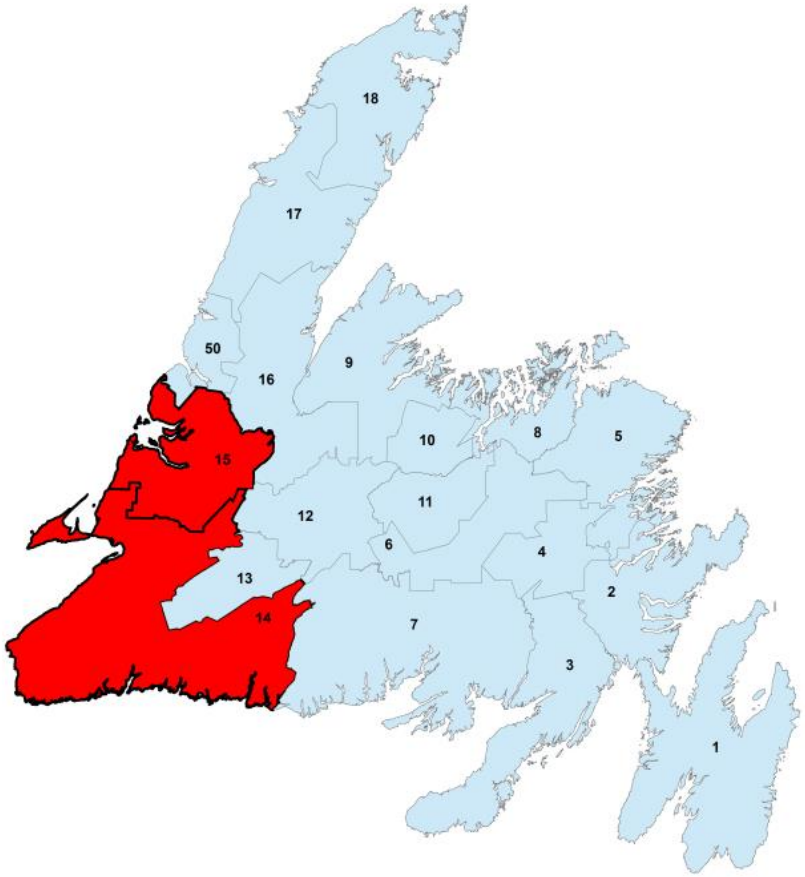
Kruger
Pulp and Paper

Corner Brook Pulp and Paper Limited

Five Year Operating Plan
Zone 6
Forest Management Districts 14 and 15
January 1, 2024 – December 31, 2028



1. Introduction

This new five-year operating plan covers the period from January 1, 2024, to December 31, 2028 and represents proposed forestry activity upon Corner Brook Pulp and Paper Limited (CBPPL) timber lands within Forest Management Districts 14 and 15. The management of this land is consistent with strategies and philosophies implemented by CBPPL on all other CBPPL managed districts within the Province.

This five-year operating plan is compliant with established provincial planning requirements, Environmental Protection Guidelines, and standard operating procedures developed under a stringent Environmental Management System (EMS) which is registered under the ISO® 14001 Standard and the Sustainable Forestry Initiative (SFI®) Forest Management Standard. Sections that are provincial in scope such as carbon, global warming are included in the provincial sustainable forest management strategy, while sections that are more descriptive or depict local conditions such as values, forest characterization and ecosystem description are included in the five-year operating plan.

Forest Management Districts 14 and 15 are adjacent and share common ecoregion characteristics and collectively form Planning Zone Six. The requirement for submission to the Fisheries, Forestry and Agriculture Agency (FFA) and for environmental assessment is one five-year operating plan for each owner in each zone. In this zone there will be one submission by the Crown and one by Corner Brook Pulp and Paper Limited. Throughout this five-year plan, references will be made to Districts 14 and 15 individually but when combined they will collectively be referred to as Planning Zone Six or the zone.

This document will try to fully integrate presentation of information and discussion for crown land in the zone, where possible. This will be done by combining statistics and other information from each district and reporting for the zone. However, tables and figures will be constructed such that information for individual districts will be available if a breakout is required. Discussion and information will be presented separately for each district where warranted based on unique and distinct differences in scope and content. The more descriptive sections of this plan will be generic in nature and give information for the entire zone as well as some broad comparative statistics.

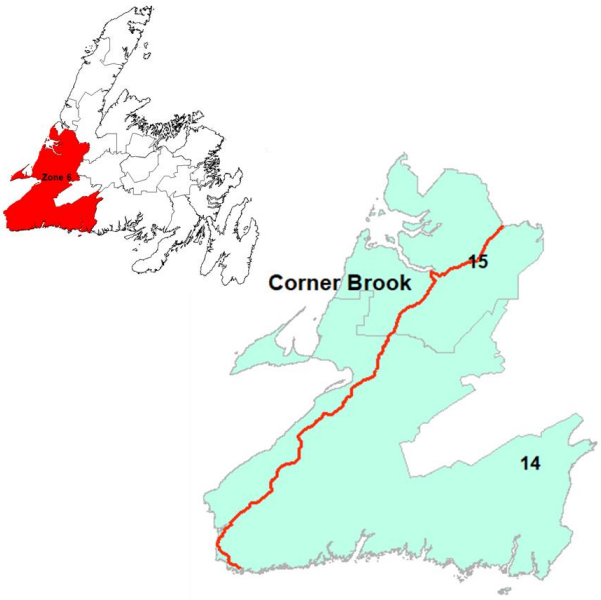
Finally, this document will attempt to build on previous documents and on efforts of previous plans. Information will be updated as required or new sections will be added if any new information is available.

2. Landbase Description

2.1. General

2.1.1. Location

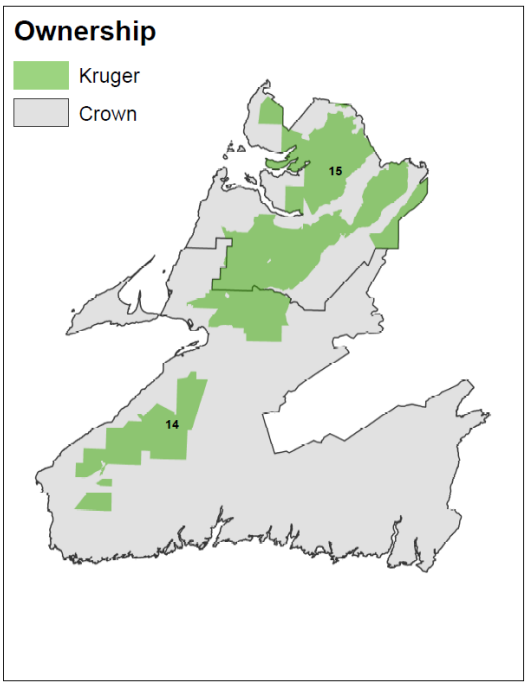
Planning Zone 6 encompasses FMD's 14 and 15 (Map 1-1). It is located on the west and southwest coasts of the island and extends from Burgeo and Port aux Basques in the south to the southern boundary of Gros Morne National Park in the north.



Map 1-1 Planning Zone / District Map, Zone 6.

2.1.2. Ownership

There are two major tenure holders in the zone: Crown and Corner Brook Pulp and Paper Limited (CBPPL) (Map 1- 2). CBPPL accounts for 24% of the total land area in the zone. Crown land accounts for 76%. CBPPL's licenses are due to expire in 2037. The harvestable landbase for the zone including the domestic landbase breakdown is 63% for CBPPL and 37% for crown.



Map 1-2. Timber ownership Zone 6.

2.1.3. Physical Description

The planning zone is a large area (approx. 1.5 million ha) covering much of southwestern Newfoundland. Physical features vary a great deal over such a large landscape. The following descriptions apply generally to the districts in the planning area.

2.1.3.1. Topography and Hydrology

The topography of the zone is generally rugged however the flat, high upland plateaus provide contrast. Lowland areas occur along the coast and extend inland in the river valleys as well as in interior basins. The hilly upland areas make up a large portion of the zone and generally contain the most productive sites. They are dissected with very rugged topography and with ridges commonly more than 300m in height. Another major land feature is the flat-topped, high uplands. These plateaus are dissected by wide valleys which flow to the lowlands. The lower slopes of the Long Range Mountains in the east flatten out towards the coast into extensive plateau bogs, sometimes covering up to 10 km². The landscape is generally undulating and intersected by numerous ponds, lakes and streams. Forested land is naturally fragmented with bog, barren and ponds.

In the southwest, the lowland areas give rise to upland barren areas that are drained in an orderly fashion by major river valleys. Most of the South Coast is covered by gently rolling ground moraine, although areas of exposed bedrock are common. The unique hummocky terrain near Burgeo was formed by deposits of till from a retreating glacier. The interior of the southwest is a windswept, highland area with extensive barrens and elevations rising from 200m to more than 650m. Slope and basin bogs and fens are the dominant peatland.

The more prominent highland areas in the zone are Blow me Down Mountains, North Arm Hills, Mount Gregory, Lewis Hills, Annieopsquotch Mountains, and Cape Anguille Mountains.

Some of the major river basins in the zone are; Humber River, Harrys River, Serpentine River, Barachois Brook, Fishells River, Robinsons River, Crabbes River, Southwest Brook, Codroy River, Grey River, and White Bear River. Except for the latter two, these rivers originate in the highland areas and drain major watersheds before meandering through the fertile coastal lowlands.

2.1.3.2. Geology

The lowland portions of the zone are underlain by carboniferous deposits, mainly conglomerate, sandstone and shale. The age of these rocks is younger in the southern part of the zone at about 300 million years. The bedrock is mostly concealed by thick layers of glacial drift, outwash and delta deposits. The lowest elevations in the hilly uplands are underlain by Ordovician shales whereas the highest elevations are

generally underlain by limestone, quartzite and, in the eastern portion, by Precambrian rocks such as gneiss and schist.

The Long Range Plateau, which runs north-south through the middle of District 15, is composed mainly of igneous and metamorphic rocks of which gneiss, granite and anorthosite are the most common. The Bay of Islands Range, which dominates the western side of District 15 and the Northwestern part of District 14, is underlain by serpentinized dunite and periodotite, amphibolite and gabbroic rock. The serpentine rock type is particularly prevalent in the highest areas.

Three groups of rocks occur in the interior of District 14. The Notre Dame rocks are mostly sandstones, conglomerates, volcanic ash and lava that were created about 550 million years ago. Exploits rocks are volcanic ash and lava, sandstones, shales, and conglomerates formed about 500 million years ago. Gander zone rocks are sandstones, shales, and conglomerates formed about 550 million years ago. Some of these rocks have been metamorphosed into schist and gneiss. Large granite intrusions (areas where molten rocks seeped up) occur in the central and western portion and are about 450 million years old.

The southern areas of District 14 are mostly granites created by intrusions 300 to 400 million years ago. They form an almost unbroken band from Rose Blanche to Harbour Breton. Sandstones, shales and conglomerates, deposited about 500 to 550 million years ago, are found around Port aux Basques. These rocks belong to the dunnage zone and are also found farther east and north across the Burgeo highway and around Bay d'Espoir. Just east of La Poile Bay are ash and lava deposits that were created about 420 million years ago.

The entire zone has been severely glaciated and is mostly covered by glacial till. Extensive outwash deposits occur only in some of the major river valleys. “Plucking” of rock basins, now lakes, is noted and quarrying of the lee sides of some hills has been identified. Reorganization, and probably disorganization, of drainage is evident. Erratic boulders are found at the highest elevations however glacial debris is never found as a continuous blanket in the zone.

2.1.3.3. Soils

Extending north and south from the Bay of Islands there are two significant alpine rock barren areas known as the Bay of Islands Serpentinized Range (North Arm Mountain and the Blomidon Range). These have a sparse but botanically interesting flora which has adapted to the magnesium and related natural soil toxicity problems. The soils are orthic and gleyed regosols with horizon development restricted by frost churning (Roberts, 1980). The areas are geologically important and attract people from all over the world for viewing (Roberts and Proctor, 1992.) They are also important hiking and winter recreation areas both from a local and national perspective.

The dominant soils of the forested uplands and slopes are orthic humo-ferric (brown soils containing mostly inorganic material that occur on relatively dry sites) and ferro-humic podzols (dark soils with a high organic content and a high amount of iron and aluminum), some of which are gleyed in the lower B horizon (Roberts, 1983). The presence of limestone and shale bedrock and tills derived from these calcareous substances and soil seepage (lateral movement of moisture on slopes) are the most important factors for tree growth (Roberts, 1986, Meades and Roberts, 1992). The major site variables are landform, soils, drainage, moisture and fertility gradients, and understory vegetation. A prominent feature of this region is the presence of marl ponds, sometimes called living limestone ponds (Blue Ponds is a prime example). Significant soils in and around these ponds are orthic regosols and rego gleysols often with a mucky phase and very low trafficability.

The area adjacent to the Serpentinized Range west of Corner Brook includes many productive orthic ferro humic podzols derived from shale on long slopes. Forest growth is excellent on the well to moderately well drained, medium textured soils. However, erosion can be a problem if ground disturbance is moderate or worse.

The soils in the interior and southern part of District 14 are almost entirely humo ferric podzols. There are also some areas of exposed bedrock or bedrock with a thin soil covering (less than 10 cm).

2.1.3.4 Climate

The climate in this zone is one of the most favourable on the island with relatively warm summers and abundant precipitation. Conditions vary because of differences in topography and proximity to the coastline. Annual precipitation is between 102 and 140 cm with the larger amounts associated with higher elevations. Annual snowfall is in the 317 to 508 cm range and often small patches of snow remain until late July in sheltered north facing valleys above 600 m.

Mean January temperature is -10 C and mean July temperature ranges from 16 C in valleys to 13 C in the highlands. The frost free period averages 110 days at the lower elevations and the growing season is between 130 to 160 days.

Severe windstorms have occasionally caused some blow down damage especially in shallow-rooted, over-mature stands. Periodic ice storms have also caused damage to predominantly hardwood stands.

There are significant local variations because of the many mountains and valleys. On mountain slopes and summits, winters are generally colder, and the growing season is shorter than in the protected valleys. Mountain slopes also tend to receive more precipitation than low-lying valleys. The climate of the interior of

District 14 is notable for its short growing season and permanent snow cover throughout the winter. Snow covers about 60 percent of the landscape into late May which is about a month longer than in neighboring areas.

On the South Coast, the summers are colder due to the fog and prevailing onshore winds. This part of the zone also receives the most precipitation, mainly as rainfall.

2.1.4. Ecological Characteristics

2.1.4.1. Ecosystem Description

An ecosystem is a community of interacting and interdependent plants, animals, and microorganisms, together with the physical environment within which they exist. It is important to remember that within an ecosystem, the interactions between the biotic and abiotic components are at least as important as the component themselves. Another critical characteristic of ecosystems is their overlapping boundaries. While each is definable in time and space, and distinguishable from adjacent ecosystems, each is intimately integrated with other local ecosystems. Additionally, each local ecosystem is nested within increasingly larger ecosystems. The scale at which an ecosystem is viewed is contingent on the species or abiotic characteristic under consideration. While planet Earth represents the ultimate global ecosystem, complex ecosystems also exist under fallen logs and rocks. A forest ecosystem, as the term implies, is an ecosystem dominated by tree cover. At the coarsest level, the forests of Planning Zone 6, like all forests on the island, form part of the boreal forest ecosystem. The boreal forest is a green belt, which spans much of the northern hemisphere. It stretches from the Atlantic shores of Scandinavia through Russia, across Alaska, through the mid latitudes of Canada until it reaches the Atlantic Ocean again in Newfoundland and Labrador.

One of the distinguishing characteristics of the boreal forest is the phenomenon of periodic, catastrophic stand replacement natural disturbances such as fire and insect outbreaks which typically give rise to uniform, even aged forests dominated by a few tree species. The tree species, which characterize the Canadian boreal forest, include black spruce, white spruce, balsam fir, eastern larch, trembling aspen, white birch, and jack pine. All of these, except for jack pine, commonly occur on the Island. However, by far the dominant species are black spruce and balsam fir; together they represent more than 90 percent of the growing stock on the island. Spruce is most abundant in north central Newfoundland where a climate characterized by relatively dry, hot summers has historically favored this fire-adapted species. In western Newfoundland the climate is somewhat moister, and fires are far fewer in this region resulting in the ascendance of balsam fir, a species that is poorly adapted to fire. Like the rest of the province, the forests of Planning Zone 6 (FMD’s 15 and 16) are part of the larger boreal forest ecosystem.

The primary natural disturbance factors attributed to boreal forests are fire and insects. Forest fires were frequent and extensive in north-central Newfoundland and resulted in specific successional trends depending on site type. Often, the spruce component is increased following fire, whereas other disturbance types such as insects and cutting often results in an increase in the fir component. Repeated burning and cutting of dry, coarse-textured black spruce-feather moss site types can result in ericaceous species such as sheep laurel Kalmia angustifolia invading the site to produce heath-like conditions. Successional patterns on other forest cover types vary with site and type of disturbance. These are discussed in greater detail in subsequent sections of this report.

Forest development class, successional pattern, and site type, influence the understory plant community throughout the district. The species composition and structure of these plants significantly impact on suitability of a site as wildlife habitat for various species. Some animals are very general in terms of habitat requirements and can occupy a wide range of site conditions yet have specific seasonal requirements that can determine habitat quality. For example, the moose requires wintering areas with suitable combinations of available cover and browse. It is widely accepted that a variety of forest age classes can provide increased habitat and sustainability for many wildlife species. On the other hand, some species require a specific age class or habitat condition to maintain healthy populations (e.g., Newfoundland marten (Martes Americana atrata)).

Aquatic ecosystems of the boreal forest are heavily dependent on forest cover for temperature regulation, nutrient cycling, and stream flow regulation. Consequently, forest harvesting activities adjacent to riparian areas are critical to sustainability of fish habitat and maintenance of fish migration routes. Suitability of various streams and ponds as waterfowl breeding, feeding and resting areas are also dependent on adjacent forest cover. Biological production in streams is based on a combination of internal and external nutrient and energy pathways. Streamside vegetation has a strong influence on since they are so closely linked to surrounding terrestrial events. Small streams in forested areas receive much of their materials from the surrounding terrestrial ecosystem. Detritus in the form of needle and leaf litter, twigs and branches, forms the major energy base for consumer organisms. In highly shaded headwater streams, algae production is often low and yields only a small and seasonally variable contribution to the overall energy budget. As streams become larger further downstream, sufficient light penetrates the forest canopy, and consumer populations can take advantage of both particulate detritus and algae (Toews and Brownlee 1981). For these reasons, maintenance of suitable riparian zones for protection of aquatic ecosystems, as well as providing wildlife travel corridors is a primary consideration of any forest management strategy.

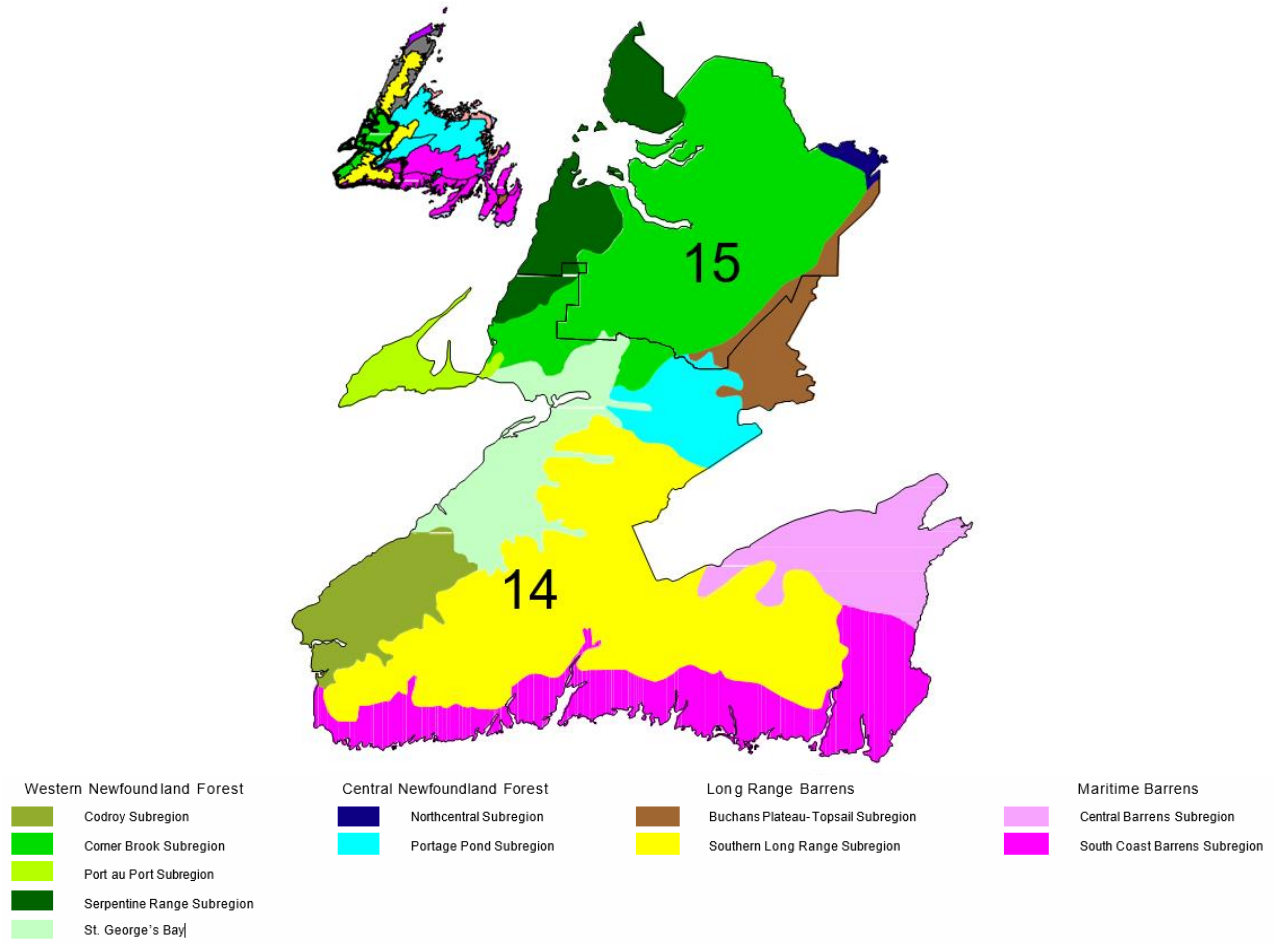
Major watersheds within the Zone include portions of the Humber Upper, Humber Lower, Port au Port Bay, St. George’s Bay, La Poile Bay, White Bear Bay. Many of these are associated with protected water

supplies for communities within the districts. Small to medium sized lakes and ponds are common throughout the zone.

2.1.4.1.1. Ecoregions and Subregions

With the evolution of an ecosystem approach to forest resource management, it would be advantageous to have a standard framework to classify combinations like general climate and regional physiography, as well as the other components of an ecosystem, into distinguishable regions. Fortunately, such a framework exists, in a publication entitled *Ecoregions and Sub Regions of Insular Newfoundland* (after Damman, 1983).

Damman defined ecoregions as areas where a comparable vegetation and soil can be found on sites occupying similar topographic positions on the same parent material, provided that these sites have experienced a similar history of disturbance. Thus, an ecoregion cannot be defined in isolation from the physical landscape, but vegetation toposequence, vegetation structure; floristic composition and floristic distributions can provide the primary criteria (Damman, 1979). According to Damman, Newfoundland consists of nine ecoregions, which can be further divided into several sub regions. Labrador has ten ecoregions. Each of the Newfoundland and Labrador ecoregions and sub regions contain many of the same ecosystem variables. It is the dominance and variance of these variables (e.g., vegetation and climate) that determine their classification. FMD's 14 and 15 contain 4 of the ecoregions outlined by Damman (1983).
They are:
1 – Western Newfoundland Forest Ecoregion;
2 – Long Range Barrens Ecoregion;
3 – Central Newfoundland Forest Ecoregion;
4 – Maritime Barrens Ecoregion
(see Map 1-3).
For complete descriptions of these Ecoregions refer to the *Forest Site Classification Manual - A Field Guide to the Damman Forest Site Types of Newfoundland* (Meades and Moores, 1994).



Map 1-3. Ecoregions/Subregions within Zone 6

Table 1- 1 Ecoregions/ Subregions within Zone 6

2018	Eco/Subregion		District 14		District 15		Zone 6 (D14&D15)
Zone 6	Area (ha)		Total % Area	Relative % of	Total % Area	Relative % of	Combined relative % of
Eco/Subregions	in Province	in District	Occupied in District	Subregion in District	Occupied in District	Subregion in District	Subregions in Zone
Western Newfoundland Ecoregion							
Corner Brook Subregion	490,878		12%	4	86	75	23
Serpentine Range Subregion	118,261		16%	1.2	84	17.7	5.7
Port au Port Subregion	39,250		10000%	2.6	0	0	2
Codroy Subregion	118,230		10000%	7.9	0	0	5.7
Bay d'Espoir Subregion	23,573.8		0%	0	0	0	0
St. George's Subregion	153,579		50%	0	99.5	27.2	7.5
Section Sub-total	*943,771*						
Long Range Barrens Ecoregion							
Buchans Plateau-Topsail Subregion	369,811		1600%	3.8	7	4.6	4.1
Southern Long Range Subregion	599,801.8		9400%	37.7	0.0	0.0	27.5
Northern Long Range Subregion	590,353		0%	0.0	0.0	0.0	0
Section Sub-total	*1,559,967*						
Maritime Barrens							
South Coast Barrens Subregion	867,400		0%	0.0	31.0	18.0	13.1
Central Barrens Subregion	1,524,523		0%	0.0	9.1	9.3	6.7
South-Eastern Barrens Subregion	964,978.0		0%	0.0	0.0	0.0	0
North-Eastern Barrens Subregion	380,775.9		0%	0.0	0.0	0.0	0
Section Sub-total	*3,737,677*						
Central Newfoundland Forest							
Northcentral Subregion	2,284,881		40%	0.6	0.0	0.0	0.5
Red Indian Subregion	393,992.0		0%	0.0	0.0	0.0	0
Portage Pond Subregion	149,320		200%	0.5	53.8	5.4	4.2
Section Sub-total	*2,828,193*						
Grand Total	***9,069,608***						**100**

2.1.4.2. Ecosystem Condition and Productivity

As with other parts of the Newfoundland's boreal forest, those of Planning Zone 6 have evolved in concert with a history of fire, insect attack and subsequent disease and wind throw. Human intervention in this forest has been extensive and widespread with a resultant significant impact on current landscape patterns. Landscape patterns determine the variety, integrity, and interconnectedness of habitats within a region. These landscape patterns are a direct result of the relationship between physical landforms and soils, disturbance history, and relationships among various species that makeup the ecosystem communities. These factors, while listed separately for clarity, are unavoidably interrelated. Landscape patterns play a pivotal role in determining the current conditions and health of forest ecosystems. These variables are evaluated in terms of productivity, stability, and resilience.

Another important role determining the condition of a forest is change. Forests are an ever-evolving entity, resisting stagnation, and constantly moving through their cycles of life, death, and renewal. The process of change over time is the essence of nature itself. It has been nature's underlying storyline since time began and will continue to be until time ends. The main forces of change in our natural forest ecosystems are disturbance and succession. A definition of disturbance would indicate that it initiates a change in a community structure, which often ends up in the replacement of one set of species by another. However, replacement is not always the result (e.g., a species like black spruce is aided in germination by disturbances like forest fire). Disturbances range from the fall of a single tree to the destruction of thousands of hectares by forest fires. While disturbances may be very destructive, they can often rejuvenate ecosystems and diversify landscapes. Succession involves changes in both community composition and in the ecosystem structure and process. Succession is the orderly change whereby the dominant species is replaced by another species, then another etc. until a new dominant species establishes a relatively stable community. The following sections will discuss each of these concepts in more detail as they relate to the ecosystems of Planning Zone 6. For the most part this section will be descriptive and explanatory in nature.

2.1.4.2.1. Productivity

Productivity is the accrual of matter and energy in biomass. In simple terms, primary productivity is the sum total of all biomass produced through photosynthesis. Secondary productivity occurs when this "primary" biomass is ingested and is added to that organism's biomass. Since secondary productivity is directly dependent on primary productivity, it is this primary productivity component that drives the system. The level of primary production is dependent on the ability to produce biomass. This in turn is dependent on landscape features, soil, climate etc. In general terms, the more productive (ability to grow trees) a site is, the higher level of primary productivity. For example, a forested stand would have a higher primary productivity than a bog or a good site would have a higher potential than a poor site. Overall, the landscape

in Planning Zone 6 has approximately 45% productive forest. This distribution of productive sites across the landscape and range of productivity within these sites is largely dependent on landscape patterns, climate, and soils. The more productive areas of the zone occur in the lowlands and gently rolling uplands of the zone.

The landscape patterns are more consistent, and the growing season is longer. These areas have deeper soils and less exposed bedrock. The landscape patterns are more consistent, and the growing season is longer. In the extreme western and northwestern parts of District 15 and the south central and southwest portion of District 14 the soils are shallower with bedrock at or near the surface. The terrain is much rougher, and the growing season is shorter. In practice, it is nearly impossible to measure the amount of biomass produced in an ecosystem, or the energy consumed in the process. However, in the Provincial Sustainable Forest Management Strategy, criteria, and indicators to monitor productivity have been identified. One method outlined is tracking mean annual increment in m^3/ha/yr of tree species by ecoregion. This can be readily measured over time and manipulated through silviculture treatments or affected by poor harvesting practices, which increase soil compaction. An example of secondary productivity is the number of moose per unit area. One must also recognize the forests inherent biological limits however, when attempting to measure or manipulate site productivity.

2.1.4.2.2. Resilience

Ecosystem resilience reflects the ability of the ecosystem to absorb change and disturbance while maintaining the same productive capacity and the same relationships among populations. Healthy forest ecosystems maintain their resilience and adapt to periodic disturbances. The renewal of boreal forest ecosystems often depends on these disturbances. Resilience is characterized by the forest's ability to stabilize vital soil processes and maintain succession whereby the system is returned to a community composition and the productivity level is consistent with the ecosystems physical constraints. To a large degree, a forest ecosystems' resilience is controlled by properties such as climate, parent soil, relief, and flora. The potential for populations to recover from low levels following disturbance by having adequate regeneration capacity and a balanced distribution of forest types and age classes provides a reliable measure of resilience at the landscape level. Other measures include the percent and extent of area by forest type and age class and the percentage of disturbed areas that are successfully regenerated. Measuring and monitoring these parameters determine resilience.

Forest activities must be carefully planned to not upset the natural balance and lower an ecosystem's resilience. An example is harvesting on the more fragile sites where steep slopes and shallow soil over bedrock increase the potential of site degradation beyond repair.

2.1.4.2.3. Stability

Nature is constantly changing and going through the unending processes of disturbance, growth, senescence, and decay. Therefore, stability of a forest ecosystem does not refer to one fixed position without variation. Ecosystem stability is more accurately defined as the maintenance of ecosystem changes within certain boundaries and the functional continuation of important potentials and processes such as energy capture. There are three levels of stability: species stability, structural stability, and process stability.

Species stability is the maintenance of viable populations or meta-populations of individual species. Structural stability is the stability of various aspects of ecosystem structure such as food web organization or species numbers. Process stability is the stability of processes such as primary productivity and nutrient cycling. To put stability in perspective, it must ensure that the system does not cross some threshold from which recovery to a former state is either impossible, (extinction) or occurs only after long time periods or with outside inputs (loss of topsoil) Some indicators of stability which can be monitored are: area of forest converted to non-forest use, area, percentage and representation of forest types in protected areas, percentage and extent of area by forest type and age class, and change and distribution and abundance of various fauna. These indicators can be measured and monitored to ensure stability is maintained and to evaluate the impact, if any, of forest activities on ecosystem stability.

2.1.4.2.4. Disturbance Regimes and Successional Patterns

There are four main driving forces that cause disturbance in the boreal forest. Harvesting accounts for most of the disturbance in the zone and occurs on a regular and consistent basis. Fire and insect damage are the other two major disturbances and occur on a more irregular or cyclic basis. Except for a major atypical windstorm, wind throw usually occurs after some other agent like insects and/or disease weakens a stand. For this reason, successional patterns after insect damage and wind throw will be discussed together. The following is a brief synopsis of the typical successional patterns that occur in the zone after each major disturbance type.

A. Harvesting

Regeneration patterns in the black spruce type after harvesting is mainly back to the black spruce type especially on the poorer sites. The component of balsam fir regeneration increases as the sites get better. There is substantial regeneration failure in this forest type with average not sufficiently restocked (NSR) rates of approximately 20%. The NSR rate is constant across all site types. These sites would be candidates for planting with white or black spruce.

In the balsam fir types, regeneration success back to balsam fir is much higher averaging 85%. Regeneration rates to balsam fir are higher on the poor sites and fall off somewhat on the good sites where a small hardwood component exists. Regeneration failure is low across all ecoregion types at 5%.

Regeneration pattern in the mixed wood types is generally to balsam fir or back to mixed wood that is dominated by balsam fir. There is also a component of white spruce regeneration after harvest on these mixed wood types. There is a higher component of white birch regeneration after harvesting in types that had a higher percentage of hardwood before harvest. As well, the better the site class the more hardwood regeneration. Regeneration failure on the mixed wood types is variable across site types and ecoregions depending on local conditions but averages 20%.

Regeneration after harvest on the hardwood types is variable. Sites regenerate back to hardwood or to balsam fir in varying proportions. Mixed wood regeneration is also common. Usually, the better the site the more likely the site will regenerate to hardwood. Since the timber supply for hardwood is so sensitive to regeneration of hardwood types, this component merits further survey.

B. Fire

On the black spruce types regeneration is usually back to black spruce with a minor component of white birch. More white birch regenerates after fire on the better sites. Regeneration failure on the black spruce types is common after fire averaging 45%. Generally, the rate of regeneration failure increases as the sites get poorer. On the balsam fir types regeneration is usually back to mixed wood dominated by balsam fir with a minor component of pure black spruce. More white birch regenerates after fire on the better sites. Regeneration failure on the balsam fir types is common after fire averaging 35%. Generally, the rate of regeneration failure increases as the sites get poorer. On the mixed wood types regeneration is variable. The softwood hardwood sites regenerate the birch and mixed wood while the hardwood softwood sites tend to have a higher component of black spruce. The component of hardwood in the regeneration increases as the sites get better. Regeneration failure on the mixed wood forest types averages 20% and decreases as the component of hardwood in the original stand increases. Regeneration on the hardwood types is generally to hardwood and can be dominated by aspen if it was present in the original stand. Black spruce regeneration also occurs after fire.

C. Insect/Windthrow

Balsam fir is highly susceptible to insect attack from the hemlock looper, balsam woolly adelgid, balsam fir sawfly, and spruce budworm, whereas black spruce is hardly impacted by these insects. For this reason, stands with a high component of balsam fir are more susceptible to insect attack and subsequently wind throw. Mature balsam fir types usually regenerate to balsam fir or to balsam fir hardwood mixtures.

Mature balsam fir types usually regenerate to balsam fir or to balsam fir hardwood mixtures. Disturbance by insect kill in young balsam fir stands can cause succession to white spruce. In black spruce stands regeneration is usually back to black spruce and increases as the sites improve. Regeneration patterns in mixed wood types usually depend on the type of mixture. If black spruce is a component, then it will persist and form part of the new stand. Otherwise, balsam fir and balsam fir/hardwood mixtures regenerate after

insect attack. Regeneration patterns in the hardwood types are variable. Regeneration failure occurs approximately 20% of the time but can be significantly higher if pure stands of immature balsam fir are killed.

2.1.4.3. Biodiversity

Biodiversity is a term used to describe the variety of life on earth. A basic definition of biodiversity includes the variety of animals, plants and microorganisms that exist on our planet, the genetic variety within these species and the variety of ecosystems they inhabit. Mishandling even small tracts of land could lead to extinction of several species, one of which may hold the key for the prevention or cure of some disease. While the boreal forest may not have the same extent of biodiversity that some of the equatorial regions possess, Canada does have many species of plants, animals, and microorganisms in its boreal and other forest regions.

Biodiversity provides such essential services as climate control, oxygen production, and purification of freshwater supplies, carbon dioxide removal from the atmosphere, soil generation, and nutrient cycling for humans. Without the species that provide these processes, humanity would be unable to survive.

The three components of biodiversity are species diversity, genetic diversity, and ecosystem diversity. Each will be discussed in the following sections.

A. Species Diversity

Species diversity describes the overall range of species in a given area or ecosystem. Species are groups of animals, plants, and microorganisms capable of producing fertile offspring. An example would be all breeds of domesticated dogs are of the same species, while dogs and cats are members of different species. Species extinction is the most dramatic and recognizable form of reduced biodiversity. The prevention of species extinction is a key factor in the conservation of biodiversity. Changes in species population levels indicate the potential for serious changes in ecosystem integrity.

B. Genetic Diversity

Genetic diversity describes the range of possible genetic characteristics found within and among different species. Hair and eye colour, weight and height, are examples of genetic diversity found in humans. Genetic diversity within species is the foundation of all biodiversity. Assessing genetic diversity does not mean tracking every gene in the zones forest. Responsible planning should design and implement measures which maintain or enhance viable populations of forest vegetation species and which use the genetic diversity of commercially important species to a maximum benefit. The genetic diversity of commercially important species can also be managed to increase economic benefit from some portions of

the landscape while allowing other portions to provide greater social and ecological values. Genetic diversity is the basis by which populations (flora and fauna) can adapt to changing environmental conditions.

C. Landscape Diversity

Ecosystem diversity describes the range of natural systems found throughout a region, a country, a continent, or the planet. Wetlands and grasslands are examples of ecosystems in Canada. A complex and intricate mix of plants, animals, microorganisms and the soil, water, and air they occupy create virtually limitless ecosystems around the world.

A forest interspersed with barrens, marshes, lakes, and ponds provides for diversity across the landscape. Each ecoregion in the province should have representative areas protected which displays the diversity where such exists. These areas can serve as a benchmark from which to measure and guide management decisions. These representative areas protect the integrity of the ecoregion and are vital for guiding management actions. As benchmark areas, they will illustrate the multi-species mosaic that planning actions must maintain. Representative and protected areas will be discussed in more detail in Section 4. As stated, specific examples of on the ground actions in support of these concepts will be presented throughout the plan.

CBPPL supports the development of the Natural Areas System Plan for the subregions in this planning zone. These areas can serve as a benchmark from which to measure and guide management decisions. These representative areas protect the wilderness of the ecoregion and are vital for guiding management actions. As benchmark areas, they will illustrate the multi-species mosaic that planning actions must maintain.

Old growth forests are valued for their contributions to society in the sense of heritage, culture, aesthetics, and spirituality. Old-growth forests are best understood within the general context of forest disturbance. Disturbance is ubiquitous in forest ecosystems and may be defined as any relatively discrete event in time that disrupts ecosystems, community or population structure and changes resources, substrate availability, or the physical environment. Disturbances occur over a wide range of spatial and temporal scales and normally interact one with the other to produce the complexity of forest types found across our landscapes. Theoretically, boreal forests not disturbed by fire, insect, or wind disturbance for long periods of time will revert to multi-cohort, self-perpetuating, gap-driven forests. When viewed from the perspective of forest-level disturbance, it may be stated that old-growth forests are common in areas not prone to recurrent or periodic stand replacing disturbance from fire, insects, or wind. In situations where stand initiating events are rare, then old growth will tend to dominate. The disturbance forces, which would naturally recycle mature forests, are absent and therefore forests will tend to grow to the old-growth stage. Old-growth

forests are thus composed entirely of trees, which have developed in the absence of stand replacing disturbance. Old-growth fir-spruce forests will self-perpetuate through small-scale gap dynamics in the absence of large-scale disturbance. Old-growth conditions in the Canadian boreal forest are rare or uncommon. This is understandable given the ubiquity of landscape-level fires and recurrent insect outbreaks.

As well, logging is becoming an increasingly significant disturbance factor in the boreal forests. Wildfire is paramount in controlling the dynamics of the drier, continental boreal forests of western Canada and Alaska. In Newfoundland, fire tends to be important in the forests of central region, characterized by its continental-like climate. The occurrence of old-growth forests on the Island of Newfoundland is unknown. Except for the old-growth research conducted in the upper Main River watershed, empirical definitions of old growth according to forest types and edaphic conditions are not available. Furthermore, the frequency of natural forest disturbances and their role in shaping landscape level forest composition and structure of the Island's forests are little understood. However, given our general knowledge of the historic occurrence of fire, insect, and wind disturbance in Newfoundland's forests, as well as recognition of a century of logging activity across the Island, it is reasonable to assume that primary old-growth forests on the Island are not common. DNR does acknowledge that the older cohorts in the age class structure of a district are important from many ecosystem perspectives. Accordingly, during wood supply modeling, the maintenance of 15 % of the overmature cohort (i.e., 81+ years) on the landscape over the forecast horizon is a requirement on a district basis. This will be discussed further in other sections.

2.1.5. Forest Characterization

A forecast description of the future forest structure and composition anticipated from the implementation of the proposed forest activities under the plan.

2.1.5.1. Land Classification

There are six broad categories that currently represent how the land within a forest management district is classified 1) Regulatory alienations, 2) Non-harvestable inventory types, 3) Water features, 4) Operational alienations, 5) Non-Timber Values and 6) Productive forest. The sixth category represents the harvestable landbase and is further subdivided into Core, & Operational. Regulatory alienations are areas which have a legal restriction which prevents harvesting. Non-harvestable inventory types are areas such as bog or scrub forest. Water features are simply bodies of water (lakes, ponds, rivers. etc.) Operational alienations are areas which cannot be harvested due to a physical impediment (i.e., extreme steep slopes). Non-Timber Values represent areas in which harvesting is not permitted due to a use other than harvesting such as agriculture or aesthetics. In this case productive forest is any forested area that is not restricted from harvest and can produce at least 60 m^3/ha of merchantable timber. The ratios across ownerships in each district are skewed toward CBPPL because it has a greater percentage of productive area. This is because

crown land holdings in both districts is concentrated near the coast or near interior barrens where site productivity in not as good.

