Hinton Wood Products

A Division of West Fraser Mills Ltd.

Terms of Reference

Submission Version 1.0

for the submission of the:

2014 Detailed Forest Management Plan

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1. Introduction

This Terms of Reference (ToR) describes the process to be used for developing and implementing the 2014 Detailed Forest Management Plan (DFMP) for Hinton Wood Products, a division of West Fraser Mills Ltd (the Company). It follows the process described in the Alberta Forest Management Planning Standard (version 4.1 – April 2006). These Terms of Reference describes the process from the point of starting work on the 2014 Detailed Forest Management Plan to starting work on the next DFMP.

2. Background Information

Hinton Wood Products (HWP) and its predecessor companies have a history of sustainable forest management of the Hinton Alberta Forest Management Area (FMA) that started with the signing of the original Forest Management Agreement (the Agreement) in 1954 and with commencement of operations in 1956.

Hinton Wood Products is committed to practicing Sustainable Forest Management (SFM) through stewardship of the forest resources. SFM involves the management of all the forest resources (not just timber) in consideration of the full spectrum of forest values; addressing environmental, social, and economic sustainability.

The Hinton Wood Products FMA is currently registered to Sustainable Forest Initiative (SFI) SFM standard, as well as the ISO14001 Standard for environmental management, and the Programme for the Endorsement of Forest Certification (PEFC) Chain of Custody Standard. In addition, West Fraser's Hinton Pulp operation is registered to the Forest Stewardship Council's (FSC) Standard for Chain of Custody Certification (FSC-STD-40-004 v2-0) and the Standard for Company Evaluation of FSC Controlled Wood (FSC-STD-40-005 v2-0).

HWP was also certified to the CSA Z809 SFM Standard from 1999 to 2010. In 2010, the Company let that certification expire in order to bring all Canadian West Fraser divisions under one SFM standard (SFI). However, during the time HWP was certified to the CSA Standard, the Company followed and implemented all of the requirements of that Standard, including those around public participation and the formation and tracking of Values, Objectives, Indicator, and Targets (VOITs). This is relevant, as section 1 of Alberta's Forest Management Planning Standard (FMPS) requires the Company to incorporate certain sections of the CSA Standard into the DFMP – particularly those sections regarding the development of a public participation process and the requirement to develop VOITs. Annex 4 in the Planning Standard sets out government mandated VOITs that must be developed and incorporated into the DFMP. Because of HWP's previous CSA certification, many of the VOITs in Annex 4 have already been discussed and vetted through a public participation process.

The entire FMA AAC is allocated to Hinton Wood Products, with the exception of a small amount of timber (up to 8,500 m^3/yr conifer and 1,500 m^3/yr deciduous) available for allocation as commercial timber permits. Under authority of the Agreement, Hinton Wood Products is responsible for all timber management planning on the FMA.

In 2010, Hinton Wood Products prepared an amendment to its approved 1999 Forest Management Plan in response to the Government of Alberta's directive to reduce the amount of Mountain Pine Beetle (MPB) susceptible stands within the Hinton FMA. This Mountain Pine Beetle

Forest Management Plan (the Beetle Plan) amendment was focussed on MPB risk reduction and included the recommendation of a new AAC, which is outlined in Table 1 below:

Table 1 – *Fibre Allocation on the Hinton Wood Products FMA (2008-2013)*

Allocation #	Tenure Holder	Harvest Method	Utilization Standard	Type	AAC Volume (m^3)	Percent of AAC
FMA-8800025	Hinton Wood Products	Tree Length	15/11	Coniferous	1,758,076	99.5
FMA-8800025	Commercial Timber Permit	Tree Length	15/11	Coniferous	8,500	0.5
				Total	1,766,576	
FMA-8800025	Hinton Wood Products	Cut-To-Length	15/10	Deciduous	248,332	99.4
FMA-8800025	Commercial Timber Permit	Cut-To-Length	15/10	Deciduous	1,500	0.6
				Total	249,832	

The DFMP amendment also addressed water, caribou, trumpeter swan and grizzly bear issues, and contained a 10-year spatial harvest sequence. The effective date of the DFMP amendment was May 1, 2008.

3. FMA Description

The Hinton Wood Products Forest Management Area is located in west-central Alberta, within the Foothills and Rocky Mountain natural regions. The Area is roughly bounded by the town of Edson on the east, Jasper National Park on the west, the Brazeau River to the south, and the Berland River to the north. The FMA is entirely within the newly created Forest Management Unit (FMU) E14.

The Hinton Wood Products FMA was divided into two sustained yield units for the 1999 Forest Management Plan. The Loomis Forest (58.5%) was north of the Athabasca River, and the Crossley Forest (41.5%) was south of the Athabasca River. The Loomis Forest contained the Athabasca, Berland, and Marlboro Working Circles (administrative units), while the Crossley Forest contained the Embarras and McLeod Working Circles. Working Circles were further subdivided into 135 Operating Compartments, which were originally established on the basis of the average age of stands and other operational considerations. In the 2010 DFMP amendment, however, the timber supply analysis combined the Loomis Forest and the Crossley Forest into one sustained yield unit – the 2014 DFMP will also treat the entire FMA as one sustained yield unit. The five Working Circles and 135 Compartments remain unchanged.

The FMA has been mapped to the ecosite level following the hierarchical ecological classification developed for West-Central Alberta (Beckingham *et al* 1996). There are four Natural Subregions within the FMA: Upper Foothills (50%), Lower Foothills (30%), Subalpine (15%), and Montane (1%).

The FMA is situated on the eastern slopes of the Rocky Mountains. Topography varies from steep slopes and ridges in the west to more gently rolling hill topography in the east. Elevation decreases from west to east with a corresponding northeast drainage pattern. Major watersheds within the FMA include the Athabasca River in the north and the North Saskatchewan River in the south.

Morainal deposits account for the largest single deposit type on the area. Colluvial deposits are common at higher elevations in the west while aeolian materials tend to be associated with the Montane valleys and passes. Organic deposits are scattered throughout the area.

The FMA is dominated by lodgepole pine and white spruce forests. The strong influence of fire is evident in the large tracts of even-aged lodgepole pine stands that occur throughout the FMA. Pine is also found in mixture with other species including black spruce, white spruce and aspen. White spruce occurs in pure stands or in mixtures with pine or aspen. Mixedwood and deciduous stands (aspen is the primary deciduous species) are relatively common in the Lower Foothills, but become increasingly rare as elevation increases. Organic sites are dominated by black spruce and eastern larch.

4. Goals

This ToR provides a framework to develop a new Detailed Forest Management Plan (DFMP) for the FMA. The key goals of the 2014 DFMP are outlined and described in Table 2.

Table 2 – *Detailed Forest Management Plan Goals*

Goal	Intent
1. Maximize the conifer Annual Allowable Cut (AAC) from the contributing landbase.	To ensure that the maximum sustainable conifer harvest level is determined. The proposed coniferous utilization standard is 15/11/15[1] CTL (3.76 metre minimum log length), while the proposed deciduous utilization standard is 15/10/15 CTL (2.56 metre minimum log length).
2. Develop the DFMP following sustainable forest management (SFM) principles to address a mix of both timber and non-timber values.	To ensure the management and consideration of all values the FMA landscape provides (not just timber).
3. Adapt and incorporate natural disturbance research into stand and landscape level harvesting strategies, including strategies for both the riparian and upland areas of the FMA.	To ensure the FMA is being managed using the best available scientific research on natural disturbance; acknowledging that both upland and riparian areas are adapted to periodic natural disturbance and should managed accordingly.
4. Include pine management strategies intended to reduce the amount of MPB susceptible lodgepole pine stands on the FMA.	To lower the risk of MPB spread within the FMA by concentrating timber harvest in mature pine stands in accordance with Alberta's pine management directive.
5. Develop and implement strategies to mitigate potential mid-term timber supply downfalls.	The primary emphasis will be to mitigate downfalls associated with a potential MPB epidemic outbreak. Key strategies will include delaying the harvest of pine stands with spruce/fir overstory or understory, mixed-wood stands, and pure spruce stands.

5. Timelines

The development of a DFMP is a long and complex process – this DFMP is expected to take roughly three years to complete, with a target submission date of September 30, 2014. A Plan Development Team (PDT) will be formed consisting of representatives from Alberta and HWP. The mandate of the PDT is to review and provide comments, approval, or approval in principle of the

[1] HWP will also develop yield curves (or adjustment factors for the base set of yield curves) at the following coniferous utilization standards to facilitate recalculation of the AAC in the event that a utilization standard change is requested:

- 15/11/15 CTL – 3.15 metre minimum log length
- 15/12/15 CTL – a) 3.15 metre minimum log length and b) 3.76 metre minimum log length
- 15/10/15 CTL – a) 3.15 metre minimum log length and b) 3.76 metre minimum log length

various stages encountered (e.g. Natural Disturbance Strategy, Yield Curves, etc.) in the development of a DFMP.

