

**Algoma Forest  
Independent Forest Audit  
2016 – 2021**

**Arbex Forest Resource Consultants Ltd.**

**November 2021**

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## 1.0 Executive Summary

This report presents the findings of an Independent Forest Audit of the Algoma Forest conducted by Arbex Forest Resource Consultants Ltd. The audit utilized a risk-based approach based on the 2021 Independent Forest Audit Process and Protocol. The audit period is April 1, 2016 to March 31, 2021. The audit scope covers the implementation of Phase II of the 2010-2020 Forest Management Plan (FMP) (years 7,8,9,10), and the preparation and implementation of the 2020-2030 FMP (year 1).

Audit procedures and criteria are specified in the 2021 Independent Forest Audit Process and Protocol.

The audit field site investigations were completed in October 2021. Health and safety directives associated with the COVID-19 pandemic affected some aspects of the delivery of this audit.

The Algoma Forest is managed by Clergue Forest Management Inc. under Sustainable Forest License # 542257. The Forest is situated in the Ontario Ministry of Northern Development, Mines Natural Resources and Forestry Northeast Region and is in the Sault Ste. Marie, Wawa, and Chapleau Districts. The Sault Ste. Marie District has Ministry lead responsibility for the Forest. Two Local Citizens Committees are associated with the Forest (Sault Ste. Marie Local Citizens Committee and the Wawa Local Citizens Committee).

The Forest is certified as sustainably managed by the Forest Stewardship Council. We concluded that the Algoma Forest is well-managed and forest management was planned and implemented in accordance with the Crown Forest Sustainability Act and FMP targets are consistent with the achievement of plan objectives and forest sustainability.

An effective silviculture program was delivered with the area renewed generally being in balance with the area harvested. The quality of the tree marking program delivered by Clergue was commendable. The tailoring of tree marking to existing stand conditions will result in higher levels of silvicultural success in future management terms. However, we are concerned that tree marking audits are not being completed by the Ministry of Northern Development, Mines, Natural Resources and Forestry District Office, despite the significance of tree marking on forest sustainability, forest health, forest renewal and the considerable expenditure of public funds on the program.

Audit period harvest levels were well below planned achieving only 25% of the planned area target and 16% of the planned volume target, primarily due to the closure of the St. Mary's Paper Corp. mill, which negatively affected the demand for pulpwood and the closure of the Weyerhaeuser OSB mill (2007) which reduced the demand for low quality hardwoods. The significant shortfall in harvest area had negative implications with respect to the ability to maintain the Forest Renewal Trust minimum balance. The harvest area shortfall also negatively affected the achievement of landscape-level

patterns and other management objectives linked to the area cut. The inability to achieve planned harvest levels over successive planning terms will have negative implications with respect to achieving the desired future forest condition, plan objectives (e.g., supply of wildlife habitat for certain species, movement towards desired forest disturbance size class frequencies), and the Long-Term Management Direction.

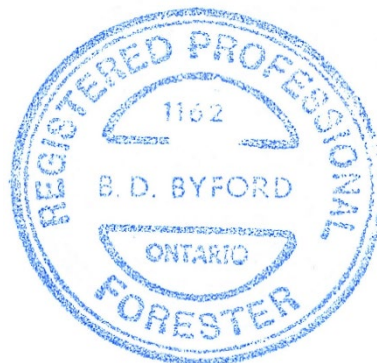
The audit identified several areas for improvement in forest operations and the delivery of the forest management program. Operational standards for forestry aggregate pits were not consistently met. Conditions on operations within the Voyageur Trail Association Area of Concern were not implemented despite training efforts by the Ministry of Northern Development, Mines, Natural Resources and Forestry District Office and Clergue Forest Management Inc. to address the issue with the associated Forest Resource Licensee. The Sault Ste. Marie District did not fully meet the program direction of the Silvicultural Effectiveness Monitoring program. Administrative issues identified included an excessively long timeframe to process forest management plan amendments pertaining to road and water crossing transfers to the Crown. There were information gaps in required reporting in Annual Reports.

One best practice was identified for the initiative by the Sault Ste. Marie District to better understand the specific habitat requirements of the West Virginia White Butterfly and apply that knowledge in the application of an Area of Concern prescription.

The audit team concludes that the management of the Algoma Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence held by Clergue Forest Management Inc. # 542257. The forest is being managed consistently with the principles of sustainable forest management, as assessed through the Independent Forest Audit Process and Protocol.

*Bruce Byford*

Bruce Byford R.P.F.  
Lead Auditor



## 2.0 Table of Findings

Table 1 Findings

<b>Concluding Statement:</b>
<p>The audit team concludes that the management of the Algoma Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence held by Clergue Forest Management Inc. # 542257. The Forest is being managed consistently with the principles of sustainable forest management, as assessed through the Independent Forest Audit Process and Protocol.</p>
<b>Findings:</b>
<p><b>Finding # 1:</b></p> <p>The operational standards for forestry aggregate pits identified in the Forest Management Plan Manual and the 2020-2030 Forest Management Plan were not consistently met.</p> <p><b>Finding # 2:</b></p> <p>The Ministry of Northern Development, Mines, Natural Resources and Forestry, Sault Ste Marie District Office did not process proposals to decommission roads for transfer to the Crown in a timely manner.</p> <p><b>Finding # 3:</b></p> <p>Conditions on operations within the Voyageur Trail Association Area of Concern were not fully adhered to despite training efforts by the Ministry of Northern Development, Mines, Natural Resource and Forestry District Office and Clergue Forest Management Inc. to address the issue with the implicated Forest Resource Licensee.</p> <p><b>Finding # 4:</b></p> <p>Annual Reports did not fully meet the requirements of the 2017 Forest Management Planning Manual.</p>

**Finding # 5:**

The Ministry of Northern Development, Mines, Natural Resources and Forestry Sault Ste Marie District Office did not fully meet the Silviculture Effectiveness Monitoring Program direction.

**Finding # 6:**

The Forest Renewal Trust minimum balance was not maintained during the audit period.

**Finding # 7:**

Tree marking audits are not being completed by the Ministry of Northern Development, Mines, Natural Resources and Forestry District Office, despite the significance of tree marking on forest sustainability, forest health, forest renewal and the considerable expenditure of public funds on the activity.

**Best Practice # 1:**

The initiative provided by the Sault Ste. Marie District to better understand the specific habitat requirements of the West Virginia White Butterfly and apply that knowledge in Area of Concern prescription is commendable.



### **3.0 Introduction**

This report presents the findings of the Independent Forest Audit (IFA) of the Algoma Forest (AF or the Forest) conducted by Arbex Forest Resource Consultants Ltd. for the period of April 1, 2016 to March 31, 2021. The audit utilized a risk-based approach based on the 2021 Independent Forest Audit Process and Protocol (IFAPP).

The audit scope covers the implementation of Phase II of the 2010-2020 Forest Management Plan (FMP) (years 7,8,9,10), and the preparation and implementation of the 2020-2030 FMP (year 1).

The audit field site investigations were completed in October 2021. Health and safety directives associated with the COVID-19 pandemic affected some aspects of the delivery of the audit.

Since 1998 the Forest has been managed by Clergue Forest Management Inc.<sup>1</sup> (CFMI or Clergue) under Sustainable Forest License # 542257. Clergue has two full-time professional staff who have responsibilities for forest management planning, supervising forest operations and other administrative duties. CFMI employs a number of seasonal contractors to undertake silvicultural work such as tree marking, tree planting and pre-commercial thinning. Harvesting is conducted by Forest Resource Licence holders (FRLs) under Overlapping Licence Agreements (OLLs) with CFMI.

The Forest is situated in the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) Northeast Region and is in the Sault Ste. Marie, Wawa and Chapleau Districts. Two Local Citizens Committee are associated with the Forest (Sault Ste. Marie Local Citizens Committee (SSMLCC) and the Wawa Local Citizens Committee (WLCC)).

The Forest is certified as sustainably managed by the Forest Stewardship Council (FSC).

The 2016 IFA was conducted by ArborVitae Environmental Services Ltd. That audit made twenty-nine recommendations for improvement to the forest management program (Section 4.8). The audit determined that the AF was sustainably managed and recommended that the SFL term be extended for an additional five years.

#### **3.1 Audit Process**

The Crown Forest Sustainability Act (CFSA) requires that all Sustainable Forest Licences (SFLs) and Crown Management Units (CMUs) be audited every ten to twelve years by an independent auditor. The 2021 IFAPP provides guidance in meeting the requirements of Ontario Regulation 319/20 made under the CFSA. The scope of the audit is determined by the NDMNRF in specifying mandatory audit criteria (Appendix A

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<sup>1</sup> CFMI is a shareholder company owned by; Boniferro Mill Works Inc., Columbia Forest Products (Levesque Division), Domtar Inc., Midway Lumber Mills Ltd., and Rayonier Advanced Materials (RYAM).

of the IFAPP). The audit scope is finalized by the auditors who conduct a management unit risk assessment by identifying optional audit criteria from Appendix A to be included in the audit<sup>2</sup>. The final audit scope is accepted by the Forestry Futures Trust Committee (FFTC) and approved by the NDMNRF with any subsequent changes to the audit scope requiring agreement between the FFTC, NDMNRF and the Lead Auditor.

The procedures and criteria for the delivery of the IFA are specified in the 2021 IFAPP. The audit generally assesses licence holder and NDMNRF (the auditees) compliance with the Forest Management Planning Manual (FMPM) and the CFSA in conducting forest management planning, operations, monitoring and reporting activities. The audit also assesses the effectiveness of forest management activities in meeting the objectives set out in the Forest Management Plan (FMP). The audit reviews whether actual results in the field are comparable with planned results and determines if the results were accurately reported. The results of each audit procedure are not reported on separately, but collectively provide the basis for reporting the outcome of the audit. The audit provides the opportunity to improve Crown Forest Management in Ontario through adaptive management. Findings of “*non-conformance*” are reported. A “*Best Practice*” is reported when the audit team finds the forest manager has implemented a highly effective and novel approach to forest management or when established forest management practices achieve remarkable success.

Details on the audit processes are provided in Appendix 4. Health and safety directives associated with the COVID-19 pandemic restricted the number of non-auditor individuals involved in the field audit and limited some aspects of the delivery of the audit (e.g., in-person interviews, participation of some individuals).

Arbex Forest Resource Consultants Ltd. conducted the IFA in October 2021, utilizing a four-person team. Profiles of the audit team members, their qualifications and responsibilities are provided in Appendix 6.

### **3.2 Management Unit Description**

The AF is situated in Central Ontario and occupies an area extending from Sault Ste. Marie (SSM) in the south to Wawa in the north (Figure 1). The Forest resides within NDMNRF’s Northeast Region. Three NDMNRF administrative Districts are associated with the Forest; the Sault Ste. Marie District, Wawa District and a small portion of the Chapleau District.

Highway 17N connects SSM to Wawa. Highway 556 (Ranger Lake Road) bisects the Forest from east to west and Highway 101 provides access from Chapleau to Wawa in the northern section of the Forest.

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<sup>2</sup> Five optional audit criteria were selected for audit.

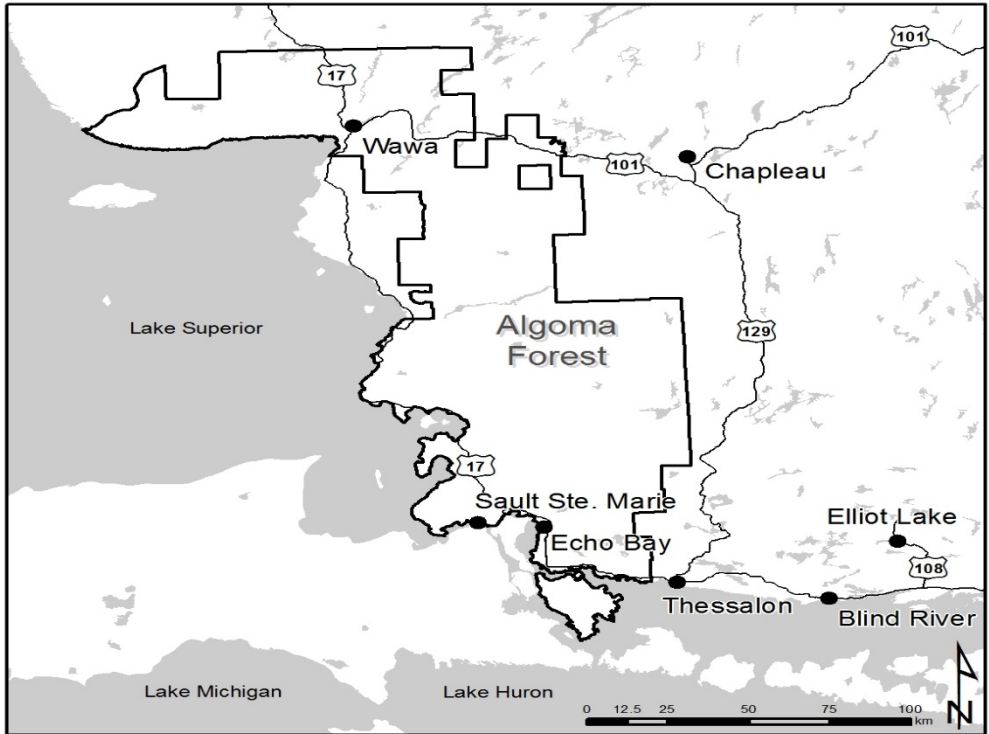


Figure 1 Location of the Algoma Forest.

