
Timber harvest planning and operating ground rules

Sundre Forest Products Ltd.
Forest Management Plan/Agreement
Area-Specific Addendum

Alberta 

2022

Sundre Forest Products Ltd.

**FOREST MANAGEMENT AGREEMENT SPECIFIC
ADDENDUM-TIMBER HARVEST PLANNING AND
OPERATING GROUND RULES**

Sundre Forest Products, Ltd.

ALBERTA

**AGRICULTURE, FORESTRY
AND RURAL ECONOMIC
DEVELOPMENT**

ENDORSEMENTS

Sundre Forest Products, Ltd. FMA Specific Addendum-Timber Harvest Planning and Operating Ground Rules, having been prepared in accordance with Section 16 (2) of FMA 9200030, and hereby endorsed this 24th day of June, 2022. The Executive Director of Forest Stewardship and Trade Branch has determined these ground rules will apply to all operations within the aforementioned FMA as well as FMU R11.

Sundre Forest Products Ltd.

HER MAJESTY THE QUEEN in right of Alberta as represented by the Minister of Agriculture, Forestry and Rural Economic Development

Original Signed

Original Signed

Per: _____ Tom Daniels _____

Per: _____

(print name)

Ken Greenway

(print name)

(title)

Executive Director

(title)

Preamble

The [Forests Act](#)¹ provides for and defines the powers of the Lieutenant Governor and Minister with respect to establishing regulations related to forestry in Alberta. The [Forests Act](#) provides for the establishment of forest management units as a mechanism for allocation and disposal of timber and specifies the method of disposal of Crown timber through forest management agreements, quota certificates and timber permits. The [Forests Act](#) was proclaimed in 1973 and was most recently amended on May 1, 2021. The [Forests Act](#) gives authority for the regulation of the management of all forest-based values, while providing for the sustainability of Alberta's forests. Alberta defines sustainability as "management to maintain and enhance the long-term health of forest ecosystems, while providing ecological, economic, social and cultural opportunities for the benefit of present and future generations."

The Timber Harvest Planning and Operating Ground Rules – FMA Specific Addendum (the "Addendum") is a reference manual that provides regulatory guidance and direction to be used by timber harvest planners, forest operators and other forestry professionals involved in implementing forest management plans (FMP). Items within the Addendum are required for implementation of unique or specific strategies within the FMP and/or are specific to an individual FMA. The Addendum will work in concert with the standardized Provincial Timber Harvest Planning and Operating Ground Rules (Provincial OGR). The Addendum is Section 4 to Sections 1, 2 and 3 in the Provincial OGR. Rules found in the Addendum will supersede those found in the Provincial OGR when they address the same objective.

¹ <https://open.alberta.ca/publications/f22>

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List of Acronyms

AAC	Annual Allowable Cut
AFMPS	Alberta Forest Management Planning Standard
ALSA	Alberta Land Stewardship Act
AOP	Annual Operating Plan
ARIS	Alberta Regeneration Information System
ATV	All-Terrain Vehicle
AVI	Alberta Vegetation Inventory
AWCS	Alberta Wetland Classification System
CA	Compartment Assessment
DBH	Diameter at Breast Height
DFA	Defined Forest Area
DLO	Department License of Occupation
FGR	FMP-specific Ground Rule
FMA	Forest Management Agreement
FMP	Forest Management Plan
FMU	Forest Management Unit
FMWSI	Forest Management Wetland Stewardship Initiative
FWIMT	Fish and Wildlife Internet Mapping Tool
FOMP	Forest Operations Monitoring Program
GDP	General Development Plan
GPS	Global Positioning System
GRS	Geotextile Reinforced Structure
GTA	Grazing Timber Agreement
ID	Identification
KWBZ	Key Wildlife Biodiversity Zone
LOC	License of Occupation
OGR	Operating Ground Rule
PGR	Provincial Ground Rule
PSP	Permanent Sample Plot
RFMA	Registered Forest Management Area
ROW	Right-of-Way
RPF	Registered Professional Forester
RPFT	Registered Professional Forest Technologist
RSA	Reforestation Standard of Alberta
SFM	Sustainable Forest Management
SHS	Spatial Harvest Sequence
SSR	Stand Structure Retention
TFA	Temporary Field Authorization
THPS	Timber Harvest Planning Standards
TMR	Timber Management Regulation
VOIT	Values, Objectives, Indicators and Targets

Introduction

Ground rules are the standards used in planning, conducting and monitoring forest management activities and include:

- timber harvest planning requirements – requirements for the development of operational plans;
- operating ground rules – rules that govern timber operations and road work; and
- reporting requirements – requirements for monitoring and reporting to Alberta the progress, results and effects of forest management activities.

The Timber Harvest Planning and Operating Ground Rules found in the Provincial OGR and the Addendum define the practices used in planning and conducting timber harvest operations that constitute the methods used to implement decisions made in the Forest Management Plan (FMP) and any applicable [Alberta Land Stewardship Act \(ALSA\)](#) regional plans. In the event that these strategic plans do not exist, the ground rules shall establish practices that are followed relative to forest management operations and activities. While adherence to the listed Ground Rules is an expectation, there are any number of circumstances where a deviation from a rule may be deemed necessary by a timber disposition holder while planning or conducting operations. As such, requests to deviate from any of the listed Ground Rules may be possible but these requests are subject to a review and an approval decision by Alberta to ensure that the likely outcomes do not compromise our sustainability objectives.

Provincial and Addendum OGR's provide a minimum standard that applies to all timber disposition holders operating on Crown land in Alberta. These rules ensure that timber disposition holders are meeting the same expectations for common components of FMPs.

It is acknowledged that all FMUs in the province are somewhat dissimilar in both physical and non-physical attributes and as such, a standardized approach is not applicable or possible. Alberta recognizes that timber disposition holders must be able to implement customized strategies that are unique to their specific Forest Management Agreement (FMA) or approved in the FMP. FMP-specific addendums are supplemental to the OGRs and have been negotiated with the applicable Forest Management Agreement (FMA) Holder where additional ground rules are needed to address specific strategies in an FMP or unique physical or non-physical landscape attributes. These are meant to be a small list related to specific FMP requirements and not a preferred deviation or exceptions from the Provincial OGRs.

These Addendum OGRs replace existing ground rules regardless of where the timber disposition holder is in the FMP planning cycle and will supersede rules in the Provincial OGR where there are rules addressing the same objective.

Authorizations and Legislation

Approval of operational plans by Alberta, specifically Forestry Division or as amended from time to time, does not imply authorization under other provincial legislation and policy. It is the responsibility of the timber disposition holder to understand the regulatory requirements of other applicable legislation, seek advice from the appropriate regulatory agency and obtain any other necessary approvals or permits.

Approval of operational plans by Alberta does not imply authorization under federal legislation and policy which include, but not limited to, the federal [Fisheries Act](#)², [Species at Risk Act](#)³ and [Migratory Birds Convention Act, 1994](#)⁴. It is the responsibility of the timber disposition holder to understand the regulatory requirements of federal legislation, seek advice from the appropriate federal agencies (e.g. [Department of Fisheries and Oceans](#), [Environment Canada](#)) and obtain any other necessary approvals or permits.

² <https://laws-lois.justice.gc.ca/eng/acts/f-14/>

³ <https://laws.justice.gc.ca/eng/acts/S-15.3/>

⁴ <https://laws-lois.justice.gc.ca/eng/acts/M-7.01/page-1.html>

Authorization of the Annual Operating Plan (AOP) does not constitute waiver or exemption from the OGRs, nor is authorization of the AOP verification of compliance with the OGRs.

This Agreement inures to the benefit of and is binding upon the Crown and Her heirs, successors and assigns, and the Company and its successors and assigns.

Validation

Alberta relies on the competence and professionalism of forest management professionals to apply sound forestry principles and practices. Alberta requires submissions to be validated by a forest management professional as described in Annex 2 of the [Alberta Forest Management Planning Standard](#).

Organization of this Manual

Ground rules are separated into topics and all ground rules are presented in the same format which includes the following parts:

Purpose – a statement of what the topic is designed to accomplish.

Discussion –background information, research knowledge and reasons for the identified topic. The discussion shall focus on why a ground rules is necessary. (Alternative actions or solutions could also be discussed here.)

Best Management Practices – proactive and voluntary practical methods or practices used during forest management to achieve results related to sustainable forest management. Best management practices are provided to identify good planning techniques and procedures that will reduce undesirable impacts of forest management activities on Crown land and its competing resources.

Ground Rules – the regulatory requirements presented as definitive statements of the results to be achieved and a clear indication of what is expected. Ground rules as much as possible are:

- relevant;
- practical;
- based on scientific evidence, traditional knowledge and collective experience;
- flexible and applicable in a variety of ecological conditions;
- measureable;
- clearly presented for consistent interpretation and application;
- supported by technical terminology and definitions; and
- achievable.

4.1 Timber Harvest Planning Requirements

4.1.1 Planning Process {SFP 3.1}

PURPOSE

To establish plans that minimize the chance of negative impacts from roads, timber harvesting and forest management operations including meeting the existing and evolving strategies and objectives from the FMP development process. Where applicable, these strategies and objectives will be documented in the CA.

DISCUSSION

The planning process includes:

1. Approved Forest Management Plan (FMP)
 - Healthy Forest Strategy;
 - Spatial Harvest Analysis (SHS) effective as of May 1, 2017;
 - Approved Long Term Road Network.
2. General Development Plan (GDP) - The GDP gives a comprehensive description of a timber disposition holders proposed harvest strategy, road building plans for a five year period, and reclamation operations for a two year period, and includes all licences and permits. The GDP is used to guide integration of activities (see section 4.1.2).
3. Forest Harvest Plan (FHP) – The FHP is a map and associated report describing the laid out harvest plan (see section 4.1.3).
4. Annual Operating Plan (AOP) – The AOP describes operations in detail through a series of components that may be submitted together or as individual submissions on a schedule approved by Alberta (see section 4.1.4):
 - a) Operating Schedule and Timber Production
 - b) Applicable FHPs
 - c) GDP
 - d) CAs as required
 - e) Reforestation Program
 - g) Road Plan

4.1.2 General Development Plan (GDP) {SFP 3.3}

PURPOSE

To provide a projection of activities for the next five years to:

- Guide the integration of activities;
- Schedule timber disposition administration activities;
- Predict cut control status;
- Co-ordinate the development and reclamation of roads.

DISCUSSION

The primary components of the GDP include a forecast of the areas scheduled for harvest for a five year period, a summary of variance from the SHS by compartment for existing FHPs and long-term road plans outlined in the FMP. The GDP must also include the current status and forecast of the respective annual allowable cuts (AACs) and cut control period for each of the operators within the planning area. This could be either a joint submission by all timber disposition holders or separate submissions containing consistent information between timber disposition holders .

The General Development Plan is the stage in operational planning in which Indigenous Consultation is conducted. Indigenous Consultation shall follow existing Government policy identified in:

[The Government of Alberta's Policy on Consultation with First Nations on Land and Natural Resource Management, 2013](#)⁵.

[The Government of Alberta's Guidelines on Consultation with First Nations on Land and Natural Resources Management, 2014](#)⁶.

[The Government of Alberta's Policy on Consultation with Metis Settlements on Land and Natural Resource Management, 2015](#)⁷.

[The Government of Alberta's Guidelines on Consultation with Metis Settlements on Land and Natural Resource Management, 2016](#)

These documents provide direction on the Indigenous consultation processes.

GROUND RULES

4.1.2.1 The GDP shall be submitted to Alberta on or before May 1 unless otherwise agreed to by Alberta. Alberta shall respond within 30 days. The GDP shall be approved subject to an appraisal by Alberta and once approved it replaces the previously approved GDP. The AOP for the upcoming year/period is covered by the currently approved GDP until replaced by a newly appraised GDP. {SFP 3.3.1}

4.1.2.2 The GDP describes volume supply by areas, road standards and construction and reclamation schedules. The plan is a notification to Alberta of proposed activities and exceptions to guide future regulatory activities. {SFP 3.3.2}

4.1.2.2.1 Other timber disposition holders affected by the GDP agree in writing to the GDP prior to approval (see section 4.2.11). It is the responsibility of the operator to ensure that they do not exceed the allowable cut level as specified in their tenure document.

