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**CLAYOQUOT SOUND
FOREST STEWARDSHIP PLAN
2009**

Draft for Review and Comment

Forest District: South Island Forest District

**Forest Operations of
lisaak Forest Resources Ltd.**

Tree Farm License #57
Timber License T0840, T0846, T0831, T0834, T0837, and T0843

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1.0 Date of Submission

The date of submission of this Forest Stewardship Plan will be set upon completion of the public review and comment period.

2.0 Acronyms and Definitions

All terms in this section are bolded where they first appear in the FSP text

The “Act” Refers to the Forest and Range Practices Act

Agreement Holder Also the “**Holder of this FSP**” or just the “**Holder**”. Refers to the licensee or licensees to whom this FSP applies.

Aggregate Retention A form of retention harvesting where trees are retained in patches or “aggregates” ≥ 0.1 ha in size. Under an aggregate retention regime, no point in a cutblock is greater than two tree lengths from a retention aggregate or a timbered edge.

BEC Biogeoclimatic Ecosystem Classification

Clayoquot Sound

For the purposes of this FSP, Clayoquot Sound is defined as that area shown on Schedule 1 of the Ministerial Order Establishing Land Use Objectives for Clayoquot Sound. This includes all watersheds draining into the marine waters of Clayoquot Sound, but excludes Meares Island.

Clayoquot Sound Scientific Panel Also the “**CSSP**” or “**Scientific Panel**”. Refers to the Scientific Panel for Sustainable Forest Practices in Clayoquot Sound. This group of scientists and First Nations representatives was given a mandate by government to review forest practices in Clayoquot Sound and present its findings and recommendations. The Scientific Panel published their final two reports in 1995. These included report #3 *First Nations’ Perspectives Relating to Forest Practices Standards in Clayoquot Sound* and report #5: *Sustainable Ecosystem Management in Clayoquot Sound; Planning and Practices*. The recommendations from these two reports were adopted by government and industry to guide forest practices in Clayoquot. They form the basis for the watershed planning processes that followed.

Clayoquot Sound Technical Planning Committee

Also the “**Technical Planning Committee**” or “**TPC**”. A committee made up of First Nations representatives and technical staff from Provincial Government agencies responsible for resource management planning. This committee was struck in 1999 to carry out watershed planning for Clayoquot Sound.

Dispersed Retention A form of retention harvesting where retention is dispersed in such a manner that no point in the cutblock is greater than 1 tree length from a retained tree, group of trees, or a timbered edge.

DBH Diameter of a tree at breast height

FDU Forest Development Unit

FPPR The Forest Planning and Practices Regulation

FPC The Forest Practices Code. Also: “**The Code**”.

FRPA The Forest and Range Practices Act

FSP Forest Stewardship Plan

FSP Area For the purposes of this document, the “FSP area” is considered to be the area within all of the FDU’s contained in this FSP.

GAR The Government Actions Regulation

Harvestable Area. Areas within a watershed where forest harvesting or other resource uses will not compromise the long-term integrity of the forest ecosystem, its use by First Nations people, or its recreational or high scenic value. It is defined spatially as the remaining area outside the watershed reserves when watershed planning is completed, where forest harvesting or other resource development such as road building can take place provided such development is consistent with the Scientific Panel recommendations, relevant forest legislation, and the watershed plans.

Hydroriparian Reserve Zone or “**HRRZ**”. A reserve established adjacent to streams, wetlands, lakes, and marine shores under the Clayoquot Sound Scientific Panel recommendations to protect the hydroriparian zone of these features. The width of the reserves is based on the recommendations of the Clayoquot Sound Scientific Panel and documented in the watershed plans. It is measured in horizontal distance from the bank of a stream (the high water mark where diverse mature bank vegetation begins) or the high water mark of a lake, wetland, or marine shore.

Special Management Zones For the purposes of this document, a Special Management Zone is an area in the watershed planning units identified primarily to protect human values. These include cultural, scenic, recreational, and tourism values. These areas are generally available for harvesting but are intended to have management strategies applied that will protect the values, special features, or sensitivities of the area.

Variable Retention A silvicultural system that provides for permanent retention of forest structures such as large trees or groups of trees, snags, logs and downed wood from the original stand. Retention may be dispersed, aggregate, or a combination of both.

Watershed Plans For the purposes of this document, a watershed plan is a map-based, watershed level plan developed in accordance with the recommendations of the Scientific Panel by the Clayoquot Sound Technical Planning Committee. These plans are applied to established watershed planning units in Clayoquot Sound that consist of a single watershed or groups of contiguous watersheds ranging from 5000 to 30,000 ha in size. The plans map and designate the areas that will be set aside as reserves to protect a range of forest values. They also designate harvestable areas, culturally significant areas, scenic class objectives, special management zones, and rate-of-cut limits.

Of the watershed plans currently in effect in Clayoquot Sound, the first three (Bedingfield, Flores, and Cypre) were endorsed by the Central Region Chiefs and the Province of British Columbia on October 15, 2003. The Central Region Board, on July 27, 2006, announced the endorsement of eight additional watershed plans on behalf of the Central Region Chiefs and the Province. These eight watershed plans, plus a volume on principles and processes of the watershed plans, make up Volumes 1 to 9 of the *Watershed Planning in Clayoquot Sound* series. The watershed plans may be amended by the Technical Planning Committee from time to time.

Wildlife Habitat Assessment (or WHA) For the purposes of this FSP, a Wildlife Habitat Assessment is defined as a site level assessment, conducted by a qualified professional, to assess areas within and adjacent to proposed roads and cutblocks for wildlife habitat values including (but not limited to) the following:

- i. presence of red or blue listed plant or animal species
- ii. critical habitat for red or blue listed species or other species of significance (species that require mature trees, forest cover, or forest structures for at least of portion of their habitat requirements)
- iii. wildlife habitat features such as wildlife trees, eagle nests, bear dens, etc.

WHA's provide a qualitative inventory of forest habitat structures such as wildlife trees, snags, downed wood (coarse woody debris), shrub, herbaceous, and tree species. In addition, WHA's will evaluate ephemeral streams and small non-classified wetlands and provide special management prescriptions where warranted.

3.0 Application of this FSP (FRPA s. 3(4))

3.1 Licensees and Licenses

Table 1: Application of this Forest Stewardship Plan

Licensee	License	Annual Allowable Cut	Management Unit	FSP Applies to Entire License?
Iisaak Forest Resources Ltd (“Iisaak”)	TFL 57	381 ha	TFL	Y
Iisaak Forest Resources Ltd	T0831	N/A	Timber License Outside TFL	Y
Iisaak Forest Resources Ltd	T0834	N/A	Timber License Outside TFL	Y
Iisaak Forest Resources Ltd	T0837	N/A	Timber License Outside TFL	Y
Iisaak Forest Resources Ltd	T0840	N/A	Timber License Outside TFL	Y
Iisaak Forest Resources Ltd	T0843	N/A	Timber License Outside TFL	Y
Iisaak Forest Resources Ltd	T0846	N/A	Timber License Outside TFL	Y

Note: The FDU boundary also encompasses portions of TFL 54 and the Arrowsmith TSA within Clayoquot Sound. These areas are included for the purposes of access only. The results and strategies contained within this FSP apply to TFL 54 and the Arrowsmith TSA only with regard to road construction or maintenance activities, conducted by Iisaak, that may take place within TFL 54 or the Arrowsmith TSA to access Iisaak’s tenures.

3.2 *Cutblocks and Roads to Which this FSP, Not the Code, Will Apply (FRPA s. 197(7))*

As of the date of approval of this plan, all active cutting permits issued under the **Code** will continue to operate under the Code and the Code regulations, and not the provisions of this FSP. This FSP does not apply to any cutting permit that is within an FDU under this FSP and was issued to the **agreement holder** before the date of approval of this FSP.

This FSP will apply to all roads under Road Permit to Iisaak Forest Resources Ltd (see Table 2 below) as of the date of approval.

All new cutting permit or road permit applications submitted after the date of approval of this plan will be subject to this plan, not the Code.

4.0 *Term of the FSP (FRPA s. 6(1)(a))*

The term of this Forest Stewardship Plan is 5 years.

5.0 *Commencement of Term (FRPA s. 6(1)(b))*

The term of this Forest Stewardship Plan commences on the date specified by the Minister (or delegate) in approving the Plan.

6.0 *Map (FRPA s. 5(1)(a) and FPPR s. 14)*

6.1 *Boundaries of FDU's*

The attached FSP overview map, at a 1:125,000 scale, and the attached FSP maps, at a 1:40,000 scale, show the boundaries of all Forest Development Units (FDU's) under this Forest Stewardship Plan.

6.2 *New Forest Development Units (FRPA s. 5(1)(a) and FPPR s. 14(1)(a))*

The attached FSP overview map, at a 1:125,000 scale, and the attached FSP maps, at a 1:40,000 scale, show the boundaries of all new Forest Development Units proposed under this Forest Stewardship Plan.

6.3 *Areas to Which s. 196(1) and 196(2) of the Act Apply (FRPA s. 196; FPPR s. 14(1)(c))*

There are no cutblocks or roads from previous Forest Development Plans that the

agreement holder wishes to have considered approved under s. 196(1) or s. 196(2) of the Act.

6.4 Designations in Effect Four Months Before the Submission of this FSP (FPPR s. 14(2))

The attached FSP maps (1:40,000 scale) and this document identify the designations and other areas listed in section 14(3) of the FPPR that were in effect 4 months before the FSP was submitted for approval. Table 2 below identifies the Cutting Permits and Road Permits in effect four months prior to FSP submission.

Designations in effect include adjacent parks, scenic areas, community watersheds, cutting permits, and road permits. Known scenic areas include all visual landscapes associated with views from the following travel corridors:

- Highway 4 from Parksville to Ucluelet and Tofino, and
- Clayoquot Sound

6.5 Areas within FDU's Subject to Cutting Permit or Road Permit (FPPR s. 14(3))

The attached FSP maps (1:40,000 scale) along with Table 2 below identify the areas within the Forest Development Units that are subject to a Cutting Permit (CP) or Road Permit (RP):

- Held by the licensee; and
- In effect four months before the submission of the Forest Stewardship Plan for approval.

To reduce clutter and improve the legibility of the maps, some of the older Cutting Permits that are still in effect but no longer active are identified only on Table 2 and are not shown on the FSP maps.

