

WOODLOT LICENCE # W1942

WOODLOT LICENCE PLAN #1

First Term
2006 to 2016

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DISCLAIMER

- Recognizing the special nature of management on a woodlot licence, this disclaimer forms part of the Woodlot Licence Plan (WLP) for Woodlot Licence Number W1942 and advises that:
- the decision to operate under one or more of the Default Performance Requirements (DPR) provided in the Woodlot Licence Planning and Practices Regulation (WLPPR) is the sole responsibility of the woodlot licence holder, and involved no detailed oversight or advice from the prescribing registered professional forester. This disclaimer is signed on the explicit understanding and information provided by government that, the use and achievement of a Default Performance Requirement, meets the expectations of government with respect to the management of woodlot licences;
- the undersigned Registered Professional Forester has been retained to provide advice on the practice of professional forestry with regard to items such as alternative performance requirements, applicable results and strategies and other required measures that do not have a default performance requirement provided in the WLPPR.

Signed _____

Name (Print) _____ Wolfram Wollenheit _____

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I. MANDATORY CONTENT FOR A WOODLOT LICENCE PLAN (WLP)

PLAN AREA

☒ This plan covers the entire area of the Woodlot Licence.

The licence is comprised of a single Crown portion containing 528.1 ha. W1942 is located South of Roberts Lake and East of Highway 19. The licence area occupies the lower slopes of Mt. Menzies with most sites having a southwest aspect. An old deactivated road located roughly in the middle of the woodlot will be used as a split line and as a naming convention upon operational development in the woodlot.

There is no private land contribution associated with this woodlot licence.

MAP AND INFORMATION

The woodlot licence area is covered under the Vancouver Island Land Use Plan (VILUP), which is legislated under the Land Act. The licence area is located within Resource Management Zone 31 (RMZ 31), which has general timber and non-timber objectives with specific opportunities for enhanced timber harvesting via partial cutting, commercial thinning.

The Sayward Landscape Unit Plan, which also covers the woodlot licence area, was put into effect and made known by the District Manager on April 17th, 2003. The objectives of the landscape plan have been reviewed in order to ensure this WLP is consistent with the higher-level plan objectives.

The woodlot is within the Coastal Western Hemlock Very Dry Maritime Variant (CWHxm1) biogeoclimatic zone where the average rainfall can range from 1100 to 2721 mm / year. Mt Menzies is a sizeable and unique geographical feature in the area and often facilitates local weather disturbances. Because of the elevation gradient and frequently changing freezing levels in the winter streams are often inundated by rain on snow and freeze – thaw events. Streams within the woodlot licence are presently classified based on width and gradient and are provided protection through the combination of riparian reserves and/or riparian management zones.

The terrain of the woodlot gets gradually steeper as one moves to the East and up the slopes of Mt Menzies and in some areas reaching vertical bluffs and terrain class V. The shallow colluvial soils are rapidly draining. Portions of the woodlot contain areas with sensitive soils denoted by slopes > 60% with indicators of soil instability such as pistol butt trunks. Where areas of sensitive soils are identified during road and block layout a qualified registered professional will be retained for site level assessments. Assessment

recommendations will direct final engineering and pre-harvest mapping. Terrain stability overview mapping is provided on the WLP map.

Much of the woodlot's forests were harvested via railway logging around 1920 to 1940. Additionally, portions of the licence area have received stand management treatments such as juvenile spacing, commercial thinning and fertilization programs. The disturbance history and management activities have resulted in large contiguous areas of even aged Douglas-fir (Fd) with a scattered hemlock (Hw) and cedar (Cw) component.

The Ministry of Forests recreation inventory information pertaining to the WLP area is summarized in the following table and the polygons numbers are shown on the WLP map.

Table 1: Recreational resource inventory for W1942.

Polygon / Mapsheet	Prominent Feature and activities	Feature Significance*	Mgmt. Class**	Impact Management
655 092K013	E2R1 – Regenerating stand, exposed bedrock.	C	2	N/A – constrained via UWR and inoperable areas.
708 092K023	Q3B2- h – shorelands with sandy beach - beach activities	C	1	No harvesting forecasted - Area will be maintained through 100 % recreation net down and inoperable areas
762 092K013	E3M2 – Coniferous forest and small surface waters	D	2	N/A
779 092K013	E3R1 – Coniferous forest and exposed bedrock	D	2	N/A
848 092K013	E2R1 –transitional forest and exposed bedrock	D	2	N/A – protected within UWR
849 092K013	M2T1E3-I – Coniferous forest with small surface waters. Unmanaged hiking trails	C	1	Trails will be located and assessed upon engineering. Appropriate management actions will be developed.
877 092K013	E3R1 – Coniferous forest and exposed bedrock	D	2	N/A
921 092K013	E3M2 – Coniferous forest and small surface waters	D	2	N/A
952 092K013	T1E3R1-lpn Unmanaged trails thru coniferous forests and exposed bedrock – nature viewing and study	B	1	N/A – protected within UWR
962 092K013	T1E3-lpn -Unmanaged trails thru coniferous forests – nature viewing and study	B	1	Trails and viewing opportunities will be located and assessed upon engineering. Appropriate management actions will be developed.
976 092K013	E3M2C4 –Coniferous forest and small surface waters	D	2	Largely reserved through research plots and S2 creek reserve
998 092K013	E2 – Transitional vegetation	D	1	Features requiring management unknown. Will be assessed upon development

*
A = Very High capability to attract recreational, educational or scientific use, provincial significance
B = High capability to attract recreational use, regional significance
C = Moderate ability to attract recreational use, local significance (i.e. feature common in region)
D = Low ability to attract recreational use, features common locally and throughout region

**
1 = Area requires special management considerations to protect or maintain the recreational values
2 = Normal forest management practices are adequate to maintain recreational values.

Two recreational reserves are located within the woodlot. Both reserves are included as areas where timber harvesting will be modified. Additionally, polygons are defined as

natural or modified resource land under the Sayward Landscape Plan. These classifications provide direction as to the areas recreational experience and setting. Management of these areas will be consistent with the plan objectives.

