HFN FORESTRY LP

HFN Forest Stewardship Plan 2016-2021

consolidated to Amendment #4

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MERIDIAN Forest Services Ltd.

Prepared by:
Donna Underwood, RPF
250-586-0200 ext 206
dunderwood@meridianforest.ca

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1.0 Introduction

This Forest Stewardship Plan (FSP) Amendment #4 has been prepared for the HFN Forestry Limited Partnership for the **HFN Community Forest Agreement 1 Licence #CFA K3N and the Huu-ay-aht First Nations Woodland Licence #FNWL- N1A and the Bamfield Community Forest Licence #K1E**. Upon approval, this document replaces the following document:

HFN Community Forest Agreement K3N 2011-2016 Forest Stewardship Plan Amendment #1 to add HFN First Nations Woodland Licence K4H

And will be renamed as **HFN Forest Stewardship Plan 2016-2021 (consolidated to Amendment #4).**

2.0 Map (FPRA s 5.1(a), Forest and Planning Practices Regulation (FPPR) s 14

The attached Maps show the boundaries of the forest development units (FDUs) included under this FSP:

Licensee	License	FDU
Huu-ay-aht First Nation First Nations Woodland Licence	CFA K3N	1
Huu-ay-aht First Nation Community Forest Licence	FNWL-N1A	2
Bamfield Huu-ay-aht Community Forest Society	K1E	3

The maps also show the areas that are excluded from the FDUs and from this FSP.

3.0 Designations in Effect at Date of Submission of this FSP (FPPR) s. 14(3))

The attached maps identify the designations and requirements described in FPPR s. 14(3) that was in effect on the Date of Submission, including the designations listed below.

Designations in Effect

FPPR 14 (3) Subsection	Identifier	FDU	Date of Designation
(a)-Ungulate Winter Range (UWR)	U-013	2	October 18, 2004
(b) Wildlife Habitat Areas (WHA)	WHA 1-028	2	January 15, 2003
(c) Fisheries Sensitive Watershed (FSW)	f-1-007	2	December 19, 2005

(e) Scenic Areas –	• Bamfield Mainline travel corridor from Port Alberni to Bamfield • Travel corridor – Alberni Inlet from Port Alberni to Bamfield • Barclay Sound, including views between Tzartus Island and Toquart Bay	1 , 2 & 3	November 13, 1998 Established in GAR Order effective December 15, 2005
(g) Community Watersheds	Sugsaw Lake Community Watershed	1	July 16, 1999

4.0 Areas within FDUs Subject to a Road Permit or Cutting Permit But Not Subject to this FSP

FPPR S 14 (3)(j): The FSP map identify the areas that are within the outer boundaries of the FDU, subject to a road permit or other tenures.

5.0 Results & Strategies Objectives set by Government (FPPR s 1)

5.1 Order Establishing Provincial Non-Spatial Old Growth Objectives

The Order Establishing Provincial Non-spatial Old Growth Objectives clarifies the amount of area available for timber harvesting. This order supplements, but does not replace FPPR S 9.

FDU	Result or Strategy
1 & 2	In this result or strategy: **"Order"** means the Order Establishing Provincial Non-Spatial Old Growth Objectives (effective June 30, 2004); **"Old forest retention"** means those retention targets, by biogeoclimatic (BEC) variant, that are specified in the Order Establishing Provincial Non-Spatial Old Growth Objectives; and **"Landscape Units (LU)"** includes the Sarita LU and the Klanawa LU. **"Biogeoclimatic variant"** includes the following located in FDU 1 & 2: CWHvh1, CWHvm1 & CWHvm2.

1. The Holder(s) of the FSP must maintain old forest by biogeoclimatic variant within each Landscape Unit according to the age of old forest and the percentage of old forest retention specified in Table 1:

Biogeoclimatic Zone	Biodiversity Emphasis Option	Landscape Unit	Natural Disturbance Type	Age of Old Forest	Percent Old Forest Retention (minimum %)
CWH	LOW/Intermediate	Sarita/ Klanawa	1	>250 yrs	>13

2. Subject to Subsection 1, the old forest retention percent listed above may be reduced by up to 2/3, to the extent necessary to address impacts on timber supply.

5.2 Vancouver Island Land Use Plan

The applicable Higher Level Plan (HLP) Order Objectives under the Vancouver Island Land Use Plan (VILUP) for the Enhanced Forestry Zones (EFZs) are listed in the following tables and described below.

Table 1: VILUP Enhanced Resource Management Zones

Enhanced Forestry Zone (EFZ)	FDU	Applicable HLP Objective
EFZ 43 – Sarita	1, 2	7, 8, 9, 9.1, 15, 16
EFZ 44 - Klanawa	1, 2	7, 8, 9, 9.1

5.2.1 HLP Order Objective 7- Short-term Timber Availability

To increase the short-term availability of timber,

(a) a cutblock may be larger than 40 ha pursuant to section 11(2)(a) of the OPR; and

(b) pursuant to section 68(4) of the OPR, a cutblock is greened-up if it is adequately stocked and the average height of those trees that are

(i) the tallest tree in each 0.01 ha plot included in a representative sample, and

(ii) a commercially valuable species or other species acceptable to the district manager is at least

1.3 meters; unless the district manager determines that a cutblock referred to under (a) or (b) would significantly impact specific hydrological, wildlife, biodiversity, scenic or recreation values.