Table 2 – Cutting Permits and Road Permits in Effect Four Months Prior to Submission of the FSP

Cutting Permit or Road Permit	Cut blocks or Roads in Permit	1:20,000 TRIM Mapsheet #	FDU
CP 9	304250, 304251	92E030	1
RP R07666	W11, Bawden Main, L1, L2, L2A, L2A1, L3, BW9, BW10, BW11, BW12		
		92E039	1
CP F CP I	Blk B001, B002, and B004 Salvage wood from Br M1300, M651, M653, Bedingfield Main, and A1600	92E040	1
CPAA	BED104, BED108, BED109		
RP R07993	Millar Main, M600, M640, M1000, M1200, M1300, M1360, M1400, M1600, M1700, M1900, M1960, M2200, M100-B, M100-B1, M600, M615, M644, M645, M1500, M1800, White Fern ML, WFM4, WFM5, WF23, WF23A Atleo Main, A600, A620, A1500, A1530, A1535, A1560, A2000, A2020, A2030 B1000, B1500, B1510, B1520, B1530, B1540, B1700		
RP R07667	Hotsprings Mainline, Br H1000	92E049	1
		92E059	1

Cutting Permit or Road Permit	Cut blocks or Roads in Permit	1:20,000 TRIM Mapsheet #	FDU
CP 4 CP 8 CP 11 CP 13 CP 14 CP 15 RP R07654	024350 024253, 033350 024353 024450, 024350A 024352 024350B, 024350C West Main, WM92, WM111, WM112, WM112A, WM 117, WM 117A, WM125, WM130, WM132, WM132A, WM132A-1, WM 137, WM141, Alaska Whitepine Main, Kennedy River Road, KR51, Grice Bay Road, GBR12,GBR12A, GBR40, GBR44, Kootowis Creek Main, KCR13, KCR14, KCR14A, KCR15, KCR15-1, KCR15-2, Lost Lake Road, Indian Bay Road, IBR6	92F002	1
RP R07654	Sand River Road, Clayoquot Arm Road, North Ridge Road, SR29, S29A, WM132A	92F003	1

Cutting Permit or Road Permit	Cut blocks or Roads in Permit	1:20,000 TRIM Mapsheet #	FDU
CP 3 CP 10 CP 15 CP 17 RP R07654 RP R07653 RP R07652	122351 122451 024350C, 024350E, 122451A, Br GB70, Br GB75, Br GB90, Br GB98 123150, 123450 Lost Lake Road, West Clayoquot Main, WC14, WC14D, LR78, LR78C, Kennedy River Road, K65, K65A, KR51, GBR88, GBR88A, GBR88A1, GBR88B, CB1, GBR100, GBR100B, Indian Bay Road, IBR6 Deer Bay Mainline, Muriel Ridge Road, Upper Muriel Road Tranquil Main, TM4, TM19, TM19G Rankin Cove Main, Rankin Barge Road, RC10, RC17, RC17C, RC17D Fortune Main, FM11, FM45, FM46 Lower Fortune Main, LFM8 Rolling Stone Main Gunner Main, G20, G29, G29C, G49, G63, G63E, G63E-1, G63E-2, G63E-3, G63E-4	92F012	1
CP 14 RP R07654 RP R07653	132450, 134250 H290, H290A, H291, H290C, H290D, H290F Kenquot ML, Ken9, Ken10, Ken14, Ken9A1, Ken9A2, Ken24, Ken30, Ken56, Ken56A, Ken67 Clayoquot Arm Road, CAR49, CAR79, North Ridge Road, NR68, NR68A, NR68A, NR100, NR106, NR107, NR110, NR112, NR114, NRWS Hookup Road, Sand River Road, West Sand Road MR140, Upper Muriel Road	92F013	1
		92F014	1

Cutting Permit or Road Permit	Cut blocks or Roads in Permit	1:20,000 TRIM Mapsheet #	FDU
CP 5 CP 6 CP 9 RP R07666	213451 214450, 312250 211340, 213350, 213351, 213450, 214350 Catface Main, CFM100, CFM200 Cypre Main, Herbert Main, Cypre East Main, M58, C59, CR1 Mort Mainline, FF1 W10, W10A, W10B, W11 Quait Main, Spur 1, 1A, 1B, 4, 6, 160, 425, 450, 263	92F021	1
CP 155 CP 17 CP 18 CP 19 CP 20 CP 21 RP R07652	Salvage wood from road deactivation on the following roads: TM35, TM15, Lower Fortune Main, LFM36, Sand River Main, SR29, West Sand River Road, Clayoquot Arm Road, KEN9, GBR12, WM141, Berryman Reload, Muriel Ridge Road, MRR14, MRR24, MRR28, LLR78, LLR78C, Grice Bay Road, GBR88, Kennedy River Road, Alaska Pine Road 123450, 221251, 223153, 223153A 223153H 223151, 223151H, 223152, 223152H, 223250H TRA100H, TRA101H TRA101 Tranquil Main, TM4, TM19, TM19G, TM35, TM64, TM64F, TM64K, TM64L, TM64M, TM64N, TM115, TM84 (East Tranquil Mainline), TM154, TM154B, TM160, TM163, ET52, ET52A, ET75 West Tranquil Main, WT100 RAH Main, RAH31, RAH66, DB159 Fortune Main, FM11, FM37, FM38, FM46, FM40, FM45, FM45E, FM56 (Virge Main), FM56B, FM56B-1, FM56B-2, FM56C, FM75, FM156, FM160, FM164 Lower Fortune Main Warn Creek Main, WCR12, WCR21, WCR21B, WCR35 Matleset Main, Pine Lake Road, PLR4, PLR7, PLR8, PLR8A, PLR15, PLR16, PLR18, MAT34, M34A, M34B, MAT34E, MAT34E-1, M37, M38, MAT45, MAT46, MAT53, MAT53B, MAT65	92F022	1

Cutting Permit or Road Permit	Cut blocks or Roads in Permit	1:20,000 TRIM Mapsheet #	FDU
CP 7 CP 15 RP R07653	233152, 231350 231150 Deer Bay Mainline, Marble Creek Road, DB159 Tofino Main, TOF60, TOF60G RAH Main, RAH10, RAH12	92F023	1
RP R07654	Kenquot Main, Ken9, Ken9A-1, Ken9B, Ken9C, Ken9E, Ken9F, Ken9G	92F024	1
CP 2 CP AA RP R07666 RP R07993	Blk H001, H002 BED102 CR1, CR3100, CR2700, CR2800, CR2820, CR2840, CR2842 Cypre East Main, CE52, CE53, CE65, CE65B, CE71, CE81 Cypre West Main, CW3, CW3D, CW3D-1, CW3D-4, CW22, CW22A, CW23, CW24, CW2, CW40, CW35A, CW35B Cypre North Main, CN10 Herbert Main, H8A, H60, H60F, H60G, H60J Bedingfield Main, Camp1, Camp2, B1000, B50, B100 Millar Main, M100, M100A, M100B, M100B-1 Atleo Main Summit Main, S100, S105, S110	92F031	1
		92F032	1
		92F033	1
		92F041	1

7.0 Results or Strategies

7.1 Land Use Objectives (FPPR s.1 definition)

7.1.1 Order Establishing Land Use Objectives for Clayoquot Sound

Objectives:

- 1) *Maintain aquatic ecosystems, biological diversity, and community values, including First Nations cultural values, by managing forested ecosystems in Clayoquot Sound in accordance with the principles of sustainable ecosystem management as defined by the Scientific Panel and as embodied in the Clayoquot Sound Watershed Plans.*
- 2) *Despite Section 3(1) of this Order, use adaptive management where alternative approaches are likely to result in equal or better ecological management outcomes than the principles of sustainable ecosystem management as defined by the Scientific Panel and as embodied in the Clayoquot Sound Watershed Plans.*

A. Results or Strategies Addressing Biodiversity and Human Values (see also section 7.2.6 Cultural Heritage Resources)

FDU	Result or Strategy
All	<ol style="list-style-type: none"> 1. The Holder of this FSP will conduct primary forest activities in accordance with the principles of sustainable ecosystem management as defined by the Scientific Panel and as embodied in the Clayoquot Sound Watershed Plans. 2. Further to subsection 1, primary forest activities may be conducted using alternative approaches where such approaches <ol style="list-style-type: none"> a) are part of a limited research and/or monitoring project to assess the impacts of alternative forestry practices, b) are likely to result in equal or better ecological management outcomes than the prescribed practices given in the official watershed plans, as determined by a qualified professional or team of professionals, c) are planned and prescribed in full consultation with the appropriate First Nations, and d) are described in a rationale signed and sealed by a qualified professional 3. Any alternative approaches proposed under subsection 2 must be approved by the Clayoquot Sound Technical Planning Committee.

FDU	Result or Strategy
All	<ol style="list-style-type: none"> 4. Further to subsection 1, the Holder of this FSP will not construct roads or harvest timber within a polygon identified as a reserve in the watershed plans in effect in Clayoquot Sound except under the following circumstances: <ol style="list-style-type: none"> a) an exemption for road construction or timber harvesting is approved by the Clayoquot Sound Technical Planning Committee, b) felling of trees is required to address worker safety including felling of danger trees, felling for guyline stumps, or felling of tailhold anchor trees within a reserve that is adjacent to a cutblock, c) road maintenance, road deactivation, brushing and clearing, or felling of danger trees is required for existing roads within a reserve, or d) where planned harvesting or road construction activities would result in a minor change to the watershed plan reserves as defined in the watershed plans under section 4.1, Volume 1 of the “<i>Watershed Planning in Clayoquot Sound</i>” series. 5. Any felling of trees under the provisions of subsection 4(b) or 4(c) will be done in manner that does not have a material adverse effect on the habitat values of the reserve. 6. If an exemption is sought under subsection 4(a), the Holder of this FSP will propose an alternate reserve area of equal or greater size to replace the area affected. This alternate area must include similar attributes to those of the area impacted by the exemption, as determined by a qualified professional. 7. Minor changes to the watershed plan reserves must be accompanied by a rationale in a Site Plan signed and sealed by a Professional Forester. A notification of all minor changes will be sent to the Clayoquot Sound Technical Planning Committee prior to commencement of harvesting or road construction. 8. The Holder of this FSP will conduct primary forest activities that are consistent with the Scenic Class objectives that are established in the watershed plans in effect in Clayoquot Sound 9. The Holder of this FSP will conduct primary forest activities, consistent with the watershed plans in effect in Clayoquot, that ensure that: <ol style="list-style-type: none"> a) a minimum 40% of the forested area in each watershed planning unit is retained as old growth forest (age class 8 or 9) of which a minimum of 20% must have interior forest conditions, b) a minimum of 30% of each site series and 20% of each site series - dominant tree species group for groupings of 201 to 400 years and 401 to 600 years greater than 2 hectares in size is retained,

FDU	Result or Strategy
All	<ul style="list-style-type: none"> c) a minimum 50% of rare site series (less than 2% of watershed planning unit area or 6 or fewer occurrences) is retained, and d) a minimum of 100% of red listed and 50% of blue-listed plant communities are protected in reserves. <p>10. The Holder of this FSP will ensure adequate retention of wildlife trees at the stand and landscape level by</p> <ul style="list-style-type: none"> a) applying variable retention silviculture systems on all cutblocks, b) ensuring all proposed roads and cutblocks in the FSP area will have a Wildlife Habitat Assessment (WHA) carried out by a qualified professional, and ensuring that primary forest activities conducted on those roads or cutblocks are consistent with the recommendations of the WHA relating to <ul style="list-style-type: none"> i. red or blue listed plant or animal species or critical habitat for red or blue-listed species or species of significance, ii. ephemeral streams, unclassified wetlands, or other wildlife features, c) ensuring minimum retention levels in all cutblocks will be 15%, with the exception of small harvest units less than 4 tree lengths across where no point in the harvest unit is >2 tree lengths from a retained tree patch or timbered edge, d) ensuring that the minimum retention level required in subsection 10(c) is reasonably representative of the species composition and physical structure of the harvested portion of the cutblock, and is located within or adjacent to the cutblock boundary, and e) ensuring that retention is distributed as one or the other, or a combination of: <ul style="list-style-type: none"> i. Dispersed Retention: Where no point in a cutblock is greater than one tree length from a retained tree, patch of trees, or timbered edge (where tree length is defined as the height of the retained trees) ii. Aggregate Retention: Where no point in a cutblock is greater than two tree lengths from a patch of trees or timbered edge <p>11. Actual levels and distribution of retention applied will be based on the ecological sensitivity of the site (including terrain stability and windfirmness), worker safety, stand characteristics, topographic conditions, and the particular forest values present on the site including (but not limited to) cultural and social values, water quality, wildlife and biodiversity, fisheries, scenic, and recreational values. Levels and distribution of retention will also be based on any recommendations arising from Wildlife Habitat Assessments and from consultations with First Nations.</p> <p>12. Actual levels and distribution of retention applied will be specified and prescribed in a Site Plan prepared by a qualified professional prior to commencement of any primary forest activities.</p> <p>13. The Holder of this FSP will conduct any primary forest activities within Special Management Zones consistent with the watershed plans in effect in Clayoquot Sound.</p>