The Forest is situated in the transition zone between the Boreal and Great Lakes-St. Lawrence Forest Regions and as such contains elements of both regions. Approximately 60% is within the Boreal Region with the northern portion of the Forest dominated by jack pine, trembling aspen, white birch, and black and white spruce. The southern portion contains large areas of tolerant hardwoods including maple and yellow birch. Figure 2 presents the proportional representation of forest units in the Crown managed forest.

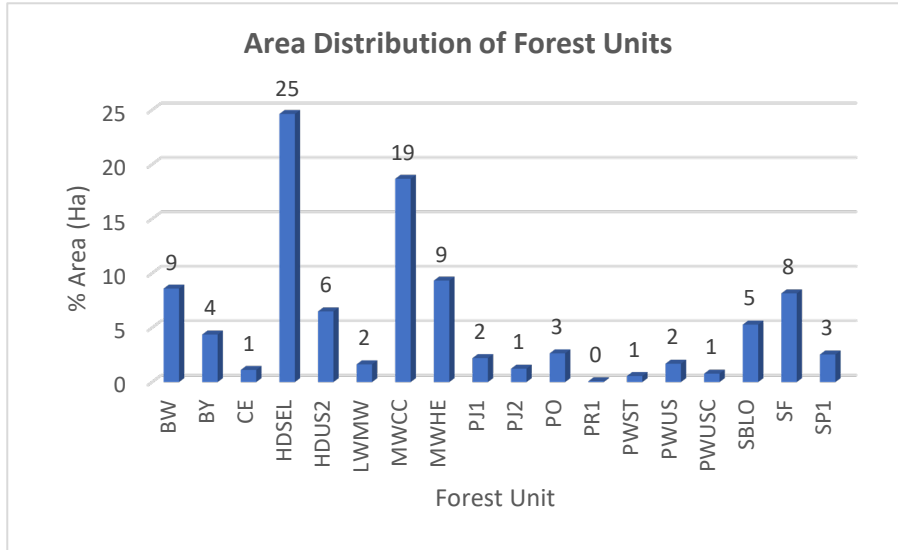


Figure 2 Forest Unit Distribution (%) within the Available Crown Managed Forest<sup>3</sup>  
Source 2020-2030 Algoma FMP Base Model Inventory

As a result of the diversity of forest cover types available, the Forest supports a wide diversity of wildlife species including numerous Species at Risk<sup>4</sup>. The Forest is well accessed by provincial highways and forest access roads. It is used extensively for recreation activities by the local and regional population. There are approximately 70 commercial tourism operations. No Resource Stewardship Agreements (RSAs) were signed during the development of the 2020 FMP.

Several First Nation and Métis communities are located within, adjacent to or have an interest in the Forest. These include: the Batchewana First Nation (FN), Garden River FN, Michipicoten FN, Missanabie Cree FN, Mississauga FN, and the Thessalon FN. Métis communities and organizations with an interest in the AF are the Métis Nation of Ontario, Bar River Métis Community and the Red Sky Métis Independent Nation.

Managed Crown land occupies 749,346 ha of which 95% is classified as productive forest land available for timber production (Table 2). Thirty-five percent of the Forest is patent land situated within the municipalities of Sault Ste. Marie and Wawa, other organized townships and land formerly owned by the Algoma Central Railway.

Protected areas encompass approximately 18% of the Crown Forest area (140,000 Ha).

<sup>3</sup> Forest units are as follows PR=Red Pine, PWUS=White Pine Uniform Shelterwood, PWUSC=White Pine Uniform Shelterwood with Other Conifer Component, PWST= White Pine Seed Tree, PJ1=Jack Pine, PJ2= Jack Pine with Spruce Component, CE=Cedar, SPLO=Black Spruce Lowland, SP1=Spruce-Pine, SF=Spruce-Fir, BW=White Birch, BY=Yellow Birch Uniform Shelterwood, HDSEL=Hardwood Selection, LWMW=Lowland Mixedwood Uniform Shelterwood, HDUST=Hardwood Uniform Shelterwood, PO=Poplar, MWHE=Mixedwood Uniform Shelterwood, MWCC= Mixedwood Clearcut.

% Area may not = 100% due to rounding.

<sup>4</sup> Caribou habitat (discontinuous and continuous) occurs along the north shore of Lake Superior (approximately 67,000 ha).

Table 2 Area of Crown Managed Land by Land Type (Ha).

Managed Crown Land Type	Area (Ha)
Non-Forested	6,049
Non-Productive Forest	29,972
Protection Forest <sup>5</sup>	10,190
Production Forest <sup>6</sup>	703,135
Forest Stands	674,532
Recent Disturbance	11,036
Below Regeneration Standards <sup>7</sup>	17,567
<b>Total Productive Forest<sup>8</sup></b>	<b>713,325</b>
<b>Total Forested:</b>	<b>743,297</b>
<b>Total Crown Managed:</b>	<b>749,346</b>

Source: FMP 2020-2030 FMP

## 4.0 Audit Findings

### 4.1 Commitment

CFMI met the 2021 IFAPP Commitment Principal criterion through its FSC certification<sup>9</sup>.

NDMNRF vision and mission statements are widely distributed on its websites and posting at its various offices. Sault St Marie District staff have completed training appropriate to their roles (e.g., planning, compliance). It is our assessment that NDMNRF met the requirements of the IFAPP commitment principle.

<sup>5</sup> Protection forest land is land on which forest management activities cannot normally be practiced without incurring deleterious environmental effects because of obvious physical limitations such as steep slopes and shallow soils over bedrock.

<sup>6</sup> Production forest is land at various stages of growth, with no obvious physical limitations on the ability to practice forest management.

<sup>7</sup> Below Regeneration Standards refers to the area where regeneration treatments have been applied but the new forest stands have yet to meet free-to-grow standards.

<sup>8</sup> Islands are excluded.

<sup>9</sup> FSC Registration Code: BV-FM/COC-407103. The certificate was issued 2021-02-05 and expires 2026-02-03.

## **4.2 Public Consultation and First Nations and Métis Community Involvement and Consultation**

Our interviews and record review indicated that stakeholders were made aware of the planning process and that opportunities were provided for input and engagement in the forest management planning process. We concluded that FMPM public consultation requirements for the development of the 2020-2030 FMP, Annual Work Schedules (AWSs), and Plan Amendments for the audit period were met. All stakeholders were made aware of the planning process (through media outreach) and opportunities were provided to the LCCs, FNs, Métis and the broader public for input and engagement in the planning processes. Comments received were documented in the Supplementary Documentation and appropriately addressed. Public input with respect to values protection was also documented, verified and where appropriate, added to values maps. Our review of the correspondence files indicated that responses to public comments and inquiries (including those from First Nations) were timely and comprehensive.

### **Issue Resolution and Individual Environmental Assessment**

There was an issue resolution process implemented during the development of the Long-Term Management Direction (LTMD) in response to a concern regarding how wildlife habitat projections were incorporated into planning for the long-term sustainability of the forest. The issue was reviewed by the SSM District Manager and the Regional Director. It was determined that the FMP was prepared in accordance with Ontario's Forest Management Policy Framework, the direction of the Endangered Species Act (ESA) and the various guides and manuals which contribute to the policy framework (e.g., Forest Management Guide for Conserving Biodiversity at the Stand and Site Scale, Forest Management Guide for Great Lakes-St. Lawrence Landscapes). The request did not result in changes to the LTMD but did secure additional commitments to monitor the impacts of forest operations on wildlife habitats and populations.

We concluded that FMPM requirements for issue resolution were met.

### **First Nations and Métis Communities**

There are six First Nations (FN) and three Métis communities located on or adjacent to the Forest. These include the: Michipicoten FN, Batchewana FN, Garden River FN, Thessalon FN, Mississauga FN, Missanabie Cree FN, Métis Nation of Ontario, Bar River Métis Community, and the Red Sky Independent Métis Nation.

As required by the Forest Management Planning Manual (FMPM) all the identified communities were invited to participate in the development of the 2020-2030 FMP.

An auditor made initial contact with all First Nation Chiefs and forestry designates as well as Métis leaders identified by the NDMNRF.

Interviews and review of all indigenous related records indicated that communications with the NDMNRF and CFMI were ongoing and well documented. All required notifications related to the 2020-2030 FMP development were carried out in accordance with FMPM content and timelines.

All communities were invited to designate a representative for the planning team. Thessalon FN, Mississauga FN, Garden River FN and Michipicoten FN participated on the planning team. No customized consultation approaches were requested. During the FMP development information sharing was provided by the community representatives and regular correspondence with community leaders. As well, the NDMNRF with CFMI involvement, established an Indigenous Task Team that provided input during the planning process. Regardless of participation, each First Nation and Métis community was kept apprised of progress throughout plan development.

Background Information Reports and demographic profiles were updated and utilized in FMP development.

Interviews with CFMI staff, and FNs and Métis representatives indicated that a number of contractors working in the Algoma Forest employed indigenous workers. Some of the shareholders have broad based indigenous outreach programs<sup>10</sup>. We note that the Thessalon FN provided tree seedlings to support forest renewal activities.

Our interviews with a limited number of indigenous individuals indicated a general satisfaction with CFMI and NDMNRF efforts to engage communities and respond to questions and issues. The Indigenous Task Team continues to provide a forum for ongoing discussion of a wide range of issues.

Our assessment is that all FMPM requirements for First Nation and Métis community consultations were met.

#### Local Citizens Advisory Committee

Due to its large size and history the Algoma Forest has two Local Citizens Committees (i.e., The Sault Ste. Marie Local Citizens Committee (SSMLCC) and the Wawa Local Citizens Committee (WLCC)). The WLCC has responsibility for the Magpie Forest as well as the Algoma Forest north of the Montreal River<sup>11</sup>.

The SSMLCC and the WLCC are standing committees with members appointed by the NDMNRF District Manager. The Committees have representation from different sectors with interests in the Forest (e.g., tourism, chamber of commerce, naturalist, sport

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<sup>10</sup> For example, Domtar has a "First Nation Natural Resources Youth Employment Program and there is a Thessalon First Nation BioCenter.

<sup>11</sup> During the audit period, the low amount of forest management activity in the area north of the Montreal River resulted in little involvement by the WLCC.

hunters and anglers, etc.). The Sault Ste. Marie LCC has responsibility for the Algoma Forest south of the Montreal River and has been assigned lead responsibility for the Algoma Forest.

The Terms of Reference provides for representation from Indigenous communities. The SSMLCC Terms of Reference was updated in 2021. The Committees primary focus is forestry planning and implementation.

A SSMLCC member was appointed to the planning team, and LCC members were involved with all aspects of FMP development and implementation. Meeting minutes show on-going involvement providing advice and comment on the full range of plan development and implementation activities (e.g., Annual Work Schedules). There were regularly scheduled meetings, comprehensive agendas and minutes, and, usually, a quorum in attendance. The NDMNRF District Manager and/or other senior staff attended meetings.

With respect to the development of 2020-2030 FMP, the LCC provided a statement indicating “...*agreement with the Final Plan for the 2020-2030 Forest Management Plan on the Algoma Forest.*”

Our interviews with SSMLCC and WLCC members indicated they were satisfied with the efforts by CFMI and the NDMNRF to respond to questions, provide information and seek their views on forest management activities. Auditor interviews and a LCC self-evaluation indicated the members of the LCCs felt their time on the committee was well spent, and that they provided value to the forest management planning and implementation processes. This assessment was shared by NDMNRF and Clergue staff.

Our assessment is that LCCs are effective and well managed by the NDMNRF. They provide significant benefits to the forest management program on the AF.

### **4.3 Forest Management Planning**

We found the planning for the 2020-2030 FMP met FMPM requirements. Plan objectives, indicators, desirable levels and targets for harvest and wildlife were developed by the Planning Team with input from the LCCs, NDMNRF advisors and FN and Métis communities. We note that focused meetings were conducted with the LCCs and FN and Métis communities with respect to management objectives<sup>12</sup> and desired forest conditions and benefits in support of the development of the FMP. Information sources for the development of the plan included previous FMPs, NDMNRF guides and planning directions, Annual Reports and past IFAs. Operational prescriptions for AOCs were consistent with the *Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales* (Stand and Site Guide). An analysis of silvicultural activities was completed by a Registered Professional Forester (R.P.F.) to develop growth and yield

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<sup>12</sup> Parties that were engaged to provide input into the development of management objectives did not necessarily endorse some or any of the objectives presented in the FMP.



projections and silviculture treatment options. We were informed that the planning team used information from other neighbouring management units to support wood supply modelling and the development of the LTMD due to limited locally available Silvicultural Effectiveness Monitoring data (**Finding # 5**).

As required by the FMPM, all progress checkpoints (e.g., planning inventory, management objectives checkpoint, LTMD checkpoint) were confirmed and documented in the Analysis Package.