During the development of the DFMP, there will be some major milestones that need to be reached – these are outlined in Table 3 below:

Table 3 – *Major DFMP Milestones and Timeline*

Milestone	Target Completion Date
Natural Disturbance Strategy (approval in principle)	Quarter 4 / 2012
Landbase	Quarter 2 / 2013
Yield Curves	Quarter 2 / 2013
Timber Supply Analysis	Quarter 1 / 2014
Aboriginal consultation	Quarter 3 / 2014
VOITs	Quarter 1 / 2014
Submission of DFMP Document	Quarter 3 / 2014

Figure 1 on the following page also provides more detail around all DFMP milestones and timelines. The most critical deadline is the September 30, 2014 date for the submission of the complete DFMP package. Other deadlines will be reviewed regularly at each Plan Development Team (PDT) meeting and revised as level of effort required for each task becomes clearer. If it becomes apparent that any of these deadlines will not be meet, all members of the PDT will be informed in a timely manner to allow corrective action to ensure that the final deadline will not be compromised.

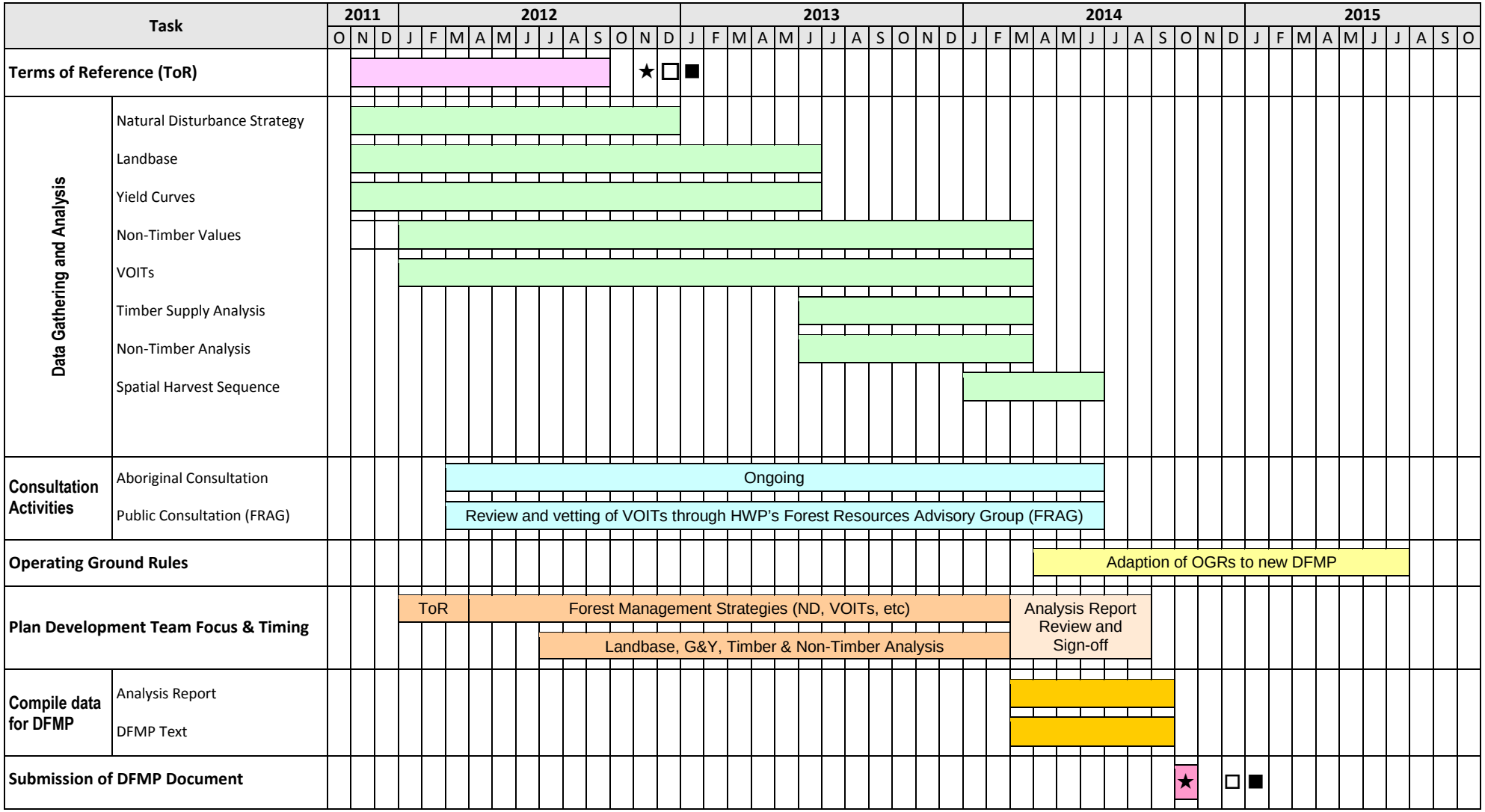
The following provides some additional detail to assist in interpreting Figure 1:

- The coloured bars represent periods of time when work will be occurring on various plan components.
- Dates for submission, review completion and approval are indicated by symbols.
- Unless otherwise stated, these dates refer to the final working day of the month.

The landbase will be updated to reflect disturbances up to April 30, 2012. As a result, the landbase used in the 2014 DFMP will be approximately 2 ½ years out of date.

The analysis report will include all technical documentation for plan components including the net landbase determination, landscape assessment, yield curve development, timber supply analysis, and non-timber assessments. Most of these plan components will be submitted initially as separate documents, but will be combined under one cover to form the Analysis Report.

Figure 1 – *Hinton Wood Products DFMP Preparation Timelines*



★ - Submission, ☐ - Review completed, ❖ - Agreement in principle, ■ - Approval

6. Internal and External Communication

Communication within the Plan Development Team (PDT) will be addressed by the following:

- Regular meetings
- Distribution of meeting minutes
- Distribution of documents and spatial data layers discussed at meetings.

Alberta Environment and Sustainable Resource Development's (AESRD) Lead, Forest Planning & Performance Monitoring (Forest Management Branch) will be responsible for ensuring that all appropriate personnel within AESRD are informed of decisions made by the Plan Development Team and consulted where necessary. The Planning Coordinator at Hinton Wood Products will ensure that all appropriate company personnel are consulted and advised of PDT progress.

Information on the Company and its operations, including the DFMP, approvals, annual reports, Stewardship Reports, and Operating Ground Rules, will be made available to the public on the HWP website.

Communication with interested parties and stakeholders external to AESRD and Hinton Wood Products will be handled through the Public Involvement Program and the Aboriginal Consultation Program. Both are summarized later in this document.

7. Public Involvement Program

The goals of HWP's Public Involvement Program are to:

1 Give the public an opportunity to become proactively involved in the management of the Forest Management Area;
2 Use a public participation process to help improve the Hinton Wood Products' Sustainable Forest Management System (SFM) for our Forest Management Area;
3 Provide awareness of the opportunity for interested parties to participate through a local public advisory group (FRAG) member or by direct communication with Hinton Wood Products;
4 Collect, consider and respond to all input provided by interested parties;
5 Establish a list of interested parties to participate in continual improvement of the Hinton Wood Products SFM System; and
6 Increase the general awareness and understanding of sustainable forest management.

The major strategy used in seeking involvement from the public in the development of the DFMP will be through the use of HWP's Forest Resources Advisory Group (FRAG). This Group was established in 1989 to provide organized and regular public input to Hinton Wood Products, including feedback, comment, and input into development of the values, goals, objectives, and targets (VOITs) that will form a key component of this DFMP. A significant number of the VOITs required in the 2014 DFMP have already been vetted through FRAG, because this was a requirement of our previously held CAN/CSA Z809 SFM certification (which was allowed to expire in 2010).

FRAG was also established to select or identify and respond to issues, and consider and recommend actions and policies to Hinton Wood Products. FRAG is not a decision making body and Hinton Wood Products is not required to accept FRAG recommendations, but is committed to providing a rationale for decisions made. Currently FRAG has representation from the following interested parties:

- Hinton & District Chamber of Commerce
- United Steelworkers
- Hinton Ministerial Association
- Coal Association of Canada
- Town of Hinton
- Hinton Good Companions
- Alberta Teachers Association
- Communications, Energy and Paperworkers Union
- Yellowhead County
- Hinton Fish & Game Association
- Jasper National Park
- Hinton All Terrain Vehicle Society
- Alberta Trappers Association
- Friends of Switzer Park
- Hinton Neighbour Link
- Whisky Jack Club
- Fox Creek Development Association (Aboriginal non-profit business)

There are also two agencies that sit on FRAG and act in an advisory role (i.e. they are non-voting members) – they are Alberta Sustainable Resource Development and the Foothills Research Institute.