FDU	Result or Strategy
ALL	1. The holder(s) of the FSP may carry out or authorize timber harvesting and road construction within cutblocks that: a) apply any silvicultural system; b) exceed 40 ha; and c) are adjacent to areas that are greened-up as provided in HLP Objective 7 (b); and 2. In determining the size of a proposed cutblock, the non-greened up portion of a cutblock adjacent to a cutblock proposed for harvest will be considered part of the NAR; and 3. In order to avoid or mitigate significant impacts to specific hydrological, wildlife, biodiversity, scenic or recreation values, cutblocks described in subsection (1) will be consistent with: a) results/strategies for Objective 8 – Hydrological Impacts; and b) results/strategies in Wildlife (***FPPR S.7***) – Marbled Murrelet, and General Wildlife Measures specified under UWR #U-1-013, dated October 18, 2004. c) results/strategies in Water, Fish, Wildlife and Biodiversity within Riparian Areas (***FPPR S. 8)***; and d) results/strategies in Objectives set by government for wildlife and biodiversity – Stand Level (***FPPR S 9.1)***; e) results/strategies in Visual Quality Objectives for the South Island Forest District; and f) ***FPPR s. 70 (1)*** for recreation values identified as resource feature as per ***Government Actions Regulations. 5(1)(f)***.

5.2.2 HLP Order Objective 8 –Hydrological impacts in Fisheries Sensitive Watershed

Avoid or mitigate adverse hydrological impacts, which may result from the practices referred to in objective 7, in watersheds with significant watershed sensitivity and significant fisheries values, as determined by the district manager and designated environment official.

FDU/ FSW	Result or Strategy
2/ Klanawa Fisheries Sensitive Watershed	Prior to authorizing or undertaking timber harvesting or road construction, the Holder(s) of the FSP will: 1. ensure timber harvesting and road construction is consistent with: a) any recommendations of a Terrain Stability Field Assessment, for the cutblocks and roads, and b) the recommendations of windthrow assessments completed for the cutblocks, if any. 2. In respect of fisheries sensitive watersheds, the holder(s) of the FSP will adopt as a result and strategy, practice requirements in FPPR S. 55, 56 and 57.

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5.2.3 HLP Order Objective 9 and 9.1- Species Composition

9. When proposing the species composition for the purposes of OPR section 39(3)(o), a person may, pursuant to OPR section 41, select a single species that is ecologically suited to the area, if a mix of species was present on the area before the timber was harvested.

9.1 The area that may be subject to selection of a single species pursuant to objective 9 is limited to no more than 20 percent of the forested area of any variant within a given EFZ.

FDU	Result or Strategy
ALL	1. If the Holder(s) of the FSP carries out or authorizes the harvest of timber within the area(s) designated as EFZ(s) 43 and 44, the Holder(s) of the FSP will ensure that not more than 20% of the total NAR for all of the cutblocks will be reforested using a single species that is ecologically suited to the area, using a preferred species as set out in the applicable stocking standards.

5.2.4 HLP Order Objectives 15 and 16 – Old Seral and Marbled Murrelet

Objective 15: Retain old growth forests to meet old seral targets and marbled murrelet habitat requirements in the non-contributing (the crown forested land base that does not contribute to the annual allowable cut, but does contribute to biodiversity objectives and targets) landbase to the fullest extent possible.

Objective 16: Beyond retention in the non-contributing land base, retain old forests in the timber harvesting land base, up to the full target amount, if the district manager and the designated environmental official determine that such retention is required to maintain critical marbled murrelet habitat (retention or recruitment of old growth forests will be achieved through the establishment of old growth management areas as part of landscape unit planning)

FDU/ RMZ	Result or Strategy
ALL (EFZ 43)	Old forest retention objectives will be managed as per the Order Establishing Non-Spatial Old Growth Objectives (2004) Marbled murrelet habitat requirements will be managed under Wildlife & Biodiversity (***FPPR S.7***) – Marbled Murrelet.

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5.3 Objectives prescribed under FRPA S.149

5.3.1 Objective set by Government for Soils (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.

FDU	Result or Strategy
ALL	The Holder(s) of the FSP will undertake to comply with FPPR s. 35 (soil disturbance) and 36 (permanent access structures). In accordance with FPPR s. 12.1(1), the FSP Holder(s) is exempt from the requirement to specify intended results and strategies set out in FPPR S 5.

5.3.2 Objectives set by Government for Wildlife (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*
   - *(c) the winter survival of specified ungulate species.*

2. *A person required to prepare a forest stewardship plan must specify a result or a strategy in respect of the objective stated under subsection (1) only if the minister responsible for the Wildlife Act gives notice to the person of the applicable*
   - *(a) species referred to in subsection (1), and*
   - *(b) indicators of the amount, distribution and attributes of wildlife habitat described in subsection (1).*

3. *If satisfied that the objective set out in subsection (1) is addressed, in whole or in part, by an objective in relation to a wildlife habitat area or an ungulate winter range, a general wildlife measure, or a wildlife habitat feature, the minister responsible for the Wildlife Act must exempt a person from the obligation to specify a result or strategy in relation to the objective set out in subsection (1) to the extent that the objective is already addressed.*

3. *On or after December 31, 2004, a notice described in subsection (2) must be given at least 4 months before the forest stewardship plan is submitted for approval*

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FDU	Species	Result or Strategy
ALL	Marbled Murrelet Brachyramphus marmoratus	1. In these results or strategies: **"Marbled Murrelet notice"** means the notice entitled "*Indicators of the amount, distribution and attributes of wildlife habitat required for the survival of species at risk in the South Island Forest District for Marbled Murrelet*" dated December 21, 2004; **"non-contributing land base"** means the crown forest landbase that does not contribute to the annual allowable cut, but does contribute to biodiversity objectives and targets. **"detailed survey"** references Standard Methods for Identifying and Ranking Nesting Habitat of Marbled Murrelets (*Brachyramphus marmoratus*) in British Columbia using air photo Interpretation and Low-level Aerial Surveys, Burger, A. ed 2004. 2. A detailed survey has been previously conducted within the areas to which this FSP applies. The Holder(s) of the FSP will carry out or authorize timber harvesting or road construction in a manner that retains the habitat specified in the Marbled Murrelet notice, where the habitat is described as the following forest types: (i) Amount: Class 1, 2 or 3 Marbled Murrelet habitat within the non-contributing land base at the time the Marbled Murrelet Notice was issued; and (ii) Distribution: Where the habitat occurs on the land base in ; and (iii) Attributes: Class 1, 2 or 3 Marbled Murrelet habitat, as described in *Standard Methods for Identifying Marbled Murrelet Habitat in British Columbia Using Air Photo Interpretation and Low-level Aerial Surveys*. 3. For the purposes of subsection (2), the amount of habitat specified in the marbled murrelet notice will be: a) first, identified on the non-contributing land base or areas that are otherwise constrained with respect to timber harvesting opportunities, and if there is insufficient habitat on that land base, then identified on the contributing landbase; and b) reduced by the amount of area of suitable habitat within any wildlife habitat area, old growth management area, or ungulate winter range established in the FDUs subsequent to the date of the Marbled Murrelet Notice, except where: i) a wildlife habitat area is established specifically for marbled murrelet, then the amount will be reduced by the entire amount of area in the wildlife habitat area.

