Forest Management Five Year Operating Plan

Forest Management District 21

Date effective: January 01, 2027

Forestry and Wildlife Branch

Forest Ecosystem Management Division

Department of Forestry, Agriculture and Lands

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INTRODUCTION

When Forest Management Districts were declared in 1974, it was required through legislation that each District would prepare a management plan. Initially, management planning was completed by each District in consultation with other resource agencies.

Throughout the 1980's this concept was expanded to include input into plans through public meetings. In the 1990's, planning expanded to include the use of questionnaires and a series of public meetings throughout the districts to gauge public opinion. By 1994, the Newfoundland Forest Service began to move toward management on an ecosystem basis, which included public consultation.

The current process is based on participation of various known stakeholders who provide input during the development of the plans and after the scheduled activities take place. The result of the planning process in District 21 (FMD21) is the *Five-Year* Operating *Plan for Forest Management District 21* (operating plan). The participants are acknowledged for the time and effort put into the process in the District.

The operating plan provides details of various management activities scheduled to occur between January 01, 2027, and December 31, 2031. Various activities include harvesting, silviculture, road construction, protection and research which are carried out to meet the goals and objectives of the operating plan and the Provincial Sustainable Forest Management Strategy.

The Forestry Service Branch released the first 10-year Provincial Sustainable Forest Management Strategy (PSFMS) in 2003 and the second Strategy document in 2014. The third Strategy Document is under final review. The PSFMS document outlines the broad framework with goals and objectives for the Province while further refinements of the individual planning activities are compiled into an annual work schedule.

In accordance with the *Forestry Act (1990)*, this document will be submitted by the Minister of Fisheries, Forestry and Agriculture to be registered for assessment under the *Environmental Protection Act* and is subject to further public review.

SECTION 1 DESCRIPTION OF THE LAND BASE

1.1 General

The planning zone consists of only one District and is a large area (approximately 1.9 million ha) of boreal forest situated on the South Coast of Labrador. Physical features vary a great deal over such a large landscape. The following descriptions apply generally to District 21.

1.1.1 Location

Forest Management District 21 (FMD21) is bounded to the north by Hawke Bay and Hawke Brook with the boundary following a general westerly direction along the District 20 boundary until it meets the Paradise River, to the west along the Paradise and St. Pauls Rivers and the Quebec – Labrador border to the Strait of Belle Isle, to the east and south by the Labrador Sea including all islands to Hawke Bay (Figure 1). A legal description of this area is provided in Appendix I.