FRAG will be asked to review and provide comment on all the VOITs contained within the DFMP. FRAG members will also be asked to provide input into the final draft of the DFMP.

In addition, each year in March, starting in 2012 (and ending in 2014), HWP will produce a DFMP Summary Document. This Summary Document will provide an easy to understand overview of the DFMP (and GDP). Its other purpose is to provide an opportunity for the public, Aboriginal communities and other stakeholders to give feedback to HWP before the plans are submitted to the government for approval.

This Summary Document will outline important information contained within the DFMP, such as:

- An overview of the DFMP and the planning process in general.
- A summary of the main components of DFMP, such as the landbase determination, the Annual Allowable Cut (AAC) calculation, the 20-Year Spatial Harvest Sequence, VOITs, and strategies for major non-timber values on the FMA.
- A description of the numerous ways that the public can have direct input into HWP's operations.

Each spring, starting in 2012 (and ending in 2014), HWP will host an open house in Edson and Hinton – advertisements will be placed in local newspapers notifying the public of the time and location of these open houses, and will specifically note that HWP is in the process of developing a DFMP and is seeking input.

As part of the notification process for the above noted open houses, HWP will also send letters to over a 100 stakeholders (e.g. trappers, municipal government representatives, contractors, FRAG,

local ENGOs, etc.) advising them of these open houses and their intent. This letter will also include a copy of the previously noted DFMP Summary Document.

After the DFMP has been approved, an "Approved" DFMP Summary Document will be developed by HWP. This document will describe in layperson's terms the highlights and important components of the DFMP. This document will be provided to all stakeholders (i.e. FRAG, trappers, local government, etc.) and any other interested parties.

Table 4 below summarizes HWP public involvement process for the 2014 DFMP submission.

Table 4 – *Public Participation Opportunities in the DFMP Development Process*

Public participation opportunity	2012	2013	2014	2015
FRAG Members	Review VOITs	Review VOITs	Review VOITs	Review Approved DFMP Summary Document
Open Houses	March in Edson and Hinton	March in Edson and Hinton	March in Edson and Hinton	Approved DFMP Summary Doc available at 2015 Open House
2012, 2013, & 2014 DFMP Summary Document	2012 Summary Doc. available at March open houses	2013 Summary Doc. available at March open houses	2014 Summary Doc. available at March open houses	n/a
Letters to Stakeholders (e.g. trappers, FRAG members, municipal government, etc.)	Invitation to open houses, with attached 2012 Summary Doc.	Invitation to open houses, with attached 2013 Summary Doc.	Invitation to open houses, with attached 2014 Summary Doc.	Invitation to open houses, with attached Approved Summary Doc.
Newspaper Advertisements (local Edson and Hinton newspapers)	Invitation to open houses specifically noting DFMP development	Invitation to open houses specifically noting DFMP development	Invitation to open houses specifically noting DFMP development	Invitation to open houses – noting an Approved DFMP Summary Document is available.
Approved DFMP Summary Document	n/a	n/a	n/a	Available at open houses, mailed to stakeholder list.

In addition to all of the above noted methods and opportunities for public involvement, HWP also has a website in which we will annually post the previously discussed Summary Documents. This website contains a number of different ways for the public to contact HWP with questions, concerns, and/or input into the DFMP, including: email, regular mail, and a 1-800 phone number. Once the final DFMP is approved, it will also be posted on the HWP's website in its entirety.

7.1 Public Input Documentation and Tracking

All public input arising out of the public participation opportunities outlined in Table 4, will be documented and tracked electronically by HWP. Since 2010, HWP has been tracking all public input in one master Word document that has links to all related documentation, such as relevant emails, letters, file notes, and meeting minutes. All public input recorded during the development of this DFMP will be provided to AESRD in a digital format (e.g. CD) with the final submission of the DFMP.

8. Aboriginal Consultation

Hinton Wood Products will develop an Aboriginal Consultation Plan to ensure Aboriginal communities have been adequately consulted regarding their traditional and treaty rights, and given a reasonable opportunity to provide input into the development of the DFMP. This Aboriginal Consultation Plan will be multi-faceted and be implemented over the three years

preceding (i.e. 2012, 2013, and 2014) the September 2014 DFMP submission date. The Aboriginal Consultation Plan will be a separate document from these Terms of Reference and will be submitted to the AESRD Edson Area Manager for approval – any changes in this consultation document, due to new or changing circumstances, would result in amendments to the Consultation Plan. These amendments would be submitted by HWP and again approved by the AESRD Edson Area Manager. Copies of HWP's Aboriginal Consultation Plan would be made available to interested parties.

9. Resources

Human resources required to complete the DFMP include the PDT members, government and Hinton Wood Products staff, FRAG members, consultants and other experts as required. Physical resources required for the DFMP include meeting rooms at the Hinton Wood Products offices and AESRD offices in Hinton, Edson and Edmonton.

The key information required for the plan is outlined in Table 7. The technological resources that will be used are described in Table 8. Other technological resources that are required to address other values (such as carbon accounting) will be identified during the course of plan development. The complete range of values to be addressed will be identified by the PDT.

Table 7 – *Information requirements for the DFMP*

Data	Description	Intent
Alberta Vegetation Inventory	Approved (2001 photography, AVI 2.1 standards).	The AVI will contribute to the landbase assessment, yield stratification and AAC determination.
Ecological Land Classification	Completed for entire FMA in 2004 using Ecosystem Classification guide for West Central Alberta	This information will be incorporated into the definition of yield strata. The Natural Subregions will the basis for Natural Range of Variation (NRV) assessments. The ELC data is also intended to assist in the development of riparian area management strategies.
Permanent Growth Sample Plot Data	Repeated measurements on approximately 2700 plots dating back to the 1960's.	These data will assist in the development of fire-origin and post-harvest yield curves.
Government base data	Hydrology layers and wet areas mapping data	These data will be used as a reference layer, or an input layer, when creating riparian areas.
Government base data	Access layers (roads, seismic lines, trails, etc)	These data will be used to supplement (if necessary) HWP access layer information.
Government base data	Administrative boundaries	These data will be used to define the locations of administrative features such as the FMA, FMU, parks, town sites, Indian Reserves, etc.

Data	Description	Intent
HWP Administrative Features	These are company-specific administrative boundaries, such as working circles, compartments, etc.	These data will be used to define the locations of company administrative features. These features may be used for a variety of purposes, but typically will be used to constrain the geographic locations of eligible stands for generating the spatial harvest sequence.
HWP hydrology	HWP has created two new hydrology layers for the FMA. The first layer was derived from 2006 aerial photography. The second layer was derived from LiDAR data.	The LiDAR derived layer, potentially in combination with the aerial photography derived layer, will be used to classify watercourses and will form the basis for the riparian area management strategy.
LiDAR / LiDAR derived DEM	HWP has obtained LiDAR data for the entire FMA. The data was acquired over a 5 year period.	The LiDAR data is intended to be used to assess steep slopes, riparian areas, understory presence, refine AVI polygon attributes, and create new hydrology and watershed layers.
LiDAR Derived Grid Layer	HWP has acquired several LiDAR derived grid layer (25m x 25m) of key forest stand metrics. These metrics include volume/ha, piece size, height, basal area and biomass.	HWP is exploring the use of LiDAR data to determine volume/ha, piece size and other metrics on a 25m x 25m grid for the entire FMA. The volume layers are intended to be used to develop yield curves. The specific methods are still being developed in cooperation with AESRD.
LiDAR Derived Understorey Prediction Layer	HWP has created a LiDAR derived grid layer (15m x 15m) which predicts the presence of understories in forest stands.	HWP is exploring the use of this layer to supplement the AVI to contribute to yield stratification and spatial harvest sequence development.
Enhanced tree species inventory	HWP is exploring opportunities, in cooperation with AESRD and other industry partners, to create an individual tree-level species inventory derived from the FMA 2010 and/or 2012 colour photography.	HWP is exploring the use of this layer to supplement the AVI to contribute to yield stratification and spatial harvest sequence development.
Harvest history data	Past harvesting history	These data will contribute to yield stratification and age class assignments.
Fire history data	Past forest fire history	These data will contribute to age class assignments and to the landbase determination.
MPB Stand Susceptibility Index (SSI) data	The MPB SSI is a measure of a stand's capacity to produce beetles (i.e. new populations of MPB in the next year) in the event it is attacked.	The SSI will be generated from the AVI data, and potentially the enhanced AVI data, to provide an objective assessment of MPB susceptibility.
Current MPB data	Each year AESRD conducts aerial and ground MPB surveys to discover red and green attacked pine.	HWP will use the most current MPB data to inform the Spatial Harvest Sequence (SHS). Accessible and operable areas of current red and green attacked pine will be prioritized in the SHS.