The total landbase for Zone 6 (Table 1-2, Figure 1-1, Map 1-4, 1-5) is approximately 2.04 million hectares and is subdivided into the 6 categories as follows:

1) Regulatory alienations 585,502 ha
2) Non-harvestable inventory types 811,380 ha
3) Water features 185,276 ha
4) Operational alienations 136,846 ha
5) Non-Timber Values 4,344 ha
6) Productive forest
   - Core 250,269 ha
   - Operational 34,782 ha
   - Domestic 35,983 ha

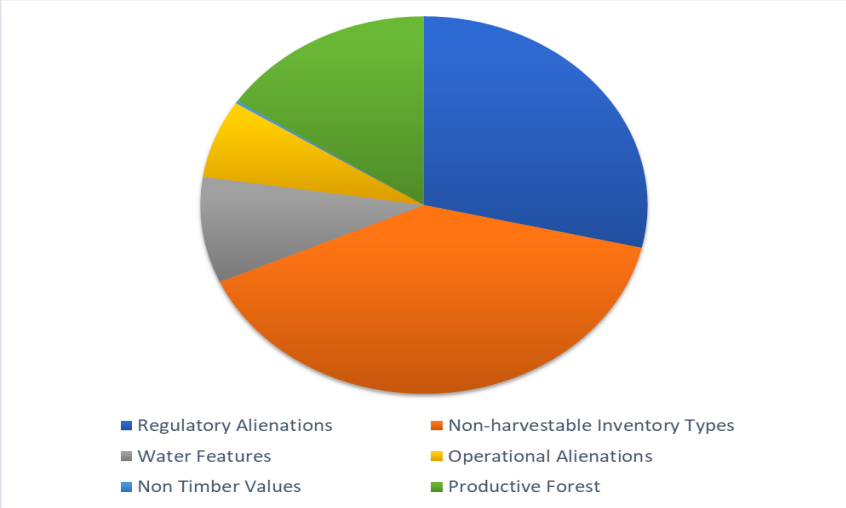


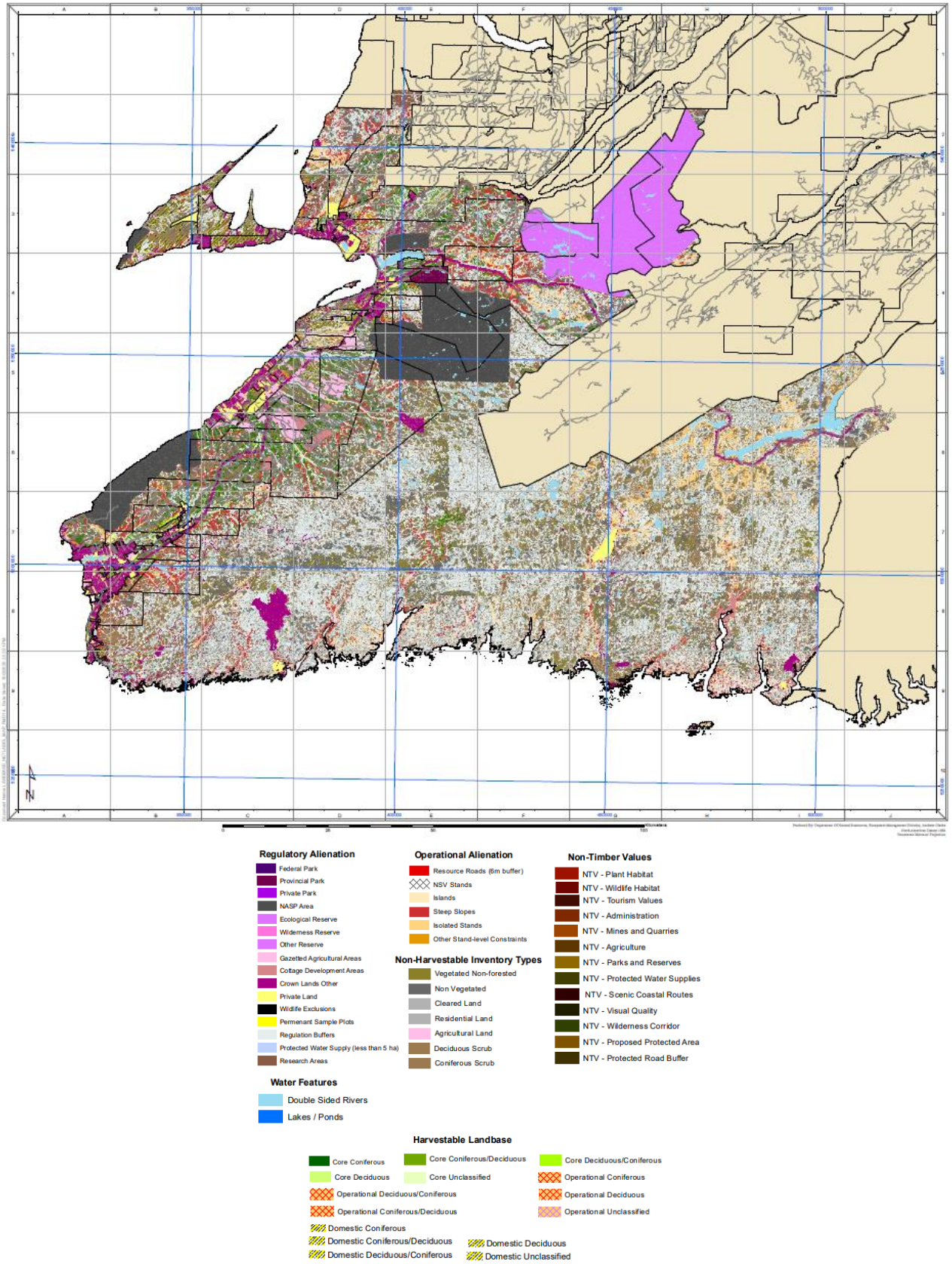
Figure 1- 1 Landbase Classification

Up until now the landbase descriptions, ecosystem description, discussion on biodiversity and general forest characterization have been at the Zone level. From this point forward information presented will specifically to CBPPLs tenure in FMDs 14 and 15.

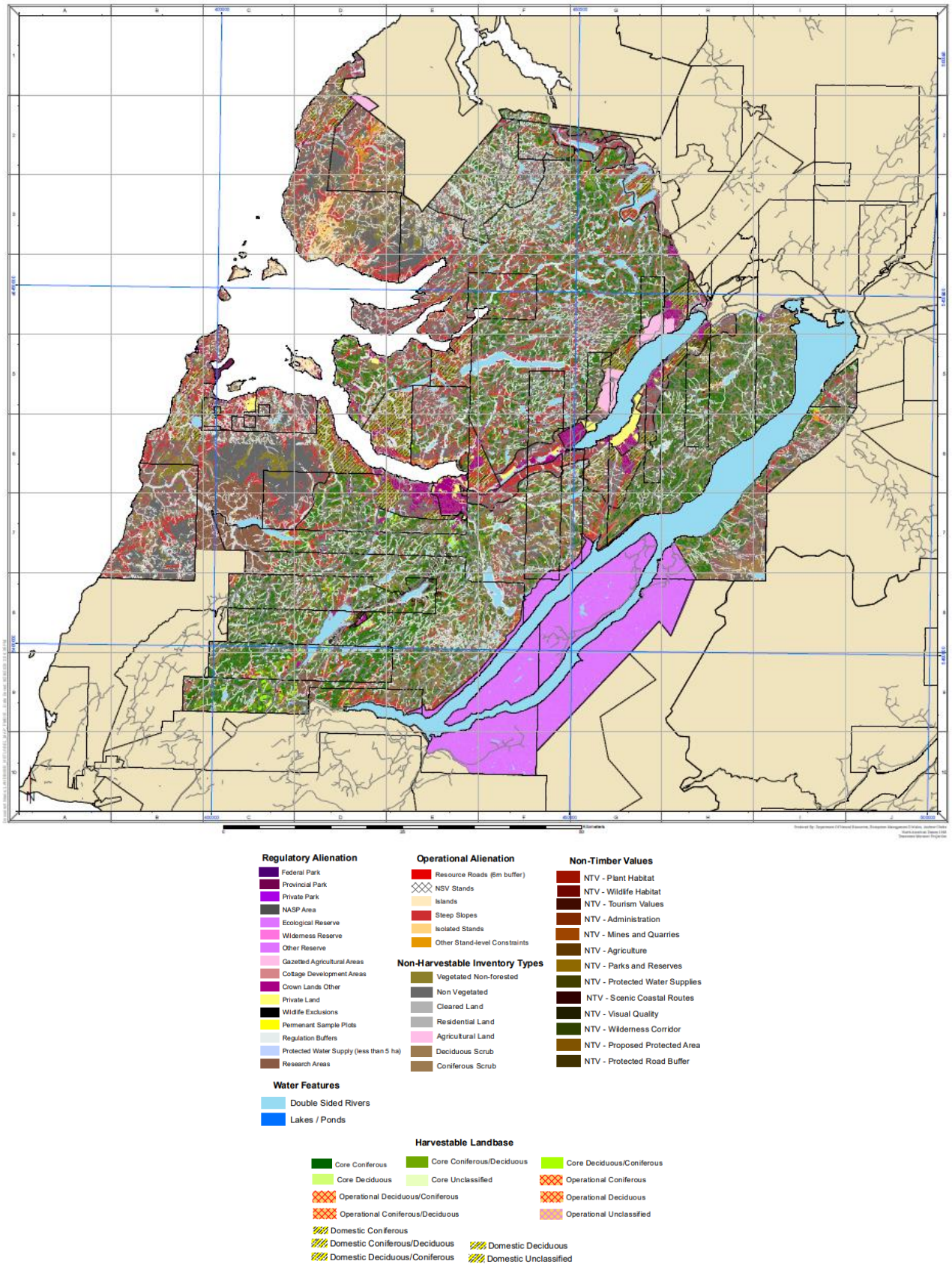
In general, District 14 has 45% of its total land area in the productive forest category while District 15 has 57%. This is mainly due to the high proportion of area in the bog, barren, and scrub category in the coastal and interior areas in District 14. The higher the percentage of productive forest generally means that the forest is more contiguous and not as fragmented by bog, scrub and water. This has implications for harvesting and road building costs which are generally higher when the forest is more fragmented. Another point is that the Forest Service is now classifying scrub by site, height and density class as new inventories are completed. This information will be invaluable in determining which scrub areas are marginally productive or can meet some other non-timber objective.

Table 1- 2 Zone 6 Landbase Classification

			Zone 6					
	Landbase Classification		Forested Area (ha)	Non Forested (ha)	Forested Area (ha)	Non Forested (ha)	Total Area (ha)	% Of Total
1	**Regulatory Alienations**		District 14		District 15			
1.a	***Parks***							
1.a.1		Federal	0.0	0.0	0.0	0.0	0.0	0.0%
1.a.2		Provincial	74.4	16.1	67.3	10.9	168.7	0.0%
1.a.3		Private	0.0	0.0	0.0	0.0	0.0	0.0%
1.a.4		Natural Areas System Plan	2,390.6	2,650.2	0.0	0.0	5,040.8	1.4%
1.b	***Reserves***							
1.b.1		Ecological	0.0	0.0	0.0	0.0	0.0	0.0%
1.b.2		Wilderness	0.0	0.0	0.0	0.0	0.0	0.0%
1.b.3		Others	0.0	0.0	19.7	0.1	19.8	0.0%
	Other							
1.c.1		Agricultural Areas	5,103.6	733.1	113.1	0.0	5,949.8	1.6%
1.d.1		Cottage Development Areas	3,013.5	410.8	44.3	12.6	3,481.2	0.9%
1.d.2		Crown Lands Other	3,475.4	859.1	1,028.9	431.2	5,794.6	1.6%
1.d.3		Private Land	142.6	100.5	162.5	48.4	454.0	0.1%
1.e.1		Wildlife Exclusions	0.0	0.0	26.1	4.0	30.1	0.0%
1.f.1		Permanent Sample Plots (PSP's)	92.4	4.1	184.5	15.8	296.8	0.1%
1.f.2		Regulation Buffers Water (30m)	12,788.8	3,673.5	25,157.0	6,340.5	47,959.8	12.9%
1.g.1		Protected Water Supply Areas	0.0	0.0	0.0	0.0	0.0	0.0%
1.h.1		Research Areas	271.2	97.8	3,711.1	245.3	4,325.4	1.2%
		Section Sub-total	*27,352.5*	*8,545.2*	*30,514.5*	*7,108.8*	*73,521.0*	*19.7%*
	Non-Harvestable							
2	**Inventory Types**							
2.a.1		Coniferous Scrub	27,539.6		46,382.4		73,922.0	19.8%
2.b.1		Deciduous Scrub	1,534.9		683.3		2,218.2	0.6%
2.c.1		Vegetated Non-forested		12,871.2		13,390.9	26,262.1	7.0%
2.d.1		Non Vegetated		14,173.3		15,169.2	29,342.5	7.9%
2.e.1		Cleared Land		121.6		695.9	817.5	0.2%
2.f.1		Residential Land		30.9		271.4	302.3	0.1%
2.g.1		Agricultural Land		7.6		2.3	9.9	0.0%
		Section Sub-total	*29,074.5*	*27,204.6*	*47,065.7*	*29,529.7*	*132,874.5*	*35.7%*
3	**Water Features**							
3.a	***Water Bodies***							
3.a.1		Lakes/Ponds		5,620.7		16,668.4	22,289.1	6.0%
3.a.2		Double Sided Rivers		1,116.6		876.6	1,993.2	0.5%
		Section Sub-total		*6,737.3*		*17,545.0*	*24,282.3*	*6.5%*
4	**Operational Alienations**							
4.a	***Roads***							
4.a.1		Right Of Way (Roads)		342.6		544.5	887.1	0.2%
4.a.2		Resource Roads (6m buffer)	815.0	23.1	1,807.2	250.3	2,895.6	0.8%
4.b	***Stand Level***							
4.b.1		NSV Stands	3,074.5		5,512.7		8,587.2	2.3%
4.b.2		Islands	0.0	0.0	24.6	0.0	24.6	0.0%
4.b.3		Steep Slopes	11,218.1	760.0	18,138.1	1,943.1	32,059.3	8.6%
4.b.4		Isolated Stands	1,791.2	1.0	68.1	0.0	1,860.3	0.5%
4.b.5		Other Stand-level Constraints	787.2	7.0	1,729.0	0.4	2,523.6	0.7%
4.b.6		Area Not Interpreted	0.0	0.0	0.0	0.0	0.0	0.0%
		Section Sub-total	*17,686.0*	*1,133.7*	*27,279.7*	*2,738.3*	*48,837.7*	*13.1%*
5	**Non-Timber Values**							
5.a.1		Plant Habitat	0.0	0.0	0.0	0.0	0.0	0.0%
5.b.1		Wildlife Habitat	0.0	0.0	10.5	41.3	51.8	0.0%
5.c.1		Tourism Values	0.0	0.0	0.0	0.0	0.0	0.0%
5.d.1		Administration	36.6	0.0	0.0	0.0	36.6	0.0%
5.e.1		Mines and Quaries	0.0	0.0	0.0	0.0	0.0	0.0%
5.f.1		Agriculture	0.0	0.0	0.0	0.0	0.0	0.0%
5.g.1		Parks and Reserves	0.0	0.0	0.0	0.0	0.0	0.0%
5.h.1		Protected Water Supplies	0.0	0.0	28.9	0.1	29.0	0.0%
5.i.1		Scenic Coastal Routes	0.0	0.0	0.0	0.0	0.0	0.0%
5.j.1		Visual Quality	0.0	0.0	1,122.5	21.8	1,144.3	0.3%
5.k.1		Wilderness Coridor	0.0	0.0	0.0	0.0	0.0	0.0%
5.l.1		Proposed Protected Area	973.2	0.0	0.0	0.0	973.2	0.3%
5.m.1		Protected Road Buffer	0.0	0.6	27.5	15.2	43.3	0.0%
		Section Sub-total	*1,009.8*	*0.6*	*1,189.4*	*78.4*	*2,278.2*	*0.6%*
6	**Domestic Landbase**							
6.a.1		Domestic Coniferous	541.8		8.3		550.1	0.1%
6.a.2		Domestic Coniferous/Deciduous	102.8		9.7		112.5	0.0%
6.a.3		Domestic Deciduous/Coniferous	12.9		0.0		12.9	0.0%
6.a.4		Domestic Deciduous	0.0		0.0		0.0	0.0%
6.a.5		Domestic Unclassified	0.0		0.0		0.0	0.0%
		Section Sub-total	657.5		18.0		675.5	*0.2%*
7	**Harvestable Landbase**							
7.a.1		Core Coniferous	48,756.8		22,995.0		71,751.8	19.3%
7.a.2		Core Coniferous/Deciduous	5,830.8		2,447.8		8,278.6	2.2%
7.a.3		Core Deciduous/Coniferous	2,543.1		1,089.8		3,632.9	1.0%
7.a.4		Core Deciduous	800.4		797.4		1,597.8	0.4%
7.a.5		Core Unclassified	866.7		125.9		992.6	0.3%
		Section Sub-total	58,797.8		27,455.9		86,253.7	*23.2%*
7.b.1		Operational Coniferous	2,540.6		523.0		3,063.6	0.8%
7.b.2		Operational Coniferous/Deciduous	603.1		91.2		694.3	0.2%
7.b.3		Operational Deciduous/Coniferous	66.9		1.8		68.7	0.0%
7.b.4		Operational Deciduous	17.3		0.0		17.3	0.0%
7.b.5		Operational Unclassified	0.0		0.0		0.0	0.0%
		Section Sub-total	3,227.9		616.0		3,843.9	*1.0%*
		Section Sub-total	*62,683.2*		*28,089.9*		*90,773.1*	*24.4%*
	Grand-total		*137,806.0*	*43,621.4*	*134,139.2*	*57,000.2*	*372,566.8*	*100.0%*



Map 1-4. Landbase Classification Map – District 14.



Map 1-5. Landbase Classification Map – District 15.

2.1.5.2. Forest Profile

2.1.5.2.1 Species Composition

Working group describes the dominant tree species present in a forest stand. This species may occupy 100 percent of crown closure of a stand or may be present in association with other species. The working group designation describes the stand in general terms based on the prevalent species whereby species composition describes specifically, the relative proportion of each individual tree species that make up a stand. In the zone, the softwood working groups dominate accounting for over 90 percent of the productive forest. Balsam fir (bF) is by far the most prolific accounting for 72 percent of the working groups in District 14 and 15 (Figures 1-2). Balsam fir can occur in pure stands or in association with one or more of black spruce, white spruce, white birch, or larch in varying species compositions. The black spruce (bS) working group accounts for approximately 10 percent in each District. As with balsam fir, black spruce can occur as pure stands or in association with other species listed above. Softwood hardwood working groups occupy nine and 13 percent of the productive forest area in Districts 14 and 15 respectively. This working group occurs as varying mixtures of fir, spruce, and birch. The hardwood softwood (hS), and white birch (wB), white spruce (wS) working groups occupy around five percent of the productive forest in both districts. Approximately three percent of the productive forest is classed as disturbed (DI). Disturbances include harvesting, which accounts for most of the total, insect damage, fire, wind throw, and flooding. The relative percentages hold true for all ownerships in both districts with the exception of black spruce in District 14. There is a higher percentage of black spruce on crown land because there are more poor sites.

The following provides a more detailed outline for some of the larger groups, with additional descriptions of the selected accompanying forest types, as described by Meades and Moores, 1994.

A) Black Spruce - *Picea marina* (Mill.) B.S.P. Within this working group there are three main forest types that characteristically represent black spruce. These include: black spruce forest, black spruce fen, and *kalmia*-black spruce forest.

Black spruce forest includes a forest that has a thick humus layer with mainly black spruce as the dominant tree species. The sites within this forest type have a wide range of moisture from dry to wet and the fertility ranges from very poor to rich. Because there is such a wide range in both moisture and fertility, this forest type had to be broken down into six specific forest types. These include *sphagnum*-black spruce, black spruce feathermoss/ bedrock, black spruce-feathermoss/very dry, black spruce feathermoss/ dry, black spruce-feathermoss/bog, and black spruce-feathermoss/moist. This forest types produce merchantable timber.

Black spruce-fen is characterized by an abundance of understory that is usually described as fertile but poorly drained. Due to this poor drainage the black spruce in this forest type are usually stunted. These forests are considered important wildlife and plant habitats because of the high fertility, and usually grow in open settings. As a result of the open grown, stunted trees, this forest type is not usually merchantable from a commercial harvesting perspective. This forest type is divided into two forest types: *carex*-black spruce and *osmunda* - black spruce.

Kalmia-black spruce represents a black spruce forest that is associated with bogs. The trees are open grown with black spruce as the dominant tree, which is usually stunted with abundant shrubs and mosses growing throughout its understory. These sites are normally infertile but range from dry to very moist. This forest type, because of small variations, can be broken down into four forest types: *nemopanthus-kalmia* black spruce, *sphagnum-kalmia*-black spruce, *kalmia*-black spruce, and *cladonia-kalmia*-black spruce.

These forest types are usually considered unmerchantable and are common throughout the districts. All three of these forest types are the result of regeneration on areas burned a number of times over the years. The natural succession following fire in Newfoundland's Boreal Forest is towards black spruce with limited amounts of certain pioneer species such as white birch and trembling aspen. Sites occupied by black spruce are usually away from river valleys and any flood plains in these valleys. Most black spruce occupy hillsides, ridges, and open barrens. Areas that are generally made up of rock outcrops contain black spruce as well.

B) Balsam Fir - *Abies balsamea (*L.) Mill. Another major forest type is the balsam fir forest. In some districts of the province this type is the dominant species. This species occupies sites that are usually fertile and moist but because these districts have a recurring history of fire, balsam fir cannot become established as they do not naturally occupy burned areas. Due to the complexities of the balsam fir forest type, it can be divided into several types. These are: *equisetum-rubus*balsam fir, *rubus*-balsam fir, *clintonia*-balsam fir*, taxus*-balsam fir, *dryopterishylocomium*- balsam fir, *dryopteris*-balsam fir, *dryopteris-rhytidiadelphus*balsam fir, *dryopterislycopodium*- balsam fir, *hylocomium*-balsam fir, *gaultheria*-balsam fir, *pleurozium*-balsam fir, *carex*-balsam fir, and *sphagnum*-balsam fir. They normally occupy river valleys and flood plains as pure stands or mixed with hardwoods, along with side slopes to these valleys. All balsam fir forest types have balsam fir as the main tree species, with white birch usually abundant throughout. The *rubus*-balsam fir forest type is found in low to mid-sloped areas that are moist. This forest type has an abundant herb layer but is limited to certain types which differentiate it from the *equisetum-rubus*-balsam fir forest type, which has a more diverse herb layer. The *dryopterislycopodium*- balsam fir forest type has narrow moisture regime from moist to somewhat moist that is nutrient rich. This forest type has ground cover that is dominated by ferns and certain moss types and plants that are specific to this type. The *hylocomium* balsam fir forest type is also moist to somewhat moist but is dominated by a layer of moss instead of the

ferns. The *pleurozium*-balsam fir forest type has balsam fir and black spruce as the main tree species with few white birch. The moss layer is made up mainly of *pleurozium* schreberi and is found on dry to well drained areas such as dry ridges and outwash deposits. The *carex*-balsam fir forest type has willow found in it. The *sphagnum*-balsam fir is dominated by *sphagnum* moss on the forest floor and is poorly drained.

C) White Birch - *Betula papyifera* Marsh. This working group represents the major hardwood component for the forests of the province,. White birch is normally found on the fertile sites along streams and rivers, as well as flood plains. It can also be found on fire origin locations as it is a pioneer species that seeds into an area once the forest cover is removed by fire. Pure white birch stands are not that common in the province. There are a number of white birch forest types, all depending upon the understory growth and the associated soil type.

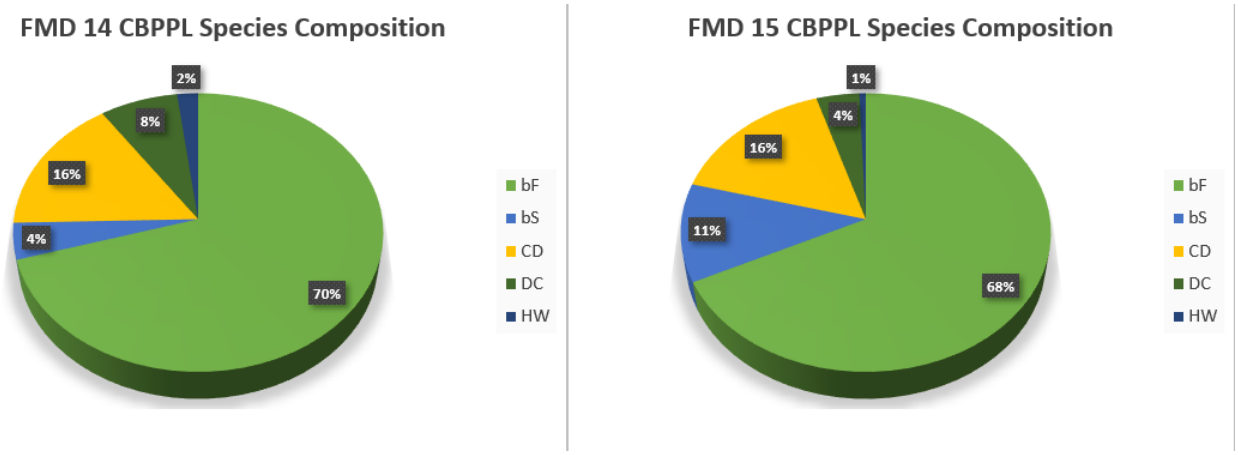


Figure 1- 2 Working group (species composition) by FMD

2.1.5.2.2. Age Class

Individual tree ages in a stand can all be the same after disturbance such as fire or harvesting; however, in most cases the ages vary. Forest managers describe stand ages in terms of age classes which generally encompass 20 years. The age classes present in the zone are:

Age	Description	Age	Description
0-20	Regenerating	81-100	Over mature
21-40	Immature	101-120	Over mature
41-60	Semi-mature	121-140	Over mature
61-80	Mature	141-160	Over mature

161 + (represents uneven-aged stands)

The age class distribution for CBPPL tenure in Planning Zone 6, for the entire productive forest, is shown in Figure 1-3 for both FMDs 14 & 15. In general terms, the more balanced the age class distribution in a district, the higher the potential for an even flow sustained harvest of timber, because continuous timber supply is limited by the age class with the lowest frequency of occurrence. A balanced age distribution in the forest would also allow for the highest biodiversity by making habitat available at all stages of development, with the equivalent proportions of the forest to moving from one stage of development to the next over time. This would result in an ongoing renewal of habitat.

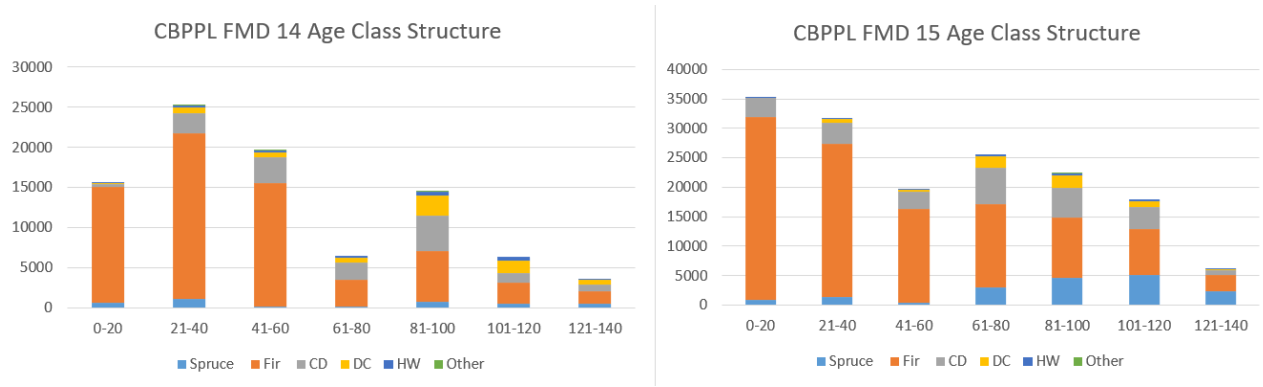


Figure 1- 3 Working group by Age Class by tenure.

FMD 14 has an unbalanced age class structure with more productive forest falling in the younger age classes. This unbalanced age class structure limits the maxim sustainable harvest levels as the mature forest will have to be harvested before the immature stands can reach their peak yields. This is particularly evident in looking at the Core landbase which is the largest portion of the productive forest comprising the FMD 14 AAC for CBPPL (Figure 1-4). In both cases FMD 15 is balanced which allows for maximization of the potential AACs in that FMD.

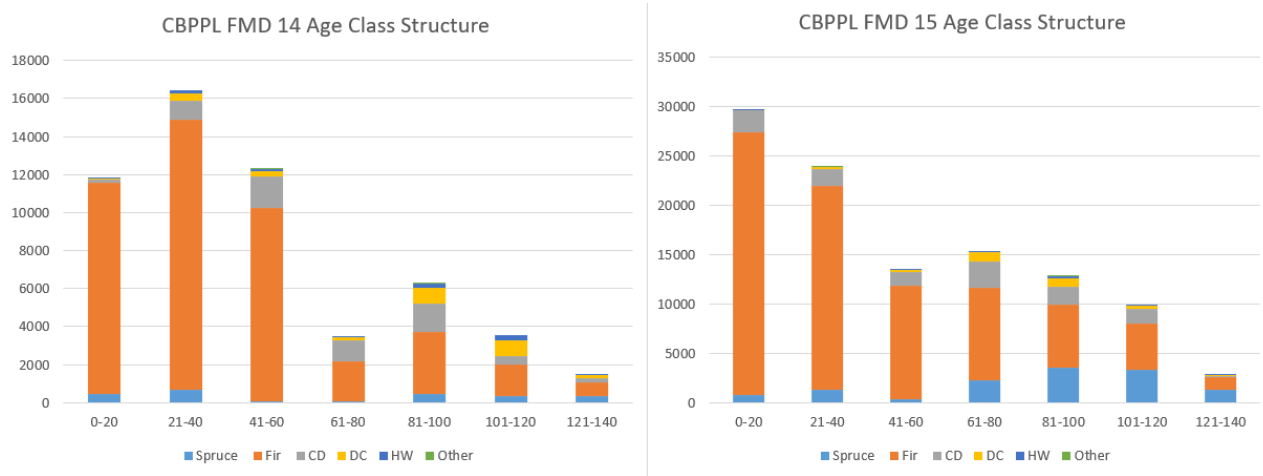


Figure 1- 4 Working group by Age Class for CBPPL Core Landbase

2.1.5.2.3. Site Class

The Forest Services Branch has identified four site classes that refer to the potential of a given site to produce timber. These are high, good, medium, and poor. The classes are based on several factors, some of which are soil type, moisture content, slope, and fertility. Site class is determined through air photo interpretation supplemented with field checks. The classes indicate the volume of wood fiber that a site has the capability of producing under natural conditions by the time the trees reach their rotation age (which averages, generally, between 60 and 80 years depending on the species and the location). On average, good sites can produce > 2.6 m^3/ha/yr, medium sites 1.7 m^3/ha/yr, and poor sites 0.8 m^3/ha/yr. The following indicates the average potential in cubic meters per hectare for each site class at maturity (based on the provincial average).

Class m^3 /ha			
High = 200+	Good = 150	Medium = 120	Poor = 80

Since the occurrence of high site classes is so rare on the Island the Forest Service branch has combined the good and high site types into the good site type for the purpose of timber supply. The medium site class is by far the largest in the districts within CBPPL tenure in Planning Zone 6.Figure 1-5 presents the site class information in graphic form to show the levels of site class in each district for CBPPL tenure.

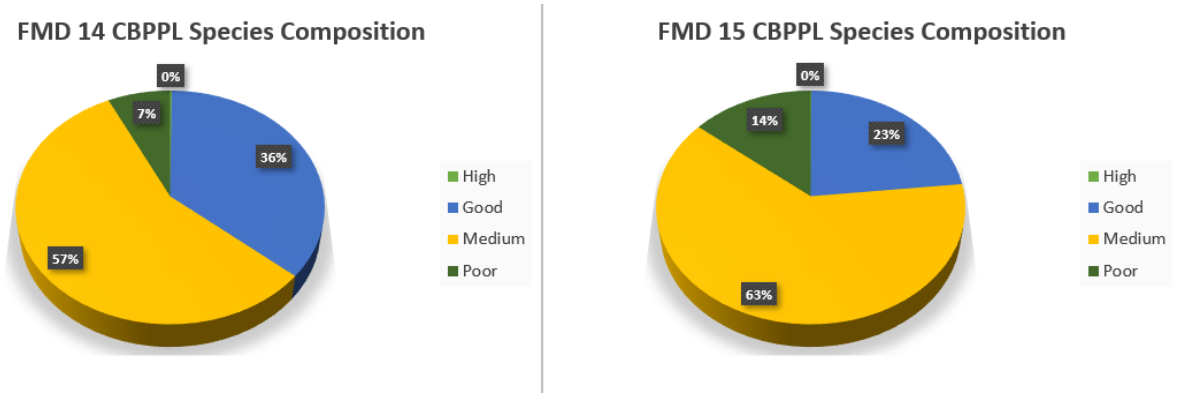


Figure 1- 5 Site class distribution by tenure and AAC class.

2.2. Past Planning Activities

2.2.1. Harvesting

2.2.1.1. Commercial Activity

Harvesting activities in this zone have been targeted towards satisfying the pulpwood requirements to the Pulp and Paper mill and to sawlog production for the sawmill industry. The AAC in the zone hasn't been harvested to its full allocation due to its lower spruce content. However, a higher portion of AAC has been

harvested in this Zone as compared to others due to its proximity to the pulp mill as well as the commercial sawmill in Hampden.

Table 1- 3 Commercial harvest summary table CBPPL FMD 14 (2018-2022)

FMD14			Core					Operational - Available				
Year			AAC	Harvested		Remaining		AAC	Harvested		Remaining	
				m3	%	m3	%		m3	%	m3	%
Softwood	1	2018	114,226	15,648	14%	98,578	86%	8,036	0	0%	8,036	100%
	2	2019	114,226	811	1%	113,415	99%	8,036	5,276	66%	2,761	34%
	3	2020	114,226	26	0%	114,200	100%	8,036	0	0%	8,036	100%
	4	2021	114,226	15,565	14%	98,661	86%	8,036	355	4%	7,681	96%
	5	2022	114,226	0	0%	114,226	100%	8,036	0	0%	8,036	100%
5 Year Sub-total			***571,130***	***32,050***	***6%***	***539,080***	***94%***	***40,180***	***5,631***	***14%***	***34,550***	***86%***
			Core					**Operational - Available**				
			AAC	Harvested		Remaining		AAC	Harvested		Remaining	
				m3	%	m3	%		m3	%	m3	%
Hardwood	1	2018	5,000	1,203	24%	3,797	76%	0	0	0%	0	100%
	2	2019	5,000	6,898	138%	-1,898	-38%	0	0	0%	0	100%
	3	2020	5,000	7,389	148%	-2,389	-48%	0	0	0%	0	100%
	4	2021	5,000	7,955	159%	-2,955	-59%	0	0	0%	0	100%
	5	2022	5,000	0	0%	5,000	100%	0	0	0%	0	100%
5 Year Sub-total			***25,000***	***23,445***	***94%***	***1,555***	***6%***	***0***	***0***	***0%***	***0***	***100%***

Table 1- 4 Commercial harvest summary table CBPPL FMD 15 (2018-2022)

FMD15			Core					Operational - Available				
Year			AAC	Harvested		Remaining		AAC	Harvested		Remaining	
				m3	%	m3	%		m3	%	m3	%
Softwood	1	2018	262,974	155,589	59%	107,385	41%	20,457	1,813	9%	18,644	91%
	2	2019	262,974	204,704	78%	58,270	22%	20,457	0	0%	20,457	100%
	3	2020	262,974	179,135	68%	83,839	32%	20,457	61	0%	20,396	100%
	4	2021	262,974	196,432	75%	66,542	25%	20,457	2,544	12%	17,913	88%
	5	2022	262,974	0	0%	262,974	100%	20,457	0	0%	20,457	100%
5 Year Sub-total			***1,314,870***	***735,860***	***56%***	***579,010***	***44%***	***102,285***	***4,418***	***4%***	***97,867***	***96%***
			Core					**Operational - Available**				
			AAC	Harvested		Remaining		AAC	Harvested		Remaining	
				m3	%	m3	%		m3	%	m3	%
Hardwood	1	2018	3,100	0	0%	3,100	100%	80	0	0%	80	100%
	2	2019	3,100	506	16%	2,594	84%	80	0	0%	80	100%
	3	2020	3,100	2,037	66%	1,063	34%	80	0	0%	80	100%
	4	2021	3,100	422	14%	2,678	86%	80	0	0%	80	100%
	5	2022	3,100	0	0%	3,100	100%	80	0	0%	80	100%
5 Year Sub-total			***15,500***	***2965***	***19%***	***12,535***	***81%***	***400***	***0***	***0%***	***400***	***100%***

Note: 2022 Harvest data not included in table 1-3 or 1-4 as only partial information is available at the time of submission of this plan**.**

2.2.1.2. Domestic Activity

CBPPL does not manage its landbase for domestic harvesting with segregated blocks.

2.2.2. Silviculture

Table 1- 5 Summary of completed silviculture activity (2018-2022)

	FMD 14		FMD 15	
Treatment Type	**Area (ha)**		**Area (ha)**	
	Proposed	Treated	Proposed	Treated
Pre Commercial Thinning	60.00	70.64	615.00	387.93
Planting	0.00	0.00	1375.00	1286.26

2.2.3. Forest Access

The amount of road proposed was much greater in the past five years (2018-2022) than was constructed. The roads proposed were anticipation of either harvesting the full AAC or in anticipation of having to shift operations for unforeseen circumstances (operational flexibility). However, the volume harvested in both districts could be mostly obtain through existing networks therefore reducing the amount of construction required.

Table 1- 6 Summary of forest access roads built 2018 to 2022.

Roads		
District	Proposed	Constructed
14	192	7
15	361	112
Total	553	119

2.2.4. Natural Disturbances

2.2.4.1. Fire

Zone 6 has had a very infrequent fire history due to its relatively long winters and abundant precipitation. There were no significant fires during the last planning period. Historical data can be found on the gov.nl website.

2.2.4.2. Insects

The provincial government has been implementing a proactive spray program to help prevent an outbreak of Spruce Budworm in the province since 2020. Using annual surveys including pheromone, aerial defoliation and fall forecasts (egg mass or L2 surveys) a spray plan is formed. This program is known as the Early Intervention Strategy and is supported by the Government of Canada and is matched by the 4 Atlantic Provinces and industry. The strategy includes:

- Monitoring populations to detect ‘hot spots’
- Targeted insecticide treatment to prevent spread
- Proactive public communications and engagement on project activities and results

The strategy is the first attempt of area wide management of a native forest inspect population.

CBPPL will continue to be a member of the Provincial Forest Pest Management Committee. Review of defoliation mapping, as provided by the Gov NL, will be assessed to determine if salvage harvesting in Zone 6 is needed.

The balsam woolly adelgid continues to be a problem insect pest in FMD 14 with stand conversion the only silvicultural option. Other insect activity in this zone has been minimal with no active controls being deployed.

3. Timber Supply Analysis

The annual allowable cuts for each district will be in effect from January 1, 2024, to December 31, 2028. The current TSA was not approved in time for this current 5YP submission. All reference made to modeling in this next section is refers to the process only.

3.1. Methodology

The province reviews its timber supply every five years in order to account for any changes in forest land base, growth rates, and management strategies. This schedule is consistent with the Forestry Act, 1990, which established management by forest management district and mandates that a wood supply analysis be completed every five years. The result of this analysis is a new set of annual allowable cuts (AAC's) for each forest management district. These AAC's are defined as the maximum annual rate at which timber can be harvested at a sustainable level indefinitely into the future (in reality, the AAC figures are applicable for a period of 160 years into the future and not infinity). Annual allowable cuts must be calculated on a district basis, however when "rolled up" provide us with the annual allowable harvest level for the island. More information on the Timber Supply Analysis Program can be found on the Governments Forestry website. www.ffa.gov.nl.ca.

3.1.1. Guiding Principles and Policy Direction

The key underlying principles that guide this analysis are:

(i) the AAC must be sustainable;
(ii) the level of uncertainty (risk) associated with the AAC must be minimized by using empirical information wherever possible;
(iii) there must be conformity between information and assumptions used in the analysis and actions and decisions taken on the ground;
(iv) the analysis must be consistent with other forest values and objectives; and
(v) the timber supply calculation must consider economic factors, not solely the physical supply of timber.

In concert with the policy of establishing sustainable timber harvest levels, Government policy requires that harvesting not exceed the established AAC's. Likewise, Governments policy is to optimize forest industry opportunities from the sustainable fiber supply. Government also requires consultation be conducted during the timber analysis. The forest industry was consulted directly throughout the process.

3.1.2. Factors Affecting Timber Supply

The forests of insular Newfoundland are very variable in terms of age distribution. Typically, there are significant amounts of mature/over-mature forest and regenerating forest but limited intermediate age forests. This imbalance is not unusual in a boreal forest where cyclic catastrophic disturbances are common.

The insufficient amount of intermediate age forest on the island is one of the most important factors influencing AAC's, therefore it is the basis for many of our forest management strategies. Essentially, we are employing a matrix of measures designed to fill the gap in our age structure, which include: an aggressive forest protection program, harvesting programs that attempt to exclusively target the oldest stands first, and thinning the regenerating forest so that it becomes operable at an earlier age.

Another important aspect of the province's forest posing a challenge to forest managers is the natural fragmentation of the resource. The province's landscape is characterized by many ponds, bogs, rivers, streams, and rock outcrops resulting in relatively small pockets of timber. This makes the determination of an economic timber supply very challenging given that each stand has unique economic characteristics.

Arguably the most important factor affecting present and future AAC's is the available productive landbase. However, this productive landbase available for forest activity is constantly being evaluated by the demands/requirements of other stakeholder values. Therefore, it is important that we manage relationships with other users to minimize loss to the forest landbase, while considering these other values. As well, to mitigate losses to the productive landbase, we must continue to explore ways for growing more volume on the existing landbase.

In 2015, the Forest Service began another review of the provincial timber supply. Consistent with Department's vision, the analysis was structured to determine sustainable timber supplies while respecting a multitude of social, economic, and environmental objectives. Timber supply, in this context, refers to the rate at which timber is made available for harvesting on a sustainable basis. The determination of supply (represented as AAC's) involved the use of computer models that forecast the sustainability of possible AAC levels. These models require three basic inputs. First, a description of the current state of the forest (forest characterization and availability), second, the growth rates associated with the current forest, and third, the management strategies applied to the forest. To arrive at these basic inputs, require careful and detailed consideration of a broad range of both timber and non-timber values. More specifically, the following was considered in determining the sustainable timber supply.

3.1.2.1. Land Characterization

To get a current description of the forest resource (or stock), the province has invested significant resources into creating and maintaining a Provincial Forest Inventory. This program accounts for all natural and man-

made disturbances such as: fire, insects, harvesting, and any enhancement programs, including tree planting and pre-commercial thinning. Also, each stand in the forest inventory is updated to reflect any yield changes that may have occurred since the previous inventory update.

3.1.2.2. Land Availability

The updated Forest Inventory was reviewed and classified at the stand level based on the availability of each stand for harvest. The classification system consists of two broad classes being available for the AAC calculation;

Core	- available for harvest under normal conditions, and
Operational	- has restrictions for harvesting due to economic constraints.

The remaining productive forest has been removed for varying social/legislative reasons. The major removals are listed below:

A. Non-Timber Related

Consideration of non-timber values has a direct impact on Provincial AAC's. It is obvious that as the amount of productive forest land available for timber management drops, so too will the AAC. With the current restrictions, the AAC landbase (area where harvesting operations can occur) is only 18% of the total productive forest land base. On average, in any one year, less than 1% of the productive forest land base is influenced by harvesting operations.