Recreational activity in the area is generally concentrated near Roberts Lake where seasonal visitors stay and fish on the lake. The recreation reserve adjacent to the lake provides a visual screen for the lakeshore.

In the Southern portion of the woodlot, the Menzies lookout provides visitors with spectacular views of the Sayward lakes chain and the Salmon River valley. The Menzies Lookout road also provides access for seasonal hunters that seek out deer habitat on the steep and rugged slopes that occur throughout and above the woodlot area. Although the road accessing the lookout is not designated as a recreational feature, the licensee is aware of its contribution to the recreational value of the lookout.

No specific harvest modifications are proposed within this plan as adequate management of the visual quality objective of retention that covers the road location will sufficiently limit the impact of harvest in adjacent stands on the recreational values. It should be noted that the maintenance of the view will be an active process as the adjacent timber matures and encloses upon the lookout. Active management of the lookout and viewscape will be considered in the future in cooperation with the MoFR District recreation staff.

The northern portion of the woodlot contains a large gravel pit operated jointly by the Ministry of Transportation and Highways and BC Timber Sales. This area has been removed from the timber harvesting land base. Notification regarding road construction and harvesting in adjacent stands will be provided to ensure worker safety of both parties. Negotiations with BCTS are planned regarding access to the materials in the pit for woodlot purposes.

Timber in the northern most portion of the woodlot is presently classified as inoperable and has been removed from the timber harvesting land base. Visual constraints, very steep ground, difficult colluvial soils and limited road access are the main constraints in the area.

Temporary or permanent barricades to restrict vehicle access will be established in several locations within the Woodlot Licence as indicated on the WLP map. The purpose of the installations will be to deter illegal activities, reduce fire hazard, minimize firewood theft and stop garbage dumping.

The following resources are **not known to exist** in the woodlot license area:

- Wildlife habitat areas,
- Community and domestic water supply intakes
- Public Utilities
- Resource features other than wildlife habitat features, archaeological sites, and domestic water supply intakes licensed under the *Water Act*,

There is an unregistered drinking water source adjacent to Highway 19 - North roughly in the middle of the woodlot as shown on the WLP map. A black poly pipe on the side of the road allows motorists to refill their containers. No specific plans or harvest modifications are proposed within this plan. Signage will be posted when operations immediately above the inlet (within 100 m) could potentially affect water quality.

Other features and resource values relevant to the management of the woodlot not mentioned specifically in the text of this plan are indicated on the attached maps (See appendix 1).

AREAS WHERE TIMBER HARVESTING WILL BE AVOIDED

There are no areas in this woodlot licence where timber harvesting will be strictly avoided.

AREAS WHERE TIMBER HARVESTING WILL BE MODIFIED

Areas covered under this plan in which timber harvesting will be modified to protect and manage resource are marked on the map. A description of the modification by area is as follows:

- ☒ Riparian reserve zones (RRZs) are not planned for regular harvesting other than for those purposes specified by regulation, such as tree removal for the purpose of creating trails or for carrying out a sanitation treatment. RRZs are denoted in light red shading on the map and include the following:
 - The riparian reserve zone (RRZ) located around North Creek (S2), that drains North into Roberts Lake, will be avoided. The RRZ for this S2 creek will consist of a 30 m reserve on both sides of the creek.
 - The riparian reserve zone (RRZ) located around Creek 20 (S2) and Creek 26 (S2), both in the Southeast corner of the woodlot, will be avoided. The RRZ for these two S2 creeks will consist of a 30 m reserve on the woodlot side of the creek.
 - The riparian reserve zone (RRZ) located around the lower portions of Creek 4 (S3), Creek 7 (S3) and Creek 15 (S3) will be avoided. The RRZ for these three S3 creeks will consist of a 20 m reserve on both sides of the creek.
- ☒ Riparian Management Zones (RMZs = light green diagonal hatching)
Table 2 below outlines how timber harvesting will be modified based on the stream and wetland classification. Depending of the present stand structure, terrain, windthrow risk and block configuration the retention level will be uniform, grouped or spatially distinct. In general, understory and unmerchantable cedar and other conifers of good form and vigour will be maintained as much as possible to provide for riparian cover and bank stability.

Table 2: Modification of harvesting in RMZs by riparian classification.

RIPARIAN CLASS	INTENT OF MANAGEMENT	SPECIES TO RETAIN	RETENTION LEVEL POST HARVEST (stems/ha)
S2 and S3 (Fish bearing S2 = 5 – 20m S3 =1.5 - 5.0m)	- Maintain the integrity of the RRZ - Assist in maintaining wildlife attributes within the RMA, such as wildlife tree cover, nesting and perching habitat and diversity of vertical forest structure.	Fd, Cw, Hw, Pl, Dr and Ac	25 - 100%
S4 (Fish bearing up to 1.5m)	- Maintain stream bank integrity - Provide shaded cover, LWD and litter		25 - 100%
S5 and S6 (Non-fish bearing >3m and < 3m)	Minimize debris transport to lower reaches of stream		0 – 100%

Fd = Douglas fir, Cw = western red cedar, Hw = western hemlock, Pl = lodgepole pine, Dr = red alder, Ac = cottonwood

- ☒ Retention to Partial Retention Recommended Visual Quality Classes (R and PR = orange horizontal hatching and brown vertical hatching respectively). Harvesting will be modified to maintain the intended visual quality from the Sayward lake chain and highway 19 north.

The following process will be used to ensure harvest areas are managed consistent with the Retention (R) and Partial Retention (PR) objective such that activities are not visually evident or remain subordinate respectively. Designed openings will follow the line and form of the landscape. The assessment procedures outlined in the Visual Impact Assessment (VIA) guidebook 2001 will be used to direct design and assist in evaluation.