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5.3.3 Objectives set by government for water, fish, wildlife and biodiversity within riparian areas (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

FDU	Result or Strategy
1, 2	**1.** In respect of **FPPR Section 8,** the Holder(s) of the FSP will adopt as a result/strategy **FPPR Section, 47(1) to (3), (5) to (8), 48(1) and (2), (4) to (7), 49 (1), (3) to (5) 50, 51, 52(2) and 53,** except in those circumstances as described below. a) For areas of primary forest activity authorized or carried out by the Holder(s) of the FSP, the widths of the riparian management area, riparian reserve zone and riparian management zone will be: i) As specified in **FPPR Sections 47(4) to (6), 48(3) to (5) and 49(2) to (3)**, or ii) As specified in a written rationale that: A) Applies the Factors in Schedule 1, Section 2 of the FPPR and B) Is prepared by a qualified professional prior to commencement of the primary forest activity based on one or more of the following circumstances: A. windthrow hazard and consequence, B. natural disturbance patterns, C. sensitive stream protection, D. environmental sensitivity such as terrain stability class 4 or 5, E. topography, F. worker safety. 1. In respect of FPPR **12(3),** if the holder of the FSP authorizes or carries out timber harvesting in a riparian management zone that is associated with a cutblock, retention of trees will be as specified in a written rationale that: a) Applies the Factors in Schedule 1, section 2 of the FPPR and, b) Is prepared by a qualified professional prior to commencement of the timber harvesting. 2. In respect of **FPPR Section 50**, for construction of roads through a stream, wetland or lakeshore Riparian Management Area, the Riparian Management Area will be specified in **FPPR Sections 47(4), 48(3) and 49(2)**. 3. In respect of **FPPR Section 51**, all roads outside of cutblocks will have riparian reserve zones in accordance with **FPPR Sections 47(4), 48(3) and 49(2)**.

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5.3.4 Objectives set by government for water in Community Watersheds (FPPR S. 8.2)

1. *In this section, "**community watershed**" means a community watershed*

    (a) That is continued under section 180(e) of the Act, and

    (b) for which a water quality objective has not been

    (i) continued under section 181 of the Act, or

    (ii) established under the Government Actions Regulation.

2. *The objective set by government for water being diverted for human consumption though 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 licence pertaining to the waterworks.

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.*

4. *If satisfied that the objective set out in subsection (2) is not required to provide special management the minister responsible for the Wildlife Act must exempt a person from the requirement to specify a result or strategy in relation to the objective.*

5. *If satisfied that the objective set out in subsection (2) is addressed, in whole or in part, by an enactment, the minister responsible for the Wildlife Act must exempt a person from the requirement to specify a result or strategy in relation to the objective set out in subsection (2) to the extent that the objective is already addressed.*

FDU	Result or Strategy
2	1. Prior to authorizing or undertaking timber harvesting or road construction within a designated community watershed area, the holder(s) of the FSP will: a) have a qualified professional complete or update a watershed assessment, within the community watershed that takes into consideration: i. The history of resource development and natural disturbances; ii. The history of water quality and quantity issues and availability of monitoring, research and inventory data; iii. The history of downstream flooding and debris-flow implications; iv. Water systems within the watershed area;

	v. Watershed restoration planned and completed; vi. Proposed development; vii. Delineation of sub-basins and residual areas (if applicable) within the watershed. viii. Intake locations for water diverted for human consumption by a licensed waterworks within the watershed area; b) incorporate the results and recommendations of the watershed assessment into forest practices unless a variance to the recommendations is supported by a rationale written by a qualified professional. 2. In respect of community watersheds, the holder(s) of the FSP will adopt as a result and strategy, practice requirements in ***FPPR S. 59, 60 and 61***.

5.3.5 Objectives set by government for wildlife and biodiversity – landscape level (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.

FDU	Result or Strategy
ALL	1. The Holder(s) of the FSP will adopt FPPR Sections 64 and 65, as results or strategies under this FSP. 2. Further to subsection 1, cutblocks located within EFZs 43 and 44, cutblock harvesting will be in accordance with the result or strategy for VILUP HLP Order Objective 7.

5.3.6 Objectives set by government for wildlife and biodiversity – stand level (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.