B. No-Cut Buffer Zones

The province has guidelines that require all water bodies (visible on a 1:50,000 map sheet) be given a minimum 20 meter uncut buffer (from waters edge). In addition to these legislated water buffers, District Ecosystem Managers, in consultation with various stakeholders, have increased buffer zone widths beyond the minimum to protect special values such as: salmon spawning areas, cottage development areas, aesthetic areas, wildlife habitat, outfitting camps, etc.

C. Pine Marten and Caribou Habitat

Habitat specialists are working in consultation with industry to study both species and ensure adequate habitat will be available for pine marten and caribou into the future. This work is examining the quantity and quality of habitat, as well as the connectivity of habitat. With respect to Caribou, both the Forest Services Branch, Corner Brook Pulp and Paper and the Wildlife Division work together on an annual basis. A caribou management strategy has been put in place which identifies core habitat and outlines the requirements for harvesting in restoration/conservation herd habitat.

D. Wildlife Corridors

As part of the evaluation process for harvesting plans, wildlife specialists sometimes recommend managed corridors to ensure various species of wildlife have sufficient cover to move around the landscape. These corridors are temporal in nature and generally have little impact on timber supply.

E. Protected Areas

All established and proposed protected areas are removed from the AAC calculations.

F. Watersheds

For each of the forest management districts in Planning Zone 6, all the public protected water supply areas and some of the larger watersheds were digitized and captured within the forest inventory. These watersheds were added to the database to address any concerns about forest management within these watersheds and to permit the Forest Service to report on proposed activities within these watersheds over time.

G. Operational Constraints

Areas that are inaccessible (surrounded by bogs or hills), timber on steep slopes, and low volume stands are removed from the AAC calculation up front. Also, significant adjustments are applied to the Provincial Forest Inventory for stands deemed operable in the timber analysis but left unharvested within operating areas. The reasons for this are linked to the character of Newfoundland's forests; low volume, steep slopes, rough terrain, and excessively wet ground conditions etc. Again, all these timber and non-timber related issues are applied directly in the AAC calculation to ensure harvest levels do not exceed the sustainable level. With the introduction of new values and the broader application of current values, the pressure on future AAC's will continue to increase.

3.1.2.3. Growth Forecasting

A key requirement for forecasting future wood supply is an understanding of how forest stands grow and develop through time. That is, as a forest stand develops, how much merchantable (i.e. harvestable) volume does it carry at any given point? These yield forecasts (referred to as yield curves) are required for each type of forest stand (called a stratum) comprising the forest under consideration. In Newfoundland, there are dozens of distinct forest strata for which separate yield curves are required. These are defined by the tree species in question (e.g., balsam fir, black spruce), the site quality (e.g., good, medium, poor), the geographic region (e.g., Central Newfoundland) and other factors likely to affect yield. Yield curves are a key element in a wood supply analysis. In fact, the validity, or "usefulness" of the wood supply analysis is determined by the truth or "correctness" of the yield forecasts. While there is no way of predicting with certainty how stands will grow in the future, care must be taken to ensure that the yield projections used are realistic and reasonable. Respecting the sensitivity and importance of these forecasts, the Forest Services Branch has directed a large portion of its resources and time into developing realistic yield curves. Two growth models were used, one for projecting stand development under natural conditions and the other for projecting growth under managed (i.e., silviculturally enhanced) conditions. Tree and stand development data generated from the Forest Service's Forest Inventory Program were used to make stand growth predictions. These projections were then checked against empirical data from thousands of temporary plots established throughout the Island. If the projections varied from the real-life evidence, the curves were adjusted to make them more accurate. In this analysis, yield curves were developed on an ecoregion basis to portray the varied stand growth more accurately within and among the districts.

3.1.2.4. Management Strategies

With the current state of the forest described and the yield forecasts developed, the next step was to design a management strategy for each sector of the forest. The key objective was to maximize long term AAC while at the same time considering other forest values. This involved developing strategies that minimized fiber losses and enhance forest sustainability.

3.1.2.5. Harvest Flow Constraints

An even-flow harvest constraint was used in the analysis to maximize the sustainable harvest level. This strategy produced the maximum even flow harvest but resulted in less than optimum economic use of the forest resource. If no even flow constraint is used and harvest levels are permitted to fluctuate in response to market value, the overall economic potential of the forest will increase. However, the lower economic potential is offset by stability in manufacturing plants and employment.

3.1.2.6. Planning Horizons

Given the Province's commitment to long term sustainability of our forest resource, timber supplies were projected 160 years (equivalent to two forest rotations) into the future to ensure actions and strategies applied today will result in a sustainable forest in the future. Long term planning is fundamental in timber supply forecasting and ecosystem management as well.

3.1.2.7. Operable Growing Stock Buffer

The province imposed an operable growing stock constraint in the analysis to ensure the sustainability of calculated timber supplies. The constraint imposes a condition that in any period there must be a minimum operable growing stock of two times the harvest level on the landscape. In other words, for every hectare that is harvested another harvestable hectare must exist on the landscape. The requirement for a growing stock buffer is based on several factors. First, several of our non-timber objectives are not explicitly accounted for in our planning process and therefore will require a growing stock buffer to achieve them. Second, we are unable to follow optimum harvest schedules explicitly due to operational restrictions on harvesting. Third, the Province is not willing to assume high risk with the sustainability of the timber supply. For these reasons a growing stock constraint of two times was used. This constraint was used in concert with harvest scheduling to help map out a reasonable harvest for the next 20 years.

3.1.2.8. Old Forest Targets

Consistent with our ecosystem policy, the province introduced into the analysis an old forest target that at least 15% of forests be older than 80 years. While this is a minimum target, actual results are usually higher. This initiative was designed to provide a coarse filter approach to maintaining representative forest

structure. It ensures the presence of certain amounts of old forest across the landscape into the future. With advances in modeling, this target can now be tracked across a district rather than a single ownership. This has resulted in this strategy being less restrictive than the last analysis. As well, the site class distribution of the older forest reserve is being examined to make it representative of each ecoregion and subregion.

3.1.2.9. Operability Limits

Operability limits are the time windows in which forest management actions such as harvesting can be undertaken within forest stands. Stand growth development as measured in stand merchantable timber volume and individual piece size of trees determine a stands readiness for harvest. In some young stands, one can have acceptable harvest volumes, but still have trees that are too small to harvest. In the wood supply analysis, both stand volume and tree size were used to determine the earliest age when a stand could be initially harvested. In addition to determining the absolute earliest age a stand can be harvested, it was recognized that not all stands on the same site develop exactly the at the same rate. The ending operability limits or the last age in which a stand can be harvested before it becomes too old to harvest is solely determined on a minimum stand volume of between 60 to 80 m^3/ha, after which that stand does not have enough volume to make it economical to harvest. It should be noted that while the operability limits define the extreme end points of when stands can be harvested, very few stands are ever harvested at these extreme points. To meet other non-timber objectives and in order to maximize the total volume of wood harvested the model schedules stands to harvest somewhere inside the operability limit window.

3.1.2.10. Silviculture

Silviculture is one of the main forest management tools available to forest managers when they are analyzing the many different future forests that are generated using the wood supply modelling software. The silvicultural actions used in the 2022 analysis includes:

D14: 400 ha /yr planted (300 wS and 100 bS)

D15: 400 ha/yr planted (All wS)

3.1.3. AAC Adjustments

3.1.3.1 GMV Adjustments

Reductions are applied to the Net AAC, Gross Merchantable Volume (GMV) which account for net losses due to natural disturbances, operational factors, or timber utilization.

A. Natural Disturbances

Projected future losses related to fire, insect and disease are calculated by FEIS section and are based on historical five-year running average.

B. Operational Losses (Predicted versus Actual Volumes)

Operational losses associated with stand level utilization and volume predictions are calculated based on data derived from commercial harvesting blocks (roughly 10% sample) occurring throughout the district over the previous five-year period. Timber supply volume predictions are compared on a block-by-block basis against actual reported harvest volumes and a percentage difference, generally a reduction, is applied to the AAC to account for current and future operational losses. The Zone 6 operational loss is 9% for the 2024-2028 period.

C. Spatial Blocking Adjustments

Spatial blocking adjustments refer to the operational loss associated with the spatial scheduling. More specifically, the 20-year harvest schedule integration and the volume differences between the aspatial AAC and the spatially scheduled AAC. The approach for 2022 was to use a 20 year harvest schedule using a 10 year harvest period. This was for two reasons; first to reduce modelling complexity at the aspatial level and secondly to align the amount of scheduled wood with the 2 times AAC allowed in a 5-year plan.

The proposed harvest schedule is then played back through the modeling software to evaluate its sustainability and determine if non-timber objectives are achieved. In most cases, the harvest scheduling exercise must go through several iterations before an acceptable harvest schedule could be realized. The spatial arrangement of areas for timber harvesting is especially challenging in this province because of the natural fragmentation of our forests. This model provided forest planners with the ability to mimic realistic timber harvest schedules based on current practices and identify forest stands that are considered not as accessible for harvesting.

Manual harvest scheduling has several benefits. First, it fosters the long-term sustainability of our AAC's by mimicking current harvest practices and accounting for actual on the ground conditions which delay or restrict harvesting of stands. Secondly, the mapped 20-year harvest schedules build credibility into the forest management process. Every stand that will be harvested over the next 20 years must already be in the second (20-40 years old) or third (41-60) age class, can be easily identified and highlighted on the harvest schedule maps. Being able to see the wood that will be harvested in the future will help reassure people the resource is being used in a responsible manner. Next, harvest scheduling will help integrate the management of other forest resource values into timber management planning. All forest values can be typed directly to discreet forest areas, providing the link allowing the many different forest values to be managed simultaneously. The forested areas needed for each resource can be mapped and potential conflicts can be addressed.

Finally, the harvest schedule maps developed for the wood supply analysis can be a starting point for the 5-year management planning process, especially the first period. The harvest schedule maps, if done correctly, can help reduce the work of the 5-year planning process. One point to note is that harvest

scheduling is completed only for the core landbase. The Operational AAC, for the most part, is opportunistic at best and is harvested only if extra effort is applied. It is not scheduled because of the uncertainty of obtaining extra funding for access and harvesting.

3.2. AAC Results & Outputs

New AAC information for the 2024-2028 can be seen below. Work on wood supply modeling will continue into 2023 and any approved changes to allowable cut will be incorporated into a new submission to EA for approval.

Table 1- 7 Annual Allowable Cut 2024-2028

Provincial Annual Allowable Cut (AAC) 2024-2028									
			Softwood Volume			Hardwood Volume		
Land Tenure	Zone	District	Core	Operational Constrained	Sub-total	Core	Operational Constrained	Sub-total
CBPPL	6	14	80000	4500	84500	15100	0	15100
		15	174500	15000	189500	23600	80	23680
	Sub-total		254500	19500	274000	38700	80	38780

4. Resource Values

4.1. Guiding Principles of Sustainability

There are five guiding principles of overall sustainability, which include environmental, economic, political, social, and cultural sustainability. Environmental sustainability looks directly at ecosystem health, both now and in the future. Ecosystem health is determined by such factors as ecosystem integrity, biodiversity, productive capacity, and resiliency. The five-year operating plan must ensure these factors are intact.

Economic sustainability demands that forest resources be managed and distributed efficiently and equitably among the stakeholders, within the capacity and limits of the forest ecosystem. Economic development has been given top priority by many of Newfoundland's people and their representative, the government. However, economic development should not proceed without the incorporation of the other factors into the decision-making process.

Political sustainability refers to goals and management objectives being applicable, administrable, and practical. These goals and objectives must maintain these qualities well into the future with the aid of public input and support. Social sustainability means fairness and equity to all stakeholders. Cultural sustainability is attained by applying Newfoundland's culture to the planning process. A forest management strategy cannot be successful without allowances within the strategy for traditional access and use of the land. For generations, many of Newfoundland's public had free range in our pristine wilderness, a fact that cannot be

ignored when planning for the zone. All are key interlocking components, and each must be maintained if sustainable development is to be achieved.

4.1.1. CBPPL Sustainable Forest Management (SFM) Plan Introduction

The forest industry in Canada has evolved from the management of the timber resource to the management of the forest ecosystem. Previously, forest managers developed forest management plans in isolation, focusing on timber. But as the public began requesting the inclusion of other values, consultations with the public and other resource managers evolved simultaneously with the consideration of non-timber values. This has become a cornerstone of sustainable forest management.

Corner Brook Pulp and Paper Limited (CBPPL) has joined in this shift to sustainable forest management by incorporating social, environmental, and economic values in the sustainable development of Newfoundland's forests. Forestry Services and CBPPL have incorporated public consultations in the forest management planning process since the 1980s, developing a positive relationship among the government, CBPPL, and the community. Public involvement in the identification of values and the development of management plans benefits present as well as future generations.

The Sustainable Forest Management (SFM) Plan for the forested land on insular Newfoundland for which CBPPL has management responsibility, described as the Defined Forest Area (DFA). It was originally developed with the cooperation of the Public Advisory Committee (PAC), a group of dedicated individuals and organizations interested in sustainable development of the forests of the DFA. The planning process involves public consultation and follows the principles of sustainable forest management.

CBPPL's first SFM Plan was developed over 16 months and released in July 2004. In late 2008, the Canadian Standard Association released a draft revised standard (CSA® Z809-08), and the PAC began updating CBPPL's plan to conform to the new standard, incorporating lessons learned and continual improvement. In 2012, CBPPL was also certified to Forest Stewardship Council (FSC®) Boreal Standard. In 2018 and 2019 both standards (FSC and CSA respectively) were not maintained and instead replaced with CBPPL's newest forest management standards. In July of 2019 certification to two Sustainable Forestry Initiative Standards (SFI), Forest Management and Fibre Sourcing, was achieved. The PAC committee, although a requirement of the CSA standard only, was kept intact to continue to aid in public consultation for future planning inputs and to meet standard and government requirements.

CBPPL wishes to illustrate to the public (the landowners) and to its customers that the DFA is being managed on a sustainable basis. To this end, CBPPL seeks to maintain certification to SFI, and Canada's national sustainable forest management (SFM) Standard. Forest certification gives organizations a system for continually improving their forest management performance and engaging interested parties in a

focused participation process. Rigorous and regular independent third-party audits are involved in certification to both standards.

CBPPL Woodlands' Environmental Management System (EMS) is the vehicle that ensures fulfillment of the SFI Standards requirements. CBPPL's EMS is a registrant to the ISO 14001 Standard, a standard that incorporates environmental aspects and continual improvement into all forest operations. EMS applies to all Woodlands operations controlled by the company including management planning, road construction and maintenance, harvesting operations, transportation of fibre, silviculture, and support services. The documented procedures of EMS will provide the system to satisfy all requirements of the ISO 14001 and SFI Forest Management and Fibre Sourcing Standards.

Throughout the SFM Plan, references are made to Indicator Profiles. The profiles, located in the final section of the plan (which can be found on CBPPL's website www.cbpplwoodlands.com), contain the background information, management strategy, and implementation details for each of the indicators of sustainable forest management and adapted to satisfy indicators for the SFI standards.

The auditing process, conducted by an independent third party, determines whether the requirements are implemented at the DFA level.

4.2. Values Structure

The forest ecosystems of the zone provide a wide range of values to different individuals and groups. These include consumptive values such as timber products, hunting, trapping, sport fishing, and berry picking, and non-consumptive values like skiing, snowmobiling, hiking, and bird watching. Also, there are intrinsic and intangible values such as a feeling of wilderness and peace which some people describe as spiritual. Although difficult to spatially describe or quantitatively measure, these spiritual values are a product or an accumulation of all values.

Other values such as water quality, parks and protected areas etc. provide for the protection of the forest ecosystems which can enhance the other values listed above. Many of the values in the zone were identified by this or previous or planning teams. Presentations of pertinent information on each value by knowledgeable individuals or groups provided stakeholders with relevant information to make informed decisions. Other values, while not specifically outlined by the planning team, are also identified, and discussed to provide a more complete description of the range of values found in the zone. The following represents a framework for characterizing values in a clear and consistent manner. This approach consists of three components:

(a) Characterization

- Description: Why the value is important, types of activities, intensity, spatial extent, employment, etc.
- Data in support: Statistical references.

(b) Critical Elements

- Forest Features: Elements at risk from harvesting or enhanced by harvesting (viewscapes, adjacency to water, mountains, habitat, wilderness ambiance, road access, etc.)

(c) Guiding Principles

A guiding principle is defined as "a fixed or predetermined policy or mode of action".

These ‘modes of action’ would be implemented in the five-year plan in the form of:

1. Policies that should be in place to protect or enhance the resource value.
2. Methods for negotiation or inclusion of other stakeholders in resolving potential conflicts.
3. Special management provisions/strategies - such as buffer zone consideration, temporal operating periods, modified harvesting, or a best management policy; and/or
4. Models and/or forecasting strategies to determine economic contribution, biodiversity impact, or community sustainability

Individual values were discussed both at the strategic and operational level. Strategic level information (characterization, critical elements, and guiding principles) is the focus of discussion in this section. They provide a mechanism to resolve conflicts that might arise throughout or after the five-year planning process. Where possible, the physical location of the value on the landscape (operational level) was also identified during the discussion of values (appendix 6). This helps facilitate the preparation of the five-year operating plan by identifying potential areas of conflicting use early into the process. In many instances, the Environmental Protection Guidelines (EPG’s, Appendix 1) form the guiding principles for a value. Quite often the spatial extent or location of all values is not known (e.g., raptor nests). Specific guidelines are still listed to provide a direction or course of action when and if these values are encountered.

4.2.1. Biotic Value

4.2.1.1. Big Game

4.2.1.1.1 Moose

Characterization:

Moose are not native to the island. Today, moose are distributed throughout the Island and in 2020 the population was estimated to be around 118,000 animals. Currently, moose are managed on an area/quota system in the province. The Island is divided into Moose Management Areas (MMA’s) and license quotas are set annually for each MMA. Quotas are set based upon the management objective for each area (i.e., whether it is desired that the population increase, decrease or stabilize). Generally, if an area has too high of a moose population, managers will increase quotas to bring down the population to prevent damage to

the habitat. However, if the habitat is in good condition, and the area could support more animals, future quotas may be increased. All or portions of moose management areas 5, 6, 7, 8, 9, 10, 11, 18, 19, and 43 are located within the zone.

Critical Elements:

Harvesting is not expected to have a negative impact on moose populations in the zone because moose prefer the early serial stages of a forest and generally do well in areas after harvesting.

Guiding Principles:

Proposed forestry activity is reviewed by the staff at the Wildlife Division and recommendations are incorporated into this five-year plan.

4.2.1.1.2. Caribou

Characterization:

Caribou is the only native ungulate species on the island. Biologists estimate that prior to the railway being built in 1898 the population on the Island was approximately 100,000 animals but by 1930 the population had declined to about 10,000 animals. Between 1980 and 2000 the number of caribou has increased considerably on the Island with a population estimated at 90-100,000 animals. In 2019 population estimates suggests 30,600 animals exist island wide. All or portions of 3 caribou management areas 61, 62, and 75, are in the zone.

In 2014 the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assessed Newfoundland Caribou and recommended a listing of “special concern”. COSEWIC assessments are usually done on a 10-year cycle.

Critical Elements:

It is unclear how forestry activities in the immediate vicinity of calving areas during the calving period may have an impact on caribou populations. Recent studies and anecdotal information have indicated that harvesting restriction zone around caribou calving zones may be significantly larger than first thought. It has also been shown that as roads are constructed and access is improved into remote areas, there is generally an increase in the number of animals which are killed due to roadkill and poaching.

Guiding Principles:

The Wildlife Division of FFA will be consulted on timber harvesting within woodland caribou habitat during the preparation of each District five-year operating plan, with further requirements to be outlined during the development of Annual Operating Plans.

- This plan supports the development and assessment of Caribou Management Guidelines for forest management planning.
- Currently the Wildlife Division has provided spatial data on restoration and conservation herds in the province, along with the targets for habitat renewal.
- The guiding principals for forestry operations and road construction will apply to CBPPL and Crown lands within the province. Wildlife Division will provide herd specific guidance and recommendations.

4.2.1.1.3. Black Bear

Characterization:

The black bear is native to the island and is found in forested areas (Northcott, 1980). Currently, the number of black bears occurring on the island is not known but is crudely estimated to be about 6 - 10,000 animals (Christine Doucette, Pers. Comm.). The province is divided into Black Bear Management Areas (BMA), which correspond to MMA’s. Currently, only one license (with a bag limit at 2 bears) is required by hunters on the island to hunt bear in both spring and fall.

Critical Elements:

- Den sites for winter hibernation.
- Forest cover

Guiding Principles:

A 50-metre, no harvesting activity buffer will be maintained around known bear winter denning sites or those encountered during harvesting. These den sites must be reported to the Wildlife Division.

4.2.1.2. Furbearers

Characterization:

Ten species of furbearers occur in the zone; lynx, red fox, beaver, otter, muskrat, short tailed weasel, red squirrel, mink, coyote, and pine marten (will be discussed in more detail in next section). Of these, red squirrel, mink and coyote are not native. Approximately 16,000 people in the province trap and snare furbearers as a means of supplementing income.

Critical Elements:

- Forest cover for protection;
- Water quality maintenance;
- Riparian buffer zones along aquatic areas;
- Snags and coarse woody debris (denning, nesting sites, etc.)

Guiding Principles:

Fur Bearer Management Strategy:

Recommendations concerning the management of furbearer species are developed annually by the Wildlife Division, upon consultation with provincial trappers, Newfoundland and Labrador Trappers Association, public, and departmental staff. Like the small game management plan, the fur management plan, reviews the status of each fur bearer species annually and addresses the season dates and lengths, and if necessary, closure of areas (or no open season). Management of all fur bearing species in the zone will continue to be managed through this process. Information regarding trapping is made available to the public through the Annual Hunting and Trapping Guide.

Environmental Protection Guidelines:

To protect beaver habitat, all hardwoods within 30 metres of an active beaver lodge are to be left standing.

4.2.1.3. Salmonids

Characterization:

The Atlantic salmon and the brook trout are native to the Island and are found in waterways surrounded by forested areas. There are numerous scheduled salmon rivers in Planning Zone 6.

Critical Elements:

- Water quality maintenance
- Riparian buffer zones along water systems

Guiding Principles:

Salmonid Management (Atlantic salmon and brook trout)

Management of Atlantic salmon and brook trout in the province is delivered by the Federal Department of Fisheries and Oceans (DFO). DFO annually sets bag limits, season dates and river closure dates based on extreme water temperature.

Environmental Protection Guidelines and other requirements

- A 30m, no harvesting activity buffer zone shall be maintained around all water bodies that are identified on the latest 1:50,000 national topographic map.
- Streams greater than 2m in width that do not appear on the NTS maps require a 30m buffer
    - if they have a defined bottom,
    - banks that exceed 30cm in depth; and

- meets or exceeds an average 2m in width measured at 40m intervals over a 200m distance along the stream

- Where the slope is greater than 30 per cent there shall be a no harvest buffer of 30 metres plus 1.5 times per cent slope. All equipment or machinery is prohibited from entering waterbodies; thus, structures must be created to cross over such waterbodies for the protection of aquatic habitat. Every reasonable effort will be made to identify intermittent streams, and they will be subject to this buffer requirement.

- under the Environmental Protection Guidelines designated Protected Public Water Supply Areas (PPSWA's) also provide protection for these species (ie. increased buffers, usually 150 meters on intake ponds, 75 meters on main river stems, 50 meters on major tributaries and minimum 30-meter buffer regulated in the rest of the district). These buffers may change from area to area.

- DFO recommends that a 100 metre no-cut buffer zone be left in designated sensitive spawning areas.

4.2.1.4. Song Birds

Characterization:

The distribution of songbird species in a forest ecosystem is widely considered to be a relative indicator of ecosystem health. Many songbird species are distinct to specific habitats (Whitaker et al., 1997) therefore; the presence, absence, or health of a specific songbird population can indicate the health of its corresponding habitat. Songbirds are also the natural predators of our native Lepidoptera pests (ie. looper and budworm) and help to control these populations. Consequently, their value cannot be underestimated.

Critical Elements:

- forest cover for protection;
- water quality maintenance;
- riparian buffer zones along aquatic areas;
- variety of forest seral stages and species (nesting sites, habitat, etc.)

Protection of songbird species will mainly involve protection of their habitat through the various methods discussed in earlier sections.

4.2.1.5. Other Avian Species

Characterization:

Other valued avian species include ptarmigan, grouse, migratory birds and raptors. The former includes important game species, while the latter (ie. raptors) occupy higher trophic levels in the food chain. Higher level trophic feeders are considered important indicators of ecosystem health as they are sensitive to environmental stress. Population trends for these species as defined by the Wildlife Division and Canadian Wildlife Service (CWS) are available on a regional basis.

Critical Elements:

- forest cover for protection;
- water quality maintenance;
- riparian buffer zones along aquatic areas;
- snags and coarse woody debris (prey habitat)
- buffer zones on nesting sites
- The locations of all known bald eagle and osprey nests will be identified on all cutting maps and harvesters will be informed of their locations by Forest Services Staff. Regular operator checks and routine patrols of domestic cutting areas by Forestry Staff will ensure compliance of these guidelines.
- On recommendation by the CWS, sensitive waterfowl habitat has been protected through increased

buffers of 50 meters on certain ponds.

Environmental Protection Guidelines

- The EPG's outline Beneficial Management Practices which would reduce the risk of incidental take by making forest operators aware of their responsibility in the following areas
    - Knowledge of Legal Obligations
    - Risk Assessment and Planning
    - Preventative and Mitigation Measures.

For further details see Appendix 1

4.2.1.6. Rare and Endangered Species

4.2.1.6.1 Pine Marten

Characterization:

Before 1900, marten ranged over most of the forested areas on the island. Unfortunately, due to a variety of reasons, the population levels dropped where this species was listed to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as Endangered. Habitat loss, predation, disease and accidental trapping and snaring are thought to be primary reasons for marten population decline in Newfoundland. Marten still naturally occurs in three main areas on the island including: Main River watershed, Little Grand Lake and Red-Indian Lake areas. Additionally, marten also now exist at Terra Nova National Park (TNNP) and surrounding landscape. As well, in the Bay Du' Nord Wilderness Area around Lake St. John through a relocation effort by the Eastern Newfoundland Pine Marten Recovery Team. Representatives from TNNP, Forest Services Branch, Wildlife Division and CBPPL are represented as stakeholders of the recovery team. The purpose of this team is to set short-term and long-term population goals for the species in eastern Newfoundland and recommend ways which this may be accomplished. The Team has been established for some time now and has worked on the process of evaluating critical and recovery marten habitat and determining which forest activities can take place within these areas. Approximately, 16 marten have been relocated to these areas and the population estimate today is approximately 300. Once listed as Endangered, COSEWIC has now downgraded the marten listing to Threatened.

It is important marten habitat is protected in this area and some remnant stands of old growth (80+) forests remain throughout the zone. To accomplish this, a landscape approach to habitat management was initiated by the Forest Service in 1999. This involved working with stakeholders to identify critical or potential marten habitat, locating possible corridors, and identifying areas which would not be cut in the near future. This initiative has been ongoing since that time.

Critical Elements:

- Sufficient habitat to support a viable population of marten;
- Areas of known marten populations remain closed to snaring and trapping

Guiding Principles:

The basic unit for evaluation will be home range size for male (30km$_2$) and female (15km^2). All forest types can be considered marten habitat if they meet the following requirements:

- Sufficient habitat to support a viable population of marten;
- 70% or greater of that unit must be suitable habitat; - 40% or greater of the unit should have trees greater than or equal to 9.6m in height;
- The remaining portion of the 70% (30% or less) should have trees between 6.6 and 9.5m;
- 50% of the unit should be contiguous; stands will have to be within 50 m of an adjacent habitat to be considered contiguous.
- A qualifying stand will have to be within 150m of another stand or habitat patch to be considered as habitat.

- Minimum patch size equals 20ha;
- Basal area requirement equals 40m^3/ha (~18 m^2);
- Hardwood stands (insect kill, wind throw) will be considered where crown closure is greater than or equal to 30%;
- Softwood scrub that meets the minimum requirements (6.5 m) will be considered habitat.

Where height is not known, softwood scrub within 50 m and adjacent to a qualifying stand is considered as habitat. As stated, critical and recovery pine marten habitat is being or has been identified. The development and evolution of the marten habitat suitability model in recent years has been a useful tool in identifying potential marten habitat and evaluating impacts of harvesting on this habitat and resultant changes to population levels. Continued development and refinement of this model will provide more a reliable means of evaluating impacts of harvesting on marten habitat in the future. There is also ongoing research into a variety of aspects of marten dynamics through the Model Forest, Canadian Forest Service, and University of Maine. Recommendations resulting from any of these ongoing initiatives will be incorporated into harvesting prescriptions as required.

4.2.1.6.2. Banded Killifish

Characterization

The Newfoundland population of Banded Killifish was first listed as special concern in 1989 due to the limited area of occupancy, limitation on potential for range expansion, and potential threats from logging and other activities that could lead to habitat degradation (Chippett, 2003). In 2003 the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) recommended the status of special concern should be maintained. Banded killifish populations in Newfoundland are distributed over a wide range, but local populations are restricted to very confined regions within their respective watersheds. Populations appear to be locally abundant in representative areas that were sampled (i.e. Indian Bay watershed, Loch Leven and Freshwater Pond). Although multiyear data is not available, population estimates from 1999 indicate that over 20,000 individuals exist in the Indian Bay watershed. Estimates are not available for other local populations (Chippett, 2003). Although no killifish have been officially reported in other areas of the planning zone, it is highly likely other areas may contain suitable habitat.

Critical Elements:

- water quality maintenance;
- riparian buffer zones

Guiding Principles:

- guidelines for the protection of freshwater fish habitat are developed by DFO's Habitat Management Branch
- Designated protected public water supply areas (PPSWA's) also provide protection. As well, applying existing Environmental Protection Guidelines to these areas (ie. Increased buffers, 150 meters on intake ponds, 75 meters on main river stems, 50 meters on major tributaries and minimum 30 meter buffer regulated in the rest of the district).
- Protection of this species is also strengthened through partnerships with the community based watershed management groups.

4.2.1.6.3. Red and White Pine

Characterization:

Provincially, the range of white pine is shrinking due to a variety of reasons including past harvesting practices and infection from blister rust. However, significant stands of white pine still exist in forest management districts of Planning Zone 6. Red pine is the rarest tree species in the province with a distribution of some 22+ small stands (<15,000 trees in total). There is low representation of red pine in this Planning Zone. However, since both species occur in Planning Zone 6, local protection is required to

maintain local and provincial biodiversity.

Critical Elements:

- maintenance or enhancement of stands on the landbase
- minimizing loss of trees/stands through public education
- minimize losses to fire, insect and disease
- enhancement of younger age classes through planting natural regeneration and pruning to ensure continuance of the species
- maintenance of native genetic stock

Guiding Principles:

- enforcement of forestry act, regulations, guidelines, and policies
- gene preservation gardens for these species and a clonal orchard for white pine have been developed by DNR at Wooddale Tree Nursery. At some point, the goal is to produce seed from these gardens/orchards to grow pine seedlings of native origin.
- some native red pine stands are protected under reserve status.
- DNR has adopted a no cutting policy of pine by nontraditional users and a phase out of cutting by traditional commercial users. Currently, no commercial operators harvest pine.
- protection of these species in planning zone is expected to be strengthened by public education and no-cut conditions on permits (both domestic and commercial).
- implementation of silviculture treatments designed to merge pine back into the landscape.
- DNR is collecting seed from red pine stands of native origin and the collection of white pine scions for the clonal orchard at Wooddale - DNR also implements stand level silviculture prescriptions such as pruning of immature white pine to reduce the infection rate of blister rust and cone production enhancement on red pine to ensure an adequate supply of native red pine seed.
- CBPP staff are members of the Red Pine Recovery Team.

4.2.1.6.4. Red Crossbill

The red crossbill is currently listed as endangered. Any recommendations on modified forestry activities, if any, will be developed by the Wildlife Division and will be presented in comments in future 5YP's or annually in the Certificate of Managed Lands.

4.2.1.7. Water Resources

Characterization:

In Planning Zone 6, water is used beneficially for numerous purposes. Most communities within the zone have water supplies. Thirty-eight of these supplies are protected under the province's Protected Water Supply Program. Recreational waters within this zone are used for activities such as fishing, boating and as a water supply source for numerous cabin owners.

Human activity on the land has the potential to alter water quality and water quantity. Commercial forest harvesting is the predominant activity and occurs throughout the zone. Hydroelectric development has resulted in several river diversions. There is a vast array of roads associated with the harvesting and traditional access routes as well as newly constructed roads which dissect the unit. Mining operations within the zone are limited to mostly small quarrying operations associated with road construction. Some exploration activity for hydrocarbons, dimension stone and base metals has occurred sporadically throughout the region.

Critical Elements:

Forest management activities such as road construction, maintenance, timber harvesting, and silviculture may potentially alter the quality of water draining from watersheds. As well as other defining characteristics such as stream hydrology, sediment loadings, stream characteristics, and aquatic discharges from

municipalities. Careless storage and handling of fuels by industrial and recreational users, stream diversions and agricultural operations are other examples.

Guiding Principles:

There are numerous protective measures listed in the Environmental Protection Guidelines under the broad categories of road construction, stream crossings, road abandonment, fuel oil handling and storage, support services and structures, harvesting, silviculture, and protected water supply areas.

4.2.2. Human Values

4.2.2.1. Timber Resource

Characterization:

One of the major resource values of the forest ecosystem is the harvesting of timber to provide forest products. The market value of forest products harvested on CBPPL limits in Zone 6 is more than $50 million and provides direct employment for approximately 200 employees from more than 50 communities. Historically timber has been harvested since the first inhabitants settled in the zone. Initial uses were mainly domestic in nature to supply timber to build houses, fishing sheds and equipment and for heating and cooking. With the increase in population, more commercial uses have arisen to supply lumber and pulp and paper products. Commercial harvesting and sawmilling activity provide many jobs in harvesting, sawmilling, trucking, pulp and paper manufacturing and related spin off industries for residents.

Domestic harvesting still provides fuelwood to heat many homes and sawlog material for residential house construction in the zone. In fact, the easy access to domestic sawlogs and lumber is one of the reasons why this province has the highest rate of home ownership in the country. There are between 2800-2900 domestic cutting permits issued annually by the Crown which accounts for approximately 65 percent of the harvest on crown land. On CBPPL limits the company issues approximately 700 domestic firewood permits.

Silviculture treatments are important to the forest resource of the zone because they ensure a vigorous and healthy forest is maintained. Forest renewal activities are critical because they ensure that the productive land base is maintained by planting areas that are not sufficiently restocked. Forest improvement activities help improve and enhance the growing stock which can reduce harvest cost, enhance forest product options, and increase sustainable timber supply. There is approximately $900K spent on silviculture on CBPPL limits annually creating more than 40 seasonal jobs.

Timely access to timber is critical to planning any forestry operations. Primary, secondary, and tertiary roads form an integral part of operating areas and are used after timber extraction is completed for silviculture and recreational purposes. Between $500-750 000 is spent annually by CBPPL to construct forest access roads each year in the zone.

Protection of the forest from various disturbances is also a major characteristic of resource management. Because of the long insect history in the zone, protection through integrated pest management techniques is an important activity. While fire has not been a major disturbance, protection is still critical since a large fire can potentially be devastating. Protection of other resource values through modification of activities and enforcement is also important.

Spruce and Fir

Balsam fir, white spruce, and black spruce are the main saw log and pulpwood species within the province. Within this planning zone, balsam fir accounts for more than 90% of the softwood harvest. Balsam fir is very important for its contribution to positive opacity properties of newsprint and is also excellent for lumber.

These species are managed for maximum sustainable harvest levels though the harvesting and silviculture strategies referred to later in section 6. Protection and long-term sustainability of these species will be achieved through strict adherence to AAC’s and refinements to future wood supply analysis.

White Birch

Traditionally, white birch has been a valued species for domestic fuel wood. However, it is now emerging as an important value-added species within the sawmilling and value-added manufacturing industries of the province. Additionally, white birch benefits the cycling of nutrients, the structure of forest soils, and can help in the reduction of insect infestations and in the decrease in spread rates of forest fires (Perry, 1994). White birch dominated stands comprise approximately 8% of the forested land base in the planning zone. With efforts to manage this species on a sustainable basis, in 2002 the first AAC's were developed for white birch and were refined in the 2005 wood supply analysis.

Critical Elements:

The overall objective is to ensure the AAC is maximized while considering other resource values and conducting environmentally sound operations. This is achieved by:

- maintenance or enhancement of productive landbase
- planting of non-regenerating areas
- maintenance of the white birch component
- minimizing loss of landbase to other users
- minimize losses to fire, insect and disease - timely access road construction
- maintain both a sawlog, pulpwood and firewood industry

Guiding Principles:

- enforcement of forestry act, regulations, guidelines, and policies
- maintenance of AAC's; adherence to harvest schedules
- minimize loss of productive land base through spatial and temporal compromises and continuous dialogue with other resource users
- education (staff, public, operators)
- aggressively conduct silviculture, access road, and protection activities
- implement best management practices.

The Environmental Protection Guidelines for Ecologically Based Forest Resource Management outline courses of action and mitigative measures for conducting forestry activities. Some of these highlighted subject areas listed below:

- silviculture and harvesting activities
- mineral soil exposure
- buffer requirements
- road and bridge construction
- garbage disposal
- fuel storage

4.2.2.2. Agriculture

Characterization:

There are 80-100 farms in the zone; the majority of which are located in the Humber Valley, Codroy Valley, and Bay St. George (Robinsons, Highlands Flat Bay) areas. These farms employ 250-300 people with gross farm receipts of $15-20 million. Main commodities produced in the zone are dairy, vegetables, and greenhouse products. Other commercial items include fur, berries, eggs, hogs, sheep, beef, honey, and sods. Additionally, there are hundreds of subsistence farming plots scattered throughout the zone. The vegetables grown on these plots are used to supplement food requirements during the winter months. There are also several pastures and areas designated for hay production.

The wild berry industry (bakeapple, partridgeberry, strawberry, blueberry, and raspberry) plays a significant role in the economic picture for the zone. While there is no actual record of domestic production, thousands

of kilograms of berries are harvested annually. These berries are sold locally and to travelling tourists.

Critical Elements:

Surveys indicate approximately five percent of soils in the province are suitable for agriculture. It is difficult to identify and plan all sites for potential future agriculture use and often this will result in conflicts with other land uses, particularly forestry because these sites are of high growing capability. Although a suitable landbase is the first critical element necessary for a successful agriculture operation, markets and the interest of individuals are also prime factors in the development and location of future farms. In the spirit of managing the ecosystem for multiple benefits, provisions will be available for the agriculture industry to expand.

Guiding Principles:

Lands designated for forest management can include areas with high potential for agriculture. In 2017 the FFA Land Resource Stewardship Division and CBPPL developed a list of Agriculture Areas of Interest. These areas were in multiple districts and amounted to over 12,000ha on CBPPL limits. These areas are identified on Operating Plan maps and discussions occur on an annual basis if any modified forest activity is required due to an agriculture area of interest. The agriculture leasing policy initiated in 1976 ensures that new or existing land allocated for agriculture continues to be used for agriculture. The leases have no provision for fee simple grants and must be used exclusively for agriculture purposes.

The following will provide guidance for the development of agriculture within the zone:

- Home gardening leases should be confined to areas already developed for this activity.
- New agriculture leases should include a business plan approved by the Forestry and Agrifoods Agency.
- Wood harvested on agriculture leases shall be completed under a crown cutting permit.
- Where possible, existing commercial forest operators should be encouraged to work with farmers to clear new land for development.

4.2.2.3. Mining

Characterization:

There is a significant mining presence in the zone, particularly in District 14. Some of the major mines, past and present, have been located at Hope Brook, Agathuna, Lower Cove, and Flat Bay producing gold, gypsum, limestone, dolomite and aggregate. Smaller mines harvesting other products are located throughout the zone. In recent years, oil exploration has seen several sites developed with major exploration work using seismic lines occurring. There are also several active aggregate and quarry leases located throughout the zone. These are usually for very small areas which can be rehabilitated; thereby, minimizing their impact upon the forest ecosystem. Exploration activities continue to form a large portion of the activities in the zone.

Critical Elements:

To minimize the impact of mining and mineral exploration upon the forest ecosystem while providing a source of energy and aggregate material.

Guiding Principles:

- Ensure that quarries and open-pit mines are rehabilitated
- Ensure that the organic overburden is stockpiled and stored in a manner so that it can be used to rehabilitate the site.
- Avoid planning silviculture activity in areas adjacent to mines or quarries.
- Every attempt will be made to extract timber harvested as part of oil and mining exploration and development.
- If timber cannot be feasibly extracted using conventional means, then timber shall be piled so that it may be extracted during winter months by snowmobiles.
- A mineral exploration company that proposes to explore or develop within a silviculturally treated

area must carry out its exploration program with minimal disturbance and provide compensation as required
- Annual silviculture plans will be shared with the Mines and Energy Division to identify potential overlaps.
This plan will not impede mineral exploration and/or development on mineral licenses within the planning area.

4.2.2.4. Historic Resources

Characterization:

The provincial archeology office (PAO) is the agency responsible for the management and protection of archaeological sites and artifacts in Newfoundland and Labrador. This program is carried out under the Historic Resources Act which ensures that developments with potential to have adverse impacts on historic resources are investigated and monitored by a qualified archaeologist through archaeological impact assessments.

Archaeological sites are non-renewable resources and play a vital role in understanding our heritage. It is important to professionally record as much information as possible at an archaeological site in order that one may fully understand its history. To do this properly the site must not be disturbed. Very often, archaeological sites are small, spatially bounded units, therefore protecting these resources usually do not have an adverse impact on forestry activities.

Archaeological surveys have been carried out in several areas within the zone over the years, however many areas remain to be surveyed. To date there are 180 known archaeological sites within the zone which are protected under the Historic Resources Act. These sites show evidence of Maritime Archaic Indian, Palaeoeskimo, Beothuk, Mi'kmaq and European occupation. There is potential for other historic resources to be found in the zone.

Critical Elements:

Major threats to historic resources are projects involving activities which disturb soil layers and/or provide unintended public access to the archaeological resources. Forestry activities such as construction of access roads and bridges, harvesting and mechanical site preparation have the potential to destroy historic resources.

While forestry activities can have adverse impacts on historic resources there are also beneficial effects. When impact assessments are carried out and new sites found, it adds to our understanding of Newfoundland and Labrador's heritage. When archaeological sites are discovered through impact assessments these resources are protected from damage or destruction and preserved.

Guiding Principles:

Any project involving land-use has the potential to adversely impact historic resources, therefore it is important that the Provincial Archaeology Office be involved at the planning stage to ensure that mitigative measures to protect historic resources are developed at the earliest possible time. In order that known archaeological sites and potential unknown sites are protected from forestry activities buffer zones will be necessary in some areas whereas archaeological assessments may be required in others. Known archaeological sites must be avoided and buffers will be required around them. Buffers will also be required along all rivers and ponds, as well as long the coastline where there is potential for archaeological resources to be found. Occasionally there are accidental discoveries made of historic resources. If this does happen, activities should cease in this area and contact be made immediately with the Provincial Archaeologists.