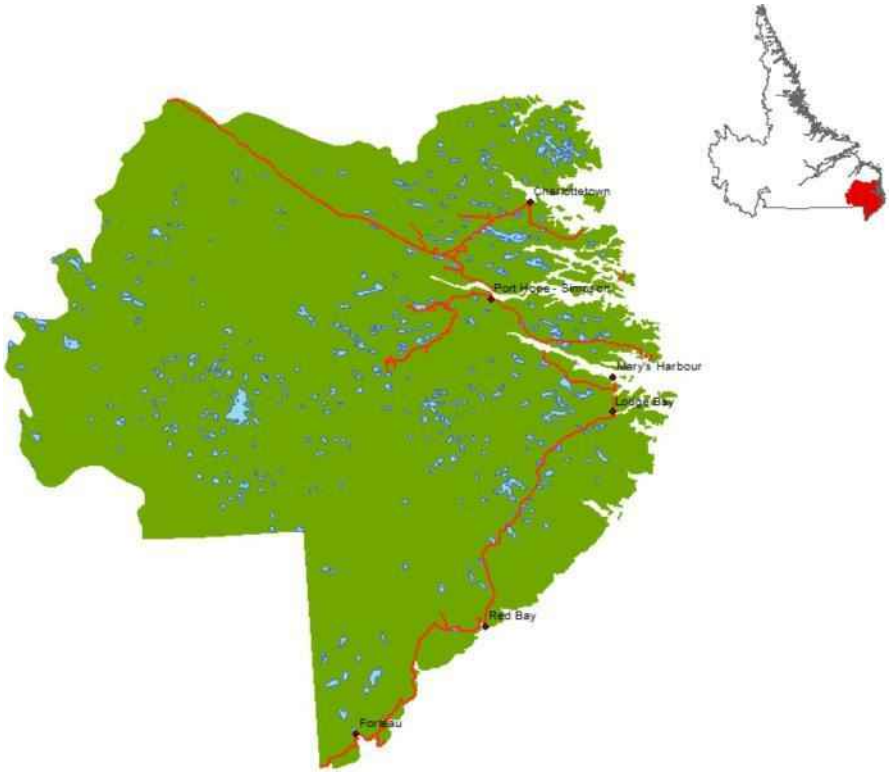

Figure 1: Location of Planning Zone

1.1.2 History

There is a significant history of natural resource use in the management district particularly in timber harvesting near the Port Hope Simpson area. The fishery has supplemented the traditional economic base of many other areas in the management district.

Oral accounts and early written records indicate that settled and transient peoples have conventionally used certain areas of the district. Activity has varied in intensity and location according to the seasonal abundance of local resources. The most concentrated activities were centered around the forest and on marine resources during the summer, with more dispersed efforts occurring during the other seasons.

European contact and settlement perpetuated this pattern of concentrated seasonal resource use, followed by an extended period of low-density activity. The most significant change in resource use caused by European intervention was the increased scale of the harvest and the exportation of resources out of the region. Up until today, communities within the District continue to follow this pattern of raw resource exploration.

Early accounts of commercial harvesting and sawmill operations in the district, in particular the Port Hope Simpson area, extend over 70 years. In 1934, the King of England sent Sir John Hope Simpson to Labrador to start a new forest industry. He landed in the area known today as Port Hope Simpson. The operation, named the Labrador Development Corporation, was managed by J.L. Williams out of England. Commercial operations continued for 8 to 9 years and ceased shortly after the Second World War broke out in 1942. Commercial operations remained dormant for almost 18 years thereafter, except for a few smaller operations. Around 1960, Bowaters, a company from Newfoundland, arrived in Port Hope Simpson and operated until 1970 with horses and tractors. Succeeding Bowaters, commercial operations were again largely dormant until the early 1990's when commercial operations began to increase. With the announcement of the closure of the Abitibi mill in Newfoundland in 2005 commercial operations once again began to cease, however, some of these smaller operators are still in business today. Commercial operations over the years have not been without their challenges, such as lack of infrastructure, transportation issues, lack of experienced labor, and high logging costs.

District 21 has fifteen communities with populations ranging in size from 15 – 558 residents (Statistics Canada Census, 2021). These communities share similar characteristics and were initially developed as support centers for resource extraction. Some neighboring out ports were gradually absorbed as transportation facilities centralized during recent years, however one out port community remains active today (Norman Bay). Forest and marine resources continue to provide the principal economic base for most of the communities, with shellfish being the main marine species and previously the export of pulpwood and processing of dimensional lumber were the main forest operations. Processing plants and small sawmills are in several communities. Other resource activities, such as agriculture (berry picking) and fur harvesting, provide supplementary income to many residents.

The lifestyle of Labrador residents includes the use of several resources of the district. The forest provides a source of wood products (fuelwood and building materials), wildlife (game and furs), non-timber forest products such as mushrooms and berries and opportunities for spiritual

renewal and recreation. Forested regions near communities are the most heavily utilized areas for these activities. The knowledge that resources provide for basic human needs is available locally and promotes a sense of self-sufficiency that is particularly important in areas with severe climate and few employment opportunities.

Within each community, infrastructure services provide significant secondary employment, including health care, education, protection and public service sector jobs. Many levels of Government maintain offices in the management district. In particular, the Forest Service maintains one satellite office at Port Hope Simpson that employs both permanent and seasonal staff.

Several tourist sport-fishing camps have existed for many years in the district. Potential for increased activity in the tourism industry may be significant with completion of the Trans-Labrador Highway, particularly with the establishment of the Mealy Mountain National Park Reserve in 2015 (officially transferred to Parks Canada in 2017).

Wildlife resource use (hunting and trapping) is an integral part of the Labrador lifestyle. Hunting activities usually involve wild food sources, such as moose and small game animals. Commercial fur harvesting activities are concentrated along major watersheds and coastal areas. The value of these activities cannot be measured accurately, but from an economic viewpoint, they are considered of supplementary benefit.

Economic measurements for non-consumptive forest values, such as culture and spiritual renewal, are difficult to determine. Although they cannot be quantified, spiritual and cultural benefits have an intrinsic value that is significant to district residents.