- ☒ The two groupings of growth and yield research installations located as marked on the WLP map. The installations consist of two groups of four and are allotted a 100m radial buffer located from the actual centre of each plot. The specifics of the harvest modification within the buffer will be developed through on-going dialogue between researchers and operational foresters. Formal communication will commence prior to approval of harvest or road construction authority, where forestry-related activities are proposed on Crown land within or adjacent to these installations.
- ☒ Elk Visual Cover will be managed to provide the hiding cover as required in the Sayward Landscape Unit Plan. Given the small-scale nature of the licence this requirement will generally not require specific and active management.
- ☒ Recreation reserves located as a lakeshore buffer and as the Menzies Lookout will be generally avoided. The reserves will be located using GPS and base map information from the Sayward Landscape Plan. The intent will be to manage for recreation values within those areas by prohibiting timber harvesting, including salvage, unless such activities are complementary to the recreation setting and experience; and to avoiding road construction unless no other practicable options exist. In both situations the Statutory Decision Maker will determine final authority for harvest or road construction in these areas.
- ☒ Ungulate Winter Range (orange diagonal hatching) will be managed to allow for escapement to old seral stages and to provide the desired forest structure. The intended forest structure is defined by large tree canopies effective in intercepting and retaining snowfall, clumped groups of conifers, rock outcrops and scattered openings with herb and shrub layers present. The ungulate winter range will be located using GPS and base map information from the Sayward Landscape Plan. Where harvesting is proposed within UWR consultation will be carried out with BC Ministry of Environment and the harvest must be approved by the Statutory Decision Maker.

PROTECTING AND CONSERVING CULTURAL HERITAGE RESOURCES

In addition to the information sharing process that is implemented for the approval of this plan, First Nations and other interested parties will be welcome during the term of this plan to review planned developments upon their own initiative. Documentation of all consultation with affected First Nations will be included within the supplemental information (Part II) of the final submission of the plan.

No Archaeological Overview Assessment (AOA) has been completed for the area of the new woodlot.

If the licensee or any personnel connected with the Woodlot Licence operation finds evidence of tradition use or cultural heritage values, the Ministry of Forests Aboriginal Liaison Officer will be notified and all work will cease within the immediate (30 m) area. The licensee will cooperate fully, as requested by the Ministry of Forests Aboriginal Liaison Officer.

The following results and strategies (Table 3) for managing cultural heritage values will apply. These are based on known cultural heritage issues of interest to First Nations in the Campbell River Forest District. No specific issues were identified or provided by First Nations during the WLP consultation process.

Table 3: Results and Strategies for Cultural Heritage Resources

<i>Cultural Heritage Value</i>	<i>Results & Strategies</i>
Cedar	<i>Result:</i> • Enable continued access to red cedar for traditional use by local First Nations.
	<i>Strategies:</i> • Based on availability of stock and ecological suitability (e.g. Cw listed as preferred species), a component of Cedar will be planted in the woodlot to ensure a long-term supply. • Naturally occurring young cedar trees (including poles) will be retained where operationally feasible.
Traditionally Used Plants	<i>Result:</i> • Enable continued access to traditionally used plants for traditional use by local First Nations.
	<i>Strategies:</i> • When local First Nations have indicated specific interest in traditional use plants, the licensee will identify the presence of such plants in planned harvest areas and communicate this to the interested First Nations prior to cutting permit submission. This is to allow for review by the local First Nations and that any collections of traditional use plants can be initiated by the local First Nations prior to harvest. • A no-pesticide use policy is implemented in this Woodlot Licence. Manual brushing and early planting of large stock is the preferred method to overcome brush problems.
Cultural Heritage Resources	<i>Result:</i> • Harvest plans will consider identified cultural heritage resources.
	<i>Strategies:</i> • The Licensee will share information with local First Nations upon request and be available for field reviews.

WILDLIFE TREE RETENTION STRATEGY

Note: The proportion of the Woodlot Licence area that is occupied by wildlife tree retention areas is specified in the “PERFORMANCE REQUIREMENTS” section of this woodlot licence plan.

INDIVIDUAL WILDLIFE TREES

a) Species and Characteristics:

Desired species are (in order of preference): Fd, Cw, Hw, Dr, Mb with a minimum dbh of 50cm. The following table describes the species and characteristics of individual trees that will guide the selection of wildlife tree to be retained from harvesting.

Table 4: Wildlife tree value and characteristics for all species

	HIGH (at least two of the listed characteristics)	MEDIUM	LOW
CHARACTERISTICS	• Internal decay (heartrot or natural/excavated cavities present) • Crevices present (loose bark or cracks suitable for bats) • Large brooms present • Active or recent wildlife use • Current insect infestations • Tree structure suitable for wildlife use (e.g. large nest, hunting perch, bear den, etc.) • Largest tree on site (height and/or diameter) and/or veterans • Locally important wildlife tree species	• Large, stable trees that will likely develop two or more of the characteristics listed under HIGH	• Trees not covered by HIGH or MEDIUM categories

From: Wildlife Tree Committee recommendations available at - <http://www.for.gov.bc.ca/hfp/wlt/wlt-policy-02.htm>

Given the nature of the historic logging and the thrifty second-growth stands present on the woodlot few trees in a given stand may have ‘high’ value attributes. As such, a minimum of 1 tree per hectare will be used as a minimum threshold for retention where the highest value attained is medium. Trees will be left as dispersed individuals or as a groups internally or externally to harvest areas.

Additionally, all cottonwood where present will be retained when worker safety permits.

b) Conditions under which Individual Wildlife Trees may be Removed:

Specific conditions that influence the decision of where individual wildlife trees may be removed include:

- worker safety;
- the significance of forest health risk to surrounding stands;
- the ability to retain other wildlife trees to perform as suitable wildlife habitat; and
- the availability of wildlife trees and CWD in adjacent areas.