FDU	Result or Strategy
ALL	1. In this result or strategy: **Wildlife tree** is defined as an individual or group of trees that provide wildlife habitat and assist in the conservation of stand level biodiversity. **Wildlife Tree Retention Area (WTRA)** is defined as an area occupied by wildlife trees that is located in a cutblock, in an area that is contiguous to a cutblock, or in an area that is sufficiently close to the cutblock that the wildlife trees could directly impact on, or be directly impacted by, a forest practice carried out in the cutblock 2. When harvesting is completed in one or more cutblocks, except minor salvage cutblocks, during any 5 year period beginning on January 1 of any calendar year, the Holder(s) of the

FSP will ensure that, at the end of the 5 year period, the total area covered by wildlife tree retention areas that relates to the cutblocks meets or exceeds the percent of the total area of the cutblocks (calculated based on harvest area) by biogeoclimatic subzone presented in the following table:

Biogeoclimatic Subzone	% WTRA requirement
CWH vm (Coastal Western Hemlock, very wet maritime)	7
CWH vh1 (Coastal Western Hemlock, southern very wet hypermaritime	7

3. Wildlife Tree Retention Areas:

   a) Will be distributed across the BEC subzone;
   b) Located within or immediately adjacent to a cutblock when designated at the operational site plan level;
   c) Will not subject to salvage of windthrown timber, including single tree selection, except as noted below:
   i) windthrow exceeds 50% of the dominant or co-dominant stems, or
   ii) where forest health issues pose a significant threat to areas outside the WTRA;
   iii) Will include , if present, remnant old-growth patches and live or dead veteran trees (excluding danger trees);
   iv) Will include representative larger trees (dbh> average operational cruise) for the stand and any moderate to high value wildlife trees if available (excluding danger trees); and
   v) With a high likelihood of wind throw may subject to pruning and/or topping to maintain the integrity of the WTRA.

4. Subject to subsection 3 of this result or strategy, the Holder of the FSP adopts as a result or strategy FPPR Sections 66 and 67.

5. Where timber harvesting is planned or authorized within a Wildlife Tree Retention Area, replacement forest of equivalent age, structure and area must be identified that is:
   a) Within the cutblock to which the Wildlife Tree Retention Area is related or;
   b) In an area contiguous to the cutblock to which the Wildlife Tree Retention Area is related or;
   c) In an area that is sufficiently close to the cutblock to which the Wildlife Tree Retention Area is related that the wildlife trees could directly impact on, or be directly impacted by, a forest practice carried out in the cutblock.

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5.3.7 Objectives set by government for Cultural Heritage Resources (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.

FDU	Result or Strategy
ALL	1. In these results or strategies: "special cultural heritage resource" means a cultural heritage resource, other than a resource feature, that is 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. "Applicable First Nation" means a First Nation whose traditional territory falls within the FDUs in this FSP. 2. The Holder(s) of the FSP will annually refer to applicable First Nations; areas identified for potential timber harvesting and road construction, 3. The Holder(s) of the FSP will evaluate the nature and extent of any possible site-specific special cultural heritage resources identified within areas of potential timber harvesting and road construction activities, including making reasonable efforts to share information or consult with the applicable First Nation in respect of the possible special cultural heritage resource. 4. The Holder(s) of the FSP, when designing a cutblock or road will, prior to harvest or construction, identify: a) the portion of the area occupied by a special cultural heritage resource b) the nature of the special cultural heritage resource, c) whether the special cultural heritage resource is to be protected or conserved, and d) if the special cultural heritage resource is to be conserved, what constraints, if any, are to apply to the forest practices carried out on the area and e) where the First Nation has provided comment on the special cultural heritage resource, notify the applicable First Nation in writing as to: i) whether the special cultural heritage resource is to be protected or conserved, and ii) if the special cultural heritage resource is to be conserved, what constraints, if any, are to apply to the forest practices carried out on the area. 5. For each special cultural heritage resource that has been identified under subsection 4 for protection, the Holder(s) of the FSP will carry out or authorize a person to carry out a forest practice only to the extent that the forest practice does not damage or render ineffective the special cultural heritage resource. 6. For each special cultural heritage resource that has been identified under subsection 4 for being conserved, the Holder(s) of the FSP will carry out or authorize a person to carry out a forest practice only to the extent that the forest practice is consistent with the constraints, if any, specified in the design for the cutblock or road. 7. If, within a cutblock or road where the Holder(s) of the FSP is carrying out or has authorized

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	timber harvesting or road construction, a previously unidentified special cultural heritage resource is encountered, the Holder(s) of the FSP will a) require operations within the cutblock or road to cease or be modified to the extent necessary to protect the special cultural heritage resource, b) determine: i) the nature of the special cultural heritage resource, ii) whether the special cultural heritage resource is to be protected or conserved, and iii) if the special cultural heritage resource is to be conserved, what constraints, if any, are to apply to the forest practices carried out on the area, c) modify the design of the cutblock or road to conform with subsection 7(b)(iii), and d) authorize operations to resume within the cutblock or road to the extent that the operations are consistent with the modified design. 8. In addition to subsections 2 through 7, the Holder(s) of the FSP recognizes that mature western red Cedar and Cypress located within the identified FDU are special cultural heritage resources to the applicable First Nations and the Holder(s) of the FSP will ensure that, in addition to subsections 2 through 7, b) where ecologically suited, western red cedar and cypress, will be planted on areas referred to in section 29 (1) of the Act in accordance with the stocking standards specified in this FSP.

5.4 Objectives established under the Government Actions Regulation (GAR)

5.4.1 Objectives set by Government for Visual Quality (*FPPR S.9.2*)

FDU	Result or Strategy
ALL	1. In these results or strategies: **"applicable scenic area"** means a scenic area that was made known in the South Island Forest District by letter dated November 13, 1998, and **"applicable visual quality objective"** means the visual quality objective established for a scenic are in the South Island Forest District pursuant to Section 7(2) of the Government Actions Regulation. Within each applicable scenic area, the Holder(s) of the FSP will: 1. Design cutblocks and roads within the FDU in a manner such that the altered forest landscape for the applicable scenic area will be consistent with the applicable visual quality objective 2.Complete a pre-harvest Visual Impact Assessment(VIA) from significant public viewpoints by a qualified professional. The VIA will include the following: i) Scale of perspective alteration measured relative to the landform.