Timber utilization includes the use of fuelwood and supplementary building materials by many residents. Although currently of minor economic importance, these activities contribute significantly to the self-sufficient attitude common in remote locations. Commercial timber utilization has decreased significantly; however, has considerable potential for revitalization and expansion for local processing.

1.1.3 Ownership

Much of the land base in District 21 is Crown managed land; however, there are Aboriginal land claims asserted in the area as well.

1.2 **Physical**

1.2.1 Topography and Hydrology

Generally, most of District 21 consists of an undulating landscape including upland topography and coastal plains. As well, the area is represented by flat to rolling upland plateaus with a few eskers and shallow river valleys traversing the plateau. Coastal areas include exposed headlands with sheltered inlets and numerous islands (Meades 1990).

1.2.2 Geology

Sedimentary rocks form local outcrops. The bedrock is found to be acidic with metamorphic gneiss. Anorthosite, gabbro and quatrzofeldspathic gneiss are present with sedimentary and igneous rocks present in trough areas (Meades 1990).

1.2.3 Soils

Detailed information on soils in the area is sparse. The District was heavily glaciated in the past which has resulted in most of the bedrock being covered with a veneer (less than 1.5m) of glaciofluvial deposits including eskers and river terraces (Notzl, Greene & Riley 2013). Till consists of a mixture of grain sizes from clay to boulders.

1.2.4 Climate

Climate conditions generally range from high / low sub arctic to boreal. Mostly cooler summers prevail with cold winters. With an average annual temperature of -0.2^{o}C, growing season is moderate, exceeding 140 days. Precipitation is in the range of 800 mm to 900 mm annually (Meades 1990). Areas of permafrost are discontinuous and scattered throughout the District.

1.3 **Ecological Characteristics**

1.3.1 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 forest of District 21, 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 phenomena of periodic, catastrophic stand replacement. Natural disturbances such as fire and insect outbreaks 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. By far the dominant species in District 21 are black spruce and balsam fir.

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. Stream side vegetation has a strong influence on both 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. 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.

Boreal forest, barren and marine ecosystems are all represented in the management district. On a national scale the major terrestrial ecosystems have been divided into ecozones and forest regions. Forest Management District 21 is almost totally contained within the boreal shield ecozone with a very small portion of the District represented by the taiga shield ecozone (Lopoukhine et al. 1977) of the boreal forest region (Rowe 1972). On a regional scale, Labrador is divided into 10 ecoregions, which are discussed in subsequent sections. The ecoregions that occur in Labrador are illustrated in Figure 2.

An ecoregion can be defined as an area within which the ecological relationship between species and habitat is essentially the same (Damman 1983). Damman's important work in insular Newfoundland illustrated that vegetation could be used effectively to delineate regional climatic differences. Within each climatic region, sites with similar topography, drainage and parent materials exhibit similar vegetation patterns (Damman 1983). Thus, following cutting or other disturbances, successional patterns can be predicted accurately, once the ecological relationships of the region are understood. The ecoregions of Labrador, illustrated in Figure 2.3, were described by Meades (1989) using the same approach as Damman (1983). Portions of five ecoregions, briefly described below and by area in Table 1, occur in Forest Ecosystem Management District 21. More detailed descriptions of the ecoregions of Labrador and the Island can be found in Meades (1990).

The most significant ecoregion represented is the mid-boreal forest ecoregion. Also, it contains six major drainage basins and portions of several others. Historically, the land and adjacent marine areas of the district have supplied various resources and benefits to settled and transient residents. The district is considered a Crown management district since most land is classified as Crown Land, although very small portions may be allocated to various jurisdictions

(i.e. municipal areas, etc.). Finally, a portion of the northern part of the district is currently subject to aboriginal land claim negotiations which have not yet been resolved.

Work was done in Labrador by Damman (1983) and subsequently by Meades (1989) which resulted in the delineation of 10 ecoregions. The national *Eco-climatic Regions of Canada* (Ecoregion Working Group 1989) does not fully agree with Damman's (1983) and Meades' (1989) maps. This is due partly to the scale of the national map, which does not allow portrayal of smaller units and also to inaccuracies in transferal from the original maps (Meades 1990). As work progresses, each level of the region will be more clearly defined. This information will be included in revisions of the plan, as it becomes available.