Data	Description	Intent
HWP access features	Roads, trails and seismic lines	These data will be used when examining road density and other access feature related metrics.
Dispositions	Includes well sites, pipelines, powerlines, etc.	These data will be used to net down the forest landbase when determining the AAC contributing landbase.
Seismic data	Updated using 2001 ortho-photos.	These data will be used to net down the forest landbase when determining the AAC contributing landbase.
Potential coal mines	The location of areas within the FMA with coal leases (and therefore the potential to mine).	These data may be used to assess potential impacts of coal mine development on FMA resources.
Performance Survey Data	Collected to ARS and RSA protocols & earlier test protocols (2004-2011).	These data will contribute to the development of post-harvest stand yield curves.
Riparian areas	Riparian areas and special management zones along significant watercourses based on HWP's proposed riparian management strategy.	These data will be used to define the riparian areas and contribute to management strategies for these areas.
Historical Resources	Historical resources are identified by HWP through four main sources: • Alberta's List of Historical Resources • A FMA archaeological probability survey, followed by ground truthing by a professional archaeologist in areas of high probability. • HWP's Aboriginal consultation program • HWP's internal procedure for identifying and recording historical and cultural sites discovered during field operations.	This dataset will be used to inform the development of the Spatial Harvest Sequence, with the goal of avoiding or mitigating known historical resources. Depending on the scale of the data, site mitigation may be deferred to operations planning.
Visual Landscape Inventory	Visual Landscape Inventory of the FMA.	This layer is intended to facilitate final harvest plan development and the landscape assessment.
Recreation Feature Inventory	Recreation Feature Inventory of the FMA.	This layer is intended to facilitate final harvest plan development and the landscape assessment.
Compartment harvest plans	FHP approved harvest plans, as available.	These layers are intended to be used for development of the spatial harvest sequence.
Grizzly bear watershed units	Layer provided by AESRD that defines core and secondary grizzly bear units	This layer will be used to assess impacts on key grizzly bear related values.
Caribou area	HWP layer that defines the extent of the current caribou harvest deferral area.	This layer will be used to assess impacts of forest management activities on caribou habitat metrics. The layer may be refined to reflect areas which are currently used by caribou.
Watersheds	HWP layer that defines the location of individual watershed units on the FMA.	This layer will be used to assess impacts of forest management activities on water flow values.

Where data is used for net landbase development, the format requirements described in Annex 1, Section 3.7 of the Alberta Forest Management Planning Standard will be followed. The net landbase documentation will describe the tolerance parameters used in generating the final classified landbase and explain how sliver polygons were handled.

Table 8 – *Technological resources available for the DFMP*

Purpose	Resource	Intended use / Responsibility
Timber supply analysis	Woodstock, Spatial Woodstock and Stanley	These tools will be used to generate the recommended annual allowable cut and the spatial harvest sequence. These activities will be completed by HWP.
Yield curve development	GYPSY, MGM, SAS and LiDAR grid layers	These models and tools will be used to generate the FMA yield curves. These activities will be completed by HWP.
Hydrological analysis	FMP HAM and/or Alberta ECA	These models will be used to assess impacts of the spatial harvest sequence on water flow. These activities will be completed by HWP.
Grizzly bear habitat	FRI grizzly bear habitat analysis tools	These analyses will be completed through an iterative post-process of the Woodstock and Stanley outputs. These activities will be completed by AESRD
Caribou habitat	Caribou habitat analysis	There are no commonly accepted tools for caribou habitat assessments. HWP will work with AESRD to define suitable metrics for caribou habitat. These activities will be completed by HWP.
Species at Risk	Species Conservation Strategies	HWP will develop, in cooperation with AESRD, FMA-specific species conservation strategies for all species-at-risk. These strategies will be incorporated into the timber supply analysis, where appropriate. Unless otherwise specified, these activities will be completed by HWP.
Natural Range of Variability	Landmine (landscape level fire model) & Neptune	The Landmine model will be used to define the Natural Range of Variation of a variety of key landbase metrics. Neptune will be used to describe current disturbance events on the FMA, when that may be required. These activities will be completed by HWP.
FireSmart Management	Wildfire Threat Assessment models and supporting data	These tools will be used to provide information required to support the development of FMA FireSmart strategies. AESRD will undertake analyses required to meet the expectations of Annex 3 and the landscape assessment portions of the Alberta Forest Management Planning Standard.

HWP requests that AESRD complete the analyses required for the following non-timber values:

- Coarse Filter Assessments: Patch size & old interior forest
- Fine Filter Assessments: The list of species will be determined by the PDT.
- Grizzly bear habitat assessment
- Wildfire threat assessment

The timing of these assessments is currently scheduled to be in the first quarter of 2014.

9.1 The Use of New Data Sources

Over the last few years new data sources have become available with potential to improve the link between strategic and operational forest management planning. HWP will work closely with AESRD to ensure that all new methods are clearly understood and mutually agreeable. The following sections introduce some new methods that are currently being considered for use in the 2014 DFMP.

9.11 LiDAR-based products

Through a data exchange with AESRD, HWP received FMA-wide LiDAR coverage in 2009. In the 2010 MPB FMP Amendment, HWP used the LiDAR-based DEM to develop a steep slopes layer which proved to be helpful for both strategic and operational planning. Early in 2011, HWP received several LiDAR-based layers from the Canadian Wood Fibre Centre including a merchantable volume layer which was tested against scale data and has been shown to be very accurate. For the 2014 DFMP, HWP anticipates using these layers and extending the use of LiDAR-based data to the following additional areas:

A. <u>Yield Curve Development</u>

HWP intends to construct yield curves from the LiDAR-based merchantable volume layer to project fire origin yields. The intent is to use the following general methodology:

1. PGS plots will not be used directly for curving fitting; rather the compiled plot data will be used to calibrate the LiDAR-based merchantable volume layer.
2. Each polygon in the landbase will have a total merchantable volume (m^3/ha) calculated from the LiDAR-based merchantable volume layer.
3. As required other stand attributes (E.g. stand age, species volumes, site index) will be obtained from AVI, other LiDAR-based layers, and potentially species spectral analysis.
4. The merchantable volumes assigned to each polygon will be used to develop a mean volume-age yield curve (one will be built for each yield stratum).
    a. A standard non-linear regression curve fitting method will be used
        i. Data points will represent the entire population (i.e. each polygon will be a data point)
        ii. Each data point will likely be weighted by polygon area
    b. HWP may also use Alberta's GYPSY forest growth model to generate yield curves.
5. The mean yield curves will then be compared to each individual polygon LiDAR projection and an adjustment factor will be assigned to each polygon which will be applied in the timber supply analysis. The intent is to ensure that the stand specific LiDAR volumes are used in the TSA.
6. All stands below a stand age 30 will be assigned to the mean yield curve (no adjustment factor will be applied). Perhaps some limits for upward and downward adjustments will need to be defined.

7. All 30+ year old stands will be assigned a volume based on the adjustment factor applied to the mean yield curve. In Woodstock this will be handled as a complex yield curve (a product of the mean yield curve and adjustment factor).
8. In the TSA model after harvest a stand will transition to the appropriate GYPSY-based managed stand yield curve. No adjustment factors will be applied.

B. Overstory Height

HWP possesses a LiDAR layer which projects the height of the 75th percentile of the point cloud. This layer has been shown to compare favourably with the height of the co-dominant tree species from field plot data. Therefore HWP proposes to use the LiDAR 75th percentile height layer to enhance the AVI overstory heights.

C. Delineate Dense Understories

In 2012 a project was completed to use LiDAR data to predicted understory densities across the entire FMA. Preliminary ground tests have shown encouraging results. HWP intends to used this layer to delineate AVI polygons into areas of high and low understory densities. It is expected that the Ecological Land Classification (ELC) inventory and PGS plots could be used to project leading species. The greatest impact of this data is to help in prioritizing pure pine stands for sequencing.