4.2.2.5. The Greater Gros Morne Ecosystem

Characterization:

The primary role of Canada's national parks is to maintain ecological integrity. Although enshrined in policy for many years, this role had been given prominence in legislation by the passing of the Canada National

Parks Act in October 2000. The Report of the Panel on Ecological Integrity of Canada's National Parks (February 2000) noted that parks across the country (including GMNP) are under threat from stresses both within and outside the national parks. Ninety percent of forested parks are under stress from external forestry activities.

The primary challenge for national parks in maintaining their ecological integrity is that most parks are part of larger ecosystems and the area set aside for the parks is not large enough to protect the full integrity of that ecosystem. Large-scale changes on the landscape surrounding parks can isolate the park ecologically creating an "island". Parks Canada must work with adjacent land managers in striving to achieve its mandate.

Biodiversity goes beyond the range of wildlife and plant species to include the range of habitats and landscapes. Loss of special habitats such as the old-growth forest and associated species may impair the ecological integrity of GMNP in ways that are not currently understood. While ecological integrity has prominence regarding the management of national parks, legislation and policy dictate broader responsibilities for national parks. These include providing opportunities for Canadians and others to have high-quality experiences in a natural setting.

Currently, 61 percent of GMNP is classified as Zone II - Wilderness. The southwestern portion of this zone borders on District 15. The Long Range Traverse, a 3-4 day hike within GMNP, currently has a reputation as a high-quality wilderness experience due to its remoteness and difficult access. Increased access, because of forestry operations can threaten this wilderness quality. The presence of the endangered Newfoundland pine marten has been noted in the northern and southern areas of the park. Those sighted in the south are not closely connected with a core population and are likely "dispersers" from either the Little Grand Lake/Red Indian

Lake or Main River populations. Habitat connectivity with these other core populations may be critical to long term survival of marten in GMNP.

Critical Elements:

- to maintain ecological integrity:
- to maintain native biodiversity and natural processes.
- to maintain viable wildlife populations

Guiding Principles:

The long-term effect on the park's ecological integrity can rarely be isolated to one cause and is more often because of many activities. For that reason, it would be important to assess the cumulative environmental effects of all activities as part of the forest management planning process.

- maintain species composition as well as the age structure and ecological functions of the various forest-types across the landscape over the long term.
- maintain proportion of interior forest (mature forest >250 m from an “edge”)
- maintain landscape connections between the park and the surrounding landscape. This would require effective, permeable movement zones between populations and/or critical habitats.
- manage and operate according to the precautionary principle, particularly as it relates to species at risk.
- ensure landscape characteristics are maintained that allow marten to achieve their habitat requirements at the landscape scale. This could mean ensuring forest management practices allow for a continuous distribution of marten habitat and home ranges to the park boundary. A conservative approach that preserves future options should be adopted until the marten guidelines are fully developed.

4.2.2.6. Recreational Trails

4.2.2.6.1. Newfoundland T’Railway

Characterization:

A large section of the Newfoundland T'Railway Provincial Park lies within the zone and has an impact on forestry operations. The former CNR right-of-way, which is 25 feet each side of the center line, is the main route for the T'Railway, with some minor deviations. It provides for an all season, multi-use recreation corridor developed and managed with community partners to maximize adventure tourism and recreational opportunities. The T'Railway is protected for the present and future enjoyment of the public, as part of a system of provincially designated parks and natural areas. The Provincial Parks Act provides the legislative framework for the administration and management of the T'Railway, which constitutes the Province's contribution to the Trans Canada Trail System. It is the largest provincial park in the Province with the most users. It is used primarily for snowmobiling, skiing, hiking, walking and all-terrain vehicle usage. Other new or historical uses such as commercial and domestic harvesting access, quarry and mining access and cottage access are also permitted with a special permit.

Critical Elements:

- Protection of the historical landscape integrity of trail corridors
- Preservation of the scenic quality along trail corridors
- Control of land usage adjacent to trails

Guiding Principles

- Coordination of activities with various other agencies responsible for land management outside the T'Railway corridor to ensure that the integrity of the park is maintained
- Coordinate and build partnerships with other stakeholders and user groups such as communities, industry and recreational organizations for the long-term maintenance and development of the trails
- EPG's require that a 100m no cut buffer from the centre line of the T'railway (both sides).

4.2.2.7. Parks and Protected Areas

Characterization:

The mission statement of the natural areas program is to protect in an unimpaired condition, large wilderness examples of provincial ecoregions including their natural processes and features and rare natural phenomena, to preserve the diversity and distinctiveness of the province's ecologically sustainable future for the benefits of present and future generations. Natural areas are store houses of natural diversity that exists in a wild, pristine state. They serve as ecological benchmarks indicating the natural succession of forest ecosystems. They also preserve in perpetuity, provincially significant representative and special natural features and outstanding recreational environments.

There are many types of protected areas in the province. The Wilderness and Ecological Reserves Act enables the province to establish the following: wilderness reserves (Component 1), ecological reserves (Component 2) and protected sites (Component 3). Component 1 reserves are defined using the critical habitat of high-level, wide-ranging species i.e., caribou. They generally cross ecoregion boundaries, protect complete systems and are large (> 1000 km²). Component 2 reserves protect representative samples of ecoregions (not included in Component 1 reserves) and are mid-sized (50-1000 km²). Component 3 reserves protect exceptional natural features, such as, rare species or areas of unusual biological richness and are generally small (< 50 km²). The benefits of protected areas are to preserve biodiversity, provide areas for scientific research, provide opportunities for environmental education, and provide standards against which the effects of development can be measured. Protected areas in the zone include: the T'Railway, Gros Morne National Park, the Little Grand Lake Reserve, as well as several Natural Areas System Plan candidate reserves.

Critical Elements:

- preservation of biodiversity
- maintenance of protected area integrity
- maintain natural processes and features

Guiding Principles:

- The Province of Newfoundland's Natural Areas Systems Plan recommends that a minimum of 12% of the province's entire land base be protected.
- Only allow traditional (hiking, berry picking, hunting etc.) activities, educational activities and scientific research within protected areas provided the integrity of the reserve is not compromised
- Prohibit all forms of new development such as mining activity, hydroelectric projects, forestry activity, agriculture activity, roads and trails and cottages and new structures.
- Where forestry operations are within one kilometer of provisional and ecological reserves, wilderness reserves or provincial parks, modified operations may be necessary

4.2.2.8. Outfitting

Characterization:

The outfitting industry has been an integral component of the tourism industry in Central Newfoundland since the early 1900's. This region has always been a popular hunting and fishing destination because of the pristine environment and abundance of fish and wildlife species. There are many outfitters operating within the boundaries of the zone that operate and maintain main and/or line camps. These operations provide seasonal employment for many local individuals.

From an article published on January 14, 2022 on the Saltwire website titled "Outiftting industry keeping a close eye on gold mining plans in Central Newfoundland" it is cited; "In a normal year about 7000 hunters and anglers book excursions with local outfitters, said Cory Foster, executive director with the Newfoundland and Labrador Outfitters Association (NLOA).The industry brings about $50 million to the province and employs approx. 1,300 people".

Over the past 10 years, a significant number of traditional hunting and fishing facilities have diversified into the non-consumptive areas of the tourism industry. Such activities include but are not limited to: snowmobiling, dog sledding, kayaking, canoeing, nature viewing, hiking, and wildlife photography. The ability to diversify has positively impacted the viability of outfitting operations and as such, increasing numbers of operators are considering these opportunities. Diversification can lengthen seasons of operation, increase and lengthen employment, and reduce dependency on a single sector of the tourism industry. Pristine wilderness settings are necessary for many of these types of diversification.

Critical Elements:

Remote outfitting camps are dependent on their remoteness. Forest access roads inevitably impact the ability of a camp to maintain its remote status. Increasing accessibility through increased access roads can also lead to increased hunting and fishing pressures in a given area. This can in turn lead to decreased success rates of tourists. This is of particular concern since Newfoundland is often the hunting destination of choice due to success rates upwards of 80 percent. An increase in access roads also tends to lead to increased cottage development that in turn can have an impact on both remoteness and game availability. While clients of big game and fishing outfitters are primarily interested in hunting or fishing experiences, they also show a great respect and admiration for pristine conditions and a healthy-looking landscape. The landscape view experienced by clients plays a large role in leaving a lasting impression of the province. The view also has a direct impact on repeat client bookings and recommending the destination to others. Viewscapes become even more important once outfitters begin diversification into non-consumptive tourism activities. With these activities, there is no trophy to bring home and that which is taken away is that which has been experienced by the senses (i.e. sights, sounds, smells, etc.).

In some cases, past harvesting practices has resulted in increased levels of garbage (skidder tires, abandoned buses, heaps of oil containers, etc.). This can be frustrating for outfitters who concentrate on not leaving permanent marks on the landscape. Possible erosion caused by hillside logging and heavy equipment use is also a concern - particularly due to its possible effects on water quality for fish habitat.

Guiding Principles:

It is necessary that no harvest buffer zones be left around outfitting camps that are agreed to by all parties involved. Buffer zones can be difficult to negotiate due to varying ranges of activity from operator to operator. Some operators make use of areas that are 8 to 10 kilometers away from the main lodge.

- Consideration should be given to decommissioning roads and bridges (where possible) after harvesting is completed. This will eliminate damage to the hunting area by reducing the possibilities of increased hunting pressure. When roads are in use actively for harvesting purposes, access to hunters should be restricted or limited.
- Where possible harvest in the winter. Winter roads are less passable in summer and fall and will help to reduce traffic. These roads will also be cheaper and easier to decommission.
- Construct new roads as far away from existing outfitting camps as possible. The benefits of this are obvious. Harvesting should be restricted around hunting and fishing camps during their season of operation. At these times, harvesting should occur as far away as possible from outfitters.
- Forest operations should be carried out in compliance with existing regulations
- Efforts should be made to ensure that the integrity of the view from outfitter cabins is maintained when conducting forest operations.
- Forest operations should ensure that whatever is brought into an area is removed from the area once harvesting is complete.

4.2.2.9. Recreation

Characterization:

Southwestern Newfoundland has outstanding scenery, interesting topography, and opportunities for viewing wildlife and flora in a natural setting. These elements represent a small list of
reasons why the zone is used extensively for recreational purposes. Hiking, skiing, canoeing, and snowmobiling are major recreational activities in the area. Non-timber recreational values are expected to play an increasing role in forest management practices.

Canoeing and kayaking around the coastline and on the many rivers, the hiking trails (especially the Appalachian Trail), numerous ski and hundreds of kilometers of managed, groomed snowmobile trails, and excellent hunting, fishing and adventure tourism areas highlight some of the recreational opportunities in the zone.

Critical Elements:

Wilderness

Backcountry recreational activities are dependent on the existence of natural pristine wilderness areas. The temporary removal or alteration of this pristine wilderness through forest harvesting practices may result in decreased recreational activities for a given period.

Accessibility

An increase in forest access roads may increase accessibility to remote areas. In turn, this may increase the amount of traffic in an area (both vehicular and pedestrian) and decrease the value of the experience for many recreational activities. Most individuals involved in recreational activities are concerned about viewscapes. Many of the recreational activities occur because of particular viewscapes.

Guiding Principles:

To prevent negative ecological effects and provide positive experiences, access and levels of recreational activities can be monitored. Public surveys can be used to measure the experiences and the levels of recreation occurring in the zone.

Wilderness

If possible, forest operations should avoid wilderness areas where high concentrations of recreational activities occur. Where operations are necessary, stakeholder meetings could prevent conflicts through temporal scheduling.

Limiting Accessibility

Decommissioning of forest access roads could be a possible option when forestry activities are completed. Where possible, harvesting should be conducted using winter forest access roads, which creates less traffic and better facilitates decommissioning. Where possible, the Land Branch of the Department of Environment and Conservation shall plan cottage development along newly developed forest access roads in conjunction with Forestry Services. This will allow for planned cottage development areas and potential Crown land reserves to help minimize potential land use conflicts.

Viewscape

Aesthetic views using landscape design techniques will be utilized in areas where forest operations occur with high concentrations of recreational activities.

4.2.2.10. Tourism

Characterization:

The tourism industry in Newfoundland and Labrador is based on natural and cultural resources, where protection is important for the industry to survive and grow. The tourism industry in Newfoundland and Labrador has experienced significant growth since 1997. Annual spend in Newfoundland in 2020 was approximately $1.14 billion, with almost 2,800 businesses and over 20,000 jobs in the tourism sector.

There are many excellent tourist destinations in the zone. Gros Morne National Park and J. T. Cheesman, Barachois and Sandbanks Provincial Parks, Rose Blanch Lighthouse, and Captain Cook Lookout are just a few examples of the more formal and prominent tourist attractions. Many tourists also come for the outdoor recreational opportunities or to partake of the excellent scenery.

Critical Elements:

- Viewscape
- Accessibility
- Wilderness ambiance
- Remoteness

Guiding Principles:

Work with GMNP, provincial parks, tourism division and tourism operators as required to implement strategies to minimize the visual impact of harvesting operations on the aesthetic values associated with viewscapes. By bringing together GMNP, CBPPL, NFS, and the tourism operators, strategies will be discussed, negotiated, and implemented to provide a balance between harvesting and the values associated with tourism. If required, the Forest Service, CBPPL, local Town Councils, Parks Division and other relevant groups will get together to examine the viewshed issues where applicable in the zone.

5. Mitigations

Stakeholder	Contact	FMD	ISSUES / CONCERNS RAISED DURING 2024-2028 PLAN DEVELOPMENT on CBPPL Timber Limits (Government Depts. and on-on-one consultations with known stakeholders) Forest Management District 14 & 15	Mitigation
Steady Brook Watershed Committee	Carla Hayes	15	CBPPL Staff are members of the Steady Brook Watershed Committee and during the May 10th, 2023 meeting presented maps to the group for review. Prior discussions with the group regarding past permit conditions have sparked conversation around road decommission and consequences.	Members of the committee agreed to review maps at the next council meeting. It is expected that feedback will be given in the form of permit conditions if indeed the 5YP is approved and PWSA permits are acquired. No further meetings regarding the 5YP are scheduled to date.
Groups/persons contacted directly with no response at time of plan submission				
Town of Steady Brook	William Dawson			
Town of Deer Lake	Maxine Hayden			
Town of Pasadena	Darren Garner			
City of Corner Brook	Jim Parsons			
Town of Stephenville	Tom Rose			
Town of Massey Drive	Don Brown			
Town of Gallants	Todd Brake/Georgie Robinson			
District Manager	Rebecca Parsons			
Supervisor of Strategic Planning	Dave Poole			
Director of	Bryan Oke			

Ecosystem Management				
Land Management – Crown Lands	Jonathan Grandy			
Environmental Scientist Water Resources	Trent Pollett			
Parks and Natural Areas	Jeri Graham			
Wildlife Division	Blair Adams, Jana Fenske, Wayne Barney, Shelley Pardy Moores			
Qalipu First Nation Band	Chief Brendan Mitchell, Amanda Laite			
NL Hydro	Craig Parsons			
Springdale Forest Resources	Dennis Young, Kevin Regular			
Meyers Minerals	Jamie Meyer			
Cottles Island Lumber	Rex Philpott			
Sexton Lumber	Kevin Sexton			
Burtons Cove Logging and Lumber	Fred Osmond, Zeta Osmond, Andrea Ropson			
Newfoundland and Labrador Snowmobile Federation	Matthew Swain			
MUN	Michael vanZyll			

	DeJong			
Canadian Wildlife Service	Sydney Worthman			
Advisory Committee	Wilfred Bartlett – Concerned Citizen			
Advisory Committee	James Blackwood – Town of Gander			
Advisory Committee	Mike Brake – Concerned Citizen			
Advisory Committee	Overton Colbourne – Concerned Citizen			
Advisory Committee	Stephen Decker – MUN			
Advisory Committee	Sean Dolter – Concerned Citizen			
Advisory Committee	Basil English – Concerned Citizen			
Advisory Committee	Terrance Fudge – Burtons Cove Lumber			
Advisory Committee	Carl Goudie – Town of Deer Lake			
Advisory Committee	Darrell Harris – NRCAN			
Advisory Committee	Debbie Hearn – Hearn Consulting			
Advisory Committee	Carl Howell – IBEC			
Advisory Committee	Danica Jackson Park – Ducks Unlimited			
Advisory Committee	Glenn Knee – CNA			
Advisory Committee	Dean Major – Majors Logging			

Advisory Committee	Wes Morgan – FFA			
Advisory Committee	Tim Moulton – Concerned Citizen			
Advisory Committee	Cyril Pelley – NLOA			
Advisory Committee	Tom Philpott – Concerned Citizen			
Advisory Committee	Ralph Rice – Concerned Citizen			
Advisory Committee	Sean St. George – Concerned Citizen			
Advisory Committee	Ian Sullivan – Qalipu First Nations			
Advisory Committee	George Van Dusen – Concerned Citizen			
Advisory Committee	Lindsey Vincent – Unifor Local 60N			
Advisory Committee	Robert Wheeler – City of Corner Brook			
FFA	Paul Taylor			
Unifor Local 60N	Kerry Anstey			
NL Forest Industry Association	William Dawson			
SPAWN	John McCarthy			
NL Outfitters Association	Cory Foster			
Adies Lake Lodge				
Arluk Outfitters Ltd				
Besaws Log				

Cabin Outfitters				
Big River Camps Inc.				
Cloudy Pond Outfitters				
Eagle Mountain Outfitters Ltd.				
Grand Lake Adventures Inc.				
March and Mill Co Outfitters Ltd.				
Newfound Outfitting Ltd.				
Newfoundland Adventures Ltd.				
Newfoundland Big Game Adventures				
Northern Lights Adventures Ltd.				
Parsons Pond Outfitters				
Portland Creek Outfitters Limited				
Ray’s Hunting and Fishing Lodge Ltd.				
Red Indian Lake Outfitting and Tours Inc.				
Roberts Outfitting				

Sandy Lake Lodge Outfitting Limited				
Serpentine Valley Outfitters				
Taylors Brook Outfitting				
The Next Ridge Outfitting Company Ltd.				
Tuckamore Lodge Ltd.				
Where-Ya-Wannabee Outfitting Lodge				
Wilderness Horizons Inc.				

6. Public Consultation

A component of forest-management planning in this province is public engagement. Since the 1990s forest management plans have been developed with advice from public planning teams. This process was designed to garner advice from the public and was intended to improve forest management practices at the local scale while also mitigating land-use conflicts. Because the forest management planning process is the only regular interface for public input, the planning teams have become a catch-all for many provincial resource management issues. In many cases, issues raised extend beyond the district or zonal boundaries, and may even be outside the scope of the planning team mandate. It is important to note, that the forest management planning and consultation process has had a measure of success. Diligent work by district managers and planners has led to the submission and implementation of many plans over the past several decades.

The stakeholder involvement process into the development of new five-year operating plans has changed from historical processes. Over the years managers have seen a reduction in public participation in many zones. CBPPL has reached out to several known stakeholders in each district during spring 2023 as the plan was being developed. This list of known stakeholders were sent instructions on how to provide feedback on the plan. A draft version of all maps for Zone 6 was posted to the Corner Brook Pulp and Paper Website in May 2023. On the website interested persons can send in questions/comments to CBPPL woodlands staff regarding the posted plans. Section 5 lists all mitigations from the online consultation. In addition, radio ads were aired from May 29-June 2 informing the public of the opportunity to view our plans on the website.

7. Management Goals, Objectives, and Strategies

7.1. Harvesting

The forest in this zone is part of the boreal forest, which is characterized as being disturbance driven resulting in the formation of relatively even aged stands. The clear-cut silviculture system most closely emulates this natural disturbance pattern and therefore is the most preferred method employed for harvest. The size, shape, arrangement, and juxtaposition of clear-cut areas vary across the landscape depending on localized topography and terrain conditions. A modification of the clear-cut system takes place in domestic areas whereby the cuts are relatively small and disbursed resulting in the creation of a range of age and development classes. The clear-cut system is the only harvest system being considered in the zone at this time.

7.1.1. Commercial

Section 3 outlines in detail a general approach for the timber supply analysis and specific results and sensitivity analysis for the zone. The model used to calculate wood supply is a maximization model, outlining a specific course of action and timing of such actions to maximize timber production. The harvest schedule is an example, which indicates the specific forest stratums to be harvested, and an indication on the timing of such harvest. The districts must follow this schedule as closely as possible in order for the AAC to remain valid. In general, the oldest timber considered in worst condition and losing volume fastest is targeted as first harvest priority. Younger stands that have been damaged by insects and disease may also receive high priority. Once managed stands are eligible for harvest, this priority may change in some cases to allow for a faster rotation on good sites that are silviculturally treated.

There is an insufficient supply of timber on Crown Land, particularly sawlogs, to supply the current sawmill industry. To help alleviate this problem the Crown has negotiated a series of transfers and exchanges with CBPPL to secure a stable supply of timber for these mills. With this arrangement, these sawmills utilize the sawlog material from these areas and sell the pulpwood and pulp chips (sawmills residue) to CBPPL. As well, these operators exchange pulpwood from their Crown cutting permits with CBPPL for sawlogs which also increases their supply.

Specific commercial strategies are as follows:
- Continue to encourage and promote growth in the sawmill industry through exchanges and transfers.

7.1.2. Domestic

The harvest of domestic fuel wood from CBPPL limits in the Zone is confined to cutover cleanup and the harvesting of non-commercial species.

7.1.3. Hardwoods

The harvest of white birch occurs throughout the planning zone in close association with softwood harvest for saw logs, pulpwood and firewood. Hardwood utilization by CBPPL is limited to the issuance of several hundred domestic permits to allow residents of the zone to harvest non-commercial species for home heating use. Forestry Services has managed domestic & commercial firewood permitting for CBPPL in FMD 14 through the Hardwood Management Agreement. This agreement expired in April 2023. CBPPL and FFA are working on a renewal of this agreement.

7.1.4. Silviculture

On average, there is a 20 percent regeneration failure rate (NSR) across all disturbance types. Generally, areas that do not regenerate naturally are renewed by some combination of site preparation and planting or gap planting. Areas that are regenerated are left to develop naturally.

7.1.4.1 Forest Renewal

Since maintenance of the forestry landbase is crucial, forest renewal treatments are the most important silviculture technique in the zone. Forest renewal silvicultural treatments are designed to ensure that a new forest is established after disturbance by harvesting, insect, wind or fire. In most regions of the Province these prescriptions normally involve some form of treatment to prepare the site to accept planted seedlings. Due to the increasing presence of Balsam Woolly Adelgid in the zone, a greater percentage of the harvested disturbed sites are being scheduled for prescribe burning prior to planting. Planting, whether full planting or gap planting is done to ensure stocking of desired species is at acceptable levels.

Additionally, treatment of sites with herbicides that have been overgrown with hardwoods and other herbaceous species has been done to reduce this competition and make the site more accessible and suitable for planting. Herbicide usually reduces the competition for a few years to allow planted seedlings to get established and “get the jump” on the non-crop tree species that occupy the site. Over the past number of years CBPPL has discontinued its herbicide treatments.

Complete regeneration failure requiring full planting is rare in the zone because of the excellent regeneration capabilities of balsam fir. When it does happen however, the site is prepared, if necessary, and planted with mainly black or white spruce and to a lesser extent Norway spruce or white pine. There is also some gap planting required in the zone. This treatment is designed to increase the stocking on sites that have not regenerated to sufficient levels. Gap planting is done with the same species as above, and, coupled with the natural regeneration already present on site result in a mixed softwood forest.

Seedlings are grown with seed from the island of newfoundland. The tree nursery, located in Wooddale has been producing seed from plus tree stock. Plus trees are trees that normally demonstrate superior growth and physiological characteristics. The planting stock is now from improved seed collected from provincial seed orchards. The goal is to establish plantations with seedlings that have superior growth characteristics and thus increase yield and maintain genetic diversity.

Exotic species have been planted in trials at some locations in the zone, (eg. Japanese larch at Pynns Brook) however, it is not anticipated that they will form any substantive proportion of the planting program in the future.

Surveys and anecdotal information indicate that hardwoods form a significant portion of stand composition after planting. This is especially true on scarified areas because scarification promotes hardwood establishment.

7.1.4.2. Forest Improvements

Forest improvement prescriptions are designed to treat established forest stands in an attempt to enhance development. These treatments usually involve thinning overstocked balsam fir stands at either a young age 10 -15 years (precommercial thinning), or an intermediate age 25 - 35 years (commercial thinning) or cleaning/maintenance of young plantations 10-15 years of balsam fir in growth. Precommercial thinning and plantation cleaning reduce density levels in overstocked areas in order to maximize volume increment and operability (piece size) in the shortest period of time. Trees removed are not of merchantable size and are left behind to return the nutrients to the site.

In the planning zone, balsam fir was thinned to favor any spruce that may be in the stand. In this way a mixed softwood stand is produced (depending on the original density of spruce) which is more diverse and less susceptible to insect infestation. As well, any hardwood species that are not in direct competition with spruce or fir were left to increase the biodiversity of the stand. Commercial thinning activity is undertaken on older balsam fir stands and is designed to capture mortality that would normally occur in the stand through self-thinning. The trees harvested are of commercial size and are extracted and utilized. The remaining trees are left to grow, free from competition and are harvested when mature. By salvaging this eminent mortality, a higher yield can be obtained in these stands. As with precommercial thinning, spruce and hardwoods are left where possible to increase the stand diversity. This treatment has hardly been used in the zone. Both types of thinning and will produce large diameter stems in a shorter time which should increase the percentage of merchantable volume in stands that is suitable for saw log material.

Specific silviculture strategies include:

- Ensure regeneration of areas disturbed by harvest, insect, wind and fire to prevent loss of and/or increase the future productive forestland base

- Use thinning/cleaning techniques in young stands to increase stand development, reduce rotation age, and improve stand quality through removal of aphid attacked balsam fir regeneration and increase the percentage of saw logs in stands
- Where possible, promote species mix, particularly with spruce and hardwoods to reduce susceptibility to insect attack and increase biological diversity
- Use seedlings grown from provincial seed sources to protect genetic diversity
- Ensure levels of planting and thinning used in the wood supply analysis are achieved
- Work towards pre harvest planning to identify areas with potential balsam woolly adelgid problems so that alternate silvicultural prescriptions can be promptly employed
- Continue development and implementation of silvicultural strategies designed to regenerate existing white birch dominated stands to white birch where applicable, as well as strategies designed to develop the white birch component of managed stands

7.1.5. Forest Access Roads

Timely access to harvesting areas is the key to successful implementation of harvest allocations. Roads also provide access for other recreational values such as hunting, fishing, skiing, berry picking and hiking. However, it is recognized roads can also have a negative impact both from an environmental perspective (loss of productive land base) and other value perspective (access near remote outfitting lodges).

As a general principle from both an environmental and cost perspective, the minimal amount of road required to effectively harvest available timber will be built. As well, roads are constructed to standards (e.g. width of right-of-way and driving surface etc.) that are the minimum required to access the timber in a safe and effective manner. Forwarding distances are maximized to the economic limit to minimize the amount of road constructed. These principles ensure the loss of productive land base and environmental disturbance are minimized. In sensitive and wet areas, winter harvesting and road construction are encouraged, to minimize environmental disturbance.
In many instances, forest access roads “open up” new areas which are then subject to cabin development. Forest roads also provide access to remote areas where outfitting businesses operate. This generally leads to competition for hunting areas between local and “sport” hunters and may detract from the “remote” designation of the lodge. In such instances cabin development should be controlled to limit local access. As well, road decommissioning may also be considered, depending on cost and mitigation of conflicting uses for a particular road.

The nature of the current wood supply is that harvestable areas or stands are becoming smaller and more dispersed. Achievement of allocated harvest is contingent on accessing these areas and stands. Therefore, more road infrastructure is required to access this timber. Specific strategies include:

- Where possible, build winter roads to access sensitive and wet areas

- Minimize amount of road built by maximizing forwarding distances
- Use minimum road standard to safely and effectively match the logging chance
- Work with appropriate agencies (crown lands) to control cabin development
- Where possible, consider road decommissioning in areas of concern for other values (e.g., near remote outfitting lodges, PPWSA's, caribou habitat restoration)

7.1.6. Forest Protection

7.1.6.1. Insect and Disease

As indicated in section 2.1.4.2.4, insects have been a major natural disturbance factor in the zone. The main tree species, balsam fir, is susceptible to most of the major insects we have including spruce budworm, hemlock looper, balsam fir sawfly, and balsam woolly adelgid. In the past, severe mortality has occurred resulting in massive salvage efforts. In recent years, quality standards at local pulp mills have changed to require a timely supply of fresh, green timber. As a result, the window to salvage insect damaged timber is now one to two years after mortality. On a positive note, access to most areas has increased and improved allowing for quicker reaction to salvage insect mortality.

Populations of hemlock looper and balsam fir sawfly were building in the early 2000's and resulted in a treatment program in 2002 and 2003. Since that time the populations of these insects have been in decline. The balsam woolly adelgid seem to be moving eastward into District 16 in increasing proportions causing growth problems in young balsam fir stands.

As outlined in the harvesting and timber supply analysis sections our timber supply is based on following a rigid predetermined harvest schedule and minimizing inventory deductions (of which insect damage is a portion). In the event of a major insect infestation, salvage efforts may change harvest priorities and thus the optimal harvest schedule may not be followed. If insect damaged stands cannot be harvested in a timely manner, an additional harvest in the form of unsalvaged mortality may occur resulting in inventory deductions that are higher than anticipated. In both eventualities, deviations from harvest schedules and inventory adjustment levels will have to be closely monitored to ensure that the validity of the AAC calculations is not compromised.

Specific strategies:

- use silvicultural techniques at the stand level to alter species mix and increase stand vigor to make stands less susceptible to insect attack
- where possible, use harvest scheduling techniques to alter species mix across the landscape to avoid "setting the table" for severe insect infestation

- use species conversion techniques, where possible, to convert adelgid susceptible balsam fir to other less susceptible species
- in conjunction with Provincial and Federal initiatives, use approved insecticides such as BTK

7.1.6.2. Fire

Historically, fire has not been a major natural disturbance factor within this zone. However, a fire in an unusually dry year can have devastating effects on the forest and can exacerbate an already tight wood supply situation. The zone can minimize the risk of a serious fire by maintaining a highly trained, efficient, and effective fire control program and by minimizing the risk in forest stands through maintenance of health and vigor. Specific strategies include:

- Use silvicultural treatments and protection from insects to increase health and vigour of stands
- Maintain fire control capabilities by both the Crown and Industry.
- Where possible, promote species mixes in stands to minimize risk

7.1.6.3 Wind Throw

Wind throw or blow down occurs in stands that are old and decrepit or in stands that have been predisposed by some other disturbance such as insects and disease. Blow down can also be increased in high-risk stands when unnatural edges are left on cutovers such as in the case buffers. To minimize the effects of blow down, stands will be managed to promote health and vigor mainly through silvicultural treatments and protection from insects.

Specific strategies include:

- Avoid thinning in areas with high wind damage potential (hilltops on high elevations etc.)
- Maintain forest in healthy vigorous condition through silvicultural treatments and protection from insects
- Design cut blocks to follow contours and natural boundaries to minimize risk of wind throw to residual forest
- Investigate techniques to minimize the risk blow down in buffers (i.e., buffer management).
- Ensure harvest schedule is followed to target the oldest worst condition (and risk) timber first.
- Continue to sample overmature stands for signs of imminent breakup (e.g., wind throw and butt rot) and update harvest schedule on a 5-year basis accordingly to capture mortality

7.1.7 Information and Education

Information and education are important to providing for more active and effective participation in the forest management planning process. Through interaction with various user groups and the public, we gain a better understanding of each other's values and positions. Information about a stakeholder's values and the location on the landscape provides a better ability to mitigate any potential negative impacts of harvesting activity on these values. For example, learning where a cabin is located can help planners when selecting areas for harvest and provide a contact to discuss impacts and mitigations. Public meetings provide a good exchange of information and ideas about a particular piece of land base. It is through such forums that

information can be shared that provides a basis for more effective and informed participation. As a Forest Industry, other such vehicles for information and education, which will be actively pursued, include:

- Field trips (e.g. Crown and paper company woodlands tours, mill tours)
- School visits
- Open houses
- Commercial operator environmental training programs
- Information meetings
- Training courses and seminars
- General day-to-day contact

8. Proposed Activities

8.1. Harvesting

This section will outline all forest activities that will occur on CBPPL Limits in District 14 & 15 from 2024-2028. More specifically, all proposed harvesting, silviculture, and access road construction activities as well as environmental protection measures, activities inside protected water supply areas, surveys, and information and education initiatives will be presented and discussed in detail.

To present a more comprehensive overview of proposed activities on the entire district an overview map is presented in Appendix 2. Maps of individual operating areas and summary sheets are also presented. The summary sheets give a brief description of each area, the type of activities that will occur and any issues raised and mitigative measures employed.

8.1.1. Commercial

The timber scheduled for commercial harvest in the district is overmature with some small pockets of mature dispersed throughout. This proposed harvest approximates the harvest schedule that was used to determine the AAC in Section 3. The allocated operating area and associated harvest volumes represent as much as two times the actual proposed harvest. The purpose of including more volume than is proposed is to allow for operational flexibility and inventory deviations within operating areas without having to constantly amend the plan. A 9% reduction is applied in all areas to allow for operational constraints.

Table 1- 8 Proposed commercial harvest activity FMD 14 2024-2028

Operating Area				Proposed Harvest (m^3)	Net Core Harvest (9% Adjustment)
				Softwood	Softwood
Number	Name	Tenure	Area (ha)	Core	Core
K-14-61	Black Duck	CBPPL	1,182	122,337	111,327
K-14-62	Camp 185	CBPPL	3,645	295,245	268,673
K-14-63	Fischell's River	CBPPL	289	21,839	19,873
K-14-64	Camp 180	CBPPL	743	63,155	57,471
K-14-65	MacPherson's Pond	CBPPL	1,133	105,108	95,648
K-14-66	Codroy Pond	CBPPL	306	23,773	21,633
K-14-67	Barachois	CBPPL	1,192	110,915	100,933
K-14-68	Pasture Road	CBPPL	1,128	96,534	87,846
Totals			**9,618**	**838,906**	**763,404**

Table 1- 9 Proposed commercial harvest activity FMD 15 2024-2028

Operating Area				Proposed Harvest (m^3)	Net Core Harvest (9% Adjustment)
				Softwood	Softwood
Number	Name	Tenure	Area (ha)	Core (m3)	Core (m3)
K-15-02	Old Man's Pond	CBPPL	1,366	144,796	131,764
K-15-05	Stray Pond	CBPPL	690	69,000	62,790
K-15-60	North Brook	CBPPL	3,429	390,906	355,724
K-15-61	Crescent Pond	CBPPL	930	98,580	89,708
K-15-62	Howards	CBPPL	987	96,726	88,021
K-15-63	Stag Lake	CBPPL	787	75,552	68,752
K-15-64	Stag Hill	CBPPL	1,579	176,848	160,932
K-15-65	Steady Brook Lakes	CBPPL	1,042	107,326	97,667
K-15-66	Pynn's Brook	CBPPL	1,208	129,256	117,623
K-15-68	Goose Arm	CBPPL	3,295	349,270	317,836
K-15-69	12 Mile Dam	CBPPL	453	41,191	37,484
K-15-70	Alder Brook	CBPPL	595	61,880	56,311
Totals			**16,361**	**1,741,331**	**1,584,611**

8.1.2. Domestic

CBPPL does not manage its landbase for domestic harvesting with segregated blocks. Historically CBPPL issues several hundred domestic permits, in FMD 15, for the harvest of non-commercial species (hardwoods & larch), with Forestry Services administering FMD 14.

8.1.1.3. Silviculture

There are two silviculture prescriptions scheduled for the next five years: planting/gap planting and pre commercial thinning. Planting is designed to return a site to a minimum stocking level with the desired species, mainly spruce. There is full planting when there is complete natural regeneration failure and gap planting when a site has some desired regeneration but not enough to meet minimum stocking standards. Pre commercial thinning is prescribed to reduce the density on overstocked regeneration so that growth can be concentrated on the remaining crop trees and thus reduce the time to harvest.

Areas that are scheduled for commercial harvest or have been recently harvested have been identified on the operating area maps and are candidates for planting or gap planting to black or white spruce. Site preparation using either mechanical means or prescribed burning may be employed on suitable sites that have impediments to planting. Approximate estimates for the next five years are as follows.

Table 1- 10 Proposed Silviculture Zone 6 2024-2028

	FMD 14	FMD 15	
Treatment Type	**Area (ha)**	**Area (ha)**	**Totals**
Pre Commercial Thinning	200	1250	1450
Planting	800	500	1300
Scarification	0	0	0
Grand Total	1000	1750	2750

8.2. Forest Access Roads & Water

As timber closer to infrastructure has been harvested it is necessary to build roads to timber that has yet to be accessed. This remote timber has been incorporated into the timber supply analysis and must be accessed to ensure sustainability. For this plan there is no proposed capital road construction anticipated.

8.3. Forest Protection

Identify forest protection measures planned, as outlined below:

Fire

Wildfire has not been prevalent in the zone in the past number of years and as a result there has been little merchantable volume lost. There have been major fires in the past however, so the district must remain vigilant in its fire suppression program to ensure any future losses are minimized.

Insects and Disease

Monitoring and protection programs for insects and disease are coordinated by the forest protection division in Corner Brook. District staff are always available however to aid in detection, monitoring, and protection against insects and disease.

Wind Throw

Wind throw is not a major concern on CBPPL limits for FMDs 14 and 15. Where wind throw may occur CBPPL will utilize the strategies outlined in section 7.1.6.3 of this plan.

Surveys/Inspections

Utilization surveys will be conducted on cutovers to insure loss of merchantable timber is minimized. As previously mentioned, reconnaissance and intensive regeneration surveys will be conducted on cutovers created during the next five years as well as those created in the past five years to determine the need for planting.

8.4. Activities in Protected Public Water Supply Areas

Any proposed forestry that intersects a protected water supply area will meet the conditions outlined in the Water Resources Act. For harvesting operations inside PPWSA's, wider buffers are used, and the pertinent EPG's are attached to any permits issued for these areas. There will be continuous monitoring inside these areas and buffers will be flagged to ensure compliance with the guidelines. All requirements as outlined in the PWSA permit will be followed. CBPPL does not permit domestic cutting in District 15 in any PWSA.

Table 1- 11 Activities in Public Protected Water Supply Areas

Operating Area	FMD	Area in PWSA (ha)
North Brook	15	570
Steady Brook Lake	15	5,700
Pynn's Brook	15	8,135
12 Mile Dam	15	1,255
	Sub-total	15,660

8.5. Information and Education

CBPPL in conjunction with Forestry Services will continue to attempt to educate the general public to ensure meaningful and effective consultation and input can be attained. This will be accomplished through fieldtrips and meetings, school presentations, open houses, and National Forest Week activities.

8.6. Plan Administration

8.6.1. Monitoring

Monitoring of planned activities is critical to ensure objectives and operations are carried out in a manner consistent with various guidelines and provincial and federal legislation. Monitoring occurs at the operational level and the planning level.

8.6.1.1. Operational Level

Annually, Corner Brook Pulp and Paper Limited is issued a Certificate of Managed Land (CML). Attached to this Certificate are schedules that set out the conditions that must be followed to maintain managed land status. Schedule five contains the Environmental Protection Guidelines (EPG's). Industry planning and operations must comply with schedule five or the land can be declared unmanaged, and fines levied. Government staff will monitor for compliance with schedule five and recommend managed or unmanaged status.

All planned activities are monitored to ensure all guidelines and regulations pertaining to environmental protection, harvesting, road construction, and silviculture are followed. Any infractions or deviations from the regulations or guidelines are dealt with as required under the Forestry Act.

In addition to the monthly Government monitoring for compliance Corner Brook Pulp and Paper Limited has put in place an Environmental Management System (EMS), which was registered to the internationally recognized environmental standards ISO 14001, CSA Z809, FSC Boreal Standard and SFI Forest Management and Fibre Sourcing Standards. For more information, see section 6 of the plan.

As part of this EMS, many monitoring activities take place throughout the year (checking for non-compliances) including:

- Field inspections (Number 1, 2 and 3) completed by contractors and CBPPL Staff including Operations Superintendents,
- Yearly internal EMS audit,
- Yearly external EMS and field surveillance audits,
- External communication from the public through our web site, www.cbpplwoodlands.com.

All non-compliances are documented and reported to the EMS Management Review Committee. All non-compliances are reviewed by the EMS Committee, and corrective action is implemented where and when required.

8.6.1.2. Planning Level

The strategic planning section at forestry services monitors the implementation of this Five Year Operating Plan for this zone. This is a crucial role, as many implementation commitments are stated in the plan. The primary function of the planning section is to monitor plan implementation for consistency with commitments in the plan though approval of the Annual Operating Plans derived from this plan and review of the past annual reports associated with each year's activities. The section will identify concerns with plan implementation provide recommendations for plan changes and establish protocol for concerns reported to them. Additional meetings between CBPPL, Strategic Planning and/or relevant stakeholders may be required to review amendments or provide recommendations should changes be required because of a catastrophic event such as fire which may precipitate changes to the plan.

8.7. Amendments

Due to the dynamic nature of forest activities, amendments are often required because of changes in the forest, operational realities, imposition of addition requirements or guidelines, or some other unforeseen circumstance. These changes to the five-year operating plan must be submitted as amendments and

approved before they are implemented. There are two types of possible amendments for this plan, one that can be approved internally by the Forestry and Agrifoods Agency and one that must be submitted to the Environmental Assessment Division for public review. Changes to this plan can be approved by the Forestry and Agrifoods Agency if they are:

- within one kilometer of an operating area described in the five-year operating plan, an additional area for timber harvesting that is, in total, not more than 50 hectares in each year of the plan

- within a forest management district, an additional area for silviculture treatment of not more that 20 percent of the total operating area described in the five-year operating plan over the five-year term of the plan

- within an operating area described in the five-year operating plan, not more than one kilometer, in total, of new primary forest access road in addition to existing and proposed primary forest access road in each year of the plan

- adjacent to an operating area described in the five-year operating plan, not more than half a kilometer, in total, of new primary forest access road in each year of that plan.

Changes that are not covered by the above must be submitted for Environmental Assessment (EA) in the form of an amendment to the five-year operating plan. Prior to approval through EA, the amendment must be approved by the Ecosystem Management Division of the Forest Service.

Amendments will be reviewed by the monitoring committee if the District Manager deems that they represent a significant change to the plan.

9. Past Five-Year Plan Commitments

9.1. Women's Employment Plan

The Women's Employment Plan (WEP) has been prepared as a conditional requirement by the Government of Newfoundland and Labrador. It describes the gender-equity goals and initiatives that Corner Brook Pulp and Paper plans to implement by working collaboratively with our contractors and relevant community stakeholder organizations to help ensure a diverse and inclusive workforce during the various phases of the proposed project.

We are an equal opportunity employer in all sectors of its operation. We encourage and support the growth of women within our organization in many ways including identifying women for succession roles and providing equal opportunity in all job competitions. All roles that are posted externally are advertised on our website, or indeed.ca. For specialty positions we often will post on websites associated with professional organizations such as CPA, as well as alumni groups within CNA and Memorial University.