Coastal Barrens - Okak/Battle Harbour

This ecoregion extends from Napaktok Bay south to the Strait of Belle Isle. Much of the coast is characterized by long, sheltered inlets. The summers are cool to warm, and the growing season is 100 to 120 days. The winters are very cold. Empetrum barren is the dominant vegetation type, with forest occurring in sheltered valleys. Most mid and lower slopes support a continuous spruce forest with a moss under story. Repeated fires have changed many forested areas to dwarf shrub barrens. Plateau bogs with frozen peat (palsas) and salt marshes on marine terraces are characteristic of the valleys in this ecoregion.

Mid Boreal Forest – Paradise River

This undulating, bedrock-controlled landscape of southeastern Labrador has many rock outcrops and supports productive, closed-crown forests. The climate is considered boreal and is moister and cooler than the Lake Melville area. Summers are cool to warm and winters are short and cold. The growing season is 120 to 140 days. Black spruce and balsam fir are the most common tree species, but hardwood is commonly encountered. Raised bogs are characteristic of valleys in the area.

Low Subarctic Forest – Mecatina River

The main portion of this ecoregion is located in southern Labrador, with two separate areas north of Lake Melville and the Red Wine Mountains. Broad river valleys and rolling hills covered by shallow tills, drumlins and eskers are characteristic of the region. Summers are cool and winters are long. The growing season is 120 to 140 days. Somewhat open black-spruce forests are the dominant vegetation, with crown densities greater than 75% on better sites. String bog-ribbed fen complexes cover extensive areas throughout the region.

String Bog - Eagle River Plateau

The Eagle River Plateau comprises most of this ecoregion. This upland plateau is composed of extensive string bogs with numerous open pools surrounded by fen vegetation. Bog hummocks are dominated by scrub spruce, Labrador tea, and feathermoss. The peatland expanses are occasionally interrupted by only a few conspicuous eskers, which support open, lichen woodland. Alder thickets are common along riverbanks.

Forteau Barrens

This ecoregion is located at the southeastern most tip of Labrador, adjacent to the Strait of Belle Isle. Low hills are covered with scrub spruce, crowberry barren and slope bogs. Strong winds and frequent storms occur because of the ecoregion's proximity to the Strait of Belle Isle. The growing season is 100 to 120 days. Tree growth is limited by a combination of wind, wet soil and a history of repeated burns. Black spruce and larch can reach 10 to 12cm only along rivers, where soils are better drained.