D. Watercourse Channel Classification

In late spring of 2012 HWP acquired a new watercourse layer called Netmap. Similar to the Alberta Wet Areas Map (WAM), Netmap was built off the LiDAR DEM and therefore contains more detail than previous watercourse layers that were developed through the use of orthophotos. Netmap has an advantage over the WAM because it includes predictive metrics on channel depth and width, which can be used to apply the channel classification model developed by Richard McCleary in 2011. HWP proposes to use the McCleary channel classification model for the 2014 DFMP for the following reasons:

1. The McCleary classification is based on the flow characteristics within the watercourse. Erosion potential and the ability to transport materials are key to watercourse classification. In contrast the current AESRD classification is based on the external appearance of the watercourse (channel width). Due to this HWP considers the McCleary classification to be a more objective and accurate watercourse classification system.
2. The McCleary classification model is based on metrics that can be easily obtained from LiDAR DEM data and therefore can be quickly applied to large landbase areas. In contrast the AESRD watercourse classification would depend on more subjective manual delineations from orthophotos.
3. Preliminary tests have shown the McCleary classification has been shown to be easier to apply in the field than the AESRD watercourse classification.

9.12 Semi-global matching

On May 17th 2012 a new source of data called Semi-Global Matching (SGM) was discussed at a meeting dealing with the future of forest inventories within Alberta. SGM provides point cloud data (similar to LiDAR) which can be used to obtain very accurate readings of overstory tree height and by implication can also be used to project merchantable volumes. SGM has one distinct advantage over LiDAR in that it is automatically rectified to aerial imagery that is acquired at the same time as the SGM data therefore making it possible to assign specific forest metrics to specific species groupings (and perhaps to individual trees). HWP is currently investigating options to obtain this data. Some potential uses in the 2014 DFMP include:

A. Species composition – multi-band spectral analysis with SGM

HWP currently supports a project to investigate the use of multi-band spectral analysis to automate species identification. If this project is successful even at its most modest objective of differentiating deciduous species from coniferous species then this product could be used to enhance AVI species composition attributes. Multi-band spectral analysis has the potential to be coupled with SGM which would provide species specific volumes within each stand.

B. Growth rate intervals as a signifier for harvest sequence

The Hinton FMA LiDAR data was acquired from flights from 2004 to 2007 (the majority in 2005 and 2006). The SGM data is expected to be available from either a 2010 or a 2012 photography acquisition project. It is anticipated that this interval may be sufficient to differentiate growth rate differences. HWP will investigate the use of periodic annual increments (either height or volume based) to assist in the sequencing of stands.

10. Roles and Responsibilities

Hinton Wood Products and Alberta Sustainable Resource Development have assembled a Plan Development Team (PDT) that will be the central group responsible for development of the DFMP. Table 9 describes PDT membership.

Table 9 – *Plan Development Team Core members*

Position	Affiliation
Lead, Forest Planning & Performance Monitoring	AESRD—Forest Management Branch
Integrated Operational Planning Forester	AESRD—Foothills Area
Approvals Forester	AESRD—Foothills Area
Area Senior Fisheries Biologist	AESRD—Fish and Wildlife
Area Senior Wildlife Biologist	AESRD—Fish and Wildlife
Planning Coordinator	Hinton Wood Products
Chief Biologist	Hinton Wood Products
Planning Forester	Hinton Wood Products
Stewardship, Public, & Aboriginal Affairs Coordinator	Hinton Wood Products

Other technical experts from the Alberta government and Hinton Wood Products will be consulted on an as needed basis to address specific areas of concern. Additional technical experts are listed

in Table 10. This list may be added to if additional expertise is determined to be necessary during the course of DFMP development.

Table 10 – *Additional technical experts*

Position	Affiliation	Function
Senior Forester – Operating Ground Rules	AESRD— Timber Operations Harvesting and Renewal Section	Operating Ground Rules Lead
Senior Resource Analyst	AESRD—Resource Analysis Section	Timber supply
Growth and Yield Forester	AESRD—Resource Analysis Section	Growth and Yield
Fish and Wildlife Manager	AESRD—Fish and Wildlife Management Section	Fish and Wildlife
Senior Silviculture Forester	Hinton Wood Products	Tree improvement and silviculture
Operations Superintendent	Hinton Wood Products	Harvest Operations
Landuse Coordinator	Hinton Wood Products	Landuse
Woodlands Manager	Hinton Wood Products	Strategic direction

11. Participation of Experts, other Interests, and Government

Hinton Wood Products will work to ensure that its DFMP will meet the requirements of the Alberta Forest Management Planning Standard (process described in section 17) and comply with all other relevant legislation (provincial and federal). To ensure these requirements, Hinton Wood Products will consult with experts on an as needed basis. This process will be developed more fully during the planning process, as required.

12. Operating Ground Rules Determination

The Alberta Sustainable Resource Development Operating Ground Rules (OGRs) Senior Forester will participate in DFMP meetings as required to ensure that operational issues are considered during the plan development. Within this process, a separate Terms of Reference for the development of new OGRs will be agreed to. The intent is to develop new OGRs near the end of the DFMP development process (i.e. 2014); this strategy is being undertaken because:

- It will ensure that OGRs are not regularly being amended (which can lead to confusion in implementation and enforcement).
- Most of the important and significant changes that will result from a new DFMP (and thereby impact the OGRs) will only become apparent near the end of the DFMP development process (e.g. new riparian strategies, natural disturbance implications, access management strategies, etc.).

The intent is to have coincident DFMP and OGR approvals.

13. Submission Requirements

Approved DFMPs and reports are public documents and Alberta shall make these available for public review by posting them on the departmental website, as well as through printed copies. According to Alberta's standards for submissions, Hinton will submit the following:

- At least one paper copy of the DFMP (the exact number required will be determined at the time of submission).

- One single digital copy of technical files.
- Five digital copies (password protected and password supplied, .pdf format).
- A RFP validated checklist describing the extent of compliance with applicable standards included with each submission.

14. Conflict of Interest

All parties involved in the DFMP development process will represent the interests only of the organization they are officially representing. Persons who may be involved in discussions where there could be a conflict of interest are expected to declare the conflict of interest and exit the discussion. If it becomes apparent that an individual is not representing the interests of his or her agency, the individual will be approached and given the opportunity to address the situation. If the potential conflict is not addressed to the satisfaction of the PDT, the dispute mechanism process (section 18) will be invoked.

15. Decision-Making Methods

DFMP components will be submitted to the government for "agreement in principle" as they are completed. This progressive approach of submitting separate components is intended to streamline the final approval process.
Where approaches to development cannot be agreed upon by the PDT, or where there is difficulty in obtaining "agreement in principle" for a plan component, the matter will be referred according to the dispute resolution mechanism described in section 18.

16. Mechanism to Adjust the Process

A considerable amount of time will elapse between writing the ToR and the final submission of the DFMP. Over this length of time, it is reasonable that changes may occur that would make it necessary to revise the processes described in the ToR. Some examples of changes that would require a revision to the ToR include:

- Changes in government policy or company management directives.
- Availability of additional information.
- Issues that are raised through the public or Aboriginal participation process.
- Outputs from the government's Land Use Framework.
- Agreements made as part of the Canadian Boreal Forest Agreement (CBFA) partnership.

The ToR will be revised on an as-needed basis to reflect the current planning environment and availability of new information.

17. Authority for Decisions

The Alberta provincial government has final approval authority for the timber supply analysis, inventories, samplings program, yield curves and supporting documentation, and the completed Detailed Forest Management Plan. The Interpretive Bulletin, "Forest Management Planning Roles, Responsibilities and Approval Authorities," in the Alberta Forest Management Planning Standard describes four main elements of the decision making process:

A. The Plan Development Team is formed to resolve technical details of a forest management plan and is to reach agreement in principle on all components of the plan prior to its completion;

B. If the PDT cannot reach "agreement in principle", the Senior Manager, Forest Planning Section, can decide to end the DFMP development process. When this occurs, the Company must submit the plan components and supporting documents to Alberta. Depending on the state of the plan, a review will result in either an "approval decision" being issued, or in Alberta setting a precautionary AAC that will be followed by HWP until an acceptable DFMP is approved;
C. When a DFMP is submitted for appraisal, an Approval Review Committee chaired by the Senior Manager, Forest Planning Section, reviews it and provides recommendation to the Executive Director, Forest Management Branch, to assist his final decision on a DFMP;
D. Final approval of all DFMP components is given when the DFMP is approved by the Executive Director of AESRD's Forest Management Branch issuing an approval decision.

18. Dispute Resolution

Where the Plan Development Team cannot reach agreement on matters pertaining to development of the Hinton Wood Products' DFMP, the matter will be resolved through a one or two stepped process, as follows:

1. The dispute will be referred to the Senior Manager - Forest Planning Section (AESRD), the Area Manager - Foothills Area (AESRD), and the Woodlands Manager - Hinton Wood Products. This group will attempt to reach a solution.
2. If the Woodlands Manager, the Area Manager and the Forest Planning Section Senior Manager cannot reach agreement, the matter will be referred to the Executive Director – Forest Management Branch (AESRD), and the Alberta Chief Forester (West Fraser Mills), and the Hinton Wood Products' Woodlands Manager for resolution.