Corner Brook Pulp and Paper is committed to establishing qualitative and quantitative goals for gender equity to improve employment outcomes for women in Newfoundland and Labrador. CBPPL has developed this Women's Employment Plan (WEP) to establish a proactive approach toward a workplace environment with policies and practices that help ensure a work environment free from harassment and discrimination. The complete WEP can be found in Appendix 3 of this plan.

9.2. Greenhouse Gas Management Plan

Corner Brook Pulp and Paper Limited (CBPPL) has employed various strategies to adapt to and mitigate climate change on the DFA. Throughout this document you will see various ways that the company is involved in partnerships with various groups, to stay abreast of possible change and to influence decision making with respect to climate change and impacts to forest operations. Though partnership with the Department of Fisheries, Forestry and Agriculture (FFA), CBPPL is involved in the process of wood supply modeling. Currently there has been no incorporation of the effects of climate change on the growth and yield into this model. CBPPL continues to partner with the FFA to work towards this goal.

A Fuel consumption program was initiated across all aspects of our woodlands operations in 2009. Fuel consumption has very significant economic cost associated with our operation, as well as the environmental cost. CBPPL evaluated fuel consumption to determine if it is a Significant Environmental Aspect of our operation and built programs to reduce it.

Some of the programs are highlighted in Table 1-15 below. As opportunity arises, we will continually build on this program and make changes to the way we operate to decrease the amount of GHG that is emitted during forest operations, which include trucking wood to the mill.

Table 1-12 GHG Reduction Programs

Topic	Description
1st offering of Smart Driver Program for the Trucking Fleet	A reduction of 300,000lts annually realized by our trucking fleet. At 350lts per tonne of CO2 we reduced our GHG emission by 847 tonnes of CO2 annually.
Educational Tools	Distributed Fuel Consumption Guide entitled "In Forestry Operations: Fuel Economy Counts" to Contractors
2nd offering of Smart Driver Training	Training provided to Wood truck drivers provided by FP Innovations.
Backhauls	Backhaul routes were established to reduce the number of trips per unit volume of material. Less trips haul an equivalent amount of fiber, thus resulting in fuel savings. Example: Pulp wood delivered to CBPPL from central NL and logs returned to Sexton's Lumber in eastern NL (80% backhaul – loaded 80% of the time).

9.3. Carbon Budget Modeling

In 2017, CBPPL entered into a research agreement to partner with the Canadian Forest Service (CFS) Integrated Assessment project for forest management in Newfoundland. CBPPL is the industrial partner in

the carbon accounting group (with federal, provincial, and industrial partners). This project will develop a framework for Integrated Assessment of forest productivity in Newfoundland. Integrated Assessment will include considerations for biodiversity, regeneration, and carbon accounting, using the federally developed model carbon budget model, CBM-CFS3. Built on over a decade of research and development, the model was intended for application at the operational scale of forest management units. The model, which is now operational, enables us to measure the amount of carbon in our forests and predict how our management actions will affect carbon amounts. Pilot sites will be selected for the development and testing of the integrated assessment process in Newfoundland.

There will be two components of the research project that are of interest to CBPPL:

1. A baseline run of the carbon budget model for pilot sites in Newfoundland.
2. Refining and calibration of the carbon budget model for the province.

The CBM-CFS3 was designed to function in tandem with the province's wood supply model, Woodstock. Data from Newfoundland will be provided to the CFS team by the provincial government for inclusion in the integrated assessment.

The CBM-CFS3 is an aspatial, stand- and landscape-level modeling framework to simulate the dynamics of all forest carbon stocks required under the Kyoto Protocol (aboveground biomass, belowground biomass, litter, dead wood, and soil organic carbon.

The model uses much the same information that is required for forest management planning (e.g., forest inventory, tree species, growth and yield curves, natural and human-induced disturbance information, forest harvest schedule and land-use change information), supplemented with information from national ecological parameter databases. Users apply their own stand- or landscape-level forest management information to calculate carbon stocks and stock changes for the past (monitoring) or into the future (projection). Users can also create, simulate and compare various forest management scenarios in order to assess impacts on carbon (NRC, 2009).

The provincial government had planned to bring additional carbon stock information (carbon yield curves) from the carbon budget model into the Woodstock environment to perform carbon stock sensitivity analysis on management actions. However, the provincial government is still working towards carbon modelling and running the carbon budget model. The carbon budget model must be operated in tandem with the provincial wood supply model, Woodstock. The provincial government will be providing the provincial wood supply model to CFS for the purposes of this research.

A Carbon Budget Model Working Group comprised of staff from CBPPL, CFS, MUN, and the DFLR was created in 2018. This professional group worked to evaluate the current state of our provincial forests, quantify benefits associated with a variety of forest management strategies, related to Green House Gas emissions, climate change mitigations and carbon credit opportunities. The carbon pricing system was rolled out by the Provincial Government in 2018 with a Jan 1, 2019, commencement date. The regulatory approach taken by the province was a "hybrid" carbon pricing system. The first element was to place a carbon tax on all combusted fuels except where exemptions were provided. Those exemptions included:

Home heating fuel, prescribed activities (e.g., agriculture, fishing, mining, forestry and silviculture), offshore and onshore petroleum and mineral exploration activities, electricity generation, aviation fuel and municipalities. The second element was to establish a performance standard system for large industrial facilities.

Impacts to CBPPL are two tiered. Forest activities, minus trucking, are carbon neutral and therefore exempt from taxation at this point. Trucking will be impacted at the pump as diesel fuel carbon tax is 5.37cents/litre. The mill site however is covered under a performance-based system, set to begin this year. Facility specific greenhouse gas targets include a 6% reduction target below baseline in 2019, rising by 2% per year, to 12% below baseline by 2022.

CBPPL has supported the Integrated Assessment research project, in the development of the carbon budget model. This research will help CBPPL to determine how the model could be used to predict the amount of carbon in the forest on the DFA and how harvesting and silviculture practices could affect carbon amounts. CBPPL could use model outcomes to set targets for impacts in the future. For example: "…must maintain X percentage of young age classes (0-20) on the DFA at all times."

Because the carbon budget model cannot be used immediately for carbon accounting, CBPPL will use indicators from the Sustainable Forest Management Plan to contribute to carbon sequestration. Indicator 4.1.2, Degree of Within-Stand Structural Retention, contributes to carbon sequestration by leaving wildlife trees and snags in clumps, patches, and buffers. By minimizing the amount of roads and landings in a harvesting block, the amount of forest land changed to non-forest that is incapable of sequestering carbon is lessened. And by restricting the proportion of a watershed areas with recent stand-replacing disturbance to 25% or less (Indicator 3.2.3), CBPPL is ensuring carbon sequestration in these areas.

Corner Brook Pulp and Paper Limited is committed to support the development of a baseline carbon budget, and the application and calibration of the carbon budget model. It will be an important decision-making tool to evaluate net carbon levels and to assess the impacts, if any, our forest management activities are having on ecosystem net carbon storage levels.

The following update was provided by Robert Leblanc in May 2023. The group continues to meet and review results as they are made available.

Maintaining and enhancing ecosystem carbon storage is increasingly becoming an important forest management goal for addressing climate change mitigation and adaptation together. The achievement of such forest management objectives relies on sound assessment of forest stocks and carbon dynamics under future emission scenarios. Efforts are required for incorporation of climate change impacts on tree growth into the forest planning framework and carbon budget modeling, so that periodic variations in timber harvest level, forest structure, and forest carbon stocks can be simulated over the planning horizon, leading to optimal forest management with carbon benefits.

The goal of this research is to integrate climate change impacts on wood supply analysis with forest carbon accounting to help enhance forest mitigation and adaptation to climate change in Newfoundland and Labrador (NL), and update NL forest carbon information required for the Canadian Forest Service to

operate and maintain Canada's national carbon reporting infrastructure. Through a combination of simulation modeling and field experiments, this project will also attempt to enhance collaborations between Canadian Forest Service, NL government (FFA), industry (CBPPL) and universities in natural resources assessment and environmental management. The objectives of this research are:

1) To assess the forest carbon storage under different forest management scenarios in Newfoundland. Through integration of forest carbon accounting with wood supply analysis, the study will help determine where, when, and what, forest management strategies may be incorporated into long-term forest planning in order to improve or remain forest carbon storage in the province. The study will also provide important templates of how to integrate wood supply analysis with forest carbon modeling to support the province-wide incorporation of carbon modeling as part of the standard provincial wood supply analysis in Newfoundland.

2) To evaluate climate change impacts on forest carbon storage under a variety of combinations of management and climate change scenarios. With the usage of environmentally-sensitive yield curves (currently under development for the province) in wood supply analysis and forest carbon accounting, forest carbon storage and carbon dynamics will be explored under IPCC climate change scenarios to support the development of forest carbon management strategies in the province.

Below are some preliminary results for short-term forest carbon stocks for the island of Newfoundland. The CBM-CFS3 (Carbon Budget Model of the Canadian Forest Sector, version 3) was linked with the Remsoft™ Forest Planning System (Woodstock) and run for 50 years for most forest management districts. The CBM-CFS3 ran out of memory for some districts due to the size and complexity of input files (Figure 1). Overall, using the Business-as-Usual Woodstock scenario, the forests of Newfoundland can be considered a slight carbon source, and can be broken down by species group, land ownership, and by harvesting land base. Efforts are currently underway for incorporating forest management and climate change scenarios, long-term carbon simulations in Woodstock, and the spatially-explicit carbon budget model (GCBM) into the provincial wood supply analysis.

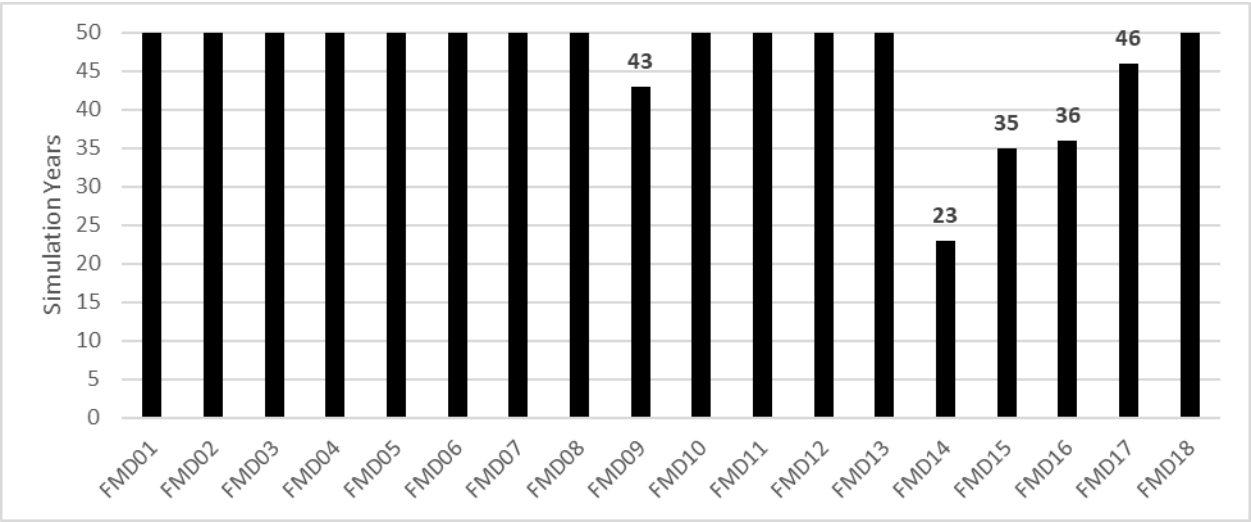


Figure 1-6. CBM-CFS3 simulation length of Newfoundland's forest management districts

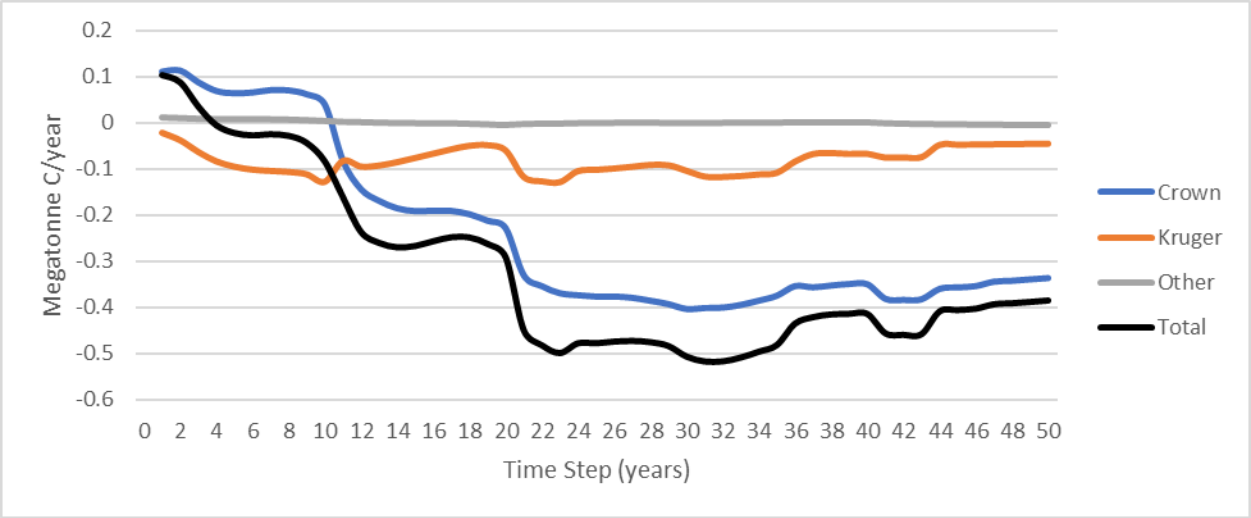


Figure 1-7. Total ecosystem carbon balance (Mt C/yr) by land ownership. Data above and below the zero line represent carbon sinks and sources, respectively.

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Government of Newfoundland and Labrador
Department of Fisheries, Forestry and Agriculture

Environmental Protection Guidelines

for Forestry Operations in Newfoundland and Labrador

Date effective: January 01, 2023

Forestry and Wildlife Branch
Forest Ecosystem Management Division

CONTENTS

This Document reflects an adaptive approach to Forest Management, representing an operational type guide to the implementation of Forest Management and Wildlife Strategies.

FORWARD

The 2023 Environmental Protection Guidelines for Forestry Operations in Newfoundland and Labrador is an updated version of original guidelines initially developed in 1998. It has been developed through a consultative process with Forest Managers, Planners, Industry and other stakeholders throughout the province. These guidelines are intended to be stand level, on-the-ground procedures to be used by Forest Managers and operators to ensure sustainable use of the forest resource without degrading the environment. More specifically, the guidelines are designed to prevent and control degradation of soil, water, and vegetation in an effort to maintain healthy forest ecosystems. These guidelines are periodically reviewed and adjusted to reflect new policies and procedures and compliance is monitored by Departmental staff.

To facilitate use, the guidelines are structured by forestry activity and include sections on:

- harvesting;
- road construction;
- silviculture;
- forest protection;
- operations within protected water supply areas; and
- operations to reduce incidental take of migratory birds

The development of the Environmental Protection Guidelines will continue to be an evolving process within which the Department of Fisheries, Forestry and Agriculture (FFA) will incorporate the best available information about forest ecosystems and sustainable forest management concepts in a timely fashion through adaptive management and other innovative, scientific based approaches.

1. HARVESTING GUIDELINES

1.1. PLANNING OPERATIONS

1.1.1. PERMITS REQUIRED

1. When temporary water crossings are required to facilitate travel of harvesting equipment, the location and type of all water crossings must be submitted to the Department of Environment and Climate Change (ECC). A permit is required from Water Resources Management Division of ECC, for any water identified on the latest 1:50,000 topographic maps. A Letter of Advice is required from DFO for any alterations. Appropriate protection (i.e. the permit and Letter of Advice) is still required for streams greater than 2.0 metre in width, at its narrowest point from the high water mark, not found on the 1:50,000 topographic maps. The intent of these measures is to safeguard water quality and fish habitat.

2. All waste disposal sites require a valid permit under the **Environmental Protection Act.** Application for approval can be made by contacting the nearest Government Services Centre.

3. Timber harvesting is considered a development under the **Urban and Rural Planning Act**, and when this activity is proposed within a municipal planning area boundary, a permit is required from the Municipality. If the activity is proposed within 400 meters of a protected road, a development permit is required from the Department of Digital Government and Service NL.

4. Operating Permits are required when conducting work during the Forest Fire Season

1.1.2. CONSULTATION REQUIRED

1. The Natural Areas Program and the Department of Tourism, Culture Arts and Recreation will be consulted during the preparation of each District five year operating plan. Where harvesting is proposed within one kilometer of an ecological reserve, wilderness reserve, provincial park or proposed reserve, Natural Areas and TCAR will be expected to identify/discuss any concerns during the planning consultation process. New access roads will not be located within 500 metres of the boundary of an ecological reserve, wilderness reserve, provincial park or proposed reserve, without first consulting Policy, Planning and Natural Areas Division.

2. The Wildlife Division will be consulted on timber harvesting during the preparation of each five year operating plan due to a variety of wildlife specific habitat requirements (eg, woodland caribou, listed flora and fauna), to implement applicable mitigations.

3. The Provincial Archaeology Office (PAO) of the Department of Tourism, Culture, Arts and Recreation will be contacted during the preparation of the five-year operating plans to determine the location of historic resources and appropriate mitigation measures.

1.1.3. Planning

Planning forest operations for both Industry and Crown may include, but is not limited to:

- boundaries of protected public water supplies (if applicable);
- existing and proposed access roads;
- general location of extraction trails and landing locations;
- areas sensitive to erosion;
- buffer zones around water bodies;
- location of approved stream crossings;
- location of fuel storage;
- sensitive wildlife areas as shown in the five-year operating plan; and
- sensitive fish habitat (e.g. salmonid spawning and rearing areas) identified in consultation with Department of Fisheries and Oceans (DFO).

1.1.4. Nutrient Poor Sites

If it is deemed necessary to harvest nutrient poor sites such as those typed as poor or scrub within the Provincial Forest Inventory, all effort will be made to ensure all sites (good, medium, poor) are regenerated.

1.1.5. Lichen Surveys

Potentially, rare lichens maybe found throughout the forest within the Avalon Peninsula and Southern portion of the island of Newfoundland. To minimize any negative effects to rare lichens, forestry staff will coordinate with Wildlife staff field protocols for conducting surveys. Triggers for initiating a Lichen Survey include:

- A rare lichen survey should be carried out when forest harvest or road construction is proposed in a Balsam Fir dominated stand, Age Class 4 and older, in Forest Management Districts 01, 03, and 07.

- A rare lichen survey should be carried out when harvest or road construction is proposed in a Balsam Fir or Balsam Fir dominated stand (any age class) within five kilometers of a previously identified rare lichen location.

1.2. Conduct of Operations

1.2.1. Minimizing Erosion and Disturbance

1. When extraction trails and winter roads are to be constructed, soil disturbance and impacts on water bodies are to be minimized. The operator will use culverts and/or temporary bridges, depending on site conditions, in order to minimize erosion and sedimentation, avoid restricting stream flow, and ensure fish passage in fish-bearing streams. Erosion control measures, such as the laying down brush mats and the construction of diversion ditches for water run-off, are to be maintained while an extraction trail is in use. The trail is to be left in an environmentally acceptable condition thereafter. All temporary crossings are to be removed at the end of the operating season. As well, when an extraction trail is located on steep ground and is no longer in use, cut-off ditches and push-lanes must be created.

2. No more than six per cent of the forested floor within the harvested land base of an operating area can be disturbed by equipment. In situations where specific operating areas require more than six per cent disturbance to capture available timber, the operator is required to obtain approval and then rehabilitate the area (i.e., leave the area in a condition suitable for successful forest regeneration and growth) to reduce the total net disturbance to the six per cent maximum. Disturbance is defined as per the Ground Disturbance Survey Guidelines developed by the Forestry & Wildlife Branch.

3. Heavy equipment and machinery are not permitted in any waterbody, on a wetland or a bog, unless frozen, without a permit from Water Resources Management Division of the Department of Environment and Climate Change

4. In areas prone to erosion and silting:
    I. conduct winter logging (i.e. harvest during winter), or
    II. place slash on extraction trails if conventional equipment is operating in an area.

5. Any forestry operation that directly or indirectly results in sedimentation entering a waterbody must be dealt with immediately by notifying either the DFO Area Habitat Biologist or the District Manager within 24 hours.

6. Woody material of any kind (i.e. trees, slash, sawdust, slabs, etc.) is not permitted to enter a waterbody. Depositing woody material on ice within the high water floodplain of any waterbody is also prohibited.

7. To minimize potential for erosion and sedimentation, temporary waterbody crossings shall:

    I. have stable approaches;

II. be at right angles, wherever possible, to the waterbody;
III. be located where channels are well defined, unobstructed, and straight;
IV. be at a narrow point along the waterbody; and
V. allow room for direct gentle approaches wherever possible

8. Extraction trails and landings shall not be established within 30 metres of a waterbody.

1.2.2. Archaeological Find

When an archaeological site or artifact is found, the **Historical Resources Act** requires that all development temporarily cease in the area and the discovery be reported to the Provincial Archaeology Office at (709) 729-2462. The Provincial Archaeology Office will respond immediately and will have assessment requirements and mitigation measures in place within seven days as agreed to by the Provincial Archaeology Office and the operator. Forestry activity can then continue. Ground Disturbing activities are not to occur within 50 meters of identified archaeological sites

1.2.3. Timing of Operations

1. Harvesting is not permitted within woodland caribou calving and post-calving areas from April 15 to July 15. Calving areas will be identified by the Wildlife Division and communicated during the five year plan development.

2. Harvest scheduling may be modified during the migration of wildlife (e.g., caribou, waterfowl, etc.) upon discussion with the Wildlife Division. Areas of concern and mitigation measures will be identify as part of the five year planning process.

1.2.4. Leaving Buffers and Wildlife Trees

1. A 30 metre no cut buffer zone, shall be established around all water bodies that are identified on the latest 1:50,000 national topographic system (NTS) maps.

   Streams greater than two metres in width that do not appear on the NTS maps require a 30 meter buffer and can be identified using the below criteria:

   - The stream must have a defined bottom;
   - banks that exceed 30 centimeters in depth:
   - meets or exceeds an average 2 meters in width measured at 40 meter intervals over a 200 meter distance along the stream.

2. Where the slope is greater than 30 per cent there shall be a no harvest buffer of 30 metres plus 1.5 times per cent slope. All equipment or machinery is prohibited from entering waterbodies; thus, structures must be created to cross over such waterbodies for the protection of aquatic habitat. Every reasonable effort will be made to identify intermittent streams, and they will be subject to this buffer requirement.

The District Manager must adjust the specified buffer requirements in the following circumstances:

I. A minimum 30 no cut buffer and 50 meter no grubbing zone for sensitive fish habitat (e.g., salmonid spawning habitat) as identified in the five year operating plan release conditions.

II. A 50 metre, no cut buffer will be maintained around newly discovered black bear winter denning sites or those encountered during harvesting. These den sites must be reported to the Wildlife Division.

III. No forestry activity is to occur within 800 metres of an active bald eagle nest or osprey nest during the nesting season (March 15 to July 31) and 200 metres during the remainder of the year. For other raptor species like hawks, falcons, and owls, no forestry activity is to occur within 160 metres of a known active nest during the nesting season. The location of any raptor nest site must be reported to the Wildlife Division. Travel on established access roads outside a 200m zone of an active nest is a permitted activity, including forwarding of harvested timber, with the requirement that if roads/ trails are in use for two weeks or longer between March and July, the nest must be monitored and a summary of breeding success and travelling activities with appropriate mapping be emailed to WD at the end of trail usage or end of July, whatever comes first.

IV. All hardwoods within 30 metres of an active beaver lodge are to be left standing.

V. A minimum 30 meter, no cut buffer and a 50 meter no grubbing zone will be maintained from the high water mark in Sensitive Wildlife Areas for waterfowl including breeding, moulting and staging areas.

VI. 50 meter no cut buffer is required near waterbodies hosting shellfish aquaculture operations. Aquaculture Division will work with Forestry Branch to determine locations of approved Aquaculture Leases

VII. A minimum 30 meter no cut buffer and a 50 meter no grubbing zone on significant wetlands / waterfowl areas as identified by the map in Appendix A. The map illustrates the location of SWA's, where forest harvesting can occur inside the identified boundaries, with implementation of buffers and using the operational guidance for determining the edge of a wetland in Appendix B.

VIII. 30 meter no cut buffer must be maintained around established hydrometric and climate stations. Locations are determined by the Water Resources Management Branch

IX. 100 meter no cut buffer around established drinking water wells. An up to date list of coordinates for private/drilled wells can be obtained from Water Resources Division

X. 100 meter no cut buffer from the centre line of the Newfoundland T'railway (both sides)

XI. Activities located within Protected Public Watersupply Areas (PPWSA's)

3. A minimum average of 10 Wildlife Trees (i.e., standing dead trees) or other suitable living trees per hectare shall be left individually or as small clumps on sites identified as habitat for wildlife (i.e., nesting and perching sites for birds, den sites for particular wildlife species, etc.). Preference should be given to the largest trees (i.e., standing dead trees or live hardwoods). Research has shown that larger diameter snags are more valuable (last longer and contribute more to the biomass pool) than smaller diameter snags. Consequently, the trees retained should be ones, which are from the dominant or co-dominate portion of the stand and be left in a fairly evenly distributed manner.

1.2.5. Petroleum Products

1. In the event of a spill and/or leak of petroleum products, the owner or operator must make every effort to first; contain and second; clean up the spill. Spills in excess of 70 liters and **all leaks**, must be reported by calling the following spill report line:

   Environmental Emergencies Spill Report Line
   Canadian Coast Guard
   (709) 772-2083 collect or 1 (800) 563-9089

   In this province, spills and leaks must be remediated in accordance with the Guidance Document for the Management of Impacted Sites prepared by Pollution Prevention Division of ECC.

2. No heavy equipment or machinery is to be refueled, serviced, or washed within 30 metres of a waterbody or within 150 meters of a body of water within a PPWSA. Gasoline or lubricant depots must be stored at least 100 metres from the nearest waterbody. All fuel-storage tanks must be registered with Digital Government and Service NL and installed in accordance with the **Storage and Handling of Gasoline and Associated Products Regulations,** 2003 as amended, under the **Environmental Protection Act**.

3. Used oil storage, handling and disposal is to comply with the **Used Oil Control Regulations,** NLR, 82/02 under the **Environmental Protection Act**.

4. Above ground fuel storage tanks shall be registered with Digital Government and Service NL and have appropriate approvals for tank design. Construction and installation standards are clearly listed in section 27 of the **Storage and Handling of Gasoline and Associated Products Regulations**, 2003 as amended, under the **Environmental Protection Act**.

5. Contaminated soil or snow must be disposed of at an approved treatment facility.

1.2.6. Clean up of Site

Garbage is to be disposed of at an approved waste disposal site with the prior permission of the owner or operator. Prior to disposal it must be contained in a manner not to attract wildlife. All equipment and waste materials are to be removed from the operating area when operations are completed.

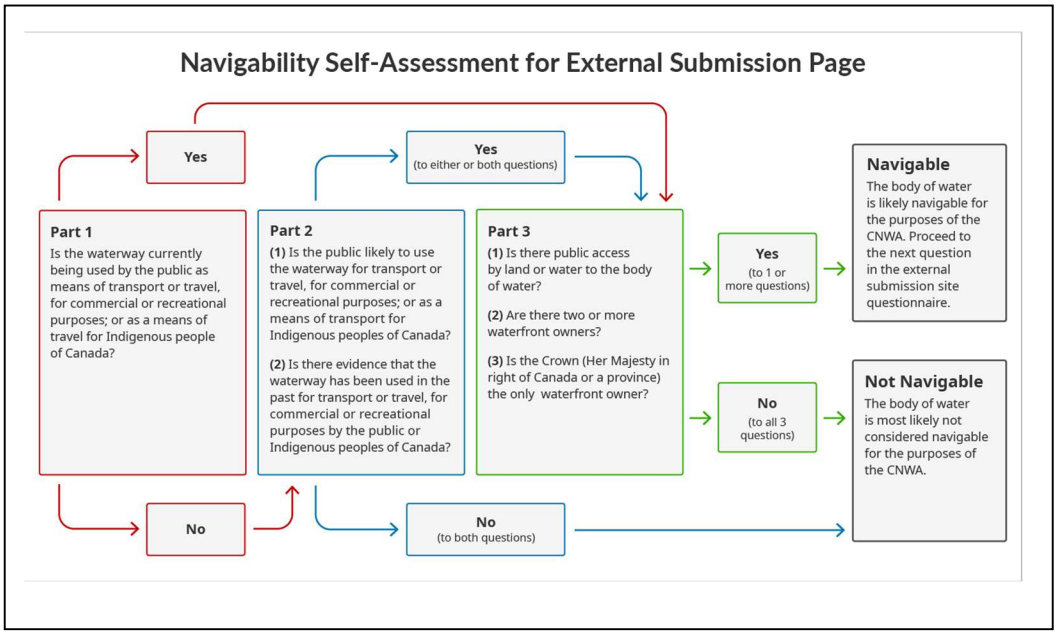
2. Forest Access Road Guidelines

2.1. Planning of Roads

2.1.1. Permits Required

1. Any alteration of a waterbody or work within 15 metres (i.e. any water identified on the latest 1:50,000 NTS map) or development within a protected public water supply area, will require prior approval by the Water Resources Management Division of the ECC. For alteration of a waterbody, a permit is required under Section 48 of the **Water Resources Act**, SNL 2002 cW-4.01. For any development in a protected public water supply area a permit is required under Section 39(6) of the **Water Resources Act**, SNL 2002 cW-4.01. Alteration of a waterbody may include culvert installations, temporary or permanent stream crossings, outfalls, infilling; and bridge, dam, and wharf construction. A Letter of Advice is also required from DFO for any alterations. Appropriate protection (i.e. the permit and Letter of Advice) is still required for streams greater than two metre in width not found on the 1:50,000 topographic map (using stream criteria as indicated in 1.2.4

2. In addition to approvals from Water Resources Management Division and DFO, approvals from Transport Canada are required for culverts, bridges and abutments on navigable waters (i.e. any waterbody capable of being navigated by floating vessels of any description for the purpose of transportation, commerce or recreation. This includes both inland and coastal waters). Transport Canada's Navigability Self-Assessment Tree must be utilized for each project to determine if a stream is Navigable or Not Navigable.



3. Resource road construction or any forestry activity is considered a development under the **Urban and Rural Planning Act**. Where this activity occurs within a planning area boundary or within 400 metres of a protected road, a development permit is required from Digital Government and Service NL before any activity takes place.

4. No roads are to be constructed within 500 meters of an established Provincial Park

2.1.2. Areas to Avoid

Forest access roads, borrow pits, and quarries, should avoid:

I. deltas, floodplains or fluvial wetlands (Refer to Appendix B – Determination of Wetland Edge);
II. terrain with high potential for erosion;
III. known sensitive wildlife areas such as:
    a. caribou areas (i.e. calving, post calving, migrations routes, rutting areas, and winter areas);
    b. waterfowl areas (i.e. nesting and staging areas);
    c. raptor nest sites; and

d. species at risk habitat, rare flora or fauna habitat, and other unique habitats as determined by qualified authorities.

IV. known sensitive fish habitat areas such as spawning and rearing grounds;
V. historically significant areas such as archaeological sites;
VI. existing reserves such as parks (municipal, provincial, national), wilderness areas, ecological reserves and wildlife reserves; and
VII. riparian buffer areas.

2.1.3. Waterbody Crossings

Waterbody crossings shall:

I. have stable approaches;
II. be at right angles, wherever possible, to the waterbody;
III. be located where channels are well defined, unobstructed, and straight;
IV. be at a narrow point along the waterbody; and
V. allow room for direct gentle approaches wherever possible.

2.1.4. Burrow Pits and Quarries

With respect to borrow pits and quarries, the operator should:

I. minimize the number of new borrow areas opened for construction and/or maintenance;
II. use existing borrow pits whenever practical;
III. be in possession of a valid quarry permit from the Mineral Lands Division of Department of Industry, Energy and Technology and FFA, for borrow pits outside resources roads right of way, prior to aggregate extraction activities as per the **Quarry Materials Act**, and
IV. not locate borrow pits and quarries in sensitive areas as identified by planning processes.

2.1.5. Wildlife Values

1. Wherever possible, forest access roads shall not obstruct wildlife movement. The following guidelines should be followed:
    a. roads should be of low profile (i.e. less than one metre above the surrounding terrain);
    b. slash and other debris shall be removed or buried; and
    c. the slope of ditches and road banks shall be minimized.

2. Where road construction is to occur around identified waterfowl breeding, moulting and staging areas, mitigating measures will be identified during the five year operating plan development process.

2.1.6. Road Access

1. Areas proposed for harvest using winter roads shall not be harvested without a reforestation plan approved in the Certificate of Managed Lands or Annual Operating Plans.

2. A regeneration survey is required for all forest areas that will be affected by access due to road decommissioning and bridge or stream crossing removals. Prior to decommissioning, a survey must be conducted and an approved reforestation plan by the Silviculture and Research Section of the Forest Ecosystem Management Division is required for all areas that fail to meet the provincial silviculture stocking standards.

2.1.7. Decommissioning Roads

On a site specific basis, roads may be decommissioned. Levels of decommissioning include:

I. barring access;
II. removal of watercourse crossings; and
III. restoration of roadway including planting of trees.

Decommissioning is identified through the five year plan development or under compelling circumstances, as decided by FFA (e.g. emergency closures).

2.2. Construction and Decommissioning of Roads

2.2.1. Road Construction

1. There shall be no bulldozing or burying of merchantable timber or poor utilization of merchantable softwoods and hardwoods during the cutting of road right-of-way's. All merchantable timber shall be utilized and processed.

2. Where brush mat or corduroy is required, sub-merchantable or non-merchantable stems should be used first. In the event these are not available or sufficient, permission must be obtained from a Forestry Official prior to merchantable stems being utilized. Stems are to be placed in a "butt to top" alternating fashion for the entire length of the area to be brush matted.

3. Earth shall be excavated as required to complete earth cuts, ditching, and sub-excavation, and shall include hauling, handling and disposal as directed. Only with the approval of the forestry official may excavation occur outside the limits of the roadway for the purpose of obtaining suitable or sufficient material to complete embankments. All holes and pits are to be rehabilitated.

4. Fill materials for road building must not be obtained from any waterbody, from within the floodplain of any waterbody, or within the 60 metres of a no grubbing zone.

2.2.2. Pits and Quarry Activity

1. Where borrow pit or quarry activity is likely to cause sediment, laden runoff to contaminate a waterbody, sediment control measures such as filter fabric berms or sedimentation ponds are to be installed. Contact is to be made with a Forestry Official prior to construction where such conditions exist.

2. Overburden or grubbed material pushed off any gravel pit site must be retained in a manner that allows it to be pushed back into the pit after construction and spread in a neat and tidy fashion.

3. Existing pits are to be used, where possible, to minimize the opening of new pits.

4. Borrow pits are to be located at least 60 metres from the nearest waterbody.

2.2.3. Working near Waterbodies and Instream Work

1. A no grubbing zone of 30 meters of undisturbed ground vegetation must be maintained around any waterbody crossing to minimize the damage to the lower vegetation and organic cover, thus reducing erosion potential.

2. Trees are to be felled away from all waterbodies. Slash and debris should be piled above the high water mark so that it cannot enter waterbodies during periods of peak flow.

3. Right-of-way widths at waterbody crossings should be kept to a minimum, preferably to the width of the driving surface plus water control features.

4. Unnecessary side casting or backfilling in the vicinity of waterbodies is not permitted. Where topographical constraints dictate that the roadbed must be constructed adjacent to a waterbody, road slope stabilization is to be undertaken at the toe of the fill (an area where active erosion is likely). The placement of large riprap, armour stone or slope stabilization material is recommended in such areas.

5. Take-off ditching should be used on both sides of the road or in conjunction with culverts to divert the ditch flow off into the woods or stable vegetation areas before reaching the waterbody. The ditch itself shall not lead directly into the waterbody.

6. Grades in excess of 10 per cent shall have culverts with baffle or ditch blocks on one end and cut-off ditches every 150 meters along the road. Baffle or ditch block can be constructed from gabion baskets, wooden structures, rock walls or other approved

materials. Unless otherwise specified, the height of the baffle shall be a minimum of one-half the diameter of the culvert requiring the baffle.

7. When working near waterbodies, road building operations causing erosion or siltation are to be suspended during periods of intense rainfall or when soils are saturated.

8. Any forestry operation that directly or indirectly results in sediment or turbid water entering a waterbody must be dealt with immediately.

9. Fording of equipment for stream crossing installation is to be kept to a minimum. Equipment activity in water crossing areas is to be kept to a minimum. All work is to be carried out from dry stable areas. Permission for exceptions must be obtained from DFO.

10. Heavy equipment and machinery is not permitted in any waterbody, on a wetland or a bog, unless it is frozen, without a permit from Water Resources Management Division.

11. Exposed mineral soil shall be stabilized during bridge construction and culvert installation.

12. All instream work is to be performed as per DFO's policy for applying measures to offset adverse effects on fish and fish habitat

13. Coffer dams are to be used to separate work areas from the stream when installing bridges or similar structures requiring abutments, or footings.

14. Water pumped from work areas and coffer dams is to be directed into a settling pond or stable vegetation areas.

15. Not more than one third of the stream width is to be blocked at any one time.

16. The stream banks are to be rehabilitated upon completion and removal of a coffer dam.

17. All culverts, in fish bearing streams, are to be installed as per the DFO's policy for applying measures to offset adverse effects on fish and fish habitat

18. In fish bearing streams;
    a. culverts having a diameter equal to or exceeding 2000 millimetres should be countersunk a minimum of 15 per cent of the diameter below the streambed elevation;

b. a minimum water depth of 200 millimetres should be provided throughout the culvert length. To maintain this water depth at low flow periods an entrance or downstream pool should be constructed; and
c. downstream outlet pools are of particular importance for long culverts or culverts to be installed on steep slopes.

19. Work to be competed in the stream bed, should be scheduled to avoid potential adverse impacts on spawning activities, egg incubation, spawning habitat and fish migration. It should also be done in consultation with the DFO Area Habitat Biologist.

2.2.4. Archaeological Find

When an archaeological site or artifact is found, the condition in Guideline 1.2.2 will apply.

2.2.5. Petroleum Products

In the event of a spill or leak of petroleum products, see Guideline 1.2.5.1 for further details. Guidelines 1.2.5.2 to 1.2.5.5 relating to petroleum products also apply in road construction and decommissioning operations.

2.2.6. Winter Roads

As with all season roads, soil disturbance and impacts on waterbodies are to be minimized with winter roads. Culverts or temporary bridges are to be used. Erosion control measures are to be maintained while the winter road is in use. After use, it is to be left in an environmentally acceptable condition. All temporary crossings are to be removed at the end of the operating season and an inspection is to be conducted by a Forestry Official, engineer or other qualified person. This inspection is to ensure any required remediation has been completed.

2.2.7. Decommissioning Roads

1. When roads are decommissioned or barred by gating or ditching or placement of obstacles, appropriate signage warning of any hazardous condition shall be placed in open view.

2. When decommissioning is through removal of watercourse crossings, areas adjacent to former culverts or bridge locations shall be stabilized to reduce potential for erosion. Appropriate signage shall also be placed.

3. When decommissioning roads by replacing soil, overburden and other natural obstacles on former roadway, so as to deny vehicular access and to enable planting in order to

restore productive forest on the site, standard precautions such as silt fencing shall be used to prevent entry of silt in waterways.

4. Decommissioning shall not be undertaken until all necessary reforestation activities beyond the decommissioning point has taken place.

3. Silvicultural Guidelines

3.1. Silviculture Planning

3.1.1. Permits Required

Silviculture is considered a development under the **Urban and Rural Planning Act**. Where this activity occurs within a municipal planning area boundary or within 400 metres of a protected road, a development permit is required from either the municipality or Digital Government and Service NL for the protected road, before any activity can occur. Also, a permit is required if located inside a PPWSA.

3.2. Conduct of Silviculture Operations

3.2.1. Preventing Erosion

To prevent erosion on sites proposed for row scarification, every effort should be made to follow the contours where slopes exceed 15 per cent. If in such instances scarification has to occur parallel to the slope, the scarified trenches are to be intermittent (i.e. for every 20 metres of trench, an un-scarified section two metres m in length should be left).

3.2.2. Protection of Waterbodies

1. Unless frozen, heavy equipment and machinery is not permitted in any waterbody, on wetland or a bog without a permit from Water Resources Management Division.

2. Any forestry operation that directly or indirectly results in sediment and/or turbid water entering a waterbody must be dealt with immediately.

3. Trees thinned during pre-commercial thinning, diameter limit thinning, commercial thinning or any other silviculture treatment shall not be felled into waterbodies.

3.2.3. Placement of Windrows

When slash is piled into windrows, it should be located where the slash cannot be washed into streams at peak flooding conditions.

3.2.4. Tress Left for Wildlife and Other Values

1. There is to be no cutting of Eastern White Pine, *Pinus strobus* or Red Pine *Pinus resinosa*.

2. Hardwood species, such as birch, are to be left when encountered in a stand scheduled for thinning where these do not compete with the conifer crop trees. Portions of thinning areas which are pure hardwood may be left unthinned when encountered. In mixed regeneration, various hardwood or softwood species may be favoured in future stand development in accordance with management objectives stated in the approved operating plan for the area.

3.2.5. Timing of Silviculture

Where possible, silviculture operations are to be reduced or avoided in areas identified by the Wildlife Division during the periods of birth and hatching.

3.2.6. Archaeological Find

When an archaeological site or artifact is found, the condition in Guideline 1.2.2 will apply.

3.2.7. Fuels and Petroleum Products

1. In the event of a spill or leak of petroleum products, see Guideline 1.2.5.1 for further details.

2. Guidelines 1.2.5.2 to 1.2.5.5 relating to petroleum products also apply in silviculture operations.

3.2.8. Scarification Method

Where mechanical site preparation is required, the method selected shall be best suited for preparing the area for planting and for minimizing ground disturbance.

3.2.9. Choice of Species to Plant

In planting situations, the use of native species is preferred. However, in certain situations, use of non-invasive, exotic species, such as those which have been established in the province for decades, or those which may come under future review, may be planted.

4. Forest Protection Guidelines

4.1. Planning for the Application of Pesticides (Insecticides and Herbicides)

4.1.1. Regulation of Pesticides

The use of pesticides is regulated federally by Health Canada and provincially by MAE. The federal **Pest Control Products Act** states which products are registered for use in Canada,

and the provincial **Environmental Protection Act, Pesticide Control Regulations** outlines licensing requirements and the conditions under which they can be purchased, sold or handed.