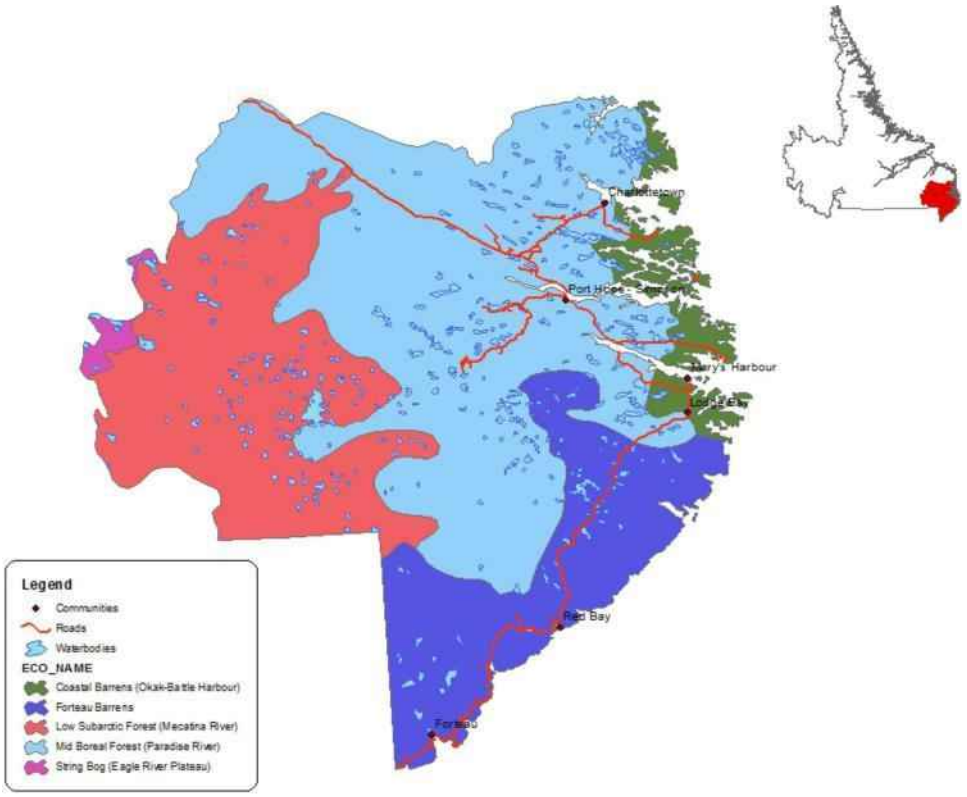

Figure 2: Ecoregions of District 21

TABLE 1 PERCENTAGE OF ECOREGIONS AND THEIR AREA IN DISTRICT 21

	Ecoregions		
	Area in Labrador	(ha) in District 21	% in District 21
Coastal Barrens - Okak/Battle Harbour River	1,360,506	95,179	7
Mid-Boreal Forest - Paradise	2,032,728	931,398	46
Low Subarctic Forest – Mecatina River	5,151,407	527,302	10
String Bog - Eagle River Plateau	1,822,682	17,333	1
Forteau Barrens	362,029	362,029	100

1.4 Ecosystem Dynamics

Extant biomass is an integrating measure of forest ecosystem condition. Biomass represents the mass of living organisms inherent in an ecosystem and the ecosystem serves as a repository for animal, plant and microbial biomass. Accordingly, biomass is a measure of forest ecosystem condition and productivity. It refers to the condition of the forest in terms of organic matter production of all species and types.

Aquatic ecosystems within forest ecosystems integrate the overall watershed condition and thus provide an important measure of forest ecosystem condition and productivity. Elevated nutrient levels and flow rates in forest streams sustained over a long period clearly indicate a major forest ecosystem malfunction. In these situations, water and nutrients that should be utilized in forest growth are moving rapidly into drainage systems. This threatens the sustainability of the forest as well as the aquatic systems through eutrophication and flooding of downstream areas.

Information collected will be used to assess forest ecosystem condition and productivity change (if any) during the planning period based on the management actions of the plan as well as natural disturbances that may occur.

1.4.1 Ecosystem Condition and Productivity

Productivity can simply be defined as the accrual of matter and energy in biomass. The boreal forests in Labrador are characterized, for the most part, by an even age structure being dominated by an over mature age class. The tree canopy is poorly developed in many parts of the district (<25% crown cover). Among the factors that limit stand density and thus crown cover are severe climatic conditions, soils with restricted or excessive drainage, and proximity to the coast.

Closed canopy forests occur only on rich, moist, mid to lower slopes. They contain a mixture of spruce, fir and hardwood tree species and a well-developed ground layer of feather mosses (primarily *Pleurozium schreberi*). On course-textured soils (typical of river terraces and eskers), the dominant vegetation is lichen woodland, which is characterized by an open canopy of black spruce and a well-developed lichen layer. Most animal species found in forested areas of the district are typical of boreal forest regions across northern Canada.

The general characteristic of forest stands in District 21 (site class, age class, height class, crown closure, and working group) are described later in the forest characterization section (1.5). These characters define the limits within which commercial forest development must function. Stands greater than 160+ years, primarily even- aged, form the dominant age class structure in this forest, although an extensive fire disturbed area has yet to be classified. Most forest sites are classed as poor to medium. Silviculture intervention may enhance future productivity on some sites, but how such treatments will affect the long rotation period (120 years) of forest stands in southeastern Labrador is not fully understood at this time.

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Indicators to measure forest ecosystem extant biomass during the planning period include:

- mean annual increment (m^3/ha/yr) by forest type and age class
- frequency and occurrence within selected indicator species

Aquatic ecosystems within forest ecosystems integrate the overall watershed condition and thus provide an important measure of forest ecosystem condition and productivity. Elevated nutrient levels and flow rates in forest streams sustained over a long period clearly indicate a major forest ecosystem malfunction. In these situations, water and nutrients that should be utilized in forest growth are moving rapidly into drainage systems. This threatens the sustainability of the forest as well as the aquatic systems through eutrophication and flooding of downstream areas.