B. Results or Strategies Addressing Watershed Integrity
(see also section 7.2.1 Soils, and 7.2.4 Community Watersheds)

FDU	Result or Strategy
All	<ol style="list-style-type: none"> 1. The Holder of this FSP will manage riparian areas in accordance with the principles of sustainable ecosystem management as defined by the Scientific Panel and as embodied in the Clayoquot Sound Watershed Plans. 2. Further to subsection 1, alternate approaches to riparian management may be applied where such approaches <ol style="list-style-type: none"> a) are part of a limited research and/or monitoring project to assess the impacts of alternative forestry practices, b) are likely to result in equal or better ecological management outcomes than the prescribed practices given in the official watershed plans, as determined by a qualified professional or team of professionals, c) are planned and prescribed in full consultation with the appropriate First Nations, and d) are described in a rationale signed and sealed by a qualified professional 3. Any alternative approaches proposed under subsection 2 must be approved by the Clayoquot Sound Technical Planning Committee. 4. The Holder of this FSP will apply the practice requirements given in FPPR s. 51 (restrictions in riparian reserve zone) to the hydriparian reserve zones (HRRZ) within this FDU except under the following circumstances: <ol style="list-style-type: none"> a) felling or modifying a tree is required to address worker safety through provision of rig tree anchors or tail hold anchors, b) activities conducted under subsection 2, c) where ecological restoration of riparian reserve zones is proposed consistent with Scientific Panel recommendations. This allows the agreement holder to carry out partial cutting, thinning, or spacing in a second growth riparian reserve to promote diverse forest structure and habitats, establish an ecologically suitable tree species mix on the site, and attain structural features of old-growth forests 5. For any ecological restoration projects, as described in subsection 4(c) above, the following standards will apply: <ol style="list-style-type: none"> a) a qualified professional will be consulted to determine whether any special management prescriptions are required to protect the hydrological and ecological integrity of the stream and hydriparian zone b) a minimum 7m no machine zone will be maintained along the affected streams except at designated crossings, and c) sufficient vegetation will be retained along streams to provide shade, reduce bank microclimate changes, and maintain natural channel and bank stability

FDU	Result or Strategy
All	<p>6. The agreement holder, if cutting, modifying, or removing trees adjacent to any stream that has trees that contribute significantly to the maintenance of stream bank or channel stability will retain enough trees adjacent to the stream to maintain the stream bank or channel stability if the stream</p> <ul style="list-style-type: none"> a) is a fish stream b) is a direct tributary of a fish stream c) flows directly into the ocean, at a point near to or where one or more of the following is located: <ul style="list-style-type: none"> i. a herring spawning area ii. a shellfish bed iii. a saltwater marsh area iv. an aquaculture site v. a juvenile salmonid rearing area or an adult salmon holding area, or d) flows directly into the ocean, at a point near to the location of an area referred to in paragraph (c) and failure to maintain stream bank or channel stability will have a material adverse impact on that area. <p>7. The agreement holder will ensure that primary forest activities are consistent with the rate of cut limits, as set out in the watershed plans, for any watershed in the FSP area where harvesting and/or road building is proposed.</p>

7.2 Objectives Prescribed under FRPA s. 149(1) and FPPR s. 5 to 10

7.2.1 Soils

Objective set by government for soils (FPPR section 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 hydrological function of soils.

The following results or strategies are consistent with the Ministerial Order Establishing Land Use Objectives for Clayoquot Sound and the objective established under FPPR s. 5.

FDU	Result or Strategy
FDU: All	<ol style="list-style-type: none"> 1. The Holder of this FSP adopts, as a result or strategy, sections 35 and 36 of the FPPR. 2. The Holder of this FSP will ensure that any permanent access structures, constructed in the FSP area by the Holder of the FSP, will not cause the proportion of the harvestable area covered by permanent access structures to exceed 5% in any watershed within the FSP area unless <ol style="list-style-type: none"> a) there is no other practicable option and the road or access structure is required to provide access to timber that otherwise would be inaccessible, and b) a strategy is incorporated into a relevant Site Plan, signed and sealed by a Professional Forester, to rehabilitate a sufficient area of permanent access structures within the affected watershed to bring the overall proportion of harvestable area covered by permanent access structures to less than 5%. 3. The Holder of this FSP will ensure yarding systems used for harvest units are appropriate to the soil, terrain, and climate conditions of the site.

7.2.2 Wildlife

Objective set by government for wildlife (FPPR section 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 the 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 of 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.*

Effective on May 6, 2004, the Minister of Water, Land, and Air Protection established an order determining the list of wildlife species that are considered species at risk that may be affected by forest or range management on Crown land, and require protection in addition to that provided by other mechanisms. On June 6, 2006, the Minister of the Environment published additions to the list of species at risk.

A Notice under section 7(2) of the FPPR has been produced giving indicators of the amount, distribution, and attributes of wildlife habitat required for the survival of species at risk in the Clayoquot Sound Planning Area. This Notice pertains to the protection of Marbled Murrelet habitat. The Notice requires that an amount of area, distribution of areas, and attributes of areas be consistent with any direction provided in official and interim watershed plans in effect within Clayoquot Sound.

A Notice under section 7(2) of the FPPR has been produced giving indicators of the amount, distribution, and attributes of wildlife habitat required for the winter survival of ungulate species in TFL 57. The Notice requires that an amount of area, distribution of areas, and attributes of areas be consistent with any direction provided in official and interim watershed plans in effect within Clayoquot Sound.

A Notice under section 7(2) of the FPPR has been produced giving indicators of the amount, distribution, and attributes of wildlife habitat required for the winter survival of ungulate species in TFL 54. The Notice requires that an amount of area, distribution of

areas, and attributes of areas be consistent with any direction provided in official and interim watershed plans in effect within Clayoquot Sound.

On the 21st Nov 2003, an order was produced establishing ungulate winter ranges (UWR's) in the Arrowsmith TSA (#U1-017). On the 18th October 2004, an order was produced establishing UWR's in portions of TFL 44 (#U1-013) including portions within Clayoquot Sound. There are no established UWR's located within the FSP area.

On the 26th of June 2008, a Ministerial Order Establishing Land Use Objectives for Clayoquot Sound came into effect. This Ministerial Order requires licensees to conduct forestry practices in accordance with the principles of the Scientific Panel as embodied in the watershed plans. This is essentially the same objective as specified in the FPPR section 7(2) notices. Under FPPR s. 12(5), if two or more objectives are applicable to a common area and to the same or similar subject matter, the minister may exempt a person required to prepare an FSP from specifying a result or strategy for all but one of the objectives.

The results or strategies given in section 7.1.1 of this document address the land use objectives for Clayoquot Sound established by Ministerial Order and replace the requirement to specify results or strategies under FPPR section 7.

Upon approval of this FSP:

- a) Under FPPR s. 12(5), the Holder of this FSP is exempt from the requirement to specify a result or strategy for the objective set by government under FPPR s. 7, as the land use objective set by Ministerial Order is applicable to the same area and covers the same or similar subject matter.

7.2.3 Riparian

Objective set by government for water, fish, wildlife, and biodiversity within riparian areas (FPPR section 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.

Under FPPR s. 12(5), if 2 or more established objectives are applicable to a common area and the same or similar subject matter, the minister may exempt a person required to prepare a Forest Stewardship Plan from the requirement to specify a result or strategy for all but one of the established objectives.

Under FPPR s. 92.1(1), if the minister responsible for the Forest Act approves a result or strategy in an FSP relating to an established objective that conflicts with a requirement of Part 4 (Practice Requirements) or Part 5 (Roads) of the Regulation, the minister must exempt the Holder of the FSP from the requirement that conflicts with the established objective (subject to possible conditions attached to the exemption by the minister

responsible for the Wildlife Act or the Forest Act).

The results or strategies given in section 7.1.1 of this document address the land use objectives for Clayoquot Sound established by Ministerial Order and replace the requirement to specify results or strategies under FPPR section 8.

Upon approval of this FSP:

- a) Under FPPR s. 92.1(1), these results and strategies replace the practice requirements given in section 47, 48, 49, 50, and 52(2) of the FPPR to the extent that they conflict with the land use objectives.
- b) Under FPPR s. 12(5), the Holder of this FSP is exempt from specifying a result or strategy under FPPR s. 8 including the requirement under FPPR s. 12(3) to specify a result or strategy that addresses the retention of trees in a riparian management zone.

7.2.4 Community Watersheds

Objectives set by government for water in community watersheds (FPPR section 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 through a licensed waterworks in a community watershed is to prevent to the extent prescribed 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 quality 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.*

There is one official community watershed within the FSP area. This community watershed - Anderson Creek - serves the community of Ahousaht-Marktosis on Flores Island.

The following results or strategies are consistent with the Ministerial Order Establishing Land Use Objectives for Clayoquot Sound and the objective established under FPPR s. 8.2.

FDU	Result or Strategy:
All CWS located within the FDU	<ol style="list-style-type: none"> 1. The Holder of this FSP adopts, as a result or strategy, FPPR sections 59, 60(2), and 61. 2. In addition to subsection 1, the Holder of this FSP will <ol style="list-style-type: none"> a) follow the rate of cut limits, as set out in the watershed plans, for all watersheds in the FSP area where primary forest activities are proposed, b) will conduct any primary forest activities within community watersheds consistent with the watershed plan recommendations regarding hydroriparian reserve zones and special management zones, and c) extend a special management zone 50m from any channel in a community watershed, even if the hydroriparian zone or entrenchment slope does not extend that far.

7.2.5 Wildlife and Biodiversity

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

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

Under FPPR s. 12(5), if two or more established objectives are applicable to a common area and the same or similar subject matter, the minister may exempt the person required to prepare an FSP from the requirement to specify a result or strategy for all but one of the established objectives.

The results or strategies given in section 7.1.1 of this document address the land use objectives for Clayoquot Sound established by ministerial order and replace the requirement to specify results or strategies under FPPR s. 9 and FPPR s. 9.1.

Upon approval of this FSP:

- a) the Holder of this FSP is exempt from specifying a result or strategy for the objective set by government under FPPR s. 9 and FPPR s. 9.1.

7.2.6 Cultural Heritage Resources

Objective set by government for cultural heritage resources (FPPR section 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 aboriginal people, that is of continuing importance to that people, and*
- b) not regulated under the Heritage Conservation Act.*

The following results or strategies are consistent with the Ministerial Order Establishing Land Use Objectives for Clayoquot Sound and the objectives established under FPPR s. 10.