	Percent landform alteration limits for clearcutting will be guided by the Visual Impact Assessment Guidebook, MOF, January 2001. ii) Concepts of visual landscape design to ensure the scale, shape, pattern, contrast, and location of all roads and cutblocks are consistent with VQO(s) iii) An assessment and determination from significant public viewpoints that the VQO is consistent for all proposed roads and cutblocks. 3. If harvesting and road building is directly related to the recovery of significantly damaged timber (windthrow, fire, insects) it may not be practicable to meet the VQO. Strategies to address damaged timber include: (i) before carrying out or authorizing the timber harvesting and road construction, the FSP holder will identify the damaging agent and estimate magnitude of area affected. (ii) before carrying out or authorizing the timber harvesting and road construction, determine whether the visual impact caused by harvest of damaged timber is warranted. (iii) discuss the plans to harvest damaged timber with the MFLNRO prior to authorizing and carrying out harvesting and road building that may not be consistent with the VQO(s). (iv) utilize visual design and harvesting systems to minimize visual impact and if required meet the next lower (less restrictive) category of visually altered forest landscape. (v) Prepare and retain with the relevant site plan a written rationale that identifies how the strategy was implemented and the measures that were considered and taken to limit impact on the visual resource value

5.5 Objectives continued under FRPA S 181

5.5.1 Objective Set by Order- Ungulate Winter Range #u1-013

FDU	Result or Strategy
2	The holder(s) of the FSP will ensure that any primary forest activities authorized or carried out by the holder(s) of the FSP will be carried out in accordance with the Order establishing Ungulate Winter Range #U-1-013 effective October 18, 2004.

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5.5.2 Objective Set by Order- Wildlife Habitat Area #1-028

FDU	Result or Strategy
2	The Holder(s) of the FSP will ensure that any primary forest activities authorized or carried out by the holder(s) of the FSP will be carried out in accordance with the Order establishing Wildlife Habitat Area (MAMU) #U-1-028 effective January 15, 2003.

6.0 Stocking Standards

6.1 Situations or Circumstances that determine whether Free Growing is assessed on a Block Basis or Across Blocks

FPPR s. 44(1) applies in all situations or circumstances under the FSP where a free growing stand is required to be established under FRPA s. 29.

6.2 Regeneration Date and Stocking Standards, Free Growing Height

The Appendix 1 Stocking Standards specify the regeneration date, free growing height and stocking standards for the situations or circumstances where FPPR S. 44(1) applies.

6.3 Situations or Circumstances that Determine when FPPR S. 44(4) and the Standards Applicable Under FPPR S.16 Applies

If the Holder(s) of the FSP carries out or authorizes harvesting of special forest products, intermediate cuts or commercial thinning from an area within the area under this plan, cutblock specific uneven aged stocking standards will be proposed as an amendment of this FSP. Uneven aged stocking standards which may be amended into this FSP will be maintained on the area for twelve months following the completion of the harvesting.

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7.0 Measures to Prevent the Introduction and Spread of Invasive Plants (FRPA s.47, FPPR s.17)

FPPR 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

FDU	Result or Strategy
ALL	In these measures: "applicable area" means an area where (a) it is likely that forest practices will result in introduction or spread of invasive plants, (b) there is a moderate to high risk invasive plants, and any priority invasive plants are likely to germinate on soil exposed that is a result of a person's forest practices under this FSP, (c) it is reasonably expected that grass would grow on these exposed sites, and (d) it is reasonably foreseeable that revegetation with grass seed would materially reduce the likelihood of invasive plant germination; and (e) the Holder(s) of the FSP has not deemed the area as an active surface area. "**preferred seed**" means seed with the following attributes: (a) high sod-forming content, except in areas that are planted with tree seedlings; (b) has been certified by the Canadian Seed Growers Association that the seed; (i) meets Common #1 Forage Grade or better standards for varietal purity established by the Association for seed of that species (Seeds Act, Seeds Regulation s.2(1)), and (ii) is of native origin. "**Priority invasive plants"** are those found under the Invasive Plants Regulation Section 2 (1) The Holder(s) of the FSP will: (a) confirm known locations of priority invasive plants within the plan area using the most current recognized provincial database, (b) distribute information to staff and contractors on priority invasive plants that exist or threaten to establish within the plan area, (c) direct staff to monitor and report new incidences of priority invasive plants and enter them into most current recognized provincial database,

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	(d) direct the holders of a cutting or road permit to inspect logging and road building equipment for invasive shrub vegetation, and remove from equipment prior to transporting equipment from an area of a known occurrence of the invasive plant to a remote location or site where the invasive plant is currently not present, or (ii) direct the persons carrying out timber harvesting and/or road building activities to inspect logging and road building equipment for invasive shrub vegetation, and remove from equipment prior to transporting equipment from an area of a known occurrence of the invasive plant to a remote location or site where the invasive plant is currently not present. (2) If the Holder of the FSP carries out a forest practice in an applicable area, the Holder(s) of the FSP will, within one year of completing the activity authorized in the cutting permit, will: (a) re-vegetate contiguous areas of exposed soil that exceed 0.1 ha giving preference to preferred seed that is: (i) readily available, and (ii) comparable in cost to agronomic mixtures, and (iii) comparable in effectiveness to agronomic mixtures and b) re-vegetate temporary access structures within cutblocks with legumes.

8.0 Measures to Mitigate the Effect of Removing or Rendering Ineffective Natural Range Barriers

FDU	Result or Strategy
ALL	There are no agreements under the Range Act in the HFN landbase; therefore, result or strategies are not applicable.

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Appendix 1 – FSP Stocking Standards

The CWHvm1 site series 01s and the CWHvm1 site series 06 s nutrient very poor to poor salal phases have been added to the originally approved FSP stocking standards.