The FMP was not designated as a Section 18 *Overall Benefit Instrument under the Endangered Species Act* (ESA) and was prepared under the regulatory exemption for Crown forestry (O.Reg.242/08 s.22.2.). As such, a summary of monitoring for species at risk (SAR), and the Supplementary Documentation required by Part B, Section 4.7.5 of the 2017 FMPM, was not required. While forest operations are exempt from the permitting process under the ESA, there is still a requirement for SAR to be protected. Protection is provided through Area of Concern (AOC) prescriptions and ensuring implementation of those prescriptions during operations (as required in Ontario Regulation 242/08 Section 22.1.)<sup>13</sup>. For the plan term, there are no requirements or conditions related to SAR that required the implementation of a monitoring program. SAR were appropriately considered during planning. Habitat descriptions, the application of guidelines and operational prescriptions are provided in the FMP text. For example, Caribou habitat along the north shore of Lake Superior required special consideration during the development of the LTMD and resulted in the development of a special objective for maintaining caribou habitat.

We conclude that the LTMD achieved a satisfactory balance of all objectives and indicators, was consistent with legislation and policy, appropriately considered direction in the forest management guides and provides for forest sustainability.

The Strategic Forest Management Model (SFMM) was utilized to model timber production capabilities at various levels of management activity. Base assumptions and constraints for management are detailed in the FMP Analysis Package and were in accordance with the direction(s) in the FMPM. Targets were developed with consideration of historic wood utilization and current wood requirements and other social, economic and environmental considerations. Product yield proportions (i.e., sawlog vs. pulp), volume yields were appropriately developed in consultation with licencees and reviews of data in past Annual Reports (ARs). The post-harvest successional pathways were developed based on an analysis of past performance and a comparison of rules on an adjacent forest (i.e., Northshore Forest). Five strategic management zones (SMZs) were delineated based on township boundaries. Additional

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<sup>13</sup> Where a species at risk's habitat feature, such as a nest, den or hibernacula is encountered during implementation of forest operations and no applicable AOC for the species is documented in the FMP, forest operations are to be suspended in the area of the site-specific feature, application is to be made to NDMNRF for an AOC to be amended into the FMP, as required in Ontario Regulation 242/08 Section 22.1.

SMZs were identified to delineate parks and conservation areas and non-managed forest. The designation of SMZs allowed for the development of area specific management considerations during model scoping<sup>14</sup>. The assessment indicated that the LTMD will not result in a deficit or significant drop in wood supply within any of the identified strategic management zones.

The LTMD was deemed to provide a realistic available harvest area and volume projections that met current mill demands and allowed for new market entrants. However, although the selected scenario indicates progress with respect to the Forest Management Guide for Great Lakes-St. Lawrence Landscapes direction for creating forest structure and composition, targets for reductions in the amount of tolerant hardwood and mixed forest types were not fully achieved. It is evident that an inability to achieve projected harvest levels will pose a significant management challenge to the achievement of LTMD objectives and indicators.

There are notable shortfalls with respect to the achievement of minimum target levels for the area of pine-based forest types (although an increasing trend over time was demonstrated) and projections indicate a significant shortfall in reducing the area of the tolerant hardwood forest through transitions to white pine dominated forest units. Few silvicultural options are available with respect to expediting the transition from tolerant hardwoods to white pine dominated forest types due to management challenges associated with white pine blister rust. The inability to achieve planned harvest levels has significant adverse implications with respect to the achievement of area targets and timelines for increasing pine-based forest types on the landscape. Given the forest cover type attributes and the documented management challenges associated with the renewal of white pine we concluded that the interpretation of the projected trends in the modelling exercise were valid.

Proposed forest management operations were consistent with the LTMD. Operational prescriptions were prepared in accordance with the *Forest Management Guide for Conservation of Biodiversity at the Stand and Site Scales* (Stand and Site Guide). Wildlife habitat assessments and management strategies utilized a broad ecosystem approach (coarse filter). For the protection of sensitive sites (e.g., nests, spawning areas) a fine filter was utilized (i.e., specific Stand and Site Guide direction). Known fish and wildlife values were assessed from the NDMNRF's Land Information Ontario (LIO) and Natural Heritage Information Centre (NHIC) systems. Interviews with Planning Team members indicated that there was sufficient values information for FMP development. The LCC, First Nation and Métis Planning Team members were involved in the review of the FMP flora and fauna protection measures.

Planned operations met the intent of the LTMD with operational prescriptions and conditions for AOCs developed in accordance with the requirements of the FMPM. All Operational planning for AOCs considered the direction and recommendations in forest

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<sup>14</sup> These scoping investigations were conducted to gain insight and understanding on how the model was functioning, sensitivity to specific inputs/changes and the interplay between various model inputs.

management guides. As such, there was no requirement for an exceptions monitoring program.

The FMP Supplementary Documentation provides direction on primary, branch and operational roads that includes an environmental analysis of alternate primary road corridors, use management strategies and access provisions. We conclude that access planning was well done and met FMPM, AWS and guideline requirements.

There are approximately seventy licensed resource-based tourism establishments located on or adjacent to the Forest. The 2020-2030 FMP reports on resource-based tourism and FMP-Table 11 lists a variety of AOCs utilized to protect remote tourism opportunities. Tourism establishments were included in the FMP consultation process but no RSAs were signed. We were informed that most operations are fishing outfitters and that the Crown Land Use Policy Atlas (CLUPA) protections around lakes were deemed sufficient to address concerns.

There were forty amendments associated with Phase II of the 2010-2020 FMP (categorized as 39 Administrative and one Minor) and 15 during the first year of the 2020-2030 FMP. All amendments were prepared in accordance with the FMPM and the Forest Information Manual (FIM), are consistent with the FMP, and were appropriately documented.

The content of AWSs conformed to FMPM and Forest Information Manual (FIM) requirements. Proposed forest management activities were consistent with the FMP.

We conclude that forest management planning was in accordance with the requirements of the FMPM and that the proposed FMP objectives and targets are consistent with the achievement of forest sustainability.

#### **4.4 Plan Assessment and Implementation**

Our field assessments confirmed that Silvicultural Ground Rules<sup>14</sup> (SGRs), Silvicultural Treatment Packages<sup>15</sup> (STPs) and Forest Operations Prescriptions (FOPs) were appropriate for the forest cover types and site conditions. SGRs were appropriately updated/confirmed in the SGR update layer per AR requirements.

##### Harvest

A range of harvesting equipment is utilized depending on the scale of the contractor's operations and terrain. Typically, feller-bunchers or cut-to-length harvesters are used in combination with grapple skidders or forwarders.

Harvest operations utilized the clearcut, selection or shelterwood silvicultural systems during the audit period. As a general rule, hardwood shelterwood stands are managed using a two-cut system consisting of a seed cut and a final removal cut when the target regeneration species has achieved a two-meter height standard. Softwood stands

scheduled for shelterwood harvest are typically managed using a three-cut system. All harvests were consistent with the directions in the Annual Work Schedules (AWS).

Experienced certified tree markers conducted all tree marking operations for selection and shelterwood cuts. Marking quality is audited by CFMI with a minimum quality threshold of 90% required for contractor payment. Stands are re-marked in instances when the threshold is not achieved. Marking prescriptions (Forest Operations Prescriptions) were appropriately prepared by a Registered Professional Forester (R.P.F.). Tree marking standards followed the accepted SGR's and the tree marking principles in the Ontario Tree Marking Guide (TMG) and Stand and Site Guide were implemented. We note that for several of the inspected stands, tree makers were delegated responsibility to determine the best silvicultural treatment for stand management. The direction in the TMG permits tree markers to shift the marking approach from a selection harvest to uniform shelterwood to improve overall stand quality and to reset previous silvicultural applications administered in the management of the stand. The shift from one SGR to another was appropriately documented based on the majority balance of stand conditions encountered within the sampled harvest block and input into the GIS to facilitate inventory updates and management planning. Residual basal area targets were achieved in all the marked stands inspected. The audit team found the tree marking program was delivered with a high degree of technical expertise.

Audit period harvest levels (Table 3) were below planned (25%) because of the economic downturn in the forestry sector<sup>15</sup>, operability issues (topography)<sup>16</sup> and an overabundance of low-quality timber<sup>17</sup>. The inability to achieve planned harvest targets had implications with respect to the achievement of other planned silvicultural activities which follow harvesting, and will, (should the trend continue), affect the achievement of objectives related to habitat supply, forest age class distributions and future wood supply.

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<sup>15</sup> For example, RYAM wood utilization has fluctuated annually with a high 100,000 m<sup>3</sup> in 2012 to a low of 2,500 m<sup>3</sup> in 2017.

<sup>16</sup> Rugged terrain on average renders an estimated 8-12% of allocations inoperable which was netted down in SFMM.

<sup>17</sup> The closure of the St. Mary's Paper Corp. mill negatively affected the demand for pulpwood and the closure of the Weyerhaeuser OSB mill (2007) reduced the demand for low quality hardwoods.

Table 3 Actual vs. Planned Harvest Area (Ha) by Forest Unit (2016-2021)<sup>18</sup>

Forest Unit <sup>19</sup>	Planned Harvest (Ha)	Actual Harvest (Ha)	Actual vs Planned %
Mixed Conifer	2,014	232	11
Other Conifer	746	18	2
Jack Pine Dominant	549	221	40
Jack Pine with Spruce	21	15	74
White Pine Uniform Shelterwood	663	67	10
Black Spruce Lowland	2487	834	34
Spruce Fir	523	16	3
Spruce with Jack Pine	43	0	0
Red Pine Dominant <sup>20</sup>	276	174	63
Red Pine	20	0	0
Cedar	236	0	0
White Pine Seed Tree	34	0	0
White Pine Uniform Shelterwood	59	0	0
White Pine Uniform Shelterwood with Conifer	2	0	0
Lowland Cedar with Hardwood	85	39	45
<b>Conifer Subtotal</b>	<b>7,758</b>	<b>1,616</b>	<b>21</b>
White Birch Dominant	1,761	139	8
Coastal White Birch	1,252	67	5

<sup>18</sup> Note that in the first year of the new plan (2019-2020), and commencing August 1, 2020, the forest unit naming convention changed to describe species dominant. The change is reflected in Table 3.

<sup>20</sup> Commercial thinning.

White Birch	911	0	0
Yellow Birch Uniform Shelterwood	794	165	21
Hardwood Selection	17,848	6,752	38
Hardwood Uniform Shelterwood	6,078	1,982	33
Maple/Oak Dominant	1,282	425	33
Poplar Dominant	1,121	123	11
Boreal Mixedwood	2,236	39	2
Yellow Birch	1,446	181	13
Mixedwood Great Lakes-St. Lawrence	870	30	3
Mixedwood Boreal	2,284	64	3
Poplar	239	0	0
<b>Hardwood Subtotal</b>	<b>38,122</b>	<b>9,967</b>	<b>26</b>
<b>TOTAL</b>	<b>45,880</b>	<b>11,582</b>	<b>25</b>

Source: 2016-2021 Annual Reports (2020-21 figures included are estimates).

Shelterwood and selection silvicultural systems are typically applied to maple and yellow birch dominant forest units. Many of the stands scheduled for single tree selection cuts were switched to shelterwood harvest due to poor tree quality, low stocking levels and insufficient acceptable growing stock. The appropriate tailoring of tree marking to existing stand conditions will result in higher quality stands in future management terms.

The existing stand conditions are largely a reflection of the location of the forest in the northern range of tolerant hardwood species<sup>21</sup> and past logging practices which left many tolerant hardwood stands understocked with high proportions of low-quality stems. These conditions pose constraints for economic operations.

The high pulpwood component frequently makes the stands uneconomical to harvest under typical market conditions. The Forestry Futures Trust partially funded tolerant

<sup>21</sup> There is a legacy of designating stands for selection management (in the mid-to late 1990s) as a future stand-level objective even though the quality, structure and site conditions were often not present to support the application of selection cuts.

hardwood stand improvement operations (9,148 Ha) to assist in the removal of unmerchantable or trees which are marginally economic to harvest.<sup>22</sup>

Commercial thinning of red pine occurred on 174 Ha during the audit term. Without thinning interventions site productivity will not be maximized and potential future economic opportunities will be lost.

We visited sites harvested utilizing selection, seed tree, shelterwood and conventional clearcut silvicultural systems. Operator due diligence and care to minimize site damage and damage to residual stems was evident. This finding is confirmed by the relatively low number of compliance issues associated with harvesting during the audit period. All inspected sites were approved for operations in the Annual Work Schedules (AWS) and harvest prescriptions were implemented in accordance with the SGRs and required guidelines. With the exception of harvest intrusions into the Voyageur Trail Association AOC (**Finding # 3**), area of concern prescriptions were properly implemented.

We concluded that, on balance, harvest operations were properly implemented.

### Slash Management

In response to a 2016 IFA recommendation CFMI developed a Slash Management Operational Policy as part of its suite of operational policies and set a target of 90% of slash management on total harvest area in 2017. The policy also included direction on effective slash piling procedures and monitoring. The application of the cut-to-length harvest system retains slash and logging debris on site rather than accumulations at roadside landings.

Slash piling is typically implemented for conventional clearcut harvests utilizing the full tree logging method and is conducted in conjunction with mechanical site preparation. The relatively small area harvested resulted in the underachievement of planned targets with piling only occurring in 2018. The limited amount of slash piling reflects the lack of conventional clearcutting that occurred during the audit term.