4.1.2.3 When a major change in a timber disposition holder's general development strategy is proposed after the GDP is received, a revision may be requested by Alberta where the change may affect issuance of dispositions, the orderly review of AOPs, or integration with other forest operators. {SFP 3.3.3}

⁵ <https://open.alberta.ca/publications/6713979>

⁶ <https://open.alberta.ca/publications/3775118-2014>

⁷ <https://open.alberta.ca/publications/policy-on-consultation-with-metis-settlements-2015>

4.1.2.4 The GDP consists of the following: {SFP 3.3.4}

1. Schedules with the following information:
 - a) compartment, license or permit areas to be harvested each year of the next five-year period;
 - b) timber production summary table for all dispositions for the quadrant;
 - c) road corridors showing planning and construction time lines for DLO roads;
 - d) a brief description of issues;
 - e) Variance as per 4.1.6.; and
 - f) Proposed and actual volumes for any satellite yards.
2. A map (of appropriate scale) that shows the following:
 - a) the mill site location;
 - b) satellite yard locations;
 - c) proposed roads;
 - d) the timber dispositions to be operated;
 - e) if not otherwise covered in the schedule above, the general location of routes, dispositions and facilities where reclamation work is scheduled and where roads and watercourse crossings are reclaimed.

4.1.3 Forest Harvest Plan (FHP) {SFP 3.4}

PURPOSE

To describe the laid out harvest and road design.

DISCUSSION

The primary components of an FHP are a map and report that clearly show and document the harvest area boundaries, roads and water crossings for the area of the FHP. The laid out harvest and road design shall be valid for five years from the time of approval, unless issues deemed significant by Alberta arise during this period. Prior to layout, the company and Alberta may have a discussion of proposed activities/issues that could affect harvest planning and scheduling.

GROUND RULES

4.1.3.1 An FHP shall be approved by acceptance if: {SFP 3.4.1}

- a) validated by a forest management professional;
- b) additions are no more than 20% of the area sequenced in the SHS, by compartment per decade;
- c) the harvest area (ha) does not exceed 100% of the total area in the SHS by compartment per decade as tracked in the GDP; and
- d) it adheres to all ground rules as per the FHP checklist (see Appendix 1).

Where the FHP does not meet one or more of the above standards, the FHP shall undergo an appraisal by Alberta. Variances from the SHS shall be reported in the FHP in a format acceptable to Alberta (see section 4.1.6).

4.1.3.2 If a CA was completed, the FHP shall undergo a full Alberta referral and review to ensure the direction in the CA has been implemented. {SFP 3.4.2}

4.1.3.3 FHPs shall be validated by a forest management professional for timber disposition holders who harvest more than 30,000 m³ annually from Crown land. {SFP 3.4.3}

4.1.3.4 Other timber disposition holders affected by the FHP have agreed in writing with the FHP before it is submitted for approval (see section 4.2.11). {SFP 3.4.4}

4.1.3.5 If not otherwise submitted, maps shall show complete and accurate information for the compartment or disposition. {SFP 3.4.5}

This includes:

- a) proposed and laid out cut blocks;
- b) orthophoto or the approved forest inventory;
- c) laid out AOP inter-block (access) roads and Department License of Occupation (DLO) roads for the purposes of timber operations;
- d) current dispositions and reserves (e.g., registered trapline boundaries, permanent sample plot (PSP) locations);
- e) watercourses, waterbodies and their classifications;
- f) identified springs, water source and seepage areas;
- g) locations of access control measures;
- h) planned watercourse crossing locations for channelled watercourse crossings;
- i) current information on previously harvested areas and unless otherwise addressed, existing trails, seismic lines, power lines, pipelines and access routes; and
- j) sensitive wildlife sites as per section 4.2.4

4.1.3.6 Operational information shall be provided in addition to the FHP map.

Operational information includes: {SFP 3.4.6}

- a) area (ha) and coniferous and deciduous volume for each proposed harvest area;
- b) summary table of variances from the SHS for each FHP (see section 4.1.6);
- c) description of how the CA is addressed;
- d) list of watercourse crossing locations for channelled watercourse crossings;

- e) description of integration with other users (see section 4.2.11); and
 - f) description and location of sensitive wildlife sites as per section 4.2.4.; and
 - g) structure retention summary table by opening.
- 4.1.3.7 The company shall follow existing integrated landscape management (ILM) or access development strategies when developing DLO roads. Alberta may approve deviations from these strategies after discussions with the company. {SFP 3.4.7}
- 4.1.3.8 Where not previously addressed, comments have been provided for each harvest area where applicable. {SFP 3.4.8}
- The following shall be considered:
- a) harvest area comments shall be included on the block map form that depicts the laid-out block boundary and road;
 - b) layout bordering and encompassing riparian management zones when different than the standards in section 6.0; either map or describe variance
 - c) layout bordering restricted areas (e.g., PSPs, private land, etc.);
 - d) identification of understory;
 - e) harvest area-specific structure retention and woody debris management strategies;
 - f) tactics to address forest health issues;
 - g) Protection of roadside vegetation where layout is different than that proposed in the SHS;
 - h) important wildlife sites as defined in section 4.2.4 (this information shall be made available for resource planning purposes only through FWMIS);
 - i) site specific historical resource considerations;
 - j) soil protection measures for unfrozen ground timber operations as per 2.13 of Provincial OGR;
 - k) harvest areas within wildlife zones;
 - l) where not otherwise addressed, identification of linear disturbances that may be removed through silvicultural activities.
- 4.1.3.9 Detailed harvest area plans (DHAP) are provided and include the following (in addition to 4.1.3.5, 4.1.3.6 and 4.1.3.8) {SFP 3.4.9}
- a) Areas of steep topography requiring specific road location and construction or specialized harvesting equipment.
 - b) Unstable slopes are generally to be avoided, but if this is not possible, it is necessary to plan operations carefully to minimize impacts.
 - c) Harvest areas with numerous water source areas, waterbodies, seepages, intermittent, or ephemeral watercourses.
 - d) Harvest areas requiring understory protection using protection techniques.
 - e) Harvest areas located near high-value recreation areas, tourism areas, and facilities.
 - f) Partial harvests, excluding commercial thinning (CT) and pre-commercial thinning (PCT).
 - g) When harvesting is used as a tool to control insects and disease infestations.
- The DHAP shall include a map of appropriate scale to the issue(s) and describe how the concern will be addressed in operations.
- 4.1.3.10 The FHP shall consider issues identified (made known) in Community Fire Smart Plans. {SFP 3.4.10}

4.1.4 Annual Operating Plan (AOP) {SFP 3.5}

PURPOSE

To annually authorize all road, harvest and forest management activities for the operator.

DISCUSSION

The AOP articulates in detail the activities proposed for the current year and must be approved by Alberta before timber operations shall commence. The AOP components can be submitted under separate cover and approved independently and include:

- a) Operating Schedule and Timber Production
- b) Applicable Forest Harvest Plans
- c) Compartment Assessments (if applicable)
- d) Reforestation Program
- e) Road Plan
- f) General Development Plan

For timber permit operators and small quota holders who harvest less than 30,000 m³ annually, Alberta has alternate AOP submission requirements.

GROUND RULES

- 4.1.4.1 The AOP shall be submitted on or before May 1 unless otherwise agreed to by Alberta. Alberta shall respond within 30 days. The AOP shall be reviewed by Alberta for approval. {SFP 3.5.1}
- 4.1.4.2 The operating schedule and timber production, reforestation program, fire control plan, and road plan, have been submitted as in 4.1.4.1, unless otherwise agreed by Alberta. {SFP 3.5.2}
- 4.1.4.3 Only harvest areas and roads with FHP approval shall be scheduled for operations in the AOP submission. {SFP 3.5.3}
- 4.1.4.4 The Annual Operating Plan shall contain the following components: {SFP 3.5.4}
 - a) The map(s) referred to in 4.1.3.5 and requested shape files (or other digital format approved by Alberta) of approved FHP harvest areas, inter block roads and or points of watercourse crossings locations;
 - b) Administrative and timber production information:
 - I. name of timber disposition holder(s);
 - II. number of the timber disposition(s);
 - III. date of submission and effective period;
 - IV. location of mill where timber will be manufactured or processed, unless alternative reporting has been approved;
 - V. where all volumes (deciduous and coniferous) will be charged (quota, deciduous timber allocation, FMA, Commercial Timber Permit (CTP));
 - VI. proposed harvest volume to be harvested by the timber disposition holder;
 - VII. Community Timber Program Operators shall include all road use agreements;
 - VIII. scaling methodology, e.g., weigh scale, other arrangements, (not necessary if otherwise submitted);
 - IX. utilization standards;
 - X. declaration or list of land use resource user notifications, and date of notification (see Sec 2.7, 2.9 and 2.10 of Provincial OGR).
 - c) Operating Schedule – a table which outlines:
 - I. list of blocks proposed for harvest (including area and volume by conifer or deciduous, with totals)
 - II. i. List of roads proposed for construction and reclamation (for AOP roads) except in-block roads and access into a block < 100m from existing access. It includes channelled watercourse

crossings to be installed or removed and the following road information unless otherwise agreed to:

-by compartment, and appropriate columns totalled for all compartments:

- road identifier
- road length
- status (active/ deactivated (inactive)/ reclaimed)
- date of construction of road or portion of road completed
- reclamation/deactivation date (proposed or actual)
- access control (yes/no)
- Inspection issues e.g. Non-functioning crossings and timeline for corrective action, erosion, ruts, over 3 yrs and no DLO, etc.

ii. A summary of the above roads proposed for construction or reclamation within the AOP year, including:

- Total km of new road to be built this AOP year,
- Total km of road being proposed to revert from AOP road to DLO road in that AOP year
- Total km of road being proposed in this AOP year to be reclaimed
- Total km of road being proposed in this AOP year to be fully deactivated
- Total km of road being proposed in this AOP year to have seasonal erosion control put in place.

III. i. If not otherwise submitted, in the AOP the forest operator shall submit a table tracking the status of all roads until they are totally reclaimed. The reclamation of these roads shall be done as soon as timber operations are complete or within three years of construction. The table shall include all items in 4.1.4.4 c) II. i. (Above).

ii. A summary of the roads in III. i. (above) containing:

- Total km of existing and/or maintained road
- Total km of road with seasonal erosion control
- Total km of deactivated road
- Total km of reclaimed road
- Total km of non DLO roads greater than 3 years old not deactivated or reclaimed

IV. Declaration of outstanding operational items, or an agreement with Alberta on reporting of outstanding operational items;

V. Debris disposal methodology;

VI. Status of all non-DLO roads over two years old; and

VII. Structure retention summary by compartment

- d) annual reforestation program (see section 4.2.6);
- e) fire control plan;
- f) road plan (see section 4.2.7);
- g) GDP.

4.1.4.5 All amendments to harvest plans must be justified and submitted to Alberta in writing. Forest management professional validation of all amendments is required. Any changes must be incorporated into the as-built plan and/or the annual silviculture report. {SFP 3.5.5}

4.1.4.5.1 Changes meeting the following criteria are considered 'Notifications or Minor Amendments. If not identified in this section, then the change is to be considered a Major Amendment unless otherwise approved by Alberta. Notifications and minor amendments shall not adversely affect buffers established for the protection of riparian areas, wildlife sites, historical resources, or aesthetic values.

Notifications don't require Alberta's approval, provided all appropriate background checks have been made. Changes can be implemented prior to notification but must be reported no later than seven working days after implementation.

