Ottawa Valley Forest

Independent Forest Audit

April 1, 2013-March 31, 2018

Final Report

ArborVitae Environmental Services Ltd.

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1.0 EXECUTIVE SUMMARY

This Independent Forest Audit assessed the management of the Ottawa Valley Forest for the period April 1, 2013 – March 31, 2018, which encompasses the last three years of Phase I of the 2011-2021 Forest Management Plan and the first two years of Phase II. The audit reviewed the performance of the Sustainable Forest Licence holder, Ottawa Valley Forest Inc. (a shareholder-based organization made up of companies with a history of forestry in the Ottawa Valley) and the Ministry of Natural Resources and Forestry, Pembroke District.

The audit team spent a week in the Pembroke area, during which they conducted two days of field inspections and interviewed members of the Local Citizens Advisory Committee, Indigenous community representatives, staff members of Ottawa Valley Forest Inc., Ministry of Natural Resources and Forestry, and overlapping licensees. Operations reviewed in the field exceeded the minimum 10% sample size identified in the Independent Forest Audit Process and Protocol.

The Ottawa Valley Forest Local Citizens Advisory Committee is composed of dedicated members who capably discharge their responsibilities related to providing advice on forest management topics to the Ministry of Natural Resources and Forestry. Ottawa Valley Forest Inc. and Ministry of Natural Resources and Forestry staff provide excellent support to the committee, and committee members expressed confidence in the management of the Forest.

There was good participation by representatives of six Algonquin First Nations and a representative from the Algonquins of Ontario Consultation Office in the development of the Phase II FMP, and notable contributions including a set of Conditions on Regular Operations pertaining to different cultural values. While there is a high degree of interaction between the Algonquins and the Company and MNRF, there were some situations where differing interpretation and communication gaps led to some post-harvest results that were undesirable to the Algonquins.

This audit identified 19 findings, indicative of both opportunities and needs for improvement in some aspects of forest management. There are a small number of significant issues before Ottawa Valley Forest Inc. and the Ministry of Natural Resources Pembroke District that must be addressed for the Forest to be considered a good example of collaborative forest management. Chief among these issues are the manifestations of disagreements related to planning topics, shelterwood silviculture, and compliance calibrations. This audit attempted to bring focus to other facets of managing the forest, but this was not always possible because of the extent to which the disagreements permeate many aspects of forest management.

All planning components related to forest management, including the Forest Management Plan, annual reports and annual work schedules met the requirements of the Forest Management Planning Manual, and the Trend Analysis provided for this audit was a very high quality document. However, an important Finding of this audit is that some aspects of planning and compliance interpretations are not being implemented in an optimally effective manner. Another important planning issue addressed in this audit relates to the new Forest Resource Inventory which was provided by the Ministry of Natural Resources and Forestry to the Company in 2017. The inventory is of such poor quality that it cannot be used in the preparation of the upcoming (2021) Forest Management Plan. The audit team concurs with the assessment of Ottawa Valley Forest Inc. and the Ministry of Natural Resources and Forestry in this regard and draws

attention to the lack of robust quality control mechanisms that ensure that accurate inventories are produced. Other important planning-related findings address Forest Operations Prescriptions, overly complex shelterwood prescriptions, the need for improvements in updating silvicultural ground rules through the annual reporting process, and the desirability of using more realistic harvest levels in planning.

The quality of operations on the Forest was routinely found to be good. Utilization of harvested wood was good, as was the management of road-side slash. Silvicultural practices were appropriate for the forest units in which harvesting occurred, although the audit team acknowledges that significant differences of opinion exist between the Ministry of Natural Resources and Forestry and Ottawa Valley Forest Inc. regarding the application of pine shelterwood prescriptions. The audit team did not see any serious issues related to values protection, however, there are a number of transgressions identified in compliance reports and as pending compliance issues. There is a need to finalize records of pending compliance issues to provide a clearer record of compliance performance for the forest. Some operational issues were identified as findings, including that the number of residuals remaining in some stands is high, potentially threatening silvicultural success, some roads are in need of brushing along rights-of-way to improve sightlines and address safety issues, and the deer habitat condition on regular operations is not being implemented as prescribed.

There are aspects of four recommendations of the previous audit (including three directed towards the Ministry of Natural Resources and Forestry) that have not been fully addressed – these topics are identified again as findings in this audit: the need to address the too-high level of residuals that exist in some blocks, the need to produce a timely and good-quality Forest Resource Inventory, resolving issues related to values updates, and addressing the challenges related to the disagreements between the organizations.

The nature of auditing is generally to identify practices in need of improvement. All forest audits identify findings and this audit is no different in that regard - some challenging findings have been identified. In spite of the relatively high number of findings, the audit team stresses that there are a number of very positive aspects of forest management evident on the Ottawa Valley Forest., including:the quality of operations, levels of renewal and silvicultural success, and the quality of the forest management plans.

The audit team concludes that management of the Ottawa Valley 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 #542529 held by Ottawa Valley Forest Inc. The forest is being managed consistently with the principles of sustainable forest management, as assessed through the Independent Forest Audit Process and Protocol.

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Chris Wedeles Lead Auditor



2.0 TABLE OF AUDIT FINDINGS

Concluding Statement

The audit team concludes that management of the Ottawa Valley 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 #542549 held by Ottawa Valley Forest Inc. The forest is being managed consistently with the principles of sustainable forest management, as assessed through the Independent Forest Audit Process and Protocol.

Findings

- 1. Harvest operations proceeded on high potential cultural heritage sites before a values assessment was undertaken.
- 2. The quality of the recently-developed Forest Resource Inventory is insufficient for use in forest management planning.
- 3. The rights and obligations of MNRF regarding review, comment and requesting or requiring changes to FOPs are not definitively articulated in existing Forest Management Planning Direction (i.e. the FMPM or the FIM).
- 4. The pine shelterwood prescriptions in the Phase II plan contain some contradictory, or at best ambiguous, direction.
- 5. OVFI has not been fully meeting the annual reporting requirements related to the SGR Update/Change layer information product in its Annual Report submissions.
- 6. Effective and timely updates to changes in values are not being achieved.
- 7. MNRF did not deal appropriately with two amendment requests and one AWS revision request.
- 8. The high number of AWS revisions, particularly related to water crossings is problematic for both the MNRF and OVFI.
- 9. In several harvest blocks, the levels of residuals being retained on site by the overlapping licensees do not meet the post-harvest specifications and stand renewal objectives outlined in the forest operations prescriptions.

10. Roadside vegetation impairs visibility on a number of forest roads and creates safety hazards.

- 11. Aspects of the deer CRO are not being implemented.
- 12. Forest management planning and compliance interpretations are not being implemented in an optimally effective manner.

13.1 MNRF Pembroke District staff have not been maintaining and updating the FOIP database, particularly remedy outcomes, in a timely fashion

14. The skid trails up the esker in Block 286 are not compliant with the direction in the FMP and neither the FOPs nor the block release package nor the compliance program recognized the issue.

15. Recommendation #11 of the 2013 IFA has not been addressed.

16. The OVFI General Manager does not have access to important financial information regarding Crown payments for timber harvested on the forest management unit.

^{13.2} District forest compliance staff have not had up-to-date training in the use of the FOIP system. 13.3 The MNRF Pembroke District forest compliance program lacks direction that clearly describes the roles and responsibilities of staff in implementing the District program.

- 17. Corporate MNRF did not meet its obligation to produce the IFA provincial action plan status report for the 2013 IFAs according to the schedule in the IFAPP.
- 18. There are no performance standards or guidance from MNRF regarding what is required to meet Section 20 of the SFL document.
- 19. Section 16 of the SFL has been addressed by OVFI and is no longer necessary in its current form

3.0 INTRODUCTION

3.1 AUDIT PROCESS

The Crown Forest Sustainability Act (CFSA), and one of its Regulations (160/04) directs the Minister of Natural Resources and Forestry (MNRF) to conduct regular audits of each of the province's managed forests. These audits assess compliance with the CFSA, the Forest Management Planning Manual (FMPM), the forest management plan (FMP) and whether the licensee has complied with the terms and conditions of its Sustainable Forest Licence (SFL). The effectiveness of operations in meeting plan objectives and improvements made as a result of prior Independent Forest Audit (IFA) results are also to be evaluated. Consistent with the CFSA, the Independent Forest Audit Process and Protocol (IFAPP) requires the audit team to provide a conclusion regarding the sustainability of the Crown forest.

An important characteristic of the IFAs is that they review the performance of both the MNRF and the SFL-holder, which is Ottawa Valley Forest Inc.(referred to as OVFI or 'the Company').OVFI is responsible for meeting the terms of the SFL, which requires it to prepare and implement forest management plans and five-year and annual operational plans, annual reports, and to oversee forest operations on the Forest Management Unit (FMU). The Company is also responsible for compliance monitoring, silvicultural assessments, and maintaining the forest inventory.

The MNRF has many responsibilities related to forest management, including review and approval of key documents (including the FMP, annual reports, annual work schedules, etc.), overseeing management of non-timber resources, undertaking compliance inspections, etc. In other words, the activities and accomplishments of both parties with forest management responsibilities are covered by the audit.

The IFAPP is the key document that provides direction regarding the audit scope and process. The IFA process has recently been modified to include an early stage screening of the risk associated with approximately 75 of the 170 audit procedures. The procedures that are screened for risk are those that MNRF has assessed as having a low impact on sustainability in the event of a non-conformance or poor effectiveness. (The auditors are required to audit all procedures that have moderate to high impacts on sustainability.) As a result of this screening, twelve of the optional procedures were selected to be audited. Greater detail regarding how the audit process was followed, the approach used in the risk assessment, and the operational sampling intensity can be found in Appendix 4.

This audit covers the period April 1, 2013 – March 31, 2018, which spans years three through seven of the 2011-21 FMP and includes the development of the Phase II plan that came into force on April 1, 2016. The audit examined all forest operations that occurred within that period as well as the process of developing Phase II of the FMP. The auditors solicited public input through interaction with the Local Citizens Advisory Committee (LCAC), newspaper advertisements, and an on-line survey. In addition to input from the LCAC, several responses to the on-line survey were received.

The auditors interviewed or received input from more than half of the LCAC membership at the time of the audit, and representatives of the Algonquins of Ontario (AOO) Consultation Office. The AOO Consultation Office represents ten Algonquin First Nations in their negotiations for a settlement of the Algonquin Land Claim and is the organization that served as the main point of

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contact with the Algonquin communities during the audit. Appendix 4 provides a more detailed account of the comments and discussion points raised by the members of the LCAC and Indigenous representatives who were interviewed.

3.2 MANAGEMENT UNIT DESCRIPTION

The Ottawa Valley Forest is located in eastern Ontario, roughly midway between Ottawa and Mattawa (Figure 1). Forest boundaries are also those of Renfrew County and the MNRF Pembroke District. The northern and eastern boundary of the Forest is defined by the Ottawa River, with the city of

Pembroke at the mid-point of this boundary. Some of the larger communities in the forest are Deep River, Petawawa, Renfrew,

Arnprior along the Ottawa River, and Pikwakanagan, Barry's Bay, and Eganville to the southwest of Pembroke. The Forest is very irregular in shape, with the bulk of the land area located south of Pembroke.

The Sustainable Forest Licence (SFL) for the Ottawa Valley Forest is held by Ottawa Valley Forest Inc. (OVFI). The Company came into being in the late1990's when the Ministry of Natural Resources converted most of its Crown-managed forests to Sustainable Forest Licences. OVFI is a shareholder-based organization made up of twelve companies with a history of forestry and mill operations in the Ottawa Valley.

The Forest is relatively small by contemporary Ontario standards (Table 1). Although the perimeter of the Forest encompasses over 800,000 ha, only approximately 326,000 ha is Crown land. Almost 55% of the Forest's area is private land, and with the small amount of federally-owned land, the total area of Crown land is just over 40% of the Forest's total.

Figure 1. Location of the Ottawa Valley Forest. Crown land is indicated in green, private land in white.

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Figure 2 Map of the Ottawa Valley Forest. Green shaded areas are Crown land, white areas are private land.

Land Class	Managed Crown ^a	Total Crown Land ^b	
Water	70,564	70,641	
Non-forested	3,270	3,566	
Non-productive Forest ^c	19,735	22,374	
Productive Forest ^d	217,517	229,953	
Total	311,086	326,534	

 Table 1. Area description of the Ottawa Valley Forest (From Table FMP-1 2011 FMP).

a – includes Crown land available for forest management purposes

b – Includes Managed Crown land plus land not available for forest management purposes, including provincial parks, conservation reserves, etc.

c – areas incapable of growing commercial trees, such as muskeg, rock, etc.

d - forest areas capable of growing commercial trees

The area of the major forest units (FUs) is shown in Figure 2. The FUs include three units managed on an uneven-aged basis using the selection system (HDsel, CEsel, and HEsel - see Appendix 4 for full names), three managed using the shelterwood system (PWus, ORus, and HDus) and four managed using clearcutting. (INTcc, MXHcc, MXCcc, and PRcc). Shelterwood forest units account for approximately 44% of the available production forest, clearcut forest

units 41%, and selection forest units 15%.

The overall age-class distribution of the forest (Figure 3), shows considerably more old forest than young. The FMP notes that the forest is dominated by mature, and increasingly old forest. This is true, but is complicated by the admixture of FUs managed using selection or shelterwood silviculture, for which Forest Resource Inventory (FRI) age class categories do not adequately represent their multiaged nature. Nonetheless, as a generalization, the observation holds, and is reinforced by the fact that 70% of the area of clearcut forest units is older than 60 years.

As with many other forests in the province, the Ottawa Valley Forest has seen its harvest decline in recent years. From an annual harvest area of approximately 3,300 ha in the 1996-2001 plan period, the harvest has dropped to approximately 1,600 ha/year for the 2011 plan period to date. The harvest for the present plan to date is only about 43% of that planned. The Trend Analysis provided by OVFI attributes this to the lingering effects of the Great Recession of 2008 which sawtemporary and permanent mill closures, bypass due to merchantability issues, and the implementation of timing-based harvest restrictions to protect species at risk.

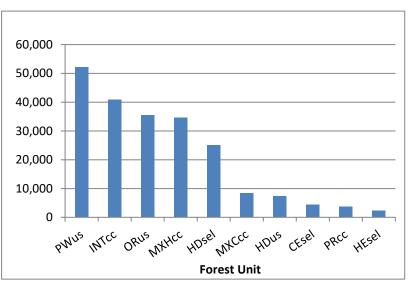


Figure 2. Area (in ha) of major forest units of available production forest (Data from Table FMP-3, Phase I 2021 FMP.)

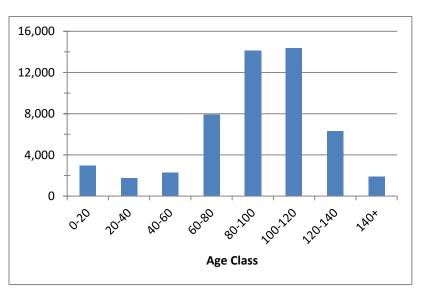


Figure 3. Area (in ha) by age class (in years) of available production forest. (Data from Table FMP-3, Phase I 2021 FMP).

The area of the OVF is within the larger area that is a component of claim negotiations between the province of Ontario and the Algonquins of Ontario. The draft settlement agreement contains a provision for considerable amount of area within the Ottawa Forest to be included in the Settlement Lands and removed from the Licence area some time in the future. As a sign of good faith, the Algonquins agreed not to contest allocations in the FMP during the Land Claim negotiations, which represents a major concession on their part.

A portion of the southern part of the OVF overlaps with the Madawaska Highlands Land Use Planning Area (MHLUP) – an area designated in the Province's Crown Land Use Atlas as worthy of having special designation because of its importantl multiple-use attributes and natural and remote character. The management strategy developed for the MHLUP area has some requirements that impact forestry operations; for example, access roads are to be maintained at levels consistent with those in place when the area was initially designated, special attention is given to managing old growth forest areas and clearcut size is limited to 100 ha. The MHLUP has its own sustainability targets, however evaluation of those targets falls outside the scope of this audit.

As noted above, there is a considerable amount of private land within the Forest. There are many towns and farms and rural homes and the Forest's roads experience high levels of traffic. In addition, there is considerable tourism; the 2011 FMP reported that themost recent data indicated that over 1.1 million people visit the area per year

4.0 AUDIT FINDINGS

4.1 COMMITMENT

The commitment principle is deemed to be met since the Ottawa Valley Forest is certified under the Forest Stewardship Council standard. The audit team had extensive engagement with Company and MNRF staff throughout the audit and found them to be highly committed and knowledgeable regarding provincial forest management requirements in general and management and ecology of the Ottawa Valley Forest in particular.

4.2 PUBLIC CONSULTATION AND ABORIGINAL INVOLVEMENT

Local Citizens Committee

The Local Citizens Committee on the Ottawa Valley Forest is referred to as the Local Citizens Advisory Committee (LCAC). The committee currently has of 11 members, many of whom have served for a long time – the average tenure of present members is approximately 13 years. There is a good mixture of backgrounds and expertise among the membership so that most of the interests identified as desirable in the FMPM are accounted for.

The audit team interviewed six members of the LCAC and discussed topics related to the LCAC with both MNRF and OVFI staff. The LCAC is well-functioning and knowledgeable regarding resource management and related topics. There has been some turnover in the committee recently, but this is normal and desirable for volunteer groups.

LCAC members interviewed noted that meetings were well-run, and commended both MNRF and OVFI for their support and the quality of information provided during meetings.

The LCAC has an efficient mechanism for providing advice to the MNRF District Manager (DM) on amendment categorization, one of the committee's main mandates. The two co-chairs are empowered by the committee to review amendment requests and identify an appropriate recommended categorization; if there is uncertainty or need for greater discussion the co-chair will raise the issue with the entire committee. The results of the co-chair assessments are presented at the LCAC meeting immediately following their review.

Attendance at LCAC meetings is generally reasonable, especially considering the distance that some members travel in order to attend meetings. Average attendance during the audit period was 7-8 members, however, at times it was as few as five. The terms of reference (ToR) were reviewed prior to development of the Phase II plan, as is required, and address all the topics identified as necessary in the FMPM. However, given the sometimes-low attendance at meetings, the audit team suggests that the topic of quorum be considered in the next review of the ToR.

The audit team also noted that the committee has fewer meetings than most other LCAC's, with a total of only 12 during the audit period. Appropriately more meetings than in other years occurred in 2015, when the Phase II FMP was being prepared. No LCAC members expressed concern about the meeting frequency, and there were no obvious gaps in the extent to which the committee addressed its responsibilities as identified in the ToR. However, the audit team believes that the committee could provide advice to the DM on a greater breadth of forest management topics, should it wish, by meeting more frequently.

Aboriginal Involvement

The Pembroke District MNRF sent letters of invitation to participate in Phase II planning to the nine Algonquin communities that participated in Phase I planning, representing all but one¹ of the First Nations members of the Algonquins of Ontario (AOO) (See Appendix 4 for a list of the First Nations represented by AOO.) Seven of the communities indicated an interest in participating on the planning team (PT), and representatives of six First Nations attended PT meetings. A similar letter of invitation was sent to the AOO and the AOO resource technician was an active participant. A letter of invitation was also sent to Wolf Lake First Nation (which is not represented by AOO), but there was no participation from that community.

Indigenous participation in the planning process was quite high, with two community reps and the AOO rep each attending seven of the nine PT meetings, two other reps attended five meetings and the remaining four attended between one and three meetings. In addition, three community reps and the AOO rep attended FMP training. During planning, a community meeting was held at Pikwakanagan. Also during Phase II, the AOO was given \$45,000 (\$4,500/community) to prepare background information for planning, and a very good Aboriginal Background Information Report was prepared. The AOO informed the auditors that it estimates that \$1 million would be required to complete values collection for all of the communities it represents.

In addition to strong PT participation, the Algonquins prepared a set of Conditions on Regular Operations (CROs) for a wide range of cultural values that were included in the Phase II plan, as well as a "Protocol on Road Access". The decision by the holders of the SFLs for Ottawa Valley Forest, Bancroft-Minden and Mazinaw-Lanark Forests to prepare parts of their FMPs jointly assisted the AOO in their participation, since member communities have common interests in all three forests.

Algonquin people also participated strongly in the reviews of the AWSs and have provided training in identifying cultural sites to operators and foresters, as well as site visits ofblocks with MNRF and Company staff. While there is a high degree of interaction, and Algonquin representatives generally seem to feel comfortable with MNRF and OVFI staff, there is room for

¹The Algonquins of Ottawa was not sent an invitation because their traditional lands are deemed by MNRF not to overlap the OVF.

improvement in the relationships. **Finding # 1** reflects a gap in communication such that a part of Block 286 was harvested before a full identification of cultural sites was undertaken, as well as a post-harvest result that was different from the expectations of the Algonquins. Other concerns raised by the Algonquins include concerns about plans to reduce the amount of oak in the OVF, the lack of moose winter thermal cover in the north part of the OVF, concerns with blocks located near or overlapping with proposed settlement areas, and access management.