We note that roadside slash is made available to the public through the purchase of a fuelwood permit following the completion of logging operations.

### Area of Concern Management

Area of Concern operational prescriptions are provided in FMP Table-11. CFMI training programs include instruction with respect to AOCs and the protection of SARs habitat. A company Field Booklet is available to all employees. Our sampling of FMP AOC

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<sup>22</sup> FFT funding facilitates the harvest of poor-quality stems which distributes growth increment on better quality stems and promote natural regeneration by reducing stand stocking levels and retaining better quality stems as seed sources.

prescriptions confirmed that they were in accordance with NDMNRF guidelines, and that they were appropriate for the protection and/or maintenance of the identified values.

Conditions on Regular Operations (CROs) provide direction on ecological features (e.g., nests, etc.) encountered during forest operations that are not within established AOCs. CRO categories are described in the FMP with an identifier code (e.g., CRO-woodland pools). With the exception of recurring infractions with the conditions on operations within the Voyageur Trail Association Area of Concern (**Finding # 3**) there were limited non-compliances associated with AOC management.

Specific SAR AOC prescriptions were applied as required. One best practice was identified for the initiative by the Sault Ste. Marie District to better understand the specific habitat requirements of the West Virginia White Butterfly and apply that knowledge in the application of an AOC prescription. The modified prescription protected and maintained SAR habitat while facilitating fewer restrictions on forest management operations.

#### Site Preparation (SIP)

FMP targets for mechanical and chemical site preparation were not achieved (9% of the forecast area) principally due to the reduced harvest level, the silvicultural systems utilized (e.g., uneven age management, uniform shelterwood) and a lack of area conducive to the chemical and mechanical treatments (Table 4).

Mechanical site preparation was by powered disc trencher and only achieved 21% of the planned level primarily due to the low level of conventional clearcut harvest. Our site inspections found that trenching provided good mineral soil exposure. No incidences of environmental damage associated with mechanical site preparation activities were observed.

No chemical site preparation treatments were conducted.

Table 4 Area (Ha) of Actual vs. Planned Site Preparation (2016-2021).

Site Preparation Treatments	Planned Ha	Actual Ha	Actual vs Planned %
Mechanical SIP	1,845	385	21
Chemical SIP	2,479	0	0
<b>SIP Total</b>	<b>4,324</b>	<b>385</b>	<b>9</b>

Source: 2016-2020 Annual Reports (2020-21 figures included are estimates).



## Renewal

Table 5 presents the planned vs actual area renewed. The area renewed (artificial and natural) constitutes 94% of the reported harvest area with renewal targets below planned (i.e., 23%) due to the low level of harvest.

Levels of renewal (artificial and natural) are below planned targets and reflect the declining trend in harvest levels. The low level of artificial renewal (24% of planned) reflects the application of selection and shelterwood harvest treatments which are conducive to natural regeneration of mid-tolerant and tolerant hardwoods. Artificial renewal was typically adopted in conifer dominant forest units.

Table 5 Area (Ha) of Actual vs. Planned Renewal Treatments (2016-2021).

<b>Renewal Treatments</b>	<b>Planned (Ha)</b>	<b>Actual (Ha)</b>	<b>Actual vs Planned %</b>
Natural Renewal			
Uniform Shelterwood	12,237	2,396	20
Selection	18,116	6,756	37
Clearcut Block Cut	11,697	566	5
Seed Tree	37	0	0
Artificial Renewal – Plant	5,194	1,241	24
Artificial Renewal – Seed	77	0	0
<b>Total Renewal</b>	<b>47,358</b>	<b>10,959</b>	<b>23</b>

Source: 2016-2020 Annual Reports (2020-21 figures included are estimates).

Areas managed for hardwoods under the even-age and uneven-age harvest systems were typically well stocked to desired species.

Artificial renewal sites (including areas of in-fill planting) typically exhibited good spacing and stocking to crop tree species.

Our assessment is that an effective renewal program was implemented.

## Renewal Support

CFMI manages two black spruce improved stock seed orchards which supply all the seed for the black spruce stock production. CFMI is also a shareholder in the jack pine seed orchard managed by Jackfish River Forest Management. CFMI collects jack pine, red pine, white pine and white spruce bulk seed which is stored at the seed plant in Timmins.

## Tending

Table 6 presents the planned vs actual area treated by tending during the audit period. Aerial tending treatments were implemented on 691 ha. CFMI limits the application of

herbicide treatments as a component of its FSC certification program. Additionally, during the audit period, the SFL holder had difficulties in securing an aerial spray contractor due to the small scale of the aerial herbicide program. Aerial treatments were directed to areas of conifer renewal. Herbicide treatments observed during the field audit were effective in controlling competing vegetation.

Table 6 Area (Ha) of Actual vs. Planned Tending Treatments (2016-2021).

Tending Treatments	Planned (Ha)	Actual (Ha)	Actual vs Planned %
Chemical - Aerial	1,645	691	42
Chemical - Ground	211	0	0
Mechanical	716	0	0
Spacing/Thinning	6,252	2,396	38
Pruning	29	0	0
<b>Total Tending</b>	<b>8,853</b>	<b>3,087</b>	<b>35</b>

Source: 2016-2020 Annual Reports (2020-21 figures included are estimates).

During our site inspections, we visited a red pine plantation where pre-commercial and commercial thinning had been undertaken to control stand density. These treatments were appropriately implemented with no visible damage to residual trees and the prescribed stand density targets were achieved.

#### Protection

No protection programs other than monitoring functions were implemented during the audit period.

#### Access Management

Forest access was planned and constructed in accordance with the FMP, AWS and relevant forest management guidelines. Road construction and maintenance responsibilities are assigned to individual FRLs. Ninety-four kilometers (KMs) of primary and branch roads were constructed and an additional 198 KMs of operational roads were built and/or maintained<sup>23</sup>. Road construction and maintenance activities were not consistently reported in the text of the Annual Reports (**Finding # 4**).

During the audit period, 97 water crossings (bridges and culverts) were installed. Our field inspections found that water crossings were generally well-constructed. We note that the CFMI Water Crossing Handbook provides standards for water crossing installations including best practices for erosion control. We visited several locations where water crossings had been removed. Measures were in place to mitigate erosion,

<sup>23</sup> Approximately 254 kms of road is maintained annually.

and there was no significant evidence of environmental degradation associated with the crossing removals.

#### **4.5 Systems Support**

CFMI met the 2021 IFAPP Human Resources Principal criterion through its FSC certification. The Sault Ste. Marie District maintains organization charts. Staff training records relevant to their responsibilities are in place. Files are retained with individual staff members or entered/updated into District and/or Provincial data systems.

Appropriate information management systems are in place to support sustainable forest management. Each organization had a formal data backup, recovery and security system and made effective use of Geographic Information Systems (GIS) technology to support their forest management program.

#### **4.6 Monitoring**

The 2020-2030 FMP contained Compliance Plans as required by the FMPM and in accordance with the Guidelines for Industry Compliance Planning.

NDMNRF prepared annual compliance operating plans (ACOPs) that identified priority areas, targets and assigned staff responsibilities. The COVID-19 pandemic and its associated health and safety protocols negatively affected the achievement of some planned targets and compliance reporting.

Inspection activities documented in the Forest Operations Information Program (FOIP) generally reflected directions in the CFMI and NDMNRF Compliance Plans. CFMI approves all FOIP inspections. Over the audit period approximately 459 inspections were completed (19% by NDMNRF and 89% by FRLs). A 95% compliance rate was achieved. Our assessment is that this was an appropriate balance of compliance inspections.

Twenty-three Operational Issues were reported (12 by NDMNRF and 11 by CFMI). Documentation indicates that compliance staff worked proactively and cooperatively to identify issues and develop corrective remedies. NDMNRF reviewed and made decisions on the reported incidents in a timely manner which included corrective action requests, repair orders and penalties. As required, CFMI included identified compliance issues in contractor training sessions.

Our assessment is that compliance planning and implementation met the requirements of the FMPM, Forest Compliance Handbook and FMP targets with the exception of harvest operations in the VTA AOC.

#### **Monitoring of Silvicultural Activities**

Silviculture assessments and other monitoring functions are summarized in the FMPs. Monitoring activities included Forest Operations Inspections, assessments of

regeneration success, post-tending assessments and monitoring programs for roads and water crossings. Silviculture assessment information is recorded and tracked in a geographic information system (GIS). We concluded that CFMI had implemented an effective silviculture assessment program.

### Free to Grow Survey (FTG)

Stands are typically assessed seven years after establishment for the FTG condition. The results in the Ten-Year AR (Table AR-14) are incomplete and do not provide meaningful insight, other than, depletions from the 2010-2020 FMP term need assessment as a result of the assessment lag for free-to-grow surveys (typically seven years). During the audit period 1,387 Ha were assessed and declared FTG<sup>24</sup> to the assigned SGR. It is also noteworthy, that in the 2005-2010 FMP term, that partial harvests in tolerant hardwood selection and shelterwood depletions were not undertaken as the tolerant hardwoods regenerate vigorously and are not prone to site competition by conifer or intolerant species<sup>25</sup>. Establishment surveys will be required to confirm that tolerant hardwood stands are re-establishing according to establishment standards. More meaningful results for the assessment of establishment can reasonably be expected when surveys are conducted in the 2020-2030 FMP term.

Our field sampling (visual assessments) of FTG survey blocks substantiated the stand descriptions reported.

### Assessment of Past Silviculture Performance

Direction in the 2017 Forest Operations and Silviculture Manual (FOSM) requires that two assessments of regeneration be undertaken. These include the assessment of establishment and the assessment of regeneration performance. The 2017 FMPM requires that ARs discuss “*progress towards completing the planned assessments of regeneration (i.e., establishment (FMP-20)) and performance, and any related concerns*”. The results shown in AR-14 are incomplete for the 2010-2020 FMP term because of the delay in surveying for establishment.

Performance assessments were not completed during the 2010-2020 FMP as they were not required under the 2009 FMPM.

### Silviculture Effectiveness Monitoring

A key principle of Ontario’s Forest Policy Framework is to ensure that regeneration efforts are achieving the standards in the FMP. The effectiveness of forest operation prescriptions in achieving the desired forest unit must be understood to facilitate reporting on forest sustainability and to provide reliable information for forest management planning.

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<sup>24</sup> No survey work was undertaken in 2014/15 and 2019/20. MNDMNR did not complete any FTG assessments during the audit period.

<sup>25</sup> Establishment surveys are required to confirm tolerant hardwood stands are re-establishing according to establishment standards prior to the area being formally accounted for in Table AR-14.

The Northeast Regional (NER) Silvicultural Effectiveness Monitoring Strategy (2012) states *“it is important that the MNR as stewards of the Crown Forest corroborate SFL results”*. In reference to the SEM program Recommendation # 4 of the 2012 Auditor General Report of Ontario stated *“To ensure the SEM program adequately assesses the effectiveness of industry reported renewal efforts in regenerating Crown Forests, the MNR district offices should complete all core tasks as outlined in the program and follow-up with forest management companies on sites found not to have met the free-to-grow criteria to ensure that companies subsequently took appropriate remedial regeneration measures.”* The 2001 SEM Manual for Ontario states that *“foresters from industry and the NDMNRF should examine whether certain treatments are meeting expectations and if they are not, they should investigate why the treatments were not successful and make appropriate modifications in the future.”* In response to the Auditor General recommendation, MNR Regional Operations Division committed to *“take steps to improve the completion rate of the core tasks prescribed under the SEM program.”*

The SEM program has four basic tasks. Core Task # 1 requires the survey of SFL stands declared as FTG, Core Task # 2 is to determine if stand composition has changed since FTG declaration. Core Task # 3 is to assess recent silvicultural activities and Core Task # 4 is to assess silviculture activity requiring attention. Core Task # 1 was completed in 2017/18 only. Core Task # 3 started in 2019/20 but was not completed due the late start. In 2018/2019 Core Task 4 (a survey to determine the regeneration status of stands scheduled for treatment by aerial tending) was cancelled as the planned tending did not occur.

The effectiveness of forest operations prescriptions in achieving the desired forest unit must be understood in order to provide reliable information for forest management planning (i.e., development of SGRs, Sustainable Forest Management Model (SFMM) inputs, FMP objectives). Information collected through the SEM Core Tasks assists in the determination/assessment of the extent to which regeneration efforts meet the regeneration standard. The information also aids in the assessment (over time) of the effectiveness of the SFL holder silviculture program, conformance of silviculture activities with the FMP and forest sustainability. With silviculture investments exceeding \$2.4 million<sup>26</sup>, monitoring is required to ensure the investment is meeting FMP objectives and is consistent with the achievement of the LTMD.

District SEM reporting was variable with respect to finding rationale, emerging trends or areas requiring further investigation (**Finding # 5**). The NER Strategy document identifies *“opportunities for an annual SEM information exchange meeting for both MNR and SFL staff to review results and lessons learned”* as a Best Management Practice. During the audit period the SFL holder and the NDMNRF SEM reports indicated that no discussions had taken place to discuss the respective SEM results and variances.

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<sup>26</sup> Table AR-4 2016-2019 Annual Reports. 2020 total was estimated based on information provided by CFMI.