In all cases the late Free Growing (FG) is 20 years.																									
SSID	Silv Strat REF	BEC			Preferred Species								Acceptable Species								Stocking (w/s)			MIN Inter Tree Dist (m)[1]	Delay
		Zone	SZ/ Variant	Site Series	1	Ht (min)	2	Ht (min)	3	Ht (min)	4	Ht (min)	1	Ht (min)	2	Ht (min)	3	Ht (min)	4	Ht (min)	Target P&A (sph)	Min P&A (sph)	Min P (sph)		Max (yrs)
1036956	1	CWH	mm1	01	Fd	3	Cw	1.5					Hw[11]	2							900	500	400	2	6
1036957	2	CWH	mm1	02	Pl	1.25	Fd	2					Cw	1							800	400	400	2	6
1036958	3	CWH	mm1	03	Fd	2	Cw[3]	1.0					Hw*	1.75							800	400	400	2	3
1036959	4	CWH	mm1	04	Fd	2	Cw[29]	1.0					Pw[22]	2.5	Hw*	1.75					900	500	400	2	3
1036960	5	CWH	mm1	05	Fd	3	Cw	1.5					Pw[22]	2.5	Hw*	2	Ba*	.75			900	500	400	2	3
1036961	6	CWH	mm1	06	Cw	1.5	Hw	2					Fd[8]	3	Ba*	1.75					900	500	400	2	6
1036962	7	CWH	mm1	07	Cw	2	Fd	4					Ba[25]*	1	Hw*	2.5					900	500	400	2	3
1036963	8	CWH	mm1	12	Cw[4]	1							Hw[4]	1.5	Ss[4]	2					800	400	400	2	3
1036964	9	CWH	mm2	01	Hm[12]/ Hw	1/1.25	Cw	1	Fd[10]	2.25	Yc	1	Ba	.75							900	500	400	2	6
1036965	10	CWH	mm2	02	Pl	1.25	Fd	1.5					Cw	.75							800	400	400	2	6
1036966	11	CWH	mm2	03	Fd	1.5	Hw	1	Cw[29]	.75			Hm[12]	.75	Yc	.75					800	400	400	2	3
1036967	12	CWH	mm2	04	Fd	1.5	Cw[29]	.75					Pw[22]	2.5	Yc	.75	Hw*	1			900	500	400	2	3
1036968	13	CWH	mm2	05	Ba	.75	Cw	1	Yc	1	Fd[10]	2.25	Pw[22]	2.5	Hw*	1.25	Se[30]	.75			900	500	400	2	3
1036969	14	CWH	mm2	06	Hw	1.25	Cw	1	Yc	1			Ba	.75	Hm[12]	1.25	Fd[13]	2.25			900	500	400	2	6
1036970	15	CWH	mm2	07	Cw[4]	.75	Hw	1	Ba	.75			Hm[12]	.75	Yc[4]	.75					800	400	400	2	3
1036971	16	CWH	mm2	08	Cw	1.25	Yc	1.25	Ba	1			Hw[5]	1.75	Fd[10]	3					900	500	400	2	3
1036972	17	CWH	mm2	10	Cw[4]	.75							Pw[22]	2.5	Yc[4]	.75	Hw[4]*	1			800	400	400	2	3
1045245	NEW	CWH	vh1	01	Cw	1.5	Hw	2	Yc	1.5			Pl[7]	1.5	Ba[8]	1.75	Ss[8,23]	3			900	500	400	2	6
1045246	NEW	CWH	vh1	03	Cw	1	Hw	1.25	Pl	1.25	Yc	1									800	400	400	2	6
1045247	NEW	CWH	vh1	04	Ba	2.25	Hw	1.75	Cw	2			Ss[23]	4							900	500	400	2	6
1045248	NEW	CWH	vh1	05	Ba	2.25	Cw	2	Yc	2			Hw[5]	1.75	Ss[23]	4					900	500	400	2	3
1045249	NEW	CWH	vh1	06	Ba	2.25	Cw	2	Yc	2			Hw[5]	1.75	Ss[23]	4					900	500	400	2	3
1045250	NEW	CWH	vh1	07	Ba	2.25	Cw	2					Hw[5]	1.75	Ss[23]	4					900	500	400	2	3
1045251	NEW	CWH	vh1	11	Cw[4]	1	Pl[7]	1.25	Yc[4]	1	Hw[4]	1.25			Pl	1.25	Ss	2			800	400	400	2	3
1045252	NEW	CWH	vh1	13	Cw[4]	1	Yc	1					Hw[4]	1.25							800	400	400	2	3
1045256	NEW	CWH	vh1	17	Ss	2.0	Cw	1.0			Hw	1.25									900	500	400	2	3
1036973	18	CWH	vm1	01	Cw	1.5	Hw	3	Fd[9, 10, 15]	3	Ba[20]	1.75	Ss[8, 23]*	3	Yc	1.5					900	500	400	2	6
1039249		CWH	vm1	01S	Cw	1.5	Hw	3	Fd[9, 10, 15]	3	Ba[20]	1.75	Ss[8, 23]*	3	Yc	1.5					900	500	400	2	6
1036974	19	CWH	vm1	03	Cw	1	Hw	2	Fd[10, 15]	2			Pl[26]	1.25	Yc	1.0	Ba*	1.2			800	400	400	2	6
1036975	20	CWH	vm1	04	Cw	1.5	Hw	3	Fd[10, 15]	1.7			Ba*	1.75	Ss[8, 23]	3.0					900	500	400	2	3
1036976	21	CWH	vm1	05	Ba	1.75	Cw	1.5	Hw	3	Fd[4, 9, 10, 15]	3	Ss[23]	3							900	500	400	2	3