4.3 FOREST MANAGEMENT PLANNING

The audit team reviewed the Phase II Plan in considerable detail. The plan is very well written and meets the requirements as identified in the FMPM. As mentioned above, the OVF prepares its plan in conjunction with the Bancroft-Minden and Mazinaw-Lanark Forests – separate plans are produced for each forest but this approach provides efficiencies since forest units, growth and yield and other modeling data are similar if not the same for each forest.

Forest Resource Inventory

An obvious composite of information necessary for forest management planning is an up-todate and good-quality inventory. The existing inventory for the OVF is old – based on 1987 aerial photography. A new inventory was to be prepared for use in the upcoming 2021 plan, but the delivered product was fraught with problems and errors – so much so that it is not suitable for use in forest management planning. This is a considerable blow to the development of the upcoming plan as the planning team will be forced to use updates of the previous FRI, a much less preferable option. The audit team believes that the lack of robust quality control mechanisms was an important factor contributing to this failure. The FRI is the subject of **Finding # 2**.

Harvesting and Silviculture

The Silvicultural Ground Rules (SGRs) that were developed in Phase I of the FMP were reviewed and confirmed for Phase II. Nine new SGRs were added for Phase II to provide additional treatment options for stand conditions not previously incorporated into prescriptions for some forest units. Given that the OVF encompasses both Great Lakes-St. Lawrence (GLSL) and boreal forest types, there are a lot of silvicultural treatments that may apply to the forest and the SGRs do a comprehensive job of capturing the silvicultural complexity and options for the Forest.

A key part of planning for harvest and silviculture is the preparation of a Forest Operations Prescription (FOP). It is through the FOPs that the SGRs are implemented on the ground. MNRF staff note that many FOPs contain, what they believe, is insufficient information to fully characterize the Company's intention and nature of planned operations on the blocks to which they apply. OVFI staff acknowledge that FOPs are more streamlined than they were formerly and frequently just reference relevant parts of the FMP to provide direction for operations. This seems particularly to be the case for CROs. The audit team's review of the FOPs did note the abbreviated content in places, but the audit team does not have strong concerns regarding the extent to which the FOPs satisfy the direction in the FMPM (Part D, Section 2.0). However, given the firm views of the MNRF, the audit team believes a rational approach for addressing this issue is for MNRF and OVFI to work together identify a reasonable template for FOPs that would address both OVFI's concerns regarding independence and work load and MNRF's concerns regarding content that is truly necessary for understanding the intent of the Company's plans for specific blocks. Considerable disagreements arose during the audit period between MNRF and OVFI regarding the forest conditions under which it is reasonable to apply some FOPs, and regarding the right of MNRF to request or require changes to FOPs that they do not agree with. This topic, particularly regarding FOPs that apply to the white pine shelterwood forest (PWus) unit, has become a source of considerable disagreement between the organizations. This issue is addressed in **Finding # 3**.

Following a recommendation in the previous IFA, the prescriptions for the PWusFU received substantial scrutiny and revision during Phase II development. The revisions generally followed the direction provided in the 2015 Forest Management Guide to Silviculture in the Great Lakes-St. Lawrence and Boreal Forests of Ontario (i.e. the Silviculture Guide) and a new, separate section of the Phase II plan was dedicated to the PWus strategy (Section 8.2.2.1.1). Regional MNRF staff participated in the revision process, and there was also input from MNRF Policy Division. Interviews and correspondence following the completion of the new prescriptions indicated that the Company and District MNRF staff accepted the revised SGRs, even if they did not completely agree with every element of them. The shared acceptance has not lasted, as the organizations have found aspects of the interpretation of the prescriptions with which to disagree, in some circumstances vehemently. The audit team's review of the revised prescriptions concluded that while PWus is a complex forest unit, and there are many different types of PWus stands with varying histories on the OVF, the prescriptions are more complex than they need to be and also contain some inconsistencies, which likely contribute to the disagreements. Most fundamentally, there will always be some PWus stands in the forest for which some professional judgment is going to be required when determining the appropriate shelterwood prescription. This is the subject of Finding # 4.

Stand treatments may change over the course of management interventions. This occurs most commonly following the application of renewal treatments. The Forest Information Manual (FIM)requires that changes to silvicultural ground rules that have occurred since the last reported SGR (for example, in the harvest layer reported at the time of depletion) are required to be identified in the annual report when the silvicultural intent (future forest condition) of a block or stand changes. Interviews with OVFI staff revealed that the SGRs are changed frequently, particularly when the FOPs are prepared, which is not surprising given the vintage of the FRI used for this Forest. However, the Company is not reporting the changes, citing that the process would be onerous and difficult to implement, due especially to the nature of forest compositions in the Great Lakes-St. Lawrence Forest environment. This is addressed in **Finding # 5**.

Values Planning

In Phase II of the FMP, the PT added two Areas of Concern (AOCs) to those identified in Phase I. New AOCs were added for low potential sensitivity streams and ponds; in Phase I, these values were managed as CROs. In total there were 76 AOC prescriptions in the Phase II plan, a high number relative to many other FMUs, likely reflective of the greater ecological diversity in this forest due to its more southern location and the fact that it includes both boreal and GLSL ecosystems. Ecological values comprised the lion's share of the AOCs; safeguards for bird nests and habitats comprised 32 of the 76 AOCs, other wildlife and plants 19, water values 14, cultural and recreation values 6, and other values 5. A review of the AOC prescriptions found them to be comprehensive, and consistent with the guidance and direction provided in the Stand and Site Guide².

²²Ontario Ministry of Natural Resources. 2010. Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales. Toronto: Queen's Printer for Ontario. 211 pp.

The AOC prescription for Blanding's turtles, a threatened species, was of particular concern to the Company. Blanding's turtles travel extensive distances overland to nest and disperse. making them particularly vulnerable to road traffic and forestry operations during their active season (April 15 to Oct 15). In recognition of their vulnerability, the AOC prescription restricted operations involving heavy equipment for considerable distances from suitable aquatic habitats. The Trend Analysis estimated that total area on the Forest with restrictions during the active season encompassed more than 115,000 ha (including private land). To address this concern (not just on the OVF, but on other management units as well), MNRF provided revised Blanding's Turtle direction in 2016. Among the modifications was recognition of a 'low activity period' (July 15 to Aug 31) during the active season. This provides a window of opportunity for forest management operations and road construction to occur during the active season with a low risk of jeopardizing the turtles.

Conditions on Regular Operations

The Planning Team reviewed the CROs that were in the Phase I FMP and added three new CROs related to ecological features (bat maternity roosts and breeding habitat for Canada warbler and Olive-sided flycatcher) and to another nine new CROs related Algonquin cultural values. The involvement of the AOO and other Algonquin representatives in plan development and the willingness of the planning team members to add these new CROs is to be commended.

In addition to the CROs, a series of 24 Conditions were identified related to Construction and Maintenance of Roads, Landings, and Forestry Aggregate Pits (CORLAPs). The CROs and CORLAPs provide a high level of protection for forest values, and together with the AOC prescriptions generally transcribe the protection standards and guidelines identified in the Stand and Site Guide and Landscape Guide³ into operational prescriptions.

When new values are identified on the Forest, or when aspects of existing values are found to have changed(e.g. thermal profile of streams), by the Company, its contractors or shareholders, it is the responsibility of the Company to inform the MNRF of the existence or change inthe value. This should set in motion the process of updating values information in relevant inventories. This responsibility, and that of MNRF to provide usable values information to planning teams is laid out in the FIM. During the audit term, there was a decline in the extent to which the Company informed the MNRF of new values. This relates in large part to disagreement between OVFI and MNRF regarding technical aspects of the updating process, including the format in which the data are provided back to the Company after MNRF has processed them. This is addressed in **Finding # 6**.

Access

Access planning in the FMP followed the requirements of the FMPM and addressed the special road planning requirements related to access limitations in the MHLUP area. Access management planning is well described in the FMP and corresponds to the details described in the planning table FMP-18.

Levels of road construction in the Phase II plan period have been considerably less than planned, particularly for branch roads (see Section 4.4). Given the carry-over of the length of road planned, but not constructed during the first Phase of the FMP, 23.1 of the 35.1 km of

³Ontario Ministry of Natural Resources. 2010. Forest Management Guide for Great Lakes-St. Lawrence Forests. Toronto: Queen's Printer for Ontario. 78 pp.

primary road planned for the entire ten-year plan period are planned for construction in Phase II, and 145.4 km of the original 177.2 km of branch road are planned for construction in Phase II. Given the levels of construction achieved in Phase I, it seems very unlikely that planned levels in Phase II will be achieved. OVFI staff note that 'planned' construction' as identified in table FMP-18 is not an accurate reflection of the length actually intended for construction. Given that a new road corridor is typically a minor or major amendment to the FMP, OVFI tends to provide several options in the plan to provide flexibility for the final selected route, recognizing that not all roads will be constructed. This has the effect of inflating what is reported in the plan as the 'planned' level of road construction.

Providing flexibility associated with road corridors is a common feature of FMP access planning, and frequently gives the impression that much less road than planned was built. While this is discussed briefly in the FMP text, more helpful would be to give realistic estimates in Table FMP-18, or clearly indicate both projected and 'planned' levels of construction.

Amendments

In the audit period, 24 amendments were submitted by the Company to MNRF. The LCAC's role in recommending the categorization of amendments works well, as described in Section 4.2. Many amendments were approved by MNRF within a reasonable time. However, there were exceptions. In particular, there have been several recent amendments with protracted approval times (i.e. 60 – 120 days). This has occurred because of the opportunity provided to AOO to review amendments and provide input. The length of time taken is a function of capacity constraints within AOO and the process in place to complete a thorough review. To address the timing issue, MNRF is working with AOO to put in place a more efficient review structure, similar to that used by the LCAC, in which an individual is empowered to speak on behalf of the organization while also respecting the role of others in the organization in reviewing and giving consent to the result of the more streamlined internal review.

A second issue relates to the failure of MNRF to provide a decision on two of the amendments (#28 regarding a proposed 2-cut white pine shelterwood, and #34 regarding a proposed commercial thinning operation). While there was considerable correspondence between the parties related to Amendment #34, ultimately no decision was provided, for it or for #28. This is addressed in **Finding # 7**.

Annual Work Schedules and Revisions

All of the Annual Work Schedules (AWSs) prepared in the audit term met the requirements of the FMPM, and the submission, review and approval process also generally adhered to the FMPM requirements. Revisions were appropriately sought when planned operations were not identified in the AWS. In reviewing the revision requests it became apparent that OVFI is requesting a high number of revisions in comparison to other management units. (Over the audit term OVFI averaged 31 revisions/year in comparison to 4-16/year for other SFLs in MNRF's Southern Region.) It would be best for OVFI and MNRF if a more efficient process, such as bundling of revisions could be developed, however, there appear to be impediments to this. This issue is discussed further in **Finding # 8**.

A small number of revisions were not accepted for various reasons. Two revisions were rejected as they were not required. Two others were rejected as inadequate information was provided with the submitted documentation, and they were re-submitted with the omissions corrected. One revision request (Block 35) was never responded to by MNRF due to their disagreement with OVFI's prescription in the proposed harvest FOP. Similar to the discussion of amendments above, this is addressed in **Finding # 7**.

4.4 PLAN ASSESSMENT AND IMPLEMENTATION

Harvest Operations

The audit team spent two days inspecting a wide range of harvested sites in the OVF, including blocks managed under the clearcut, shelterwood and selection systems. The OVF tree markers are very experienced and are very adaptable in adjusting their marking approach as the stand characteristics change. The harvesters did a good job in felling the appropriate trees, avoiding damage to the residual stand, and for the most part avoiding site damage. Utilization of the harvested timber was very good, and the significant number of people living in and near the Forest use much of the slash and other logging debris left at roadside for firewood. Many of the stands that received a first removal cut under the shelterwood system benefitted from thinning or stand improvement cuts at the same time, to remove unmerchantable trees that would impede renewal. OVFI was assisted in this regard by funding provided by Forestry Futures Trust for these projects.

Despite the high quality of marking, several of the blocks inspected retained a number of residuals that exceeded the prescribed levels. This tendency was observed during the previous IFA and resulted in a recommendation to review residual retention levels. During this audit, excessive residual structure was noticeable in the shelterwood harvests as well as clearcuts – some clearcuts that the auditors saw from the air had more of the block area covered by residual canopy trees than had been opened up for regeneration. The previous audit mentioned that markers and harvesters had a tendency to be conservative in their marking and felling intensity, a perspective that appears to persist. Not opening the canopy to the prescribed levels can have negative consequences on renewal success and introduce growing conditions favourable for undesirable shade-tolerant species. The foregone volume also represents a loss to the operator as well as to OVFI. This is addressed in **Finding # 9**.

As discussed in Section 4.3, the low level of realized harvest versus the planned level is part of a longer-term trend on the Forest. During the first four years of the audit period, the actual harvest area was 48% of planned, which is also the same percentage of the planned harvest area that was actually cut in Phase I of the FMP. Red pine is by far the most highly sought after forest type, with 99% of the planned area having been cut during Phase I. The harvest in most of the other FUs was between 40 and 60% of planned, with the exception of the Orus FU (29% of planned area was cut). In addition to the regular harvest, a minor amount of salvage was done in blowdown in four of the first six years of the 2011 FMP term.

Section 4.3 described the disputes that occurred regarding the implementation of FOPs, especially those prescribing shelterwood harvests in white pine. In general, the Company advocates an approach it sees as more pragmatic through the more frequent use of two-cut shelterwoods, whereas the MNRF sees the three-cut approach that it more frequently advocates as being more precautionary and science-based. The audit team believes that both approaches are appropriate in different circumstances and that the selection of the 'right' approach for individual circumstances depends on the particulars of the site, the state of regeneration, and nuances that should be interpreted based on professional judgment. During the field tour, the auditors viewed three sites that were the subject of considerable contention between the organizations and contributed to the disagreement related to FOPs described in **Finding # 3**.

During the site inspections, the audit team discussed the prevalence and management options for beech trees in response to the occurrence of beech bark disease. The disease has been present on the forest since at least 2014, and is certain to have a devastating effect on the

species as it has wherever it has been recorded. Mortality rates are very high (typically greater than 95%), although some individuals are tolerant, or even resistant. To identify management options, MNRF sponsored the development of 'state of practice' document⁴. Building off this document, OVFI has prepared a draft beech management strategy for incorporation into the 2021 FMP. OVFI's strategy focuses on maintaining the long-term health of tolerant stands and advocates doing so by harvesting all beech trees (infected or healthy) from all stands encountered during forest management operations. The rationale for doing this is to avoid the development of thickets which sprout from killed trees and can pose competition problems with other tolerant hardwoods. OVFI's strategy rationalizes this approach based on the fact that only a small proportion of stands are harvested annually and that resistant trees found in the remainder of the forest will eventually present themselves once the disease has spread through the entire forest. Some MNRF staff advocate a less aggressive approach noting that beech is an important wildlife tree. As is noted in the FMP, beech is an important food source for bear, deer, and other species, and provides nesting trees for several raptors. The audit team is of like mind with MNRF staff and encourages OVFI to consider a less drastic approach which does not advocate liquidation of beech in all managed stands. A consequence of the anticipated loss of most beech in the Forest is that oak will become the primary mast producing species. Given the importance of mast in supporting numerous bird, mammal and insect species, the plan to reduce the amount of oak in the Forest should also be reconsidered particularly in light of the sustainability targets of the MHLUP.

Silvicultural Operations

The Company generally undertakes silvicultural operations as part of the clearcut and shelterwood management regimes. The Company's planting efforts, which are reported as supplemental planting, achieved almost 80% of the planned amounts in Phase I, without any adjustment for the difference in actual and planned harvest level. During the same period, mechanical and chemical site prep levels were at 90 and 82% of planned, respectively. The Company completed almost 20x as much manual cleaning as planned during Phase I, assisted by Forestry Futures Trust project funding, and did 38% of planned aerial chemical tending and none of the planned ground-based chemical tending. Overall, when comparing planned versus actual levels of tending, manual tending was emphasized at the expense of chemical-based tending to manual tending. These results, if they were pro-rated for the amount of actual harvesting undertaken versus planned, would all show well over 100% achievement. This is a very good result and underscores a high level of commitment to effective renewal on the part of the Company.

Access

Bridges and culverts inspected during the site visit found them to be in good repair, although as noted in Section 4.6compliance issues related to sedimentation into waterbodies during road construction were identified by MNRF inspectors.

The surfaces of the roads upon which the audit team drove during the audit indicated good grading practices and no issues associated with ponding or erosion were identified. However, the audit team is concerned about the safety of some roads due to the lack of roadside brushing, leading to impaired visibility. This is addressed in **Finding # 10**.

Considerably less road was constructed than planned, as is normal in FMP implementation. In Phase I,18 km of primary road was planned and 12.6 km was constructed, while 12.2 km out of

⁴Demuth, E. 2018. State of Practice for Managing Beech Bark Disease in Ontario. unpublished report prepared for MNRF. 25 p. + appendices.

a total of 131.9 km of planned branch road was built. The planning implications of this are discussed in Section 4.3

Values Protection

The audit team saw no instances of failure to protect known values appropriately through implementation of AOC prescriptions during the site inspections. Further, the summary of compliance for values as presented in Table AR-14 of the Trend Analysis indicates almost 100% compliance. However, the data presented in the table do not take into account the number of pending issues which are either yet to be addressed or have not yet been entered into the FOIP database. So while the audit team did not view any transgressions, a number of issues were identified by MNRF compliance inspectors. (See discussion in Section 4.6 – Monitoring and in **Finding # 13**).

During one stop on the audit inspections (Block 817), a site was viewed for which water quality information was revised by MNRF to show that a stream supported brook trout spawning/nursery habitat. MNRF shared the information with OVFI, but a values update was not completed by OVFI. MNRF worked with the operator to ensure that appropriate measures were taken in light of the reclassification of the stream, likely avoiding a compliance issue. The issue of values updates is addressed in **Finding # 6.**

MNRF staff identified concerns regarding implementation of several CRO's, including deer critical thermal cover and access cover (CRO-22) in several blocks, retention of moose late winter cover (CRO-23) in two blocks and, retention of beech as a preferred mast species (CRO-07) where it is present. Of these issues, the one most apparent to the audit team relates to deer winter habitat. The requirements of the CRO are definitive and not all aspects are carried out routinely by OVFI as laid out in the FMP. This is addressed in **Finding # 11**.MNRF staff also expressed a concern regarding CROs 36 and 37, which are related to Algonquin Values. As discussed earlier, this is addressed in **Finding # 1**. The audit team believes that MNRF and OVFI should resolve differences related to the other CROs without the intervention of a Finding.

4.5 SYSTEM SUPPORT

OVFI is certified to the forest management standard of the Forest Stewardship Council[®], and so the IFAPP excuses the Company and MNRF from being assessed against the requirements of the human resources criterion of the System Support Principle. Nonetheless, the audit team observes that the staff of both OVFI and MNRF are skilled professionals with more than adequate expertise to carry out their responsibilities.

As is noted elsewhere in this report, there exist long-standing disagreements between the organizations regarding compliance calibration and the quality of OVFI's compliance performance (discussed in Section 4.6 – Monitoring), and there are differences in the perspectives of the professional resource managers in the two agencies regarding appropriate silvicultural practices, especially as it relates to the white pine shelterwood system (discussed in **Finding # 3**). The disagreements and the need to address the root causes have been identified in the previous three IFAs, and so this characteristic of the dynamics between the Company and MNRF has existed for two decades. The audit team knows of no situation elsewhere in the province with a comparable circumstance underscoring the extreme nature of this situation. This topic features both in **Finding # 12** and **Finding # 15**.

4.6 MONITORING

Compliance Monitoring

Because issues related to compliance topics have been the subject of substantial disagreements between the Company and MNRF, considerable discussion is devoted to this topic in this report.

The ten-year compliance strategy for the OVF presented in the 2011 FMP met all of the requirements of the FIM and Forest Compliance Handbook in place at the time. The ten-year Strategy was revised and updated in the Phase II FMP.OVFI also prepared Annual Compliance Plans for each of the five years within the scope of the audit. The Annual Compliance Plans are included as appendices in the respective Annual Work Schedules, and are well-written and provide the content required by the FMPM and the Compliance Handbook.

On the government side, MNRF is responsible for preparing Annual Compliance Operational Plans (ACOPs) that are consistent with Regional priorities and objectives. Over the audit term, Pembroke MNRF has prepared ACOPs in various formats. The most recent versions are largely a schedule of planned compliance activities with no identification of explicit roles of staff and who is responsible for ensuring that the District compliance program is carried out. The audit team believes that there is a lack of direction from MNRF regarding appropriate structure and content and identification of responsibilities for Annual Compliance Plans. This is addressed **Finding # 13**.

OVFI is ultimately responsible for all compliance activities on the licence area and approves all compliance monitoring reports that are submitted by the inspectors that either directly work for OVFI or are contracted by the Overlapping Forest Resource Licensees (OFRLs).

According to the FOIP database, the forest industry (OVFI and its licensees) filed 534 compliance inspections over the audit term, and MNRF inspectors completed 75 inspections. Industry compliance reports noted a higher rate of compliance than did MNRF reports - the disparity is likely because MNRF inspections focus more on high-risk operations, such as water crossings and AOCs. FOIP reports document two instances of Company-reported non-compliance and thee instances of MNRF-reported non compliance. Three of the non-compliances were related to stand improvement operations that took place in early 2013 where a number of ineligible trees were cut and merchantable trees were left on site. Three penalties totaling \$7,000 were issued, along with two repair orders. The two other non-compliances were related to part of an AOC being harvested during road right-of-way construction and unauthorized installation of a water-crossing.