All workers involved with the removal of potential wildlife trees will be informed of developed standards prior to fieldwork to help mitigate unnecessary removals. The rationale for the removal of individual wildlife trees will be documented and made available to compliance staff upon request.

c) Replacement of Individual Wildlife Trees:

Individual trees will be replaced if they are of 'high' wildlife values. Replacement trees will be selected using criteria outlined above with a preference for selecting trees that have two or more high wildlife tree value characteristics. Additionally, the main goal for wildlife tree retention is to retain all-stems within wetland and streamside reserves (WTPs).

WILDLIFE TREE RETENTION AREAS

a) Forest Cover Attributes:

Wildlife tree patches (WTPs) are planned preferably in fully constrained areas for long-term retention (e.g. riparian reserve zones, steep terrain and ungulate winter range). The presently reserved area that contributes to the WTPs for W1942 are shown on the 1:5000 WLP maps and occupies 42.3 ha or approximately 8% of the woodlot area.

Given the shape of the woodlot and the presence of the natural features the distribution and characteristics of the wildlife tree patches follows the FPC biodiversity guidebook recommendations (Sept 1995) and the Ecological Guiding Principles proposed by the Wildlife Tree Committee. The WTPs include some representative larger trees (DBH > average operational cruise) with moderate to high value to wildlife and regenerating stands with future wildlife potential.

Table 5: Forest cover attributes of existing wildlife tree patches

Wildlife tree patch ID	Size (ha)	Forest Cover Attributes	Productive Ground	Comments:
WTP1	7.70	97 V 3208-14 92 Ew2 4407-26	100%	Steep broken ground overlapping inoperable terrain and surrounded by terrain class IV. Large firs providing perching and nesting habitat.
WTP 2	9.04	589 F 2102-18 13701 E2spw HF 4207-13 1334 Esw F(H) 4304-22 1142 R 1138 E2w HF 9416-12	95%	Steep broken ground overlapping ungulate winter range and terrain class V. Large lone firs providing perching and nesting habitat. Bordered by two creeks with a third internally
WTP 3	9.79	1112 E2w FH 9414-18 1105 E2w FH 3305-27 1002 E2w F 3406-40 1111 E2w	100%	Steep broken ground overlapping ungulate winter range and terrain class V. Some old growth. Large lone firs providing perching and nesting habitat.
WTP 4	2.42	831, 833 841 F(H) 4506-36	100%	Isolated corner of the licence area. Productive timber and riparian areas.
Riparian reserves	13.36	Various	100%	Generally productive mixed species stands.
	42.3			

The size, shape and location of the presently shown reserves that contribute to WTPs is subject to change upon further engineering work, creek classification and GPS mapping. Final mapping and location of WTPs adjacent to cutblocks will be shown on pre-harvest mapping required by Section 33 of the *Woodlot Licence Planning and Practices Regulation* (WLPPR).

Through on-going observation, there will be potential for identifying and locating nesting trees, and other important habitat trees for retention. No nesting sites or bear dens requiring specific habitat or tree retention have been identified to date.

The minimum proportion of the woodlot licence area for long-term WTPs retention is 42.3 ha (8%) as per S.52(1) of the WLPPR. At any given time there will be at least this amount of Wildlife Tree Retention Area in the Woodlot Licence with equal or better wildlife habitat attributes as shown in Table 5.

b) Conditions Under which Trees may be Removed from Wildlife Tree Retention Areas:

Stand-specific issues that influence the decision of where salvage may be appropriate for WTPs include:

- worker safety;
- the significance of forest health risk to surrounding stands;
- the ability of the retained wildlife trees to perform as suitable wildlife habitat; and
- the availability of wildlife trees and CWD in adjacent harvest areas.

Salvage of windthrown timber is permitted within WTPs where they are not within RRZ and where windthrow impacts 25% to 50% of the dominant or co-dominant stems. Salvage of windthrown timber and harvesting of remaining standing stems is permitted within WTPs where windthrow exceeds 50% of the dominant or co-dominant stems; or where forest health issues pose a significant threat to areas outside the WTP.

Individual trees may be felled but **not removed** if considered a safety hazard. Unsafe wildlife trees will be only protected by no-work zones or re-design of cutblock configuration, if they exhibit exceptional high wildlife tree values combining the following characteristics: wildlife tree value category HIGH applicable, DBH > 50 cm, wildlife tree class 2 – 8, > 20 m high, conks or decay present, wildlife use present (nesting, cavities, recent feeding, denning), species Fd, Cw, Hw, Ba, Ss, Ac or Dr.

c) Replacement of Trees Removed from Wildlife Tree Retention Areas:

Given the nature of the adjacent stands and existing WTPs, the felling of danger trees within a distance from harvest edges defined in the specific cutting authority will not be a common occurrence or threaten the long-term integrity and usefulness of the WTPs. As such, no strategy for the specific replacement of individual trees within WTPs is presented.

It is unlikely that salvage/harvest of WTPs will be carried out given the inoperable nature of the terrain and the Higher Level Plan objectives that define the UWR. However, where salvage/harvesting is planned and authorized within a non-RRZ wildlife tree patch, a suitable replacement WTP of at least equivalent quality will be identified concurrently to achieve the retention target. Where all or part of a WTP is salvaged, the salvaged area should be replaced with other suitable habitat in the nearest possible location. If a WTP suffers blowdown, but is not salvaged, it need not be replaced. Replacement areas must have equal or better wildlife values. For non-riparian WTPs, attempts will be made to incorporate important features such as snags, marking, perch and nesting trees, dens, and other significant wildlife features. All such activities will be documented and in most cases will require approvals by the District Manager as variances to the Sayward Landscape Unit Plan.

MEASURES TO PREVENT INTRODUCTION OR SPREAD OF INVASIVE PLANTS

The introduction or spread of invasive plants, specifically Scotch Broom (*Cytisus scoparius*), into the woodlot licence area through the use of standard practices is possible given the location of a major road way. It should be noted that in several areas of the woodlot moderate Broom problems already exist and have been inherited by or beyond the influence of the licensee. These areas are as follows:

- ☑ BCTS Gravel Pit
- ☑ Highway 19 North
- ☑ Rock Bay / Old Sayward Road Grade

In the event that the Scotch Broom becomes established in other areas than specified above it will be brushed repeatedly and the area grass seeded and monitored. Vehicle access may be restricted via gates or berms.