Notifications (Reporting Required)

a.	Additions to the approved AOP harvest area boundary where the final gross area does not vary from the area in the approved FHP by more than 5% for blocks greater than 10 ha, or more than .5 ha for blocks less than or equal to 10 ha. (Any resulting variances from the approved SHS must be categorized and tracked as per section 4.1.6).
b.	Changes that trigger AOP administrative amendments including road name, block number or crossing number change.
c.	Introducing a second year AOP block or road into the current year.
d.	Movement of any roads within harvest area boundaries that cause a change in the crossing location over ephemeral or intermittent watercourses.
e.	Inter-block roads (including ephemeral or intermittent watercourse crossings if present) that are moved up to 150 metres from the approved FHP location, or that are moved to existing access or conventional seismic lines where re-growth is less than 3m, provided that no additional intermittent or larger watercourse crossings are required.
f.	Additional road crossing structures on ephemerals and intermittent within harvest area boundaries.
g.	Additional crossing locations required for temporary equipment movement over intermittent watercourses.
h.	Using an alternative route for silviculture access (existing seismic or trail) with no impacts to regeneration or watercourse crossings.
i.	Additional crossing structures on intermittent watercourses.
j.	Road reclamation or deactivation activities not identified in the GDP and/or AOP. Maps and spatial files shall be submitted in the as-built/ report and annual access layer update.

Minor Amendments (Company Validation and Delegated Authority Approval Required)

a.	Inter-block roads that are moved more than two Right-of-Way widths from the approved FHP location, including associated crossings.
b.	Construction of up to 100m of new inter-block access, that connects to an approved access route.
c.	A change to the crossing structure, to a type that is not acceptable as per Table 4 for ephemeral and intermittent watercourses.
d.	Additional decking space outside an approved harvest area that exceeds the amount allowed in 2.15.1 of Provincial OGR.
e.	Movement of FHP approved small permanent crossing location within harvest area boundaries.
f.	Roads and landings within 30m of intermittent or small permanent watercourses; or within 100m of large permanent watercourses.

Minor Amendments – require validation by company and require Forest Officer or Forester (Delegated Authority below) approval prior to implementation. Approval may be by way of formalized letter or via e-mail.

4.1.5 Salvage Planning {SFP 3.6}

PURPOSE

Salvage planning shall be implemented when necessary to reduce the potential for loss of fibre.

DISCUSSION

Under certain circumstances, planning shall be expedited to reduce the loss of fibre from fire, disease or insect infestation, blowdown or other unforeseen disturbances.

Salvage planning shall not be used when:

- a) the disturbance regime is slow moving and can be accommodated under conventional planning timeframes and protocols;
- b) the regime is not an imminent threat to green fibre;
- c) fibre loss is deemed to be within an acceptable range.

Salvage planning does not confer rights to the planner to ignore other values, or the inherent value of a natural disturbance. It does allow for consideration of all values and for prompt, qualified, professional opinion to drive the process. See Directive 2007-01 for further direction on Salvage Planning for natural disturbance.

GROUND RULES

- 4.1.5.1 Salvage planning is initiated on the natural disturbance when deemed appropriate by Alberta. Changes due to natural disturbance events do not trigger a Compartment Assessment (CA). {SFP 3.6.1}
- 4.1.5.2 FHPs for the salvage area must be developed, and shall form part of the AOP. Modified timelines and content for the FHP shall be considered by Alberta. Detailed requirements may be published from time to time by Alberta. It is expected that there will be substantial discussion to resolve significant issues with Alberta before the FHP is submitted. {SFP 3.6.2}

4.1.6 Stand Utilization {SFP 4.1}

PURPOSE

Track variance from the approved Forest Management Plan (FMP) SHS as well as total area harvested in order to:

- Ensure a sustainable harvest level and future forest objectives are maintained
- through operations adhering to the FMP;
- Improve information for the next FMP, (e.g. landbase);
- Make decisions around Forest Harvest Plan Acceptance

DISCUSSION

The *Alberta Forest Management Planning Standard, Annex 1, Section 6.0 Harvest Planning Standards* indicates scheduling of stands through the FMP - SHS is dependent upon the timber merchantability criteria allocated in the disposition holder's tenure document (e.g., FMA, quota certificate) and the management assumptions used in the timber supply analysis (TSA). Pertinent assumptions are comprised of deletions from the net landbase (e.g., subjective deletions, stream buffers, protected areas) and parameters that determine a stand's eligibility for harvest (e.g. earliest age of harvest). The SHS results from the analysis of these TSA inputs coupled with basic field reconnaissance. The SHS identifies spatially (subunit and location) and temporally (period) the queue of stands that will produce the sustainable timber harvest level (AAC) and desired future forest condition.

Adhering to the SHS is imperative to achieving the timber supply forecasts and the forest conditions expected. With increased levels of variance from the SHS, there is greater risk that the operational harvesting will not allow the FMP to realize its objectives and forecasted outcomes. Operational variance is unavoidable but must be effectively managed.

During the FHP planning process, an operator will select an area over which to plan a series of harvest areas (blocks) for a period of up to 5 years. This is considered the FHP planning unit and is typically smaller than an FMA defined compartment or subunit. Within the FHP planning unit, the timber disposition holder will address all the 1-10 year SHS assigned to that timber disposition holder, deciding on either a harvest prescription, or a decision to not harvest at all (deletion) to delay harvest outside the first 10 year period (deferral) or to delay harvest till later in the first period (bypassed stand). Where deletions, deferrals, or bypassed stands consist of entire AVI polygons, specific justification is required.

Variance shall be monitored and reported where:

- **Merchantable Stands** scheduled in the first decade of the SHS are not harvested in that decade; and
- **Special Features** not identified in the FMP net landbase are encountered during layout or harvesting and are deleted from the SHS.

Timber Harvest Planning and Operating Ground Rules require timber operators to protect special features through detailed harvest planning and careful operations. (E.g. riparian buffers, steep slopes, sensitive sites, cultural/heritage sites, areas with high aesthetic value shall be removed from the SHS.)

Disposition holders shall complete **Table 1** as they monitor the operational implementation of their plans against the SHS.

DEFINITIONS

Additions – Any area planned for harvest, or which has been harvested that is not part of the 10 year SHS in the approved FMP. Additions will be divided into two categories: substantial and slivers.

Actual Harvested Area - is the as-built harvested area in the FHP.

Approved FMP 10 Year SHS – Is the total SHS area within the compartment for the first 10 years of the approved Spatial Harvest Sequence.

Deferral – any area included in the 10-year SHS that will not be harvested during the current FMP. Deferrals are not removed from the contributing landbase, as there is an expectation they will be harvested later in a future FMP. Deferrals will be divided into two categories: Substantial or Slivers. Deferrals are those stands or portions of which are operable, not isolated, and should be available under current technological and economic constraints for future harvest.

Deletion - Any area included in the 10 year SHS that will never be harvested under current planning assumptions and technical constraints. This area shall be tracked spatially and removed from the contributing landbase in the subsequent FMP. Deletions are divided into two categories: Substantial or slivers.

Planned Area For Harvest - Is the total area of the SHS laid out in the FHP, and includes the information for all previously approved FHPs (either planned or as-built) information for the same compartment.

Provincial Base 10 Yield Stratum- One of ten Alberta yield stratum defined in the yield projection Interpretive Bulletin in the Alberta Forest Management Planning Standard (AFMPS)

Slivers- any polygon component of variance (addition, deferral or deletion) less than 2ha in size. Generally these are long, narrow features along the edge of a block. Slivers exclude stand-alone features (blocks not bordering or not being adjacent to SHS polygons). Slivers do not contribute to variance calculations but shall be tracked and reported separately. Sliver deletions and sliver deferrals can be aggregated together (e.g. Sliver Deletions & Deferrals)

Subunit or Compartment - Operational subunits of a Forest Management Unit (FMU) delineated by environmental, operational or watershed characteristics.

FHP Planning Unit- Operational subunit of an FMU, delineated by environmental, operational, or watershed characteristics. An FHP is the operational plan for a planning unit, and may be a compartment, sub-unit or an area of a smaller scale. FHP Planning units are discrete, and FHPs for the same operator cannot overlap spatially with the exception of access routes.

Substantial- any polygon component of variance (addition, deferral or deletion) other than Slivers

Variance – any deviation from the 10-year Spatial Harvest Sequence (SHS) in the approved Forest Management Plan (FMP). Variance is classified as one of three categories: Additions, Deletions or Deferrals.

GROUND RULES

4.1.6.1 For the FHP submission, the timber disposition holder shall submit a map to show the comparison of the 1-10 year SHS to the laid out harvest areas. The map shall distinguish using symbology between: {SFP 4.1.1}

- substantial deletions;
- substantial deferrals;
- sliver deletions and deferrals (combined);
- substantial additions; and
- sliver additions.

4.1.6.2 Variance shall be reported by Alberta Base 10 stratum. The table shall include the minimum information as per Table 1. A Forest Harvest Plan will be appraised when additions exceed 20% of planned SHS 1-10 year for the particular FHP (see calculation in 4.1.6.3) by compartment, or when substantial additions exceed the combination of substantial deletions and deferrals by strata. Table 1 shall include cumulative information from all previously approved FHP's in the compartment. {SFP 4.1.2}

4.1.6.3 Variance from the SHS shall be monitored and reported by compartment. The cumulative as-built variance for all FHPs shall be compiled by compartment and reported annually in the GDP (or as otherwise approved by Alberta). The table shall include information as per Table 1 for all compartments operated within the current FMP effective period. {SFP 4.1.3}

Variance shall be calculated using the following:

$$SHS \text{ Variance (Additions \%)} = \frac{\text{Area of Substantial Additions}}{\text{Area of Approved 10 yr SHS}} \times 100$$

- 4.1.6.4 Where stands are added for harvest, preference should be for stands in the 11-20 year period. Stands currently not part of the net landbase that are found to be productive merchantable landbase may be considered for addition. {SFP 4.1.4}
- 4.1.6.5 Entire stands or portions of stands may not be deferred unless they form part of a logical future harvest. {SFP 4.1.5}
- 4.1.6.6 All substantial deletions shall be classified and tracked spatially by the timber disposition holder to allow for incorporation into the subsequent Forest Management Plan net landbase development process. {SFP 4.1.6}

Table 1 SHS Assessment

Harvest Profile	As-Built							Planned for Harvest (ha)	Combined As-Built & Planned																						
	Harvested (ha)			Variance		SHS Assessment (Excluding Slivers)	Variance			SHS Assessment (Excluding Slivers)																					
				Substantial	Slivers							Substantial																			
Compartment Company Specific Yield Strata Provincial Yield Strata Approved DFA 10 Year SHS Operator Approved FMP 10 Year SHS	SHS 1-10yr	SHS 11-20yr	SHS 21-70 Yr	Contributing Landbase Outside SHS	Non-Contributing Landbase	Total	Additions	Deletions	Deferrals	Additions	Deletions & Deferrals	Total	Total Slivers (%)	SHS Variance (Additions %)	Difference in Area (Subst. Add. - D&D)	Difference in Area Total Harvested - 10yr FMP SHS	SHS 1-10yr	SHS 11-20yr	SHS 21-70 Yr	Contributing Landbase Outside SHS	Non-Contributing Landbase	Total	Additions	Deletions	Deferrals	SHS Variance (Additions %)	Difference in Area (Subst. Add. - D&D)	Difference in Area Total Harvested & Planned - 10yr FMP SHS			
100 All All - -	-	-	-	-	-	-	-	-	-	-	-	-	###	0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1A 1 - -	-	-	-	-	-	-	-	-	-	-	-	-	###	0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2A 2 - -	-	-	-	-	-	-	-	-	-	-	-	-	###	0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3A 3 - -	-	-	-	-	-	-	-	-	-	-	-	-	###	0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
:: - -	-	-	-	-	-	-	-	-	-	-	-	-	###	0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: * Deletions and Deferrals to be provided in shapefile format for next FMP

4.2 Operational Ground Rules

4.2.1 Visual Impacts {SFP 5.5}

GROUND RULE

- 4.3.1.1 Highly sensitive areas shall be assessed and tactics shall be employed in the harvest planning process to mitigate the impacts of harvesting and reforestation on visual quality{SFP 5.5.1}