Rates of non-compliance identified in current summaries of FOIP are misleading however, as a significant number (26) of pending issues were identified but their resolutions have not been entered into the FOIP system. Apparently, action has been taken on nearly all of the pending issues in the past few months, but these actions have yet to be documented through the FOIP system (See **Finding # 13**). According to local District MNRF records, the following actions have been taken on the pending issues:

- \$15,500 in fines were issued (one \$5,000 fine is under review)
- 3 Compliance Orders were issued
- 8 Written Warnings were issued
- 11 issues were resolved through self-corrective actions
- 4 issues are under ongoing investigation/discussion

Not included in the above numbers are nine issues that were initially identified and later considered to be non-issues.

The leading causes of the non-compliances on the pending issues were related to water crossings and road construction, such as failure to notify MNRF prior to installing water crossings, sedimentation in streams resulting from road construction, and construction of roads or landings within AOCs. A number of issues were also related to wood measurement (e.g., administrative issues related to bills of lading, hauling timber to an unauthorized destination).

Given the above information, it seems likely that the compliance rate for the 2013-2018 period is likely to approach the 95-96% range once all of the data are properly entered into the FOIP database. Based on the audit team's experience, this rate of non-compliance is average to slightly lower than average for Ontario FMUs.

Revisions to the compliance rates and performance should be acknowledged in future Annual Reports and will impact aspects of analysis of the Company's performance (e.g., assessment of objectives that utilize compliance rates as targets of achievement).

The auditors found that most of the overlapping licensees are generally conducting their operations in a compliant manner and none of the non-compliances were considered to pose serious threats to any values or to the sustainability of the OVF. However, review of the non-compliances found that the lack of clear communication was the underlying cause for several of the infractions. Examination of the records revealed that certain operators were involved with the non-compliances more often than others. Further examination revealed that the more troublesome operators were poor communicators and not keeping OVFI informed about their actions or intentions sometimes led to non-compliant situations.

Compliance monitoring and performance have been long-standing issues of discord between MNRF and OVFI. Previous audits have drawn attention to the need to find solutions to the situation, but strident disagreements between the two organizations continue to exist. Currently, disagreements over the implementation of FOPs are driving the sharpest discord between the two parties. District MNRF has recently identified a compliance issue related to the FOP for Block 278. Considerable discussions regarding the concerns took place, but did not lead to resolution as the MNRF and OVFI disagreed regarding the appropriateness of the silvicultural approach prescribed in the FOP. MNRF maintains that treating the issues as a non-compliance was a last resort. This and related topics are the subjects of **Finding # 3** which addresses the rights and obligations of MNRF to review of FOPs, **Finding # 12** which relates, in part, to the role of compliance disagreements impairing effective planning, and **Finding # 15** which notes that an important recommendation of the last IFA that has its roots in differences related to compliance monitoring has not been addressed.

In spite of the difficulties that the two organizations have had regarding compliance topics, there are some positive signs. There are good interpersonal rapports between some of the individuals in the organizations and the compliance inspectors working for MNRF and the overlapping licensees appear to maintain a fairly good rapport, with email exchanges revealing a professional and respectful tone. Some joint inspections have taken place, and these have been helpful in identifying differences in perspectives.

There are occasional events, such as training sessions provided by MNRF, where compliance inspectors have the opportunity to share ideas and discuss compliance matters. However, it was noted that MNRF staff do not receive an open invitation to attend the workshops conducted

annually by OVFI, where compliance is a standing agenda item. On many other SFLs where similar annual workshops are held, an open invitation is usually extended to local MNRF District staff.

The only additional compliance issue observed by the audit team during the site inspections related to skidding on steep slopes. This is addressed in **Finding # 14.**

Annual Reports

With the exception of the annual reporting of updates to SGRs, (discussed above and identified as **Finding # 5**), annual reports prepared over the audit period included the required sections, were presented to the LCAC, and were generally completed on time. All reports contained discussions of the progress towards key objectives and targets identified in the FMP, explanations of significant deviations between the planned activity versus the actual activity, and descriptions of potential implications on future operations.

Free-to-grow Assessments and Silvicultural Assessments

In the 2011 FMP, the Company made a major change to its free-to-grow (FTG) assessment procedure for renewal under shelterwood – the timing of the FTG assessment would only occur after the final removal cut had been completed. Thus, the FTG assessment might take place from 10 – 40 years after the initial regeneration cut. The change was made so as to undertake the assessment at the time when the last of the mature canopy was removed, leaving the renewal as the canopy of the new stand. The Company also put in place a Year 10 Interim Regeneration assessment and reporting process to document the state of renewal and silvicultural effectiveness on the shelterwood blocks. The Year 10 assessments are included with the regeneration Assessment data. This change in approach is very reasonable as it will provide a more accurate depiction of renewal.

In response to a recommendation from the previous IFA, the Company reviewed the amount of backlog area requiring a FTG assessment. Taking into account the revised approach to assessing FTG status on shelterwood forest units, in 2013-14, the Company revised (downwards) its forecast of required FTG assessment for the balance of the 2011-21 FMP period to 1,211 ha/year, which would be sufficient to assess the backlog in need of assessment and new renewal areas approaching an appropriate age for assessment. The analysis is reported in the Year 3 AR with abundant detail and clarity. Based on the new forecast level, the Company conducted 72% of the planned amount of FTG assessments during the first six years of the FMP term. Ninety-six percent of the assessed area was declared FTG.

The 2011 FMP stated that the assessment of Free-to-Grow status could, depending on the relative amounts of overstorey and renewal, describe the new stand as based on either all renewal, the remaining overstorey, or some 'averaged' value that combined the characteristics of the renewal and the overstorey. The Company informed the auditors that the averaging approach was no longer used, as it led to stand descriptions that did not accurately describe the new stand. The audit team concurs that the revised approach is more appropriate.

The auditors also discovered that the Company's FTG assessors were sub-dividing the renewal blocks into very small individual stands, based on minor differences. These small stands will be difficult to manage as data within the inventory database, and on the ground they are too small to be treated separately. Although very small forest stands are permitted according to the 2017 FIM, the auditors suggest that the Company look to aggregate similar adjacent stands to reduce the size and manageability of the forest inventory, and facilitate future operations planning.

During the audit period, MNRF District staff at Pembroke did a good job implementing the Silvicultural Effectiveness Monitoring (SEM) program according to direction on core tasks from the Provincial Silvicultural Program and from the Southern Region. Work was completed on most required core tasks to an acceptable level. MNRF generally assessed approximately 10% of the area declared FTG by the Company each year and found a good correspondence of results in the clearcut forest units. The MNRF disagreed with the Company's FTG assessments in the shelterwood forest units, in general finding excessive competition that led MNRF to conclude that the Company's renewal in the shelterwood forest units was not working so well. The MNRF noted that there was no task team formed with the OVFI staff to collaboratively work in developing assessment methods and standard of observations for SEM (Core Task 5), although discussions and site visits with the SFL manager have occurred.

District MNRF also audited a sample of the tree marking done each year and also found one or two issues each year. If the MNRF and Company are able to come to agreement on appropriate standards, as a number of findings in this audit point to, a smoother renewal assessment program should be one of the outcomes.

4.7 ACHIEVEMENT OF MANAGEMENT OBJECTIVES & FOREST SUSTAINABILITY

The sustainability of the management of the Ottawa Valley Forest was assessed based on the direction given in the IFAPP. The collective achievement of objectives, a comparison of planned versus actual levels of activities, and the rationale for activities and operations that are not achieving target levels were used to assess whether management followed the principles of sustainability. The auditors also considered the quality of operations inspected during the site visits and information provided by all parties interviewed during the course of the audit.

Summary of the Trend Analysis

The Trend Analysis is a superior document when compared to others viewed by the Audit Team. It contains many insightful explanations of implemented forest management practices and explanations of instances in which actual levels of operations have deviated from planned levels. The review of achievement of objectives is relatively detailed, which is notable given the number and breadth of objectives identified in the FMP. The document will be an excellent resource in the development of the next FMP and a good historical document for the Forest. A notable opportunity for improvement is in the review of assumptions in modelling. While this section provides good explanations of the modelling assumptions, it misses an opportunity to be forward looking and identify how, based on its retrospective review, assumptions can be improved in the next FMP.

Key conclusions of the document are that the forest is being managed sustainably and that most of the plan's objectives are likely to be achieved. This audit's assessment is similar, although with some differences (see below). Harvest levels over the last four plan periods (i.e. since 1996) are clearly shown to be declining, both in terms of area and volume. Declines are evident both in terms of absolute levels (i.e. area and m³ harvested per year) and in relation to the planned amounts. As noted earlier, the Trend Analysis attributes this to the lingering effects of the 2008 Recession, bypass due to merchantability issues, and the implementation of timing-based harvest restrictions to protect species at risk. Harvest levels relative to planned have traditionally been highest for white and red pine, and that remains so in the present plan period to date, where 74% of the planned harvest volume is being achieved. For the hardwoods, considerably lower levels are being realized – only 39% and 32% of the planned harvest is being achieved for poplar and tolerant hardwoods respectively. Silviculture activities have kept

pace with harvesting, so no concerns regarding accumulating silvicultural liabilities are identified.

Assessment of Objective Achievement

As noted earlier, the FMP identifies a comprehensive range of objectives, and the Phase I Planning Team deserves credit for being thorough and thoughtful in this regard. The Trend Analysis concludes that almost all of the plan's objectives are met, or on track to being met. This is mostly consistent with the conclusions of this audit. The complete assessment by the audit team of objective achievement is provided in Appendix 2. Key elements of the assessment include:

- most elements of objectives related to moving towards, or maintaining natural distributions are likely being achieved, although this conclusion is somewhat tentative in the absence of an analysis of the inventory;
- most objectives related to wildlife habitat are likely being achieved. The less-thanplanned harvest levels will likely benefit mature-and old-growth affiliated species, which account for most of wildlife species identified in the plan's objectives;
- FMP objectives related to renewal and silviculture are generally being met, as most renewal activities are being undertaken at close to planned levels despite the actual harvest being less than 50% of planned;
- it is unclear whether all objectives based on compliance performance will be achieved as incorporation of pending reports into FOIP has yet to be completed, however shortfalls, if they exist, are likely to be minor.
- participation by Indigenous representatives in Phase II planning was high and notable contributions were made by these participants, although concerns by Indigenous communities regarding some aspects of forest management persist; and
- objectives related to providing continuous and predictable wood supply will be achieved.

Assessment of Sustainability

A number of factors support a positive conclusion for this audit:

- Harvest Level: the actual level of harvest during the audit period was well below the maximum amount determined to be sustainable in the FMP, indicating that no concerns from overharvesting exist;
- Renewal Activities: The extent of renewal activities is consistent with, or exceeds those required given the level of harvesting;
- Accurate Yields: The broad consistency between the actual vs. planned harvest area and volume indicates that the timber yield projections in the FMP are generally accurate;
- Quality of Operations: The Company's operations were well implemented. The field observations made by the audit team, discussions with Company and MNRF staff, and the excellent compliance record all contributed to a positive evaluation of operations;
- Free-to-Grow: The levels of renewal and silvicultural success reported by the Company were high;
- Values Protection: Although some compliance issues were identified by the MNRF, the AOCs were appropriate to protect the relevant values and were generally well-implemented in the field;

- Planning: The Phase II FMP is a high-quality document and the AWSs and Annual Reports conform to the requirements of the FMPM; and
- LCAC: The Local Citizens Advisory Committee is well co-ordinated, functions well and provides good-quality advice to the MNRF.

The audit team concludes that the Ottawa Valley Forest was managed sustainably during the review period.

Although the conclusion regarding sustainability is warranted, the audit team notes that some important challenges remain in management of the Forest. Chief among these must completing the shift to a positive, collaborative relations between MNRF and the Company, and reconciling important differences that exist regarding silviculture decisions for shelterwood forest units and compliance perspectives.

4.8 CONTRACTUAL OBLIGATIONS

The SFL imposes a number of requirements on its holder. With the exception of not addressing Recommendations #9 and, to some extent # 11 of the previous IFA, OVFI was found to have met all of the associated contractual obligations. OVFI compliance with its contractual obligations is described in detail in Appendix 3. Key aspects of the Company's performance relative to its contractual obligations include:

- Recommendation #9 of the previous IFA required OVFI to review its residual tree retention practices and determine if the residual levels are appropriate to meet stand renewal and harvest volume objectives. This audit found that levels of residual retention were still high, and addresses this in **Finding # 9**.
- Recommendation #11 of the previous IFA related to improving the relations between MNRF and OVFI. The recommendation was directed primarily and MNRF, but called on it to work *"in cooperation with OVFI"*. Finding #15 of this audit notes little progress has been made and implicates MNRF primarily, but notes that "OVFI has not made meaningful efforts to improve relations either".
- The Company met all its financial obligations related to trust accounts and Crown charges;
- Wood supply commitments as identified in the Licence were met, although the receiving mills were not consistently in need of the full supply that was obligated;
- The Company met its commitments related to planning and reporting;
- The Company's silviculture standards and assessment program met its licence obligations; and
- The contractual obligations with respect to operational compliance planning and monitoring by the Company were met.

Three topics related to contractual obligations are identified as Findings. These are not the responsibility of the Company, but affect or overlap with the Company's abilities to fulfill its obligations:

• **Finding # 16** draws attention to the fact that the OVFI General Manager does not have access to important financial information regarding Crown payments for timber harvested on the Forest. This may prevent the OVFI manager from being completely aware of the state of the Company's payments related to Crown charges.

- **Finding # 17** identifies that corporate MNRF did not meet its obligations regarding the production of the Status Report for the last IFA's recommendations that are directed to corporate MNRF.
- **Finding # 18** identifies that there are no performance standards or guidance from MNRF regarding what is required to meet Section 20 of the SFL which instructs the Company to work cooperatively with the MNRF and local Aboriginal communities to identify and implement ways of achieving a more equal participation by the communities in the benefits of forest management. In the absence of benchmarks or clear direction on this, there is no basis to assess the extent to which the Company has addressed this commitment.

Assessment of Recommendations from Previous IFA

The audit team assessed the extent to which the recommendations of the previous IFA have been addressed. Most recommendations have been addressed, with the exception of the following points:

- Recommendation #2 directed MNRF to ensure the delivery of new FRIs is consistent with its commitment to complete new inventories on a ten-year cycle. **Finding # 2**of this audit identifies the quality of the recently-developed FRI is insufficient for use in forest management planning
- Recommendation #6 directed MNRF to continue conducing physical stream surveys and OVFI to review their GIS capacity for handling special values, such as the FMP water layer. Part of this recommendation arose because of concerns about OVFI's GIS capacity and the need for a greater degree of technical work than had been the case previously to deal with increased processing of values information (particularly related to water features). This concern still exists and is expressed in **Finding # 5**.
- Recommendation #9 directed OVFI to review its residual tree retention practices and determine if the residual levels are appropriate to meet the stand renewal objectives. This audit recognizes that progress has been made, but identifies the concern again.
 Finding # 9 identifies that levels of residuals on some sites still do not meet post-harvest specifications.
- Recommendation #11 addressed the issue of the rapport between OVFI and MNRF and directed Corporate, Regional, and Pembroke District MNRF, in cooperation with OVFI to "take appropriate action, including the services of outside parties, to address the longstanding compliance monitoring working relationship that has challenged the Ottawa Valley Forest for over ten years." The Recommendation also required that progress assessments be undertaken regularly until the issue is considered to be resolved by senior staff of OMNR and Ottawa Valley Forest Inc. This audit found that the issue still exists, and may even have become exacerbated. The provincial status report notes that work is ongoing, although it was not apparent to the audit team that any meaningful progress had been made. This is addressed in **Finding #15**, and many of the issues identified in **Finding #12** have their roots in the ongoing disagreements between the parties.

4.9 CONCLUDING STATEMENT

This audit of the Ottawa Valley Forest for the April 1, 2013 – March 31, 2018 period has identified 19 findings. The audit results are based on extensive review of field operations,

considerable research by the audit team based on a wide variety of forest management documents at its disposal, interviews with Company and MNRF staff, and interviews with LCAC members and input from First Nations.

The audit team concludes that management of the Ottawa Valley 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 #542529held by Ottawa Valley Forest Inc. The forest is being managed consistently with the principles of sustainable forest management, as assessed through the Independent Forest Audit Process and Protocol.

APPENDIX 1 – AUDIT FINDINGS

Finding #1

Principle 4: Plan Assessment and Implementation

Criterion 4.2: Areas of concern

Procedure 4.2.1: Review and assess in the field approved AOC prescriptions

Background Information and Summary of Evidence: Block 286, which was harvested in 2016 and 2017, is located in an area with a rich array of values of interest to the Algonquins, including a travel way used by deer as well as cultural sites dating from ancient times. Part of the block is traversed by an esker that is very steep and approximately 30 m high, with a flattened top that supports merchantable forest. The block is also located in an area used by Blanding's turtle and the wood turtle, and so there is a limited timing window when the block is available for operations.

An initial on-site meeting on September 15, 2015, was attended by two AOO reps, two OVFI staff, and two MNRF District staff. A negligible amount of harvesting had been undertaken at that time. The AOO reps explained their interests in deer and cultural sites – many of the cultural sites had not been specifically identified but the AOO indicated where on the block they expected there to be cultural sites. The AOO reported to the audit team that they were told that it was unlikely that the timber on the top of the esker would be cut because access was difficult.

A fair amount of harvesting was done in 2016, including harvesting on the top of the esker. The OVFI met again with AOO reps on November 2, 2017, and the harvest operator happened to be present and also attended the meeting. The site and values were discussed again and the AOO rep, in the Company of the OVFI rep, used GPS to mark the locations of a number of values in the remaining unharvested areas. The Company put protection around these values. The most recent meeting was on July 16, 2018, where the AOO concerns and values were again discussed.

The AOO asked to have this block included on the audit site inspection tour due to their concerns with the impact of the harvest on deer and cultural values. The AOO concern was with the amount of timber removed during harvest and the resulting density of the poplar renewal, which severely limited visibility making hunting difficult. There was agreement that the Company's description of how this part of the block would be harvested was accurate but the AOO representative visualized the outcome differently, which is unfortunate.

Discussion: The esker and the additional values associated with it had not been prescribed with AOC's, and so there was no formal protection in place in the FMP or AWS for the areas of interest (although there are cultural heritage values with AOC's located to the north of the block). However, the AOO had informed both the Company and the harvest operator prior to harvesting that it was highly likely that values would be present. Prescriptions identified in CROs 36 and 37 could have been applied in this block. In spite of this, the harvest went ahead on high potential cultural heritage areas before the presence of values had been investigated. Moreover, skidding trails straight up the side of the esker (See Finding) is an unacceptable practice that exacerbates to the damage of cultural heritage values, as well as to the striking landform that the esker represents.

Conclusion: The Company did not have in place adequate safeguards to avoid the harvest of areas with a high potential of hosting cultural heritage values.

Finding: Harvest operations proceeded on high potential cultural heritage sites before a values assessment was undertaken.

Finding # 2

Principle 3: Forest Management Planning

Criterion 3.3.2: Forest Resource Inventory (FRI) for the FMP

Procedure 3.3.2.1: Assess... whether the FRI has been updated, reviewed, and approved to accurately describe the current forest cover that will be used in development of the FMP

Background Information and Summary of Evidence: A chronology of development for the FRI produced for the Ottawa Valley Forest is fully described in Recommendation #2 from the 2013 IFA Report. The text describes how it was anticipated that the OVF's rather aged FRI (derived from 1987 aerial photography) was to be replaced by a new digital version, based on newer imagery (procured over the 2006-2009 period), by 2017. Actual delivery date for the new FRI was later than originally expected: March 2018. Although the imagery used in the inventory would essentially be ten years old when planning begins this year for the 2021-2031 FMP, the inventory was expected to be an improvement to the FRI that OVFI is currently using.

OVFI and OMNRF Pembroke District staff examined the quality of the new FRI, and found the product to be fraught with errors. Most of the inaccuracies were centered on the forest stand compositions (i.e., species interpretation from the imagery) and poor delineation of the stand boundaries which may have been attributed to inconsistent delineation of wetland boundaries by some contractors' imagery interpreters. The auditors were also informed that field data provided by OVFI was not always utilized by the contractor who produced the FRI to aid in the interpretation of forest stand characteristics, particularly when interpreters felt that the information did not corroborate with what they were seeing in the imagery. Other unusual factors may have also contributed to the deficiencies found in the delivered product. (OVFI also provided harvest and free-to-grow records, with the thought that it would help the inventory contractor prepare a more accurate product, however, evidently this information was not used for various reasons.) MNRF staff also suggested that the complexity of GLSL information, FIM requirements and difficulty in describing those operations from aerial imagery is an important factor contributing to the FRI quality challenges. Both OVFI and MNRF have determined that correcting the new FRI would require a tremendous amount of work that cannot be completed in time for use in preparing the 2021 FMP. Preparation of a Contingency Plan for 2021 while the FRI was corrected was considered, however, the process would be costly, both financially and in terms of human resources. OVFI believes it would be more efficient and practical to start from scratch and prepare an entirely new FRI based on new imagery, in time for preparation of the 2031 FMP.