The goal through out the process is to allow quick resolution of issues. To further this goal, the Plan Development Team will strive to resolve issues, but if it becomes apparent that a decision cannot be reached, they will refer the matter to the Woodlands Manager and Forest Planning Section Manager (step 1). They will take the same approach of referring matters to the next stage (step 2) where agreement cannot be reached. Time is of the essence in dispute resolution and deadlines will be respected.

19. Access to Information

All Plan Development Team members will have access to documents and data discussed in PDT meetings. Information used for timber supply analysis (TSA) and yield curve development will be made available to the government for review; this information may not be used for other purposes without the Company's permission. Decisions about public access to information will be made on a case specific basis in a manner consistent with Company policy and the Alberta Freedom of Information and Protection of Privacy Act.

20. Stewardship Reports

Hinton Wood Products produces an annual Stewardship Report which demonstrates progress towards, or achievement of, Values, Objectives, Indicators, and Targets (VOITs) developed through HWP's Forest Resources Advisory Group (FRAG) and as part of the requirement for CAN/CSA Z809 certification (which HWP allowed to expire in 2010). Many of the VOITs in the 2014 DFMP will overlap with existing VOITs – all VOITS will continue to be reported on annually. Hinton Wood Products will also complete a Stewardship Report five years after approval of the DFMP, which will

describe the progress towards fulfillment of the DFMP commitments. A detailed commitment matrix will be included in the 2014 DFMP document.

21. Forest Inventory

The approved forest inventory was based on 2001 aerial photography. The Alberta Forest Management Planning Standard dictates that inventories may not be used for forest management planning if they have been completed more than 10 years prior to the effective date of the DFMP. Alberta has approved the use of the currently approved inventory for the 2014 DFMP (see Appendix A). Hinton Wood Products will work with Alberta to determine an appropriate re-inventory schedule for the 2024 DFMP.

22. Transition Plan

The Company intends to meet the spirit and intent of the current Alberta Forest Management Planning Standard, and therefore, no transition planning is required.

23. Management Issues

The following sections outline areas where HWP is proposing to deviate from a traditional DFMP approach and also issues that AESRD would like to see addressed in the DFMP.

Hinton Wood Products Issues:

This section of the Terms of Reference will highlight areas where HWP is proposing to deviate from a traditional DFMP approach (i.e. the Planning Standard), and/or where HWP has specific issues that the Company intends to address through the DFMP.

A. **<u>Natural Disturbance Strategy</u>** – As part of the 2014 DFMP, HWP plans to adopt and implement a management strategy that is based on natural disturbance. HWP calls this approach Natural Forest Management (NFM) and it is built on natural disturbance research conducted by the Foothills Research Institute over the last 15 years.

The guiding principle of HWP's Natural Forest Management approach is to maintain natural forest patterns and ages across the landscape. That means HWP's decisions will be guided by a broad goal to create and maintain forests which would be similar those produced by nature. This will be done by understanding and approximating the disturbances – fires, insects, disease, wind, etc. – that have shaped the forest landscape over time, so that new forests develop characteristics that are similar to natural forests. This approach is designed to safeguard the important values of healthy forests, including biodiversity conservation. Approximating the variability of natural forest patterns is critical, but this strategy must be balanced with societal values, changing expectations, and scientific knowledge. HWP will seek to strike a balance that is scientifically sound, affordable, and acceptable to society.

The implementation of this Natural Forest Management approach will drive a number of key components in the 2014 DFMP. These include:

- **Seral Stage Targets** – The amount of old, mature, pole, and young forest, by forest type, will be guided by natural disturbance patterns. The goal is that the overall landscape condition in the managed forest will approximate the landscape condition in a natural forest.

- **Stand Structure Retention** – A stand structure strategy based on NFM will leave stand structure in many stand types and harvest situations. Patches and clumps of snags, non-merchantable trees, low (timber) quality trees, and young trees will be retained first because they provide the best biodiversity benefits and the lowest timber impacts. It may be necessary to retain some merchantable trees in stand types that do not have sufficient natural amounts of tree structures with high non-timber values. Natural disturbance research will be used to develop a strategy around the amount and the pattern of retained stand structure.

- **Riparian Management** – Riparian areas are zones of direct interaction between terrestrial and aquatic environments. The current riparian management approach based on measured linear buffers was designed primarily to protect the aquatic environment and biodiversity from the effects of harvesting in riparian areas. Over long periods, reduced or excluded disturbance rates (both fire and harvesting) lead to riparian forests with characteristics outside their Natural Range of Variation (i.e. the natural range of age classes, by species, found within a riparian area). Research has shown that this can have an affect on ecological function of riparian areas and the values they conserve.

  In contrast, the Natural Forest Management approach assumes that disturbance and recovery from disturbance in riparian areas is necessary to conserve the variability that maintains ecological function. Current regulatory framework does not allow harvesting (or unrestricted fires) in riparian areas, and a balanced approach must be employed to maintain variability and function within acceptable social limits. In particular, disturbance, such as fire or harvesting, must be managed to maintain variability without compromising aquatic ecosystem values, which still have primary importance. The management challenge in the 2014 DFMP will be to plan and implement changes from the current riparian management approach to an approach that more closely approximates natural disturbances patterns, while maintaining the current focus on conservation of non-timber values, and continuing to manage for a sustainable timber supply.

  As part of the 2014 DFMP, and based on natural disturbance research from the Foothills Research Institute, HWP will be proposing:

  - A New Stream Classification System – This new classification system (previously discussed with AESRD) will classify riparian areas into four categories - wet swale or wetland, discontinuous channel, seepage channel and fluvial channel. Different management strategies will be proposed for the riparian areas around each stream class. This new system is built on

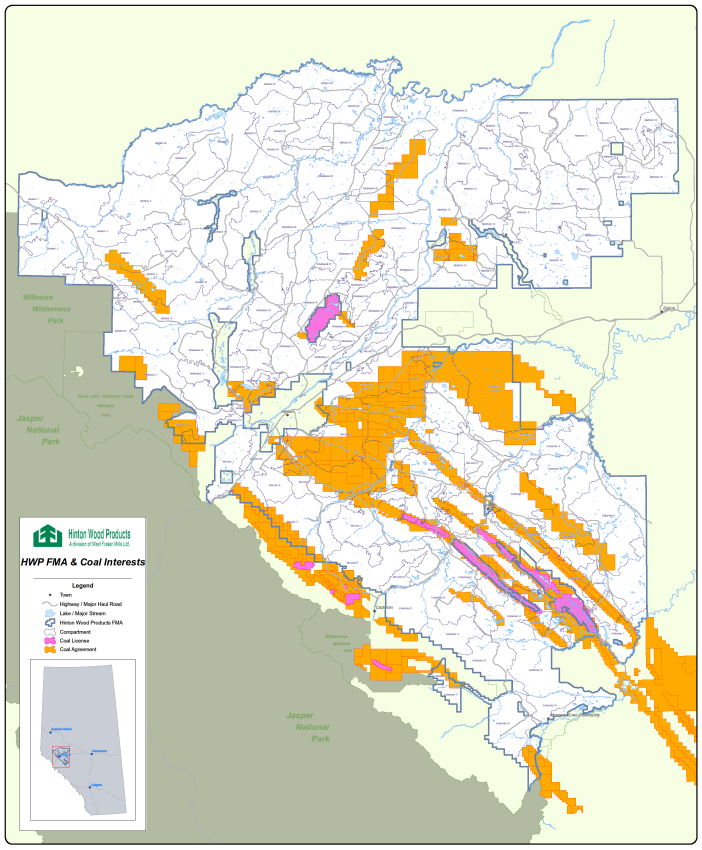
research carried out by FRI and is more easily interpreted and implemented in the field than the current system.

- Riparian Area Disturbance – Carefully managed disturbance from harvesting will be used to increase disturbance rates in riparian areas while conserving riparian values and functions.

➢ **Patch Size** – Similarities in event size between harvested cutblocks and fires will be increased by aligning the proportion of compartments harvested in first pass, reducing time between passes, and synchronizing scheduling of adjacent compartments to assemble fire events in patterns which would be similar to those that created by natural disturbances. Event configuration will be considered in planning at appropriate scales to increase the similarity between harvest events and fire events.

➢ **Forest Landscape Patterns** – Implementing HWP's Natural Forest Management strategy will also result in forest landscape patterns that more closely resembles the natural patterns that would have occurred in the absence of fire suppression. This will mean that the landscape will have a large range of disturbance sizes.