Where it is known or reasonably expected that machinery is to be transported from a contaminated site, on or off the woodlot, cleaning of tires, tracks, bucket, undercarriage, etcetera will be completed prior to transportation. All newly constructed roads will be seeded if Broom establishment becomes a concern. Seed mixtures used for the above purposes or for those under S.29 of the WLPPR will be assessed to ensure that their use does not introduce additional invasive species. Additional species listed in the Invasive Plants Regulation (reg. 18/2004) if identified and located on the woodlot will be managed accordingly.

MEASURES TO MITIGATE EFFECT OF REMOVING NATURAL RANGE BARRIERS

There are no rangelands present on or adjacent to the woodlot and no measures or activities are proposed.

STOCKING INFORMATION FOR SPECIFIED AREAS

☑ The stocking standards for specified areas are found in Appendix 2 – Alternative Stocking Standards.

Specified areas include:

- areas subject to commercial thinning,
- the removal of individual trees, or
- areas subject to single/group tree selection or

- other types of intermediate cutting and /or
- areas subject to the harvest of special forest products.

For the purposes of this plan, commercial thinning, the removal of individual trees, single/group selection, intermediate cutting or the harvest of special forest products may take place anywhere within the woodlot except in designated areas where harvesting will be avoided. The delineation of specific areas will be conducted in conjunction with the pre-harvest mapping as per Section 33 of the WLPPR.

PERFORMANCE REQUIREMENTS

SOIL DISTURBANCE LIMITS

- ☒ Default: WLPPR s.24(1)
 - 8% of Net Area to be Reforested

PERMANENT ACCESS STRUCTURES

- ☒ Default: WLPPR s.25
 - the maximum area occupied by permanent access structures is as follows:
 - Cutblocks ≥ 5 ha – 7% of cutblock area
 - Cutblocks < 5 ha – 10% of cutblock area
 - Total Woodlot Area – 7% of Woodlot Licence area

USE OF SEED

- ☒ Default: WLPPR s.32
 - Adoption of Chief Forester's Standards for Seed Use

STOCKING STANDARDS

- ☒ Alternative: Stocking Standards are provided in Appendix 2. Clarification and rational is provided in the supplementary information included with the plan. See Section II - 4.

WIDTH OF STREAM RIPARIAN AREAS

- ☒ Alternative: the width of stream riparian areas will be as specified in Section 36(4) of the WLPPR except for a single variation along creek 2 (S2) in the northern portion of the woodlot. At this location no riparian reserve zone will be

established and the riparian management zone will consist of a 30m width. Clarification and rational is provided in the supplementary information included with the plan. See Section II - 4.

WIDTH OF WETLAND RIPARIAN AREAS

- ☒ Default: as specified in Section 37(3) of the WLPPR.

WIDTH OF LAKE RIPARIAN AREAS

- ☒ Default: as specified in Section 38(2) of the WLPPR.

RESTRICTIONS IN A RIPARIAN RESERVE ZONE

- ☒ Alternative: WLPPR s.39
 - Cutting, modifying or removing trees in a riparian reserve zone is limited to the purposes described in Section 39(1) of the WLPPR.
 - For the purposes of Section 39 (2.1) of the WLPPR, the following areas within riparian reserve zones are planned for road construction:
 - ✓ A crossing of the lower reaches of Creek 20 running north to south to access areas below existing commercial thinning and possible expansion areas to the southeast
 - ✓ A crossing of the lower reaches of Creek 4 immediately north of the research plots that will be accessed off the old grade.

RESTRICTIONS IN A RIPARIAN MANAGEMENT ZONE

- ☒ Default: WLPPR s.40
 - Construction of a road in a riparian management zone is limited to the conditions described in Section 40(1) of the WLPPR.
 - Restrictions and conditions on road construction, maintenance and deactivation activities, and on cutting, modifying or removing trees in a riparian management zone are as described in Section 40.

WILDLIFE TREE RETENTION

- ☒ Default: WLPPR s.52(1)
- The proportion of the Woodlot Licence area that is occupied by wildlife tree retention areas is no less than the least of the following:
 - o The proportion specified for the area in a land use objective, or
 - o The proportion specified in the WLP, or
 - o 8%

Note: The proportion of the woodlot licence area that is presently occupied by mapped Riparian Reserve Zones and WTPs retention is currently at 42.3 ha or 8%.

COARSE WOODY DEBRIS

- ☒ Default: WLPPR s.54(1)
- Area on Coast – minimum retention of 4 logs per ha = 5 m in length and =30 cm in diameter at one end.
 - Area in Interior – minimum retention of 4 logs per ha = 2 m in length and = 7.5 cm in diameter at one end.

RESOURCE FEATURES

- ☒ Default: WLPPR s.56(1)
- ensure that forest practices do not damage or render ineffective a resource feature.

Note: Only the performance requirements in Part 3 (Practice Requirements) of the WLPPR for which an alternative can be proposed are shown in this Woodlot Licence Plan. The remaining performance requirements in Part 3 are not shown, nor are the performance requirements in Part 4 (Roads).