FDU	Result or Strategy
All	<p>The Holder of this FSP will take the following steps to conserve, or if necessary, protect cultural heritage resources:</p> <ol style="list-style-type: none"> 1. Ensure that First Nations are consulted and involved in the planning for forest management activities within the FSP area. This includes identifying and locating cultural heritage resources. Cultural heritage resources of continuing importance to First Nations will be determined through (but not limited to) the following measures <ol style="list-style-type: none"> a) Consultation with affected First Nations prior to submission of the FSP, b) Comments received from affected First Nations under s. 21 of the FPPR, c) Comments received by government in consultation with affected First Nations, d) Comments received by the licensee from affected First Nations during information meetings that may occur from time to time during the term of the FSP, and e) Involvement of First Nations in identifying and locating cultural heritage resources at the cutblock or site level 2. The Holder of this FSP, when designing a cutblock or road will, prior to harvest or construction, through consultation with the applicable First Nations <ol style="list-style-type: none"> a) identify the portion of the area occupied by a cultural heritage resource, b) determine whether the cultural heritage resource is to be protected or conserved, c) if the cultural heritage resource is to be conserved, determine what conservation measures, if any, will be applied to forest practices in the area, d) ensure that the cutblock or road design is consistent with the constraints, if any, determined in subsection 2(b) and 2(c), and e) conduct harvesting or road construction consistent with the design specified in subsection 2(d)

FDU	Result or Strategy
All	<ol style="list-style-type: none"> 3. The Holder of this FSP will, when proposing a cutblock or a road in an area designated as a Culturally Significant Area on the watershed plans <ol style="list-style-type: none"> a) engage in a consultation process with the applicable First Nations as detailed in the watershed plans, b) determine through this consultation process, the compatibility of the proposed cutblock or road with the cultural sensitivity and significance of the area in question and, if compatible, any special conditions, considerations, or procedures that will apply to the proposed cutblock or road, c) ensure that the design of the proposed cutblock or road is consistent with the special conditions, considerations, or procedures, if any, determined in subsection 3(b), and d) conduct harvesting or road construction consistent with the design specified in subsection 3(c) 4. If the Holder of this FSP discovers, within a cutblock or road location, a previously unidentified cultural heritage resource, the Holder of this FSP will <ol style="list-style-type: none"> a) cease operations in the immediate vicinity of the cultural heritage resource to the extent necessary to protect the cultural heritage resource, b) through consultation with the applicable First Nations, identify whether the cultural heritage resource is to be protected or conserved, c) if the cultural heritage resource is to be conserved, determine what conservation measures, if any, will be applied to forest practices in the area, and d) resume operations in the vicinity of the cultural heritage resource to the extent that the operations are consistent with subsection 4(b) and 4(c).

FDU	Result or Strategy
All	<p>Iisaak will take the following steps to ensure that opportunities for traditional and cultural use of redcedar and yellow cedar will be maintained in the FSP area:</p> <ol style="list-style-type: none"> 1. Iisaak’s operations will be consistent with the relevant watershed plans, which establish reserves to conserve representative old-growth, interior old growth, hydriparian forests, and ecosystem representation by site series and leading species/advanced successional stage (201 to 400 years and 401 to 600 years). Forest management that is consistent with official watershed plans will ensure that a minimum of 40% of old-growth (age class 8 and 9) forests within each watershed planning unit is protected. 2. Iisaak will apply variable retention silviculture systems to all cutblocks in the FSP area. This will ensure protection of representative samples of original forest in the harvestable areas. 3. Western redcedar (Cw) and yellow cedar (Yc) will be planted on ecologically appropriate sites to ensure an ongoing future supply of these species in the harvested areas of Clayoquot Sound. On Standards Units (SU’s) where <ol style="list-style-type: none"> a) a regeneration obligation exists after harvesting is complete, b) Cw and/or Yc are preferred species in the Stocking Standards for that SU (Appendix 1), and c) Cw and/or Yc made up at least 30% of the original stand by basal area or volume <p>Iisaak will plant any openings in the SU with Cw and/or Yc to a density not less than 50% of the target well spaced stocking for that SU.</p> 4. The FSP area contains second growth forests that originally contained a significant cedar component that were then subsequently reforested to other species (including “off-site” Douglas fir). When harvesting is proposed in these second growth forests, Site Plans will include steps to help restore the cedar component to these sites. 5. Iisaak will assist local First Nations in identifying and accessing cedar and yellow cedar trees suitable for use for cultural purposes. This includes providing suitable trees or logs from permit areas held by Iisaak, and providing assistance, where requested, in applying for Free Use Permits that can provide access to trees for cultural uses.

7.3 Other Objectives Established under FRPA or its Regulations

7.3.1 Visual Quality (FPPR s. 9.2, GAR s. 17)

Under FPPR s. 9.2, the government has set objectives in relation to visual quality for known scenic areas without established Visual Quality Objectives. These are default objectives set by Visual Sensitivity Class.

Under the GAR order, dated December 1, 2005, Visual Quality Objectives were established for the South Island Forest District. However, this order did not include Clayoquot Sound.

The Ministerial Order Establishing Land Use Objectives for Clayoquot Sound came into effect on June 26, 2008

Under FPPR s. 12(5), if 2 or more established objectives are applicable to a common area and the same or similar subject matter, the minister may exempt a person required to prepare a Forest Stewardship Plan from the requirement to specify a result or strategy for all but one of the established objectives.

In the watershed plans in effect in Clayoquot Sound, Scenic Class Objectives have been assigned to all areas within the planning units in Clayoquot Sound. The Scenic Class Objectives are established in the watershed plans and are shown on the FSP maps (labeled as “Scenic Classes”).

The results or strategies given in section 7.1.1 of this document address the land use objectives for Clayoquot Sound established by Ministerial Order and replace the requirement to specify results or strategies under FPPR s. 9.2. Upon approval of this FSP:

- a) Under FPPR s. 12(5), the Holder of this FSP is exempt from specifying a result or strategy under FPPR s. 9.2.

8.0 Stocking Standards

8.1 Situations or Circumstances that Determine whether Free Growing is Assessed on a Block Basis (FPPR s. 44) or Across Blocks (FPPR s. 45)

FPPR section 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.

8.2 Regeneration Date and Stocking Standards for Situations and Circumstances where FPPR s. 44(1)(a) apply.

Appendix 1 specifies the regeneration date and stocking standards for the situations or circumstances where FPPR s 44(1)(a) applies.

8.3 Free Growing Height and Stocking Standards for Situations and Circumstances where FPPR s. 44(1)(b) apply.

Appendix 1 specifies the free growing height and stocking standards for the situations or circumstances where FPPR s 44(1)(b) applies.

8.4 Situations or Circumstances that Determine when FPPR s. 44(4) applies and the standards applicable (FPPR 16(4)).

The stocking standards in Appendix 1 will apply to areas where timber harvesting occurs as per s. 44(3)(h) and 44(3)(i).

Where special forest products are harvested (FPPR 44(3)(i)), stocking will be maintained as specified in Appendix 1.

Where individual trees are removed (FRPA 44(3)(h)), stocking standards in Appendix 1 will apply and are to be maintained for a period of at least 12 months after the removal of trees is completed.

Where intermediate cutting or commercial thinning is implemented (FRPA 44(3)(h)), stocking standards in Appendix 1 will apply and are to be maintained for a period of at least 12 months after the completion of harvesting. See Appendix 1 for further details.

9.0 Measures to Prevent the Introduction and Spread of Invasive Plants

Under section 17 of the FPPR:

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.

Several species of invasive plants are known to exist within or near the area covered by this FSP. Some of these species pose a medium or higher risk to forest resources within the FSP area and are likely to be introduced or spread by forest practices. The following is a list of invasive species that are of concern in the FSP area at this time. This list could change over time if more species are introduced into the FSP area, or if current low risk species become higher risk due to adaptation or changing conditions.

- Scotch Broom (*Cytisus scoparius*)- Medium Risk
- Gorse (*Ulex europaeus*) – Medium Risk
- Himalayan Blackberry (*Rubus discolor* – not included in the Invasive Plants Regulation) – Medium Risk
- Purple loosestrife (*Lythrum salicaria*) – Medium risk (no known presence in FSP area at this time. However, it is present in South Island Forest District and in watersheds near the FSP area, and poses a potential medium to high risk if introduced to FSP area. Not likely to be spread by forest practices)
- Giant / Japanese Knotweed (*Polygonum sachalinense*; *P. cuspidatum*) – Low to Medium Risk (low risk at this time but potential to become more significant risk in the future. Not likely to be spread by forest practices)
- Marsh thistle (*Cirsium palustre*) – Low to Medium Risk; not known to occur in the FSP area but present elsewhere on Vancouver Island near the FSP area. May displace native vegetation in riparian habitats. May colonize harvested areas where present and compete with or damage tree seedlings.
- Canada thistle / Bull thistle (*Cirsium arvense*; *C. vulgare*) – Low Risk (present and potentially spread by forest practices, but do not appear to be threatening forest plant communities or ecosystems in the FSP area at this time)

The Holder of this FSP will employ the following measures to help prevent the introduction or spread of invasive plants:

1. Disturbance resulting from road construction or maintenance activities will be kept as narrow as is practicable, taking into account the intended equipment that will be using the road, and user safety.
2. Where medium to high risk invasive plants are likely to colonize soil that is exposed by forest practices carried out under this FSP by the Holder of this FSP,

and it can reasonably be expected that grass or other applied seed will successfully germinate and that such germination would materially reduce the likelihood of colonization by moderate to high risk invasive species, the Holder of this FSP will:

- a) seed any contiguous areas of exposed soil exceeding 0.1ha within one year of completing the forest practice, and/or
- b) ensure that the areas in paragraph (a) are successfully revegetated within two years of completing the forest practice

Seed mixtures used will conform to the federal Seeds Act that regulates seed mixtures to ensure invasive plant seeds are not included in the mix (Canada Common #1 Forage Mixture or better). If available, seed mixtures containing native plants will be used if they prove effective and at a reasonable cost.

3. The Holder of this FSP will use variable retention harvesting systems on harvestable areas to maintain some features of the original stand on the sites. This practice can promote and maintain healthy forest plant communities and soil biota. Maintaining healthy forest plant communities can be an effective measure to manage the risk of invasive species.
4. Harvested areas within 200m of established medium to high risk invasive plant communities will be replanted with ecologically appropriate species within 12 months of harvest completion to promote early crown closure by native species.
5. Monitoring of new occurrences of medium or high risk invasive species in the FSP area will be conducted during silviculture surveys. If the presence of the invasive species could threaten the achievement of stocking standards or free growing for that site, a strategy will be developed to manage the impact such that stocking standards and free growing will be achieved. This may include hand pulling or cutting of established invasive species populations. If a new invasive species (not previously known to occur within that specific watershed) is discovered that presents a medium or high risk to forest plant communities and ecosystems (such as purple loosestrife), the discovery will be reported to the Ministry of Forests. If the new invasive plant colony is
 - a) small (100 plants or less, or covering an area of 0.25 hectare or less), and
 - b) located within a cutblock harvested by the Holder of this FSP after approval of the FSP, or within the road right of way of a road held under permit by the Holder of this FSP,

the Holder of this FSP will attempt to eradicate the invasion through hand pulling or cutting. If the new invasive plant colony is large and/or widespread, the Holder of this FSP will cooperate with government to the degree practicable, given the size and resources of the company, to develop and implement a control strategy.

The Holder of this FSP will cooperate and assist with any government programs to prevent the introduction and spread of invasive plant species.

10.0 Signatures

Licensee:

Isaak Forest Resources Ltd
100 Ittatsoo Road IR No. 1
Ucluelet BC
PO Box 639
V0R 3A0

Authorized Person:

Licensee Signature:

Name (printed): Derek Drake, Operations Manager

Date:

RPF Signature and Seal

Name (Printed): Brad Taylor, RPF

Date:

**Approval of the Minister or
Delegated Decision Maker**
(for final submission only)

Decision Maker Signature

Signature: _____

Name (Printed): _____

Date: _____

Appendix 1 – Stocking Standards for Iisaak’s 2009 Clayoquot Sound Forest Stewardship Plan

In accordance with the Forest Planning and Practices Regulation (FPPR) section 16, stocking standards are included as part of this Forest Stewardship Plan (FSP). These stocking standards are to be applied to all blocks harvested under this FSP.