B. Coal Mine Expansion – HWP is concerned about the impacts of coal mine activity and expansion on the FMA. Currently the Hinton FMA has approximately 14.5% (142,960 ha) of its gross FMA area covered by coal agreements (areas of potential future mining) and 0.3% (3,065 ha) of its gross area covered by existing coal mine licenses (Obed and Coal Valley). The adjacent map shows existing coal agreements (orange) and existing coal mine licenses (pink).



The Coalspur mine, situated just southeast of Hinton, has not yet been green-lighted, but all indicators are that they will start mining in 2015, removing another significant portion of the FMA from the productive landbase.

HWP understands that there are multiple benefits to Alberta related to the development of the coal resource; nonetheless, the impact on HWP will likely be significant. HWP would support all mechanisms available to AESRD to encourage the return of reclaimed land back to

the FMA landbase (something HWP has not seen to date) and/or help ensure that the actual mining footprint is as small as possible (limiting the impact on the FMA's operable landbase).

HWP is also concerned about reforestation liability for blocks that are mined over as existing mines expand and new mines come into fruition.

HWP will work closely with the mining companies and AESRD to mitigate impacts on our operations and fibre supply.

C. **Mountain Pine Beetle (MPB)** – The current (winter 2012) status of MPB on the Hinton FMA is encouraging, in that the Company has yet to see large scale MPB outbreak on the FMA. MPB attack has been limited to smaller pockets of attack, mostly concentrated in the northern and eastern portions of the FMA. A good monitoring system (i.e. pheromone baits on a grid system throughout the FMA), aggressive control of small groups of green attacked trees by AESRD, the targeted harvesting of MPB attacked stands by HWP, and some cold winters, have all helped to mitigate MPB impacts on the FMA over the last five years.

HWP will be maintaining an aggressive MPB control program in partnership with AESRD to hopefully continue to keep the MPB in check. However, if this fails and the FMA is overrun by MPB, then many of the assumptions in the DFMP will have to be revisited.

For the 2014 DFMP, HWP will continue to implement its MPB strategy (as outlined in the 2010 Beetle Plan amendment) of primarily targeting for harvest highly susceptible pine stands (i.e. pine that beetles have the highest probability of attacking and reproducing successfully in), while trying to avoid those stands which are not as susceptible, and those stands that will provide a future crop if MPB kills most of the pine on the FMA.

D. **Mid Term Timber Supply** – In 2010, an increase to HWP's Annual Allowable Cut (AAC) was approved by AESRD so that the Company could aggressively target MPB susceptible pine stands over a 20 year period. Any outbreak of MPB on the FMA that kills a large portion of the pine will negatively affect the future timber supply. The mid-term timber supply is defined as the time between the end of the MPB salvage harvest and the beginning of the harvest of post-harvest stands. Generally, the stand types available in the mid-term include non-pine dominated stand types and understories in unsalvaged MPB attacked stands. Any activities which shorten the time required for post-harvest stands to reach merchantability will help to mitigate the mid-term timber supply impacts.

In order to address the issues around mid term timber supply, HWP intends to implement a number of strategies over the following decades, including:

- Pine stands with a healthy understory of spruce or fir will be avoided where feasible (i.e. wood will not be isolated).

- Pine stands that are not highly susceptible to MPB attack will be given a lower priority for harvest.
- Spruce stands will be avoided where feasible.
- HWP will continue to implement its tree improvement program (e.g. trees planted from seed from trees grown at HWP's seed orchard).
- Intensive forest management tactics such as commercial thinning, juvenile spacing, and fertilization will be explored with the goal of implementing these treatments to offset mid term timber supply issues.

While the above noted strategies are sound in principle, there are a number of issues that arise from trying to implement them, including:

- Current inventory information is not detailed enough to identify the presence or absence of an understory or its species make-up and health; nor is it accurate enough to determine the location and make-up of tree species at the stand level. This means that the Spatial Harvest Sequence (SHS) generated from the forest inventory may be difficult to apply operationally. HWP is currently looking into a number of new technologies (using LiDAR data) that may increase the resolution of the inventory so that tree species make-up and understory presence can be better identified remotely.
- Intensive forest management activities need research data to validate their use. While HWP had previously undertaken a significant amount of research into activities such as thinning and fertilization, there have been no agreements between HWP and AESRD regarding the uplift to timber supply these treatments might contribute.

E. **Land Use Framework** – Originally, the government's Land Use Framework process for the area containing the Company's FMA (the Upper Athabasca Region) was scheduled to start in 2010 – this was one of the major reasons HWP asked for, and received, an extension to 2014 for the submission of its DFMP. However, over the proceeding two years (2011 and 2012), it has become apparent that the Land Use Framework for the Upper Athabasca Region will not start for at least another year, and more likely longer than that. For this reason, HWP wants to clearly indicate that, unless otherwise directed by Alberta, the Company is planning to submit this DFMP in 2014 regardless of the status of the Land Use Framework at that time.

It should be noted that both HWP and AESRD believe that the DFMP planning process has the ability to inform the Land Use Framework process and its outputs. This is because the DFMP, in itself, is a type of land use planning process, in that all the land within the FMA is examined carefully and then appropriate uses of that land are assigned and then implemented. In addition, HWP has a large amount of data for the FMA including: vegetation inventory, riparian classifications, fish presence, growth and yield, and much more. This data will likely be integral to, and part of, any future land use planning process.

F. **Species at Risk** – There are currently seven species on the Hinton FMA that are either listed as threatened by the federal government (under SARA), listed as threatened by the Alberta government (under the Wildlife Act), or are

recommended for a threatened listing by Alberta but have not yet been listed. The following sections discuss each of these seven species, outlining any issues that HWP would like to address in the forest management plan.

- **Caribou** – Caribou are listed as a threatened species in Alberta. Alberta has a Woodland Caribou Recovery Plan (WCRP) that was approved in 2005. Part of the recommendations from this approved plan was to develop caribou range teams, who would then develop caribou range plans for their associated range. Subsequent to the 2005 approval of the WCRP, a range team was formed for west central Alberta and a plan titled the "West Central Caribou Landscape Plan" (WCCLP) was submitted in May 2008 to the Alberta government for approval. As of December 31, 2011, government approval for the WCCLP had not been finalized. Alberta has developed a Woodland Caribou Policy for Alberta; however, an implementation plan for rolling out this policy to industry has not yet been completed.

  HWP has a relatively small amount of caribou range on its FMA – approximately 50,000 hectares found in the northwest corner of the FMA. The Company has deferred harvesting in this area since 2007, but the area was still part of the operable landbase in the 2010 Beetle Plan. Hinton Wood Products intends to continue to support the Government of Alberta in the development of a pragmatic recovery plan for the herds on the Hinton FMA. Appropriate forest management practices, aligned with an approved recovery strategy, are required to be developed for this area so that it can be sequenced in the 2014 DFMP.

  HWP intends to propose a strategy for harvesting within caribou range on the FMA – this strategy will be submitted as part of the 2014 DFMP submission.

- **Grizzly bear** – Grizzly bear are listed as a threatened species in Alberta. The province has a Grizzly Bear Recovery Plan that was approved by Alberta in 2008. To date, the province has not provided any detail regarding how they would like industry to implement recommendations found within the approved recovery plan. HWP is currently working with Alberta by using data and tools provided by the Foothills Research Institute. The Company is also continuing to develop Long Term Access Plans for the entire FMA that will reduce the long term road footprint, benefiting grizzly bears.

- **Trumpeter swan** – Trumpeter swans are listed as a threatened species in Alberta. The province has a Trumpeter Swan Recovery Plan (2005-2010). There are three known breeding locations on the Hinton FMA. Guidelines for operating near trumpeter swan habitat are guided by a document produced by Alberta called "Recommended Land Use Guidelines for Trumpeter Swan Habitat", as well as by the current Provincial Operating Ground Rules (2008). HWP's current Ground Rules note that the Company will not be harvesting near the three known trumpeter swan nesting ponds on the FMA. HWP intends to continue with this strategy in the 2014 DFMP.

- **Athabasca rainbow trout** – In 2009, the Athabasca rainbow trout (the only native population of rainbow trout in Alberta) was recommended for "threatened" status in Alberta. However, the legal designation was not finalized as of December 31, 2011. A Recovery Team has been formed by Alberta and HWP is participating on this Recovery Team in the development of a Recovery Plan. HWP will be working with Alberta to incorporate strategies to conserve Athabasca rainbow trout in the event that the Recovery Plan is not finalized in a timely manner. At this time, HWP does not anticipate that the recovery plan will impact HWP's normal operating activities. Consequently, no specific strategies will be developed.