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In all cases the late Free Growing (FG) is 20 years.													Acceptable Species								Stocking (w/s)			MIN Inter Tree Dist (m)[1]	Delay
SSID	Silv Strat REF	BEC			Preferred Species																				
		Zone	SZ/ Variant	Site Series	1	Ht (min)	2	Ht (min)	3	Ht (min)	4	Ht (min)	1	Ht (min)	2	Ht (min)	3	Ht (min)	4	Ht (min)	Target P&A (sph)	Min P&A (sph)	Min P (sph)		Max (yrs)
1036977	22	CWH	vm1	06	Ba[20]	1.75	Cw	1.5	Hw	3			Ss[8, 23]*	3							900	500	400	2	6
1039290		CWH	vm1	06S	Ba[20]	1.75	Cw	1.5	Hw	3			Ss[8, 23]*	3							900	500	400	2	6
1036978	23	CWH	vm1	07	Ba	2.25	Cw	2	Hw[5]	4	Fd[4, 10, 18]	4	Ss[23]	4							900	500	400	2	3
1036979	24	CWH	vm1	08	Ba	2.25	Cw	2	Hw[5]	4			Ss[23]	4							900	500	400	2	3
1036980	25	CWH	vm1	12	Cw	1.0	Hw	1.5					Ss[23]	2	Yc	1					800	400	400	2	3
1036981	26	CWH	vm1	14	Cw[4]	1.5							Hw[4]	3	Ss[4, 23]	3	Pl[26]*	2			800	400	400	2	3
1036982	27	CWH	vm2	01	Fd[8, 4, 10, 18]	2.25	Hw	2.5	Cw/Yc[28]	1.5	Ba	1.75	Hm[12*]	1	Ss	3					900	500	400	2	6
1036983	28	CWH	vm2	03	Cw	1	Hw	1.75	Fd[10, 15]	1.5	Yc[28]	1	Pw[15, 22]	2.5	Hm[12]*	0.75	Pl[26]*	1.25			800	400	400	2	6
1036984	29	CWH	vm2	04	Cw	1	Hw	1.75	Fd[10, 15]	1.5	Yc[28]	1	Ba	1.5	Pw[15]	2.5	Hm[12]*	0.75	Ss[23]*	2	900	500	400	2	6
1036985	30	CWH	vm2	05	Cw	1.5	Hw	2.5	Yc[28]	1.5	Ba	1.75	Fd[4, 9, 10, 18]	2.25			Hm[12]*	1	Ss[23]	3	900	500	400	2	3
1036986	31	CWH	vm2	06	Cw	1.5	Hw	2.5	Yc[28]	1.5	Ba	1.75	Hm[12*]	1	Ss[8]*	3					900	500	400	2	6
1036987	32	CWH	vm2	07	Cw[13]	2	Hw[5]	3.5	Yc[28]	2	Ba	2.25			Hm[12]*	1	Ss[8, 23]*	4			900	500	400	2	3
1036988	33	CWH	vm2	08	Cw[4]	2	Hw[5]	3.5	Yc[28]	2	Ba	2.25	Ss[23, 8]	4	Hm[12]*	1					900	500	400	2	3
1036989	34	CWH	vm2	09	Cw[4]	1	Hw[4]	1.75	Yc[4, 28]	1	Hm[12]	1.75	Ba	1.5	Pl[4]*	1.25	Ss[8, 23]*	2			800	400	400	2	3
1036990	35	CWH	vm2	11	Fd	1	Yc[4, 28]	1					Hw[4]	1.75	Hm[12, 26]*	0.75	Ss[4, 14, 23]*	2			800	400	400	2	3
1036991	36	CWH	xm	01	Fd	3							Cw	1.5	Pw[22]	2.5	Hw[19]	2			900	500	400	2	3
1036992	37	CWH	xm	03	Fd	2	Pl[7]	1.25					Cw	1	Hw*	1.25	Pw[2]	2.5			800	400	400	2	3
1036993	38	CWH	xm	04	Fd	3							Cw	1.5	Pw[22]	2.5					900	500	400	2	3
1036994	39	CWH	xm	05	Cw	2	Fd	4					Pw[22]	2.5	Bg[26]*	3.5	Hw*	1.75			900	500	400	2	3
1036995	40	CWH	xm	06	Cw	1.5	Hw	2	Fd[17]	3			Bg[8]*	3	Pw[2]	2.5					900	500	400	2	6
1036996	41	CWH	xm	07	Cw	2	Fd	4	Bg	3.5			Hw*	1.75							900	500	400	2	3
1036997	42	CWH	xm	12	Cw[4]	1							Hw[4]**	1.5	Pw[22]	2.5	Ss[23]*	1.5			800	400	400	2	3
1036998	43	MH	mm1	01	Ba	0.6	Hm	1	Yc	1.0			Hw[13, 26]*	1	Se[30]	1	Bp[30, 31]	1			900	500	400	2	7
1036999	44	MH	mm1	02	Hm	.75	Yc	.75					Ba	0.6	Se[30]	1					800	400	400	2	4
1037000	45	MH	mm1	03	Ba	0.6	Hm	1	Yc	1			Hw[13, 26]*	1	Bp[30, 31]	1					900	500	400	2	4
1037001	46	MH	mm1	04	Ba	0.6	Hm	1	Yc	1			Hw[13, 26]*	1							900	500	400	2	7
1037002	47	MH	mm1	05	Ba	0.6	Yc	1					Hm[4]	1	Hw[13, 26]	1	Bp[30, 31]	1			900	500	400	2	4
1037003	48	MH	mm1	06	Hm[4]	.75	Yc[4]	.75					Ba[4]	0.6	Hw[13, 26]	0.75					800	400	400	2	7
1037004	49	MH	mm1	07	Ba[4]	0.6	Yc[4]	.75					Hm[4]	.75	Hw[13, 26]	0.75					900	500	400	2	4
1037005	50	MH	mm1	09	Yc[4]	.75	Hm[4]	.75					Hw[13, 26]	0.75	Ba[4]	0.6					800	400	400	2	4

*The CWHvm1 site series 01s and the CWHvm1 site series 06s nutrient very poor to poor salal phases have been added to the originally approved FSP stocking standards.