The information for these tables is based on the December 2002 “Reference Guide for FDP Stocking Standards” for the Vancouver Forest Region, Land Management Handbook No. 28 (1994), and the Establishment to Free Growing Guidebook (version 2.2, revised May 2000), combined with the experience of Professional Foresters operating in the area. There are four forested biogeoclimatic subzones contained within the FSP area where forestry activities could potentially occur. The tables include all operable site series found in the timber harvesting landbase within the CWH vh1, CWH vm1, CWH vm2, and MH mm1 subzones.

A. Even-aged Stocking Standards

The even-aged stocking standards will be applied to standards units where harvesting and silvicultural practices are planned to result in an even-aged stand as defined in Schedule 1 section 6(1) of the FPPR. It is expected that the following practices will result in an even-aged stand:

- harvested using an aggregate retention system
- harvested using a dispersed retention system with less than 15% dispersed retention, or a dispersed retention system where retention consists of only one age class
- harvested using patch cuts or group selection where patches or groups equal or exceed 0.3 ha in size

Free growing characteristics

To be considered free growing (FG), trees must be of good form, colour, and vigor, and not have unacceptable pest or disease damage or indicators, and meet the minimum heights given in the stocking standards. In addition, advanced regeneration, to be considered free growing, must have at least 30% continuous live crown with healthy foliage, no broken tops, and be free of excessive forks or crooks. There must be no open wounds, no scars or wounds on the stem wider than 25% of the circumference of the stem or greater than 30% of the stem length, and there must be evidence of post-harvest release.

Inter-tree spacing

Generally, the provincial standard of 2.0m minimum inter-tree spacing will be used. However, for all standards units, minimum inter-tree spacing distances may be varied down to 1.5m under site specific conditions to enable optimized use of preferred growing sites where site limiting factors are encountered. Site limiting factors include the following:

- shallow soils
- bedrock outcrops
- large blocky colluvium
- disturbed roadside areas (defined as areas disturbed by road construction that preclude the achievement of 2m inter-tree spacing, and may also include an area extending up to 15m from the edge of a traveled road surface or landing where logs are yarded to and processed)
- hygric and subhygric sites
- localized areas where browse control measures are prescribed or required
- slides and disturbed areas

A reduced minimum inter-tree distance recognizes the importance of utilizing micro-site advantages, particularly in the variable retention harvest regimes, when reforesting harvested sites.

Species selection parameters

Species selection parameters follow generally accepted regimes for the biogeoclimatic units encountered within the operating area. They are based on the December 2002 “Reference Guide for FDP Stocking Standards” for the Vancouver Forest Region, Land Management Handbook No. 28 (1994), and the Establishment to Free Growing Guidebook (version 2.2, revised May 2000), combined with the experience of Professional Foresters operating in the area.

Western Hemlock (Hw) - Western hemlock dwarf mistletoe (DMH) risks are generally high in the FSP area. Strategies for reducing the risk of DMH infection may include managing for non-host or less susceptible species, removal of 3m or greater hemlock regeneration in openings, and/or targeting non-infected stems for retention. Under a variable retention regime, it is often not possible to create DMH free edges and in-block retention requirements may prevent the removal of all infected mature or understory Hw. Managing for non-host species such as western redcedar or less susceptible species such as Amabilis fir is the preferred method to reduce the impact of DMH. Stands will be monitored for DMH during silviculture surveys and any visibly diseased trees will not be accepted during regen or free-to-grow surveys. Any layer 3 or 4 Hw within 15m of an infected overstory residual Hw will not be accepted during regen or free-to-grow surveys. DMH infected stems will be targeted for removal during any stand density reduction activities.

Amabilis fir (Ba) - Ba is given increased preference where variable retention harvest regimes are applied in an effort to offset DMH concerns (although Ba can be a secondary host for DMH). This practice is acceptable since the area under this FSP is located outside the Balsam Woolly Adelgid (BWA) quarantine zone. In the event, however, that BWA is noted within or adjacent to a cutblock, *Amabilis fir* will be managed only as an acceptable species and not as a preferred species. In the “salal phases” of the CWH vml site series 01 and 06 (01s and 06s), Ba will be considered as an acceptable species only (not preferred) and will be used only as a minor species on nutrient medium or better sites located away from salal.

Coastal Douglas Fir (Fdc) - The natural occurrence of Douglas fir (Fdc) within the FSP area is often limited to steep sites, shallow rocky soils, or south facing aspects. Fdc presence ranges from sea level to scarce distribution at montane elevations. Where Fdc is listed as a preferred species, it is restricted to southerly aspects, ridge crests, dry rocky knolls, or where it occurs naturally in the stand. Management of Fdc will be constrained to a maximum 10% well spaced component on those sites where it is considered only as an acceptable species and either occurs naturally in the stand or, in the opinion of a professional forester, will perform well on the site. It may be considered as a preferred species in disturbed sites such as slides, roadside fills, or debuilt roads.

Sitka Spruce (Ss) - The area under this FSP is located within the coastal zone considered to be a high hazard for spruce leader weevil (*Pissodes strobi* – IWS). Reforestation plans will utilize weevil resistant seedlots, where available. At free growing, a maximum of 20% well spaced component of Sitka spruce (Ss) will be permitted within a Standards Unit if

- a) the Ss is from resistant stock and/or,
- b) the site is located in the CWH vh1 subzone, is below 150m elevation, and is within 5km of the ocean (in the ocean spray or fog belt where cooler summer temperatures prevail)

Otherwise, a maximum of 10% well spaced component of Ss will be permitted.

White pine (Pw) – Pw has been included as an acceptable species in a number of standards ID units based on its presence in natural stands and the observations of professional foresters working in this area. In the area under this FSP, the risk of white pine blister rust (DSB) is high. Only rust resistant stock will be used when planting Pw. To be considered free growing at the time of survey, a white pine must be free of blister rust and either pruned or planted from genetically resistant stock. A pruned tree must have at least 40% live crown and must have the lower branches removed to the greater of the indicated FG height or 50% of the tree height.

At free growing, a maximum 20% well spaced component of Pw will be permitted.

Western redcedar (Cw) and yellow cedar (Yc) – These species are high value timber species and also have a high cultural significance to the First Nations in Clayoquot Sound. As outlined in section 7.2.6 of this document (Cultural Heritage Resources) these species will be planted on ecologically appropriate sites to ensure an ongoing future supply of these species in the harvested areas of Clayoquot Sound. On Standards Units (SU's) where:

- a) a regeneration obligation exists after harvesting is complete,
- b) Cw and/or Yc are preferred species in the Stocking Standards for that SU, and
- c) Cw and/or Yc made up at least 30% of the original stand by basal area or volume

Iisaak will plant any openings in the SU with Cw and/or Yc to a density not less than 50% of the target well spaced stocking for that SU.

Red alder (Dr) – for Standards Units in the CWHvh1, CWHvm1, and CWHvm2, red alder may be considered an acceptable species for rehabilitating disturbed, degraded, or unstable sites (such as landslides and de-built roads) within the net area to be reforested. Landslide (transport zone) areas and rehabilitated roads have had a new SU established (see stocking standards tables).

Red alder may also be considered an acceptable species on floodplain sites (see stocking standards tables).

The minimum height for alder at free growing will be 4.0m, and a maximum 20% well spaced component of Dr will be permitted on these sites. Alder beyond the 20% maximum may be considered competition if it is impeding the growth of other commercially valuable species. In such a circumstance, it may be necessary to girdle or remove a proportion of the alder in these areas.

Other damaging agents

Deer (or elk) browse is a potential damaging factor to regenerating stands – especially to redcedar, yellow cedar, and Douglas-fir seedlings. Potential damage will be assessed at the Site Plan stage and management strategies will be developed to manage and mitigate the potential damage. Strategies include (but are not restricted to) the use of deer protectors on planted seedlings or hiding planted seedlings with slash.

Other potential damaging agents such as wind, mechanical damage, snow, frost, other insects and pathogens, etc. are also present in the FSP area but, in general, are not widespread and don't tend to affect large areas of regenerating forest. Where appropriate, other damaging agents will be addressed at the Site Plan stage or during stand tending activities (such as spacing).

Site factor restrictions defined

Where species used within the stocking standards are restricted to specific sites, the following terms of reference shall apply:

- Steep slopes are defined as 50% or greater. Species restricted to these sites may be frost intolerant.
- Elevated microsites are preferred in those cases where it is desirable to reduce the limitations imposed by cold or wet soils on tree growth.
- Southerly aspects are generally SSE to WSW with slopes >35%. Species restricted to these sites may be frost intolerant and/or better adapted to drier soil conditions and lower humidity.
- Northerly aspects are generally NW to ENE with slopes >50%. Species restricted to these sites may be better adapted to cooler and wetter sites within the range of the site series.
- Species restricted to nutrient medium sites are usually more sensitive to poor or very poor nutrient levels than other recommended species. Although these species have slightly higher nutrient requirements, they are acceptable alternatives on nutrient medium micro-sites within a site series that is typically very poor to poor.
- Cold air drainage sites are areas susceptible to cold air ponding and frost. Species suitable on these sites have a comparative advantage over species whose growth may be more limited by cold air drainage.
- Minor species on salal-dominated sites: These species are usually more sensitive to very poor to poor nutrient levels associated with salal dominated sites than are other recommended species. They may also have a comparative disadvantage to other species with respect to salal competition so should only be used as a minor component not exceeding 20% of stocking.
- Poorly drained soils: soils are poorly drained if there is prominent mottling or low chromas (gleying) in the surface 30cm, or if there is a significant component of subhydric or hydric plants such as sphagnum or skunk cabbage.
- Western hemlock is suitable on thick forest floors. It is able to germinate on thick forest floors (>20cm) and areas of abundant decayed wood. On these sites it has a comparative advantage over other species such as Sitka spruce or western redcedar.

Transitional site series and site series complexes

In the field, areas are frequently transitional in ecological characteristics between defined site series or **BEC** variants. The prescribing forester may select either of the transitional standards unit IDs, but most typically it will be the dominant standards unit ID, that best describes the site and the management objectives they desire for the site. A rationale for this decision will be provided in the Site Plan.

The prescribing forester may also elect to create a new stocking standard that is unique to

a transitional site. In these cases the prescribing forester, when putting together a Site Plan, may combine the stocking standards from two or more standards unit ID's in a way that reflects the transitional nature of the site (for example, by including additional preferred or acceptable species where it evident that they will perform well on that site). This will be accompanied by a rationale in the Site Plan. In this circumstance, an amendment to the FSP will be submitted to the delegated decision maker (DDM) for approval prior to application for a cutting permit. The amendment will add a unique stocking standards ID number and description to the stocking standards tables accompanying this appendix.

For Standards Units comprised of a complex or unmappable mosaic of more than one site series, the dominant site series will determine the stocking standards for that unit.

Minor Acceptable Species

To promote biodiversity, assess the potential of new innovative practices, promote research, or recognize unforeseen future circumstances, a commercial tree species not currently included in the stocking standards tables for a Standards Unit may be deemed acceptable up to 20% of target stocking if:

- the height is greater than the lowest minimum height listed for the preferred and acceptable species for that site, and
- the trees are obviously healthy and performing well on that site in the opinion of a professional forester, and can reasonably be expected to continue to perform well on that site.

In this circumstance, the Site Plan will be amended with a rationale prepared by a Professional Forester. An amendment to the FSP stocking standards will be submitted to the delegated decision maker (DDM) for approval.

