORESTRY LIMITED PARTNERSHIP &

KITSELAS FIRST NATION

Forest Licences A73377, A90733 and Forestry Licences To Cut A77426, A91360

A draft Forest Stewardship Plan (FSP) has been prepared for the operations of Kalum Ventures Limited, Kitselas First Nation and Kitselas Forestry Limited Partnership for the areas to be managed under their tenures within the Coast Mountains Natural Resource District. The FSP area can generally be described as the area including: the Kitsumkalum watershed; areas on both sides of the Skeena River from Fiddler Creek in the east to Dasque Creek in the West; and a portion of the Kitimat Valley.

The FSP describes Forest Development Units (FDUs) and the results and strategies that will be applied on these FDUs to ensure consistency with legal objectives for critical resource values. The objectives are described in the Forest and Range Practices Act, its associated regulations and the Kalum Sustainable Resource Management Plan. The term of the FSP will be five years.

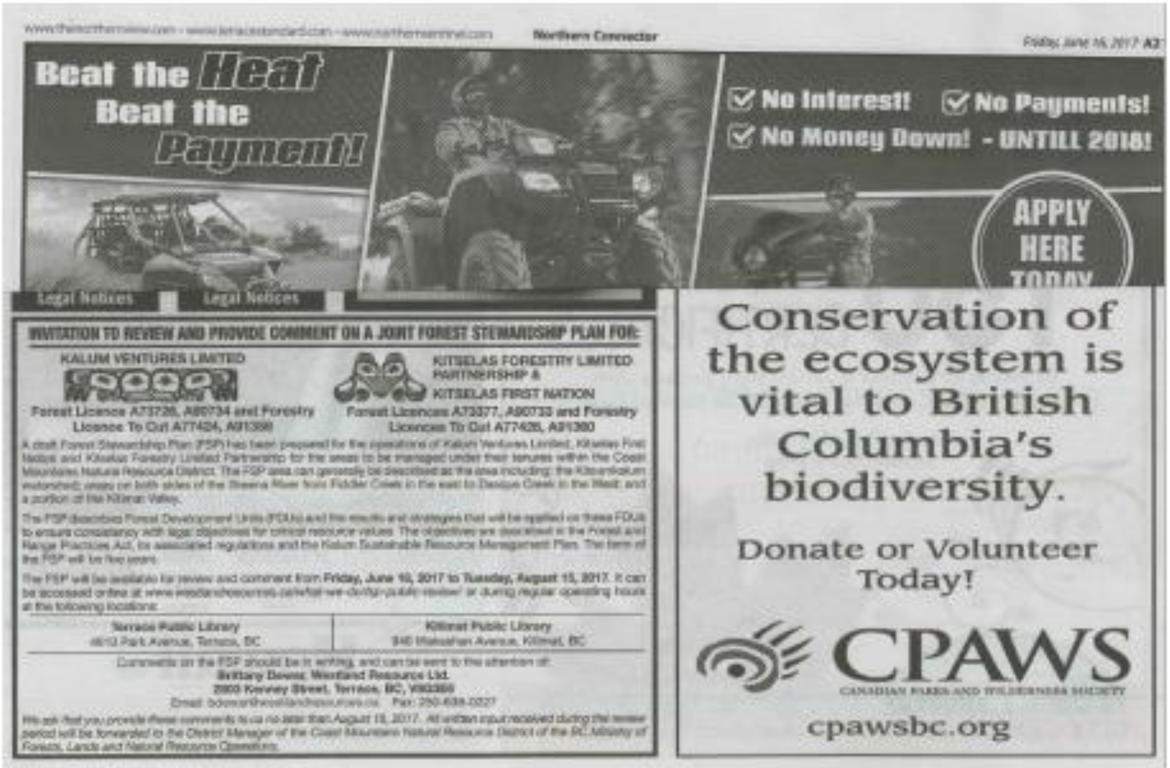
The FSP will be available for review and comment from **Friday, June 16, 2017 to Tuesday, August 15, 2017**. It can be accessed online at www.westlandresources.ca/what-we-do/fsp-public-review/ or during regular operating hours at the following locations:

Terrace Public Library	Kitimat Public Library
4610 Park Avenue, Terrace, BC	940 Wakeshan Avenue, Kitimat, BC

Comments on the FSP should be in writing, and can be sent to the attention of:
Brittany Dewar, Westland Resource Ltd.
2803 Kenney Street, Terrace, BC, V8G3E6
Email: bdewar@westlandresources.ca Fax: 250-638-0227

We ask that you provide these comments to us no later than August 15, 2017. All written input received during the review period will be forwarded to the District Manager of the Coast Mountains Natural Resource District of the BC Ministry of Forests, Lands and Natural Resource Operations.

The Northern Connector Advertisement on June 16, 2017



Northern Connector

Friday, June 16, 2017 A3

Legal Notices

INVITATION TO REVIEW AND PROVIDE COMMENT ON A JOINT FOREST STEWARDSHIP PLAN FOR:

KALUM VENTURES LIMITED
Forest Licence A73726, A80734 and Forestry Licence To Cut A77424, A91398

KITSELAS FORESTRY LIMITED PARTNERSHIP &
KITSELAS FIRST NATION
Forest Licences A73377, A80733 and Forestry Licences To Cut A77425, A91390

A draft Forest Stewardship Plan (FSP) has been prepared for the operations of Kalum Ventures Limited, Kitselas First Nation and Kitselas Forestry Limited Partnership for the areas to be managed under their tenures within the Coast Mountains Natural Resource District. The FSP area can generally be described as the area including: the Kitsumkalum watershed; areas on both sides of the Skeena River from Fiddler Creek in the east to [illegible] Creek in the West; and a portion of the Kitimat Valley.

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Terrace Public Library	Kitimat Public Library
4610 Park Avenue, Terrace, BC	940 Wakashan Avenue, Kitimat, BC

Comments on the FSP should be in writing, and can be sent to the attention of:
Brittany Dewar, Westland Resource Ltd.
2800 Kenney Street, Terrace, BC, [illegible]
Email: [illegible] Fax: 250-638-0527

We ask that you provide these comments to us no later than August 15, 2017. All written input received during the review period will be forwarded to the District Manager of the Coast Mountains Natural Resource District of the BC Ministry of Forests, Lands and Natural Resource Operations.

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TAB 2 PUBLIC REVIEW CORRESPONDENCE AND NOTES

Organized in reverse chronological order, with the most recent information at the front of this section.

This information is only provided to the BC Ministry of Forests, Lands and Natural Resource Operations.

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TAB 3 FIRST NATIONS' CORRESPONDENCE AND NOTES

Organized by First Nation and then in reverse chronological order, with the most recent information at the front.

This information is only provided to the BC Ministry of Forests, Lands and Natural Resource Operations.

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TAB 4 AGENCY CORRESPONDENCE AND NOTES

Organized in reverse chronological order, with the most recent information at the front of this section.

This information is only provided to the BC Ministry of Forests, Lands and Natural Resource Operations.

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TAB 5 SUMMARY OF REVISIONS TO THE FSP

Changes made since the Public Review Version of the FSP and Supporting Document are provided here. It has been noted when a change was made in response to a comment from the public, a stakeholder or a First Nations group.