Reference Notes Stocking Standards

Tree Species

'Ba' is amabilis fir
'Bg' is grand fir
'Bp' is noble fir
'Cw' is western red cedar
'Fd' is coastal douglas fir
'Hm' is mountain hemlock
'Hw' is western hemlock
'Pl' is lodgepole pine
'Pw' is white pine
'Se' is Engelmann spruce
'Ss' is sitka spruce
'Yc' is yellow cedar

Notes

'Biogeoclimatic unit' or 'BGC classification' means the zone, subzone, variant and site series described in the most recent field guide published by the Ministry of Natural Resource Operations for the identification and interpretation of ecosystems, as applicable to a harvested area.

'MIN' or 'Min' means minimum.

1. Reduction of inter-tree spacing to 1.5 m is acceptable for site specific conditions involving bedrock, large blocky colluvium or hygric sites or on disturbed roadside areas. Roadside areas generally contain high percentages of mineral and morainal type soils.
2. Pw is considered an acceptable species, as root diseases are prevalent in the CDF variant, site series 01 to 06. It will be acceptable to form 20% of the free-growing stand.
3. Cw will be considered an acceptable species where root diseases are prevalent and on standards units where an unmappable mosaic of site series includes moister site series. It will be acceptable to form within 5 percentage points leading up to the 10% of the free-growing stand.
4. Elevated microsites are preferred.
5. Suitable on thick forest floors
6. Restricted to coarse-textured soils
7. Restricted to nutrient-very-poor sites
8. Restricted to nutrient-medium sites
9. Restricted to steep slopes
10. Restricted to southerly aspects
11. Restricted to northerly aspects
12. Restricted to upper elevations of biogeoclimatic unit
13. Restricted to lower elevations of biogeoclimatic unit
14. *Footnote deleted*
15. Restricted to southern portion of biogeoclimatic unit in region
16. Restricted to western portion of biogeoclimatic unit in region
17. Restricted to eastern portion of biogeoclimatic unit in region
18. Restricted to trial use.
19. Suitable (as a major species) in wetter portion of biogeoclimatic unit.
20. Suitable minor species on salal-dominated sites

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21. *Footnote deleted*

22. Risk of white pine blister rust

23. Risk of weevil damage

24. Suitable in areas with stronger maritime influence.

25. Risk of balsam woolly adelgid.

26. Minor component

28. Species is restricted to upper elevations when used in the southern portion of the biogeoclimatic unit.
29. Will be preferred in wetter portions of the site series.
30. Se and Bp are considered acceptable species based on their performance in planted stands in this site series and their ability to withstand the impacts of snow load.
31. Bp is considered an acceptable species, as balsam wooly Adelgid (BWA) diseases are prevalent in the MH variant, site series 01, 03 and 05. It will be acceptable to form 20% of the free-growing stand.

This table is based on the Vancouver Forest Region *Reference Guide for FDP Stocking Standards* dated December 11, 2002. Where site series have the same requirements for each of the above boxes, they have been combined.
Site series where the stocking standards say 'avoid logging', or the site series that are floodplain site series, sites with strongly fluctuating water tables or shoreline/ocean spray sites have been excluded.

Zones and variants not shown on the BEC map for the South Island Forest District have been excluded from the table.

The minimum density post-spacing is listed as recommended in the Establishment to free-growing guidebook for the VFR – i.e. the same as the minimum stocking standard.

* Species are listed as tertiary in the Vancouver Forest Region (VFR) recommended stocking standards, but not listed as acceptable species. They have been included as acceptable for a minor portion of the stand if a cruise report indicates it was present as merchantable volume in the pre- harvest stand. The percentage of the free-growing stand that may be comprised of the species will be on a sliding scale within 5 percentage points leading up to the 20%. For example, if a cruise report showed 15% Hw merchantable volume in the pre-harvest stand, within 5 percentage points leading up to the 15% of the free-growing stand could be Hw.

** Hw is listed as an acceptable species in the VFR stocking standards but no height was given – 1.5 m is used as the minimum height. In addition to the notes regarding species in the VFR stocking standards, the following apply:

- Ss is moved from preferred to acceptable due to risk of weevil damage in 04 and 05 site series of CWHvh2.
- On CWH vm1 site series 01, 05 and CWH vm2 01, Fd is restricted to steep slopes.

Where standards units (SUs) are comprised of an unmappable mosaic of site series, the practice will be to manage for the stocking standards of the dominant site series provided that the tree species are suitable in all site series contained within the SU.

Pruning regime for western white pine. If white pine is to be counted in a free-growing survey as one of the well-spaced stems, it will have been pruned in accordance with the following regime:

First Lift

- Trees will be pruned when mean height of white pine is 1.0 to 2.5 m for plantations.
- Natural white pine will be pruned when height is 1.5 to 3.0 m

- Trees will be pruned to 50 to 65% of total tree height.
- Infected branches above target pruning height will be selectively pruned
- In high hazard areas, early pruning will be considered

Second Lift

- Trees will be pruned when mean height of white pine is ≥ 5m
- Trees will be pruned to 3.0 m or 50% of total height
- Trees ≤ 5 m will be pruned to 50% of total height

Third Lift (optional)

- May be performed to approx. 5.5 m to improve wood quality, mainly when used to reforest areas infected with root disease

Definitions of terms used in footnotes:

1. *Disturbed roadside area* – area within the road right-of-way that has been disturbed due to road construction, where logs have been landed and log processing occurs. It would be a maximum of 10 m. from the traveled portion of the road (i.e. the length of a log).

5. *Thick forest floor* – forest floor >20 cm.

6. *Coarse-textured soils* – sand and loamy sand; or sandy loam, loam, sandy clay loam with >70% coarse fragments

9. *Steep slopes* - >50% slope

10. *Southerly aspect*- SSE to WSW with slopes >35%

11. *Northerly aspect* – NW to ENE with slopes >50

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