4.2.2 Structure Retention {SFP 7.4}

GROUND RULES

- 4.2.2.1 3.5% of the area harvested (ha) will be retained as representative merchantable (as per utilization standard) structure retention across the FMA. {SFP 7.4.1}
 - 4.2.2.1.1 Harvest areas less than 8 ha may have less than 3.5% retention.
 - 4.2.2.1.2 Harvest areas greater than or equal to 8 ha require a minimum of 3.5% (as per 4.2.2.1).
 - 4.2.2.1.3 Area from both 4.2.2.1.1 and 4.2.2.1.2 will be used to determine if the 3.5% target has been met.
- 4.2.2.2 Retention shall be left as islands (undisturbed patches) or as dispersed (single trees/clumps). {SFP 7.4.2}
 - 4.2.2.2.1 Non-merchantable (as per utilization standard) structure may be retained but will not contribute to the overall 3.5% target.
 - 4.2.2.2.2 Buffers left around sensitive sites (2.8 of Provincial OGR) within harvest areas do not contribute to the overall 3.5% target unless they are islands or dispersed within the harvest area.
 - 4.2.2.2.3 Proximal retention can be left, but will not contribute to the overall 3.5% target, unless is it de-facto insular retention. Specific approval by Alberta required when identifying these contributions.
 - 4.2.2.2.4 Single tree or dispersed retention shall be calculated using the following formula:
$$\text{Area} = (\text{number of live trees/piece size}) / (\text{average volume per ha})$$
- 4.2.2.3 All identified retention will be excluded from harvest for one rotation (based on minimum harvest ages as indicated in TSA). As such, any and all retention must be delineated and identified. {SFP 7.4.3}
- 4.2.2.4 Merchantable volume retained shall be measured and drained from the AAC annually and must be reported to Alberta in an acceptable manner. {SFP 7.4.4}
- 4.2.2.5 All Quota Holders and CTP operators shall submit annual retention summaries to the FMA holder by November 1 in a format acceptable to Alberta. {SFP 7.4.5}
- 4.2.2.6 Buffers established as part of WPS that exceed those prescribed in applicable tables can contribute to the overall structure retention as per OGR 4.2.2.2.3. {SFP 7.4.6}

4.2.3 Fur Management {SFP 5.3}

GROUND RULES

- 4.2.3.1 A representative of the forest operator shall make reasonable effort to verifiably contact the senior partners of a registered fur management area (RFMA) during the preparation of the forest harvest plan. Information such as cabin locations, trails and other improvements, or concerns shall be noted at this stage. During the development of the forest harvest plan, information and concerns shall be integrated into the plan. The forest operator shall provide the trapper with a copy of the approved FHP map. {SFP 5.3.1}

4.2.4 Species of Special Management Concern {SFP 7.7}

Access Management

GROUND RULES

- 4.2.4.1 Where access control has been identified as an objective in strategic land use plans, Alberta shall consult with the forest operator to determine an access control strategy. In the event that a strategic land use plan has not been developed, the FHP shall describe specific access control measures identified in the GDP or FMP (see section 4.1.3). {SFP 7.7.1.1}

Grizzly Bear

GROUND RULES

- 4.2.4.2 Applicable in Key Grizzly Bear Range

The following ground rules apply to areas identified through discussions between the company and Alberta during the planning process. The FHP will include strategies that address potential access management impacts to grizzly bear habitat from harvesting activities. {SFP 7.7.2}

Key Wildlife and Biodiversity Zones

BEST MANAGEMENT PRACTICES

Key Wildlife and Biodiversity Zones{SFP 7.7.3}

- The FMP and SHS shall provide direction on the location/adjacency of harvest areas and retention areas, and on rate of harvest. {SFP 7.7.3.1}
- Use of existing access roads must be described in the FHP, with particular reference to public access management, any proposed road improvements and ongoing maintenance. Potential opportunities for partial or complete route closure and/or reclamation following planned harvesting and silviculture shall be discussed. {SFP 7.7.3.5}
- Unless otherwise agreed to by Alberta, timber operations should be conducted outside of the period January 15 to April 30. Operations that are approved in an AOP are not subject to this timing restriction. {SFP 7.7.3.6}

Goats and Sheep

BEST MANAGEMENT PRACTICES

Every effort should be made within identified critical goat and sheep ranges, to: a) avoid land use disturbances that may have a direct or indirect adverse effect on the behaviour of the animals, b) avoid permanent alteration of physical habitat conditions e.g., meadows and c) minimize permanent access. {SFP 7.7.5}

GROUND RULES

4.2.4.3 As part of the FHP, the company and Alberta shall work jointly to develop mitigation measures required during forest planning and areas for habitat improvement. {SFP 7.7.5.1}

- a) Temporary access shall be used unless approval given for DLO access through a larger access process. Access restrictions shall be in place between operation and silviculture and maintained until the road is reclaimed.

Bull Trout

DISCUSSION

Bull trout are classified as a “Threatened” species under the Alberta Wildlife Act.

Some of the factors that influence the recovery are competitive pressures or hybridization from non-native brook trout, poor inherent Bull Trout habitat and/or connectivity of habitat, natural fish passage barriers or those formed by provincial and resource roads, natural disturbance regimes (eg. floods), and water quality issues.

Landscape level planning is necessary to ensure the availability of effective habitat and managing mortality risk for bull trout. The indicators of suitable landscape conditions for bull trout are quality cold-water habitat, habitat connectivity, and effective access limitations. Specific strategies for landscape planning for bull trout are agreed upon and presented in the FMP. In addition, the high productive capacity of streams will be noted along with other supplemental watershed characteristics, outlined in WPS section 4.2.10.

Disturbance of the stream bed, banks, or riparian areas can decrease the quality of bull trout habitat by increasing sedimentation and altering instream habitat. Stream crossings can restrict the movement of bull trout and prevent access to suitable habitat if improperly maintained and installed. Increased access to bull trout streams can also increase the risk of direct mortality to populations through angling mortality or the introduction of aquatic invasive species or diseases.

4.2.5 Recreation {SFP 5.2}

GROUND RULES

- 4.2.5.1 Operational tactics to mitigate identified impacts on recreation and tourism shall be described in the harvest plan. {SFP 5.2.1}
- 4.2.5.2 Where the need has been identified, opportunities for the enhancement of recognized recreational trail and road systems for recreational sites overlapping planned timber harvests shall be identified in the harvest plan where possible. {SFP 5.2.3}

4.2.6 Reforestation/Silviculture {SFP 8.0}

PURPOSE

To plan and implement silviculture practices that result in reforested stands that meet approved

DISCUSSION

A reforestation program is required by Alberta under TMR 143.1. The reforestation program is a component of the Annual Operating Plan and contains reforestation prescriptions by strata, and a schedule of treatments for the upcoming year. The proposed reforestation program provides a link between reforestation operations and the FMP. The reforestation program must be based on the most current knowledge of treatments (by opening) which lead to reforestation success in terms of reforestation standards. Reforestation prescriptions are a critical point in the sustainable forest management planning system where growth and yield strata targets from the FMP are delivered through well-planned silviculture treatments. Knowledge of how sites respond to different treatments result in better treatments, and greater probability of success in meeting growth and yield strata targets, for height, stocking, density and ultimately, strata volumes.

An acceptable silviculture process includes:

- site assessment (pre or post harvest) based on ecosite classification;
- a prescription table or 'matrix' of silviculture treatments or tactics for specific strata;
- regeneration standards based on yield curve strata targets;
- an annual treatment schedule of activities;
- an assessment/survey system, and feedback mechanisms to ensure regeneration data is used to refine the prescription matrix and, in conjunction with all data sources (including permanent sample plot information), the regeneration standards and post harvest growth and yield assumptions.

4.2.6.1 Planning {SFP 8.1}

GROUND RULES

- 4.2.6.1.1 All harvest areas shall be treated in a manner designed to ensure that the harvest area shall be reforested to the applicable Reforestation Standard of Alberta (RSA) as approved by Alberta. {SFP 8.1.1}
- 4.2.6.1.2 Harvest layouts bordering previously harvested areas shall avoid damaging regeneration. {SFP 8.1.2}
- 4.2.6.1.3 Reforestation timelines prescribed by Alberta shall begin at the start of the timber year following the end of the timber year when the harvest area has received skid clearance from Alberta, or from a company representative pursuant to a self-inspection agreement between the company and Alberta. {SFP 8.1.3}
- 4.2.6.1.4 Reforestation prescriptions shall be based on site assessments (pre or post-harvest) that include considerations specific to the site (e.g., Ecosite field guide for Alberta). {SFP 8.1.4}
- 4.2.6.1.5 The 'Alberta Forest Genetics Resource Management and Conservation Standards (FGRMS) shall be adhered to in all silviculture planning and operations. The

standards specify rules for seed and vegetative material collection, registration, storage, handling, and improved stock testing. {SFP 8.1.5}

4.2.6.2 Reforestation Program {SFP 8.2}

GROUND RULES

- 4.2.6.2.1 The reforestation program shall be submitted: {SFP 8.2.1}
- a) before March 1 for silviculture operations commencing between May 1 and October 31, or
 - b) before September 1 for silviculture operations commencing between November 1 and April 30, or
 - c) as otherwise specified in an FMA, or at a time agreed to by Alberta.
- 4.2.6.2.2 The reforestation program shall include the following components and information: {SFP 8.1.2}

a. Reforestation Strategies and Tactics

The company shall state the silvicultural system (strategy) to be used, and the reforestation tactics for each block to be harvested during the operating period, in the silviculture component of the AOP. This component shall also include the following information.

1.0 Silviculture Strategy:

The silvicultural strategy under which the next timber crop will be re-established:

- Even-aged Cutting systems: clearcut; release cut; seed tree; shelterwood; or sanitation cut.
- Uneven-aged Cutting Systems: CT, group selection; and single tree selection.

2.0 Reforestation Tactics: For each block in the disposition, the specific reforestation choice of tactics or combination of tactics are:

- a) Leave for natural reforestation (seed).
- b) Leave for natural reforestation (root suckering).
- c) Scarify and leave for natural seeding.
- d) No site preparation and artificial seeding.
- e) Site preparation combined with artificial seeding.
- f) No site preparation combined with planting.
- g) Site preparation and planting.
- h) Post-harvest surveying and subsequent tactics; or
- i) Other (specify).

3.0 Inclusions

The silviculture component of the AOP shall include a map with the following information:

- All roads not previously approved in the current AOP and new watercourse crossings to be constructed or used (designating their season of use). Once an approved crossing is removed any replacement crossing required at the same location needs a new approval.

Proposals for herbicide application shall be submitted for approval in accordance with approved vegetation management strategies and Alberta requirements (see Herbicide Reference Manual). Herbicide proposals are a component of the reforestation program in the AOP, but may be submitted separately from the AOP.

CT (Commercial Thinning) proposals shall be submitted for approval as part of the AOP unless otherwise agreed by Alberta, in accordance with Alberta's requirements.

b. Proposed Silviculture Treatment Schedule

The Silviculture Treatment Schedule shall contain the following information:

- opening number;
- reforestation stratum;
- a list of blocks and the estimated area (ha) to be treated;
- season or date of activity shall be provided upon request.

The following proposed reforestation activities for each block (or stand) shall be listed:

- I. Site Preparation – mechanical or chemical treatment;
- II. Planting – notification if outside approved seed zone is provided to Alberta Tree Improvement and Seed Center (ATISC);
- III. Seeding – notification if outside approved seed zone is provided to ATISC;
- IV. Leave for Natural – species;
- V. Manual or Chemical Tending – type (cleaning versus spacing or combination);
- VI. Fertilization;
- VII. Commercial Thinning;
- VIII. Regeneration surveys – establishment and performance;
- IX. Cone/cuttings collection – if unknown, Alberta shall be notified regarding collections as per the (FGRMS);
- X. Let it grow as a retreatment strategy;
- XI. NSR declaration.