Discussion: The production of the current round of new FRI's is a large undertaking that MNRF assumed responsibility for, and with the use of a new inventory system, some issues are to be expected. However, in the professional opinion of the auditors, there appears to be a lapse in the MNRF quality control process to pick up and correct the problems described above while interpretation is in progress. Discovery of errors at a scale that renders the product nearly unusable only when the product is apparently completed is a severe shortcoming. The auditors have come to understand that MNRF does undertake a quality control process while inventory work is in progress, however in the opinion of the auditors the process is not sufficiently robust and requires improvement.

This situation has now left OVFI and MNRF little choice but to continue using an already old inventory, updated to the best of their abilities, for preparing the 2021 FMP. This is troubling, since use of a thirty-year-old inventory of questionable quality potentially has far-reaching implications in terms of conducting long-term planning and decision-making.

Conclusion: The FRI is the backbone of Forest Management Planning in Ontario. Ontario has an extremely detailed and rigorous planning process that is extremely dependent on the quality of inventories. In the professional opinion of the audit team, due to the lack of quality control, OVFI and MNRF now face the prospect of using an extremely outdated FRI for preparing the upcoming 2021 FMP. The use of this inventory will compromise aspects of planning.

Finding: The quality of the recently-developed Forest Resource Inventory is insufficient for use in forest management planning.

Finding # 3

Principle 3: Forest Management Planning

Procedure 3.14.3 Forest Operations Prescriptions (FOPs). Determine whether the FOPs for harvest, renewal, and maintenance (tending and protection) operations scheduled in the AWS are consistent with the SGRs and whether the FOPs have been prepared in accordance with the applicable FMPM.

Principle 5: Human Resources

Procedure 5.2 Document and record quality control. The organization's information management system must include processes for identification, preparation, distribution collection, and maintenance of forest management documents and records. The FIM provides direction on the exchange and sharing of Information between SFLs and MNRF to support plan development, implementation and reporting.

Background Information and Summary of Evidence: As is required, OVFI RPFs prepared and signed-off on FOPs for all forest management operations. However, there were two significant types of disagreement between the MNRF and OVFI regarding FOPs. First, MNRF staff note that many FOPs contain, what they believe is, insufficient information to fully characterize the Company's intention and nature of planned operations on the Block to which they apply. This is addressed in Section 4.3 of this report. Second, and the point of most strident contention, is the MNRF's practice of critiquing FOPs and requesting or requiring changes prior to implementation of operations.

A number of blocks were viewed by the auditors for which the FOP indicated unresolved disagreement between MNRF and OVFI. For example, the FOP for block 731 includes the following notation in bold and underlined text: "The diameter limit for the Spruce was implemented by the MNR due to their interpretation on deer yard standards that did not match with OVF interpretation of the standards." Further on in the same FOP, bold and underlined text states with respect to another aspect of the FOP: "This prescription area was changed due to MNR field data that did not match OVF field data at FOP time. The MNR field data added spruce and cedar as shelterwood species, which reflected higher average BA's for the stand, pushing it to a shelterwood prescription." The auditors have never encountered approved FOPs for which the SFL-holder does not fully agree.

Discussion: The FMPM (Part D, Section 2.0) describes the role of the FOPs: "*The complete forest* operations prescription for a particular area of operations, or portion of an area of operations, is comprised of a combination of :

- a) the assigned SGR or operational prescription for the areas of concern in the FMP(s);
- b) the appropriate silvicultural treatment(s) from the applicable SGR or operational prescription for areas of concern; and
- c) the actual SGR and silvicultural treatments implemented on the area of operations as identified in the applicable management unit annual report(s)."

The Forest Information Manual (Part C, Section 2.1.4) notes that: "Forest operations prescriptions... must be maintained by the licensee as part of their information records....A forest operations prescription for an area is not normally required to be submitted as a complete, comprehensive package. However at the request of the MNR, the licensee is required to provide access to, or provision of, information related to the forest operations prescription for the purposes of silviculture effectiveness monitoring, compliance and auditing.".

There are also other parts of the FIM that address requirements to provide information upon request from the MNR (Section 1.0, Introduction and Part A, Section 1.4). However, there is no direction of which the audit team is aware, or which has been drawn to the audit team's attention by either the MNRF or OVFI, that explicitly empowers or prohibits MNRF from reviewing and requesting alterations to FOPs. FIM does contain general direction noting that MNRF has the authority to request information ..." for the purpose of forest management planning and ensure compliance with the CFSA...". MNRF maintains that this, and

other direction noted above provides MNRF with the authority to review FOPs, whereas the Company contends that the direction does not address this situation clearly and that the RPF's seal on FOPs is sufficient assurance of credibility and quality. The Company also cited FMPM Training material from 2002 that gives the impression that MNRF staff are not to review the content of FOPs. It is the audit team's understanding that critiquing of FOPs rarely occurs in the boreal portion of the province, but was provided evidence by MNRF that other GLSL Districts frequently comment on FOPs. An important distinction relevant for this circumstance is between the MNRF commenting on FOPs vs. their request or requirement to change FOPs. MNRF did not provide examples of this type of occurrence on other Management Units.

This issue is the source of the most vehement disagreement between the MNRF and Company. A prime example is the contention over Block 278 which the Company prescribed for clearcutting, but for which MNRF staff strongly believed that shelterwood management was more appropriate. MNRF staff believe that they are acting within their mandate to request alterations to FOPs, and Company staff believe they have little choice but to acquiesce to the MNRFs requests even though they don't agree with the premise, because MNRF has regulatory power. Recent MNRF findings of non-compliance associated with FOPs for this block have heightened the disagreements between the organizations.

Conclusion: There is considerable disagreement between the organizations regarding the role of MNRF in overseeing FOPs. There is a need to clarify the limits of MNRF's rights and obligations related to the review, critique and requesting /requiring changes to FOPs. The lack of definitive direction on this inhibits resolution of the disagreements.

Finding: The rights and obligations of MNRF regarding review, comment and requesting or requiring changes to FOPs are not definitively articulated in existing Forest Management Planning Direction (i.e. the FMPM or the FIM).

Finding # 4

Principle 3: Forest Management Planning

Criterion 3.9: Phase II – Prescriptions for Operations

Procedure 3.9.2: Phase II Planned Operations Silviculture Ground Rules (SGR's)

Review whether any SGR's were added or revised for the second five-year term and assess whether:

Treatments for harvest, renewal and tending activities and regeneration standards appropriately reflect the LTMD for the plan ...

Background Information and Summary of Evidence: The specifications in the Phase II FMP for the conditions under which the three-cut shelterwood and the two-cut shelterwood prescription is appropriate were revised during the Phase II planning process. The Company and MNRF District are continuing to have disagreements on whether two or three cut shelterwood should be applied on some sites. The auditors have identified some inconsistencies in the revised direction for shelterwood application, as well as what the auditors believe are irrelevant conditions that the forest manager, MNRF, and the tree markers are instructed to consider according to the Phase II plan.

Examples of inconsistencies include the following:

- Line 13 on page 8-11 states that the retention goal of the three-cut shelterwood (after the regeneration cut) is 18 m²/ha of white and red pine, while the bullet points starting on lines 16 and 20 of the same page specify a minimum post harvest retention of 16-18 m²/ha of red and white pine, and also red oak, hemlock and spruce. The different species mixes and the different statements of the amount of BA retained (18 versus 16-18 m²/ha) may cause confusion and have the potential to fuel differences of opinion as to whether a stand has the characteristics that merit a three-cut prescription.
- Lines 12-14 on page 8-12 states that when a two-cut shelterwood that is undertaken as "a retreatment of a failed regeneration cut and merchantable volume is limited to residual white pine and red pine only, requires a pre-harvest basal area of >= 18 m2/ha of Pw+Pr dominants and codominants (Or, He, Sw) ". The inconsistent direction regarding species mix is a potential source of disagreement.

For both the two-cut and three-cut prescriptions, the Phase II plan also differentiates between stands where the white pine is evenly distributed versus not evenly distributed. The lack of guidance regarding what constitutes evenly-spaced versus unevenly-spaced is a potential flashpoint. However, more importantly, the post-harvest retention targets are the same regardless of the spatial distribution of the pine, and so in the auditors' view, there is no need for the distinction.

The table below summarizes the numerical direction for three-cut shelterwoods in the Phase II plan. (Twocut shelterwood direction is not included as it would be needlessly duplicative.) The two differing postharvest BA directions represent one of the inconsistencies described above, however, the key point is that the post-harvest direction is identical, and so the distribution of pine does not influence the direction for the post-harvest residual. The added pre-harvest requirement when the pine are unevenly distributed is almost certain to be met, given the retention requirements, and so largely serves to create unnecessary complexity, in the view of the auditors.

The distinction between evenly and unevenly spaced trees is discussed in the Silvicultural Guide however in the Phase II plan, the spatial arrangement does not translate into different direction regarding the post-harvest condition of the stand.

Table A1. Phase II FMP Three-cut shelterwood conditions /direction.							
White pine well distributed	Pw + Pr	Pw, Pr, Or, He, Sw	All Merch Species				
Pre-harvest BA			>= 26				
Post-harvest BA	>= 18	>= 16-18					
White pine NOT well distributed							
Pre-harvest BA		>= 20	>= 26				
Post-harvest BA	>= 18	>= 16-18					

Discussion: The specifications in the Phase II FMP for the conditions under which the three-cut shelterwood and the two-cut shelterwood prescription is appropriate are complex – needlessly so in the view of the auditors – and also sometimes inconsistent. These two factors contribute to disputes regarding the appropriate prescription for some PWus stands.

Perhaps more fundamentally, managing PWus is very complex. Developing an appropriate prescription involves considering a wide range of factors, some of which can be quantified and others which are less amenable to quantification (e.g. seed production capacity of the crown). Despite the effort of the planning team to set out the conditions under which a two-cut or a three-cut shelterwood should be prescribed, the criteria presented in the FMP do not capture all of the relevant variables. It is perhaps not surprising that differences of opinion continue to arise. Because many of these forests are complex, variable, on different types of sites, different distances from main roads as well as from camps, cottages, and homes., and have varying histories (many have been partially cut in the past), it is always going to be challenging to write a guide to prescription setting that does not require the balancing of numerous factors, or in other words, the use of judgment.

Conclusion: The audit team heard considerable evidence that the choice of the appropriate shelterwood regime (two-cut versus three-cut) is contentious in some stands and the MNRF and the Company do not have a shared understanding of the direction provided in the FMP. The auditors believe that the shelterwood prescriptions in the Phase II plan (and for that matter those in the Phase I plan) are generally more complex than they need to be and contain some contradictory, or at best ambiguous, direction. Resolving the inconsistencies and ambiguities may help the Company and MNRF develop a mutually agreeable approach to determining the appropriate shelterwood prescription.

Finding: The pine shelterwood prescriptions in the Phase II plan contain some contradictory, or at best ambiguous, direction.

Finding # 5

Principle 6: Monitoring

Criterion 6.5: Annual Report

Procedure 6.5.1: Examine the annual reports.... and assess whether the text, tables, and maps, including digital information, is accurate, complete and in accordance with the applicable requirements.

Background Information and Summary of Evidence: While examining the silviculture effectiveness monitoring program implemented on the OVF, the auditors discovered that uncertainty arose in some cases when attempting to determine which Silvicultural Ground Rule (SGR) applied to the forest stand under assessment. A review of the Annual Reports revealed that OVFI had submitted only a few SGR Updates, which is an information product that is required each year according to the 2009 Forest Information Manual (FIM), (page 80, lines 20-21), with further direction provided in the 2009 Annual Report Technical Specifications (page 48-49). The SGR Update requirements are the same in the 2017 versions of the same manuals. Basically, the FIM requires that changes to silvicultural ground rules that have occurred since the last reported SGR (for example, in the harvest layer reported at the time of depletion) are required to be identified in the annual report when the silvicultural intent (future forest condition) of a block or stand changes such that the area is of sufficient size and distinctness as to warrant being designated as a distinct stand in an updated forest inventory product. Interviews with OVFI staff revealed that the SGRs are changed frequently, particularly when the forest operations prescriptions are prepared, which is not surprising given the vintage of the forest resource inventory used for this Forest. In any case, the Company is not reporting the changes, citing that the process would be overly onerous and difficult to implement, due especially to the nature of forest compositions in the Great Lakes-St. Lawrence Forest environment.

Discussion: The requirement for providing the SGR Update layer and its purpose seems to be unknown or misunderstood by many forest managers. This could be attributed to the disconnect that is apparent in the requirements that are listed between the FMPM and the FIM. For example, the SGR Update layer is not listed as a required information product (or even mentioned) in the 2009 FMPM, yet appears as a required layer in the 2009 FIM. In the 2017 FMPM, the only reference to the SGR Update layer appears in the instructions for filling out Tables AR-12 and 13 (which address the status of silvicultural objectives), where the layer is referenced as a source of information product to accompany the Annual Report submission. More information regarding the purpose and technical requirements for the SGR Update layer is provided in the Annual Report Technical Specifications document (both the 2009 and 2017 versions).

The SGR Update layer can provide a repository for tracking changes to the SGRs, which is then accessible to both the SFL Manager and MNRF via the information-sharing that occurs through the Forest Information Portal. Information stored in the layer acts as the definitive source indicating which SGR applies to the stand/block under scrutiny. The auditors note that, in the annual reporting cycle, SGRs are only tracked in the harvest depletion layer and the SGR Update layer – they are not tracked in the renewal and maintenance layer. Also noted is that these two layers (the harvest depletion layer and SGR Update layer) provide the SGR information needed for completing the new Establishment Assessment Layer, which is a required information product for the Annual Work Schedule under the 2017 FMPM and 2017 FIM. Having these control mechanisms in place also avoids any possibility of making inappropriate changes to the SGR when scheduling an area for FTG survey or establishment assessment.

Meeting the SGR Update requirements admittedly introduces additional workload for the Company, however, the auditors point out that OVFI already maintains an internal FOP database layer, which can likely be used as a basis for creating the SGR Update product.

Conclusion: Although there are challenges in adhering to the SGR Update requirements, creating and submitting this information is useful in the management of the forest and is an Annual Report requirement.

Finding: OVFI has not been fully meeting the annual reporting requirements related to the SGR Update/Change layer information product in its Annual Report submissions.

Finding # 6

Principle 3: Forest Management Planning

Criterion 3.13.2 Amendments and Changes to Values. Review changes during AWS implementation and assess whether an amendment was processed as required of the FMPM. Include review of whether:

- new AOC prescriptions were developed for values that did not have an appropriate prescription previously approved in the FMP
- new or changed conditions related to road crossings of AOCs were developed as appropriate.

Background Information and Summary of Evidence: When licensees find new values, such as stick nests (or when new information related to a previously-identified value is found, such as a fallen stick-nest) the information must be provided to MNRF (FIM Part B, Section 3.1.2). MNRF in turn, is responsible to ensure that the best available values information is provided to planning teams (FIM Part B, Section 3.1.1).

The two types of values information most often relayed to MNRF from OVFI are water features (most commonly streams), and stick nests. The MNRF provided information that the extent of information on new values provided by OVFI has declined in the past few years, from a recent high of 77 records in 2012 to only 4 in 2017. (MNRF also noted that a comparable trend in decline exists for water values updates). OVFI staff acknowledge that they have not been providing updated water features information to MNRF and cite concerns regarding the format in which processed data are being provided back to OVFI as the main reason. OFVI staff described the outcome of a meeting with MNRF staff, including the District Manager in 2017 in which there was verbal direction for OVFI not to update water values until a mutually-agreed-upon process was developed and put in place, although present MNRF staff contend that this was not the case.

MNRF staff provided evidence that a trend of similar duration and magnitude exists related to the lack of reporting stick nest information. OVFI attribute it to work load issues and note that it is being addressed.

Discussion: OVFI staff note that the water feature information that MNRF is providing back to them is in a format that requires considerable additional time-consuming technical manipulation to incorporate into their GIS data used for operational prescriptions and is sometimes inaccurate. Further, OVFI staff note that the data do not simply lend themselves to translation to the categorization of water features values used in forest management. MNRF staff are equally frustrated as they believe the data being provided are in an appropriate format and can be processed relatively simply. MNRF staff provided correspondence explaining their understanding that the issue is straightforward and that it need not be complex or time-consuming to incorporate the data that MNRF are providing back to OVFI.

The audit team heard of considerable frustration from both parties that the other party does not understand the nature of the concern, the extent of inconvenience or the additional effort required to conform to the expectations of the other. Both parties presented compelling technical discussions that support their perspectives. Given the audit team has no first-hand experience and that the circumstances are obviously complex, the audit team is not in a position to assert that one party is more correct than the other. Further, the audit team does not believe that it should provide an opinion or conclusion on which perspective is correct and attempt to compel one party to adapt or modify its practices. Doing so could exacerbate the disagreements between the parties. Rather, in the opinion of the audit team, an appropriate course of action is for the parties to identify an appropriate remedy themselves.

Conclusion: MNRF and OVFI need to come to a shared understanding of the problems associated with securing water feature updates in a manner that respects the circumstances and capacities of each party.

Finding: Effective and timely updates to changes in values are not being achieved.

Finding # 7

Principle 3: Forest Management Planning

Criterion 3. Review FMP, Contingency Plan, Plan Extensions, AWS production for consistency with planning requirements as well as implications and decisions. The auditor will also assess the overall effectiveness of that planning process.

Background Information and Summary of Evidence: During the planning for Phase II, the MNRF failed to provide a decision on two amendments submitted by OVFI (# 28 regarding a proposed 2-cut white pine shelterwood, and #34 regarding a proposed commercial thinning operation). While there was considerable correspondence between the parties related to Amendment #34, ultimately no decision was provided, for it or for #28.

Similarly, MNRF did not provide a response to an AWS revision request. The request, for Block 35, involved considerable contention regarding OVFI's proposed harvest FOP (changing the prescription from a 3-cut to a 2-cut Pw shelterwood).

Discussion: The failure of MNRF to render decisions on FMP amendments and AWS revision requests is essentially the same as denying approval (as operations cannot proceed without approval), but lacks the status and courtesy of an official reply. The FMPM does not provide MNRF with the option of not responding to amendment or revision requests. It is clear that MNRF did not agree with the requests, but failure to provide official responses is not an appropriate way to manage the circumstances.

Conclusion: MNRF should put a process in place to ensure that it officially addresses all amendment and AWS revision requests.

Finding: MNRF did not deal appropriately with two amendment requests and one AWS revision request.

Finding # 8

Principle 3: Forest Management Planning

Criterion 3.14: Annual Work Schedule

Procedure 3.14.2: Review the changes during AWS implementation and determine: whether a revision was processed as required of the applicable FMPM; and/or whether updated information was documented and provided to MNRF as described.

Background Information and Summary of Evidence: The number of AWS revisions being submitted for the OVF is significantly higher than those for other SFLs within Southern Region. For example, OVFI averaged 31 AWS revisions/year over a five year period (2012-2017), while other SFLs in Southern Region averaged from 4 to 16 AWS revisions/year over the same period. The higher number of revisions creates an administrative burden for the MNRF District Office, which is responsible for reviewing and approving the revisions, which is further compounded by having most of the revisions submitted singly, rather than bundling revisions that are similar in nature. Most of the revisions involve water-crossing locations, which must be approved by MNRF prior to construction. Reasons for the higher number of revisions appear plausible, with the Company having to meet special road access and abandonment conditions in the Madawaska Highlands Land Use Planning Area (MHLUP), which overlaps a significant portion of the Forest. The MHLUP roads policies add complication to water crossing planning in this portion of the Forest. OVFI staff noted that preliminary discussions with MNRF occurred with the intent of finding ways to address the high number of revisions, but there is no evidence of this leading to any more substantial discussions or progress. There have been suggestions to bundle the revision submissions, however, there is some trepidation on the Company's part that a problem with one revision could delay approval of all of the proposed revisions included with the bundle.

Discussion: Reducing the number of AWS revisions would reduce the administrative burden for both OVFI and MNRF.

Conclusion: In the professional opinion of the audit team, the parties need to cooperatively close the gap over the matter of AWS revisions, particularly those related to water-crossings.

Finding: The high number of AWS revisions, particularly related to water crossings is problematic for both the MNRF and OVFI.

Finding #9

Principle 4: Plan Assessment and Implementation

Criterion 4.3: Harvest operations must be conducted in compliance with all laws and regulations including the CFSA, approved activities of the FMP including SGRs, AWS and FOPs.

Procedure(s): 4.3.1 - Review and assess in the field the implementation of approved harvest operations and determine whether the harvest and logging methods implemented were consistent with the FOP, the FOP was consistent with the SGRs, and that actual operations, were appropriate and effective for the actual site conditions encountered.