Appropriate tree marking practices support objectives to maintain or improve forest health and biodiversity and ensure a continuous supply of high-quality timber (on appropriate sites) by maintaining and enhancing timber quality and yield through the application of appropriate silvicultural techniques. During the audit period 9,612 Ha were marked and invoiced to the Crown since tree marking is an eligible silvicultural expense. We are concerned with the lack of oversight by the District Office given the considerable expenditure of public funds on the activity (approximately \$ 700,000 over the audit period). We are cognizant of staffing and budgetary challenges within the NDMNRF and the shift in government programming to risk-based assessments. Nevertheless, the lack of auditing on behalf of the ministry is troubling and demonstrates a broken link in the chain of ensuring conformance with the FMP, established Guides, as well as the determination of forest management sustainability. Tree marking has profound long-term implications on the ecology and economics of hardwood forests and their dependent communities. We provide **Finding # 7** to address this concern.

#### Exceptions Monitoring

Exceptions monitoring is carried out to determine the effectiveness of prescriptions in forest management plans that are “*not recommended*” in the NDMNRF forest management guides. There are no exceptions to the approved forest management guides in the 2020-2030 FMP, therefore; exceptions monitoring is not required.

#### Forest Renewal Trust Specified Procedures Report

The Forest Renewal Trust (FRT) provides dedicated funding (reimbursement of silviculture expenses) to renew the forest according to the standards specified in the FMP. We note that the shortfall in harvest area (25% of planned) had significant negative implications with respect to the ability to maintain the Forest Renewal Trust minimum balance.

Our inspections of activities invoiced in the “*Forest Renewal Trust Specified Procedures Report*” (SPR) confirmed that FRT payments were for eligible silviculture work. We note that amounts invoiced for SIP (slash management) were for work completed in 2018/2019 but not invoiced until 2019/2020.

#### Monitoring of Roads and Water Crossings

FRL and CFMI staff monitor roads and water crossings through the course of normal operations. In general, primary access roads were well maintained. Surface conditions on branch roads were somewhat more variable reflecting the lack of operations in some of the inspected areas. Our interviews with CFMI staff indicated that road safety is a high priority and timely repairs are implemented when problems are identified. We did encounter a few instances of standing water on roads due to culvert blockages or flooding by beaver activity in the northern portion of the Forest. CFMI monitors known problem areas and has agreements with local trappers to deal with nuisance animals. Our interviews with CFMI and NDMNRF compliance staff indicated that road

construction and maintenance was not a significant compliance concern. Based on the foregoing and the localized nature of the issues observed during our field audit we do not provide a finding.

The 2011-2016 IFA identified the poor management of water crossings as one of that audit's most significant findings and recommended that the NDMNRF and CFMI complete a comprehensive inventory of water crossings to address issues with crossing maintenance. A comprehensive road and water crossing inventory has been developed. Water crossings which pose the greatest risk to public safety for environmental degradation are identified during normal operations or through public feedback and are prioritized for action. Monitoring is largely confined to areas of active operations. We encountered a few instances of bank erosion on non-operational roads (due to steep banks and/or past road grading practices) and legacy short culverts. On balance, these problems could be characterized as localized, and it was our assessment that the potential for negative environmental impacts from sedimentation at these locations was relatively low.

In conjunction with the development of the road and water crossing inventory, CFMI worked to prioritize and address outstanding road and water crossing liabilities. The results of transfers were to be documented through FMP amendments, AWS revisions and the ARs. There have been lengthy delays by NDMNRF on making decisions with respect to road transfers and decommissioning. We provide **Finding # 2** to address this concern.

#### Aggregate Pits

Our field sampling of Forestry Aggregate Pits (FAPs) found that FMP operational standards for pit construction and maintenance were not consistently met (**Finding # 1**). We note that a similar recommendation (Recommendation # 13) to upgrade contractor training on aggregate pit management and to identify aggregate pits as a high priority activity for inspection was made in the 2016 IFA.

Issues observed at non-conforming pits included steep slopes, trees within 5 meters of the excavation face, were not sloped at a 2:1 angle, or for inactive pits, the pit faces were not sloped at the angle of repose.

#### Annual Reports (ARs)

ARs were available for each year in the audit scope except for the 2020-2021 AR, which is not required until November 15, 2021. Although the content of the reports generally met the minimum requirements of the FMPM, we did note required reporting omissions, tabulation errors and inconsistent reporting (**Finding # 4**). For example, road maintenance work was not reported in the text of annual reports, areas of commercial thinning were not consistently reported as area harvested, and selection and shelterwood harvested areas were not reported under natural regeneration.

As directed by the FMPM, the ARs were presented to the SSMLCC.

## 4.7 Achievement of Management Objectives & Forest Sustainability

FMP objectives are monitored annually and formally reported on in Annual Reports. FMP objectives and associated desirable levels (and targets) were generally achieved during the development of the LTMD. Appendix 2 provides more details on our assessment of plan objective achievement.

This audit identified several significant trends with respect to the implementation of the forest management program including:

- Planned harvest levels (area and volume) have not been achieved resulting in the underachievement of plan targets for silviculture activities, economic benefits and LTMD target projections (e.g., disturbance size class distributions).
- The distribution of underharvested zones is expanding due to economic factors related to mill closures, species compositions and timber quality.
- There has been a decline in white pine utilization as a result of timber quality and available markets for the species. Thinning opportunities are becoming increasing available as red pine plantations meet age and product size requirements.
- Poplar utilization is anticipated to remain low due to a lack of markets and low timber quality.

We conclude that forest sustainability as assessed by the IFAPP is not at risk and that planning objectives have been met or are moving towards desirable levels. This conclusion is premised on the following findings and observations:

- Forest management was planned and implemented in accordance with the CFSA and FMP targets are consistent with the achievement of plan objectives and forest sustainability.
- CFMI maintained its Forest Stewardship Council certification throughout the audit period.
- An effective field silviculture program was delivered. The appropriate tailoring of tree marking to existing stand conditions will result in higher quality stands in future management terms.
- Forest management modeling demonstrated that the planned operations met the intent of the LTMD.
- Forest operations were largely complaint with few instances of non-compliance reported in FOIP, with the exception of operations within the VTA.



- We did not observe any significant instances of environmental damage related to forest operations or wasteful practices.
- The majority of FMP objectives and targets are being achieved or progress is being made towards their achievement.
- Silvicultural Ground Rules (SGRs) and Forest Operations Prescriptions (FOPs) were appropriate for the forest cover types and site conditions observed in the field.
- An effective renewal program is being implemented through the implementation of hardwood management harvest strategies and an effective planting program.
- Recommendations and actions resulting from the 2016 IFA were, with a few exceptions, addressed (See **Findings # 4 and 6**).
- The contractual obligations of the SFL holder were largely met.

#### **4.8 Contractual Obligations**

We concluded that CFMI is substantially in compliance with the terms and conditions of the SFL. (Appendix 3).

The IFAPP requires auditors to assess the effectiveness of the actions developed to address the recommendations of the previous audit. The 2016 IFA produced 29 recommendations. The required Action Plan and Action Plan Status Report were completed within the required timelines. Our assessment is that most recommendations were appropriately actioned (or work is on-going) with the exceptions of recurring compliance issues associated with the management of aggregate pits (**Finding # 4**) and that the Forest Renewal Trust minimum balance has not been achieved (**Finding # 6**). The FRT minimum balance has not been achieved since 2012. The 2016 IFA Action Plan Status Report indicates that annual harvest shortfalls are responsible for the liability, and we note that the liability was reduced during the audit period.

As required by the FMPM the audit results were considered in the development of the 2020 FMP and other forest management functions.

#### **4.9 Concluding Statement**

We concluded that the Algoma Forest is well-managed and forest management was planned and implemented in accordance with the Crown Forest Sustainability Act. FMP targets are consistent with the achievement of plan objectives and forest sustainability. An effective silviculture program was delivered with the area renewed generally being in balance with the area harvested. The tailoring of tree marking to stand conditions will result in higher levels of silvicultural success in future management terms. We are

concerned that the NDMNRF District does not routinely audit tree marking activities given the significance of the tree marking for hardwood renewal, stand quality improvement and forest sustainability.

The audit team concludes that the management of the Algoma Forest was generally in compliance with the legislation, regulations and policies that were in effect during the period covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence held by Clergue Forest Management Inc. # 542257. The forest is being managed consistently with the principles of sustainable forest management, as assessed through the Independent Forest Audit Process and Protocol.

The audit did identify several areas for improvement in the delivery of operations and the forest management program. Operational standards for forestry aggregate pits were not consistently met. Conditions on Operations within the Voyageur Trail Association Area of Concern were not routinely adhered to despite training efforts by the District Office and CFMI to address the issue with the implicated FRL.

The Sault Ste. Marie District did not fully meet the program direction of the Silvicultural Effectiveness Monitoring program. Administrative issues noted included an excessively long timeframe to process forest management plan amendments pertaining to road transfers to the Crown and road decommissioning, information gaps and errors in required reporting in the Annual Reports and the inability to achieve and maintain the FRT minimum balance.

A best practice was identified for the initiative by the Sault Ste. Marie District to better understand the specific habitat requirements of the West Virginia White Butterfly and apply that knowledge in the application of an AOC prescription.

**Appendix 1**  
**Findings**

## Independent Forest Audit – Record of Finding

### Finding # 1

**Principle:** 4 Plan Assessment and Implementation

**Criterion:** 4.7 Access

Road construction, various types of water crossings including crossing structures, road monitoring, maintenance, aggregates and other access activities must be conducted in compliance with all laws and regulations, including the CFSA and approved activities in the FMP and AWS.

**Procedure(s):**

1. Review and assess in the field the implementation of approved access activities. Include the following:
  - select a representative sample of each type of access activity (road construction, various types of water crossings - winter, culverts, bridges, road maintenance, decommissioning, and reclamation) from primary, secondary/branch and tertiary/operational roads constructed during the five-year period of the audit; include category 14/forestry aggregate pits for new roads and existing roads.

**Background Information and Summary of Evidence:**

Appendix V of the FMPM (2017) and the 2020 FMP detail the operational standards that apply for the extraction of aggregate resources for Forestry Aggregate Pits. Included in the standards are requirements that:

- topsoil and overburden, where present must be stripped and stored on site.
- undercutting of the working face is not permitted and; the working face must be sloped at the angle of repose.
- all trees within 5 meters of the excavation face must be removed,
- when the pit is inactive, all pit faces must be sloped at the angle of repose,
- when operating within 15 meters of a proposed roadside ditch, no excavation is to take place below the elevation of the planned depth of the proposed ditch; all excavations must be immediately sloped to no steeper than 2:1 (horizontal: vertical) angle.
- final rehabilitation of the site must include sloping of all pit faces, the re-spreading of any topsoil and overburden removed, and mitigative measures to prevent erosion.

Recommendation # 13 of the 2011-2016 IFA required that operator training in aggregate pit management be completed, and that AWS documentation identify FAPs as a high priority activity for inspection.

**Discussion:**

Site investigations revealed that operational standards for forestry aggregate pits were not consistently met. Issues observed at non-conforming pits included steep slopes, trees within 5 meters of the excavation face, were not sloped at a 2:1 angle, or for inactive pits, the pit faces were not sloped at the angle of repose.

**Finding # 1:**

The operational standards for forestry aggregate pits identified in the 2017 Forest Management Plan Manual and the 2020-30 Forest Management Plan were not consistently met.

## Independent Forest Audit – Record of Finding

### Finding # 2

#### **Principle 4:** Plan Assessment and Implementation

#### **Criterion 4.7:** Access

**Procedure(s):** Review and assess in the field the implementation of access activities. Assess whether roads have been constructed, maintained, decommissioned and reclaimed to minimize environmental impacts and provide for public and operator safety.

#### **Background Information and Summary of Evidence:**

Recommendation #16 of the 2011- 2016 Independent Forest Audit (IFA) stated that Clergue Forest Management Inc. (CMFI) and the Ministry of Natural Resources and Forestry (now NDMNRF) complete an inventory of water crossings on the forest, determine responsibility for managing water crossings, including maintenance and removal and develop a strategy for addressing crossings in need of repair and ensure that crossings on unmaintained roads do not become safety and environmental hazards.

CMFI has been working diligently to action this recommendation and has had success working with NDMNRF in developing a road and water crossing inventory. However, there have been lengthy delays in the NDMNRF decision making process with respect to road decommissioning and transfers. Supporting evidence for the finding included;

1. A proposal to transfer responsibility for a culvert (crossing #7758) on the Nestor Lake Road from the NDMNRF to a local trapper was initiated by CFMI in 2020. A decision on the proposal remained outstanding at the time of the audit some 16 months later.
2. The transfer of the Dumas Road network required 12 months to complete (including one month by CFMI to compile the proposal). The matter was complicated by the NDMNRF signing a memorandum of understanding with the Ontario Federation of Snowmobile Clubs (OFSC) for a bridge that was to be removed in the transfer.
3. An approval to remove a culvert on an abandoned portion of Haines Road required 10 months. This request was an initiation of the road transfer process.

**Discussion:**

Although CFMI and NDMNRF have developed a road and water crossing inventory and made efforts to prioritize and address outstanding road and crossing liabilities the process is often hampered by lengthy delays in the decision-making process. Timely decisions on decommission and the transfer of roads are imperative to address crossings in need of repair and to ensure that crossings on unmaintained roads do not become safety and/or environmental hazard.