Should the proposed reforestation activities for a block change after AOP approval, the following items require notification (as defined in 4.1.4.5.1):

- I. additional blocks to be treated by any means of treatment (excluding herbicide treatment);
- II. Planting of additional openings not listed in the approved AOP (providing the requirements of the FGRMS manual are met);
- III. Substitution of planting stock type, seedlot, species, or density (providing the requirements of the FGRMS manual are met)
- IV. Completing establishment or non-legislated surveys in openings not listed in the approved AOP.
 - A summary of surveys shall be provided in the Silviculture report for use in Forest Operations Monitoring Program planning

Should the proposed reforestation activities for a block change after AOP approval, the following items require a minor amendment (as defined in 4.1.4.5.1):

- Cone collection; felling trees outside of approved block boundaries specifically for the purpose of cone collection

Should the proposed reforestation activities for a harvest area change after AOP approval, the following requires a major amendment to the AOP:

- changing to a treatment not approved in the silviculture strategy table for the specific strata;
- adding herbicide treatment(s).

Example Silviculture Treatment Schedule

Working Circle	Compartment	Block	Opening Number (ARIS)	Planned Tactic	Block Area Ha
3	2	0144	5190472544A	SFN-P	7.5

- a map may be requested by Alberta showing areas to be treated, roads and crossings to be constructed or used if different from the FHP.

4.2.6.3 Silviculture Operations {SFP 8.3}

GROUND RULES

- 4.2.6.3.1 Herbicide, pesticide and fungicide use shall be performed in accordance with Alberta requirements. {SFP 8.3.2}
- 4.2.6.3.2 Site preparation creating linear disturbance patterns, shall be oriented to minimize channelling of water downslope. {SFP 8.3.4}

4.2.7 Road Classification, Planning and Design {SFP 11.2}

GROUND RULES

4.2.7.1 Roads

Road Planning

4.2.7.1.1 Forest operators shall annually submit a road corridor plan and construction schedule in the GDP. The minimum scope of the road construction schedule shall be a five-year forecast with the content requirements being: {SFP 11.2.1.1}

Map showing:

- existing forest operator roads by class;
- other existing roads if the digital information is available;
- proposed forest operator corridors and FHP approved long term roads;
- access control points (see section 2.16 of Provincial OGR).

4.2.7.2 Temporary Roads: with lifespans up to three years from the end of construction shall be included for approval in the FHP and the AOP. {SFP 11.2.2}

Roads and landings shall be planned to avoid:

- a) known unstable soils, water source areas, springs and seepage areas;
- b) creating disturbed, compacted or bared soils that exceed the amount specified in section 2.13 – Soils of Provincial OGR.

4.2.7.3 In the GDP (or AOP), the forest operator shall submit a table tracking the status of all roads over two years old until they are totally reclaimed. The reclamation of these roads shall be done as soon as timber operations are complete or within three years of construction unless otherwise approved. {SFP 11.2.3}

4.2.8 Road Construction, Maintenance and Reclamation {SFP 11.3}

GROUND RULES

- 4.2.8.1 Use of sand and gravel from within the ROW can only be used for company roads directly connected to that ROW. The approval for this is the AOP. {SFP 11.3.2.5}
- 4.2.8.2 Road ROWs shall be cleared according to standards established in Table 3 of Provincial OGR, or conditions of the DLO, road comments, and any additional conditions approved in the FHP. {SFP 11.3.1.2}

4.2.9 Aquatic and Riparian Area Protection {SFP 6.0-Table 2}

GROUND RULES

- 4.2.9.1 Transitional watercourse classification as per 2.17- Table 4 of Provincial OGR will not be used.
 - 4.2.9.1.1 Small permanent watercourses will share the classification attributes of Table 4 with exception that minimum channel width will be 0.5m.
 - 4.2.9.1.2 Intermittent watercourses will share the classification attributes of Table 4 with exception that channel width will be less than 0.5m.

4.2.10 Water Crossings {SFP 11.4}

GROUND RULES

- 4.2.10.1 Unless approved by Alberta, the company shall only construct the crossings as described in Tables 9 and 10 of Provincial OGR. {SFP 11.4.1}

4.2.11 Watershed Protection Strategy (WPS) {SFP 12.0}

DISCUSSION

In order to implement an adaptive approach for the management and protection of riparian values, and in collaboration with GoA staff, SFP has developed an alternative process that is better aligned with riparian function and values, primarily by utilizing a strategy based on an actual, delineated, riparian zone. The WPS allows for a balanced approach to watershed protection, with the employment of available data sources and field assessment of watercourses. Sundre Forest Products has demonstrated that this strategy results in increased protection of riparian value overall, versus the fixed width buffer method. In addition, SFP expects that recent and ongoing research into the role of natural disturbance and the resilience of riparian ecosystems will further advance development of SFP' WPS.

GROUND RULES

- 4.2.11.1 The Ground Rules under the Watershed Protection Strategy (WPS – Section 4.2.11) are only applicable to the FMA Holder. Other Disposition Holders may adopt these with explicit approval from Alberta (Delegated Authority). {SFP 12.1}
- a) As an outcome of implementing the WPS, lower order stream classes (ephemeral, intermittent, and specific small permanent watercourses) are allocated additional protection by retaining riparian vegetation. The description of which process will be followed (2.17 of Provincial OGR or section 4.2.11) for the various identified watercourses is provided in Table 2:

Table 2 Watercourse/waterbody protection approach by classification

Watercourse or waterbody Classification	Watershed Protection
Class A*	100 m, unless otherwise approved
Large Permanent	Provincial OGR Section 2.17
Class C Small Permanent*	30 m unless otherwise approved
Lakes	Provincial OGR Section 2.17
Water Source Areas	Provincial OGR Section 2.17
Oxbow Lakes	Provincial OGR Section 2.17
<u>All other non-classified watercourses</u>	
Small Perm***	OGR Section 4.2.11
Intermittent	OGR Section 4.2.11
Ephemeral	OGR Section 4.2.11

* Mapped portions only as identified on Schedule 5 maps of the Code of Practice for Watercourse Crossings

*** Small permanent, non-Class C

- 4.2.11.2 Riparian protection is established as per Table 2. {SFP 12.3}
- 4.2.11.3 Unmapped or unclassified streams are protected as per Table 2. {SFP 12.4}
- 4.2.11.4 Variances from stated allowable standards in Table 2 must meet be accompanied by rationale that aquatic and terrestrial objectives are met. Any such proposals shall undergo a full review by Alberta prior to being considered for approval. {SFP 6.0.6 and 12.5}

Supplemental Watercourse Information

When riparian zones are examined in the field, at the compartment and harvest block level, additional watercourse attributes will be observed by natural resource professionals. This will help to characterize the watercourse and identify key hydrological and functional attributes. These riparian characteristics are recognizable to natural resource professionals and provide additional information to supplement the dimension-based watercourse classification criteria used in the Tables 4 and 5 of the Provincial OGRs. The supplemental information does not influence the delineation of the riparian area. Rather, it aids in describing both watercourse flow and functional attributes, identifying riparian zone sensitivities in relation to potential impacts of proposed forest management activities, as well as assigning risk in relation to any activities.

The supplemental information may include the following watercourse attributes:

1. Physical Barriers – Natural restrictions to fish passage or man- made barriers like culverts. Typically, vertical (or near vertical greater than 0.75 m) drops. A 10 cm drop on culverts can be considered to be a barrier for poor swimming species. Although some of these effects are seasonal, they can have a long term effect on fish populations.
2. Excessive Gradient – Accelerated flows, limiting or impeding fish passage, particularly during low flow. These are calculated values from DEM data. The upper range of variability would be excessive gradients greater than 7% for greater than 50 m reaches.
3. Amount of Wetlands in the drainage – Storage areas aid in maintaining and regulating seasonal flow.
4. Low Flows – Low flows can lead to extreme temperature gradients, and poor pool depth for seasonal refuge. A primary cause of low flows is a limited number of point sources within a watershed for establishing base flow. A watercourse that regularly experiences low flow is unlikely to sustain a fish population due to the dewatering, and seasonal freezing to the bottom, which is the case for many of the smaller streams.
5. Connection from seasonal and temporal fish assemblages – an assessment of whether a population can migrate or whether it's isolated and temporal.
6. Habitat potential and productive capacity –indication of richness of aquatic habitats to support healthy fish, or to produce the naturally occurring diversity of aquatic organisms upon which fish depend. Typically derived from the 'habitat potential' section of the ACA field assessment data. The watershed drainage area is also calculated as a metric to evaluate the relative productive potential.
7. Stream morphology – Includes stream bed composition (colluvium vs sorted gravels and cobbles), riffle –pool- run ratios, explained by fluvial vs non-fluvial characteristics.
8. Stream side vegetation composition – This takes account of the vegetation (tree, shrubs, forbs, sedges and grasses) that exists along the watercourse and how it adds to productive capacity.
9. Disturbance Regime – history of floods and channel boring events. Fire, wind throw and other stand replacing events along watercourses.
10. Coarse woody Debris Dynamics – Is the wood recruitment regime contributing to habitat.
11. Characteristics of the stream that could degrade culvert performance – hydraulics, stream bed composition, flashiness, icing buildup, etc.
12. Beaver Ecology- Many streams in the R10 FMU suffer from low flows and impermanence of year-round flow, due to lack of storage capacity within the watershed, and many watercourses freeze to the bottom. Low flows and flow impermanence limit the usable area to support productive fish populations and other aquatic biota. The lack of beavers in many FMU watersheds could be due to lack of suitable food source for beaver colonization, or to predation

of incoming beavers. Areas adjacent to low gradient streams, where beavers were historically present, would benefit from more frequent disturbance, allowing renewed production of food sources i.e. deciduous shrubs and trees, for returning beaver populations.

13. Thermal Gradients – Key parameters related to influencing stream temperature (other than low flows as above). These include predominant aspect and slope orientation of stream, bank height, as well as ground water inputs.

These characteristics are important to describe watercourses, in terms of ecological function, and relate field observations to stream classification categories. These characteristics will be described in the FHP.

GROUND RULES

Forest Harvest Plan

4.2.11.5 The following map products will be employed: {SFP 12.7}

- 4.2.11.5.1 A compartment map will present the overall riparian zone. Individual harvest block plans will highlight overlap of the proposed harvest block with the riparian zone.
- 4.2.11.5.2 The additional protection will also be presented on the harvest block maps with associated data in the text.
- 4.2.11.5.3 The pre-layout and post layout riparian zone GIS layers will be provided i.e. a comparison of office Riparian Layer and field-adjusted Riparian Layer
- 4.2.11.5.4 The conventional OGR buffer overlap of the proposed harvest block will be identified on the harvest block plans.

Note: During the FHP layout phase, the riparian layer is updated to reflect field adjustments.

4.2.11.6 Harvest block descriptions and listing will be incorporated in the harvest comments section: {SFP 12.8}

- 4.2.11.6.1 The FHP harvest block listing indicates which harvest blocks have riparian zone entry proposed. The harvest block description includes clear justification and reasoning for any proposed harvest within the riparian zone, and also identifies the portions of each harvest block boundary that are in proximity to specified values in the OGRs (water source areas, mineral licks, etc.). Additional information to clarify the intent and width of the protection zone may be included.

4.2.11.7 The following metrics will be summarized in the FHP: {SFP 12.9}

- 4.2.11.7.1 The total area of riparian zone delineated by SFP in each compartment, as well as the comparative 30 m/ 60 m) fixed width buffer area for the entire compartment.
- 4.2.11.7.2 The total area of additional protection (operable and merchantable) provided for non-classified streams that would not have been protected under the conventional OGR fixed widths within and/or adjacent to proposed harvest areas.
- 4.2.11.7.3 The total area of OGR Fixed Width Buffer Infringement, in hectares.
- 4.2.11.7.4 A breakdown of the area of harvest overlapping with the SFP delineated riparian zone. This is the area of intentional harvest of the riparian zone, rather than the area from overlapping sliver polygons.