4.1.2. Licences Required

1. To apply pesticides in the province, two licences are required from the Pollution Prevention Division of ECC. The first is a Pesticides Operators Licence which is issued for a specific program and valid for five years. To obtain this licence, the applicant must submit project details including a map of the area to be treated, product to be used, and time of the year to be used. Following the completion of the project, a report must be submitted to ECC. The second licence required is a Pesticide Applicators Licence. To obtain this licence, the applicator must complete an exam. Only people in possession of this licence may use the pesticide. It is valid for a period of five years.

2. To apply herbicides, the same conditions apply as above. An Operator's Licence must be obtained for the project and is valid for five years. In addition, each member of the crew involved with application of the herbicide must complete an exam and obtain a Pesticide Applicators Licence.

3. A third program which requires an Operator's Licence and a Pesticide Applicators Licence is the tree nursery program which may use pesticides to grow seedlings. The same conditions apply as above.

4.2. Conduct of Operations

4.2.1. Pesticide Use

Only bio-degradable pesticides will be used and only as part of an integrated pest management strategy.

5. Guidelines for Forestry Operations within Protected Public Water Supply Areas

The primary function of a Protected Public Water Supply Area (PPWSA) is to provide the public with an adequate quantity of safe and good quality water on a permanent basis and to meet its present and future demands. By definition, a Protected Public Water Supply Area is the area of land and water designated as a Protected Public Water Supply Area, for a municipal authority operating a waterworks or using or intending to use a water sources, under Section 39 of the **Water Resources Act.** Any other activity within a Protected Public Water Supply Area is considered secondary, and if permitted, must be strictly regulated and monitored to ensure that the water supply integrity is not threatened and the quality of the water is not impaired.

In Newfoundland and Labrador forestry operations are permitted in most Protected Public Water Supply Areas on a limited and controlled basis provided the proposed operations have no or minimal, water quality impairment potential. More specifically, commercial forest harvesting and Silviculture of more than 10 per cent of the total land area of the Protected Public Water Supply Area, or 10 per cent of the total merchantable timber; whichever is less, in any 12 month period will not be permitted.

The following permits and approvals are required prior to the beginning of any forestry operations, whether commercial or domestic operations, and includes road construction, silviculture activities, and harvesting within a Protected Public Water Supply Area:

I. Approval of the Five year operating plan by the Environmental Assessment Division of ECC,
II. Issuance of a permit under section 39(6) of the **Water Resources Act** which will include consultation with the community involved. Applications for development inside Protected Public Water Supply Area can be obtained from the Water Resources Management Division website.

5.1. Conduct of Operations

All permits and contracts should include any conditions outlined under section 39(6) of the **Water Resources Act.** In addition to environmental guidelines specified in sections above, the following will apply in Protected Public Water Supply Areas.

5.1.1. Map of Operating Area

The appropriate Forestry or Company official will provide the operator with a map indicating the harvesting area and the location of no-cut buffer zones, and will ensure the operator is familiar with the boundaries and conditions of the approved detailed plan of operations.

5.1.2. Prevention of Erosion

In areas sensitive to erosion, depending on the nature and location of the proposed forestry operation, the Water Resources Management Division may not permit the activity to take place. However, where permitted, the following mitigation measures should be put in place:

1. Sensitive areas prone to erosion and areas which have high potential for erosion can be harvested if proper harvesting and site restoration techniques are a part of a detailed plan.
2. Wherever possible, extraction trails should run along contours and avoid wetlands.
3. Use of landings will be minimized. Any approved landing area shall be less than 0.25 ha and located at least 150 metres from Protected Public Water Supply intake ponds.

5.1.3. Buffer Zones

Riparian buffer zone requirements in Protected Public Water Supply Areas are as follows:

Water Body	Width of Buffer
Intake Pond, Lake or Reservoir	Minimum 150 metres
River Intake (for a distance of 1000 metres upstream and 100 meters downstream)	Minimum 150 metres
Main River Channel	Minimum of 75 metres
Major Tributaries, Lakes or Ponds	Minimum of 50 metres
Other Waterbodies	Minimum of 30 metres

Any deviation will require approval from Water Resources Management Division.

5.1.4. Petroleum Products

Fuel storage and the operation of fuel storage equipment are regulated by the **Storage and Handling of Gasoline and Associated Products Regulations,** 2003 as amended and the **Heating Oil Storage Tank System Regulations,** 2003 as amended.

In addition to the above regulatory requirements and Sections 1.2.5.1 to 1.2.5.5 the following are to be adhered to;

I. There is no bulk fuel storage within a PPWSA unless otherwise approved by WRMD. Fuel Storage is limited to two 205-litre drums or a 500 litre slip tank.
II. Refueling must not take place within 150 metres of a body of water.
III. All tanks must be located at a minimum distance of 500 metres from any major waterbody.
IV. A fuel or oil spill clean-up kit must be kept on site to facilitate any clean-up in the event of a spill. This kit must include absorbent pads, loose absorbent materials such as dried peat, speedy-dry or sawdust, a container such as an empty drum for recovering the fuel or oil, and a containment boom.

5.1.5. Structures Prohibited in Water Supply Area

1. Dormitory camps, garages or any other structures are prohibited within a Protected Public Water Supply Area.

2. The establishment of new sawmills is not permitted in Protected Public Water Supply Areas.

5.1.6. Reporting Water Quality Problems

Any water quality impairment problem should be reported immediately to the Water Resources Management Division.

6. Guidelines for Forestry Operations to Reduce Incidental Take of Migratory Birds

In Canada migratory birds, nests and eggs are protected under the Migratory Bird Convention Act (MBCA). Currently, the inadvertent harming, killing, disturbance or destruction of migratory birds, nests, and eggs often referred to as "incidental take", may be considered a violation under the MBCA and its regulations.

Bird nests occur in virtually every stand logged during the nesting season, which can run from mid-April through mid-August each year in Newfoundland and Labrador. This places forest operations in direct conflict with the MBCA during nesting season, with no opportunity to obtain a permit for authorization. Shutting down forest operations for this period would have huge economic and social implications.

Beneficial Management Practices (BMP) are designed to reduce risk of incidental take by making forest operators aware of their responsibility in the following areas:

I. Knowledge of Legal Obligations
II. Risk Assessment and Planning
III. Preventative and Mitigation Measures

BMPs in this document apply to commercial forest operations during the migratory bird breeding season in Newfoundland and Labrador. Operations include the construction and maintenance of forest access roads, timber removal and transportation activities, silviculture related activities and forest harvesting.

6.1. Knowledge of Legal Obligations

During planning, and immediately before implementation of operations, forest operators must familiarize themselves with the current legislation for the protection of migratory birds, their nests and their eggs. Section 6 subject to subsection 5(9) of the **Migratory Bird Regulations** and Section 75 of the **Wild Life Regulations** outline the responsibilities of operators concerning this.

Forest operators are also responsible for the protection or avoidance of species listed under the **Species at Risk Act** (SARA) or the **Endangered Species Act** (ESA).

6.2. Risk Assessment and Planning

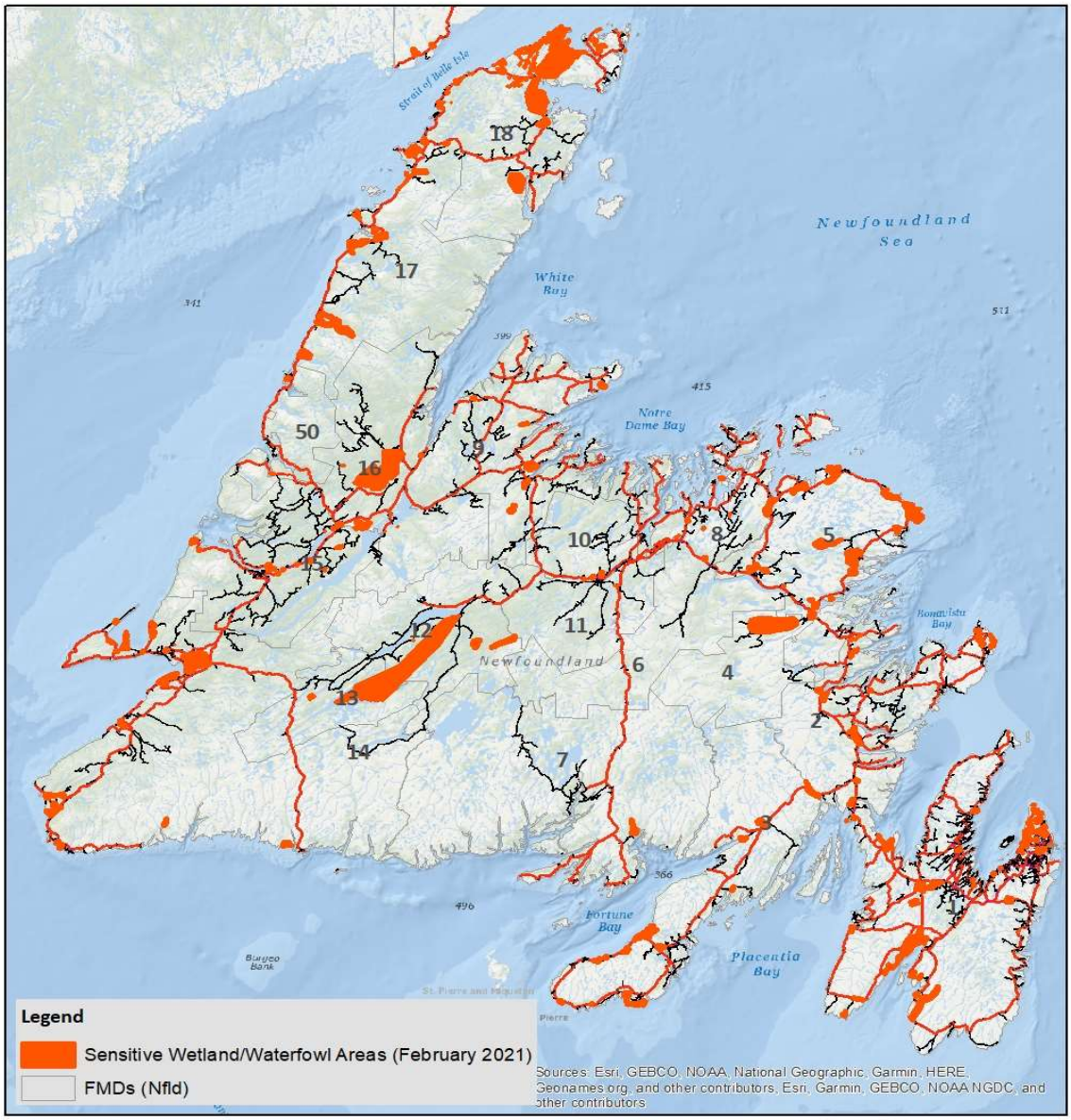
Planning ahead can help you comply with the law and minimize the risk of detrimental effects to migratory birds. Assessing the risks of effects is the first step for developing appropriate prevention and mitigation measures that help maintain sustainable populations of migratory birds.

In order to help ensure that you are complying with legal obligations, you should first determine the likelihood of the presence of migratory birds and their nests or eggs when planning activities to be carried out. It is recommended to use scientifically sound approach that considers the available bird habitats, the migratory bird species likely to be encountered in such habitats, and the time period of encounters. You should plan to avoid engaging in potentially destructive or disruptive activities at key locations or during key periods, such as the breeding season.

6.3. Preventative and Mitigation Measures

Planning To prevent incidental take of migratory birds during forestry operations it is recommended to schedule activities to reduce disturbance during the migratory bird breeding season. The breeding season for most migratory birds within the province occurs between April 15th and August 15th, though some species do nest outside of this time period.

APPENDIX A - 30 METER NO CUT BUFFER AND 50 METER NO GRUBBING ZONE ON SIGNIFICANT WETLANDS – OVERVIEW MAP



APPENDIX B - OPERATIONAL GUIDANCE TO DETERMINE THE EDGE OF A WETLAND

Modern high-resolution digital mapping of wetlands in NL help approximate the location and boundary of wetlands, but these maps can underestimate the scale/extent of wetlands, particularly forested swamps and floodplains. Although techniques exist, it is not generally operationally possible to delineate the actual extent of wetlands, as those techniques, at scale, would be onerous, time consuming, expensive and require specific expertise.

For operational purposes the wetland edge can be determined by where the vegetation obviously changes in height and/or the composition of observed vegetation becomes non-hydrophytic (plants not dependent upon the periodic flooding of water). As such, the width of required riparian buffers on the edges of wetlands can be measured from the edge of the non-hydrophytic vegetation, and does not necessarily mean treed.

Following are several examples of wetland situations requiring the determination of an edge

Example A: Simple wetland

Example B: Less simple wetland situations:

APPENDIX C – RESOURCE MATERIAL

Development Applications in Protected Public Water Supply Areas

http://www.env.gov.nl.ca/env/waterres/regulations/appforms/index.html

Guidelines for Protection of Freshwater Fish Habitat in Newfoundland and Labrador

http://www.dfo-mpo.gc.ca/Library/240270.pdf

Guidance Document for the Management of Impacted Sites

http://www.env.gov.nl.ca/env/env_protection/ics/Guidance_Document_For_the_Management_of_Impacted_Sites_V2.0_Feb_6_2014.pdf

FEDERAL LEGISLATION

Canada Fisheries Act

http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html

Canada Navigable Waters Protection Act

http://laws.justice.gc.ca/eng/acts/N-22/

Canada Species at Risk Act

http://laws-lois.justice.gc.ca/eng/acts/s-15.3/

PROVINCIAL LEGISLATION

Newfoundland and Labrador Endangered Species Act

http://www.assembly.nl.ca/Legislation/sr/statutes/e10-1.htm

Newfoundland and Labrador Environmental Protection Act

http://www.assembly.nl.ca/legislation/sr/statutes/e14-2.htm

Newfoundland and Labrador Forestry Act

http://www.assembly.nl.ca/legislation/sr/statutes/f23.htm

Newfoundland and Labrador Historical Resources Act

http://www.assembly.nl.ca/legislation/sr/statutes/h04.htm

Newfoundland and Labrador Quarry Material Act, 1998

http://www.assembly.nl.ca/legislation/sr/statutes/q01-1.htm

Newfoundland and Labrador Urban and Rural Planning Act, 2000

http://assembly.nl.ca/Legislation/sr/statutes/u08.htm

Newfoundland and Labrador Wildlife Act

http://www.assembly.nl.ca/Legislation/sr/statutes/w08.htm

Corner Brook Pulp and Paper Ltd.
Forest Management District 14
Five Year Plan (2024-2028)

Legend

- Brooks
- Five Year Plan Outlines
- Five Year Plan Silviculture Outlines
- Potential Harvestables
- Waterbodies

1:400,000

N
W E
S

Black Duck

Camp 185

Fischell's River

Pasture Road

Barachois

Camp 180

McPherson's Pond

Codroy Pond

Five Year Plan Operating Areas

- K-14-61 Black Duck
- K-14-62 Camp 185
- K-14-63 Fischell's River
- K-14-64 Camp 180
- K-14-65 McPherson's Pond
- K-14-66 Codroy Pond
- K-14-67 Barachois
- K-14-68 Pasture Road

CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	14	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	Black Duck	**Inventory Map #:**	082
Harvest Area #:	K-14-61	**NTS Map #:**	12B09, 12H11

Forest Inventory

Gross		**Net**		**Working Group**	
Volume:	122,337 m3	Volume:	111,327 m3	bF:	87 %
Area:	1,182 ha	Area:	1,076 ha	bS:	13 %

.

Other Considerations and Mitigations:

Newfoundland and Labrador Outfitter Association was contacted as well as all individual business owners with a request to review submission maps and provide feedback. Mitigations if any will be developed.

T'Railway Provincial Park within 5YP boundary. A 100m no cut buffer from the centre line of the trail is required.

The area has a shared forest access road and snowmobile trail system. Consultation with the Newfoundland and Labrador Snowmobile Federation takes place annually to discuss plans and mitigations for upcoming snowmobile seasons.

Area is within a Municipal Planning Area for the town of Stephenville. Environmental Protection Guidelines and Municipal Area Guideline requirements will be followed.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 14
Five Year Plan (2024-2028)

Black Duck (K-14-61)
Scale: 1:50,000
Forest Inv Map 082
NTS Map 12H11, 12B09

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Regulatory Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

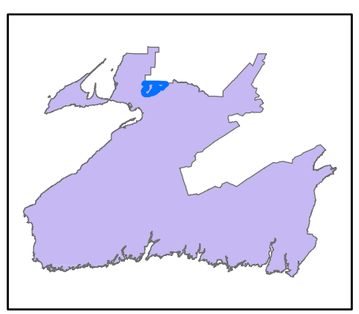
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

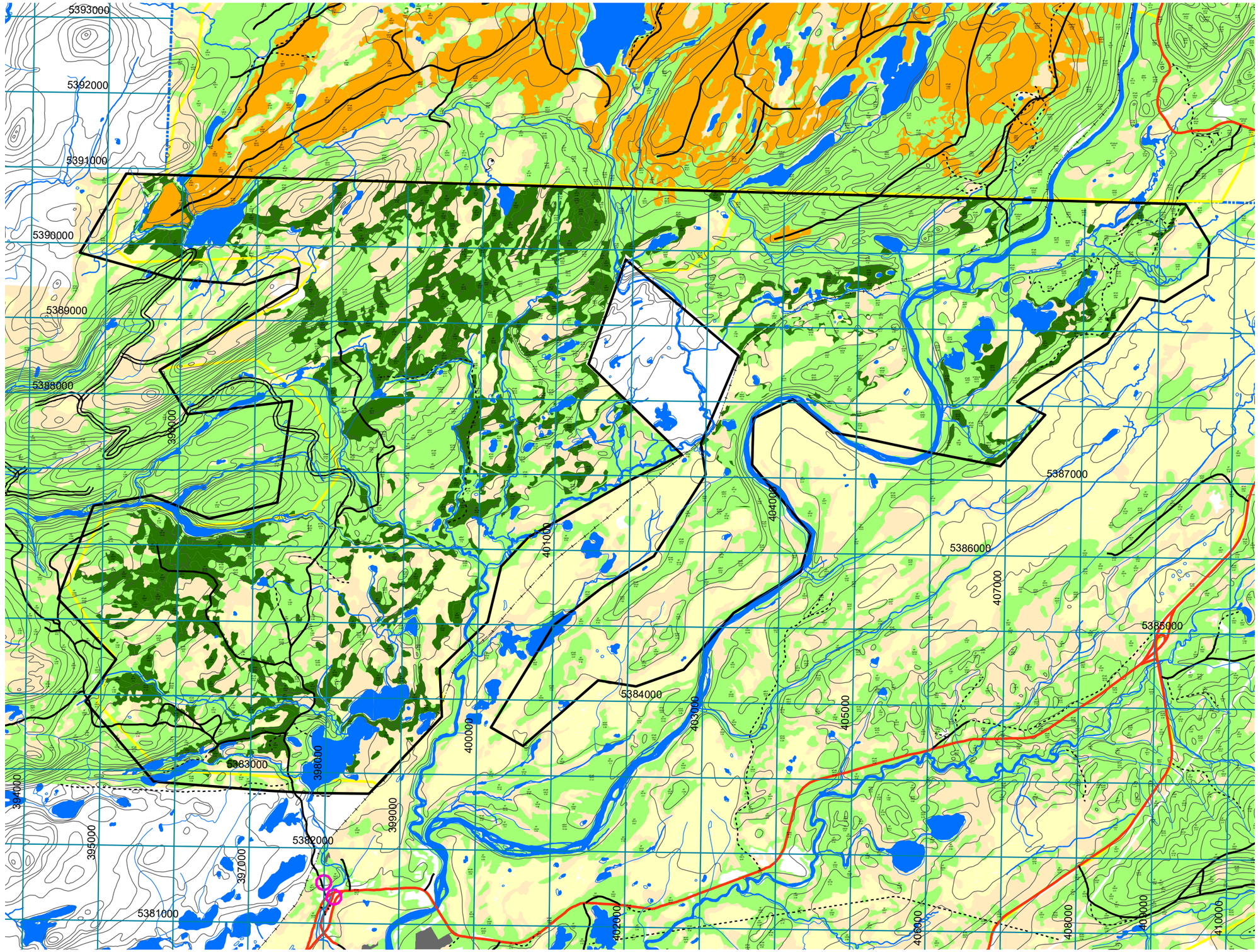
Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 14





CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	14	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	Camp 185	**Inventory Map #:**	082
Harvest Area #:	K-14-62	**NTS Map #:**	12B09, 12A12

Forest Inventory

Gross			**Net**			**Working Group**	
Volume:	295,245	m3	Volume:	268,673	m3	bF:	83 %
Area:	3,645	ha	Area:	3,317	ha	bS:	17 %

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

Newfoundland and Labrador Outfitter Association was contacted as well as all individual business owners with a request to review submission maps and provide feedback. Mitigations if any will be developed.

Landscape design projects have been undertaken in the past for areas along the TCH. Extensions to these projects will be completed as required.

The Annual Operating Plan boundary overlaps with Pine Marten Core habitat. All EA release conditions will be met with regards to these wildlife areas.

CBPPL is aware of Tree Improvement Trial Areas. Efforts will be taken to avoid distrubance of these areas and inform contractors of their specific locations before work begins.

Development Permits will be required for this 5YP operating area. Applications will be sent as needed.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 14
Five Year Plan (2024-2028)

Camp 185 (K-14-62)
Scale: 1:85,000
Forest Inv Map 082
NTS Map 12B09, 12A12

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Regulatory Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

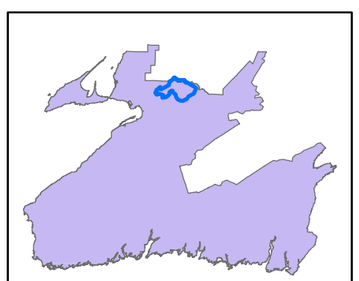
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

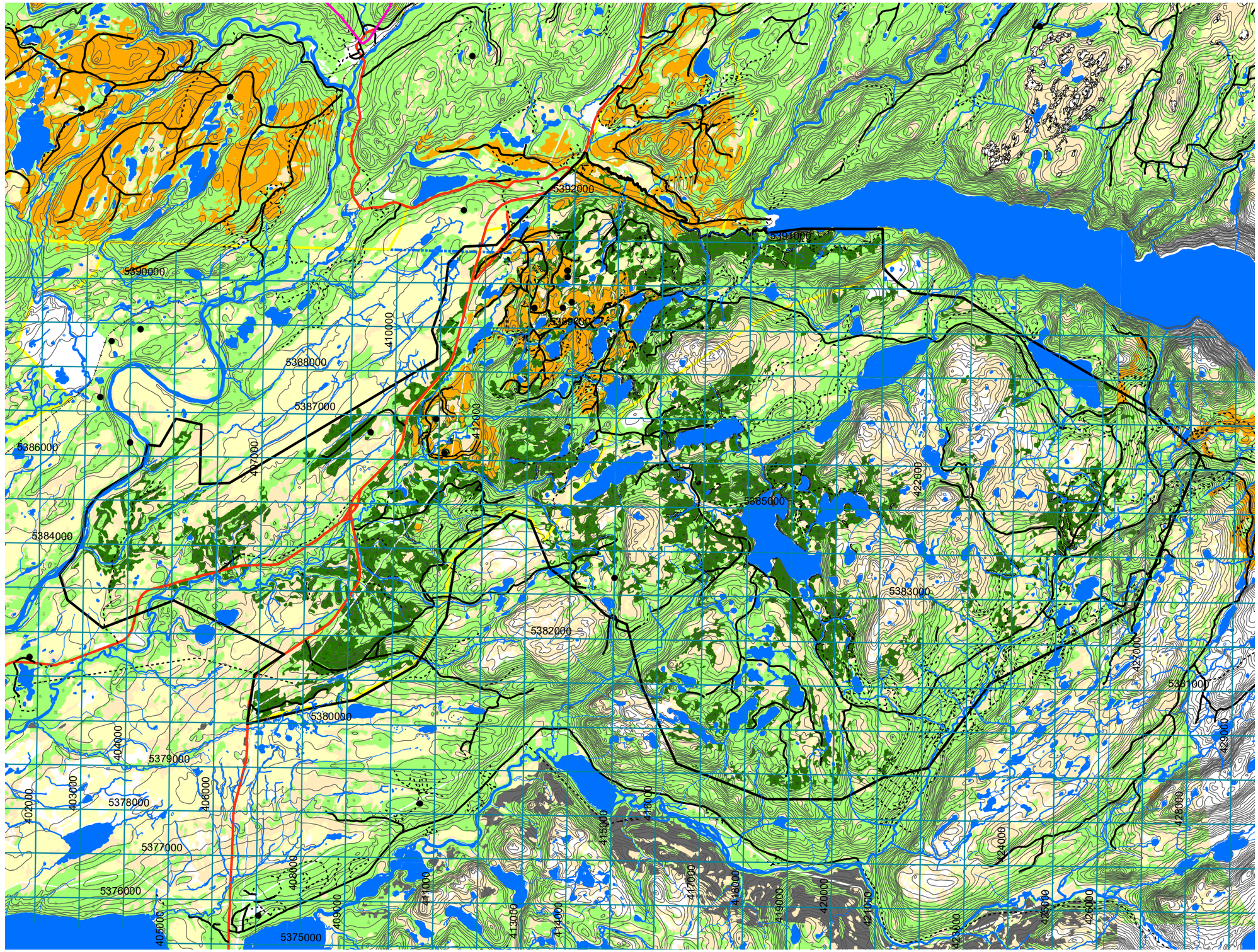
Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 14





CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	14	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	Fischell's River	**Inventory Map #:**	094,095
Harvest Area #:	K-14-63	**NTS Map #:**	12B07-12B08

Forest Inventory

Gross			**Net**			**Working Group**		
Volume:	21,839	m3	Volume:	19,873	m3	bF:	70	%
Area:	289	ha	Area:	263	ha	bS:	30	%

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

Newfoundland and Labrador Outfitter Association was contacted as well as all individual business owners with a request to review submission maps and provide feedback. Mitigations if any will be dealt with.

Landscape design projects have been undertaken in the past for areas along the TCH. Extensions to these projects will be completed as required.

Development Permits will be required for this 5YP operating area. Applications will be sent as needed.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 14
Five Year Plan (2024-2028)

Fischells River (K-14-63)
Scale: 1:34,000
Forest Inv Map 094, 095
NTS Map 12B07, 12B08

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Regulatory Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

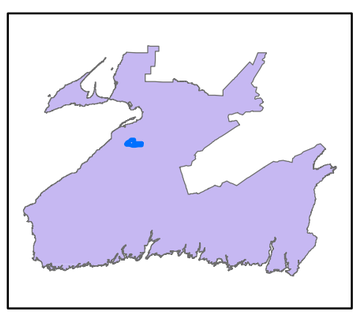
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

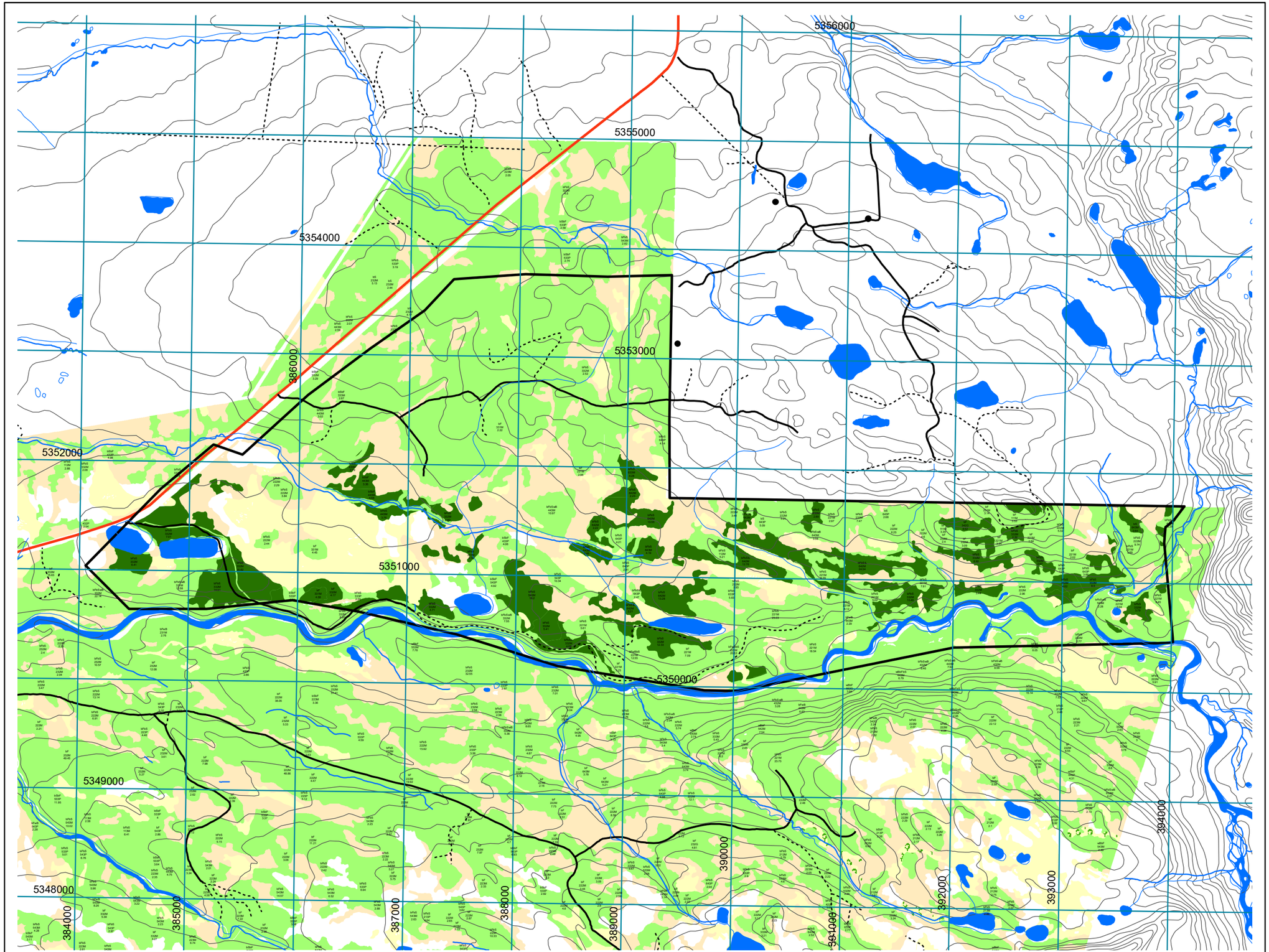
Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 14





CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	14	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	Camp 180	**Inventory Map #:**	94, 107
Harvest Area #:	K-14-64	**NTS Map #:**	12B07-12B02

Forest Inventory

Gross			**Net**			**Working Group**		
Volume:	63,155	m3	Volume:	57,471	m3	bF:	82	%
Area:	743	ha	Area:	676	ha	bS:	18	%

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

Newfoundland and Labrador Outfitter Association was contacted as well as all individual business owners with a request to review submission maps and provide feedback. Mitigations if any will be developed.

The Annual Operating Plan boundary overlaps with Pine Marten core habitat. All EA release conditions will be met with regards to these wildlife areas.

Development Permits will be required for this 5YP operating area. Applications will be sent as needed.

Area overlaps with a Cottage Development Area.

Agriculture area of interest located within the 5YP boundary. Regulatory harvest is part of this Agriculture area of interest. Harvest volumes are not included in the core harvest.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 14
Five Year Plan (2024-2028)

Camp 180 (K-14-64)
Scale:1:58,000
Forest Inv Map 94, 107
NTS Map 12B07, 12B02

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Regulatory Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

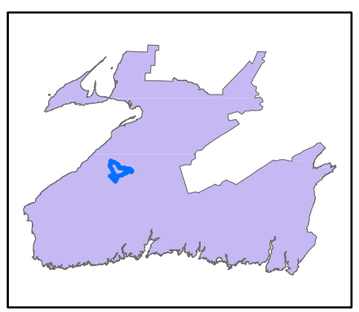
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

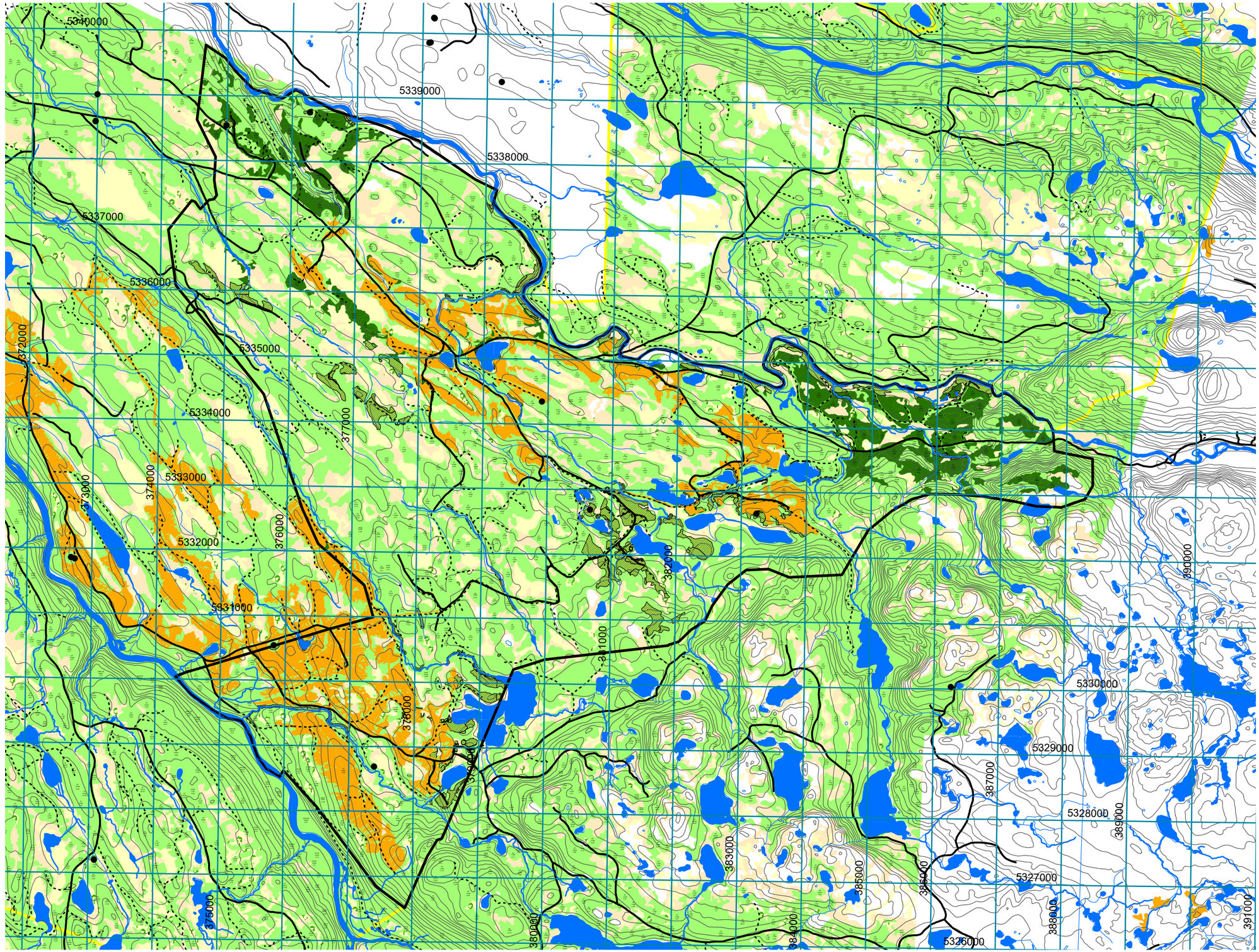
Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 14





CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	14	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	McPherson's Pond	**Inventory Map #:**	107
Harvest Area #:	K-14-65	**NTS Map #:**	12B02

Forest Inventory

Gross			**Net**			**Working Group**		
Volume:	105,108	m3	Volume:	95,648	m3	bF:	86	%
Area:	1,133	ha	Area:	1,031	ha	bS:	14	%

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

Newfoundland and Labrador Outfitter Association was contacted as well as all individual business owners with a request to review submission maps and provide feedback. Mitigations if any will be dealt with.

Landscape design projects have been undertaken in the past for areas along the TCH. Extensions to these projects will be completed as required.

Agriculture area of interest located within the 5YP boundary.

The Annual Operating Plan boundary overlaps with Pine Marten core habitat. All EA release conditions will be met with regards to these wildlife areas.

Area overlaps with a Cottage Development Area.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 14
Five Year Plan (2024-2028)

McPherson's Pond (K-14-65)
Scale:1:61,000
Forest Inv Map 107
NTS Map 12B02

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Regulatory Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

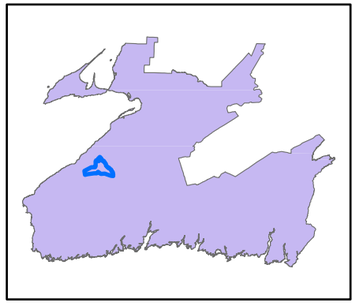
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

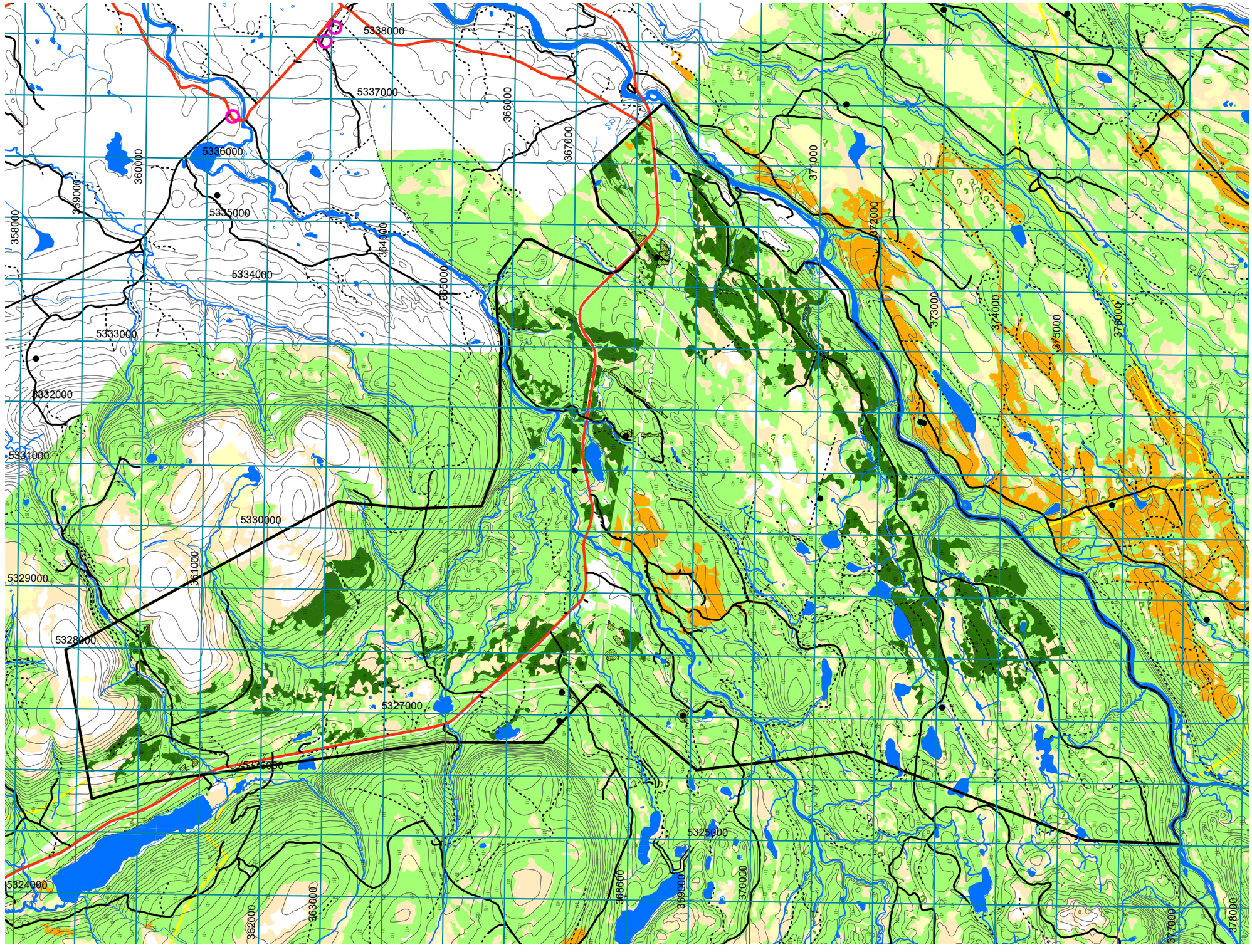
Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 14





CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	14	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	Codroy Pond	**Inventory Map #:**	107,121
Harvest Area #:	K-14-66	**NTS Map #:**	12B02, 11O15

Forest Inventory

Gross			**Net**			**Working Group**		
Volume:	110,915	m3	Volume:	100,933	m3	bF:	84	%
Area:	1,192	ha	Area:	1,085	ha	bS:	16	%

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

Newfoundland and Labrador Outfitter Association was contacted as well as all individual business owners with a request to review submission maps and provide feedback. Mitigations if any will be dealt with.

Landscape design projects have been undertaken in the past for areas along the TCH. Extensions to these projects will be completed as required.

Development Permits will be required for this 5YP operating area. Applications will be sent as needed.

Agriculture area of interest located within the 5YP boundary.