**Finding # 2:**

The Ministry of Northern Development, Mines, Natural Resources and Forestry, Sault Ste. Marie District Office did not process proposals to decommission roads for transfer to the Crown in a timely manner.

## Independent Forest Audit – Record of finding

### Finding # 3

**Principle:** 6 Monitoring,

**Audit Criterion:** 6.2.2 Compliance responsibilities delivered by qualified overlapping Licenses

**Procedure:**

To review and assess whether an SFL compliance plan (has been) implemented to effectively monitor program compliance and effectiveness ...

The actual level of the implemented overall monitoring program is appropriate and effective ...

**Principle:** 4 Plan Assessment and Implementation

**Criterion:** 4.2 Areas of Concern

**Procedure:** Operations in Areas of Concern (AOC) must be conducted in compliance with ...the approved operational prescriptions (FOPs) of the FMP, AWS.

#### **Background information and summary of evidence:**

The 2020-2030 FMP includes AOC prescriptions for recreational trails. The caveat associated with the operations within trail AOCs states: *“Existing drivable and abandoned roads being used as recreational trails may be upgraded for forest management use, subject to consultation with the trail permit holder and/or MNRFP.”* The Voyageur Trail is the longest hiking trail in the Algoma Forest and is managed by the Voyageur Trail Association (VTA). To facilitate harvest operations a Forest Resource Licence (FRL) holder negotiated conditions with the VTA for winter harvests (January-March 2021) within the trail AOC in Block 836 which included:

- Only marked trees were to be removed.
- Retention of a minimum 60% crown closure within the AOC.
- No trees blazed with Voyageur Trail markings were to be cut.
- Machine crossings were to be at right angles to the trail (90 degrees), crossings were to be kept to a minimum and no less than 500 m apart.
- All slash was to be removed from the trail.
- Flagging tape used to mark the trail during harvest operations was to be removed.



In the winter of 2020 cutting within the AOC resulted in rutting and slash on the Trail. We were informed that VTA members undertook remedial measures to remove the slash. As the issue had been remedied prior to a FOIP inspection no operational issues were reported in the FOIP system. Communications between the District Office and VTA representatives regarding issues within the Trail AOC led to harvesting operations in the vicinity of the AOC being prioritized for monitoring by NDMNRF in early January 2021.

In the winter of 2021, cutting commenced within Block 836. Negotiations between the FRL and the VTA allowed for limited cutting in the AOC and minimal skid trail crossings. Joint compliance inspections by the FRL and NDMNRF did not identify operational issues but some slash on the trail was identified. NDMNRF field work was suspended due to workplace COVID protocols in April 2021. We were informed that concerns regarding the January-March 2021 harvest not being consistent with the required agreement were confirmed in July 2021. Audit interviews with a VTA representative indicated past and ongoing concerns over harvesting within the AOC.

We note that CFMI and NDMNRF staff undertook corrective actions to address the identified issues. Despite inspections, warnings and ongoing communications between all parties, harvest violations within the AOC continued to occur.

**Finding # 3:**

Conditions on operations within the Voyageur Trail Association Area of Concern were not fully adhered to despite training efforts by the Ministry of Northern Development, Mines, Natural Resource and Forestry District Office and Clergue Forest Management Inc. to address the issue with the implicated Forest Resource Licensee.

## Independent Forest Audit – Record of Findings

### Finding # 4

**Principle:** 6. Monitoring

**Criterion:** 6.5 Annual Reports

**Procedure(s):** 6.5.1. Determine if Annual Reports have been prepared in accordance with the applicable FMPM including associated deadlines.

#### **Background Information and Summary of Evidence:**

Annual Reports are to be submitted in accordance with the requirements of the Forest Management Planning Manual and the Forest Information Manual.

In our review, we noted omissions in reporting related to a discussion of “*the progress towards achievement of planned levels of road construction and maintenance, and any related concerns*”, a failure to report a minor cut-to-shore harvest (24 ha) and some tabulation errors. For example, the Annual Reports text documents from 2016 to 2021, did not report the 1,331 kilometers of road maintenance. Tree marking was not consistently reported. The area treated by tree-marking and harvested is reported as stand improvement which resulted in inconsistencies in the area of natural regeneration reported. Additionally, areas of commercial thinning were not consistently reported as area harvested. The audit found discrepancies with Table AR-4 Annual Report of Expenditures and the areas provided by CFMI when follow up information was requested.

#### **Discussion:**

Although the content of the reports generally met the minimum requirements of the FMPM, there were some tabulation errors and some omissions. It would be beneficial to report the area tree-marked and invoiced as an eligible silvicultural expense during the same year that the activity has occurred (prior to harvesting). The reporting of selection and shelterwood cuts under natural regeneration would provide clearer information on the linkage between harvest and renewal efforts. Commercial thinning is harvesting and should be reported as such.

#### **Finding # 4:**

Annual Reports did not fully meet the requirements of the 2017 Forest Management Planning Manual.

## Independent Forest Audit – Record of Finding

### Finding # 5

#### **Principle 6:** Monitoring

**Criterion:** 6.3 Silvicultural Standards Assessment Program

**Procedure(s):** Assess whether the management unit assessment program (SFL and NDMNRF District) is sufficient and is being used to provide the required Silviculture Effectiveness Monitoring (SEM).

#### **Background Information and Summary of Evidence:**

The Northeast Regional (NER) Silvicultural Effectiveness Monitoring Strategy (2012) states “*it is important that the MNR as stewards of the Crown Forest corroborate SFL results*”. In reference to the SEM program Recommendation # 4 of the 2012 Auditor General Report of Ontario stated “*To ensure the SEM program adequately assesses the effectiveness of industry reported renewal efforts in regenerating Crown Forests, the MNR district offices should complete all core tasks as outlined in the program and follow-up with forest management companies on sites found not to have met the free-to-grow criteria to ensure that companies subsequently took appropriate remedial regeneration measures.*” The 2001 SEM manual states that “*foresters from industry and the NDMNRF should examine whether certain treatments are meeting expectations and if they are not, they should investigate why the treatments were not successful and make appropriate modifications in the future.*” In response to the Auditor General recommendation, MNR Regional Operations Division committed to “*take steps to improve the completion rate of the core tasks prescribed under the SEM program.*”

The SEM program has four basic tasks. Only Core Task # 1 (the survey stands declared free to grow) completed during the audit period. We found the SEM reports were lacking with respect to the rationale for findings, emerging trends or areas requiring further investigation. We further note that the NER Strategy document identifies “*opportunities for an annual SEM information exchange meeting for both MNR and SFL staff to review results and lessons learned*” as a Best Management Practice. During the audit period no meetings were conducted.

#### **Discussion:**

The effectiveness of forest operations prescriptions in achieving the desired forest unit must be understood to provide reliable information for forest management planning (i.e. development of SGRs, Sustainable Forest Management Model (SFMM) inputs, FMP objectives). Information collected through the SEM Core

Tasks assists in the determination/assessment of the extent to which regeneration efforts meet the regeneration standard. The information also aids in the assessment (over time) of the effectiveness of the SFL holder silviculture program, conformance of silviculture activities with the FMP and forest sustainability.

With silviculture investments in excess of \$2.4 million, monitoring is required to ensure the investments are meeting FMP objectives and that silviculture activities implemented are consistent with the achievement of the LTMD.

**Finding # 5:**

The Ministry of Northern Development, Mines, Natural Resources and Forestry Sault Ste Marie District Office did not fully meet the Silviculture Effectiveness Monitoring Program direction.

## Independent Forest Audit – Record of Finding

### Finding # 6

**Principle:** 8 Licence and Contractual Obligations

**Purpose:**

Whether the licensee has complied with the specific requirements of any licences or contracts granted by or entered into with the MNRF.

**Procedure(s):**

8.8.1. Through a review of MNRF statements determine whether the licensee paid up to date all amounts in the Ontario Stumpage matrix for Forestry Futures and Ontario Crown charges (stumpage).

**Background Information and Summary of Evidence:**

To ensure sustainable forest management practices in the case of an SFL insolvency, for each SFL, funding was deposited into the Forest Renewal Trust, and is to be maintained in the Trust. This amount is referred to as the Minimum Balance. In accordance with Section 12.4 of the Algoma Forest Sustainable Forest Licence *“the minimum balance for the Management Unit Account for the Licence Area shall be equal to the Amount in Appendix “D”*. This amount (\$ 1,896,200) is to be maintained in the account at the end of each year. This amount has not been maintained since 2012. The requirement to bring the Forest Renewal Trust Account up to the required minimum balance was identified in Recommendation # 25 of the 2016 Independent Forest Audit.

Year Ending	Minimum Balance (\$)	Renewal Forestry Futures Account Balance (\$)	Difference Owing (\$)
2021	1,896,200	1,808,252	-87,947
2020	1,896,200	1,751,379	-144,820
2019	1,896,200	1,481,427	-414,772
2018	1,896,200	1,588,445	-337,754
2017	1,896,200	1,479,570	-416,629
2016	1,896,200	1,418,348	-477,851

The inability to achieve the minimum balance was attributed to persistent annual harvest shortfalls.

Adjustments to the renewal rate are typically made annually to ensure that the minimum balance is met, and that sufficient funds are available to renew the forest. The outstanding arrears indicate that renewal charges paid are not sufficient to fund the silviculture program.

The 2016 IFA Action Plan Status Report highlights the efforts by the SFL to address the shortfall in the minimum balance. Actions implemented include work with its shareholders to project harvest volumes and silviculture expenses as part of its process to establish more realistic and attainable Forest Renewal Charges and discussing harvest opportunities with other entities, re-allocation of administrative costs from silviculture budgets to internal operating budgets etc. Substantive progress towards achieving the required balance has been made during the audit period.

**Discussion:**

The outstanding arrears in the minimum balance indicate that renewal charges paid in the audit period are not sufficient to fund the forest management obligations. Progress towards achieving the minimum balance was made during the audit period. Forest Renewal Charge increases will be likely required to balance the account. Clergue and the District Office are collaborating to establish annual renewal charges sufficient to achieve the minimum balance. We were provided evidence that if the FRT account remains below the minimum balance and forecasts show the balance will not be maintained or achieved for March 31, 2022, that the NDMNRF may increase the established rates throughout that year to balance the account.

**Finding # 6:**

The Forest Renewal Trust minimum balance was not maintained during the audit period.

## Independent Forest Audit – Record of Findings

### Finding # 7

#### **Principle 6:** Monitoring

**Criterion:** 6.1 District compliance planning and associated monitoring

**Procedure(s):** Review MNRF District Compliance Plans that include monitoring and auditing forest operations and dealing with the result of compliance inspections conducted by auditees.

#### **Background Information and Summary of Evidence:**

Tree marking is required for the successful implementation of partial cutting silvicultural systems such as single tree or group selection, clearcut with seed trees and uniform shelterwood. The Ontario Tree Marking Guide states that the tree marker has a significant influence on the ecology and economics of the forest and its dependent communities. Appropriate tree marking practices support objectives to maintain or improve forest health and biodiversity and ensure a continuous supply high quality timber (on appropriate sites) by maintaining and enhancing timber quality and yield through the application of appropriate silvicultural techniques. Ontario Tree Marker Training (delivered by Forests Ontario and the Canadian Institute of Forestry) provides tree marker certification training which is mandatory for all tree markers working on Crown land. The Ontario Tree Marking Guide supports the delivery of tree marking training and provides operational guidance to tree markers.

Tree marking is conducted under contract by experienced certified tree markers. CFMI routinely conducts tree marking audits for marking quality assurance, to ascertain the achievement of silviculture objectives outlined in the forest operations prescription, to verify the adherence to guidelines for the retention or removal of trees (i.e. species priority, spacing etc.), and to determine if proper adjustments for values not noted in the prescription were implemented. A minimum quality threshold of 90% is required for marking contractor payment. During the audit period, 9,612 ha was tree marked and invoiced for harvesting (450% of planned). Clergue was reimbursed \$ 706,172.00 from the Forest Renewal Trust Account for this work. Our sample site inspections confirmed the high quality of the program delivered, and that tree marking of activities invoiced in the “*Forest Renewal Trust Specified Procedures Report*” (SPR) were for eligible tree marking work.

Currently there is no policy direction or guidelines requiring that tree marking audits be undertaken by appropriately trained and certified District Staff despite the significance of tree marking for forest sustainability, forest health and forest

renewal. Tree Marking is an eligible silvicultural activity that is planned during the forest management planning process (FMP-19) and reported and invoiced to the Forest Renewal Trust Account.

**Discussion:**

The Northeast Regional Silvicultural Effectiveness Monitoring Strategy has four basic tasks to monitor and assess the effectiveness of forest operation prescriptions in achieving the desired forest unit must be understood to facilitate reporting on forest sustainability and to provide reliable information for forest management planning. The information also aids in the assessment (over time) of the effectiveness of the SFL holder silviculture program, conformance of silviculture activities with the FMP and forest sustainability. However, we note that the Silvicultural Effectiveness Monitoring Manual is silent on monitoring of tree marking activities as is the Forest Management Planning Manual. Compliance plans, based on assessment of risk, may include tree marking audits as a compliance inspection activity. A determination of low risk should not preclude the need to undertake periodic tree marking audits.