Background Information and Summary of Evidence: This finding is closely related to Recommendation #9 in the 2013 IFA Report, where the previous auditors found that overlapping licensees operating on the Forest were retaining excessive number of trees on site following final removal cuts in shelterwood situations. The auditors found situations similar to those discussed in 2013 IFA in which the number trees retained following final removal harvest in shelterwoods appeared to be excessive (e.g., Block 254). This condition also seems to extend to some stands where clear-cutting is prescribed (e.g., Block 465) where the number of trees that remained standing obviously exceeded the number needed to meet the Stand and Site Guide requirements. There are indications that some progress has been made in reducing the excessive number of residual stems left since the last audit, examples include the clearcuts in Blocks 605 and 732. OVFI also provided evidence demonstrating how they have made progress in reducing the number of stems left on site following final removal cuts.

Discussion: The auditors acknowledge the progress made in recent years to address this matter, however, there still remain circumstances where the trees remaining on site following harvest are inappropriately high. This tendency is attributed to a historical bias on the Forest to use a conservative approach to retaining residual cover in all forms of harvest, including shelterwood and clearcut harvests. This bias was confirmed by the auditors' observations of the current condition in stands that had been recently declared FTG, where clearcutting had been prescribed, and appeared to have a high number of mature trees in the overstorey. The auditors witnessed a number of these legacy "clearcuts" across the landscape.

The FOPs, and the SGRs that support them assume a level of residual structure that is appropriate for meeting the silvicultural requirements of the future (target) forest unit depending on the silviculture system being employed. Harvests are carefully planned so that the canopy is opened up sufficiently to allow adequate light to reach the forest floor for desired regeneration to thrive. Not opening the canopy to the prescribed levels can have negative consequences on renewal success and introduce growing conditions favourable for undesirable shade-tolerant species. Other unwelcomed impacts could ensue, such as higher costs for tending or not achieving the desired target forest unit, thus leading to failures to reach long-term objective at a broader scale, such as not achieving landscape cover objectives.

Notwithstanding the above, timber that is left standing unnecessarily represents a lost economic opportunity for the harvest contractor, the SFL Holder (through unrealized contributions to the renewal fund), and the Province (through unrealized contributions to the stumpage account).

Conclusion: OVFI needs to continue its vigilance of encouraging the overlapping licensees to overcome past harvesting biases and retain trees to the appropriate levels as prescribed in the forest operations prescriptions.

Finding: In several harvest blocks, the levels of residuals being retained on site by the overlapping licensees do not meet the post-harvest specifications and stand renewal objectives outlined in the forest operations prescriptions.

Finding # 10

Principle 4 Plan Assessment and Implementation

Criterion: 4.7 Access

Procedure 4.7.1 Review and assess in the field the implementation of approved access activities. Include the following...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: A large number of primary and branch roads on the forest have been in existence for many years or decades and were not originally laid-out in accordance with today's standards regarding public safety. Many roads are narrow, and are very windy, partly because of topography and likely because their course was one of least resistance in their original construction.

During the road-based portion of the site inspections, the audit team was particularly struck by the poor sight-lines on the Doorely Creek Road and other roads in the southern portion of the Forest. The roads have an abundance of curves on which visibility is severely impeded by herbaceous and woody vegetation. The audit team was informed that numerous other roads on the forest have the same characteristics.

Discussion: The poor sight-lines on the Forest's roads are a safety issue. The ability to see oncoming traffic is severely impeded by the roadside vegetation which is close to the road surface and restricts visibility generally and especially across curves. The audit team heard of several instances in which the poor visibility was responsible for minor accidents and 'close calls'.

While it is likely impractical to straighten the road along the many windy stretches in the forest, considerable improvements in safety could be made by roadside brushing – trimming or removing vegetation along stretches on which visibility is impeded.

Conclusion: Roadside vegetation is a hazard and should be managed so as to improve safety for all users of the Forest's roads.

Finding: Roadside vegetation impairs visibility on a number of forest roads and creates safety hazards.

Finding # 11

Principle 3: Forest Management Planning

Procedure 3.9.3. Review the conditions on regular operations and consider whether:

- Conditions were prepared consistent with approved forest management guides
- Conditions have been updated to reflect changes in practice gained from experience and forestry research;
- Conditions have been developed consistent with the applicable FMPM.

Principle 4: Plan Implementation

Procedure 4.3.1. Review and assess in the field the implementation of approved harvest operations. Include the following:... determine whether the harvest operations implemented were consistent with the approved FMP, AWS.

Background Information and Summary of Evidence: The FMP's Condition on Regular Operations (CRO) for operations in deer wintering emphasis areas is very detailed and complex. The CRO notes that critical thermal cover stands (CTC) are to be pre-identified by MNRF. The responsibilities of the Company include:

- mapping of designated CTC stands as treatment areas;
- applying modified silvicultural treatments or alternate SGRs to maintain appropriate levels of CTC;
- incorporation of surrounding stands into consideration of silvicultural treatments so that minimum levels of CTC can be maintained in the landscape;
- retention of suitable CTC stands found during operations in cover deficient areas;
- retention of conifer species according to ranked priority to address cover needs;
- implementing specific silvicultural prescriptions depending on the dominant conifer species in the stand;
- retention of unmapped conifer patches in conifer deficient areas;
- maintenance of access cover in stands not identified as CTC; and
- adherence to timing requirements for operations, following instructions for maintenance of travel corridors, bedding areas, and mast trees.

MNRF staff note that the CRO has not always been followed and attribute this largely to the lack of specific instructions in FOPs. Observations during the audit verified issues regarding implementation of the CRO specifically associated with access cover and mapping of CTC stands. OVFI staff note that their efforts have focussed on the implementation of the overall requirements and note that reference in the FOP to the CRO (rather than providing specific instructions) suffices to satisfy FMP direction regarding FOP content for this CRO.

Discussion: The requirements of the deer CRO are prescriptive and all aspects of the CRO are not carried out routinely by OVFI as laid out in the FMP. The Company's contention that the overall intent of the CRO will be met through a more flexible implementation may be accurate, but this is not apparent. It is also not apparent that the MNRF's rule-based approach is the only way to achieve the desired ends of maintaining deer winter habitat, although the quantitative approach is more conducive to monitoring and compliance inspections. The contrast between the reductionist approach evident in the CRO and the more flexible approach that the Company maintains is adaptive to on-the-ground circumstances is striking and the cause of disagreement between the parties.

As with other aspects of management of this forest, a significant portion of this situation contributes to, and has its roots in, the overall body of disagreements between the MNRF and OVFI that relate to the perceptions of staff in both organizations that the other is not sufficiently compliant, accommodating or willing to understand the perspectives and obligations of the other.

As with circumstances related to the content and review of the FOPs (**Finding # 3**) and the management updates to water quality information (**Finding # 5**), in the interest of moving towards improved relations, the solution to this circumstance must be worked out between the parties, rather than having an outside one identified by this audit.

Conclusion: Aspects of the deer CRO are not being implemented as prescribed in the CRO;OVFI is not compliant with the CRO in the FMP. In the opinion of the audit team, MNRF and OVFI need to come to a shared understanding of the objectives and challenges associated with the deer CRO based on discussions that recognize the perspectives and obligations of each party.

Finding: Aspects of the deer CRO are not being implemented.

Finding # 12

Principle 3: Forest Management Planning - Purpose: Review FMP, Contingency Plan, Plan Extensions, and AWS production for consistency with planning requirements as well as implications and decisions. The auditor will also assess the overall effectiveness of that planning process.

Procedure 3.9.3. Review the conditions on regular operations and consider whether:

- Conditions were prepared consistent with approved forest management guides
- Conditions have been updated to reflect changes in practice gained from experience and forestry research;
- Conditions have been developed consistent with the applicable FMPM

Procedure 3.13.2 Amendments and Changes to Values. Review changes during AWS implementation and assess whether an amendment was processed as required of the FMPM. Include review of whether:

- new AOC prescriptions were developed for values that did not have an appropriate prescription previously approved in the FMP
- new or changed conditions related to road crossings of AOCs were developed as appropriate.

Procedure 3.14.2: Review the changes during AWS implementation and determine: whether a revision was processed as required of the applicable FMPM; and/or whether updated information was documented and provided to MNRF as described.

Procedure 3.14.3 Forest Operations Prescriptions (FOPs). Determine whether the FOPs for harvest, renewal, and maintenance (tending and protection) operations scheduled in the AWS are consistent with the SGRs and whether the FOPs have been prepared in accordance with the applicable FMPM.

Procedure 3.9.2: Phase II Planned Operations Silviculture Ground Rules (SGR's)Review whether any SGR's were added or revised for the second five-year term and assess whether:

• Treatments for harvest, renewal and tending activities and regeneration standards appropriately reflect the LTMD for the plan

Principle 6: Monitoring- Purpose: ... To determine whether these monitoring and reporting programs, as implemented, were sufficient to monitor and report on the effectiveness of forest operations in meeting FMP objectives.

Background Information and Summary of Evidence: Evidence explaining specific concerns associated with the elements of the IFAPP noted above is provided in Findings 3,4,6,8, and 12.In the professional opinion of the Audit team, the common thread running through all of the IFAPP elements noted above is that they are either caused to some extent by the poor working relationship between the organizations or they exacerbate the already-poor working relationship:

- the discussion accompanying Finding 3 documents the contention regarding FOPS and identifies significant disagreement regarding the content of the FOPs and the MNRFs review and requests and requirements for alterations to the FOPS;
- the discussion accompanying Finding 4 documents that the choice of appropriate shelterwood regime and prescriptions is contentious;
- the discussion accompanying Finding 6 notes the considerable disagreement regarding technical aspects of values updates;
- the discussion accompanying Finding 8 notes that the high number of revisions is, in part, caused by concerns that have their roots in the poor working relationship; and

 the discussion accompanying Finding 11 notes disagreements regarding the implementation of the deer habitat Condition on Regular Operations.

Another common thread running through these elements is their relation to forest management planning. All have bearing, at least to some extent in the planning process, although because planning and operations are inextricably linked, some overlap with implementation as well.

In addition, the topic of compliance performance continues to be an irritant in the relationship between the agencies as there are disagreements regarding the extent to which the company's performance warrants the compliance responses imposed by the MNRF. For the period of the audit, 56 compliance issues were identified, of these 9 resulted in penalties, 5 compliance orders were issued, 2 repair orders were issued, 11 warning letters were issued, 16 corrective actions were taken, 9 were subsequently identified as non-issues and 4 are yet to be resolved. These numbers are high in comparison to other management units in the province of comparable size and/or complexity.

Each of the previous three IFAs has identified differences in compliance perspectives as major issues leading to disagreements between the parties. The topic was first addressed in the 2003 IFA (which covered the period 1998-2003),and so related issues have simmered on the Forest for two decades.

The 2003 IFA provided three recommendations directed broadly at improving compliance calibrations between the organizations, and recommending involvement of MNR Regional office in finding solutions. The 2008 IFA drew attention to "significant differences in interpretation and the results of compliance programs" and provided a recommendation directed to MNR Region and/or Corporate MNR to "take steps to resolve the long standing controversy over the implementation of the compliance program in the Pembroke District." The 2013 IFA repeated the observations of the two preceding IFAs and provided a strong recommendation that "Corporate, Regional, and OMNR Pembroke District, in cooperation with Ottawa Valley Forest Inc., shall take appropriate action, including the services of outside parties, to address the longstanding compliance monitoring working relationship that has challenged the Ottawa Valley Forest for over ten years. Progress assessments shall be undertaken regularly until the issue is considered to be resolved by senior staff of OMNR and Ottawa Valley Forest Inc."

Discussion: In the period since the last IFA there has not been a decrease in the extent of disagreements related to planning, compliance and silvicultural judgments. Staff from both organizations note that the extent of disagreements has actually increased, and that dealing with the related circumstances consumes valuable staff resources and time.

Some compliance issues undoubtedly exist on the forest, but, in the opinion of the audit team, they are not pervasive nor should they be resulting in disagreements between the organizations to the extent that seems to be occurring. The audit team saw many examples of high-quality forest management and finds that compliance transgressions do not threaten the sustainability of the forest. Given the history of rapport on the forest, the audit team believes that MNRF has heightened sensitivity to infractions. This sensitivity is appropriate in some cases, but in others seems to OVFI to be overzealous or even unnecessarily punitive. This has contributed to the disagreements between the organizations.

The situation on the forest is not without important bright spots - there are good interpersonal relationships among some staff, correspondence between the parties has remained professional, operations are well implemented, the FMP is a high-quality document, and all parties remain devoted to conducting high quality forest management and resource stewardship.

However, in spite of these bright spots, the history of 20 years of challenging disagreements is proving hard to overcome. Recommendations identified in the previous IFAs (including the most recent IFA as noted in **Finding # 15**), have not led to significant improvements, leading the audit team to question whether a sincere institutional desire to resolve disagreements has actually existed. One challenge identified by both MNRF and OVFI staff has been the significant turnover of MNRF managers. Within the audit period, there have been five permanent and acting District Managers. It is not apparent to the audit team that initiatives commenced by District Managers and gains in their appreciation of circumstances have extended past their tenures.

It is the professional opinion of the audit team that manifestation of the disagreements between the organizations is an impairment to the effectiveness of management of the forest, particularly as it related to aspects of planning and compliance assessments. The forest management plan itself is a good document, reaching a high standard compared against the requirements of the FMPM. However, other aspects of planning, including the disagreements regarding FOPs, values updates, numbers of revisions, prescriptions for shelterwood management and implementation of some of the planned Conditions on Regular Operations affect the effectiveness of management.

Conclusion: Disagreements between the MNRF and OVFI primarily related to planning and compliance issues continue to affect the efficiency and effectiveness of forest management. Although the forest is being managed sustainably, the level of sustainability would be improved by resolving the disagreements.

Finding: Forest management planning and compliance interpretations are not being implemented in an optimally effective manner.

Finding #13

Principle 5: System Support

Criterion 5.1 Human Resources – Direction: Awareness, education and training programs are necessary to ensure current general knowledge as well as knowledge specific to an individual's responsibilities in the sustainable forest management (SFM) system.

Principle 6: Monitoring

Criterion 6.1: District compliance planning and associated monitoring. Purpose: To review and assess whether an MNRF compliance program has been developed and implemented to effectively monitoring program compliance in accordance with MNRF manuals, policies, and procedures.

Procedure 6.1.1: Review the MNRF District Compliance Plans in place during the term of the audit to determine how forest management activities were to be monitored for compliance by MNRF and assess whether the actual level of the overall monitoring program was in accordance with the FMP/plans and whether it was appropriate based on evidence gathered through analysis of related criteria, including field audits.

Background Information and Summary of Evidence: During its review of the compliance program implemented on the OVF, the auditors discovered that there were at least 32 pending issues identified under the Forest Operations Information Program (FOIP), which is the internet-based system facilitated by MNRF for reporting the results of forest compliance monitoring activities. Some of the pending issues dated back to 2013. Many of the pending issues were determined to be non-compliances, however, no remedies or actions had been taken by MNRF on each pending matter, according to the FOIP system. This situation was curious, since the Annual Reports published for the OVF do not mention the cumulative number of compliance issues that were being tracked by the FOIP system. Further investigation and discussions with MNRF District staff revealed that actions had indeed been taken on most of the pending issues, including the issuance of penalties, repair orders, or written warnings, however, the remedy measures had not been recorded in FOIP. Responsibility for entering the remedy actions for each reported issue lies with senior staff at the MNRF District Office. This lapse in reporting has important downstream implications. For example, the non-compliances and remedies are subsequently not recorded in Table AR-6 (Annual Report of Forest Compliance Reports, Non-Compliances, and Remedies) which are relied upon for analysis and drawing conclusions regarding the effectiveness of the compliance program, performance of the SFL holder in maintaining a compliant operation, and achievement of objectives where compliance outcomes are used as an effectiveness indicator. It is therefore very important that the remedy and outcomes be accurately recorded into the FOIP database. MNRF District staff acknowledge the shortcoming, which is attributed to recent staffing upheaval and the lack of training provided to senior staff regarding the FOIP system.

MNRF no longer maintains a position at its Policy Division that acts as a coordinator on matters involving forest compliance, including the provision of FOIP training to staff, acting as a sounding board regarding compliance questions, and providing advice on compliance problems from a Provincial perspective. These responsibilities were transferred to Regional Operations Division during MNRF's transformation process – specifically to Integration Branch (IB) Sr. Program Advisor, Forestry. Local MNRF staff could not recall when they had last received any FOIP-related training at the Pembroke District. It became clear to the auditors when investigating this compliance situation that senior MNRF District staff were in need of FOIP training in general, and specific to their roles. IB staff note that they are working towards addressing this gap.

Tied closely to these circumstances is, in the auditors' opinion, the apparent lack of clear direction in managing the District forest compliance planning program. The District compiles spreadsheets illustrating the risk-ratings that have been applied to the various operations proposed to be undertaken on the Forest, along with monitoring priorities, staff assignments for conducting compliance inspections, and targets of the expected number of inspections to be undertaken. Unfortunately, there is no text associated with the spreadsheets explaining the explicit roles of staff and who is responsible for ensuring that the District compliance program is carried out, including the input of data (such as remedies and outcomes) into the FOIP database, and achievement of targets. Text documents accompanied the spreadsheets at one time,

however, MNRF District staff informed the auditors that this former practice is now discouraged. In the opinion of the auditors, this is a step backwards and that having an overarching compliance document that clearly identifies staff roles and responsibilities would have likely prevented the oversight in reporting cited above.

Discussion: There are improvements needed in the District compliance program to avoid the oversights in reporting. As described above, the lapse in reporting in a timely fashion has compounding ramifications, which will likely require that adjustments be made in future Annual Reports to correct the inaccuracies that were inadvertently reported for compliance outcomes. Some adjustments will also likely be required in analyzing the FMP objectives where compliance results are used as proxies for successful achievement of particular objectives.

Conclusion: There are improvements needed with the MNRF Pembroke District forest compliance program to ensure that data is entered into the FOIP database in a timely fashion, that proper FOIP training is provided to appropriate staff, and that all District staff participating in the forest compliance program, including management staff, have a clear understanding of their roles and responsibilities to ensure that the program is being carried out effectively.

Finding:

- (1) MNRF Pembroke District staff have not been maintaining and updating the FOIP database, particularly remedy outcomes, in a timely fashion.
- (2) District forest compliance staff have not had up-to-date training in use of the FOIP system.
- (3) The MNRF Pembroke District forest compliance program lacks direction that clearly describes the roles and responsibilities of staff in implementing the District program.

Finding # 14

Principle 4: Plan Assessment and Implementation

Criterion 4.2: Areas of concern

Procedure 4.2.1: Review and assess in the field approved AOC prescriptions

Background Information and Summary of Evidence: The harvesting of Block 286, and the related onsite meetings, were described in Finding # 8. This finding concerns the non-compliance associated with the two skid trails that run straight up the esker that runs through the block. These trails are long and steep, as shown in Figures4 and 5.

It was not clear just when the skid trails were made, since the contractors lay out their own skid trails. The FOPs for the block do not mention the esker. Near the top of trail, the trail was cut into the esker and erosion has already have started. The auditors expect that this erosion is going to accelerate, especially during the coming winter /spring period. Remediation will be very difficult and will only get harder as the trails erode.

Condition on Regular Operations #21 in the Phase I FMP requires the decommissioning of main skid trails on steep slopes by installing water bars, diversion ditches, straw bales etc There was no decommissioning at the time of the audit site visit. The CRO also suggests that extremely steep slopes should be considered as inoperable and that machine travel on them should be avoided. This slope should have been avoided as it is very steep (an angle of approximately 60 degrees).

Figure 4. Long Skid Trail up Steep Esker



Figure 5. Skid trail erosion.

In addition to CRO-21, best management practices under CRO-20 state that extraction trails should avoid long down stretches. There was sufficient guidance in the FMP that should have prevented these skid trails from being constructed in this manner.

The audit team is also concerned that neither the FOPs nor the compliance reports (of which there are five) barely mention this skid trail and the stance of both the Company and MNRF staff on site during the audit was that the skid trail was not an issue until it starts to erode.

Discussion: Given the AOO values on the esker and the difficult access to the top of the esker, operations on the esker should have been reconsidered. A delay to allow the AOO to identify values could have also been used to determine whether an alternate approach to accessing the top of the esker was feasible. If a safer route was not available, strong consideration should have been given to foregoing the few hectares of harvest on the top of the esker, especially since the Company is well under its planned level of harvest (See Finding #7). The compliance reporting is also questionable – not only do the trails violate CRO-21 but also the view that the trails are not an issue until they begin to erode is unsatisfactory. The Company should consider including operational direction regarding difficult sites in its Forest Operations Prescriptions.

Conclusion: The Company should reconsider how it approaches operational planning on site with challenging topography and consider a higher degree of contractor oversight.

Finding: The skid trails up the esker in Block 286 are not compliant with the direction in the FMP and neither the FOPs nor the block release package nor the compliance program recognized the issue.

Finding #15

Principle 8: Contractual Obligations

Procedure 8.1.9. Audit action plan and status report. Direction: An action plan responding to audit findings is to be completed, the action plan is to be implemented and a status report is to be prepared within 2 years following approval of the action plan, unless otherwise directed by the Minister..... The action plan and status report are jointly prepared by MNRF and the auditee, as normally the action items are assessed to MNRF and / or the auditee. All action items must be assessed.