B. Uneven-aged (Multi-story) Stocking Standards

The uneven-aged stocking standards will generally be applied to standards units where harvesting and silvicultural practices are planned to result in an uneven-aged stand as defined in Schedule 1 section 6(1) of the FPPR and for the purposes of section 16(4) and section 44(4) of the FPPR (harvesting of special forest products, removal of individual trees, intermediate cuts, or commercial thinning). Partial cutting that results in an uneven-aged stand is often required in Clayoquot to meet the requirements of the CSSP recommendations, the watershed plans, and Iisaak's Management Plan. These requirements include (but are not limited to) such things as variable retention objectives, rate-of-cut, visual objectives, cultural values, windthrow management, terrain stability, hydriparian objectives, recreation and tourism objectives, biodiversity objectives, etc. Where partial cutting is planned that will result in an uneven-aged stand, a rationale will be provided in a Site Plan developed by a Professional Forester.

It is expected that the following practices will result in an uneven-aged stand:

- Single tree selection or group selection where groups are < 0.3 ha
- harvested using a dispersed retention system of 15% or greater dispersed retention, where retention or harvest schedule results in a stand with 3 or more age classes and a residual canopy closure of greater than 6%
- harvested using retention practices where individual or small groups (< 0.3 ha), or narrow strips (< 20m) of trees are removed

Stand layers are defined as follows:

- Layer 1 - Mature trees \geq 12.5cm DBH.
- Layer 2 - Pole trees 7.5cm to 12.4cm DBH.
- Layer 3 - Sapling trees \geq 1.3m in height and up to 7.4cm DBH.
- Layer 4 - Regeneration trees < 1.3m height.

Free growing characteristics for layers 2, 3, and 4

To be considered free growing (FG), layer 2, 3, and 4 trees must be of good form, colour, and vigor, and not have unacceptable pest or disease damage or indicators, and meet the minimum heights given in the stocking standards. In addition, advanced regeneration, to be considered free growing, must have at least 30% continuous live crown with healthy foliage, no broken tops, and be free of excessive forks or crooks. There must be no open wounds, no scars or wounds on the stem wider than 25% of the circumference of the stem or greater than

- a) 10% of the stem length for layer 3 and 4 trees,
- b) 400cm² for layer 2 trees,

and there must be evidence of post-harvest release.

The objective for layer 4 and to some extent, layer 2 and 3 trees is to have a cohort of healthy regeneration of appropriate species. There may be some layer 2 and 3 trees retained from the original stand.

Tree Species Selection

Tree species selection for uneven-aged stocking standards are the same as those found in the even-aged standards for the same BEC site series with some exceptions:

1. In layers 2, 3, and 4, those species that are locally shade intolerant (Fdc) will not be considered as preferred species.
2. To address DMH concerns in uneven-aged variable retention blocks, Hw in layer 2, 3, and 4 growing within 15m of an infected overstory Hw may be considered free growing subject to the following conditions:
 - a) any Hw counted as well spaced must be free of any visible DMH infections at the time of survey; and
 - b) at least the minimum stocking (preferred and acceptable) must be made up of non-susceptible or less susceptible species in that Standards Unit.

Applying these conditions will balance the risk of DMH with the need to accept some Hw as a natural component of these coastal stands. It would not be ecologically appropriate to reject all Hw in stands where it naturally forms a significant component. Limiting acceptance of susceptible Hw, combined with planting of genetically healthy stock of alternate species such as Cw, Yc, Ba, Ss, Pw, and Fdc will also help prevent species shift in partial cut stands with an overstory containing a significant component of Hw.

3. In second growth Douglas-fir stands in the CWHvh1 characterized as “off-site”, it may be necessary to accept layer 1 Fdc trees in a partial cut, commercial thin, or intermediate cut situation, with the long term strategy of eventually replacing the Fdc with more ecologically appropriate species. This would allow, for example, a commercially thinned Fdc stand to still be considered stocked upon completion of harvest.

Minimum heights and inter-tree spacing for uneven-aged stands are the same as for even-aged stands of the same site series. Maximum regeneration delay for uneven-aged Standards Units is generally 1 year longer than the regeneration delay for the corresponding site series in the even-aged standards up to a maximum regeneration delay of 7 years. Regeneration delay can be met immediately following harvest if the residual stand has no significant damage or pest problems and meets minimum stocking standards. If regeneration is achieved immediately following harvest, earliest Free Growing date is 12 months after completion of harvest.

Leave Tree Characteristics and Acceptability Criteria for Variable Retention (layer 1 trees)

Consistent with Scientific Panel recommendations, variable retention in Clayoquot Sound retains a cross-section of species and diameters that is reasonably representative of the species composition and structure of the original stand. The objective for layer 1 will be to retain representative examples of the original stand while addressing a variety of other values. Growth form, as it relates to timber quality, is usually not the major consideration

when selecting trees to be retained under a variable retention system (except in the case of intermediate cuts or where multiple entries are planned). Long-term retention is not chosen for timber qualities but rather for safety, windfirmness, wildlife / biodiversity, cultural, scenic, recreational, and other values. Retained trees will include large dominant trees but may also include trees with broken tops, candelabras, mistletoe infections, heart rot, and other structural features that may contribute to non-timber values. Safe snags, wildlife trees, and CMTs may also provide focal points for within-block retention. However, to ensure that adequate stocking standards are achieved in multi-story stands, the following standards for layer 1 leave trees must be met for them to be counted as well spaced trees in the silviculture layer:

- For Cw and Yc - all live merchantable trees will be accepted except where significant root damage has left the tree highly susceptible to toppling or blowdown.
- For all other species – No more than 10% of layer 1 trees considered as well spaced trees may have stem scarring up to 400 cm², and trees must
 1. be healthy with good growth form (and must be considered merchantable),
 2. have at least 30% live crown,
 3. have no more than 25% of the live crown damaged by harvest operations,
 4. have no more than 1/3 of the circumference of the stem scarred, no scars exceeding 400cm², no cumulative stem damage exceeding 900 cm², no gouges on the stem or major roots, and no damage to supporting roots (>2cm diameter) within 1m of the main stem, and
 5. be free of unacceptable levels of pest or disease damage or indicators. For mature Hw, any DMH infection will be assessed using the Hawksworth 6 class rating system. Any Hw with a rating greater than 4 (moderate) will not be accepted. Any Hw with DMH infection in the main stem will not be accepted.

These standards will also apply to layer 1 trees retained in a commercial thin or intermediate cut.

Not all retained trees in a variable retention block will necessarily have these characteristics. Many trees will be retained to meet other forest resource objectives and values and the recommendations of the Clayoquot Scientific Panel as discussed above.

Reduction in stand genetic quality over time should not be a concern as all blocks with a regeneration obligation after harvesting will be planted with Class A or Class B planting stock. In addition, trees chosen for windfirmness, safety, and biodiversity will necessarily include a representative proportion of the larger, healthy dominant trees from the original stand.

Under the CSSPR variable retention system, disease is viewed as part of the natural biodiversity, contributing to the form and structure of the old-growth stands. However, where moderate or high amounts of DMH (20% or greater incidence) are present in the original stand, alternate species (eg. Cw, Ba, Yc, Ss, Pw, and Fdc) will be planted to mitigate the effects of DMH on the regenerating stand.

Commercial Thinning and Intermediate Cuts (FPPR 44(3)(h))

There has been little or no commercial thinning or intermediate cutting in the FSP area in the past. However, much of the second growth in the FSP area is reaching an age where commercial thinning is an option. Commercial thinning may be applied to second growth stands between 30 and 80 years old. It may be applied to achieve stand structural improvement for wildlife and biodiversity, to allow removal of some timber volumes from areas with high visual or recreational values, to improve the growth of residual trees, to improve age class distribution of stands by deferring final harvest of a portion of the second growth while still removing some volume, and to meet other forest management objectives.

If commercial thinning or intermediate cutting is prescribed, a rationale will be included in a Site Plan developed by a Professional Forester. An amendment to the FSP stocking standards will be submitted to the DDM for approval. The amendment will include a unique stocking standards ID, stocking standards, basal area to be retained, and a description to be added to the stocking standards tables accompanying this appendix.

Commercially thinned stands or intermediate cuts must be surveyed no sooner than 12 months after harvest operations are complete to assess if stocking objectives have been met.

Special Forest Products

Where harvesting of special forest products occurs (such as cedar shake and shingle blocks), stocking standards apply as follows:

- In areas not yet free growing and subject to an existing Site Plan or Silviculture Prescription, the Holder of this FSP will maintain the stocking standards for the Standards Unit as set out in the Site Plan or Silviculture Prescription for a period of at least 12 months or to the attainment of free growing, whichever occurs later.
- In areas previously declared free growing, the Holder of this FSP will maintain the stocking levels to 95% or more of the pre-harvest levels for at least 12 months.

Table 1 – Iisaak Clayoquot Sound 2006 FSP Stocking Standards

Even-Aged

Standards ID	Subzone	Site Series	Species / Min hts (m) FG		Well Spaced (sph)			Regen Delay	
			Preferred (P)	Acceptable (A)	Target	Min P&A	Min P		Min Inter-tree (m)
36701	CWH vh1	01	Cw – 1.5 Hw – 2.0 Yc ³ – 1.5	Pl ¹ – 1.5 Ba ² – 1.75 Ss ^{2,4} – 3.0 Pw ^{2,5} – 2.5 Fdc ⁶ – 3.0	900	500	400	2.0	6
36702	CWH vh1	03	Cw – 1.0 Hw – 1.25 Pl – 1.25 Yc – 1.0	Fdc ⁶ – 2.0	800	400	400	2.0	6
36703	CWH vh1	04	Ba – 2.25 Hw – 1.75 Cw – 2.0	Ss ⁴ – 4.0	900	500	400	2.0	6
36704	CWH vh1	05	Ba – 2.25 Cw – 2.0 Yc – 2.0	Hw ⁷ – 1.75 Ss ⁴ – 4.0	900	500	400	2.0	3
36705	CWH vh1	06	Ba – 2.25 Cw – 2.0 Yc – 2.0	Hw ⁷ – 1.75 Ss ⁴ – 4.0	900	500	400	2.0	3
36706	CWH vh1	07	Ba – 2.25 Cw – 2.0	Hw ⁷ – 1.75 Ss ⁴ – 4.0 Yc – 2.0	900	500	400	2.0	3
36760	CWH vh1	08 ⁸	Ss – 4.0 Cw – 2.0	Ba – 2.25 Hw – 1.75 Dr ⁹ – 4.0	900	500	400	2.0	3
36707	CWH vh1	09 ⁸	Ss – 4.0 Cw – 2.0	Ba – 2.25 Hw – 1.75 Dr ⁹ – 4.0	900	500	400	2.0	3
36708	CWH vh1	11	Cw ¹⁰ – 1.0 Hw ¹⁰ – 1.25 Pl ¹⁰ – 1.25 Yc ¹⁰ – 1.0	Pw ^{5,10} – 1.25	800	400	400	2.0	3