FSP		Summary of Change	Reason for Change
Public Review (June 16, 2017)	**Submission Version (September 6, 2017, updated April 30, 2018)**		
Section 2.2 Result KK17-03	Section 2.2 Result KK17-03	Adjusted when this Result will apply.	To clarify that an SP may be amended to apply the stocking standards in the FSP.
Section 2.3 Result KK17-05	Section 2.3 Result KK17-05	Adjusted when this Result will apply.	To clarify that an SP may be amended to apply the stocking standards in the FSP.
Section 2.6 Result KK17-21	Section 2.6 Result KK17-21	Specified that no timber harvest will occur in Upper Kitsumkalum SRMZ and the timber harvest may occur to address forest health factors.	To provide further consistency with the objective for the Upper Kitsumkalum SRMZ, allow for flexibility should a forest health issue arise, and reflect the on the ground practice of the FSP Holders.
Section 2.7 Strategy KK17-23	Section 2.7 Strategy KK17-23	Removed reference to natural catastrophic events	In response to FLNRORD comments
Section 2.8 Strategy KK17-26	Section 2.8 Strategy KK17-26	Added a clause related to a specific agreement between a First Nation and the FSP Holders.	To acknowledge that a First Nation and the FSP Holders may develop a specific agreement to guide information sharing that may override portions of Strategy KK17-26. Made in response to comment from a First Nation.
Section 2.8 Result KK17-29	Section 2.8 Result KK17-29	Adjusted who is responsible for the action in this result.	To clarify that the result applies to the FSP Holders when removing cedar from retention zones on behalf of a First Nation. Made in response to comment from a First Nation.
Section 2.8 Result KK17-30	Section 2.8 Result KK17-30	Proposed Strategy removed from final submission. Result included in response to First Nation input.	The Strategy has been removed from the FSP as representatives of FLNRORD felt it was not consistent with CHR Objective (FPPR s 10) The Result that is included in the final FSP is provided in response to late input from NLG.

FSP		Summary of Change	Reason for Change
Public Review (June 16, 2017)	**Submission Version (September 6, 2017, updated April 30, 2018)**		
Section 2.9 Result KK17-34	Section 2.9 Result KK17-34	Removed Onion Lake Ski Trails and Stadium from result.	The established objectives for Onion Lakes have changed and there is no longer a timing restriction for the trails.
Section 3.2.6	Section 3.2.6	Update to quadrant methodology description	Reflects approved BCTS FSP wording, and improves clarity.

Supporting Document		Summary of Change	Reason for Change
Public Review (June 16, 2017)	**Submission Version (September 6, 2017, updated April 30, 2018))**		
N/A	SD1.2.9	Added wording related to the 2017 Provincial Timber Management Goals, Objectives and Targets.	To update the Supporting Document to reflect newly available information.
SD3 Strategy KK17-26; SD 3.7	SD3 Strategy KK17-26; SD 3.7	Added wording to reflect the changes in KK17-26.	To acknowledge that a First Nation and the FSP Holders may develop a specific agreement to guide information sharing that may override portions of Strategy KK17-26. Made in response to comment from a First Nation.
SD3 Result KK17-29	SD3 Result KK17-29	Added wording to reflect the changes in KK17-29.	To clarify that the result applies to the FSP Holders when removing cedar from retention zones on behalf of a First Nation. Made in response to comment from a First Nation.
N/A	SD3.2.3	Added wording related to second growth harvest and second growth principles.	To describe the FSP Holders participation in the development of the Second Growth Principles in the District and the second growth harvesting practices of KVL. Made in response to comment from a First Nation.
SD3.3.1; Appendix sdB Table sdB-2	SD3.3.1; Appendix sdB Table sdB-2	Adjusted species at risk numbers and updated species at risk table.	To reflect the latest species at risk status information from the BC CDC.
SD3.4.1	SD3.4.1	Added additional information on riparian management.	To reflect literature reviewed related to riparian management.

Supporting Document		Summary of Change	Reason for Change
Public Review (June 16, 2017)	**Submission Version (September 6, 2017, updated April 30, 2018))**		
SD3.4.4.1	SD3.4.4.1	Added additional information on MRVA/FREP and small streams.	To reflect latest FREP data on small streams.
SD4.1.3; Appendix sdC	SD4.1.3; Appendix sdC	Added additional information on invasive plants and management practices. Added a table of invasive species to the appendix.	To reflect information received from the NWIPC on species within the region. Made in response to a comment from First Nations.
SD1.2.8; SD2.2; SD3.7; SD3.7.3; SD3.12; SD4.1.5.1; Appendix SDA	SD1.2.8; SD2.2; SD3.7; SD3.7.3; SD3.12; SD4.1.5.1; Appendix SDA	Removed references to proposed Strategy KK17-30	This Strategy has been removed from the FSP as representatives of FLNRORD felt it was not consistent with CHR Objective (FPPR s 10)
SD2.1; SD3.10	SD2.1; SD3.10	Removed reference to natural catastrophic events	In response to FLNRORD comments

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