Procedure 8.1.9.2: Review the audit action plan status report and assess whether:

-the status report appropriately reflects what actually occurred to address the audit findings; if any actions were inconsistent with the approved action plan whether a reasonable explanation has been provided;
- actual actions were effective in addressing the audit findings

Background Information and Summary of Evidence: Recommendation # 11 of the 2013 IFA addressed the issue of the working relationship between OVFI and MNRF: "*Corporate, Regional, and OMNR Pembroke District, in cooperation with Ottawa Valley Forest Inc., shall take appropriate action, including the services of outside parties, to address the longstanding compliance monitoring working relationship that has challenged the Ottawa Valley Forest for over ten years. Progress assessments shall be undertaken regularly until the issue is considered to be resolved by senior staff of OMNR and Ottawa Valley Forest Inc.*"

The Provincial Action Plan, which received final endorsement in October of 2014, noted the following action items related to the recommendation:

- 1. Regional Resources Section will provide stream classification training to ensure consistency in the identification and verification of related operational issues; and
- 2. Forests Branch will increase the frequency of District Compliance Visits to occur annually in Pembroke District. MNRF Southern Region, Regional Resources Section will be invited to participate. Visits will continue until it is deemed by all involved District, Region, or Forest Branch manager to no longer be required to mitigate the issues. Training provided by Forests Branch will cover but not necessarily be limited to operational issues management and the application of remedies.

The Action Plan Status Report, which received final endorsement in September of 2018, reported the following progress:

- 1. Ongoing: Regional Planning Biologist will provide stream classification training to both teams whenever requested (which has since occurred on Oct 16, 2018).
- 2. Ongoing. Southern Region staff will work with both Ottawa Valley Forest Inc. and Pembroke District to ensure there is consistent messaging on forest compliance.

MNRF Southern Region staff provided additional information to the audit team on the efforts to address the recommendation:

- The District Manager meets as needed with the General Manager when there are non-compliance outcomes based on MNRF's review. This is an opportunity for OVFI to provide any further information related to the non-compliance that MNRF is not aware of. If new information comes to light the District Manager will consider this when making a final determination on the outcome. Since the information was provided (June 2018), OVFI has met with the MNRF DM a number of times prior to issuing a Notice of Intent to Apply an Administrative Penalty.
- The District Manager met with the Northeast Regional Director in November 2017 to seek advice on an approach to improve the relationship (over and above the compliance issue) between the local MNRF office and OVFI. It was advised that the District Manager and the General Manager would

work on drafting an acceptable agenda and seek the services of an experienced facilitator to action a workshop between the 2 parties.

Discussion: The lack of detail in the Action Plan Status Report is notable and gives the impression that relatively little has occurred in the way of concrete actions related to compliance topics. Further, it is apparent from the state of the working relationship between the two organizations at present, that the roots of the issues that the recommendation was intended to address still exist. This is addressed in more detail in **Finding # 12** Other than items related to stream classification, neither MNRF staff nor OVFI staff could report meaningful actions other than meetings that led to the MNRF decision to apply an Administrative Penalty. The planned workshop identified in the input from MNRF Southern Region has not occurred.

IFA Procedure 8.1.9.2 requires that "*All action items must be assessed*" and that "*actual actions were effective in addressing the audit findings*". Neither of these requirements are reasonably addressed.

While the disruption caused by MNRF Transformation likely contributes in some measure to the lack of progress made by MNRF in addressing the recommendation, it is not sufficient to account for five-years of very limited progress. It is the professional opinion of the audit team that the MNRF could have done considerably more to address the recommendation.

The recommendation directs the MNRF to work "*in cooperation with the Ottawa Valley Forest Inc.*", and recognizing that OVFI is, obviously, an important part of this dynamic, the audit team notes that, although there are good interpersonal rapports between some individuals within the two organizations, OVFI as an entity has not made meaningful efforts to improve relations either.

Conclusion: The relationship between OVFI and MNRF is still poor. There has not been meaningful progress in addressing the circumstances that led to Recommendation #11 of the 2013 IFA.

Finding: Recommendation #11 of the 2013 IFA has not been addressed.

Finding # 16

Principle 8: Contractual Obligations

Criterion/Procedure 8.1.1: Payment of Forestry Futures and Crown charges

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

Criterion/Procedure 8.1.10: Payment of forest renewal charges to the Forest Renewal Trust

Review the FRT accounts to determine whether renewal charges applicable to the management unit have been paid by the SFL and/or overlapping licensees ...

Background Information and Summary of Evidence: The MNRF provided the auditors with the amounts of arrears in payments of Crown dues, payments to the Forest Renewal Trust and to the Forestry Futures Trust as of March 31 each year during the audit period.

The General Manager of OVFI informed the audit team that he was unaware of the amounts owing or who owes them as the Company is not provided with any of this information by MNRF. Interestingly, some of this information is provided to the licensees who are shareholders of OVFI but evidently this is not shared with the GM.

The GM informed the auditors that there had been discussion between the MNRF and the General Managers of other Southern Region forest management companies regarding the provision of relevant financial information to the GM's, but there have been no changes in the MNRF's approach as a result of those discussions.

Discussion: The auditors believe that it would be helpful to the GM of the OVFI to be able to access financial information regarding payments of Crown dues and other charges for timber. The GM would be in a position to exert some leverage over a shareholder or licensee who may be behind on payments, and it also affords the GM a view of potential liabilities to OVFI and provides time and opportunity to deal with arrears before it leads to greater difficulties. MNRF evidently agrees, as it informed the auditors that a process has been initiated subsequent to the audit term to provide the GM with information regarding overdue payments and balances. However, since this process is not yet complete, the finding has been retained.

Conclusion: The auditors believe that information regarding the status of Crown payments by shareholders and licensees is important to the proper and prudent operation of OVFI and that the GM should have access to this information.

Finding: The OVFI General Manager does not have access to important financial information regarding Crown payments for timber harvested on the forest management unit.

Finding # 17

Principle 8: Contractual Obligations

Criterion/Procedure 8.1.9.2: Review the audit action plan status report and assess whether:

- the status report was prepared in accordance with requirements
- it was prepared within 2 years following approval of the action plan, unless otherwise directed by the Minister (e.g. an interim status report may have also been required) ...

Background Information and Summary of Evidence: The Status Report related to MNRF's corporate responsibilities for addressing recommendations from the 2013 IFA was approved on September 28, 2018. The Action Plan, which identifies the intended manner in which the recommendations will be addressed, was submitted on September 5, 2014. The Status Report is to be provided within two years of approval of the Action Plan, and therefore was provided 2 years late.

Discussion: MNRF's Transformation, which began in 2012, led to the creation of new branches, considerable movement of staff, the creation of new positions and some confusion about how various existing responsibilities would be addressed. The production of the Status Report was caught up in this milieu and was not completed until considerably after its due date, hindering this audit's assessment of the extent to which the recommendations of the previous audit were addressed.

In the 2013 IFA, 7 of 15 recommendations were directed at the Regional and Corporate levels of MNRF. The absence of the Status Report prior to completion of the field work complicated the ability of the audit team to evaluate whether and how these recommendations were addressed. Ideally, the Status Report is available so that it can be reviewed during audit preparation. The absence of the Status Report at the intended time was inconvenient, but not crippling to the auditors efforts to put the existing state of the forest's challenges in context.

Conclusion: The Corporate MNRF Status Report was released two years behind schedule. The delay seemed to be due to the large amount of organizational turbulence created a result of the MNRF's Transformation

Finding: Corporate MNRF did not meet its obligation to produce the IFA provincial action plan status report for the 2013 IFAs according to the schedule in the IFAPP.

Finding # 18

Principle 8: Contractual Obligations

Criterion/Procedure 8.1.15: Aboriginal opportunities: Determine through interviews the extent to which the SFL condition has been addressed.

Background Information and Summary of Evidence: Section 20 of the SFL states that: "The Company shall work cooperatively with the Minister and local Aboriginal communities in order to identify and implement ways of achieving a more equal participation by Aboriginal communities in the benefits provided by forest management planning."

Within OVF, the Makwa Community Development Corporation (based in the Pikwakanagan Algonquin community) has been an associate shareholder of OVFI since the Company was created in 1998. OVFI staff stated that Makwa was offered full shareholder status but declined so as avoid the risk of prejudicing the Algonquin land claim. OVFI informed the audit team that it did have a discussion with AOO regarding a seat on the OVFI Board in the spring of 2014. The OVFI Board was open to the idea, but the AOO decided not to pursue this any further at the time.

Makwa has always had a 2% share of the harvest and their planned volume harvest in the Phase I FMP corresponds to 2% of the planned harvest volume. Makwa did harvest timber in the first year of the FMP (i.e. 2011-12) and again in 2013-14, but not in other years. The reported harvest represents about 20% of the volume planned to be harvested by Makwa during Phase I.In addition, an Aboriginal contractor is a member of BMSFA and has a harvest allocation on the OVF through that organization.

The Wigry Road blowdown that occurred in 2014 was salvaged by Makwa in 2015. This area is within the Murray Brothers Traditional Operating Area (TOA) and they would ordinarily get first rights on salvaging it. However, when the AOO reviewed the salvage amendment, they asked that a logging contractor from the Algonquin community be allowed to do the salvage. OVFI approached Murray Brothers, who assented to the AOO request, and OVFI gave the salvage area over to Makwa.

The Company also stated that it hires another Aboriginal company to do some of its tree marking and OVFI will find work if Makwa is looking for additional work. OVFI pointed out that Makwa also cuts on other FMUs and their level of activity on the OVF does not necessarily represent their full suite of operations in a year.

Discussion: The licence requirement in Section 20 is very open-ended, and because of this, the auditors have little option but to conclude that the Company has met this condition of the licence. However, the performance of OVFI is open to criticism because there has been very little change in the level of benefits made available to Aboriginal communities during the twenty years that OVFI has been in operation and there has been negligible material change during the audit period. The increased interest in reconciliation on the part of governments suggests that standing pat might not reflect the goals of the provincial government, however, in the absence of any direction or guidance, one cannot say what Section 20 is intended to achieve.

The audit team notes that while the shareholders and contractors may provide employment to Aboriginal people, or firms, OVFI does not monitor this nor does OVFI have an engagement program that touches on this part of the licence.

There is very clear interest on the part of the First Nations to increase the level of benefits from forestry that are available to community members. Part of the draft text of the land claim speaks to this, as is described in the ABIR that was prepared by AOO for the Phase II Planned Operations. The level of engagement and the capacity of the First Nations to undertake work and train members to be able to perform a wider range of activities has been steadily increasing.

Conclusion: Vague statements of licence requirements are of little value since they do not set out the government's expectations and are not enforceable. In the case of Section 20, the absence of metrics or quantification of expectations hinders application and assessment of performance.

Finding: There are no performance standards or guidance from MNRF regarding what is required to meet Section 20 of the SFL document.

Finding #19

Principle 8: Contractual Obligations

Criterion/Procedure 8.1.14:Silvicultural standards and assessment program

Refer to criterion 6 and related criteria.

Background Information and Summary of Evidence: The 2013 IFA contained a recommendation that the Company shall update and report on the status of Class Y and Z lands in the next Annual Report and continue to do so each year until the requirement in Section 16 of the SFL is fully addressed.

The Company undertook an assessment and analysis of Class Y and Z lands for which the Company's obligations were still open and found that on most of these sites, the previous operation had been a harvest such as a selection cut or a shelterwood prep cut that implied no subsequent renewal obligation. The Company concluded that it had met all of its obligations on Class Y and Z lands and included this analysis and conclusion in the Year 3 AR. This AR has been accepted by MNRF, which implies that this conclusion has been accepted by MNRF. There is no formal sign off process by which MNRF agrees that these conditions have been met.

As a result, Section 16 of the SFL is no longer needed in its current form and should be revised during next amendment of the SFL document.

Discussion: MNRF has not removed sections of SFL's that pertain to Class X, Y, or Z lands however, by now, many Companies will have discharged any necessary obligations regarding the Class Y and Z lands. There is no need to continue with the Class X terminology since it no longer serves a useful purpose. There are parts of section 16 that require the Company to follow renewal standards in the approved FMP, as well as some other conditions related to renewal that may still be applicable. However, as companies fully discharge their responsibilities for treating legacy areas, section 16 can be substantially revised if not removed, with relevant paragraphs being revised and moved into other sections of the licence. MNRF indicated in discussions with the audit team that revisions to this section of the SFL could be considered in future amendments of the SFL.

Conclusion: MNRF should consider revising section 16 from the Ottawa Valley Forest SFL to reflect the completion of Company obligations on Class Y and Z lands.

Finding: Section 16 of the SFL has been addressed by OVFI and is no longer necessary in its current form.

APPENDIX 2 – ACHIEVEMENT OF FMP MANAGEMENT OBJECTIVES

Achievement to Date of 2011 Ottawa Valley Forest FMP Objectives and Indicators

Objectives& Indicators	Auditor Assessment	Auditor Comments
Forest Diversit	y Objectives Forest Structure, Composition and Abundance	
1.To move towards a more natural forest landscape pattern and distribution. Indicator 1: Young forest patch distribution – achieve frequency distribution of young forest patches (by size class) according to the SRNV (Simulated Range of Natural Variation) Indicator 2: Clearcut size within Madawaska Highlands – all clearcuts < 100 ha Indicators 3& 4: Texture of mature and old forest – Achieve a forested landscape matrix (mature and old forest) in concentrations according to the SNRV at 50 and 500 ha assessment level	At the start of the 2011 FMP, the forest was generally within the ranges of Indicators 1 and 4, but was above the SNRV for mature and old forest texture metric (50 ha basis) (outside the target bounds of parts of indicator 3). The LTMD projected that the indicator values would remain within the target ranges where they already were acceptable, and many of the metrics outside of the target range in 2011 would move into or towards the targets. While it is difficult for the audit team to make a conclusive determination of progress towards the desired indicator values in the absence of analyzing the inventory, the audit team expects that the indicators that were within the SNRV in 2011remained so, however, it is also unlikely that those values outside of the SNRV would have shifted much, due to the lower than planned level of harvesting, the relatively low percentage of shelterwood harvests that were final removal cuts, and the high levels of residual retention that in some cases resulted in post-clearcut harvest areas being typed according to the residual canopy at the time of the free-to-grow assessment. Indicator 2 pertains to the size of harvest areas within the Madawaska Highlands planning area, and here the Company has planned its harvest blocks, and executed the harvests, in such a way as to meet this objective.	This is a mandatory objective with the target ranges for indicators 1, 3, and 4 prescribed by the Forest Management Guide for Great Lakes-St. Lawrence Landscapes

Objectives& Indicators	Auditor Assessment	Auditor Comments
2. To move towards a more natural forest landscape structure, composition and abundance.	This objective contains a number of metrics expressed as indicators. At 2011, the forest was within the SRNV for Indicators 2, 3 (generally), 5, 7 and 8.	This is a mandatory objective with the target ranges prescribed by the
Indicator 1: Achieve and maintain the levels of landscape class area across the forested landscape according the SRNV.	The Forest had no old growth in even-aged tolerant hardwoods or in hemlock and cedar forests in 2011 (Indicators 9 and 10), and lacked sufficient old growth area in the shelterwood forest units	Forest Management Guide for Great Lakes-St. Lawrence Landscapes. the Madawaska Highlands
Indicator 2: Forest type – 1995 level of red and white pine area.	and in red pine (Indicator 6). Growing stock volumes (Indicator 3) are not far out of the target ranges. Some progress may have	Land Use Plan, and the Old Growth Policy. Forest type
Indicator 3: Achieve forest-wide level of growing stock volume by species and species groupings that are consistent with the	been made towards the targets associated with these indicators however, it would likely be minor since progress depends on stand aging.	indicators were selected by the planning team.
Madawaska Highlands Land Use Plan targets for working groups and species within working groups.	For Indicator 4, the largest deviations from the SNRV are associated with oak (area exceeds the upper range) and tolerant hardwoods managed by uniform shelterwood. The high area of	Overall, the objective is very complex because it contains numerous metrics that are not always linked
Indicator 4: Achieve and maintain a natural level of Forest Type area across the forest landscape.	oak is not necessarily an undesirable forest attribute, since oak is becoming the only mast producing species, as a result of the severe reduction in beech due to beech bark disease. The	together in an obvious way.
Indicator 5: Achieve and maintain a natural level of young forest area across the forested landscape.	requirements of the Madawaska Highlands plan may also have contributed to a higher level of oak than is warranted by the SNRV.	
Indicator 6: Achieve and maintain a natural level of old growth area across the forested landscape.	Indicator 1 suggests that the area of the tolerant hardwoods and intolerant hardwoods is greater than desirable (by being above the upper limit of the SNRV) while the White Pine Mixedwood and	
<u>Indicator 7</u> : Proportion of Pw and Pr in the Madawaska Highlands Use Plan area ≥ 121 years of age	Spruce-Fir-Cedar classes are below the minimum threshold of the SNRV. The component of objective #2 related to the areas of these landscape classes is to bring the area of the two hardwood classes within the SNRV, while the area of the two conifer classes	
Indicator 8: % of Pwus and PRcc forest units	will not move towards the SNRV range in any meaningful way.	
Indicator 9: Representation of old growth conditions in uneven-aged tolerant hardwood forests.	It is difficult to evaluate these indicators in the absence of an analysis of the inventory, since there are many factors affecting them and many of these factors are difficult to correlate to operations. It is anticipated that most aspects of this	

Objectives& Indicators	Auditor Assessment	Auditor Comments
Indicator 10: Representation of old growth conditions in hemlock and cedar forests.	objective remain achieved, and that there may be some movement towards the target range of other indicators.	
Fores	t Diversity Habitat for Animal Life and Forest Cover	
3. To move towards a more natural forest landscape condition that provides for non- spatial wildlife habitat for species dependent on late development state forest conditions. <u>Indicator 1</u> : Wildlife habitat – achieve and maintain a natural level of wildlife habitat area across the forested landscape	The indicator includes habitat levels for three wildlife species – black-backed woodpecker, Canada lynx, and ruby-crowned kinglet. Desirable levels for all species are that habitat increases dramatically – in the range of 200-300% at the lower end, to 300- 500% at the upper end. Short-term targets are to achieve modest increases of about 7 – 20% Model runs show increases for woodpecker and kinglet with desirable levels achieved for the woodpecker and kinglet by Term 16. Lynx short and medium targets achieved. Objective projected to be achieved .	Reasonable objectives. Lynx desirable levels never achieved, but progress shown in moving towards target levels. Under-achievement in harvesting to date suggests that greater levels of habitat will exist for most species in the near term than simulated.
4. To move towards a more natural forest landscape condition that provides for forest-dependent provincially and locally featured species <u>Indicator 1:</u> Wildlife habitat – achieve and maintain a natural level of wildlife habitat area across the forested landscape.	 The indicator includes habitat levels for five wildlife species – moose (foraging), moose (late winter), pileated woodpecker, barred own, and blackburnian warbler. black-backed woodpecker, Canada lynx, and ruby-crowned kinglet. Existing habitat levels for all species are within the desirable range. Desired levels are achieved or approached through many/most time periods for most species. The exception is barred owl for which habitat is primarily the Hdsel forest unit. However, OVF reports the shortfall is minor and habitat may be underestimated due to SFMM limitations in simulating succession of uneven aged forest. Objective projected to be achieved. 	Reasonable objectives and more-or-less stable habitat is sufficient to achieve objectives. With the exception of moose foraging habitat, under-achievement in harvesting to date suggests that greater levels of habitat will exist for most species in the near term than simulated. MNRF staff expressed concerns regarding extent of moose late winter habitat.