Table 1 (continued) – Iisaak Clayoquot Sound 2006 FSP Stocking Standards

Even-aged

Standards ID	Subzone	Site Series	Species / Min hts (m) FG		Well Spaced (sph)			Regen Delay	
			Preferred	Acceptable	Target	Min P&A	Min P		Min Inter-tree (m)
36709	CWH vh1	13	Cw ¹⁰ – 1.0 Yc ¹⁰ – 1.0	Hw ¹⁰ – 1.25 Ss ¹⁰ – 2.0 Pw ^{5,10} – 1.25	800	400	400	2.0	3
36710	CWH vh1	15 ¹¹	Ss ⁴ – 3.0 Cw – 1.5	Hw – 2.0	900	500	400	2.0	3
36711	CWH vh1	17 ¹¹	Ss ⁴ – 2.0 Cw – 1.0	Hw – 1.25	900	500	400	2.0	3
36712	CWH vm1	01	Cw – 1.5 Hw – 3.0 Fdc ⁶ – 3.0 Ba – 1.75	Ss ⁴ – 3.0 Pw ⁵ – 3.0 Yc ¹³ – 1.5	900	500	400	2.0	6
36761	CWH vm1	01s	Cw – 1.5 Hw – 3.0 Fdc ⁶ – 3.0	Ba ¹² – 1.75 Yc ¹³ – 1.5 Pw ⁵ – 2.5	900	500	400	2.0	6
36713	CWH vm1	03	Cw – 1.0 Hw – 2.0 Fdc ⁶ – 2.0	Pl ¹ – 1.25 Pw ⁵ – 1.75	800	400	400	2.0	6
36714	CWH vm1	04	Cw – 1.5 Hw – 3.0 Fdc ⁶ – 3.0	Ba – 1.75 Ss ⁴ – 3.0 Pw ⁵ – 2.5	900	500	400	2.0	3
36715	CWH vm1	05	Ba – 1.75 Cw – 1.5 Hw – 3.0 Fdc ⁶ – 3.0	Ss ⁴ – 3.0 Pw ⁵ – 3.0	900	500	400	2.0	3
36716	CWH vm1	06	Ba – 1.75 Cw – 1.5 Hw – 3.0	Yc ¹³ – 1.5 Pw ⁵ – 2.5	900	500	400	2.0	6
36762	CWH vm1	06s	Cw – 1.5 Hw – 3.0	Ba ¹² – 1.75 Pw ⁵ – 2.5	900	500	400	2.0	6
36717	CWH vm1	07	Ba – 2.25 Cw – 2.0 Fdc ⁶ – 4.0	Hw – 4.0 Ss ⁴ – 4.0	900	500	400	2.0	3

Table 1 (continued) – Isaak Clayoquot Sound 2006 FSP Stocking Standards

Even-aged

Standards ID	Subzone	Site Series	Species / Min hts (m) FG		Well Spaced (sph)			Regen Delay	
			Preferred	Acceptable	Target	Min P&A	Min P		Min Inter-tree (m)
36718	CWH vm1	08	Ba – 2.25 Cw – 2.0 Hw – 4.0	Ss ⁴ – 4.0	900	500	400	2.0	3
36763	CWH vm1	09 ⁸	Ba – 2.25 Cw – 2.0 Hw – 4.0	Ss ⁴ – 4.0 Dr ⁹ – 4.0	900	500	400	2.0	3
36719	CWH vm1	10	Cw – 2.0 Ba – 2.25	Ss ⁴ – 4.0 Dr ⁹ – 4.0	900	500	400	2.0	3
36720	CWH vm1	12	Cw ¹⁰ – 1.0 Hw ¹⁰ – 2.0 Yc ¹⁰ – 1.0	Pl ¹⁰ – 1.25	800	400	400	2.0	3
36721	CWH vm1	14	Cw ¹⁰ – 1.5 Yc ¹⁰ – 1.5	Hw ¹⁰ – 3.0 Ss ^{4, 10} – 3.0	800	400	400	2.0	3
36722	CWH vm2	01	Cw – 1.5 Yc – 1.5 Hw – 2.5 Fdc ¹⁵ – 3.0 Ba – 1.75	Hm ¹⁴ – 1.0	900	500	400	2.0	6
36723	CWH vm2	03	Cw – 1.0 Hw – 1.75 Fdc ¹⁵ – 1.5 Yc – 1.0	Pw ⁵ – 2.5 Hm ¹⁴ – 0.75	800	400	400	2.0	6
36724	CWH vm2	04	Cw – 1.0 Hw – 1.75 Yc – 1.0	Fdc ¹⁵ – 1.5 Pw ⁵ – 2.5 Hm ¹⁴ – 0.75 Ba – 1.5	900	500	400	2.0	6
36725	CWH vm2	05	Cw – 1.5 Hw – 2.5 Yc – 1.5 Ba – 1.75	Fdc ¹⁵ – 3.0 Hm ¹⁴ – 1.0	900	500	400	2.0	3
36726	CWH vm2	06	Cw – 1.5 Ba -1.75 Hw – 2.5 Yc – 1.5	Hm ¹⁴ – 1.0	900	500	400	2.0	6

Table 1 (continued) – Iisaak Clayoquot Sound 2006 FSP Stocking Standards

Even-aged

Standards ID	Subzone	Site Series	Species / Min hts (m) FG		Well Spaced (sph)			Regen Delay	
			Preferred	Acceptable	Target	Min P&A	Min P		Min Inter-tree (m)
36727	CWH vm2	07	Cw – 2.0 Hw ⁷ – 3.5 Yc – 2.0 Ba – 2.25	Hm ¹⁴ – 1.25	900	500	400	2.0	3
36728	CWH vm2	08	Cw ¹⁶ – 2.0 Hw – 3.5 Yc – 2.0 Ba – 2.25	Hm ¹⁴ – 1.25	900	500	400	2.0	3
36729	CWH vm2	09	Cw – 1.0 Hw – 1.75 Yc – 1.0	Ba – 1.5 Hm ¹⁴ – 0.75	800	400	400	2.0	3
36764	MH mm1	01	Ba – 0.6 Hm – 1.0 Yc – 1.0	Hw ¹⁷ – 1.0	900	500	400	2.0	7
36765	MH mm1	03	Ba – 0.6 Hm – 1.0 Yc – 1.0	Hw ¹⁷ – 1.0	900	500	400	2.0	4
36766	MH mm1	04	Ba – 0.6 Hm – 1.0 Yc – 1.0	Hw ¹⁷ – 1.0	900	500	400	2.0	7
36767	MH mm1	05	Ba – 0.6 Yc – 1.0	Hw ¹⁷ – 1.0 Hm – 1.0	900	500	400	2.0	4
36768	MH mm1	06	Hm – 0.75 Yc – 0.75	Ba – 0.6	800	400	400	2.0	7
36769	MH mm1	07	Ba – 0.6 Yc – 0.75	Hm – 0.75	900	500	400	2.0	4
36781	CWH vh1 CWH vm1 CWH vm2	Landslide transport zone or rehabilitated roads	Cw – 1.0 Fdc – 2.0 Pl – 1.25 Yc – 1.0	Dr – 4.0 Pw ⁵ – 1.75 Hw – 2.0	800	400	400	2.0	6

**Table 1 – Isaak Clayoquot Sound 2006 FSP Stocking Standards
Uneven-Aged Stands and for the Purposes of FPPR s 16(4) and s 44(4)**

Standards ID	Subzone	Site Series	Species / Min hts (m) FG		Well Spaced (sph)					Regen Delay
			Preferred	Acceptable	Layer	Target	Min P&A	Min P	Min Inter-tree (m)	
36730	CWH vh1	01	Cw – 1.5	Pl ¹ – 1.5 Fdc ⁶ – 3.0	1	400	200	200	2.0	7
			Hw – 2.0	Ba ² – 1.75	2	500	300	250		
			Yc ³ – 1.5	Ss ^{2,4} – 3.0	3	700	400	300		
				Pw ^{2,5} – 2.5	4	900	500	400		
36731	CWH vh1	03	Cw – 1.0	Fdc ⁶ – 2.0	1	300	150	150	2.0	7
			Hw – 1.25		2	400	200	200		
			Pl – 1.25		3	600	300	300		
			Yc – 1.0		4	800	400	400		
36732	CWH vh1	04	Ba – 2.25	Ss ⁴ – 4.0	1	400	200	200	2.0	7
			Hw – 1.75		2	500	300	250		
			Cw – 2.0		3	700	400	300		
					4	900	500	400		
36733	CWH vh1	05	Ba – 2.25	Hw ⁷ – 1.75	1	400	200	200	2.0	4
			Cw – 2.0	Ss ⁴ – 4.0	2	500	300	250		
			Yc – 2.0		3	700	400	300		
					4	900	500	400		
36734	CWH vh1	06	Ba – 2.25	Hw ⁷ – 1.75	1	400	200	200	2.0	4
			Cw – 2.0	Ss ⁴ – 4.0	2	500	300	250		
			Yc – 2.0		3	700	400	300		
					4	900	500	400		
36735	CWH vh1	07	Ba – 2.25	Hw ⁷ – 1.75	1	400	200	200	2.0	4
			Cw – 2.0	Ss ⁴ – 4.0	2	500	300	250		
				Yc – 2.0	3	700	400	300		
					4	900	500	400		
36770	CWH vh1	08 ^s	Ss – 4.0	Ba – 2.25	1	400	200	200	2.0	4
			Cw – 2.0	Hw – 1.75	2	500	300	250		
				Dr ⁹ – 4.0	3	700	400	300		
					4	900	500	400		
36736	CWH vh1	09 ^s	Ss – 4.0	Ba – 2.25	1	400	200	200	2.0	4
			Cw – 2.0	Hw – 1.75	2	500	300	250		
				Dr ⁹ – 4.0	3	700	400	300		
					4	900	500	400		

**Table 1 (continued) – Iisaak Clayoquot Sound 2006 FSP Stocking Standards
Uneven-Aged Stands and for the Purposes of FPPR s 16(4) and s 44(4)**

Standards ID	Subzone	Site Series	Species / Min hts (m) FG		Well Spaced (sph)					Regen Delay
			Preferred	Acceptable	Layer	Target	Min P&A	Min P	Min Inter-tree (m)	
36737	CWH vh1	11	Cw ¹⁰ – 1.0	Pw ^{5,10} – 1.25	1	300	150	150	2.0	4
			Hw ¹⁰ – 1.25		2	400	200	200		
			Pl ¹⁰ – 1.25		3	600	300	300		
			Yc ¹⁰ – 1.0		4	800	400	400		
36738	CWH vh1	13	Cw ¹⁰ – 1.0	Hw ¹⁰ – 1.25 Ss ¹⁰ – 2.0 Pw ^{5,10} – 1.25	1	300	150	150	2.0	4
			Yc ¹⁰ – 1.0		2	400	200	200		
					3	600	300	300		
					4	800	400	400		
36739	CWH vh1	15 ¹¹	Ss ⁴ – 3.0	Hw – 2.0	1	400	200	200	2.0	4
			Cw – 1.5		2	500	300	250		
					3	700	400	300		
					4	900	500	400		
36740	CWH vh1	17 ¹¹	Ss ⁴ – 2.0	Hw – 1.25	1	400	200	200	2.0	4
			Cw – 1.0		2	500	300	250		
					3	700	400	300		
					4	900	500	400		
36741	CWH vm1	01	Cw – 1.5	Ss ⁴ – 3.0 Pw ⁵ – 3.0 Yc ¹³ – 1.5	1	400	200	200	2.0	7
			Hw – 3.0		2	500	300	250		
			Fdc ^{6,18} – 3.0		3	700	400	300		
			Ba – 1.75		4	900	500	400		
36780	CWH vm1	01s	Cw – 1.5	Ba ¹² – 1.75 Yc ¹³ – 1.5 Pw ⁵ – 2.5	1	400	200	200	2.0	7
			Hw – 3.0		2	500	300	250		
			Fdc ^{6,18} – 3.0		3	700	400	300		
					4	900	500	400		
36742	CWH vm1	03	Cw – 1.0	Pl ¹ – 1.25 Pw ⁵ – 1.75	1	300	150	150	2.0	7
			Hw – 2.0		2	400	200	200		
			Fdc ^{6,18} – 2.0		3	600	300	300		
					4	800	400	400		
36743	CWH vm1	04	Cw – 1.5	Ba – 1.75 Ss ⁴ – 3.0 Pw ⁵ – 2.5	1	400	200	200	2.0	4
			Hw – 3.0		2	500	300	250		
			Fdc ^{6,18} – 3.0		3	700	400	300		
					4	900	500	400		

**Table 1 (continued) – Iisaak Clayoquot Sound 2006 FSP Stocking Standards
Uneven-Aged Stands and for the Purposes of FPPR s 16(4) and s 44(4)**