APPENDICES

Appendix 1: Map of Crown portion (Schedule B) of woodlot W1942

Appendix 2: Alternative Stocking Standards for Woodlot Licence W1942

Ministry of Forests
Campbell River Forest District

Woodlot Licence
W1942

Roberts Lake

Woodlot Licence Plan map

Ded.: 19°38'E (2005)
Ann. Change 9.5W
0 100 200 400
Meters
1:10,000

Licensee: P & G Logging Ltd.
Area: 528.1 ha
Reference Map: 092K013/23
Datum, UTM Zone: NAD83, 10
UTM: 321 500E 5562 500N
TSA: 29
TSB: 37A
FIZ: 8
P.S.Y.U.: 4
In.Reg.: 20
Comp.: BCB91032 #26.27
Airphoto: Jan 13, 2006
By: ECON

econ
www.econ.ca
250-337-5588

Legend

- ▲ View Point
- Water Source
- Research Plot
- ⊕ Gate
- Forest Cover
- Contours
- Main Road
- Existing Road
- Permanent Road
- Temporary Road
- Existing Trail
- Permanent Trail
- Temporary Trail
- Old Railroad Grade/Old Trails
- Hiking Trail
- Deactivated Road
- S1-S4 Fish Creek
- S5-S6 Creek
- NCD non-classified Drainage
- not classified Creek
- Reach Break
- Woodlot Boundary
- Wetland
- Waterbodies
- Reserve / WTP
- Riparian Management Zone
- Ungulated Winter Range
- 100% Recreation Reserve
- Visual Quality Objective:
 - PR, Partial Retention, 1.6-7.0% View Denud.
 - R, Retention, 0-1.5% View Denud.
 - Recreation
- Gravel Pit
- Inoperable Area
- Research Plots
- Visual Elk Cover
- Terrain Class V
- Terrain Class IV
- Recent Cutblock, CT
- Recent Cutblock, CC

Signature / Seal

Date

APPENDIX 2: ALTERNATIVE STOCKING STANDARDS

Table A:

ADMINISTRATION																											
Vancouver Forest Region			Campbell River Forest District					Licensee: P & G Logging Ltd.										Woodlot Licence #W1942					Febuary 6 th , 2006				
ID #	BEC		Preferred Species						Acceptable Species								Stocking (w/s)			Min Inter Tree Dist (m)	Regen Delay	FG Date	Tree Ht > Brush (min %)	Post Spacing Density		Comments	
	Zone & variant	Site Series	1	Ht (min)	2	Ht (min)	3	Ht (min)	1	Ht (min)	2	Ht (min)	3	Ht (min)	4	Ht (min)	Target P&A (sph)	Min P&A (sph)	Min P (sph)	MITD (m)	Max (yrs)	Late (yrs)		Min	Max		
A	CWHxm	01/04	Fd	3.0					Pw ⁵	2.5	Hw ⁸	2.0	Cw	1.5			900	500	400	2.0	3	12	150	500	1500	None – Zonal site	
B	CWHxm	02	Fd	2.0					Pl	1.25	Pw ⁵	2.5					400	200	200	2.0	3	12	150	200	800	Avoid logging – xeric site, shallow soils	
C	CWHxm	03	Fd	2.0					Cw	1.0	Pw ⁵	2.5	Lw ⁸	1.5	Pl ⁶	1.25	800	400	400	2.0	3	12	150	400	1200	None	
D	CWHxm	05/07	Cw	2.0	Fd	4.0			Bg	3.5	Pw ⁵	2.5					900	500	400	2.0	3	12	150	500	1500	None	
E	CWHxm	06	Fd	3.0	Cw	1.5	Hw	2.0	Pw ⁵	2.5							900	500	400	2.0	6	14	150	500	1500	None	
F	CWHxm	11 ¹	Cw	1.0					Pl ¹	1.25							400	200	200	1.5	3	12	150	200	800	Avoid logging – wet and very poor	
G	CWHxm	12 ¹	Cw	1.0					Hw ⁴	1.5	Pw ⁵	2.5	Ss ⁷	1.5			800	400	400	1.5	3	12	150	400	1200	Organic soils - avoid ground based equipment	
H	CWHxm	13/14 ^{1,2}	Bg	3.5	Cw	2.0	Fd ¹	4.0	Ss ^{7,9}	3.0							900	500	400	1.5	3	12	150	500	1500	Fluctuating water table	
I	CWHxm	15 ^{1,2}	Cw	2.0					Ss ^{7,9}	3.0							800	400	400	1.5	3	12	150	400	1200	Fluctuating water table	
J	CWHxm	01/06	Dr ⁴	3.0	Mb	3.0											1200	1000	800	1.5	3	12	150	800	1500	High density deciduous management	
K	CWHxm	05/07/02/13/14 ^{1,2} /15 ^{1,2}	Act	4.0	Dr ⁴	4.0	Mb	4.0									1200	1000	800	1.5	3	12	150	800	1500	High density deciduous management	
L	CWHxm	01/04/06	Cw	1.5	Pw ⁵	2.5			Fd ³	3.0	Hw ^{3,8}	2.0					900	500	400	2.0	3	12	150	500	1500	Alternate species root rot treatment	
M	CWHxm	03	Cw	1.0	Pw ⁵	2.5			Fd ³	2.0	Pl ³	1.25	Lw ⁸	1.5			800	400	400	2.0	3	12	150	400	1200	Alternate species root rot treatment	
N	CWHxm	02	Pw ⁵	2.5					Pl ^{3,6}	1.25	Fd ³	2.0	Lw ⁸	1.5			400	200	200	2.0	3	12	150	200	800	Avoid logging – xeric site, shallow soils	
O	CWHxm	05/07	Cw	2.0	Pw ⁵	2.5			Fd ³	4.0	Bg ³	3.5					900	500	400	2.0	3	12	150	500	1500	Alternate species root rot treatment	
P	CWHxm	11	Cw	1.0					Pl ^{3,6}	1.25							400	200	200	1.5	3	12	150	200	800	Alternate species root rot treatment	
Q	CWHxm	12	Cw	1.0	Pw ⁵	2.5			Hw ³	1.5	Ss ^{3,7}	1.5					800	400	400	1.5	3	12	150	400	1200	Alternate species root rot treatment	
R	CWHxm	13/14 ²	Cw	2.0					Bg ³	3.5	Fd ³	4.0	Ss ^{3,7,9}	3.0			900	500	400	1.5	3	12	150	500	1500	Alternate species root rot treatment	