Objectives& Indicators	Auditor Assessment	Auditor Comments
5. To move towards a more natural forest landscape condition that provides for forest-dependent provincially and locally featured species	The indicator includes habitat levels for five wildlife species – marten, northern flying squirrel, eastern red backed salamander, ruffed grouse and white-throated sparrow. The desirable level was not maintained for two species (marten and flying squirrel), was met for some plan terms for grouse and was met for the salamander and sparrow.	
	Objective partially achieved.	
6. To move towards a more natural forest condition that provides for spatial wildlife habitat for species dependent on over- mature forest conditions and forest- dependent provincially and locally featured species. <u>Indicator 1</u> :Wildlife habitat – Achieve and maintain a natural level of wildlife habitat across the forested landscape. <u>Indicator 2</u> : Kirtland's warbler	Indicator 1: Assessment impractical for this exercise Indicator 2: Kirtland's warbleris a species at risk, which has been reported on the forest from time-time time. At present OVF reports that there is no suitable habitat (extensive young jack- pine-dominated stands). Jack pine has been seeded on two areas, but both were small – less than 35 ha. However, a large (700 ha) fire may provide habitat opportunity. Objective achievement uncertain.	Indicator 1: The scale of assessment (10-year selected harvest areas) is impractical for this exercise Indicator 2: More effort (i.e. more extensive seeding or planting of jack pine) likely needed to achieve Kirtland's warbler habitat objective.
7. Old Growth Policy: Indicator 1: Black bear fall forage	Bear fall forage habitat is comprised of mature and old growth forest dominated by beech and/or red oak. OVF projects objective will be exceeded due to over representation of oak on the landscape. Howeverdecline of beech caused by beech bark disease may have implications for bear habitat Uncertain whether objective will be achieved.	Desired levels are projected to be exceeded. Underachievement of harvest projections also suggests desirable levels will be exceeded, but decline for beech caused by beech bark disease may have implications for bear habitat
8. Provincially Featured Species Indicator 1:White-tailed deer habitat Indicator 2: Moose habitat	Indicators 1&2: Extensive habitat modelling was undertaken examining seasonal habitat aspects for the ungulates. The results are variable depending on the habitat component and season being considered. Generally results indicate stable, or slightly	Pileated woodpecker levels are higher than desirable levels initially and are projected to exceed

Objectives& Indicators	Auditor Assessment	Auditor Comments
Indicator 3: Pileated woodpecker	increasing or decreasing habitat levels. One exception seems to be critical thermal cover deficiencies in all four deer yards in the forest. However, increases in thermal cover are predicted.	desirable levels through the model simulation. Given the projected underharvest on the forest, this pattern is
	Objective projected to be be achieved.	likely to be greater than projected.
	Indicator 3: Pileated woodpecker	MNRF has expressed
	Modelling indicates that habitat levels will remain above the SRV.	concerns regarding achievement of deer and
	Objective likely to be achieved.	moose habitat objectives.
9. Locally Featured species	Targets for the 12 species/species-habitat affiliations identified, 11 are met or close to being met. The exception is marten, for which	Although the objective's are projected to be met, the
Indicators: Several species are identified	the habitat seems to be following a declining trend due to the imbalance of old/mature and young age classes	continual significant variation in the planned vs.
	Objective met for most species.	actual suggests caution in interpretation
10. Protect that habitat of forest dependent species at risk:	Compliance rate for AOC prescriptions, for SAR as identified in Annual Reports and Trend Analysis was less than the 100%	
Indicator 1: Compliance with AOC	identified as both desired and target levels.	
prescriptions for protection of species at risk habitat.	Objective not met.	
Social ar	nd Economic Community Well being and Forest Cover	
11. To provide the levels of access to adequately carry out forest operations while minimizing impacts on other values.	Indicator 1: Target level is no net increase beyond level of 1.47 km/km identified at plan start. Trend Analysis suggests it is likely to be achieved because of reduced harvest levels during first six	
Indicator 1: Km of passable road per km2 of forest (calculated from roads currently defined in NRVIS as drivable by a 4wd truck).	years of plan implementation Objective likely to be met.	
Maintaining a	and Enhancing forest ecosystem condition and productivity	

Objectives& Indicators		Audito	r Assessment		Auditor Comments	
12. To ensure that every harvested stand is		1: The target assoc			The Company is not on	
successfully renewed to the most		rea listed in FMP-2		track to achieve the target		
silviculturally appropriate species required		ation Success] by 2			for Indicator 1, however it	
to achieve the desired future forest condition.		uld be required to be iod. In response to			could be reached with an increase in FTG area	
					assessment in the last four	
Indicator 1: Percent of harvest area assessed		eport, the area requiring FTG was re-calculated and assessment ubsequently reduced to 1,211 ha/yr. The table below illustrates years of the				
for FTG by forest unit.		ires assessed over			term. The Company is	
Indicator 2: Percent of the harvest area		he % assessed to c			meeting the target for	
assessed that meets management standards		7%. Overall, 43%, c	or nearly half of the	e target has been	indicator 2 for half of the	
or is FTG, by forest unit, as defined by the	reached	as of 2017.			forest units but not overall.	
Silvicultural Ground Rules.					Continuation of current	
					performance during the last four years of the 2011 FMP	
	Forest	FTG Assessments Planned 2011-2021	FTG Assessments Completed to date	% Completed	term will result in the	
	Unit	(ha)	(2011-2017) (ha)	to date	Company missing its	
	INTCC	2668.3	650.6	24.4%	targets and thus not fully	
	MXCCC	424.7	58.4	13.8%	achieving the objective.	
	MXHCC	4262.0	2418.3	58.1%		
	PRCC	1102.9	371.9	33.7%		
	HDUS	0.0	52.1			
	ORUS	1229.3	114.0	9.3%		
	PWUS	2509.6	1411.9	56.3%		
	CESEL	0.0	30.6			
	HDSEL	0.0	91.8			
	HESEL	9.6	12.9	134.7%		
	TOTAL	12,106.4				
	area ass accordin	2: The target assoc essed [by forest uni g to the Silvicultural the achievements t	t] shows silvicultur Ground Rules." T	al success he table below		

Objectives& Indicators		Auditor As	sessment		Auditor Comments
	the 10 forest 75%, which is	ustrates that the targ units to date. The or s below the target lev ange, since there are	e is are		
	Forest Unit	FTG Assessments demonstrating silviculture success 2011-2017 (ha)	Total area assessed to date (2011-2017) (ha)	% Silviculture Success rate	
	INTCC	961.3	1092.7	88%	
	MXCCC	90.5	90.5	100%	
	МХНСС	2072.8	2825.4	73%	
	PRCC	46.3	46.3	100%	
	HDUS	89.1	89.1	100%	
	ORUS	87.2	87.2	100%	
	PWUS	467.6	885.7	53%	
	CESEL	22.6	30.6	74%	
	HDSEL	64.7	64.7	100%	
	HESEL	0.0	0.0		
	TOTAL	3902.3	5212.4	75%	
	Indicator 1 is track.	t of objective is stil s uncertain; Achiev			
13. To ensure every forest stand harvested on the OVF is renewed, and tended as required, by the most appropriate and cost effective methods to achieve the desired future forest condition. All areas harvested will be renewed in accordance	compared to Shortfalls app overachieved	ar achievement of sil the ten-year (2011-2 bear in some activitie I. These numbers ar s remaining in the pla	021) target in the s, while others h e subject to chai	e table below ave been	Ι.

Objectives& Indicators	Au	ditor As	sessment			Auditor Comments
with the Silvicultural Ground Rules (Table FMP-4). Targets are detailed in FMP-2017.	Silvicultural activity	10-year (2011-2021) target (ha)	Actual achieved to date (2011-17) (ha)	% achieved to date		
Indicator 1: Implementation of silvicultural operations is consistent with the silvicultural	Uneven-aged management	6421	1387	21.6%		
strategies formulated in the development of	Clearcut	10624	3117	29.3%		
the LTMD and represented in the SFMM. (see	Clearcut with seed trees	2623	1230	46.9%		
regeneration categories in FMP-9)	Shelterwood seed cut	7186	1580	22.0%		
	Site preparation	9537	4638	48.6%		
	Tree planting	4760	2311	48.6%		
	Seeding	30	15	50.0%		
	Cleaning	4987	4575	91.7%		
	Stand improvement	2205	3892	176.5%		
	Achievement of object					
14. To improve white pine renewal success.	The 10-year targets for site preparation, 1,800					Although a definitive assessment is not possible,
Indicator 1: Implementation of intensive silvicultural operations to improve regeneration success for white pine across the management unit.	of tree planting, and 4,0 The activity data provid area of each forest unit the extent to which plan At the same time, the h been well below the plan available to make an ac achievement of this obj	000 ha of cl ed in the ar treated, an aned levels arvest of th anned levels ccurate dete ective.	eaning in the Pl nnual reports do of so it is difficul of activity have white pine for s. As a result, the ermination of the	Nus forest u not identify t to determir been achiev est units has ne data were e relative lev	init. the ved. s e not vel of t.	based on the observations of the auditors during the field inspections and in discussion with OVF and MNRF staff, it is likely that the intent of this objective is being achieved, if not the planned levels. Forestry Futures funding has been important in helping to achieve the desired level of management intensification for white pine.
15. To improve red oak renewal success within the Madawaska Highlands	The Trend Analysis not prescribed as oak shelt conducted as preparate	erwood reg	enerations cuts	were		

Objectives& Indicators	Auditor Assessment	Auditor Comments
	which are poorly reflected in the FRI. The Year 6 AR indicates that in the first six years of the 2011 FMP term, a total of 772,000 red oak seedlings were planted. The oak renewal viewed by the auditors was successful.	
	Objective achievement likely	
	ontinuous and Predictable Flow of Economic and Social Benefits	
 16. To protect natural resource features, land uses and values dependent on forest cover. <u>Indicator 1</u>: Compliance with AOC prescriptions and conditions on regular forest operations for the protection of natural resource features, potential cultural heritage areas, land uses and values dependent on 	 Target for this indicator is > 95 in compliance%, desirable level is 100%. Trend Analysis indicates that compliance rate as of March 31, 2017, is at least 96 (including the pending reports) Objective achievement likely. 	See Finding # 13 for more discussion of issues related to the compliance program in the OVF
forest cover.		
 17. To protect cultural heritage values and aboriginal values. Indicator 1: Compliance with AOC prescriptions for the protection of known cultural heritage and aboriginal values. 	The Company made extensive efforts to work with the Algonquin communities through the AOO, and while there was generally a good level of communication, some sites that had potential cultural heritage values were logged, possibly damaging the values. This occurred on harvest block 286, as described in Finding # 1 . The Company did not fully meet the objective even though the indicator selected for the objective was achieved. Objective partially met.	
18. To maintain or improve quality resource-based tourism opportunities by implementing forest operations in a manner that minimizes conflicts with non- timber resource users and protects non- timber values.	The Company worked with stakeholders during the development of the Phase II plan and no issues were reported with respect to impacts of the Company's operations on the tourism sector. There were no pending issues or non-compliances identified that involved resource-based AOCs. The Company was in compliance with this plan objective.	
Indicator 1: Compliance with resource-based AOC prescriptions. This includes users that have ski trails, snowmobile trails, portages,	Objective achieved.	

Objectives& Indicators	Auditor Assessment	Auditor Comments
view-scapes and other recreational uses of the forest.		
 19. Provide a sustainable, continuous and predictable wood supply from the forest that will meet the current industrial demand. <u>Indicator 1</u>: Available long-term projected volume, by species group (m³/yr) <u>Indicator 2</u>: Planned harvest by forest unit for the 10-year plan period. <u>Indicator 3</u>: Actual harvest area by forest unit. <u>Indicator 4</u>: Planned harvest area by forest unit. <u>Indicator 5</u>: Planned harvest volume by species group for the 10-year plan period. <u>Indicator 5</u>: Planned harvest area by forest unit for the 10-year plan period. <u>Indicator 6</u>: Planned harvest area by forest unit for the 5-year plan period. <u>Indicator 7</u>: Planned harvest volume by species group for the 5-year plan period. 	The first three indicators are based on the available harvest volume and area while the latter four are based on planned harvest area and volume. The desirable levels of the available harvest metric were based on the recent levels of harvest volume and area. Recent harvest levels of white and red pine were inflated due to high levels of salvage harvesting, while the poplar harvest has long been expected to fall because the age class is imbalanced towards the old ages. Accordingly, available harvest levels of red and white pine and poplar were below recent harvest levels, while the available harvest of the other species was within recent levels of use. The achievement of indicators 4 and 5 was assured by ensuring that the planned level of harvest over ten years was at least 90% of the AHA. Ensuring that the harvest in each five-year term of the planning period was between 35 and 65% of the planned level ensured that indicators 6 and 7 were achieved. Objective generally achieved.	
Protec	ting and Conserving Forest Soil and Water Resources	
20. To protect the productive capacity of the soil and water. Indicator 1: Compliance with conditions on regular operations for site disturbance/rutting	Target for this indicator is > 95% in compliance, desirable level is 100%. Even considering pending issues, objective achievement is likely Objective achievement likely.	See Section 4.6 and Finding # 13 for more discussion of issues related to the compliance program in the OVF
21. To conserve water quality and fish habitat.	Target for this indicator is > 95 %in compliance, desirable level is 100%.	See Section 4.6 and Finding # 13 for more

Objectives& Indicators	Auditor Assessment	Auditor Comments
Indicator 1: Compliance levels for AOC prescriptions for the protection of water quality and fish habitat.	Objective achievement likely.	discussion of issues related to the compliance program in the OVF
Indicator 2: Percentage of water crossings installed in compliance with the initial proposal and conditions of approval.		
Accep	ting social responsibility for sustainable development	
22. To minimize loss of Crown productive forest to infrastructure development thereby maintaining harvest levels and related community well-being <u>Indicator 1</u> : Managed forest area available for timber production.	The aim of this objective was to ensure that no more than 4% of the managed forest area available for timber production was lost to roads, landings and other infrastructure. The Company has been very good about minimizing road construction, where possible using old tote roads and extraction trails for modern block access roads. The amount of primary and branch road construction has averaged approximately 6-7 km per year during the first plan term, which would have a very limited impact on the productive forest area.	
	Objective achieved.	
23. To provide opportunities for Aboriginal involvement in forest management planning. <u>Indicator 1</u> : Opportunities for involvement provided to, and involvement of, Algonquin communities in plan development.	The Algonquins of Ontario (AOO) consists of ten Algonquin Fist Nations, each of which has an interest in the OVF, according to the AOO as cited in the 2013 IFA report. That IFA report stated that nine of the ten communities had representation on the Phase I planning team, and six communities provided ABIRs. During Phase II planning, letters were sent by MNRF to 9 of the	
Indicator 2: Opportunities for involvement provided to, and involvement of, Algonquin communities in the identification of aboriginal values.	10 members of the AOO (the community of Ottawa Algonquins did not receive a letter). Objective achieved.	
24. Support and encourage interested aboriginal communities to participate in identifying values and interests which	The Company has worked fairly closely with the Algonquins of Ontario to identify values, with fairly good success. However, as Finding # 1 attests to, there is room for improvement in the Company's efforts to avoid operations in areas of high potential for cultural or heritage values.	

Objectives& Indicators	Auditor Assessment	Auditor Comments
provide social and economic benefits from the forest.Indicator 1:Opportunities are provided to aboriginal communities to participate in identifying values that provide social and economic benefits from the forest.	An Algonquin contractor has had a modest harvest allocation however, there have been few recent opportunities identified for Indigenous communities and individuals to increase the amount of benefit they derive from the forest, other than some marking contracts and an occasional one-off opportunity. There is room for improvement in meeting this objective. Objective partially achieved	
25. To encourage and support the participation of the Local Citizens Advisory Committee in the development of the Forest Management Plan. Indicator 1: Local Citizens Advisory Committee's self-evaluation of its effectiveness in plan development.	Desirable and target levels are to maintain or improve the LCAC self-evaluation of 8 out 10 that occurred during the 2006-2008 FMP development process. The achieved rating was 8.6 out of 10. Objective achieved.	

APPENDIX 3 - COMPLIANCE WITH CONTRACTUAL OBLIGATIONS

Licence Condition	Licence Holder Performance					
1. Payment of Forestry Futures and Ontario Crown charges	Crown due charges and Forestry Futures Trust charges on OVF Crown timber harvested by the main shareholders are paid directly to the government and Forestry Futures Trust, respectively, by the shareholders. These shareholders were invoiced directly by the Crown and do not share the information with OVFI. Payments were generally made in a timely manner, although due to seasonal patterns in wood deliveries and payments, the Company is shown as owing significant amounts to the government and FFT as of March 31 of each year during the audit term. The auditors confirmed with MNRF that amounts owing generally peak in March or April and are paid down by summer. As an aside, the audit team was informed by OVFI management that the Company is not informed about its financial balance of payments by MNRF (OVFI is ultimately responsible for Crown charges paid on Crown timber harvested in the OVF), which resulted in Finding # 16 . OVFI has met this contractual obligation .					
2.Wood supply commitments, MOAs, sharing arrangements, special conditions	The SFL for the OVF was updated on May 1, 2017. The revised SFL included a new wood supply commitment, which was made to Laverne Heideman & Sons Ltd. OVF's deliveries to Heideman's mills were not available to the audit team, as the annual report listing volumes delivered to receiving mills was not available at the time when the audit report was prepared.					
	The SFL contains four special conditions in Appendix F. The Company met each of the conditions that applied to it. Conditions #1 and #2 require OVF to make available on the open market a certain percentage of the available harvest area. OVF fulfilled these conditions through the actions of its shareholders who harvest timber but do not have mills – they sell the timber to the most suitable purchaser, and any market participant can in theory access this timber. The amounts involved exceed the minimum amounts set out in the SFL document. Condition #3 was that 2.3% of the available harvest area, to a maximum of 500 ha, should be made available the Algonquins of Golden Lake in every five-year planning term. This was done as part of the phase II plan. The fourth special condition consist of a series of statement regarding the licence, such as that it "does not abrogate, derogate from or add any aboriginal or treaty right". OVFI has met this contractual obligation.					
3. Preparation of FMP, AWS and annual reports; abiding by the FMP, and all other requirements of the FMPM and CFSA.	OVFI has prepared the Phase II Planned Operations document (2016-2021), Annual Work Schedules and Annual Reports as required, and have generally followed the intent of the 2011 FMP during the audit period. OVFI has met this contractual obligation.					
4. Conduct inventories, surveys, tests and studies; provision and	OVFI employs surveys and data collection protocols in support of its forest management program on the Ottawa Valley Forest. Mapping of operations (harvest, renewal, tending, etc.), assembly of related attribute data, and undertaking regeneration condition (survival and stocking assessments) / free-to-grow					

Licence Condition	Licence Holder Performance
collection of information in accordance with FIM.	surveys / tree-marking audits / silvicultural effectiveness monitoring/compliance monitoring are conducted annually to support production of the annual reports. This data is accumulated annually and incrementally for the purposes of analyzing and measuring progress toward achieving FMP sustainability targets and related goals and objectives. Considerable volumes of data are derived from forest resource inventory datasets which have been consistently updated using the annual surveys and data collection programs, which are analyzed using contemporary GIS systems. OVFI's system of data collection and documentation processes meets the requirements of the FMPM and the FIM. OVFI has met this contractual obligation.
	It is noted that Finding #2 was made regarding the very poor quality of the new FRI produced by the province. The audit team received evidence that the Company cooperated with the consultants doing the inventory and provided information that would have helped the consultants but was not used by them. In the view of the audit team, the MNRF failed to fulfil its obligation to provide a functional inventory, which is separate from the SFL condition which applied to the SFL-holder only.
5. Wasteful practices not to be committed.	OVFI's harvesting operations are mostly compliant with regard to not committing wasteful practices. Only two incidences of wasteful practices were reported as issues under FOIP. One incident was determined to be a non-issue, and the other issue is still ongoing and appears to be relatively minor. Auditors observed the occasional high stump and left merchantable timber in some harvest sites, but were not considered noteworthy. OVFI has met this contractual obligation.
6. Natural disturbance and salvage SFL conditions must be followed.	There were minor amounts of salvage harvesting undertaken during the first three years of the audit term. The salvage harvesting, which totalled 117 ha during the three years, was undertaken to harvest blow down timber. The development and approval of salvage amendments was effective, and the Algonquins of Ontario, who were provided with opportunities to comment on the amendments, addressed the amendment requests in a timely manner. Makwa Community Development Corp salvaged one of the blowdown areas in 2015 after the Algonquins requested it. OVFI has met this contractual obligation.
7. Protection of the licence area from pest damage, participation in pest control programs	This audit procedure was determined to be low risk and was not audited.
8. Withdrawals from licence area 9. Audit action plan and status	This audit procedure was determined to be low risk and was not audited. The IFA Action Plan is to be completed within two months of the MNRF receiving the final report and the
report	Status Report is to be completed within two months of the Mitha Tecering the lintal report and the submitted to the MNRF in late June of 2014 and the Action Plan was signed off by OVFI in early September and by the MNRF in late September. The production of the Action Plan was, therefore, somewhat late, but this is not deemed to be significant. The Status Report that addressed OVFI's

Licence Condition	Licence Holder Performance				
	obligations and those of the local MNRF was signed off by OVFI and Pembroke District MNRF in mid November 2016. Again, somewhat late, but not to the detriment of the audit program.				
	The MNRF has an obligation to complete a status report on recommendations directed toward its corporate branches. The document was not provided to auditors until September 28, 2018 – more than two years past due and after the completion of field work for this audit. This is addressed in Finding # 17				
	The recommendations that were addressed solely to the Company have been addressed, with the exception of Recommendation #9 that required OVFI to review its residual tree retention practices and determine if the residual levels are appropriate to meet stand renewal and harvest volume objectives. This audit found that levels of residual retention were still high, and addresses this in Finding # 8 . OVFI met most of obligation, for the most part.				
10. Payment of funds to Forest Renewal Trust	Renewal charges on OVF Crown timber harvested by the main shareholders are paid directly to the Forest Renewal Trust by the shareholders. These shareholders were invoiced directly by the Crown and do not share the information with OVFI. Renewal charge payments were generally made in a timely manner, although due to seasonal patterns in wood deliveries and payments, the Company is shown as owing significant amounts to the FRT as of March 31 of each year during the audit term. The auditors confirmed with MNRF that amounts owing generally peak in March or April and are paid down by summer. As an aside, the audit team was informed by OVFI management that the Company is not informed about its financial balance of payments by MNRF (OVFI is ultimately responsible for Crown charges paid on Crown timber harvested in the OVF), which resulted in Finding # 16 . OVFI has met this contractual obligation .				
11. Forest Renewal Trust eligible silviculture work	Auditors reviewed in the field a total of 184 ha of area that was mechanically site prepared and/or planted in the year 2016-2017, representing 45.3% of the eligible silviculture work that was charged to the Forest Renewal Trust for that year. Field inspections of these activities determined that maps were accurate and that work was completed as invoiced to the FRT per the Specified Procedures Report. OVFI has met this contractual obligation .				
12. Forest Renewal Trust forest renewal charge analysis	Renewal rate analyses were conducted annually by representatives of MNRF and the Company. Renewal rate adjustments that were made during the audit period appear to have adequately addressed silvicultural program costs. OVFI has met this contractual obligation.				
13. Forest Renewal Trust account minimum balance	OVF had funds in the Forest Renewal Trust in excess of the minimum required balance as of March 31 of each year during the audit period. OVFI has met this contractual obligation.				
14. Silviculture standards and assessment program	Regeneration condition assessments (survival and stocking assessments) / free-to-grow surveys / tree- marking audits / silvicultural effectiveness monitoring are conducted annually to support production of the				