Area overlaps with a Cottage Development Area.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 14
Five Year Plan (2024-2028)

Codroy Pond (K-14-66)
Scale: 1:52,500
Forest Inv Map 107, 121
NTS Map 12B02, 11015

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Regulatory Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

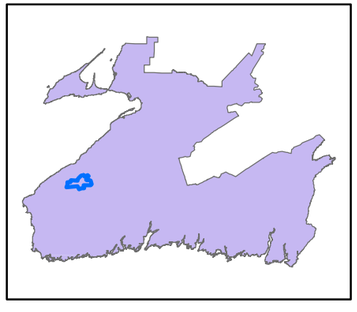
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

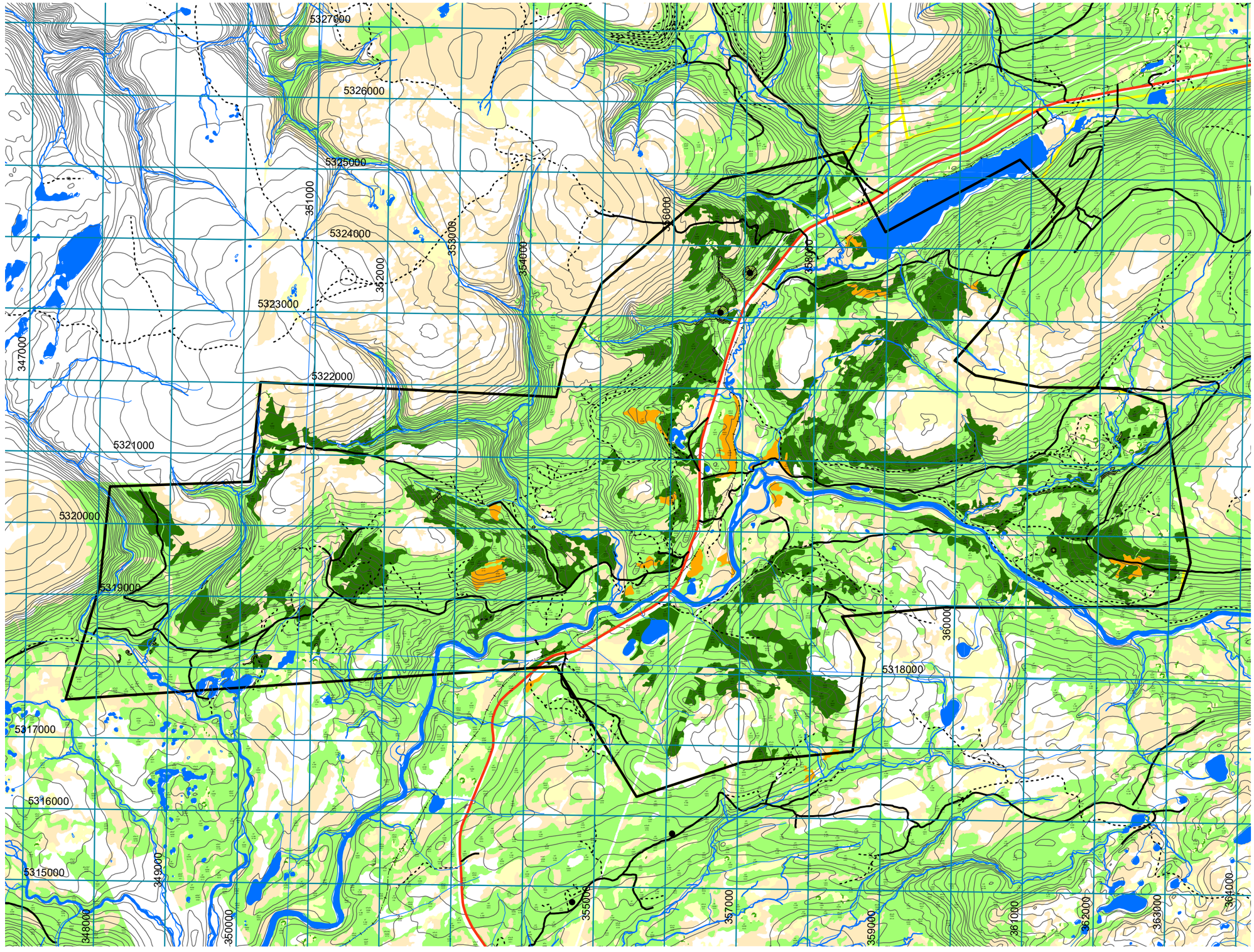
Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 14





CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	14	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	Barachois	**Inventory Map #:**	107
Harvest Area #:	K-14-67	**NTS Map #:**	12B02

Forest Inventory

Gross			**Net**			**Working Group**	
Volume:	23,773	m3	Volume:	21,633	m3	bF:	82 %
Area:	306	ha	Area:	278	ha	bS:	18 %

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

Newfoundland and Labrador Outfitter Association was contacted as well as all individual business owners with a request to review submission maps and provide feedback. Mitigations if any will be developed.

The Annual Operating Plan boundary overlaps with Pine Marten core habitat. All EA release conditions will be met with regards to these wildlife areas.

Agriculture area of interest located within the 5YP boundary.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 14
Five Year Plan (2024-2028)

Barachois (K-14-67)
Scale: 1:36,000
Forest Inv Map 107
NTS Map 12B02

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Regulatory Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

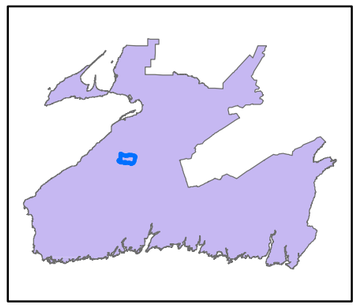
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

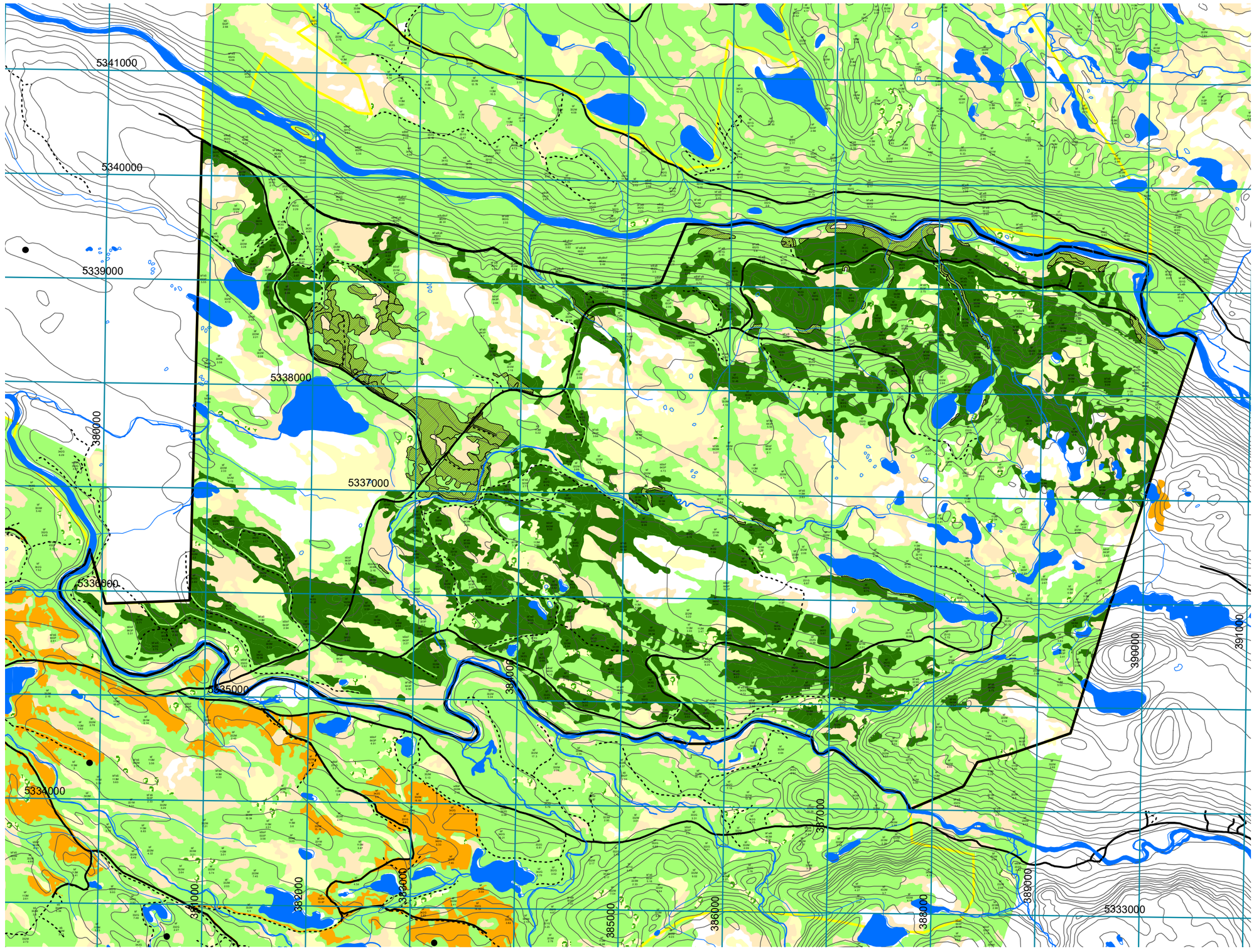
Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 14





CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	14	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	Pasture Road	**Inventory Map #:**	107,108
Harvest Area #:	K-14-68	**NTS Map #:**	12B02, 12B01

Forest Inventory

Gross			**Net**			**Working Group**		
Volume:	96,534	m3	Volume:	87,846	m3	bF:	94	%
Area:	1,128	ha	Area:	1,026	ha	bS:	6	%

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

Newfoundland and Labrador Outfitter Association was contacted as well as all individual business owners with a request to review submission maps and provide feedback. Mitigations if any will be developed.

The Annual Operating Plan boundary overlaps with Pine Marten core habitat. All EA release conditions will be met with regards to these wildlife areas.

Agriculture area of interest located within the 5YP boundary. Regulatory harvest is part of this Agriculture area of interest. Harvest volumes are not included in core harvest.

Area is adjacent to Canadian Boreal Forest Agreement Area, Robinsons River.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 14
Five Year Plan (2024-2028)

Pasture Road (K-14-68)
Scale: 1:30,000
Forest Inv Map 107, 108
NTS Map 12B02, 12B01

LEGEND

Five Year Plan Features

- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Regulatory Harvest
- Permanent Sample Plots

Road Features

- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

Linear Features

- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

Administration Boundaries

- Management Boundary
- Ownership Boundary

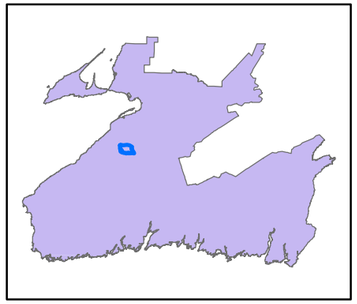
Land Features

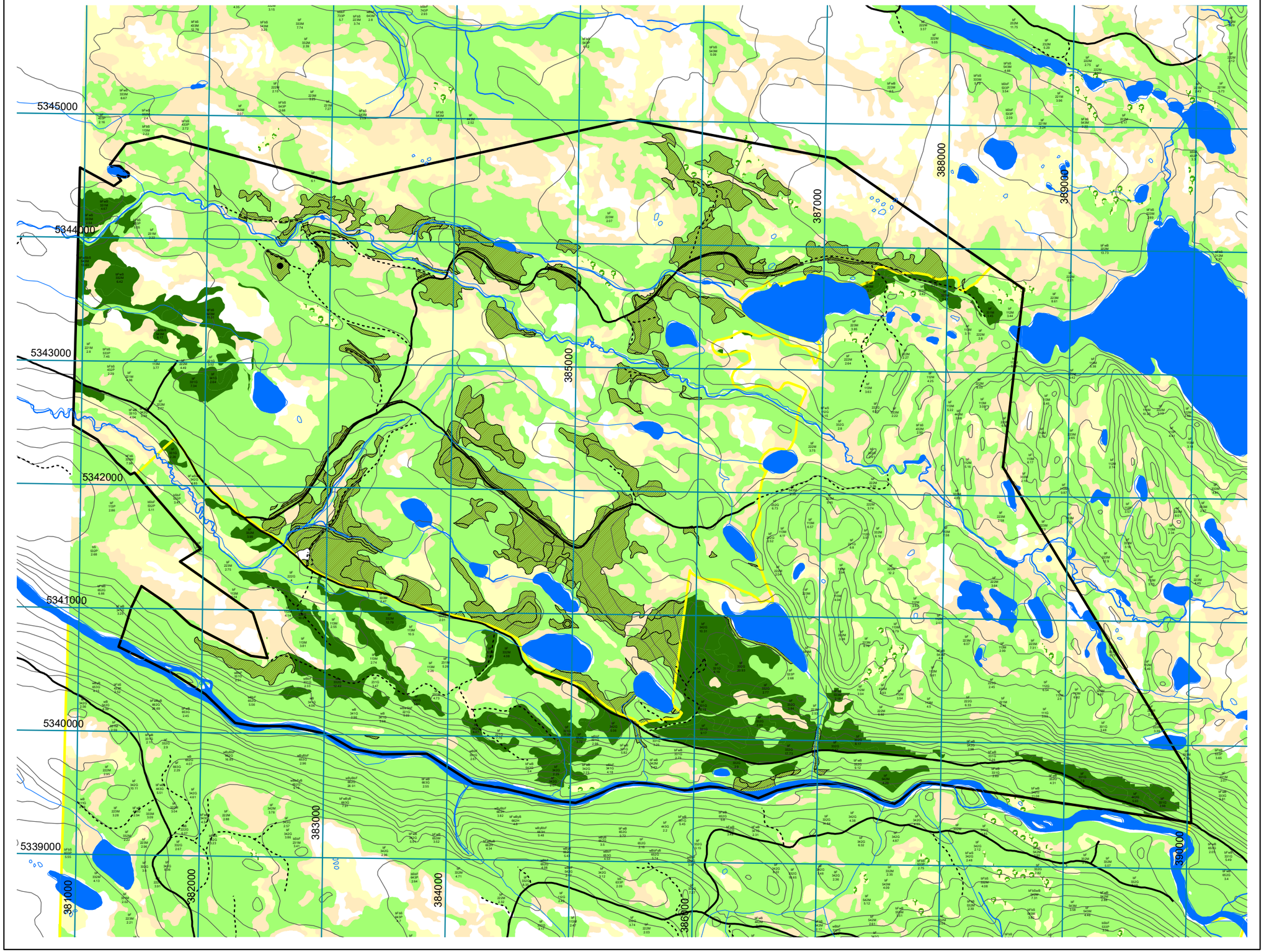
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features

- Waterbodies
- Brooks

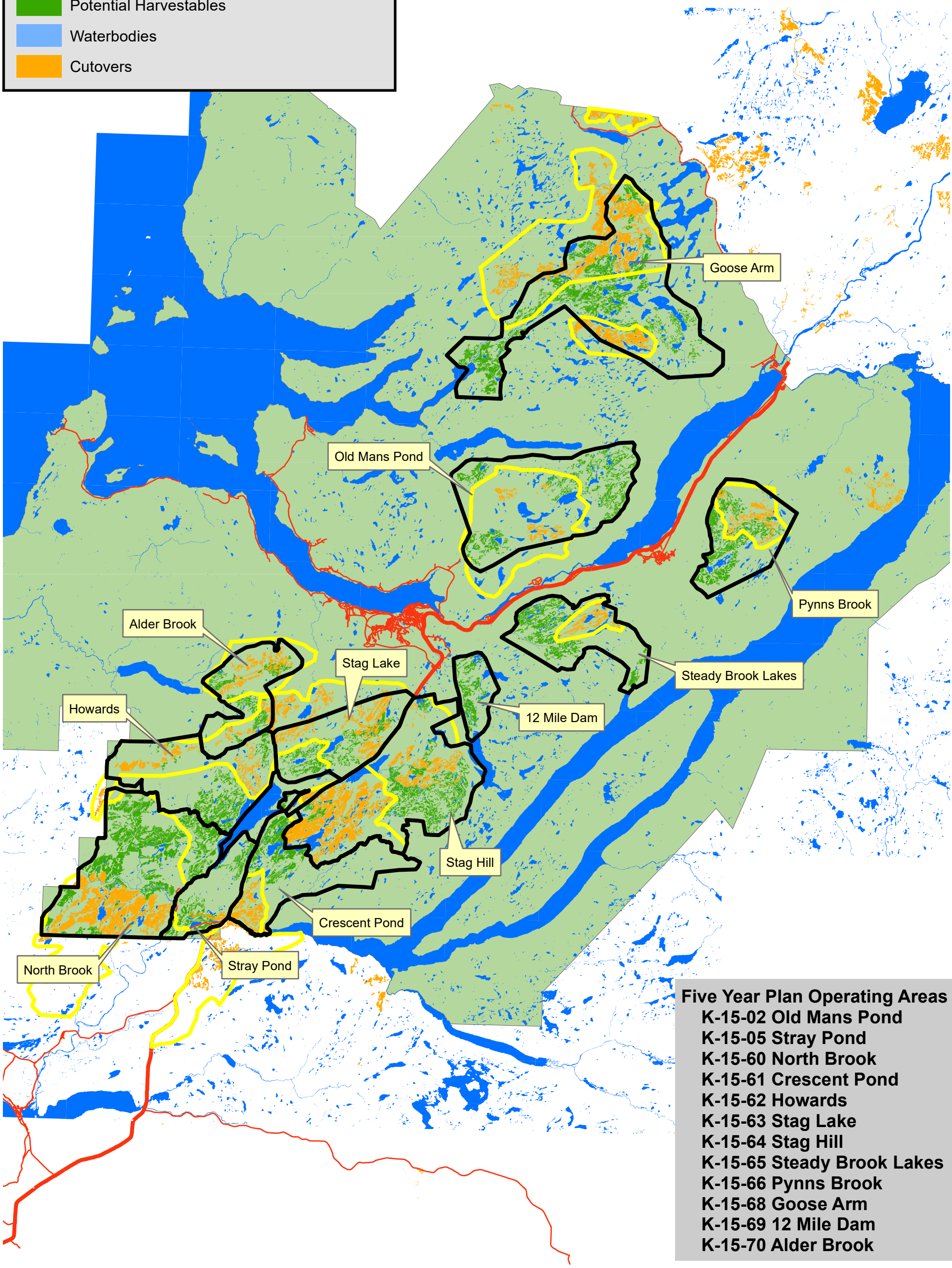
Insert Map Showing
Five Year Plan Within District 14





Corner Brook Pulp and Paper Ltd.
Forest Management District 15
Five Year Plan (2024-2028)
Legend

- Brooks
- Five Year Plan Outlines
- Five Year Plan Silviculture Outlines
- Potential Harvestables
- Waterbodies
- Cutovers



Five Year Plan Operating Areas

- K-15-02 Old Mans Pond
- K-15-05 Stray Pond
- K-15-60 North Brook
- K-15-61 Crescent Pond
- K-15-62 Howards
- K-15-63 Stag Lake
- K-15-64 Stag Hill
- K-15-65 Steady Brook Lakes
- K-15-66 Pynns Brook
- K-15-68 Goose Arm
- K-15-69 12 Mile Dam
- K-15-70 Alder Brook

CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	15	**Plan Period:**	Jan 1, 2024 - Dec 31, 2028
Operating Area:	Old Man's Pond	**Inventory Map #:**	059
Harvest Area #:	K-15-02	**NTS Map #:**	12H4

Forest Inventory

Gross			**Net**			**Working Group**	
Volume:	144,796	m3	Volume:	131,764	m3	bF:	86 %
Area:	1,366	ha	Area:	1,243	ha	bS:	14 %

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

The Annual Operating Plan boundary overlaps with Pine Marten core habitat. All EA release conditions will be met with regards to these wildlife areas.

The area has a shared forest access road and snowmobile trail system. Consultation with the Newfoundland and Labrador Snowmobile Federation takes place annually to discuss plans and mitigations for upcoming snowmobile seasons.

Area is within a Municipal Planning Area for the Humber Valley/Corner Brook Region. Environmental Protection Guidelines and Municipal Area Guideline requirements will be followed.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 15
Five Year Plan (2024- 2028)

Old Mans Pond (K-15-02)
Scale: 1:65,000
Forest Inv Map 059
NTS Map 12H4

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

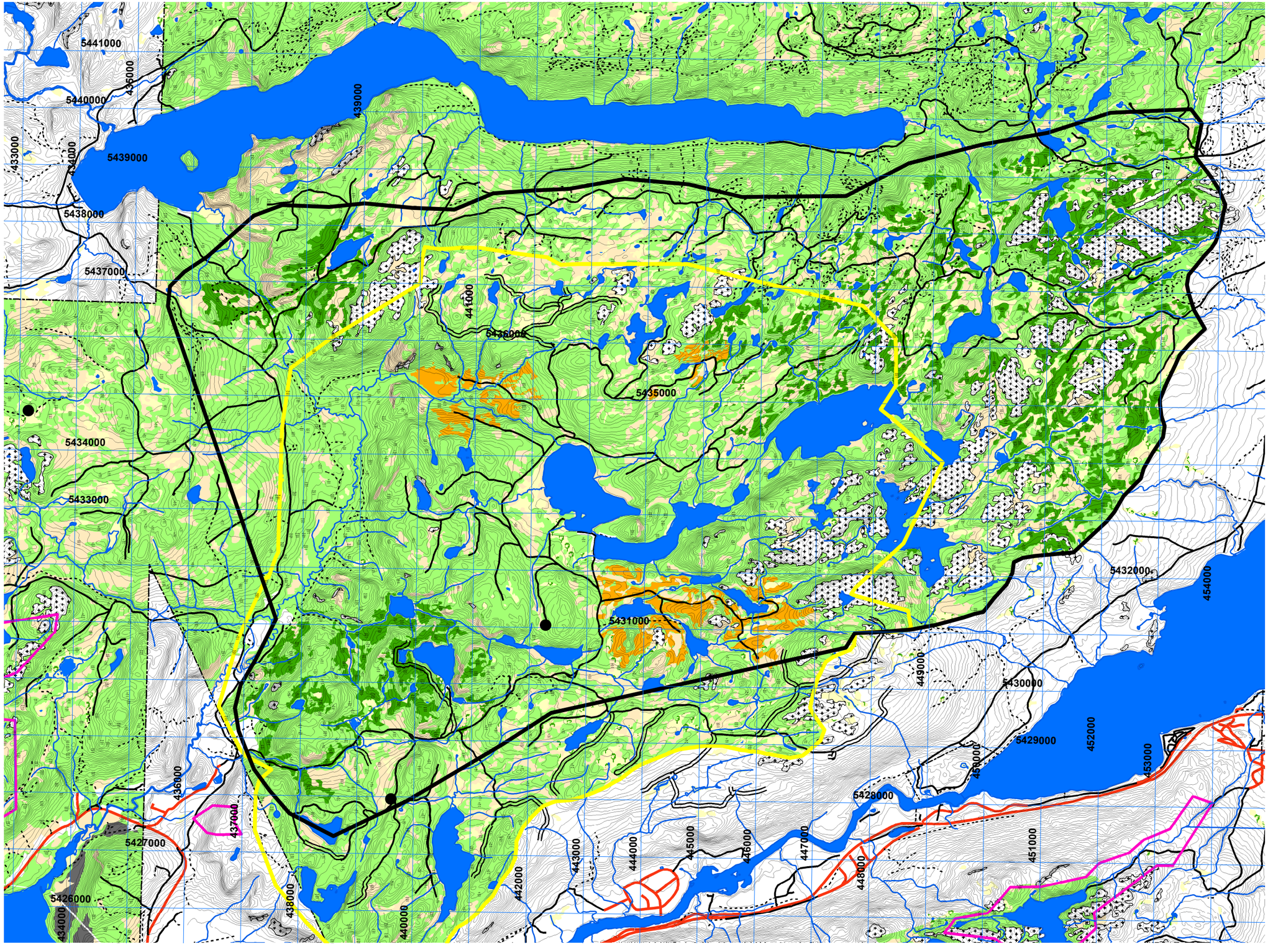
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 15



CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	15	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	Stray Pond	**Inventory Map #:**	70,82
Harvest Area #:	K-15-05	**NTS Map #:**	12B9

Forest Inventory

Gross			**Net**			**Working Group**		
Volume:	69,000	m3	Volume:	62,790	m3	bF:	95	%
Area:	690	ha	Area:	628	ha	bS:	5	%

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

The Annual Operating Plan boundary overlaps with Pine Marten Core Areas/Pine Marten Critical Habitat. All EA release conditions will be met with regards to these wildlife areas.

Landscape design projects have been undertaken in the past for areas along the TCH. Extensions to these projects will be completed as required.

Development Permits will be required for this 5YP operating area. Applications will be sent as needed.

Area overlaps with a Cottage Development Area.

Area is within a Municipal Boundary for the town of Gallants. Environmental Protection Guidelines and Municipal Area Guideline requirements will be followed.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 15
Five Year Plan (2024- 2028)

Stray Pond (K-15-05)
Scale: 1:45,000
Forest Inv Map 070, 082
NTS Map 12B9

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

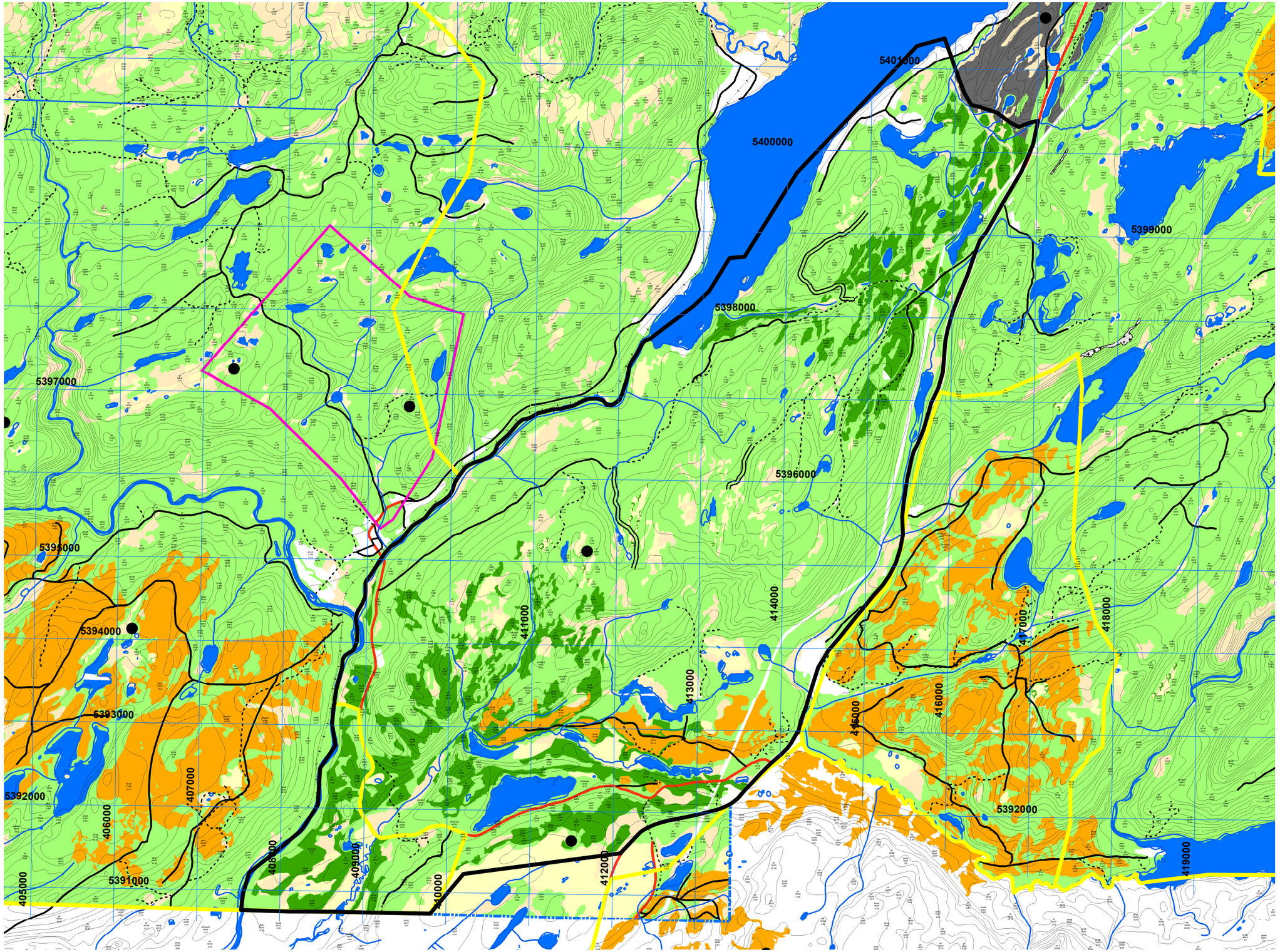
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 15



CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	15	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	North Brook	**Inventory Map #:**	070,082
Harvest Area #:	K-15-60	**NTS Map #:**	12B09

Forest Inventory

Gross			**Net**			**Working Group**		
Volume:	390,906	m3	Volume:	355,724	m3	bF:	97	%
Area:	3,429	ha	Area:	3,120	ha	bS:	3	%

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

The Annual Operating Plan boundary overlaps with Pine Marten core areas/Pine Marten critical habitat. All EA release conditions will be met with regards to these wildlife areas.

Newfoundland and Labrador Outfitter Association was contacted as well as all individual business owners with a request to review submission maps and provide feedback. Mitigations if any will be developed.

A portion of this operating area is within a PPWSA. A certificate of approval from the Water Resources Division will be obtained before any activity occurs.

T'Railway Provincial Park within 5YP boundary. A 100m no cut buffer from the centre line of the trail is required.

The area has a shared forest access road and snowmobile trail system. Consultation with the Newfoundland and Labrador Snowmobile Federation takes place annually to discuss plans and mitigations for upcoming snowmobile seasons.

Area overlaps with a Cottage Development Area.

Area is within a Municipal Planning Area. Environmnetal Protection Guidelines and Municipal Area Guidelines will be followed.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard.
For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 15
Five Year Plan (2024- 2028)

North Brook (K-15-60)
Scale: 1:60,000
Forest Inv Map 070, 082
NTS Map 12B9

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

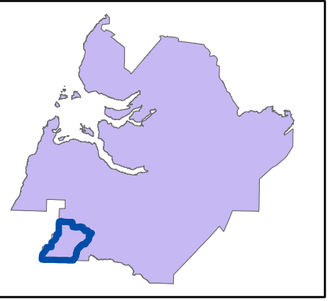
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

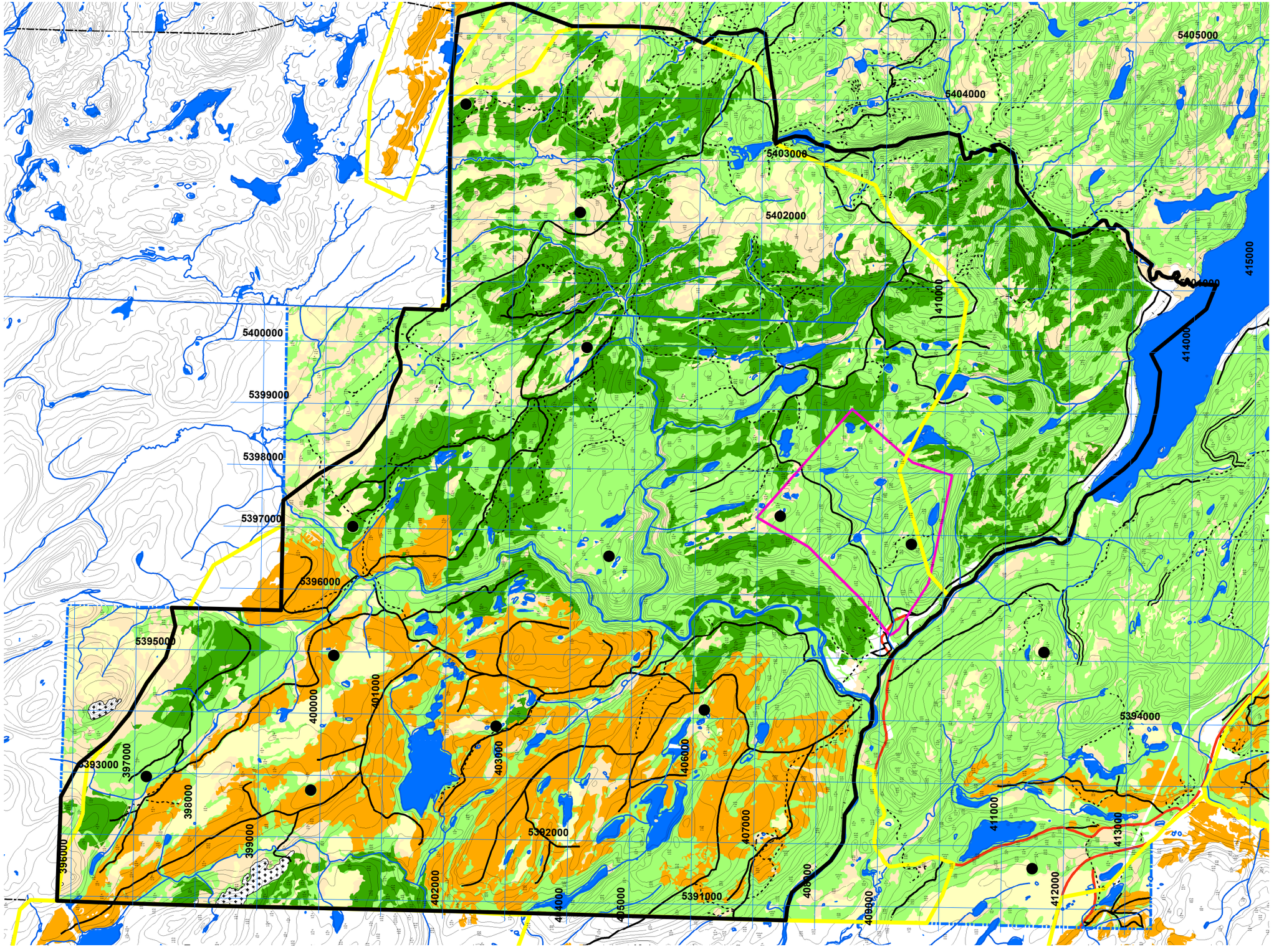
Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 15





CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	15	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	Crescent Pond	**Inventory Map #:**	070, 071, 082, 083
Harvest Area #:	K-15-61	**NTS Map #:**	12B09, 12B6

Forest Inventory

Gross			**Net**			**Working Group**		
Volume:	98,580	m3	Volume:	89,708	m3	bF:	95	%
Area:	930	ha	Area:	846	ha	bS:	5	%

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

Landscape design projects have been undertaken in the past for areas along the TCH. Extensions to these projects will be completed as required.

Development Permits will be required for this 5YP operating area. Applications will be sent as needed.

CBPPL is aware of Tree Improvement Trial Areas. Efforts will be taken to avoid distrubance of these areas and inform contractors of their specific locations before work begins.

The Annual Operating Plan boundary overlaps with Pine Marten core areas/Pine Marten critical habitat. All EA release conditions will be met with regards to these wildlife areas.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 15
Five Year Plan (2024- 2028)

Crescent Pond (K-15-61)
Scale: 1:62,000
Forest Inv Map 070, 071, 082, 083
NTS Map 12B6

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

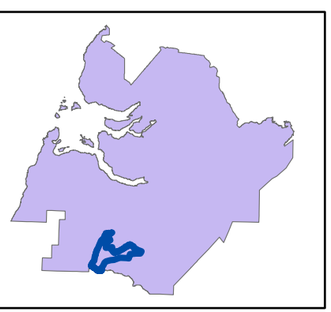
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

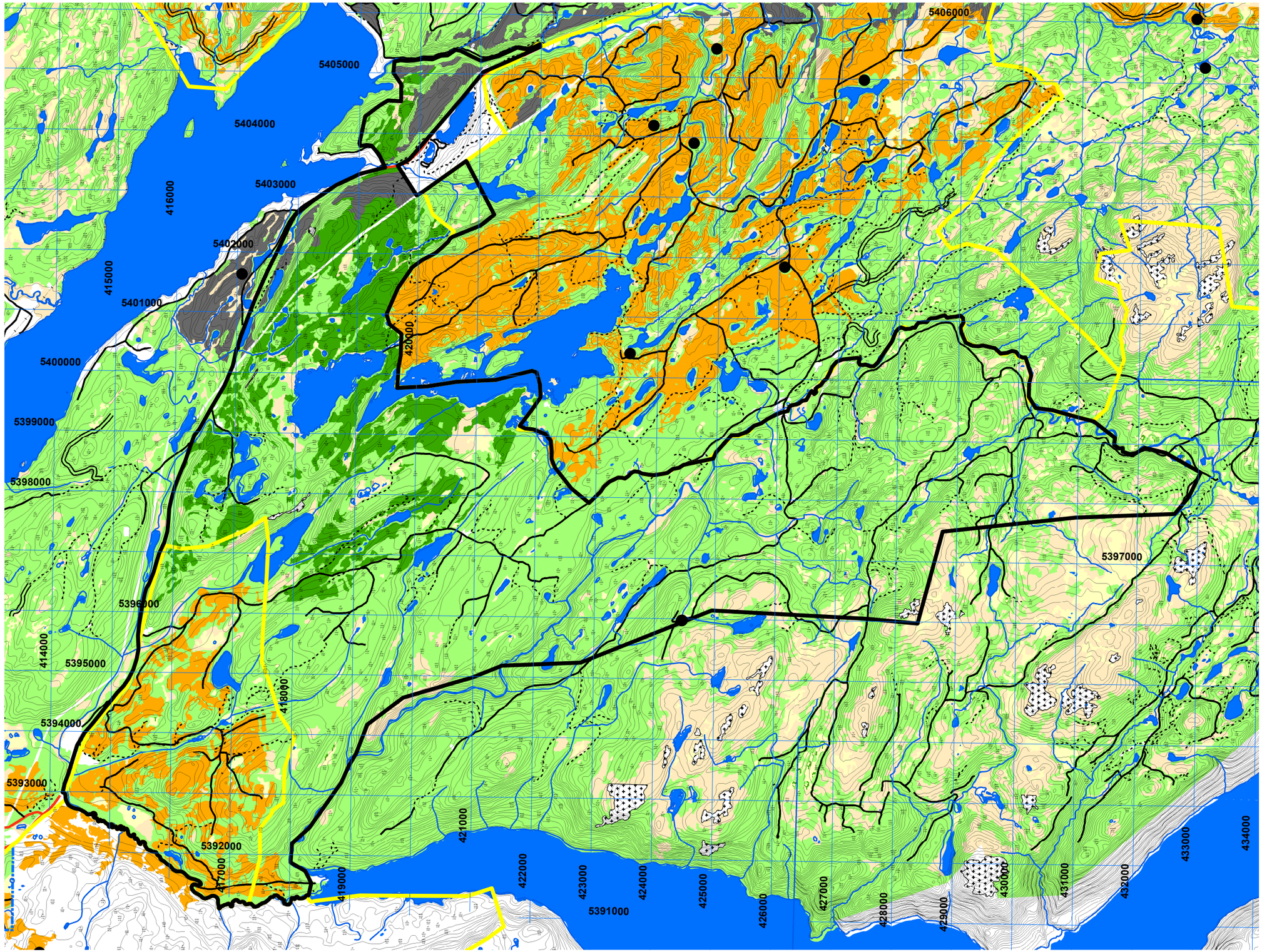
Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 15





CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	15	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	Howards	**Inventory Map #:**	070
Harvest Area #:	K-15-62	**NTS Map #:**	12B6

Forest Inventory

Gross			**Net**			**Working Group**		
Volume:	96,726	m3	Volume:	88,021	m3	bF:	93	%
Area:	987	ha	Area:	898	ha	bS:	7	%

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

The area has a shared forest access road and snowmobile trail system. Consultation with the Newfoundland and Labrador Snowmobile Federation takes place annually to discuss plans and mitigations for upcoming snowmobile seasons.

Area overlaps with a Cottage Development Area.

The Annual Operating Plan boundary overlaps with Pine Marten core areas/Pine Marten critical habitat. All EA release conditions will be met with regards to these wildlife areas.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 15
Five Year Plan (2024- 2028)

Howards (K-15-62)
Scale: 1:54,000
Forest Inv Map 070
NTS Map 12B6

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

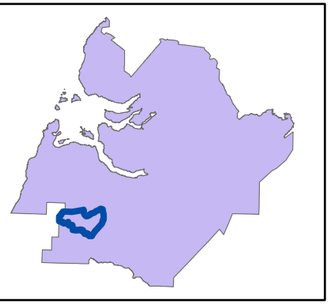
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

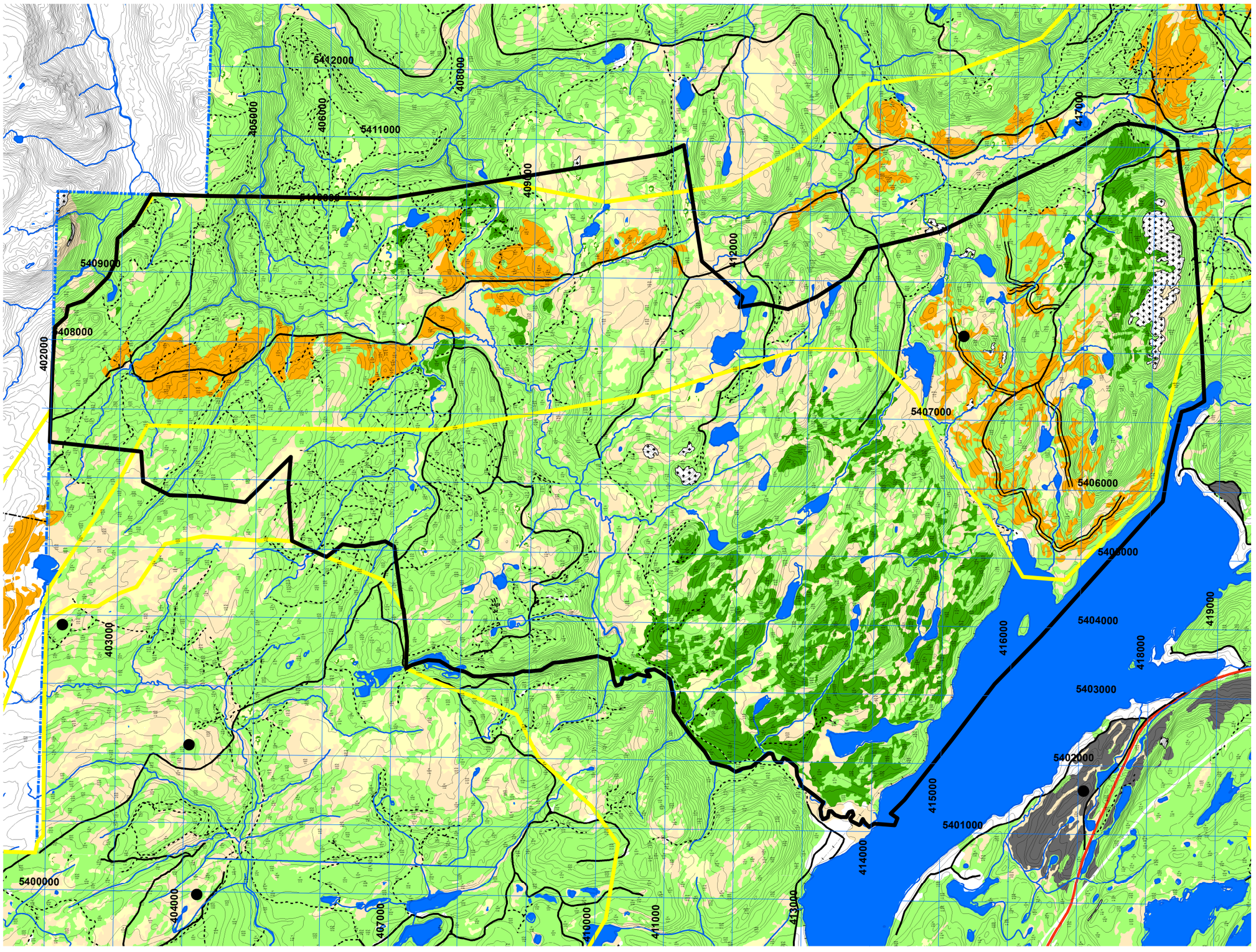
Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 15





CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	15	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	Stag Lake	**Inventory Map #:**	070,071
Harvest Area #:	K-15-63	**NTS Map #:**	12B6

Forest Inventory

Gross			**Net**			**Working Group**		
Volume:	75,552	m3	Volume:	68,752	m3	bF:	85	%
Area:	787	ha	Area:	716	ha	bS:	15	%

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

The Annual Operating Plan boundary overlaps with Pine Marten core areas/Pine Marten critical habitat. All EA release conditions will be met with regards to these wildlife areas.