The lack of auditing on behalf of the Ministry is troubling and demonstrates a broken link in the chain of ensuring conformance with the FMP, established Guides, as well as the determination of forest sustainability. Tree marking has profound long-term implications on the ecology and economics of hardwood forests and their dependent communities.

Tree marking audits are completed by NDMNRF staff on some Forests. No tree marking quality assurance audits were undertaken by the SSM District Office despite the significant public funds allocated to the marking program and the long-term implications of tree marking on stand renewal, stand quality improvement, harvest revenues and forest sustainability. The lack of Ministry auditing, in our opinion, demonstrates a broken link in the chain of ensuring conformance with the FMP, established Guides, as well as the determination of forest sustainability.

**Finding # 7:**

Tree marking audits are not being completed by the Ministry of Northern Development, Mines, Natural Resources and Forestry District Office despite the significance of tree marking on forest sustainability, forest health, forest renewal and the considerable expenditure of public funds on the activity.



## Independent Forest Audit – Record of finding

### Best Practice # 1

**Principle:** 3 Forest Management Planning

**Criterion:** 3.5.2 FMP Area of Concern (AOC) Prescriptions

The FMP must contain specific prescriptions for all AOCs...

**Procedure(s):** Review AOC prescriptions and assess:

Planning of AOCs included environmental analysis of alternatives that would support protection of values.

#### **Background information and summary of evidence:**

Section 4.3.3 of The Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales, 2010 provides the background, rationale, and direction for the development of AOCs. Section 4.3, provides direction for conserving the West Virginia White Butterfly a designated special concern species.

Field observations by NDMNRF staff suggested the butterfly was present in larger numbers than expected. Also, relatively little was known about its distribution in northern Ontario. The NDMNRF staff initiated a study to better understand the localized distribution of the butterfly and its various life cycle habitat requirements. The results were published in the Ontario Lepidoptera Journal (#50-2019).

Study results provided new information that was incorporated into AOC development. For example, earlier data suggested that the species required closed forest canopies and that open areas could be barriers to distribution. The new information indicated that open habitats are not as limiting as previously documented. This new knowledge was utilized in the AOC prescription contained in Table FMP-11 of the 2020-2030 FMP.

#### **Discussion:**

The initiative provided new information and resulted in the development of a species-specific Area of Concern prescription. This prescription achieved a Species at Risk habitat objective and reduced the area deferred from harvest.

**Best Practice # 1:**

The initiative provided by the Sault Ste Marie District to better understand the specific habitat requirements of the West Virginia White Butterfly and apply that knowledge in Area of Concern prescription is commendable.

**Appendix 2**  
**Management Objectives Table**

OBJECTIVE	AUDITORS ASSESSMENT  (ACHIEVED, PARTIALLY ACHIEVED, NOT ACHIEVED)	AUDITORS COMMENTS
1.FOREST DIVERSITY		
1.1 Create patterns that emulate historic, natural disturbance on the Algoma Forest at the stand and landscape level.	PARTIALLY ACHIEVED	Progress is being made with movement towards desirable levels in the Boreal and Great Lakes-St. Lawrence Sub-Units. The low level of harvest resulted in the partial achievement of this objective.
1.2 Create a future forest condition with species composition characteristic of the natural forest ecosystem of the Algoma Forest consistent with the natural benchmark SFMM run.	ACHIEVED	Target level achieved for all forest units (>80% of the natural benchmark level).
1.3 Create a future forest condition with an age class structure similar to the natural benchmark over time and maintain and restore the seral stages as a component of the desired future forest condition.	PARTIALLY ACHIEVED	There is movement towards the desired future forest condition, but the lack of harvest will delay the achievement of planned levels.
2.FOREST DIVERSITY AND PROVISION OF FOREST COVER		

2.1 Maintain wildlife habitat for forest dependent provincially and locally featured species on the Algoma Forest.	ACHIEVED	Target level achieved for all wildlife species in LTMD modeling. Desirable level (96% of the natural benchmark level) achieved for 6 of 15 of the featured wildlife species.
2.2 Maintain wildlife habitat for forest-dependent wildlife species at risk with known occurrence on the Algoma Forest.	ACHIEVED	Desirable and target levels were achieved for SAR.
2.3 Protect known site-specific habitat for species at risk on the Algoma Forest.	ACHIEVED	AOCs implemented to protect SAR habitat. 100% in compliance for AOCs associated with SAR habitat.
2.4 Maintain 10-20% of the forest which has the capability to produce marten habitat in suitable conditions in core areas.	ACHIEVED	Marten core areas were protected through harvest deferrals.
2.5 Produce early successional forest cover adjacent to water bodies similar to what would be expected during a natural disturbance event.	ACHIEVED	A cut-to-shore harvest was undertaken in 2018 (24 ha).
2.6 Have values information for static value locations associated with planned forest management activities collected and identified prior to the implementation of the	NOT ACHIEVED	This indicator was dropped as it was not feasible to implement. Values are identified and protected during operations.

forest management plan.		
2.7 Encourage the management of forest cover to recognize the importance of both recreational uses of land and water and forest management activities.	ACHIEVED	AOC prescriptions and FOPs adequately protected other values.
2.8 Encourage the management of forest cover to recognize the importance of both tourism values and forest management activities.	ACHIEVED	AOC prescriptions and FOPs adequately protected other values.
2.9 Recognize other economic and recreational uses of the forest.	ACHIEVED	AOC prescriptions and FOPs adequately protected other recreational and economic uses of the forest.
2.10 Ensure that ecological processes and forest productivity on the Algoma Forest are minimally impacted by forest management practices.	ACHIEVED	Our field audit did not find any evidence of environmental or site damage. Operator care and due diligence during logging operations protected residual trees from logging damage.
2.11 Conduct forest management practices that ensure water quality, fish habitat and riparian zones are protected on the Algoma Forest.	ACHIEVED	AOCs protected fisheries habitat. FOIP inspections indicate that operations near water were compliant with the FOPs. Any infractions reported were minor in nature.
<b>3.SOCIAL AND ECONOMIC</b>		
3.1 Provide a continuous, predictable and sustainable supply	PARTIALLY ACHIEVED	Met to the extent possible given prevailing market conditions. St. Mary's Paper Corp. and Weyerhaeuser Company Ltd. both closed.

of timber for St. Mary's Paper Corp., Boniferro Mill Works, Midway Lumber Mills, Domtar Inc. in Espanola, Columbia Forest Products/Levesque Division, and Weyerhaeuser Company Ltd. In Wawa.		
3.2 Provide opportunities for the utilization of forest biomass which includes harvest residues such as tops, limbs, unmerchantable and unmarketable trees, cull, thinnings, and trees that may be salvaged as a result of a natural disturbance as a continuous sustainable supply.	ACHIEVED	Feasible biomass markets were not available. Roadside slash is made available for personal fuelwood with significant uptake by the local population.
3.3 Maintain the area of Crown productive forest available for timber production by minimizing the Crown Forest area conversion to non-forest land as a result of forest management activities.	ACHIEVED	No net loss of available productive forest area.
<b>4. COMMUNITY WELL BEING</b>		
4.1 Ensure minimal impact on natural ecological processes and forest productivity, while maintaining a road network capable	ACHIEVED	An effective road management strategy was in place.

of supporting effective and efficient forest management activities and limiting liability associated with roads no longer required.		
4.2 Re-establish traditional forest access where permissible at the completion of forest management activities. Access will take into consideration public safety and environmental protection.	ACHIEVED	An effective road network strategy was in place that incorporated both public safety and environmental objectives.
4.3 Identify and protect cultural heritage values from the effects of forest management activities.	ACHIEVED	Cultural values were identified during FMP development and protected with AOC prescriptions as required.
4.4 Provide opportunities for Aboriginal community involvement in forest management planning activities.	PARTIALLY ACHIEVED	<p>Opportunities were provided for FN/Métis community representatives to participate on the FMP planning team and FMPM consultation requirements were met. Desirable levels of participation were not achieved.</p> <p>NDMNRF, with CFMI involvement, established an Indigenous Task Team that met during the planning process. Regardless of participation, each First Nation and Métis community was kept apprised of progress throughout plan development.</p>
4.5 Provide protection to cultural heritage values identified in the Natural Resource	ACHIEVED	Cultural values were identified during FMP development and protected with AOC prescriptions as required.



Values Information System that are specifically used by or of importance to local Aboriginal communities from the effects of forest management activities.		
4.6 Facilitate discussion of opportunities for forest-based employment and economic benefits to local Aboriginal communities.	ACHIEVED	All FNs and Métis organizations were invited to participate in the planning process and are part of ongoing company and NDMNRF communications.
4.7 Provide opportunities for LCC members and members of the public to actively participate in the development and review of the forest management plan.	ACHIEVED	A SSMLCC member was on the FMP planning team, and the both LCCs were kept informed of plan development. Public information sessions were part of the FMP development process. FN and Métis organizations were kept informed and specific consultation processes were offered.
<b>5. SILVICULTURE</b>		
5.1 Renew, tend and monitor natural forest disturbance and harvested forest stands to achieve the desired future forest condition by the most appropriate and cost effective methods.	ACHIEVED	Appropriate tree marking practices supported objectives to maintain or improve forest health and biodiversity and ensured a continuous supply of high-quality timber (on appropriate sites) by maintaining and enhancing timber quality and yield through the application of appropriate silvicultural techniques.  Our field audit confirmed that an effective artificial renewal program was implemented. The area harvested and the area renewed are in balance.
5.2 At a minimum, maintain white pine/red pine levels on the Algoma Forest at or above the levels from the 1997 FRI using 1994 photography.	ACHIEVED	Low harvest levels have maintained the white pine/red pine composition on the AF. The target was to maintain 132,000 ha with 10-30% white pine/red pine and approximately 13,000 ha with greater than 30% white pine/red pine. Approximately 89% of the combined desired level was achieved.

<p>5.3 Minimize the use of herbicides on the Algoma Forest over time, while maintaining forest productivity.</p>	<p>ACHIEVED</p>	<p>An average of 138 ha/year was treated with herbicide during the audit period. The planned target was to treat 867 ha/year. CFMI limits the application of herbicide treatments as a component of its FSC certification program. Additionally, during the audit period, CFMI had difficulties in securing an aerial spray contractor due to the small scale of the aerial herbicide program.</p> <p>Aerial tending treatments were directed to areas of conifer renewal. Artificial renewal treatments only achieved 24% of planned level reflecting the broader application of selection and shelterwood harvest treatments.</p>
<p>5.4 Increase the supply of high-quality hardwood veneer and sawlogs by applying silvicultural practices of tree marking, selection harvest and crop tree release to enhance the yield of quality hardwood sawlogs.</p>	<p>ACHIEVED</p>	<p>Many of the stands scheduled for single tree selection cuts were switched to shelterwood harvest due to poor tree quality, low stocking levels and/or insufficient acceptable growing stock. Experienced certified tree markers are making the determination of which trees to retain or remove with the objective of improving stand quality over time.</p>
<p>5.5 Increase the presence of under-represented tree species (By, Oak, Sw, He) on the Algoma Forest through targeted silvicultural strategies.</p>	<p>ACHIEVED</p>	<p>The updated FRI showed an increase in the area occupied by under-represented species. Renewal of these species was promoted using appropriate SGRs and the delivery of a quality tree marking program.</p>
<p>5.6 Apply intensive silvicultural practices on suitable managed forest stands to maintain or increase forest productivity.</p>	<p>ACHIEVED</p>	<p>Tree marking prescriptions will result in stand quality improvements and an increase in stand productivity over time. Operator due diligence and care was apparent by the lack of damage to residual stems.</p>

6. HEALTHY FOREST ECOSYSTEMS		
6.1 Use the most up-to-date forest management practices that balance social, environmental, and economic priorities.	ACHIEVED	No significant environmental damage was observed during the field audit and other forest uses are protected through the application of AOCs.
7. OTHER QUALITATIVE OBJECTIVES		
7.1 Monitor changes to forest condition and health through tracking disturbances on the forest.	ACHIEVED	No major forest health issues have occurred on the Forest.
7.2 Protect known locations of locally featured species and SAR with no AOC prescription as identified through AWS planning.	ACHIEVED	Planning and operations protected critical habitats. Marking operations are delivered by certified tree markers with directives for the protection of wildlife and other values. A best practice was recognized for the protection of habitat ( <b>Best Practice # 1</b> ).
7.3 Adopt all relevant and practical aspects of any climate change policy developed for forest management planning purposes by the NDMNRF, as soon as any such policy is approved for implementation, even though the policy may only be required for future FMPs approved after the policy becomes effective. This commitment only applies to those aspects of any policy that will not require a	NOT ACHIEVED	Not assessed. Contingent on the completion of the climate change policy by the Ontario Government.

plan amendment to be implemented.		
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**Appendix 3**  
**Compliance with Contractual Obligations**