- **Bull trout** – The bull trout is currently listed as a species of special concern in Alberta, but there is a recommendation to government to list this species as threatened. There is currently no recovery plan in progress. HWP assumes that any recommendations coming out of the Athabasca rainbow trout recovery plan would be similar to those arising from a bull trout recovery plan. Further discussion regarding this species may be necessary. At this time, HWP does not anticipate that HWP's normal operating activities will have any negative impacts on this species. Consequently, no specific strategies will be developed.

- **Common nighthawk** – The common nighthawk was designated as threatened under the federal Species at Risk Act (SARA) in 2010; however, it has not been listed by Alberta. To date, no recovery strategy or action plan for the common nighthawk has been finalized by the federal government. At the time these plans are finalized and approved, HWP would be obligated to abide by any recommendation arising out of them. At this time, HWP does not anticipate that HWP's normal operating activities will have any negative impacts on this species. Consequently, no specific strategies will be developed.

- **Olive-sided flycatcher** – The olive-sided flycatcher was designated as threatened under the federal Species at Risk Act (SARA) in 2010; however, it has not been listed by Alberta. To date, no recovery strategy or action plan for the olive-sided flycatcher has been finalized by the federal government. At the time these plans are finalized and approved, HWP would be obligated to abide by any recommendation arising out of them. At this time, HWP does not anticipate that HWP's normal operating activities will have any negative impacts on this species.

G. **Pinto Creek Goats** – A unique population of canyon dwelling mountain goats is present within the FMA area. A Special Management Area (SMA) was created around the Pinto Creek Canyon Natural Area. The area within the SMA contributes to the FMA annual allowable cut; consequently, if the SMA is to remain intact, a harvest sequence strategy must be developed for the SMA. HWP intends to include the area within the SMA in the development of the harvest sequence for the 2014 DFMP.

H. **<u>Reforestation and Vegetation Management</u>** – HWP has a progressive ecosite-based reforestation and an Integrated Vegetation Management strategy for all major stand types which occur on the FMA. The strategy incorporates the use a monitoring system, ecological land classification, historical treatment responses, and post-treatment assessments to guide treatment decisions. Reforestation activities that are prescribed to meet the Integrated Vegetation Management Program Plan objectives include site preparation, planting, spacing, and mechanical and chemical control of competing vegetation. HWP will describe this Integrated Management Strategy in the DFMP. This program will be directly linked into the regeneration transition assumptions in the timber supply analysis.

Alberta's Issues:

This section of the Terms of Reference (Table 11) identifies areas where Alberta has specific issues that they would like to see addressed through the DFMP.

Table 11 – *Specific issues AESRD would like to see addressed through the DFMP*

Issue	Alberta's Understanding of HWP Interest	SRD Interest	Management Direction to PDT
1. AVI Update	Use existing AVI (2001 photography) with 2012 landuse updates.	We agree with this variance from the Forest Management Planning Standard 4.1 due to timing and economic conditions.	Update process to be reviewed with Plan Development Team.
2. ARIS reconciliation	Meet requirements for validation of net landbase against ARIS declarations.	Support efficient reconciliation of net landbase records with ARIS declarations.	Complete the validation using ARIS records whose condition closely matches disturbance records used to update the net landbase. For example, if the net landbase is based on actual harvest updates to May 1, 2012, and pre-blocks from May 1, 2012 to May 1, 2014 (the effective date of the net landbase), then ensure ARIS records consist of actual harvest blocks and pre-blocks with the same dates.
3. Utilization	Obtain necessary flexibility in approach to utilization.	Ensure utilization standard employed in TSA accurately represents operational application (e.g., CTL "cookies"; preferred log length), in a manner auditable by AESRD Area staff.	Develop scenarios in Timber Supply Analysis based on proposed utilization standard, as well as likely alternatives.

Issue	Alberta's Understanding of HWP Interest	SRD Interest	Management Direction to PDT
4. Deciduous resource	Address safety and manage supply relative to markets.	Achieve highest possible utilization of deciduous resource, and consistency between use and TSA.	Define deciduous use with respect to natural disturbance emulation. Classify uneconomic deciduous, and remove from TSA. Monitor and report future operational losses as drain.
5. Spatial harvest sequence (SHS) variance	Streamlined approval process on annual operating plans. Achievement of FMP objectives through adherence to SHS within reasonable tolerances.	Reduce variance from SHS, to improve achievement of FMP values.	Review historical SHS variance with PDT to inform construction of net landbase.
6. Stable haul distance	Stabilize economic characteristics of long-term supply while obtaining short-term flexibility.	Ensure long-term economic viability of FMA and its communities.	Elaborate strategy for maintaining long-term stability in haul distance/economic accessibility.
7. Road Corridor Plan	Meet requirements of Forest Management Planning Standard v4.1 (5.6.i.b).	Support achievement of FMP values associated with access and road density.	HWP to submit this as part of their FMP, with review by Public Lands.
8. Structure retention	Define a sufficient objective providing necessary flexibility.	Ensure Forest Management Planning Standard v4.1 requirements for local and stand biodiversity are met.	Define structure retention strategy, with reference to approach to natural disturbance emulation.
9. Riparian buffers	Use LiDAR-based watercourse layers to support development of more operational net landbase.	Ensure that watercourse and water body buffers are correctly applied in the net landbase.	HWP will review the assignment of watercourse classes to LiDAR-based data, and the assignment of related buffers, with the PDT.
10. Alternative Riparian Management Strategy	Define innovative methods to achieve natural disturbance emulation through timber harvest while protecting riparian function.	Protect riparian resources while supporting innovation, as per conditions in Oct. 13, 2011 letter from Darren Tapp.	Review alternative strategy with PDT, providing comparison to any developments from the AESRD Riparian Management Committee.
11. Grizzly Bear Habitat Supply Modelling	Forecast grizzly bear habitat availability.	Management of grizzly bear habitat is required.	PDT will forecast habitat availability, seeking consistency with Program recommendations.

Issue	Alberta's Understanding of HWP Interest	SRD Interest	Management Direction to PDT
12. Woodland Caribou Habitat Supply Modelling	Incorporate management of woodland caribou into FMP.	Management of caribou habitat is required.	PDT to provide oversight on habitat modelling. HWP to ensure that outcomes are consistent with harvest scheduling and sequencing.
13. Pinto Creek Goat Habitat Conservation	Incorporate Pinto Creek Goat Habitat Conservation Strategy into FMP.	As per the Pinto Creek Goat Habitat Conservation Strategy, HWP must manage this area.	HWP to evaluate FMP for consistency with recommendations of the Strategy and review with PDT.
14. Athabasca Rainbow Trout	Address Athabasca Rainbow Trout in FMP to reduce impact of status declaration.	Recognize recommended status of Athabasca Rainbow Trout, and develop strategies to support recovery and conservation.	Evaluate riparian, access and watershed management for effect on Trout, and minimize impacts.
15. Natural Disturbance Emulation (NDE)	Develop a feasible NDE strategy to support FMP development.	FMP alignment with regional natural disturbance regime.	PDT to review and gain agreement on NDE strategy, including its effects on deciduous harvest, structural retention, riparian management and caribou management.
16. Post-Mountain Pine Beetle (MPB) fall-down	Secure long-term supply of fibre while managing impact of MPB.	Ensure long-term sustainability of local communities and the FMA.	PDT to discuss mitigation options for the mid-term timber supply and reaching long term sustainability.
17. Aboriginal consultation	Provide adequate consultation with Aboriginal communities, as defined by AESRD.	SRD requires the company to consult with defined communities as per the department Aboriginal Consultation Guidelines.	Meaningful consultation shall be conducted with Alexis Nakota Sioux Nation, Aseniwuche Winewak Nation, Ermineskin Tribe, and O'Chiese First Nation.

Appendix A- Approval Letters

Alberta Environment and Sustainable Resource Development

Forestry Division
Forest Management Branch
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Edmonton, Alberta T5K 2M4
Telephone: 780-427-8474
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File: 00322-F02-04

December 11, 2012

Mr. Richard Briand
Planning Coordinator
Hinton Wood Products, West Fraser Mills Ltd.
756 Switzer Drive
Hinton, AB T7V 0A2

Dear Mr. Briand:

Subject: APPROVAL - FOREST MANAGEMENT PLAN TERMS OF REFERENCE, FMA8800025

The department has received the Terms of Reference for your 2014 Forest Management Plan submitted on November 19.

The Terms of Reference is approved.

If you have any questions, please contact Brendan Hemens at (780) 643-6778.

Sincerely,

Robert W. Stokes, RPF
Senior Manager, Forest Planning Section

c: Kevin Vander Haeghe, Acting Forestry Program Manager, Foothills
Brendan Hemens, Lead, Forest Planning & Performance Monitoring