Licence Condition	Licence Holder Performance
	annual reports. During the first four years of the 2013-18 audit term, a combined total of 21,388 ha of stocking assessments, survival assessments, free-to-grow assessments, post-harvest surveys, and tree-marking audits were completed by OVFI. Most of this data is accumulated annually and incrementally for the purposes of analyzing and measuring progress toward achieving FMP sustainability targets, other related goals and objectives, and updating the forest inventory. OVFI's system of silviculture effectiveness monitoring, data collection, and documentation processes meet the requirements of the FMPM and the FIM. OVFI has met this contractual obligation.
15. Aboriginal opportunities	As described in the write-up of Finding # 18 , the Makwa Community Development Corporation, which is based in Pikwakanagan, has a 2% share of the harvest, and the OVF also hires Makwa for tree marking work. These arrangements have been in place for a considerable amount of time, and they meet the terms of the licence, largely because the licence does not provide any tests or metrics that must be met in order to comply with this condition of the licence. While the Company was in conformance with this licence requirement, Finding # 18 was issued which is directed at the Corporate level of MNRF. OVFI met the technical aspects of this requirement .
16. Preparation of compliance plan	OVFI also prepared Annual Compliance Plans for each of the five years within the scope of the audit. The Annual Compliance Plans are included as appendices in the respective Annual Work Schedules, and are well-written and provide the content required by the FMPM. OVFI has met this contractual obligation
17. Internal compliance prevention/ education program	Training and education forms and integral part of OVFI's 2011-2021 Phase II Compliance Strategy, where the value and importance of providing training and education to staff, OFRLs, and contractors regarding compliance is mentioned at several locations throughout the text. OVFI ensures that staff and overlapping licensees are offered opportunities to attend training courses and workshops that are made available. Training may be offered internally through workshops, or jointly with MNRF, and delivered to OVFI employees, overlapping licensees, and contractors. The two primary mechanisms for delivering training in the OVFI organization are through the annual Compliance Committee meetings and the annual meeting with the operators each spring. The auditors examined ample evidence to confirm that adequate training, education, and outreach is being provided by OVFI to its staff, shareholders, overlapping licensees, and contractual obligation.
18. Compliance inspections and reporting; compliance with compliance plan	The forest industry filed 534 compliance inspections over the audit term, according to the FOIP database. This level of compliance inspections is commensurate the complexity of the Forest and the level of operations undertaken by OVFI. Staff training and implementation are key components of the Industry's compliance plan as outlined in the Phase I FMP. OVFI has met this contractual obligation.
19. SFL forestry operations on mining claims	This audit procedure was determined to be low risk and was not audited.

Licence Condition	Licence Holder Performance
20. Obligations on XYZ lands.	In response to Recommendation #13 from the 2013 IFA Report, OVFI reviewed and updated the status of outstanding Y and Z Lands in the 2013-14 Annual Report. The review demonstrated that there are no areas remaining which require surveys and that the Company's obligations under Paragraph 16 of the SFL Agreement have now been fulfilled. OVFI has met this contractual obligation. Because the Company has addressed all of its obligations regarding these lands, there is no longer a need for inclusion of this obligation in the SFL document. This is addressed in Finding # 19. OVFI had met this contractual obligation .

APPENDIX 4 – AUDIT PROCESS

Overview

The Crown Forest Sustainability Act (CFSA) directs the Minister of Natural Resources and Forests to conduct a review of each tenure-holder every five years to ensure that the licensee has complied with the terms and conditions of its licence⁵. The IFA contributes to this mandate, as well as complying with the direction to the Ministry laid out in the 1994 Class EA decision, subsequently confirmed in a number of Declaration Orders, the most recent dating from 2015⁶. Regulation 160/04 under the CFSA sets out direction related to the timing and conduct of IFA's, the audit process and reporting.

The Independent Forest Audit Process and Protocol (IFAPP) sets out in detail the scope and process requirements of an IFA, and contains approximately 170 individual audit procedures. The IFAPP, which is reviewed and updated annually by the MNRF, states that the purpose of the audits is to:

- "assess to what extent forest management planning activities comply with the CFSA [Crown Forest Sustainability Act] and the Forest Management Planning Manual;
- assess to what extent forest management activities comply with the CFSA and with the forest management plans, the manuals approved under the CFSA, and the applicable guides;
- assess, using the criteria established for the audit, the effectiveness of forest management activities in meeting the forest management objectives set out in the forest management plan;
- compare the planned forest management activities with actual activities undertaken;
- assess the effectiveness of any action plans implemented to remedy shortcomings identified in a previous audit;
- review and assess a licensee's compliance with the terms and conditions of the forest resource licence; and
- provide a conclusion stating whether or not the forest is being managed consistently with the principles of sustainable forest management.

The audit team may develop findings and best practices. Audit findings result from the comparison of audit evidence against the audit criteria. Findings may be the high level identification of [a] non-conformance or a situation where the auditors perceive a critical lack of effectiveness in forest management activities, even though no non-conformance with law or policy has been observed.

Findings may be directed towards the Company and/or at the appropriate administrative level of the Ministry of Natural Resources (District, Region or Corporate) or they may not be directed towards any party. Auditees must address all findings through follow-up actions.

⁵In some circumstances, the period between reviews may be up to seven years.

⁶ Declaration Order MNR-75: MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario, approved by Order in Council 1126/2015 on August 25, 2015.

If the Audit Team feels that an aspect of forest management is exceptional it may be identified as a best practice. The IFAPP states that "*Highly effective novel approaches to various aspects of forest management may represent best practices.* Similarly, applications of established management approaches which achieve remarkable success may represent best practices." In contrast, "situations in which the forest manager is simply meeting a good forest management standard" do not qualify.

The IFAPP describes each of the components of the audit process and contains the audit protocol, which constitutes the main framework for the audit. The procedures, which are the basis for assessing the auditees' compliance and effectiveness, are organized according to eight principles. A positive assessment of the procedures under each principle results in the principle being achieved. A negative assessment of a procedure typically leads to a finding.

Risk-based Auditing Approach

In 2017, the audit process was changed to incorporate aspects of risk management. The audit uses the widely-recognized concept that risk is a function of both the probability of an event occurring and the impact of the event should it occur. Those procedures for which non-compliance would result in a medium to high negative impact on sustainability were identified by the MNRF as mandatory, while the procedures associated with a low impact were identified as optional. Early in the audit process, the auditors reviewed evidence related to the optional procedures to evaluate the risk of non-conformance or negative outcomes associated with the procedures. The auditors also considered the audit team's familiarity with the procedure and its general tendency to lead to non-compliance in previous IFA's. Where the likelihood was considered to be moderate to high, the optional procedure was audited.

Using this process, it was identified that 12 of the 75 optional procedures should be audited. The assessment of risk was reviewed and accepted by the Forestry Futures Committee. The optional procedures to be included in this audit are:

- 3.7.2 Planning Team effectiveness;
- 3.9.9 Phase II monitoring and assessment program;
- 3.13.1.2 Plan amendment frequency and quality;
- 3.14.2 Changes during AWS implementation;
- 6.1.1, 6.1.2, 6.2.1.1, 6.2.1.2, 6.2.1.3, 6.2.1.4, 6.2.2.1, and 6.2.2.2 Procedures related to compliance planning, implementation, and reporting.

Audit Implementation

The audit commenced with the preparation of a detailed audit plan⁷, which described the results of the risk assessment, set out the audit schedule, described the procedures to be used during the audit and assigned responsibilities to members of the Audit Team. A pre-audit meeting was held on July 9 in Ottawa Valley with the lead auditor, the Company and the MNRF. The primary purposes of the meeting were to familiarize the auditees with the audit process, review the Audit Plan, and make progress in selection of sites to inspect in the field during the audit. Subsequent to the pre-audit meeting, there were minor adjustments made to the selected sites due to access issues and to improve the balance of operations and sites.

⁷ ArborVitae Environmental Services Ltd. Plan for the Independent Forest Audit of the Ottawa Valley Forest, July 10, 2018.

	Optional		Mandatory	_	
Principle	Applicable (#)	Selected (#)	% Audited	Audited (#) (100% Audited)	Comments
1. Commitment	2	0	0	0	The forest is certified to a third-party standard (Sustainable Forest Initiative) and procedures associated with the principle were determined to be low risk.
2. Public Consultation and Aboriginal Involvement	5	0	0	3	The Forest is in very close proximity to the town of Pembroke and review of the public consultation information in the FMP and Supplementary Documentation indicates a reasonable number of comments and information requests based on concerns of area residents. A precautionary approach is to include this procedure in the audit.
3. Forest Management Planning	14	4	29	13	Two procedures were identified for auditing – they relate to the frequency of plan amendments and changes during AWS implementation. The e-FMP web site indicated there were 21 amendments during the audit term. The FI Portal indicates 20 amendments were submitted and 15 were resubmitted. This raises the question of why such a high proportion needed to be resubmitted. Precaution suggests this procedure should be reviewed. The FI Portal also indicated that 48 AWS revision submission and resubmissions during the audit term – a moderately high number. Precaution suggests this procedure should be reviewed.
4. Plan Assessment & Implementation	2	0	0	9	Neither of the two optional procedures was assessed as high risk, since bridging was to be completed before the audit period and roads funding has not been a topic resulting in findings in any of audits AVES has conducted.
5. System Support	2	0	0	0	The forest is certified to a third-party standard and procedures associated with the principle were determined to be low risk
6. Monitoring	42	8	19	6	The four procedures identified for auditing all related to compliance auditing. At the audit outset the status of the District's Compliance plans was not clear and so the decision was made to audit this procedure. The remaining compliance-related

Table 3. Audit procedures by principle and risk assessment outcome.

	C	ption	al	Mandatory	
Principle	Applicable (#)	Selected (#)	% Audited	Audited (#) (100% Audited)	Comments
					procedures were selected to be audited based on the fact that compliance with operations is an important aspect of forest management and our experience with previous audits indicates that these procedures can be complex to assess with nuances associated with terminology/definitions and the shared responsibilities between MNRF and the Licensee.
7. Achievement of Objectives and Forest Sustainability	0	N/A	N/A	15	All procedures are mandatory and were audited.
8. Contractual Obligations	6	0	0	18	Optional procedures were related to contractual obligations that were either not applicable, linked to other parts of the IFAPP or for areas assessed as acceptable risk.
Totals	41	12	29	64	

The focus of the audit was an intensive five-day site visit (Sept. 17-21, 2018), which included document review, interviews and inspections of a variety of sites throughout the Forest where activities had been undertaken during the audit period. Ground-based tours took place on Sept 17, and were attended by staff of the MNRF District and Region and Company, as well as Forestry Futures Committee representatives, two members of the LCAC and two representatives of the Algonquins of Ontario. Additional site inspections took place on Sept. 18, with audit team members and an OVFI guide in the helicopter. MNRF staff met the helicopter for on-site discussions at two sites. The formal closing meeting for the audit took place on Sept. 28 by teleconference, at which the audit team reviewed its draft findings. In the one-week period following the closing meeting the audit team received comments on the draft findings and those have been considered in preparing the final report.

Sampling and Sample Intensity

The IFAPP requires that at least 10% of each major activity be sampled. Table 4 shows the total amount of each key activity that took place during the audit period, and the sample size and sampling intensity in the IFA. The audit exceeded the minimum sample size specified in the IFAPP for all activities, with the overall level of sampling ranging from 13% to 66% for key activities.

The IFAPP directs the auditors to verify in the field at least 10% of the areas reviewed in a specified procedures assessment undertaken by KPMG for the 2016/17 fiscal year.

AVES verified in the field 15% of the eligible silvicultural activities undertaken by OVFI and its contractors/shareholders.

Examples of operations were examined in each major forest unit present on the Forest, representing a range of harvest years, seasons of operation, and silvicultural treatment packages. A number of sites where renewal activities had been conducted during the audit period were visited to evaluate the appropriateness and quality of these treatments and to perform an initial evaluation of their effectiveness. These included sites that were site prepared, seeded, and planted, and those that were naturally regenerated.

Feature	Total in	Total Sampled	Sample
	Audit Period		Intensity %
Harvest - Clearcut (ha)	4040.4	797	19.7
Harvest – Selection (ha)	980.2	243.3	24.8
Harvest - Shelterwood	2937.9	467	15.9
Mech Site Preparation (ha)	2194.3	676.1	30.8
Chemical Site Prep (ha)	2038.8	660.1	32.4
Stand Improvement	3378.7	444.6	13.2
Planting (ha)	2245.7	657.3	29.3
Tending (ha)	2955.9	307.7	10.4
Free-to-Grow Assess (ha) ¹	2236.6	682.2	30.5
2016/2017 FRT Areas (ha)	2557.3	520.6	20.4
Primary and Branch Rd. Const. (km)	14.1	6	42.6
Aggregate Pits	~10	5	~50%
AOCs (types)	74	9	12.1

Table 4. Sampling intensity of the field operations, by key feature investigated.

The table is intended to portray an approximate level of effort only. There are several factors which preclude too-precise an interpretation of the figures presented in the table. Although we viewed many individual harvest and/or treatment blocks during the field inspection portion of the audit, more than one aspect of forest management was inspected at some sites. For example, at sites where harvesting had taken place, harvest practices, road construction, AOC protection, site preparation, and regeneration activities may all have been inspected. Finally, of the area figures shown above, it should be noted that we did not inspect every hectare of the blocks we visited – such a level of effort would be infeasible.

Input from Indigenous Communities

The audit team engaged with the Algonquin First Nations through the Algonquins of Ontario Consultation Office, which is the avenue preferred by the Algonquins for interaction regarding IFAs. The ten First Nations represented by the AOO are:

- The Algonquins of Pikwakanagan,
- Antoine,
- Bonnechere Algonquin First Nation,
- Algonquins of Greater Golden Lake First Nation,
- Kijicho Manito Madaouskarini
- Mattawa/North Bay,
- Ottawa;
- Shabot Obaadjiwan First Nation

- Snimikobi Algonquin First Nation, and
- Whitney and Area Algonquins.

Two representatives of the AOO met the audit team on a site that the Algonquins identified as being of particular interest (Block 286 – see **Finding # 1**) and a member of the audit team met subsequently during the audit week with an AOO representative for an interview /discussion. What follows is a summary, combined and supplemented with wording provided directly by AOO representatives.

The AOO have a considerable amount of interaction with OVFI and the District MNRF, however, the AOO feels that it remains a struggle to have a good positive relationship with OVFI – there is accommodation but it is usually contentious getting there. The AOO suggested that this may be in part because compared to other Southern region forests that the AOO is involved with, the OVF has more Crown land and so there is lots of discussion. There is concern that the northern part of the OVF has little conifer in it for winter thermal cover for moose and management does not retain as much of it as the AOO would prefer to see. The AOO also questions the OVFI's direction to reduce the amount of oak in the Forest. Because oak grows on higher, drier areas, many issues in oak are related to sites of early Indigenous occupation (e.g. Block 286). The inclusion of a series of Algonquin CROs in the Phase II FMP was a huge step forward that looks good on paper but the AOO felt that many of the SFL managers seem to have forgotten that the CROs are there to be used. The AOO is helping to educate operators and tree markers so that they can better identify ancient sites and markers, which is producing more positive results but it is a process that will take time.

One of the concerns on Block 286 was the way it was harvested – large amounts of oak were removed to leave the pine, however, the poplar renewal was so thick that the stand seems likely to become a poplar stand – in effect, OVFI is converting oak-pine stands to mixed poplar stands. The huntability of the block is also lost because of the high density of the poplar renewal.

The AOO also has concerns with how access is managed, most specifically that access decommissioning tends to ignore the Aboriginal interests in facilitating moose hunting.

The AOO said there has never been a discussion with OVFI to discussion opportunities for the Algonquins to gain benefits from forestry and forest management. (Note that OVFI indicated that an Algonquin person raised the question of employment opportunities at an OVFI-AOO meeting in the spring of 2018 but there was no follow up action.) MNRF provides the AOO with notifications of training opportunities and sometime provides funding to AOO to support participation.

Input to the Audit from LCAC members

As part of the audit, auditors reached out to all LCAC members to obtain feedback regarding the functioning of the LCAC over the audit period. Interviews were conducted with five LCAC members. All members were supportive of the leadership provided by the committee's co-chairs, and all drew attention to the high level of support provided to the committee by MNRF and OVFI. No significant points of concern were identified, although several topics were noted as areas in need of continued effort, including:

- management of bills-of-lading;
- concerns related to consolidation within the forest industry;

- benefits of improving representation within the LCAC; and
- desirability of increasing the number of field trips.

Input through Public Comment

As part of this audit's effort to solicit public input, notices were placed in two local newspapers before the audit. A map of the forest was provided, a small number of questions were posed and contact information was provided. We received no input in response to the newspaper notices. We also deployed an on-line survey through the web site Survey Monkey. The survey asked 10 open-ended questions. We received four responses to the on-line survey. All four responses expressed favourable opinions regarding the quality of forest management being undertaken. No concerns beyond those already known to the audit team were identified. One response identified an area for inspection during the site visit, which was already (i.e. prior to receipt of the survey) included in the site visit plans.

APPENDIX 5 – LIST OF ACRONYMS

ACOP AOC	Annual Compliance Operations Plan Area of Concern
AOO	Algonquins of Ontario
AR	Annual Report
AWS	Annual Work Schedule
CEsel	Lowland Conifer Selection Forest Unit
CFSA	Crown Forest Sustainability Act
CORLAP	Conditions on Roads, Landings, and Forestry Aggregate Pits
CROs DM	Conditions on Regular Operations Ministry of Natural Resources District Manager
FIM	Forest Information Manual
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FMU	Forest Management Unit
FOP	Forest Operations Prescription
FRI	Forest Resource Inventory
FTG	Free-to-Grow
FU	Forest Unit
GIS	Geographic Information System
GLSL	Great Lakes-St. Lawrence Tolerant Hardwood Selection Forest Unit
HDsel HEsel	Hemlock Selection Forest Unit
ha	hectares
km	Kilometres
IFA	IndependentForest Audit
IFAPP	IndependentForest Audit Process and Protocol
LCAC	Local Citizens Advisory Committee
LCC	Local Citizens Committee
m3	cubic meters
MNRF	Ontario Ministry of Natural Resources and Forestry
MXCcc	Mixed Upland Conifer Clearcut Forest Unit
MXHcc OFRL	Mixedwood Clearcut Forest Unit Overlapping Forest Resource Licensee
ORus	Red Oak Uniform Shelterwood Forest Unit
OVFI	Ottawa Valley Forest Inc.
PRcc	Red Pine Clearcut Forest Unit
PT	Planning Team
PWus	White Pine Uniform Shelterwood Forest Unit
RPF	Registered Professional Forester
SAR	Species at Risk
SFL	Sustainable Forestry Licence
SFMM	Strategic Forest Management Model
SGR	Silvicultural Ground Rules
SRNV	Simulated Range of Natural Variation.
ToR	Terms of Reference

Auditor	Role	Responsibilities	Credentials
Mr. Chris Wedeles	Lead Auditor, Ecologist	 overall audit coordination; oversee activities of other team members; liaise with Company &MNRF lead preparation of audit report review and inspect aspects of forest management related to environmental practices, roads and water crossings, Areas of Concern, etc 	B.Sc., M.Sc. (Wildlife Biology); Associate member of the OPFA; 30 years wildlife and forest ecology and experience in Ontario; completed more than 45 previous independent forest audits; certified as an auditor by the Quality Management Institute.
Dr. Jeremy Williams R.P.F.	Harvest, Wood Supply and Aboriginal Engagement Auditor	 review and inspect harvesting records and practices; review aspects of forest management related to forest economics and social impacts; reviews FMP modeling inputs and activities Assess the Aboriginal engagement 	B.Sc.F., Ph.D. (Forest Economics), R.P.F. More than 22 years consulting experience in Ontario related to forest management, planning, wood supply modeling, and forest economics; participated in more than 40 previous IFA assignments; certified as an auditor by the Quality Management Institute.
Mr. Mark Leschishin, RPF.	Silvicultural Auditor	 Review and inspect silvicultural practices and related documentation; Review renewal /silvicultural success and FTG assessment; review and inspect selected compliance aspects. 	Hon. Dip. For, Tech., H.B.Sc.F., RPF.In addition, Mr. Leschishin is a certified lead forest assessor for SmartWood, and a certified EMS lead auditor (cert. # 254- 213) in accordance with the ISO 14001:2004 standards. Mark has extensive planning and auditing experience focused on northwestern Ontario, and has participated in some 30 IFAs.