Foot Notes

- 1 Elevated microsites are preferred
- 2 These sites represent areas with strongly fluctuating water tables. They are often found as mosaics in combination with other sites. Elevated microsites are preferred, either mechanical or natural
- 3 Trees are **not** acceptable within 10 m of second growth stumps, except stumps of Cw, Pw, Lw and deciduous species.
- 4 Avoid gleyed soils and in frost pockets
- 5 Pw must be free of blister rust within 10 cm of the stem and be pruned as per ministry guidelines or be blister rust resistant stock ($\geq 50\%$ resistance). Pw may occupy 5% on all sites except sites 04 & 05 where 20% will be the upper limit of the Free-Growing stand composition. When used for root rot treatment no maximum limit on percent composition is set.
- 6 Restricted to nutrient-very-poor sites
- 7 Risk of weevil damage, use resistant stock where possible. Ss will not exceed 20% of the free growing stand on site series or 5% of the free growing stand on 13, 14, & 15 site series on a dispersed basis. Clumps not to exceed 0.1ha in size.
- 8 Hw is not acceptable on site series 04. The proportion of the free-growing stand comprised of Hw & Lw if established will not exceed 20%. Lw will not exceed 5% of the free growing stand on site series 03.
- 9 May be planted on prepared mounds

Stocking Standards - General Comments

This table has been developed from the *Reference Guide for FDP Stocking Standards* dated December 11, 2002 and the standards established in the Woodlot Licence Forest Management Regulations (January 31, 2004) Division 2 of Part 6, Schedule A, Table A as well as the correlated guidelines and site interpretation for the Vancouver Forest Region (VFR). Where site series have similar stocking standards, they have been combined. Sections A - I are the general stocking standards. Sections J & K are the deciduous stocking standards. Sections L - R apply to sites affected by root rot.

‘Biogeoclimatic unit’ or ‘BEC’ means the zone, subzone, variant and site series described in the most recent field guide published by the Ministry of Forests for the identification and interpretation of ecosystems, as applicable to a harvested area.

Site series with the comment of ‘avoid logging’; floodplain site series or sites with strongly fluctuating water tables have been included. However, management on these sites will be limited and will generally be included within a mosaic of better sites. In some cases where there are fluctuating water tables, mounding may be prescribed to create better microsites.

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

A limited number of scattered red alder trees will be tolerated on all conifer plantations to provide a nurse crop, promote nutrient cycling or for general biodiversity objectives. Allow up to 50 spha as alder ghost trees during surveys on all sites such that these stems have no impact on the free growing status of sampled trees. Practically, 1 alder can be declared ghost tree and the FG impact of this tree be waived in one out of four 50 m² free

growing survey sample plots. Where red alder trees are within 10m of each other they will **not** be accepted as dispersed ghost trees due to increased competitive density effects.

The minimum inter-tree spacing is generally reduced to 1.5 m under the following site-specific conditions: frequent bedrock, large blocky colluvium, hygric sites, and disturbed roadside areas amongst slash accumulations (up to 10 m from the travelled portion of the road). On machine mounded sites the minimum inter-tree spacing is reduced to 1.0 m.

Deciduous Management

Recommended Regime: The product objective is to manage for high quality knot-free sawlogs on a 40 - 50 year rotation. Establish stand with high densities (1500 sph) is required to achieve a target of 1200 stems/ha at free-growing. At approximately age 10 but not before stand height 12 to 16 m space to 900 stems/ha. Dead branch prune the crop trees early and continue density regulation treatments approx. every 10 years to maintain good crown forms and eliminate low quality stems.

The establishment of a second crop conifer layer (Cw, Ss) before or after density treatment is optional. If a cedar or Sitka spruce understory is planted in addition, then the natural pruning of the alder would be enhanced. The removal of the alder at harvest age is operationally possible, while leaving a fully stocked, semi-mature conifer pole stand behind.

Where conifers are established underneath a designated deciduous stand, the stand's regeneration and free to grow status will be measured using the deciduous standards only. The minimum free growing height criterion for deciduous species is based on the tallest conifer standard for each site series. Damage criteria for deciduous species have not been formally established. General free-growing criteria will be adopted, such that well spaced stems will be of good form, health and vigour.

Stocking Standards – Specified Areas

For salvage of scattered windthrow or root rot mortality, openings of up to 0.1 ha in size are acceptable, not requiring pre-harvest mapping and the establishment of a Free Growing stand.

Table B: Stocking Information for Specified Areas

Target from Table A standards	Layer*	Stocking**		
		Target pa	MIN pa	MIN p
(stems/ha)		(well-spaced/ha)		
900 - 1200	1	400	200	200
	2	500	300	250
	3	700	400	300
	4	900	500	400
800	1	300	150	150
	2	400	200	200
	3	600	300	300
	4	800	400	400

*Stand Layer definition

Tree Layer 1	Mature	trees $\geq$ 12.5 cm dbh
Tree Layer 2	Pole	trees 7.5 cm to 12.4 cm dbh
Tree Layer 3	Sapling	trees $\geq$ 1.3 m height to 7.4 cm dbh
Tree Layer 4	Regeneration	trees < 1.3 m height

** pa - preferred and acceptable species p - preferred species

Preferred and acceptable species and 'Target from Table A standards' are as specified in Table A by biogeoclimatic ecosystem classification (BEC) site series

II. SUPPLEMENTAL INFORMATION REQUIRED TO BE SUBMITTED IN SUPPORT OF THE PROPOSED WOODLOT LICENCE PLAN

1. REVIEW AND COMMENT

ADVERTISING

A copy of the advertisement placed in the Campbell River Mirror on January 13th, 2006 is included below.