4.2.12 Deciduous/Coniferous Integration {SFP 5.1}

GROUND RULES

4.2.12.1 All operators with overlapping conifer/deciduous dispositions within a FHP shall agree (i.e. reviews should focus on potentially integrated operational items, including adherence to operator-assigned SHS, access management, and timing restrictions, as examples) to the FHP and GDP before approval is granted. {SFP 5.5.1}

The proponent shall provide the FHP and GDP to all operators with an overlapping timber disposition in the area at least 30 days in advance of submission to Alberta. In the absence of any response from the operators with overlapping timber rights, agreement shall be considered to have been given 30 days after the date of transmission.

In the event that agreement cannot be reached among the overlapping timber disposition holders, the operators will each provide a written rationale of why agreement could not be reached to the Delegated Authority. Within 30 days of receiving the written rationale from all companies, the Delegated Authority will provide a decision which may include: 1) direction on areas of disagreement through approval conditions, 2) withholding of approvals to one or more parties until agreement can be reached.

4.3 Monitoring and Reporting

GROUND RULES

- 4.3.1 Summary information submitted annually as per 3.15 of Provincial OGR must be in a format mutually agreed to by the companies and the Rocky Mountain House Forest Area.

Glossary

Acceptable species

List of tree species contributing to approved AACs, identified in the FMP approval decision.

Access roads

Access roads are those roads that are between harvest areas and have a lifespan of less than three years. The timeline shall begin at the start of the timber year following the end of the timber year when the harvest area has been declared as skid cleared by the timber disposition holder.

Adverse effects

Impairment of or damage to the environment, human health or safety, or property;

Adverse ground conditions

Situations where active operations or activities result in environmental damage to the land such as but not limited to, erosion, soil compaction or soil rutting.

Annual allowable cut (AAC)

The volume of timber that can be harvested under sustained-yield management in any one year, as stipulated in the pertinent approved forest management plan. In Alberta it is the quadrant cut divided by the number of years in that quadrant, usually five.

Annual operating plan (AOP)

A plan prepared and submitted by the timber disposition holder each year, which provides the authorization to harvest. An AOP is a requirement of the Timber Management Regulation.

Approval

Issued by Alberta. The approval decision is prepared outlining significant items considered in plan approval and outlining conditions to be met within specified time periods by the timber disposition holder or a decision made by Alberta on an AOP.

As built

An opening number accompanied by a spatial depiction of the harvest area generated either from cutover photography or from GPS technology capable of 3 m or better accuracy

Audit

An official examination and verification of records, activities, accounts, actions, operations, etc., against stated standards of performance and compliance.

Bared soil

Any soil where the organic layers and vegetation have been removed.

Biological diversity (biodiversity)

The variety, distribution and abundance of different plants, animals and microorganisms, the ecological functions and processes they perform, and the genetic diversity they contain at local, regional or landscape levels of analysis.

Biodiversity has five principal components:

Genetic diversity (the genetic complement of all living things)

Taxonomic diversity (the variety of organisms)

Ecosystem diversity (the three-dimensional structures on the earth's surface, including the organisms themselves)

Functions or ecological services (what organisms and ecosystems do for each other, their immediate surroundings and for the ecosphere as a whole, i.e. processes and connectedness through time and space)

The abiotic matrix within which the above exists, with each being interdependent on the continued existence of the other.
[Dunster]

Borrow pit

A small quarry or excavation, which provides material for use in the construction project.
[Revised from Dunster]

Buck

To cut a felled or downed tree into shorter lengths.

Buffer

1. In protecting critical nesting habitat areas, the buffer is an area of forest land that reduces the impacts of adjacent activities on the critical area. The dangers associated with adjacent disturbances might include wind-throw or wind damage to nest trees and young birds in the nest, increased predation and loss of interior forest conditions.

2. A strip of land between two areas under different management regimes. Pesticide buffer zones are used to limit the possible drift, run-off or leachate of pesticide from a site into other areas, such as waterbodies or creeks. Streamside buffers are used to limit the effects of logging on creeks, such as siltation, loss of shading, loss of nutrient inputs from trees and degradation of riparian zones. The size and composition of the buffer zone depends on its intended function.

3. An area maintained around a sample or experimental plot to ensure that the latter is not affected by any treatment applied to the area beyond the buffer.

4. In GIS work, a new polygon computed on distance from a point, line or existing polygon.

5. In managing biosphere reserves, an area or edge of a protected area. Examples of compatible activities might include tourism, forestry, agroforestry, etc. The objective of the buffer zone is to provide added protection for the core reserve area. [Dunster]

College/Association

The Alberta Association of Forest Management Professionals (AAFMP). Formerly the College of Alberta Professional Foresters (CAPF) and the College of Alberta Professional Forest Technologists (CAPFT).

Commercial thinning

A partial cut where trees of a merchantable size and value are removed to provide an interim harvest while maintaining a high rate of growth on the remaining, well-spaced, final crop trees. Used to capture volume likely to succumb to competition pressures and be lost to forest health damaging agents.

Commercial timber permit (CTP)

A timber disposition issued under Section 22 of the *Forests Act* authorizing the permittee to harvest public timber.

Compaction

A transfer of wheel pressure to soils causing collapse of large air-filled pores, a type of disturbance when tire imprint is often invisible under the duff layer. Soil susceptibility to compaction is maximal when soil is at field capacity, which can be detected by stability of hand cast. Most of soil compaction occurs during the first passes of equipment because soil gains strength with each additional pass.

Compartment

Subset of the FMU used for tracking and reporting SHS variance. Also referred to as stewardship reporting compartment.

Connectivity

A measure of how well different areas (patches or a landscape are connected by linkages, such as habitat patches, single or multiple corridors, or "stepping stones" of like vegetation. The extent to which conditions among late successional/climax forest areas provide habitat for breeding, feeding, dispersal and movement of late successional - or climax-dependent wildlife or fish species. Natural landscapes often tend to be better connected than those that have been heavily influenced and disturbed by human activities. Consequently, there is a body of opinion that the best way to avoid fragmentation of landscapes is to maintain, or re-establish, a network of landscape linkages. At a landscape level, the connectivity of ecosystem functions and processes is of equal importance to the connectivity of habitats. [Dunster]

Corrective actions

May include one or more of the following:

Direct that the work be corrected and re-submitted.

Carry-out an appropriate enforcement response.

For regulated forestry professionals, file a formal complaint with the Association of Alberta Forest Management Professionals.

Corridor

1. A physical linkage connecting two areas of habitat and differing from the habitat on either side. Corridors are used by organisms to move around without having to leave the preferred habitat. A linear habitat patch through which a species must travel to reach habitat more suitable for reproduction and other life sustaining needs. Many corridors, linking several patches of habitat, form a network of habitats. The functional effectiveness of corridors depends on the type of species, the type of movement, the strength of the edge effects and its shape.

2. An area of uniform width bordering both or one side of a lineal feature, such as a stream or route. [Dunster]

Cross-drainage structures

Culverts or other drainage structures that permit water to move from one side of a road to the other, normally under the road grade.

Deactivation

Taking a road out of active use through implementation of erosion control measures, road blocks and/or other methods.

Deciduous timber allocation (DTA)

A timber disposition issued under Section 22 of the *Forests Act* authorizing the permittee to harvest public deciduous timber.

Delegated authority

The Government of Alberta personnel located at the regional or area level charged with supervision of all forest management activities in

a defined region or area. It can also mean someone who is authorized to approve an AOP.

Deleterious material

Any substance that, (a) if added to water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, or (b) any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water. [Section 34(1) of the *Fisheries Act*]

Department License of Occupation (DLO)

A disposition issued by Alberta under the *Public Lands Act* authorizing occupation of a linear corridor, often for an access road.

Designated Trail

A Designated Trail means a trail designated under section 4(1)(a) or (b) of the *Trails Act* (which will take effect May 1, 2022).

Displaced soil

Mixed mineral, surface and sub-surface horizons that have been deposited off the road or disturbed surface to a depth of 15 cm or greater.

Disturbance patterns

The spatial and temporal arrangement of disturbances.

Ditch blocks

Barriers constructed across ditches to retard water flow, to redirect water from the ditch or to form a small catch basin.

Drought

Extended period of below average precipitation causing a lowering of the water table. Generally occurs over several years but locally may happen

seasonally. Signs would be lowering of lake levels and drying of streams that would normally flow all year.

Due diligence

May include one or more of the following:

Taking and documenting steps to ensure that the desired outcome is achieved or that the chances of a negative consequence or outcome is minimized.

Ensuring completeness, correctness, consistency and repeatability.

Demonstrating how conclusions were reached.

Using mechanisms, such as but not limited to checklists and standard operating procedures, to demonstrate that appropriate procedures were followed and to ensure that no relevant steps or considerations were missed.

Keeping and maintaining appropriate files and filing systems as well as document retention policies and practices.

Duff layer

The organic horizons of the soil profile (LFH). Commonly referred to as the forest floor.

Ecological integrity

The quality of a natural, unmanaged or managed ecosystem in which the natural ecological processes are sustained, with genetic, species and ecosystem diversity assured for the future. [Dunster]

Features

The features represented on a map which describe the physical aspects of the harvest design e.g. harvest area boundaries, roads, buffers, wildlife habitat.

Fish passage

Free transit of fish, upstream and downstream, associated with migration or localized movements that are necessary to complete their life cycle. Depending on the context, fish passage is also a route for fish to move between habitat types.

Forest Area Manager

The senior Alberta manager located at a forest area charged with supervision of all forest management activities in a forest area. It may also mean someone else who is authorized to approve an AOP.

Forest health

A condition of the forest; a forest is considered healthy if it can sustain itself to meet the specific forest land management objectives of today or in the future.

Forest health damaging agents

Biological, physiological and environmental agents that have an adverse effect on the health of the forest. These agents include insects, nematodes, micro-organisms (viruses, bacteria, fungi), parasitic plants, mammals, birds, and non-infectious disorders caused by climate, soil, applied chemicals, air pollutants and other physiographic conditions. Previously referred to as insects and diseases.

Forest management activities

Includes all aspects of operational planning, timber operations, road work, monitoring and reporting of timber operations. Essentially all activities during FMP implementation.

Forest management agreement (FMA)

A contract between the province of Alberta and the FMA holder whereby the province provides an area-based Crown timber supply. In return, the FMA holder commits to the following:

Managing the timber resource on a perpetual sustained yield basis.

Taking into consideration a broad range of forest values in determining forest management practices.

Meeting defined economic objectives, including capital investment and job creation.

Seeking out new business opportunities that provide measurable economic benefits for both the province and the FMA holder.

The FMA gives the FMA holder the right to access Crown fibre. In return, the FMA holder commits to forest management responsibilities, which may change from time to time.

Forest management professional

A regulated member of the Association of Alberta Forest Management Professionals on one of the following registers:

Registered Professional Forester (RPF)

Registered Professional Forest Technologist (RPFT)

Registered Professional Forester Conditional (RPF-C)

Registered Professional Forest Technologist Conditional (RPFT-C) [AAFMP]

Forest management plan (FMP)

A long-term plan used to outline higher-level management objectives, sustainability and timber production assumptions for a forest management agreement (FMA).

Forest management unit (FMU)

An administrative unit of forest land designated by the Minister, as authorized under Section 14(1) of the *Forests Act*.

Forest officer

An employee of Alberta appointed in accordance with the *Public Service Act*⁸ who represents the Minister in the administration of the *Forests Act*, the *Timber Management Regulation*, the *Public Lands Act*, and the Forest and Prairie Protection Act and Regulations on public forested lands.

Forests Act

The legislative statute that authorizes the Minister to administer and manage the forested lands of Alberta.

Full review

An evaluation of the acceptability for approval of a submitted document involving referrals to government departments, independent experts or

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<https://www.qp.alberta.ca/1266.cfm?page=p42>

others as appropriate, and a risk analysis prior to Alberta granting approval to the submitting timber disposition holder.

Ground rules

Standards for operational planning and field practices that must be measurable and auditable and based forest management plan objectives.