The area has a shared forest access road and snowmobile trail system. Consultation with the Newfoundland and Labrador Snowmobile Federation takes place annually to discuss plans and mitigations for upcoming snowmobile seasons.

T'Railway Provincial Park within 5YP boundary. A 100m no cut buffer from the centre line of the trail is required.

Area overlaps with a Cottage Development Area.

Area is within a Municipal Planning Area for the City of Corner Brook. Environmental Protection Guidelines and Municipal Area Guidelines will be followed.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 15
Five Year Plan (2024- 2028)

Stag Lake (K-15-63)
Scale:1:48,000
Forest Inv Map 070, 071
NTS Map 12B6

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

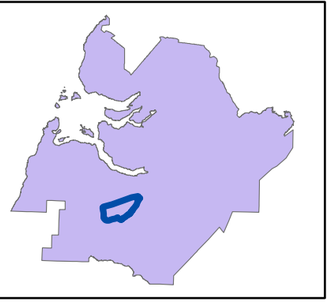
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

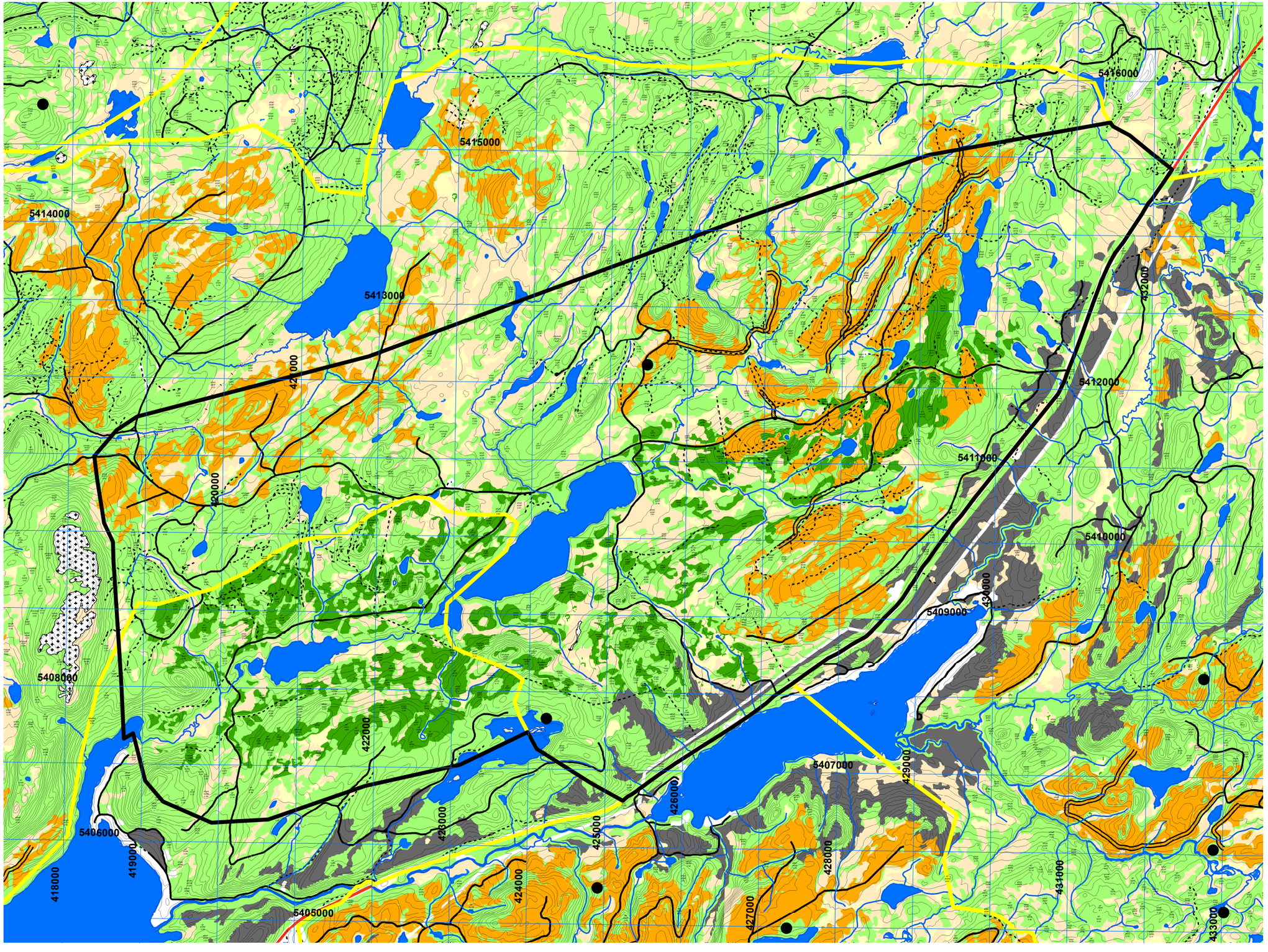
Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 15





CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	15	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	Stag Hill	**Inventory Map #:**	070,071,082
Harvest Area #:	K-15-64	**NTS Map #:**	12A13

Forest Inventory

Gross			**Net**			**Working Group**	
Volume:	176,848	m3	Volume:	160,932	m3	bF:	92 %
Area:	1,579	ha	Area:	1,437	ha	bS:	8 %

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

This operating area contains some of the Municipal Boundary for the City of Corner Brook. Environmental Protection Guidelines and Municipal Area Guideline requirements will be followed. Permits will be acquired as needed.

The Annual Operating Plan boundary overlaps with Pine Marten core areas/Pine Marten critical habitat. All EA release conditions will be met with regards to these wildlife areas.

Newfoundland and Labrador Outfitter Association was contacted as well as all individual business owners with a request to review submission maps and provide feedback. Mitigations if any will be developed.

Landscape design projects have been undertaken in the past for areas along the TCH. Extensions to these projects will be completed as required.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 15
Five Year Plan (2024- 2028)

Stag Hill (K-15-64)
Scale: 1:74,000
Forest Inv Map 070, 071, 082
NTS Map 12A13

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

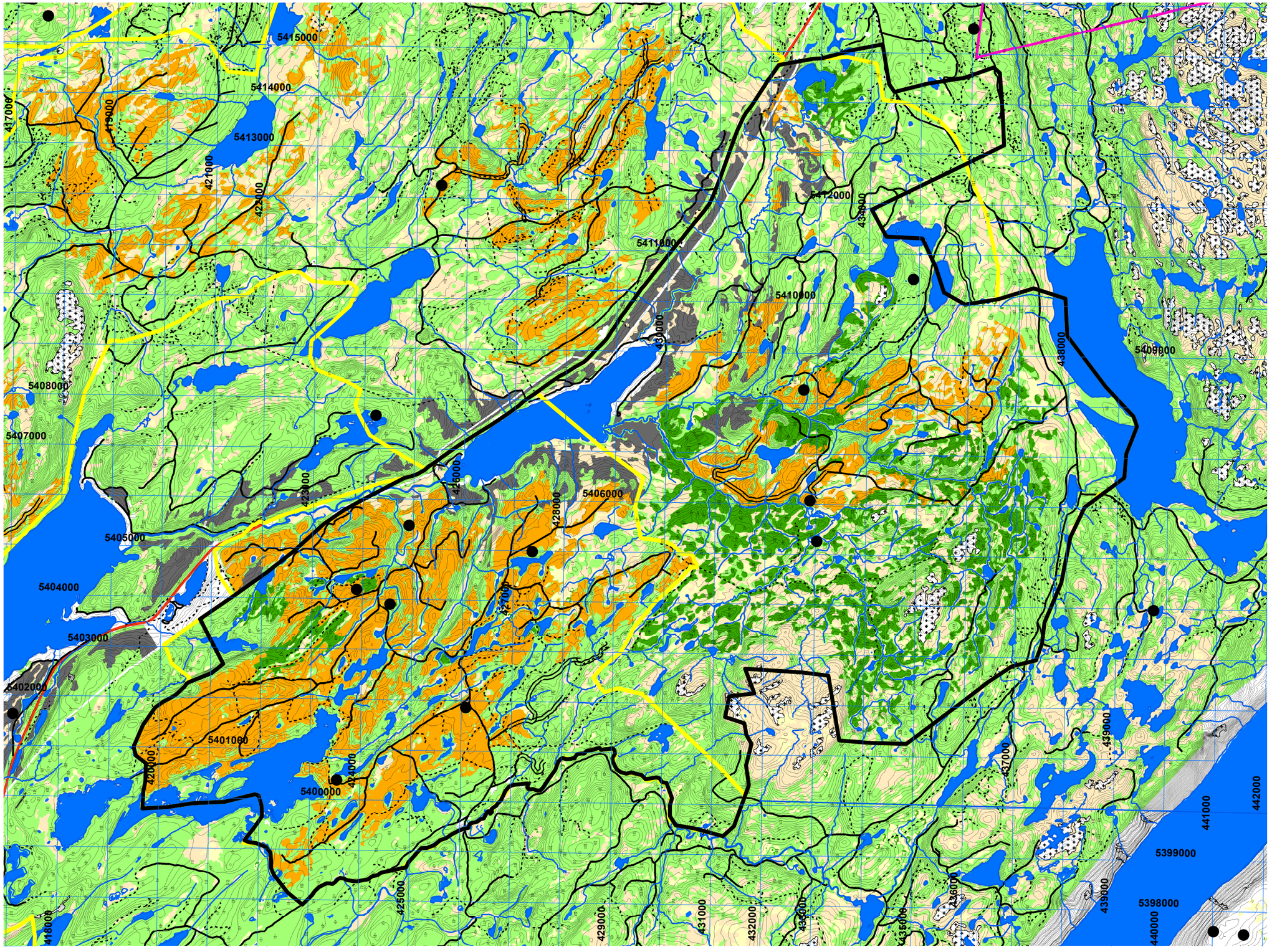
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 15



CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	15	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	Steady Brook Lake	**Inventory Map #:**	071
Harvest Area #:	K-15-65	**NTS Map #:**	12H4

Forest Inventory

Gross			**Net**			**Working Group**		
Volume:	107,326	m3	Volume:	97,667	m3	bF:	94	%
Area:	1,042	ha	Area:	948	ha	bS:	6	%

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

A portion of this operating area is within a PPWSA. A certificate of approval from the Water Resources Division will be obtained before any activity occurs. CBPPL is a member of the Steady Brook Watershed Committee.

Operating Area will require a permit from the Marble Mountain Development Coorporation.

The area has a shared forest access road and snowmobile trail system. Consultation with the Newfoundland and Labrador Snowmobile Federation takes place annually to discuss plans and mitigations for upcoming snowmobile seasons.

The Annual Operating Plan boundary overlaps with Pine Marten core areas/Pine Marten critical habitat. All EA release conditions will be met with regards to these wildlife areas.

Area is within the Municipal Planning Area and Municipal Boundary for the City of Corner Brook. Environmental Protection Guidelines and Municipal Area Guidelines will be followed.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 15
Five Year Plan (2024- 2028)

Steady Brook Lakes (K-15-65)
Scale: 1:65,000
Forest Inv Map 071
NTS Map 12H4

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

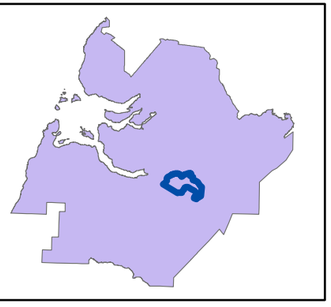
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

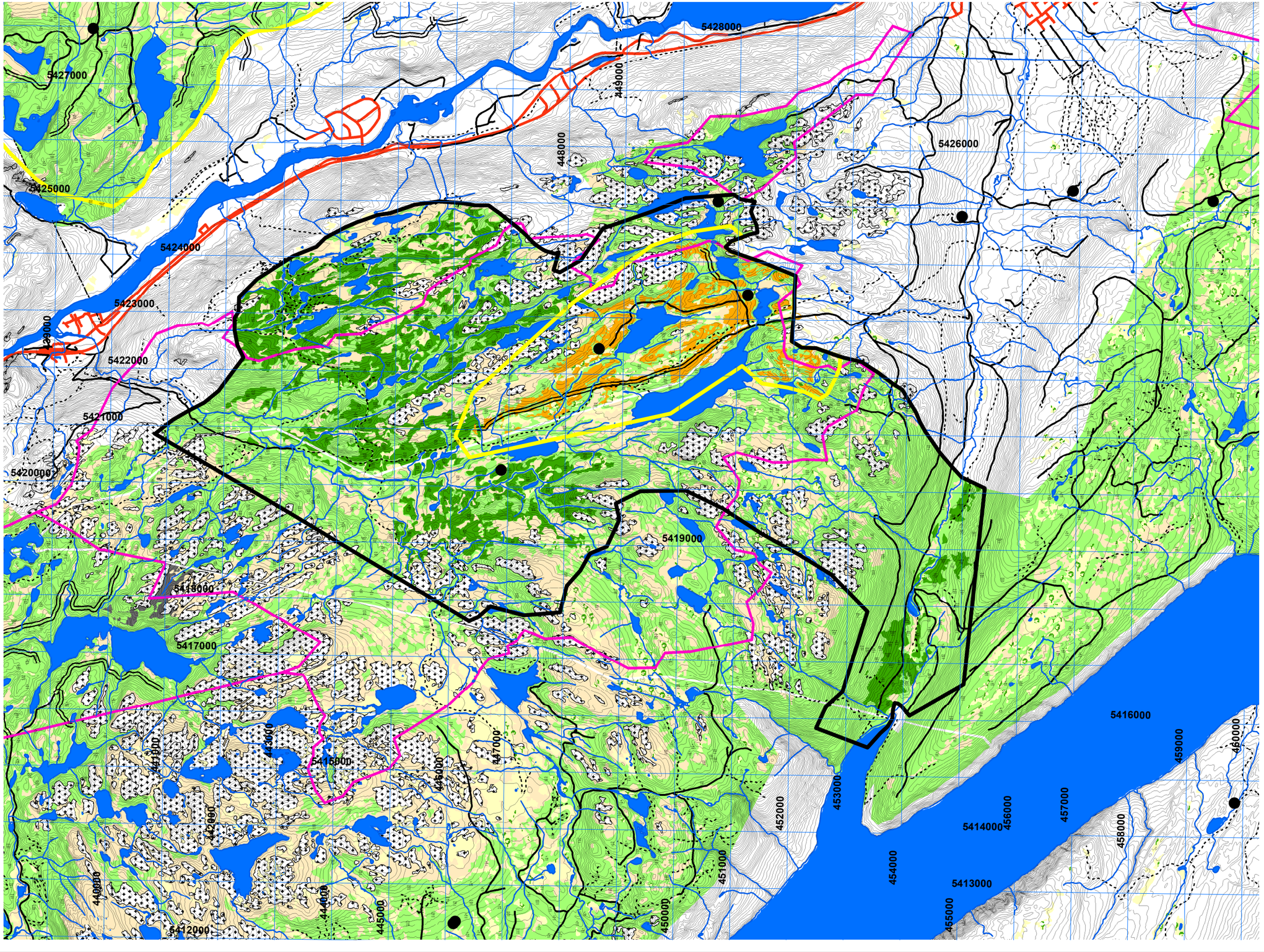
Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 15





CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	15	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	Pynn's Brook	**Inventory Map #:**	059,060,071,072
Harvest Area #:	K-15-66	**NTS Map #:**	12H3, 12H4

Forest Inventory

Gross			**Net**			**Working Group**	
Volume:	129,256	m3	Volume:	117,623	m3	bF:	84 %
Area:	1,208	ha	Area:	1,099	ha	bS:	16 %

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

A portion of this operating area is within a the Deer Lake and Pasadena PPWSA's. A certificate of approval from the Water Resources Division will be obtained before any activity occurs.

The Annual Operating Plan boundary overlaps with Pine Marten core habitat. All EA release conditions will be met with regards to these wildlife areas.

The area has a shared forest access road and snowmobile trail system. Consultation with the Newfoundland and Labrador Snowmobile Federation takes place annually to discuss plans and mitigations for upcoming snowmobile seasons.

Area is within the Municipal Planning Area and Municipal Boundary for the Town of Pasadena. Environmental Protection Guidelines and Municipal Area Guidelines will be followed.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 15
Five Year Plan (2024- 2028)

Pynn's Brook (K-15-66)
Scale: 1:65,000
Forest Inv Map 059,060,071,072
NTS Map 12H3,12H4

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Permanent Sample Plots

Road Features
- TCH
- Paved Roads
- Resource Roads
- Winter Roads
- T'Railway Provincial Park
- Trails

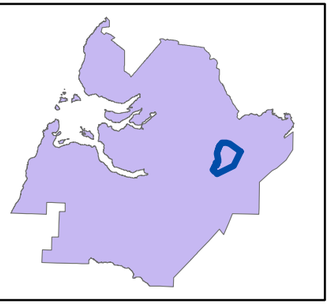
Linear Features
- UTM Grid
- Contours
- Transmission Lines
- Protected Public Water Supply Area

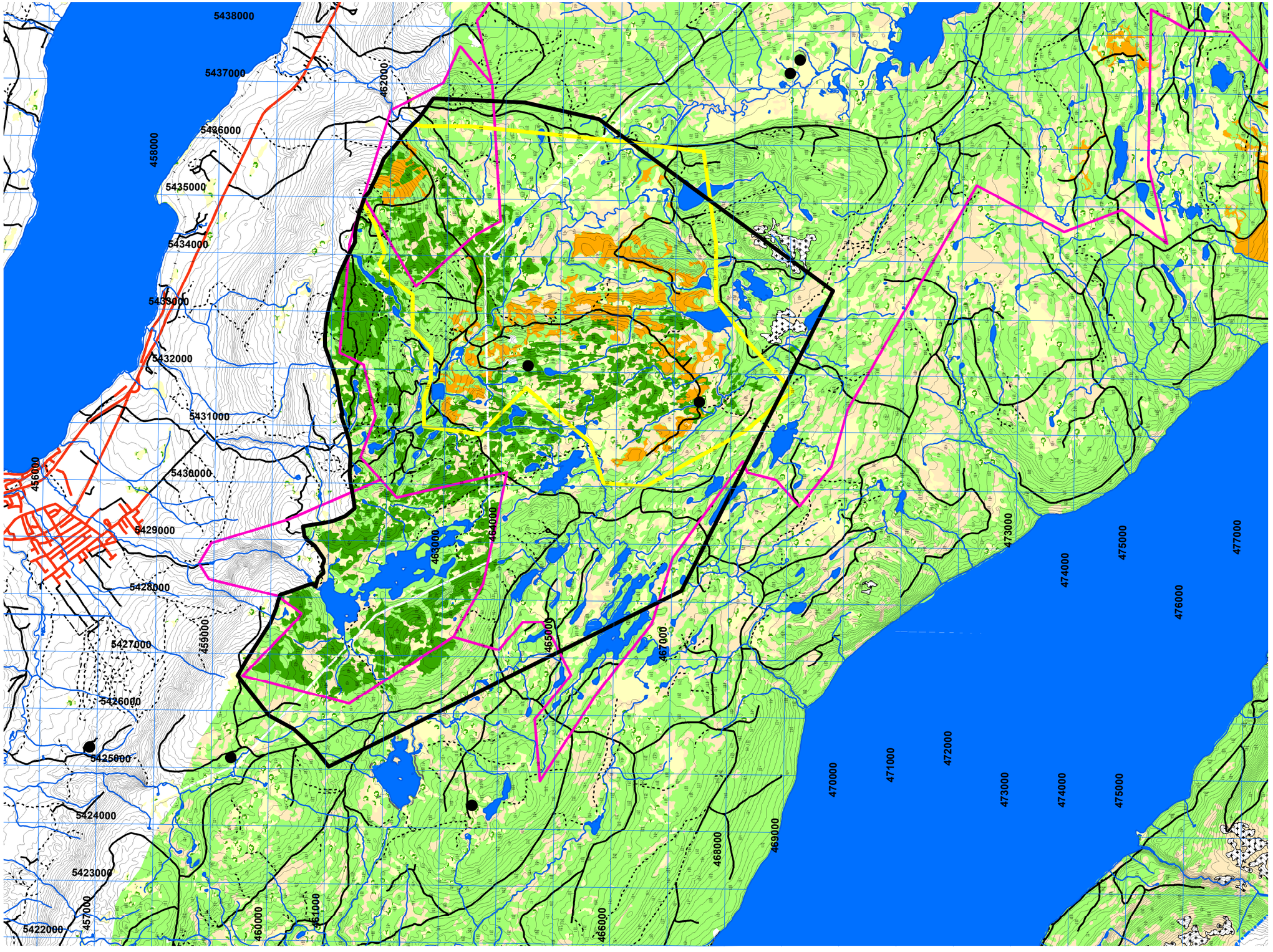
Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 15





CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	15	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	Goose Arm	**Inventory Map #:**	049,059
Harvest Area #:	K-15-68	**NTS Map #:**	12H4

Forest Inventory

Gross			**Net**			**Working Group**	
Volume:	349,270	m3	Volume:	317,836	m3	bF:	90 %
Area:	3,295	ha	Area:	2,998	ha	bS:	10 %

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

Newfoundland and Labrador Outfitter Association was contacted as well as all individual business owners with a request to review submission maps and provide feedback. Mitigations if any will be developed.

The area has a shared forest access road and snowmobile trail system. Consultation with the Newfoundland and Labrador Snowmobile Federation takes place annually to discuss plans and mitigations for upcoming snowmobile seasons.

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Forest Management District 15
Five Year Plan (2024- 2028)

Goose Arm (K-15-68)
Scale: 1:124,000
Forest Inv Map 049, 059
NTS Map 12H4

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Permanent Sample Plots

Road Features
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- UTM Grid
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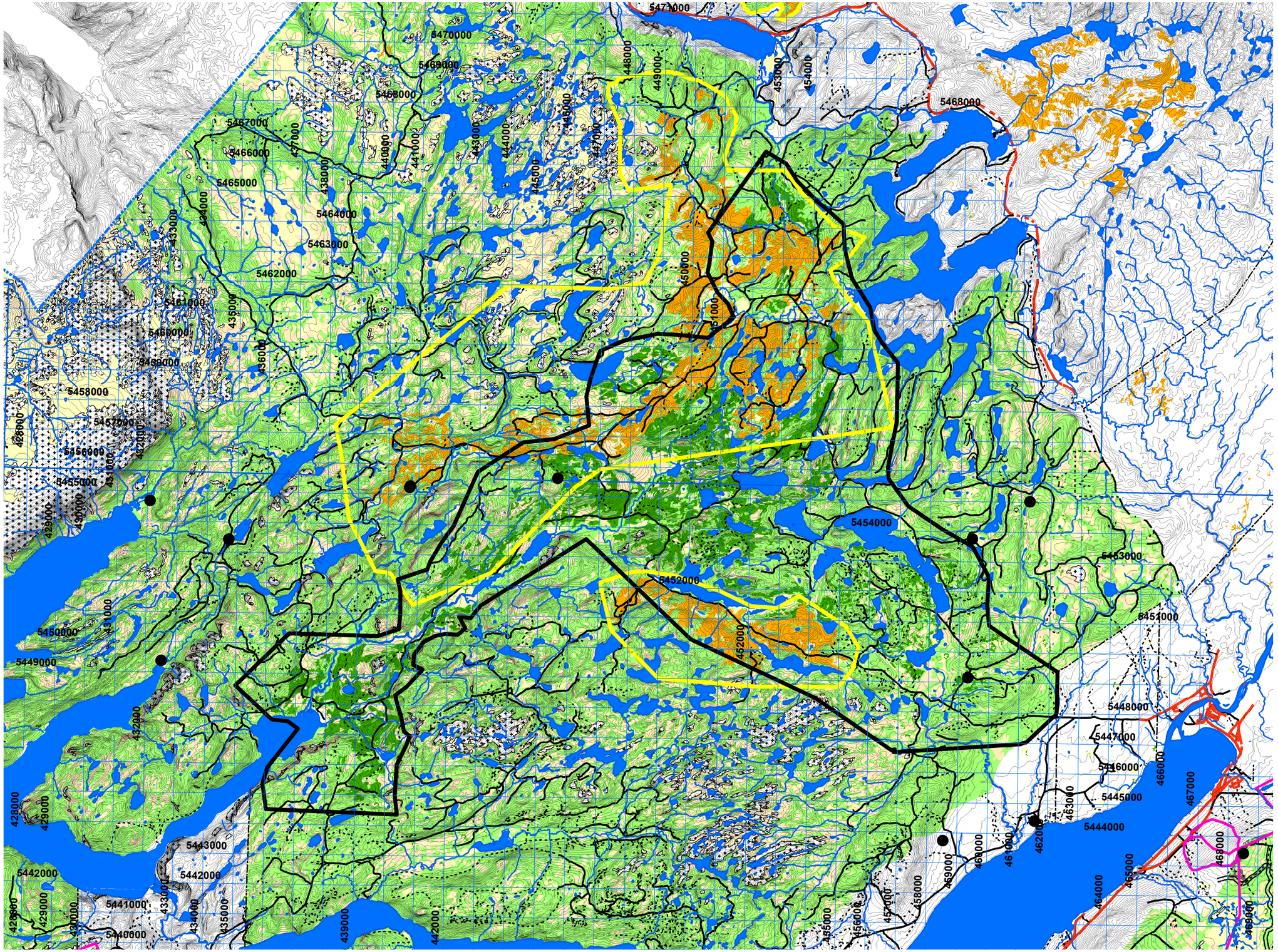
- Transmission Lines
- Protected Public Water Supply Area

Administration Boundaries
- Management Boundary
- Ownership Boundary

Land Features
- Forested Land
- Cutover
- Other disturbance
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 15



CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	15	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	12 Mile Dam	**Inventory Map #:**	071
Harvest Area #:	K-15-69	**NTS Map #:**	12A13

Forest Inventory

Gross			**Net**			**Working Group**		
Volume:	41,191	m3	Volume:	37,484	m3	bF:	95	%
Area:	453	ha	Area:	412	ha	bS:	5	%

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

A portion of this operating area is within a PPWSA. A certificate of approval from the Water Resources Division will be obtained before any activity occurs.

The Annual Operating Plan boundary overlaps with Pine Marten core habitat. All EA release conditions will be met with regards to these wildlife areas.

Area is within the Municipal Planning Area and Municipal Boundary for the City of Corner Brook. Environmental Protection Guidelines and Municipal Area Guidelines will be followed.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 15
Five Year Plan (2024- 2028)

12 Mile Dam (K-15-69)
Scale: 1:38,000
Forest Inv Map 071
NTS Map 12A13

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
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- Waterbodies
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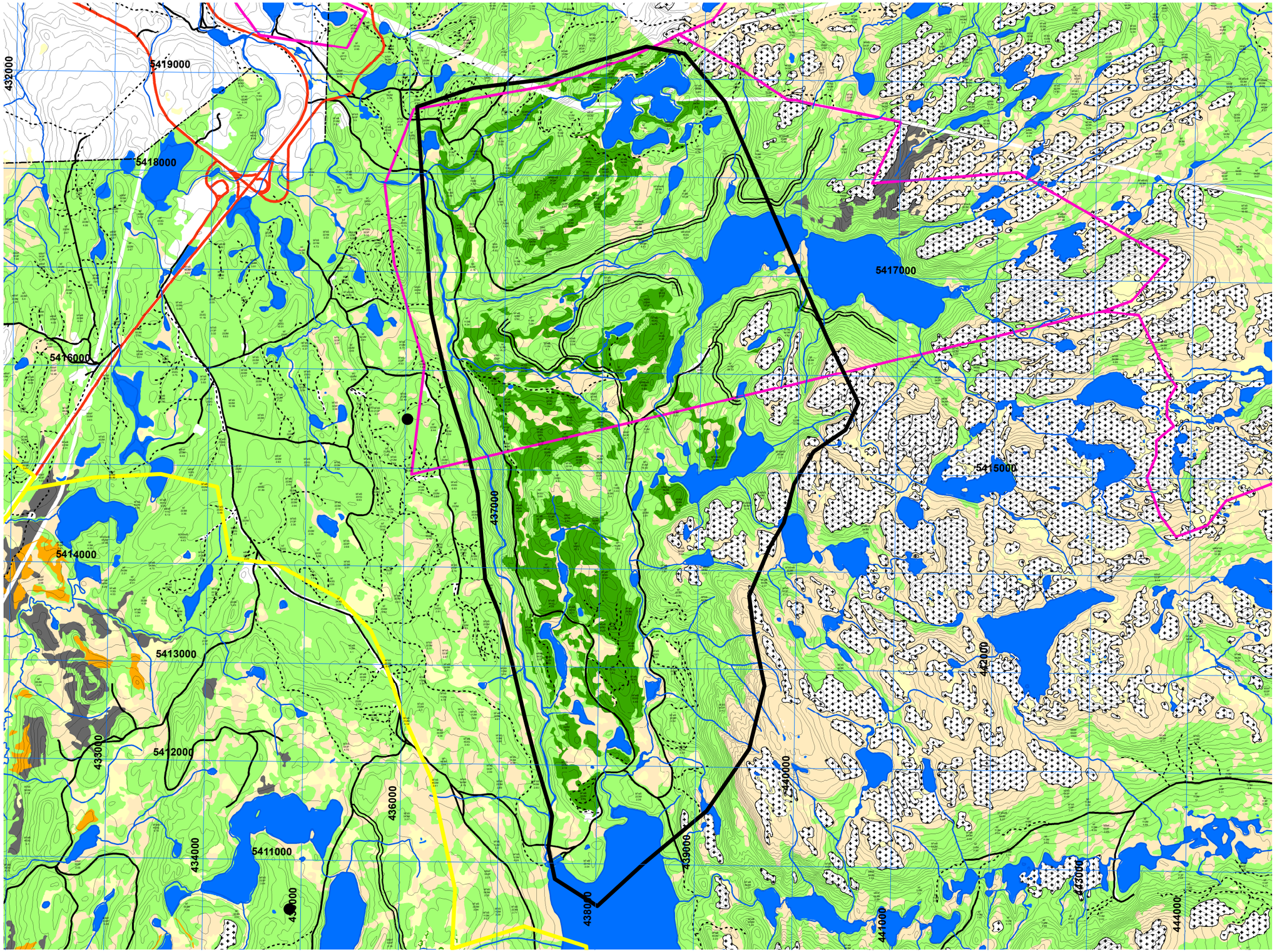
Five Year Plan Within District 15



CORNER BROOK PULP & PAPER LIMITED
FIVE YEAR OPERATING PLAN

FMD:	15	**Plan Period:**	Jan 1,2024 - Dec 31, 2028
Operating Area:	Alder Brook	**Inventory Map #:**	070
Harvest Area #:	K-15-70	**NTS Map #:**	12B6

Forest Inventory

Gross			**Net**			**Working Group**		
Volume:	61,880	m3	Volume:	56,311	m3	bF:	90	%
Area:	595	ha	Area:	541	ha	bS:	10	%

.

Operational Considerations:

Harvest System:	Mechanical -SW3 - Shortwood - Harvester/forwarder Mechanical -SW4 - Shortwood - Feller Buncher/Processor/Forwarder
Terrain Conditions:	Hilly terrain with steep slopes, shallow to deep topsoil over mineral soil. The merchantable forest is broken up by bog, scrub and areas of hardwood.

Other Considerations and Mitigations:

Newfoundland and Labrador Outfitter Association was contacted as well as all individual business owners with a request to review submission maps and provide feedback. Mitigations if any will be developed.

The Annual Operating Plan boundary overlaps with Pine Marten core areas/Pine Marten critical habitat. All EA release conditions will be met with regards to these wildlife areas.

The area has a shared forest access road and snowmobile trail system. Consultation with the Newfoundland and Labrador Snowmobile Federation takes place annually to discuss plans and mitigations for upcoming snowmobile seasons.

Corner Brook Pulp and Paper Woodlands is currrently certified to an Environmental Management System standard and a Forest Management and Fibre Sourcing standard. For further information on the SFM plan visit our website at www.cbpplwoodlands.com

Forest Management District 15
Five Year Plan (2024- 2028)

Alder Brook (K-15-70)
Scale: 1:60,000
Forest Inv Map 070
NTS Map 12B6

LEGEND

Five Year Plan Features
- Five Year Plan Boundary
- Proposed Silviculture Area
- Proposed Primary Road
- Potential Harvest
- Permanent Sample Plots

Road Features
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- Paved Roads
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- Winter Roads
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- Management Boundary
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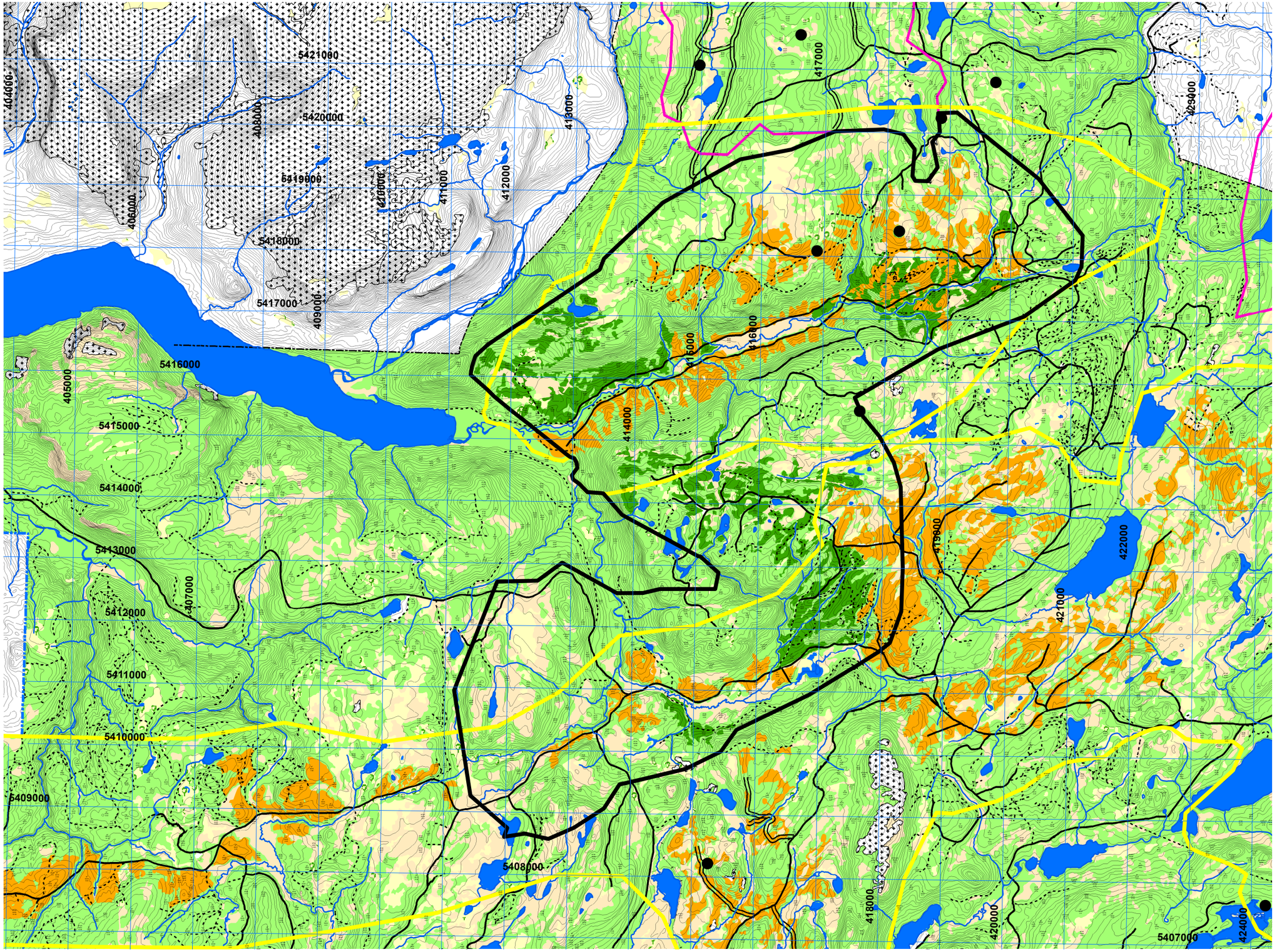
- Scrub

Water Features
- Waterbodies
- Brooks

Insert Map Showing
Five Year Plan Within District 15



Kruger Inc. Corner Brook Pulp and Paper Ltd.

Women's Employment Plan

Contents

1.0 Introduction

Corner Brook Pulp and Paper is a Kruger Company manufacturing newsprint for national and international markets. We manage approx. 1.4 million hectares of forest land which is used in the production process, mostly as pulpwood and saw logs.

This Women's Employment Plan (WEP) has been prepared as a conditional requirement by the Government of Newfoundland and Labrador. It describes the gender-equity goals and initiatives that Corner Brook Pulp and Paper plans to implement by working collaboratively with our contractors and relevant community stakeholder organizations to help ensure a diverse and inclusive workforce during the various phases of the proposed project.

Currently, active harvesting is an ongoing operation that maintains the Corner Brook Pulp Mill. Also included in this is tree planting, pre-commercial thinning and conventional cutting.

Describe the company's leadership and commitment to gender equality at the Executive level and lines of accountability? We are an equal opportunity employer in all sectors of its operation. We encourage and support the growth of women within our organization in many ways including identifying women for succession roles, and providing equal opportunity in all job competitions. All roles that are posted externally are advertised on our website, and on indeed.ca. For speciality positions we often will post on websites associated with professional organizations such as CPA, as well as alumni groups within CNA and Memorial University.

Corner Brook Pulp and Paper is committed to establishing qualitative and quantitative goals for gender equity in order to improve employment outcomes for women in Newfoundland and Labrador. CBPPL has developed this Women's Employment Plan (WEP) to establish a proactive approach toward a workplace environment with policies and practices that help ensure a work environment free from harassment and discrimination.

1.1 Project Timeframes and Workforce Estimates

The WEP was implemented January 1, 2019 and is considered an ongoing project for the life of the facility. Due to the nature of the project there is no construction phase required.

The workforce requirements and estimated number of workers required by NOC code for the Construction Phase are outlined in Table 1.

Occupation	NOC	Duration of Work	Number of Employees	CH/DE
Project Management				
Supervisors Skilled Trades				
Professionals				
Semi-Professionals and Technicians				
Skilled Trades				
Manual Workers				

Not Applicable

Table 1: Estimated Full-time Contractor-Hired (CH) or Direct Employee (DE) Hires, Construction Phase, by Occupation/NOC

Table 1A: Employment Targets by Occupational Group – Construction Phase

Occupation (NOC)	FT/PT/Seasonal	# of Employees	Target Female (%)	Direct Hire (DH) or Contractor (CT)	Estimated Timeframe
Project Management					
Administration					
Supervisors of Skilled Trades					
Semi-Professionals, Technicians					
Skilled Trades					
Manual Workers/Labourers					
Apprentices					

Not Applicable

Describe the scope of work in the Operations Phase:

Occupation	NOC	Duration of Work	Number of Employees	CH/DE
Project Management				
Supervisors Skilled Trades	**8211 Supervisors, logging and forestry**	**10 months annually for**	**5**	**CH**
Professionals	0811 Managers in natural resources production and fishing **2122 Forestry professionals**	**Full time**	**14**	**DE**
Semi-Professionals and Technicians	**2223 Forestry technologists and technicians**	**Full time**		**CH, DE**
Skilled Trades	**7521 8241**	**10 months annually for**	**133**	**CH**
Manual Workers	**8422 Silviculture and forestry workers**	**10 months annually for**	**21**	**CH**

Table 2: Estimated Full-time (FT), Contractor-Hired (CH) or Direct Employee (DE) for the Operations Phase, Occupation//NOC

Table 2A: Employment Targets by Occupational Group – Operations Phase

Occupation (NOC)	FT/PT/Seasonal	# of Employees	Target Female (%)	Direct Hire (DH) or Contractor (CT)	Estimated Timeframe
Project Management			25%		
Administration			25%		
Supervisors of Skilled Trades					

Semi-Professionals, Technicians					
Skilled Trades	Seasonal		25%	CH	5 years
Manual Workers/Labourers	Seasonal		25%	CH	5 years
Apprentices	n/a				

1.2 Employment Diversity Commitments and Practices

Corner Brook Pulp and Paper has developed the following commitments to advance gender equity in employment and smooth the transition of women into leadership roles:

- Establish senior executive responsibilities for gender equality, develop capabilities and lines of accountability among senior management;
- Develop and communicate an executive-level vision statement to all staff and contractors, including commitments and goals;
- We conduct Respectful Workplace training on a three year refresher cycle to remind employees of the importance of diversity and inclusion in the workplace.

2.0 Recruitment and Employment

Corner Brook Pulp and Paper commits to the following measures to reduce the barriers to women's participation and improve their employment on this project.

- Describe your pre-employment outreach to the Office to Advance Women Apprentices (OAWA) and Women in Resource Development Corporation (WRDC) to improve recruitment of women;
  We have been in contact with the Office to Advance Women Apprentices, however, this project wouldn't involve any apprentice roles.
- Describe internal employment equity processes including:
  - assigned lines of accountability for the Women's Employment Plan;
  - delivery of mandatory Respectful Workplace training for all employees;
  - the review of HR policies and practices for gender bias;
  - workplace accommodation policies and practices, , exit interviews, climate surveys, etc. ;

- Union groups within our organization are inclusive in their practices, including creating gender neutral language in agreements, ensuring parental leave is included in wording to follow language in legislation
- All policies and programs outlined by CBPPL are required to be complied with by all contractors.
- Using the attached Table 3 (Appendix 1), identify targets that are above the National Occupational Classification Code employment figures for the following groups (for more information on NOC Codes for your project's labour force requirements, please go to http://noc.esdc.gc.ca/English/noc/welcome.aspx?ver=16):
    - Project Management
    - Administration
    - Supervisors of Skilled Trades
    - Semi-professionals, Technicians and Technologists
    - Skilled Trades
    - Manual Workers
    - Apprentices

3.0 Communication

To assist with maximizing opportunities for women, CBPPL is committed to outreach with a range of stakeholder organizations and institutions to improve opportunities for women through the following activities:

- We use appropriate language and imagery in all job advertisements and other communications to encourage women to apply for all job opportunities. A gender equity and diversity statement is included in any such promotional materials related to the development of this project and all opportunities with CBPPL.
- CBPPL has been in contact with to organizations supporting women in science, trades and technical occupations such as the Office to Advance Women Apprentices (OAWA), and intends to expand this outreach in the coming years.
- We have participated in information sessions at the community level in collaboration with government and non-government stakeholders including the College of the North Atlantic to discuss opportunities for them to offer programs that align with the needs of industry.
- Conduct focus groups or other outreach sessions with stakeholders to better understand barriers to female employment with CBPPL.
- Develop and maintain a corporate culture and work environment within CBPPL that facilitates the achievement of the career goals of women and provides them with the training and support they need to assist them in meeting their goals and the goals of the company.
- The WEP is to be distributed with all capital works RFP.

4.0 Monitoring

CBPPL works closely with contractors on a daily basis, and will regularly discuss the progress of the Women's Employment Plan.