REFERRALS

This plan has been referred to the following agencies and/or groups either directly or via the Ministry of Forests (contact Aaron Smeeth ALO):

Hamatla Treaty Society

1441-A Island Highway
Campbell River, B.C. V9W 2E3
Ph: 287-9460, Fax: 287-9469

Campbell River First Nation

1400 Weiwaikum Road
Campbell River, BC
V9W 5W8
Ph: 286-6949, Fax: 287-8838

Cape Mudge First Nation

PO Box 220
Quathiaski Cove, BC
V0P 1N0
Ph: 285-3316, Fax: 285-2400

Comox First Nation

3320 Comox Road
Courtenay, BC
V9N 3P8
Ph: 339-4545, Fax: 339-7053

**Ministry of Water, Land and
Air Protection**

Karen Morrison (Nanaimo)
Ph: 751-3216
Re: Guide-Outfitter certificate
holder #100572
Registered trapline holder
#TR0110T604

COPY OF WRITTEN COMMENTS RECIEVED

No public written comments were received during the advertising period of this woodlot licence plan. There was one meeting with John David, of which the summary is attached. The comments from the Ministry of Forests are attached as well.

REVISIONS MADE AS A RESULT OF COMMENTS RECIEVED

All revisions made in response to the comments are summarized in the submission cover letter to the Ministry of Forest, which is included in this section.

2. EFFORTS MADE TO MEET WITH FIRST NATIONS

Included is a copy of the 'First Nations Information Sharing Checklist' an external consultation checklist provided by the Campbell River forest district. The checklist details for each First Nation all letters, minutes and correspondence.

3. EXEMPTIONS

N/A

4. RATIONALE IN SUPPORT OF PROPOSED ALTERNATIVE PERFORMANCE REQUIREMENTS

STOCKING STANDARDS

Alternatives stocking standards are proposed given the licensee's full intent to manage the woodlot to improve site productivity and species/product diversity. Additionally, existing standards in respect to the use of broadleaf species lack measurable and enforceable standards for implementation and are therefore defined further within the alternative stocking standards. Full details and listing of the stocking standards are provided in Appendix 2.

All areas of harvest will undergo pre-harvest mapping as per Section 33 of the Woodlot Licence Planning and Practices Regulation. At that stage the fundamental decision will be made if either conifer or a broadleaf standard will apply and the Standard Unit ID will be assigned.

The default stocking standards do not provide for alternative species management regimes to respond to root rot issues (e.g. *Phellinus weirii*) impacting the regeneration and long-term health and productivity of the preferred species. The proposed alternative stocking standards promote healthy stands that protect adjacent resources and values for example on infected zonal sites (01) adjacent to a S4/S6 creek or recreational trail where stumping is not appropriate to control sediment or to maintain visual appearance. In these cases, the establishment of Douglas-fir (preferred) is problematic and unsuited in the long-term due to high infection potential.

The Chief Foresters stocking standards indicate black cottonwood (Act), red alder (Dr) and bigleaf maple (Mb) as being productive, reliable and feasible regeneration option on several site series within the CWHxm1. The attached Alternative Stocking Standards will be used and includes the standards for both pure broadleaf stands and mixed woods regeneration. The use of broadleaf is proposed in consideration of the Chief Foresters memorandum dated August 22nd, 2000 and the supporting note 'Common Principles for the Management of Red Alder within the Coast Forest Region' dated August, 2004. The management for broadleaf species is proposed on a limited scale and is consistent with the management assumptions adopted in the last Annual Allowable Cut (AAC) calculation.

The broadleaf standards are also supported by the following research literature:

- Hibbs *et al.* The Biology and Management of Red Alder (1994),
- E.B. Petersons *et al.* FRDA Report 250 – Black Cottonwood and Balsam poplar manager’s handbook for British Columbia (1996).
- L. Sigurdson *et al.* 2nd draft report on Weyerhaeuser’s Red Alder Management Practices (1998),
- P.J. Courting *et al.* Forest Research Extension Note 016 - Red Alder management trials in the Vancouver Forest Region (2002).

The minimum density post-spacing shown corresponds to the values recommended in the Establishment to Free-growing Guidebook for the VFR– i.e. the same as the minimum-stocking standard for conifer stands.

Higher stocking is noted for the deciduous stands to ensure self-pruning and may include a conifer component. The maximum density post-spacing has been increased to allow for two stage spacing entries in order to manage snow press, blow down risks and provide the opportunity to capture the small-diameter resource.

The minimum height criterion is based on the tallest conifer standard of the particular site series since the listed hardwoods are at least as rapid growing as their conifer counterpart. In case a cedar or Sitka spruce understory is planted in addition to the full hardwood stocking, then the natural pruning of the alder would be enhanced. However, the stand’s status will only be measured using the broadleaf standards. The removal of the alder at harvest age is operationally possible, while leaving a fully stocked, semi-mature conifer pole stand behind.

Damage criteria for broadleaf species have not been established. No significant insect or disease outbreaks have been recorded for existing alder trials to date. General free-growing criteria will be adopted and damaged assessed by the survey technician at the time of the survey. Well-spaced stems will be of good form, health and vigour. Species specific damage criteria will be used upon development.

WIDTH OF STREAM RIPARIAN AREAS

Alternative width of stream riparian areas are proposed to manage the forested area adjacent to Creek 2. This creek, although classed as S2 by FishFor Consulting, is considered marginal fish habitat related to the rapidly draining and dynamic nature of the stream. No fish presence was noted during field review and classification is based solely on gradient (<20%). The stream and riparian area can be best described as an alluvial fan, fed by coarse material and the braided channel contributes to the exaggerated stream width.

The stream is not confined within a ravine or gully. Soils within adjacent stands consist of coarse grained sands, a high content of cobbles and gravels and low silt component. Water runs subterranean, especially near the confluence, for greater than 95% of the year and overland flow occurs only during periods very-heavy rain or during rain on snow events. Management of the stream will be as if classified as an S5. Within the RMZ enough trees will be retained adjacent to the stream to maintain the stream bank or channel stability, as the stream is a direct tributary to an S3 stream.

However, it should be noted that inherent channel dynamics are characteristically unstable. Modification of harvesting in the RMZs will be as outlined in table 2 within the WLP text for an S2 stream with 25-100% retention. The findings from FishFor Consulting, which will be included in the final WLP submission will confirm channel characteristics, potential for fish habitat and suitability of proposed management and will support this rationale for alternative performance standards.

For more information contact:

econ consulting



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