Guideline

A preferred or advisable course of action respecting land and resource management. Guidelines imply a degree of flexibility, based on administrative judgment or feasibility of applying the guideline, and are consequently not normally enforceable through legal means.

Harvest area

Treed areas harvested, usually in one season, for the purpose of obtaining wood for the production of various wood products such as lumber and pulp. A specified land area with defined boundaries where timber harvesting is scheduled, or has occurred. Also referred to as a block, cutblock or opening.

Hiding cover

See "sight distance."

High water mark

Stream course water levels corresponding to the top of the unvegetated channel or lakeshore.

Harvest area design

The stands identified for harvest that meet forest management objectives in the absence of a SHS.

Harvest level

A volume or area of timber determined through timber supply analysis available for harvest on an annual sustainable basis within a DFA. A harvest level is not an AAC unless approved by the Minister.

[.cfm&leg_type=Acts&isbncln=9780779828074&display=html](https://www.qp.alberta.ca/1266.cfm?page=p42)

Harvest roads

Temporary roads located within a harvest area. Formerly referred to as in-block roads.

Inoperable

Classification of a forest site based on the potential to harvest timber on that site, as affected by physiographic characteristics, moisture regime and harvesting equipment/technology.

Integrated resource management (IRM)

IRM is an interdisciplinary and comprehensive approach to decision making for the management of natural resources. IRM integrates decisions, legislation, policies, programs and activities across sectors to gain the best overall long-term benefits for society and to minimize conflicts. This approach recognizes that the use of a resource for one purpose can affect both the use of a resource for other purposes and the management and use of other resources. IRM is based on:

- Co-operation, communication, co-ordination and the comprehensive consideration of all resource values. This philosophy is centered on the belief that efforts to manage natural resources will be more successful if they are co-ordinated at all levels within government; and

- Appropriate consultation before action.

 - Those who are significantly affected by a decision should have the opportunity to participate in the decision-making process.

Integrated resource plan

A regional plan developed by provincial government agencies in consultation with the public and local government bodies. It provides strategic policy direction for the use of public land and its resources within the prescribed planning area. It is used as a guide for resource planners, industry and publics with responsibilities or interests in the area.

Interests

The wants, needs, concerns and desires of each party that provide motivation to be concerned about an issue or topic.

Issue

The topic to be discussed. The problem to be solved. The theme of the discussion.

Laid out

Field assessment of harvest areas and roads (on the ground) required prior to submission of AOP; also includes the delineation/marketing of both harvest area boundaries and roads on the ground. Examples of delineation/marketing include but are not limited to: ribbon, paint or other means approved by Alberta.

Landing

Any area where logs are gathered for processing or further transport to a mill site.

Landscape

A landscape (or LMU) is a heterogeneous area in which the pattern of the mosaic of local ecosystems or land uses is repeated in similar form throughout kilometres wide area (after Forman 1986). Landscapes may coincide with a climatic, physiographic or ecological boundary; however, landscapes are not strictly ecologically based and include human use and modification of the area.

Large residual tree

A residual tree with a diameter measured at breast height (DBH) greater than the approximate average merchantable tree DBH of the harvest area.

Logfill

Water crossings constructed with logs placed in a channel, bed or on landscape parallel to the flow of the water.

Mass-wasting

Movement of large masses of land, soil or regolith (i.e., slumping, landslides, rock slides and massive undercut erosion).

Mature stands

Stands that have reached rotation age or have a decreasing growth rate.

Natural variation of the landscape

For the purpose of harvest planning, is the range of stand polygon sizes prior to harvest within the compartment boundary.

Operational plan

Any of GDP, AOP, or reforestation program.

Pattern

The arrangement of forest stands or harvest units.

Permanent roads

Roads that will be in use for more than three years issued under a *Public Lands Act* disposition (LOC or DLO).

Pre-commercial thinning

A silvicultural treatment to reduce tree density in young stands, carried out before the stems reach merchantable size. The intent is to concentrate the site's growth potential on fewer trees thereby accelerating stand development and reducing the time to final harvest, retaining more live crown, creating opportunities for future commercial thinning activities and improving stand operability.

Provincial Base 10 strata

An Alberta-wide standardized classification of forested stands with ten categories based on tree species composition. Also referred to as minimum strata. Assignment rules provided in the Yield Projection Interpretive Bulletin of the *Alberta Forest Management Planning Standard*.

Quota

The timber quota is a share of the allowable cut of coniferous timber within a forest management unit.

Reclamation

Permanent removal of water crossings; re-contouring of road crown and ditches; reseeding or planting of the former ROW.

Recreation site

Includes areas designated by Alberta as ecological reserves, wilderness areas, wildland parks, provincial parks, heritage rangelands, natural areas and recreation areas.

Reforestation

Any operation involving seed management; seedling production; site preparation; tree planting; seeding; regeneration or reforestation surveying; stand cleaning; stand tending; stand thinning; tree improvement; fertilization; drainage; pruning or site analysis that is carried out in the course of forest renewal.

Reforestation strategy table

For each managed stand yield stratum plus each operational stratum identified in an FMP, outlines the desired future forest condition and the series of harvest, reforestation and maintenance treatments expected to be followed in order to attain the desired outcome. Details the typical silviculture prescriptions to be implemented operationally in order to meet reforestation standards and create the desired future forest, and identifies strategies for minimizing the effects of site and climatic limitations on survival and productivity of seedlings. Previously referred to as the silviculture matrix.

Regeneration

The renewal of a tree crop by natural or artificial means. It may also refer to the young crop itself.

Reserve

In its strictest sense, an area of land designated as being off-limits to any exploitive activities that might change the nature of the area. Not all reserves are so tightly controlled. [Dunster]

Residual structure

Standing structure that is taller than 2 m, within a harvested area. Areas buffered for sensitive ecological or wildlife habitat may be included for residuals. Required buffers for lakes and small and large permanent streams are not included. This includes non-merchantable trees and shrubs, live merchantable trees, snags and stubs.

Residual tree

A live canopy tree that is spatially within a harvested area. Areas buffered for sensitive ecological or wildlife habitat may be included for residuals. Required buffers for lakes, small and large permanent streams are not included.

Resources

Physical and intrinsic features of the land, including but not limited to timber, wildlife, water and soil.

Review

Acceptance or appraisal conducted by Alberta.

Right-of-way (ROW)

A cleared area, usually linear, containing a road and its associated features such as shoulders, ditches, cut and fill slopes, or the area cleared for the passage of utility corridors containing power lines or over- or under-ground pipelines.

Typically, the right-of-way is a specially designated area of land having very specific rights of usage attached. Rights-of-way may be owned by someone else. [Dunster]

Riparian area or management zone

1. Riparian areas on public land are the vegetation zones next to flowing and standing water bodies (e.g., rivers, lakes, sloughs). They are found in all natural regions of the province, from the prairies and foothills to the boreal mixed wood region. [GOA, 1997]

2. Terrestrial areas where the vegetation complex and microclimate conditions are products of the combined presence and influence of perennial and/or intermittent water, associated high water tables and soils that exhibit some wetness characteristics. Normally used to refer to the zone within which plants grow rooted in the water table of these rivers, streams, lakes, ponds, reservoirs, springs, marshes, seeps, bogs and wet meadows. The riparian zone is influenced by, and exerts an influence on, the associated aquatic ecosystem. [Dunster]

Road work

All aspects of road planning, design, construction, maintenance and reclamation.

Rotation

The period of years required to establish and grow even-aged timber crops to a specified condition of maturity.

Ruts

Machine depressions in the soil which are determined by depth and length:

Depth - where the depth of the organic dark humus material is greater than 30 cm, a rut is a depression that shears the organic layer of soil (a sheared organic will expose a vertical face greater than 20 cm of the organic layer). Where the depth of the organic material is less than 30 cm, a rut is a depression exceeding 10 cm into the mineral soil.

Length - An impacted area meeting the rut depth criteria that is greater than 4 m long. A continuous track with a rut less than 4 m because of stumps, logs or rocks lifting the vehicle will still count as a rut if the total length of the smaller holes is greater than 4 m.

Rutting/puddling

A paste-like behavior of wet soil when most of the soil pores are filled with water and soil literally flows from underneath the wheel to the sides and upward forming visible tire imprint into the mineral soil. Intensity/depth of rutting is directly related to the number of equipment passes. Soil is considered susceptible to rutting when it forms a stable hand cast.

Sensitive soil site

Any site that may be prone to soil movement, soil erosion, mass wasting or siltation due to steep slopes, wet ground, seepage areas, springs, fine textured soils or soils prone to mass wasting.

Sight distance

The distance at which 90 per cent or more of an adult big game animal is hidden from the view of

a human. This distance may vary from one stand to another.

Silt fence

Permeable fabric barriers installed along the contour to filter surface water runoff and trap sediment from sheet or overland flow and prevent it from entering streams.

Silviculture activities

Planting, seeding, site preparation, vegetation management, fertilization and all other activities undertaken to establish and grow forests to achieve specified management objectives, needs and values.

Silvicultural systems

Systems that follow accepted silvicultural principles, whereby the tree crops are tended, harvested and replaced to produce a crop of a desired form. This includes even-aged (i.e. clearcutting, shelterwood or seed tree cutting) or uneven-aged (i.e., selection cutting) systems. A planned program of silviculture treatments over the life of a stand, it includes the harvesting and the follow-up tending to the next rotation. [Smith, 1986]

Silviculture

The theory and practice of controlling the establishment, composition, health, structure and growth of forests in order to achieve specified management objectives.

Site preparation

Any action taken in conjunction with a reforestation effort (natural or artificial) to create an environment favourable for survival of suitable trees during the first growing season. This environment can be created by altering the ground cover, soil or microsite conditions; using biological, mechanical or manual clearing; prescribed burning; herbicides or a combination of methods. [Dunster]

Skid trail

An unimproved temporary forest trail suitable for use by equipment such as bulldozers and

skidders in bringing trees or logs to a landing or road.

Small patch of residual trees

A patch of less than 0.2 hectares of undisturbed canopy forest surrounded by harvested area. The patch must be composed of at least four canopy trees. At least two of the trees in the patch should be large residual trees.

Snag

A standing dead tree that is taller than 2 metres.

Soil displacement

A loss of nutrient-rich organic layers, and top mineral soil as a result of harvesting activities. Bare mineral soil is susceptible to raindrop impact causing soil crusting, increased surface runoff, and erosion.

Soil disturbance

In the context of the five per cent maximum allowable area within a harvest area, includes bared landing areas, temporary roads, displaced soils or ruts. Includes: forest floor layers missing; evidence of surface soil removal, gouging and piling surface soil displaced; surface soil may be mixed with subsoil; and/or subsoil partially or totally exposed.

Soil productivity

The capacity of a soil to provide for growth.

Spatial Harvest Sequence (SHS)

The areas scheduled for timber harvesting for the first 20 years. Provided in the FMP.

Species at risk

Any species known to be "at risk" after formal detailed status assessment and designation as "Endangered" or "Threatened" in Alberta. The list of species at risk is maintained by Alberta.

Species group

Conifer or deciduous.

Species of management concern

Species within the forest management planning area that have an identified value (social, economic, ecological) and are managed to

ensure their continued protection and/or use. This includes species that are hunted or trapped, as well as those that are endangered or threatened.

Stand

A community of trees sufficiently uniform in species, age, arrangement or condition as to be distinguishable as a group in the forest or other growth in the area. A stand may also be that polygon as defined in the AVI or Phase III inventory.

Stub tree

A large residual tree that has been “topped off” at approximately 6 m (may be less) to create an artificial snag.

Sustainable forest management (SFM)

Management to maintain and enhance the long-term health of forest ecosystems, while providing ecological, economic, social and cultural opportunities for the benefit of present and future generations.

Temporary field authorization (TFA)

An authority issued under Section 19 of the [Public Lands Act](#) by an Alberta officer to grant short-term land use activities on public land in the White Area or Green Area. The TFA may or may not be related to an existing disposition that has also been issued under the [Public Lands Act](#). The concept is to provide field-level service to an applicant, with access to public land for a specific purpose/use/activity, for a term of less than or equal to one year.