Standards ID	Subzone	Site Series	Species / Min hts (m) FG		Well Spaced (sph)					Regen Delay
			Preferred	Acceptable	Layer	Target	Min P&A	Min P	Min Inter-tree (m)	
36744	CWH vml	05	Ba – 1.75	Ss ⁴ – 3.0	1	400	200	200	2.0	4
			Cw – 1.5	Pw ⁵ – 3.0	2	500	300	250		
			Hw – 3.0		3	700	400	300		
			Fdc ^{6, 18} – 3.0		4	900	500	400		
36745	CWH vml	06	Ba – 1.75	Yc ¹³ – 1.5	1	300	150	150	2.0	7
			Cw – 1.5	Pw ⁵ – 2.5	2	400	200	200		
			Hw – 3.0		3	600	300	300		
					4	800	400	400		
36772	CWH vml	06s	Cw – 1.5	Ba ¹² – 1.75	1	300	150	150	2.0	7
			Hw – 3.0	Pw ⁵ – 2.5	2	400	200	200		
					3	600	300	300		
					4	800	400	400		
36746	CWH vml	07	Ba – 2.25	Hw – 4.0	1	400	200	200	2.0	4
			Cw – 2.0		2	500	300	250		
			Fdc ^{6, 18} – 4.0		3	700	400	300		
					4	900	500	400		
36747	CWH vml	08	Ba – 2.25	Ss ⁴ – 4.0	1	400	200	200	2.0	4
			Cw – 2.0		2	500	300	250		
			Hw – 4.0		3	700	400	300		
					4	900	500	400		
36773	CWH vml	09 ^s	Ba – 2.25	Ss ⁴ – 4.0	1	400	200	200	2.0	4
			Cw – 2.0	Dr ⁹ – 4.0	2	500	300	250		
			Hw – 4.0		3	700	400	300		
					4	900	500	400		
36748	CWH vml	10	Cw – 2.0	Ss ⁴ – 4.0	1	400	200	200	2.0	4
			Ba – 2.25	Dr ⁹ – 4.0	2	500	300	250		
					3	700	400	300		
					4	900	500	400		
36749	CWH vml	12	Cw ¹⁰ – 1.0	Pl ¹⁰ – 1.25	1	300	150	150	2.0	4
			Hw ¹⁰ – 2.0		2	400	200	200		
			Yc ¹⁰ – 1.0		3	600	300	300		
					4	800	400	400		

**Table 1 (continued) – Isaak Clayoquot Sound 2006 FSP Stocking Standards
Uneven-Aged Stands and for the Purposes of FPPR s 16(4) and s 44(4)**

Standards ID	Subzone	Site Series	Species / Min hts (m) FG		Well Spaced (sph)					Regen Delay
			Preferred	Acceptable	Layer	Target	Min P&A	Min P	Min Inter-tree (m)	
36750	CWH vm1	14	Cw ¹⁰ – 1.5 Yc ¹⁰ – 1.5	Hw ¹⁰ – 3.0 Ss ^{4,10} – 3.0	1	300	150	150	2.0	4
					2	400	200	200		
					3	600	300	300		
					4	800	400	400		
36751	CWH vm2	01	Cw, Yc – 1.5 Hw – 2.5 Fdc ¹⁵ – 3.0 Ba – 1.75	Hm ¹⁴ – 1.0	1	400	200	200	2.0	7
					2	500	300	250		
					3	700	400	300		
					4	900	500	400		
36752	CWH vm2	03	Cw – 1.0 Hw – 1.75 Fdc ^{15,18} – 1.5 Yc – 1.0	Pw ⁵ – 2.5 Hm ¹⁴ – 0.75	1	300	150	150	2.0	7
					2	400	200	200		
					3	600	300	300		
					4	800	400	400		
36753	CWH vm2	04	Cw – 1.0 Hw – 1.75 Yc – 1.0	Fdc ¹⁵ – 1.5 Pw ⁵ – 2.5 Hm ¹⁴ – 0.75 Ba – 1.5	1	400	200	200	2.0	7
					2	500	300	250		
					3	700	400	300		
					4	900	500	400		
36754	CWH vm2	05	Cw – 1.5 Hw – 2.5 Yc – 1.5 Ba – 1.75	Fdc ¹⁵ – 3.0 Hm ¹⁴ – 1.0	1	400	200	200	2.0	4
					2	500	300	250		
					3	700	400	300		
					4	900	500	400		
36755	CWH vm2	06	Cw-1.5 Ba - 1.75 Hw – 2.5 Yc – 1.5	Hm ¹⁴ – 1.0	1	400	200	200	2.0	7
					2	500	300	250		
					3	700	400	300		
					4	900	500	400		
36756	CWH vm2	07	Cw – 2.0 Hw ⁷ – 3.5 Yc – 2.0 Ba – 2.25	Hm ¹⁴ – 1.25	1	400	200	200	2.0	4
					2	500	300	250		
					3	700	400	300		
					4	900	500	400		
36757	CWH vm2	08	Cw ¹⁶ – 2.0 Hw – 3.5 Yc – 2.0 Ba – 2.25	Hm ¹⁴ – 1.25	1	400	200	200	2.0	4
					2	500	300	250		
					3	700	400	300		
					4	900	500	400		

**Table 1 (continued) – Iisaak Clayoquot Sound 2006 FSP Stocking Standards
Uneven-Aged Stands and for the Purposes of FPPR s 16(4) and s 44(4)**

Standards ID	Subzone	Site Series	Species / Min hts (m) FG		Well Spaced (sph)					Regen Delay
			Preferred	Acceptable	Layer	Target	Min P&A	Min P	Min Inter-tree (m)	
36758	CWH vm2	09	Cw – 1.0 Hw – 1.75 Yc – 1.0	Ba – 1.5 Hm ¹⁴ – 0.75	1	300	150	150	2.0	4
					2	400	200	200		
					3	600	300	300		
					4	800	400	400		
36774	MH mm1	01	Ba – 0.6 Hm – 1.0 Yc – 1.0	Hw ¹⁷ – 1.0	1	400	200	200	2.0	7
					2	500	300	250		
					3	700	400	300		
					4	900	500	400		
36775	MH mm1	03	Ba – 0.6 Hm – 1.0 Yc – 1.0	Hw ¹⁷ – 1.0	1	400	200	200	2.0	5
					2	500	300	250		
					3	700	400	300		
					4	900	500	400		
36776	MH mm1	04	Ba – 0.6 Hm – 1.0 Yc – 1.0	Hw ¹⁷ – 1.0	1	400	200	200	2.0	7
					2	500	300	250		
					3	700	400	300		
					4	900	500	400		
36777	MH mm1	05	Ba – 0.6 Yc – 1.0	Hw ¹⁷ – 1.0 Hm – 1.0	1	400	200	200	2.0	5
					2	500	300	250		
					3	700	400	300		
					4	900	500	400		
36778	MH mm1	06	Hm – 0.75 Yc – 0.75	Ba – 0.6	1	300	150	150	2.0	7
					2	400	200	200		
					3	600	300	300		
					4	800	400	400		
36779	MH mm1	07	Ba – 0.6 Yc – 0.75	Hm – 0.75	1	400	200	200	2.0	5
					2	500	300	250		
					3	700	400	300		
					4	900	500	400		

Acceptability Criteria for Layer 1 Trees in an Uneven-aged Stand:

To be counted as well spaced trees in the silviculture layer, layer 1 trees must have the following characteristics:

1. For Cw and Yc - all live merchantable trees will be accepted except where significant root damage or other damage during harvest activities has left the tree highly susceptible to toppling or blowdown.
2. For all other species – No more than 10% of trees considered as well spaced trees may have stem scarring up to 400cm² and trees must
 - a) be healthy with reasonable growth form (merchantable),
 - b) have at least 30% live crown,
 - c) have no more than 25% of the live crown damaged by harvest operations,
 - d) have no more than 1/3 of the circumference of the stem scarred, no scars exceeding 400cm², no cumulative stem damage exceeding 900cm², no gouges on the stem or major roots, and no damage to supporting roots (>2cm diameter) within 1m of the main stem, and
 - e) be free of unacceptable levels of pest or disease damage or indicators. DMH infected Hw with a Hawksworth rating > 4 or with DMH infection in the main stem will not be accepted.

Note, not all retained trees in a variable retention block will necessarily have these characteristics. Many trees will be retained to meet other forest resource objectives and the recommendations of the Clayoquot Scientific Panel. Retained trees will be chosen to meet safety, windfirmness, cultural, biodiversity, wildlife, scenic, recreational, and other values. Along with large dominant trees, retention may include trees with broken tops, candelabras, mistletoe infections, heart rot or open cavities, and other structural features that may contribute to non-timber values.

Acceptability Criteria for Layer 2, 3, and 4 Trees:

To be considered free growing, trees must be of good form, color, and vigor, and not have unacceptable levels of pest or disease damage or indicators, and meet the minimum heights given in the stocking standards tables. In addition, advanced regeneration, to be considered free growing, must have at least 30% continuous live crown with healthy foliage, no broken tops, and be free of excessive forks or crooks. There must be no open wounds, no scars or wounds on the stem wider than 25% of the stem circumference or greater than

- a) 10% of the stem length for layer 3 and 4 trees,
- b) 400cm² for layer 2 trees

and there must be evidence of post-harvest release.

In uneven-aged stands with an overstory of DMH infected Hw, any Hw in layers 2, 3, or 4 must be free of any visible DMH infections to be considered well-spaced, and at least the minimum stocking (P&A) in that SU must be made up of non-susceptible or less susceptible species.

Red Cedar and Yellow Cedar:

On those openings where a regeneration obligation exists, where Cw and/or Yc are preferred species for the Standards Unit, and where Cw and/or Yc made up at least 30% of the original stand by basal area or volume, Cw and/or Yc will be planted to a density not less than 50% of the target well spaced stocking for that Standards Unit.

Footnotes:

1. Restricted to nutrient very poor sites only
2. Nutrient medium or better sites only
3. An acceptable alternative to Cw on wet or rocky sites
4. Restrict use due to weevil risk; use weevil resistant stock when planting
5. Use rust resistant stock when planting
6. Restricted use; southerly aspects, ridge crests, dry rocky knolls, or where a site assessment (eg. cruise report or prescribing forester assessment) indicates at least 10% species composition by volume in the original stand
7. Suitable for thick forest floors (>20cm) or abundant decayed wood but will not form the leading species
8. Red listed plant association: avoid logging. Restoration activities only
9. Dr accepted for site amelioration or as a scattered biodiversity component of up to 20% of stocking
10. Elevated microsites are preferred
11. Shoreline / ocean spray sites; these site series are generally protected in reserves and not available for logging. If present at all, they will occur only in very minor incidental amounts within a harvest unit.
12. Suitable as a minor species only on salal dominated sites if growing on select microsites >3m from salal complexes and showing good vigor (not chlorotic) and growth (leader growth > 10cm).
13. Restrict use to nutrient poor sites within the standards unit where a site assessment (eg. cruise report or prescribing forester assessment) indicates at least 10% species composition by volume in the original stand
14. Hm suitable for northern aspects, upper elevations (upper half of elevation range for variant), areas of prolonged snow cover, or areas with cold air drainage
15. Restrict use to steep southerly aspects
16. Cw restricted to lower elevations (lower half of the elevation range for variant) or steep southerly aspects
17. Hw restricted to lower half of elevation range for variant or to steep southerly aspects
18. For layer 3 and 4 trees only, Fdc will be considered only as an acceptable species for those standards units where it is considered preferred under even-aged stocking standards for the same BEC unit