Licence Condition	License Holder Performance
Payment of Forestry Futures and Ontario Crown charges.	Forestry Futures and Ontario Crown charges were made, however due to low harvest levels (16% of planned by volume), the minimum balance requirements were not met ( <b>Finding # 6</b> ).
Wood supply commitments, MOAs, sharing arrangements, special conditions.	Licence commitments were generally met to the extent possible given audit period market conditions.
Preparation of FMP, AWS and reports; abiding by the FMP, and all other requirements of the FMPM and CFSA.	All reports were completed and reporting requirements were generally met with the exception of some reporting issues within the Annual Reports (i.e., road maintenance, natural regeneration, commercial thinning, tree marking) ( <b>Finding # 4</b> ).
Conduct inventories, surveys, tests and studies; provision and collection of information in accordance with FIM.	Surveys and data collection was completed as required and in accordance with FIM requirements.
Wasteful practices not to be committed.	No wasteful practices were observed during the field audit or reported in FOIP.
Natural disturbance and salvage SFL conditions must be followed.	No salvage operations were conducted.
Protection of the licence area from pest damage, participation in pest control programs.	No protection activities other than monitoring were undertaken in the audit period.
Withdrawals from licence area.	There were no licence area withdrawals during the period of the audit.
Action Plan and progress towards the completion of actions as reported in annual reports or status reports prepared under previous version of the IFAPP.	All IFAPP requirements relevant to the submission of the Action Plan were met. 2011-2016 IFA recommendations with respect to aggregate pit management and the FRT minimum balance liability were not fully addressed ( <b>Findings # 1 and # 6</b> ).
Payment of forest renewal charges to Forest Renewal Trust (FRT).	As of April 1, 2021, the FRT account is in arrears ( <b>Finding # 6</b> ). CFMI is working with the District Office to address this requirement

	and progress was made during the audit period.
FRT eligible silviculture work.	Field investigations verified that payments were for eligible silviculture work.
FRT forest renewal charge analysis.	Forest Renewal Trust renewal charge analysis work was completed annually.
FRT account minimum balance.	The minimum balance was not met during the audit period. ( <b>Finding # 6</b> ).
Silviculture standards and assessment program.	CFMI implemented an effective silviculture assessment and monitoring program.
First Nations and Métis opportunities.	A number of contractors employ Indigenous workers. Some of the shareholders have broad based indigenous outreach programs. The Thessalon FN has provided seedlings to support renewal activities.
Preparation of a compliance plan.	Compliance plans were prepared annually.
Internal compliance prevention/education program.	There are active internal compliance/education programs in place.
Compliance inspections and reporting; compliance with compliance plan.	The compliance program conformed to priorities and directions in the Compliance Plan.
SFL forestry operations on mining claims.	The SFL holder was in compliance with Section 22 of the SFL on Mining Leases and Claims identified by the NDMNRF.

## Appendix 4

### Audit Process

The IFA consisted of the following elements:

**Risk Assessment:** A risk assessment was completed in April 2021 to determine which IFAPP optional procedures would be audited. The risk assessment report was submitted to the Forestry Futures Trust Committee and the NDMNRF Integration Branch for endorsement and approval on April 24, 2021.

**Audit Plan:** An audit plan describing the schedule of audit activities, audit team members, audit participants and the auditing methods was prepared and submitted to the CFMI and the NDMNRF District, Northwest Region Office, Forestry Futures Trust Committee and the LCC Chair in June 2021.

**Public Notices:** Public participation in the audit was solicited through a notice placed on the Soo Today digital platform.

All Indigenous communities with an interest in the Forest were contacted by mail and invited to participate and/or express their views. Indigenous community leaders/forestry staff received several follow-up calls and/or e-mails. A representative from a local FN community attended one day of the field audit.

All LCC members received an email explaining the audit process with an invitation to participate in the audit process. A sample of LCC members received follow-up telephone calls and interviews. A LCC representative participated in the field site inspections.

Harvest contractors were invited by email to participate in the field audit and/or provide comments to the audit firm.

**Field Site Selection:** Field sample sites were selected randomly by the Lead Auditor in May 2021. Sites were selected in accordance with the guidance provided in the IFAPP (e.g., operating year, contractor, geography, forest management activity, species treated or renewed, and access) using GIS shapefiles provided by the CFMI. The sample site selections were reviewed by CFMI and NDMNRF District staff during a Zoom Meeting on June 19, 2020. Additionally, harvest operations within the VTA AOC were inspected on the request of a VTA member.

**Site Audit:** Two audit teams spent two days each conducting field site inspections in October. The field audit achieved a minimum 10% sample of the forest management activities that occurred during the audit period (see the IFA Field Sampling Intensity on the AF below). A sample of the areas invoiced in the "*Forest Renewal Trust Specified*



*Procedures Report*” (SPR) was also inspected to verify conformity between invoiced and actual activities<sup>27</sup>.

The Closing Meeting was held on October 14, 2021.

Not every hectare of the area sampled is surveyed, as this is not feasible. Individual sites are selected to represent a primary activity (e.g., harvesting, site preparation) but all associated activities that occurred on the site are assessed and reported in the sample table below. The audit team also inspected the application of Areas of Concern prescriptions, aggregate pit management, and rehabilitation and water crossing installations.

**Report:** This report provides a description of the audit process and a discussion of audit findings and conclusions.

Procedures Audited by Risk Category

Principle	Optional – Applicable (#)	Optional – Selected (#)	Optional - % Audited	Mandatory Audited (#) (100% Audited)	Comments
1. Commitment	N/A	N/A	N/A	N/A	CFMI FSC certification met IFAPP Principle 1 criterion.
2. Public Consultation and FN/Métis Community Involvement & Consultation	5	5	100	2	
3. Forest Management Planning	24	4	18	22	
4. Plan Assessment & Implementation	3	2	66	7	
5. System Support	N/A	N/A	N/A	N/A	CFMI FSC certification met IFAPP Principle 5 criterion.
6. Monitoring					

<sup>27</sup> Fiscal year 2019-2020.

	9	5	56	8	
7. Achievement of Management Objectives and Forest Sustainability	0	0	0	5	
8. Contractual Obligations	6	6	100	20	

### IFA Field Sampling Intensity on the Algoma Forest (2016-2021)

ACTIVITY	TOTAL AREA	PLANNED SAMPLE AREA (Ha)	ACTUAL AREA SAMPLED (Ha)	NO. SITES VISITED	PERCENT SAMPLED
Conventional Harvest	1,717	192	192	5	11
Seed Tree Harvest	32	9	9	1	28
Selection Harvest	6,752	746	746	21	11
Uniform Shelterwood Harvest	2,907	746	746	14	25
Commercial Thinning	174	114	114	1	65
Renewal (Artificial)	538	186	186	2	34
Site Preparation	384	88	88	3	23
FTG	1,387	202	202	4	15
No. Water Crossings	131	20	20	20	15
No. Aggregate Pits <sup>28</sup>	99	10	10	10	10
SPA Activities	1,693	169	308	4	18

Source: CFMI Forestry Shapefiles

### **Summary of Consultation and Input to the Audit**

#### Public Stakeholders

Public participation in the audit was solicited through a notice placed on the Soo Today digital platform. A request was made by a member of the VTA that the auditors inspect a harvest operation within the VTA AOC.

#### NDMNRF

NDMNRF District staff who attended the field audit and/or had responsibilities on the AF were interviewed. General comments and concerns expressed by staff to the auditors were:

<sup>28</sup> Planned and unplanned sites observed in sample.

- Staffing changes and loss of corporate memory.
- VTA AOC intrusions were a concern.

### CFMI

CFMI staff were interviewed and participated in the field audit. General comments made to the audit team included:

- Delay in processing proposals for road transfers.
- Lack of SEM being completed by NDMNRF.
- Concern with long term low harvest levels and implications on management fees.
- Concern with lack of markets for low quality material.
- Concern with staff turnover at NDMNRF District Office.

### LCC Members

Individual members of the Sault Ste. Marie and Wawa LCCs received a letter inviting their participation in the audit. A sample of members from both the SSMLCC and the WLCC were interviewed. One representative from the SSMLCC attended the field audit. General comments made during interviews/site inspections included:

- Concern with the application of shelterwood harvests in tolerant hardwood stands.
- General satisfaction with NDMNRF and CFMI communications and response to inquiries.
- General satisfaction that the LCC provided value added to the forest planning and implementation processes.
- Frustration with NDMNRF staff turnover and loss of corporate memory.
- Frustration with ongoing infractions on the Voyageur Trail AOC.

### First Nations and Métis Communities

All Indigenous and Métis communities with an identified interest in the Forest were contacted by mail, telephone and/or email and asked to express their views on forest management during the audit period. A representative from a local FN attended one day of the field audit. Comments expressed to the audit team included:

- Lack of capacity (staff and finances) to properly participate and respond to FMP planning.
- Somewhat overwhelmed by requests from various government agencies to provide input on various initiatives.
- Confusion about various audits (Certification, IFA) and their respective purposes.
- Acknowledgement that NDMNRF and CFMI have made efforts to communicate with and involve communities in the forest management processes.

### Harvest Contractors (FRLs)

Contractors were sent an email inviting their participation in the audit and inviting comment on forest management activities during the audit period. No responses were received.

**Appendix 5**  
**List of Acronyms Used**

## List of Acronyms Used

AHA	Available Harvest Area
AOC	Area of Concern
AR	Annual Report
AWS	Annual Work Schedule
B.A.	Bachelor of Arts
BLG	Boreal Landscape Guide
B.Sc.F.	Bachelor of Science in Forestry
CFMI	Clergue Forest Management Inc.
CFSA	Crown Forest Sustainability Act
CLUPA	Crown Land Use Policy Atlas
CRAs	Compliance Reporting Areas
CRO	Conditions on Regular Operations
ESA	Endangered Species Act
FAP	Forestry Aggregate Pit
FFTC	Forestry Futures Trust Committee
FIM	Forest Information Manual
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FN	First Nation
FOIP	Forest Operations Information Program
FOP	Forest Operations Prescription
FOSM	Forest Operations and Silviculture Manual
FRT	Forest Renewal Trust
FSC	Forest Stewardship Council

FTG	Free-to-Grow
FU	Forest Unit
Ha	Hectares
IFA	Independent Forest Audit
IFAPP	Independent Forest Audit Process and Protocol
KM	Kilometer
LCC	Local Citizens Committee
LIO	Land Information Ontario
LTMD	Long-Term Management Direction
m <sup>3</sup>	Cubic Meters
M.Sc.F.	Masters of Science in Forestry
NDMNR	Ministry of Northern Development, Mines, Natural Resources and Forestry
NHIC	Natural Heritage Information Centre
OFSC	Ontario Federation of Snowmobile Clubs
R.P.F.	Registered Professional Forester
RSA	Resource Stewardship Agreement
SAR	Species at Risk
SEM	Silviculture Effectiveness Monitoring
SFL	Sustainable Forestry Licence
SFMM	Sustainable Forest Management Model
SGR	Silvicultural Ground Rule
SIP	Site Preparation
SPR	Specified Procedures Report
SSM	Sault Ste. Marie
SSMLCC	Sault Ste. Marie Local Citizens Committee
TMG	Tree Marking Guide

VTA           Voyageur Trail Association  
VS             Versus  
WLCC         Wawa Local Citizens Committee



**Appendix 6**  
**Audit Team Members and Qualifications**

## Appendix 6

### Audit Team Members and Qualifications

Name	Role	Responsibilities	Credentials
<b>Mr. Bruce Byford</b> <b>R.P.F.</b> President Arbex Forest Resource Consultants Ltd.	Lead Auditor Forest Management Planning Harvest & Silviculture Auditor	Audit Management & coordination. Liaison with NDMNRF and FFTC. Review documentation related to forest management planning and review and inspect silviculture practices. Determination of the sustainability component.	B.Sc.F. ISO 14001 Lead Auditor Training. FSC Assessor Training. 42 years of consulting experience in Ontario in forest management planning, operations and resource inventory. Previous work on 45 IFA audits with lead auditor responsibility on all IFAs. 27 FSC certification assessments with lead audit responsibilities on seven.
<b>Mr. Al Stewart</b> Arbex Senior Associate	Public Participation including First Nations & LCC Participation in Forest Management Process Forest Compliance Road Construction and Maintenance Forestry Aggregate Pits	Review documentation and practices related to forest management planning & public participation/consultation processes. Review & inspect AOC documentation & practices. Review of operational compliance. Determination of the sustainability component.	B.Sc. (Agriculture) ISO 14001 Lead Auditor Training. FSC assessor training. 50 years of experience in natural resource management planning, field operations, policy development, auditing and working with First Nation communities. Previous work experience on 45 IFA audits.
<b>Riet Verheggen</b> <b>R.P.F.</b> Senior Arbex Associate	Harvest and Silviculture Contractual Compliance Assessment of Achievement of Forest Management Objectives	Determination of the sustainability component. Review and inspect silvicultural practices and related documentation. Review and inspect documents related to contractual compliance.	B.Sc.F. 27 years of experience in natural resource management, policy development and auditing. Previous work experience on 8 IFA audits.

		Review & inspect AOC documentation & practices.	
<b>Fraser Smith</b> <b>R.P.F.</b> Arbex Associate	Silviculture and Tree Marking	Review of tree marking prescriptions and confirmation of compliance with the marking prescription in the field.	M.Sc.F. B.A. Certified Tree Marker and Ontario Tree Marking Course Instructor. Auditor on 1 IFA.