Temporary road

Roads that are part of a harvest area or that connect harvest areas, and are built, used and reclaimed before expiry of the Annual Operating Plan (AOP) or reclaimed within three years of construction.

Temporary planting camp

Camp established to facilitate planting activities. Lifespan of the camp is less than 12 months.

Thermal cover

Generally, an area of at least 10 ha having a coniferous canopy at least 10 m in height, with at least 70 per cent crown closure and a minimum width of 200 m. This cover is used by animals to assist in their temperature regulation during extreme weather conditions.

Timber disposition

Harvesting rights in Alberta are granted through one of three forest tenure systems: forest management agreement, timber quota and Timber permit.

Timber disposition holder

Refers to the company that has a timber disposition.

[Timber Management Regulation](#)

The legislative statute that describes the mechanism and regulations by which the forested lands of Alberta are managed. The Regulation is associated with the [Forests Act](#).

Timber operation

Any kind of activity involved in cutting, removing, harvesting, manufacturing, transporting or marketing timber or primary timber products, or reforestation.

Trapper

The Senior License Holder of a trapline in a Registered Fur Management Area.

Understory

The trees and other woody species growing under the canopies of larger adjacent trees and other woody growth. [Dunster]

Unstable slope

Slopes of loose or poorly consolidated materials beyond the angle of repose, geological features having a high probability of failure, or soils that will not support loads.

Water regime

Timing of water flow.

Water source area

That portion of a watershed where soils are water-saturated and/or surface flow occurs and contributes directly to streamflow. The area of saturated interflow associated with a stream.

Waterbody

The bed, bank or shore of a lake, pond or other natural body of standing water, whether it contains or conveys water continuously or intermittently.

Watercourse

The bed, bank or shore of a river, stream, creek or other natural body of flowing water, whether it contains or conveys water continuously or intermittently.

Watershed

An area of land, which may or may not be under forest cover, which drains water, organic matter, dissolved nutrients and sediments into a lake or stream. The topographic boundary, usually a height of land, that marks the dividing line from which surface streams flow in two different directions. [Dunster]

Wetland

Land saturated with water long enough to promote wetland or aquatic processes as indicated by the poorly drained soils, hydrophytic vegetation, and various kinds of biological activity that are adapted to a wet environment. According to the [Alberta Wetland Policy](#), wetlands are classified as one of marsh, bog, fen, swamp or open water wetland.

Wildlife

Any species of amphibian, bird, fish, mammal and reptile found in the wild, living unrestrained or free roaming and not domesticated. Some definitions include plants, fungi, algae and bacteria. [Dunster]

Wildlife corridor

A strip of forest with a minimum width of 100 m or a series of forest retention patches that connect two forested areas. These may include merchantable or unmerchantable stems.

Wildlife zone

As defined on Alberta's Wildlife Sensitivity maps.

Windfirm boundaries

Harvest area boundaries established at locations that are stable and that minimize the potential for timber losses from wind.

Sources

AAFMP – Association of Alberta Forest Management Professionals

Dunster, J. and K. Dunster, 1996. Dictionary of natural resource management. UBC Press, Vancouver, B.C.

GOA – Government of Alberta, 1997. About public lands. Managing Riparian Areas.

Smith, D.M. 1986. The practice of silviculture. John Wiley and Sons. New York, N.Y., pp. 329-

Appendix 1 FHP and AOP Checklists

Forest Harvest Plan Checklist																						
Area _____ Company _____ Submission Date _____	Disposition Number _____ Date Disposition Issued _____ Date Disposition Expires _____																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">APPROVAL ITEM</th> <th style="text-align: center;">Yes/No (Company)</th> <th style="text-align: center;">INITIAL/DATE (ESRD)</th> </tr> </thead> <tbody> <tr> <td>Validated by a RFP</td> <td></td> <td></td> </tr> <tr> <td>Planned SHS Variance <20% compartment/decade</td> <td></td> <td></td> </tr> <tr> <td>Sum of proposed area to harvest and previously harvested area does not exceed 100% of the SHS area</td> <td></td> <td></td> </tr> <tr> <td>Compartment Assessment required</td> <td></td> <td></td> </tr> <tr> <td>Adheres to all Ground Rules</td> <td></td> <td></td> </tr> </tbody> </table>	APPROVAL ITEM	Yes/No (Company)	INITIAL/DATE (ESRD)	Validated by a RFP			Planned SHS Variance <20% compartment/decade			Sum of proposed area to harvest and previously harvested area does not exceed 100% of the SHS area			Compartment Assessment required			Adheres to all Ground Rules						
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Planned SHS Variance <20% compartment/decade																						
Sum of proposed area to harvest and previously harvested area does not exceed 100% of the SHS area																						
Compartment Assessment required																						
Adheres to all Ground Rules																						
Administrative Considerations																						
<ul style="list-style-type: none"> • Copies of FHP to: <ul style="list-style-type: none"> - Senior Forester - Forest Officer - Fish & Wildlife - Other • FHP consistent with approved higher order plans (DFMP, SHS, GDP) • Other forest operators affected by the FHP have agreed in writing with the FHP before it is submitted for approval • Required disposition been issued and is active • FHP complete and legible <ul style="list-style-type: none"> - maps - block tables - detailed block plans where requested - contingency plans • Additional requirements as per regional OGR <ul style="list-style-type: none"> - approved SHS & variances - proposed and laid out cut blocks - orthophoto or the approved forest inventory - laid out class I – IV inter-block roads and Department License of Occupation (DLO) roads for the purposes of timber operations - current dispositions and reserves (e.g., registered trapline boundaries, permanent sample plot (PSP) locations) - watercourses and their classifications - identified springs, water source and seepage areas - locations of access control measures - planned watercourse crossing locations for channelled watercourse crossings - current information on previously harvested areas and unless otherwise addressed, existing trails, seismic lines, power lines, pipelines and access routes - sensitive wildlife sites as per section 7.7.4 • Additional comments as per 3.3.10 • Detailed harvest area plans as per 3.3.11 	Company (Y,N,N/A)	Company Comments (optional)	ESRD (Y,N,N/A)	ESRD Comments (optional)																		
Ground Rule Deviations - Complete if answered "NO" to above																						
<ul style="list-style-type: none"> • All the blocks containing ground rule deviations been identified • Explanation and justification has been provided for all ground rule deviations 																						
Integration with Other Users.																						
<ul style="list-style-type: none"> • If the plan is not integrated, explanation and justification has been provided • Recipient of incidental volumes and chargeability has been identified • Trappers been identified and contacted • Trapper cabins, trails and other improvements have been identified and integrated into the plan • Recreational groups have been identified and contacted where issues have been observed • Grazing disposition holders have been contacted (Directive 2006-01) • Known Historical sites have been identified and integrated into plan • Any issues raised by other users or the public regarding this plan have been documented • Potential land use conflicts have been documented and mitigated (PNT, CNT, road use agreements, etc.) 																						

Access Management			
· Access management including control measures have been described and identified (location and methods)	_____	_____	_____
Sensitive Sites			
· Aesthetic concerns addressed as per 5.5	_____	_____	_____
· Recreation concerns addressed as per 5.2	_____	_____	_____
· Water source areas have been identified and potential impacts mitigated	_____	_____	_____
Road Design			
· Location and road class of corridors have been identified	_____	_____	_____
· Existing access/DLOs which have been integrated into the plan have been identified on the map	_____	_____	_____
Wildlife			
· Wildlife zones within the planning area are identified and addressed (as per OGR Section 7.7)	_____	_____	_____
· Harvest areas with timing restrictions identified	_____	_____	_____
· All known sensitive wildlife sites have been identified and treated as per 7.7.4.2	_____	_____	_____
Insect, Disease & Fire			
· FHP complies with direction provided in Community Firesmart Plans	_____	_____	_____
· Identification and mitigation measures of infestation for diseases or endangered timber are described	_____	_____	_____
· Have mitigation strategies for infestation, diseases or endangered timber been described? If there are none, enter N/A.	_____	_____	_____
Silviculture			
· Pre-harvest strata declaration has been included for each opening	_____	_____	_____
<p>-FHP's are approved through acceptance and will be considered approved on the date Alberta acknowledges receipt of the work. -Alberta shall notify the organization by acknowledging receipt within 5 working days of submission. -The notification date will be documented by Alberta as the start date for FHP approval. -Alberta shall periodically check the work and supporting documentation to verify its accuracy. -At any time, approval can be revoked where Alberta learns the FHP is inaccurate or deficient in content.</p>			
Company Validation			
_____	_____	_____	_____
Submitting RFP Validation	Company	Date	
ESRD Validation			
_____	_____	_____	_____
Reviewing RFP Validation		Date	

Note: This Checklist should reflect regional or FMA Operating Ground Rules - this is a template.
Note: Appraisal of the FHP is required if "No" has been indicated on any of the above Approval Items.

Annual Operating Plan (AOP) Checklist

Area	_____	Volume Summary (m3)	Conifer	Deciduous
Company	_____	Quadrant Allowable Cut	_____	_____
Disposition Number	_____	Quadrant Production to date	_____	_____
Date Disposition Issued	_____	Quadrant Volume Remaining	_____	_____
Date Disposition Expires	_____	Proposed Production (AOP year)	_____	_____
Submission Date	_____			

APPROVAL ITEM	YES/NO (Company)	INITIAL/DATE (ESRD)
Validated by RFP		
AOP has approved FHP(s)		

	Company (Y,N,N/A)	Company Comments (optional)	ESRD (Y,N,N/A)	ESRD Comments (optional)
Administration				
<ul style="list-style-type: none"> Have digital copies of AOP been provided to: <ul style="list-style-type: none"> - Area/SeniorForester - Forest Officer - other FHP conditions have been addressed Company is requesting dues relief with an explanation and justification Opening update verification has been submitted - all blocks logged in the previous year cross referenced against the ARIS report Amendments to AOP components have been submitted and justified (reforestation program, GDP, FHP) 	_____	_____	_____	_____
Operating Schedule (as per section 3.4.4 c)				
<ul style="list-style-type: none"> Table submitted for all blocks scheduled for harvest including area & volume by species with totals List of roads proposed for construction, maintenance & reclamation including watercourse crossings to be built or installed or removed/maintained provided Declaration of outstanding operational items, or an agreement with Alberta on reporting of outstanding operational items provided Outstanding operations identified (debris disposal, hauling, clean-up, reclamation, etc) 	_____	_____	_____	_____
Applicable Forest Harvest Plans (as per section 3.3)				
<ul style="list-style-type: none"> All blocks included in the AOP have FHP approval Utilization standard matches tenure document 	_____	_____	_____	_____
Reforestation Program (as per section 8.2)				
<ul style="list-style-type: none"> Silviculture prescription acceptable as per Silviculture table Silviculture treatment schedule Reported as per Strata Balancing Directive (2005-01) Watercourse crossings used for silviculture purposes identified Seed inventories sufficient as per FGRMS manual section 11.2 or otherwise approved by ESRD 	_____	_____	_____	_____
Road Plan (as per section 11.2)				
<ul style="list-style-type: none"> Existing access and DLO integrated into plan are identified All required watercourse crossings documented in the monitoring program as per section 11.4.26 	_____	_____	_____	_____
General Development Plan (as per section 3.2)				
<ul style="list-style-type: none"> Describes volume supply by areas, road standards and construction and reclamation schedules Other forest operators affected by the GDP have agreed in writing to the GDP prior to approval (see section 5.1.1) Table tracking the status of all planned DLO roads submitted GDP requirements as per 3.2.5 have been met 	_____	_____	_____	_____

Company Sign Off		
_____	_____	_____
Submitting RFP Validation	Company	Date

ESRD Sign Off	
_____	_____
Reviewing RFP Validation	Date

Note: The AOP shall be appraised by Alberta in accordance to the AOP checklist, with approval subject to the outcome of the appraisal.