Indicators to measure changes in water quality and quantity during the planning period include:

- water quality as measured by water chemistry, turbidity, and other parameters for selected waterways

- trends and timing of events in stream flows from forest catchments for selected waterways

Information collected on all indicators will be used to assess forest ecosystem condition and productivity change (if any) during the planning period based on the management actions of the plan as well as natural disturbances that will occur.

1.4.2 Biodiversity

Biodiversity comprises the diversity of plants, animals and other living organisms in all their forms and levels of organization, and includes the diversity of genes, species and ecosystems, as well as the proximate and ultimate functional processes that link them. This means maintaining the variety of species (animals and plants) and the ecosystems that sustain them. Globally there are in the order of 5 to 50 million species of organisms inhabiting the earth (Probst and Crow 1991) with 1-2 percent consisting of higher plants, 0.2 percent being vertebrates and the rest being invertebrates. Remarkably, less than 2 million have been described and catalogued. Two thirds of Canada's estimated 300,000 wildlife species live in the forest.

The decline of biodiversity is one of the most serious environmental threats facing humanity. This decline is thought to be aggravated by deforestation globally. As a result of human activities, ecosystem, species and genetic diversity are being eroded at a rate that far exceeds natural processes (Natural Resources Canada, 1995). This accelerating decline in diversity threatens the ecological, economic, spiritual, recreational and cultural benefits that we currently derive from the earth's living resources. The diversity of life on earth is essential to the survival of humanity.

Globally, governments addressed biodiversity at the United Nations Conference on the Environment and Development at Rio de Janeiro in 1992. The convention on biological diversity was signed by many countries, including Canada. Canada was the first industrialized country to ratify the agreement. The Canadian Biodiversity Strategy has been developed as a guide to implement the convention on Biological Diversity.

The National Forest Strategy was prepared in response to the changing management direction of Canada's forest. The strategy has objectives to develop working definitions of biodiversity, and to establish a system for reporting nationally on the state of biodiversity, complete a national network of protected areas, formulate forest management strategies to ensure the continuation of old growth forests as a natural heritage, and protect genetic, species and habitat diversity.

The Canadian Council of Forest Ministers (CCFM) released criteria and indicators for defining sustainable forest management in 1995. The first criterion is maintenance of biodiversity and a

series of indicators to measure progress on biodiversity. The CCFM report forms the basis for the biodiversity indicators suggested in this strategy.

Maintenance of natural genetic and ecosystem diversity across the landscape is an integral component to ensure species maintain viability through their capacity to evolve and adapt to change. Maintenance of the natural range of ecosystems and the ability of their components to react to external forces and processes provides the equilibrium required for maintenance of species diversity (CCFM 2000). The fundamental requirement for the conservation of biological diversity is the in-situ conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings. Forest Management District 21's geographic location, topography and shallow soils make its forest ecosystems vulnerable to temperate extremes. These ecosystems are susceptible to development and comprehensive land use planning is required to ensure that biodiversity is maintained at the present level.

1.4.2.1 Species Diversity

The most readily recognizable form of reduced biodiversity is species extinction. Slowing down species extinction is key to the conservation of biodiversity. This involves the identification of species at risk and implementing efforts to conserve their habitats. The Province of Newfoundland and Labrador has as an *Endangered Species Act* which ensures the conservation of recovery and critical habitat for species. Changes in species population levels provide early warning indicators of changes in ecosystem integrity and species diversity.

A variety of mammals, characteristic of boreal and tundra ecosystems, inhabit Forest Management District 21. Large ungulates (caribou and moose) are present in low densities. Large predators, such as black bears and wolves, and a great variety of smaller mammals and avifauna are also present. Polar bears are occasional seasonal visitors to coastal areas. Ten species in Labrador are listed by COSEWIC (Committee on the Status of Endangered Wildlife in Canada) in the endangered, threatened and special concern categories. Four of these species require recovery teams under current legislation.

It is anticipated that the proposed cutting activities, during the proposed five-year period, will have little or no direct impacts on existing populations of endangered, threatened or special concern species presence in the district, mainly because of the lack of suitable habitat, associated with those species, in the proposed operating areas. However, if a species identified as at risk is identified within an operating area, all operations will cease immediately, and mitigations discussed with appropriate agencies. Recognizable potential impacts (particularly to harlequin ducks in rivers that run through forested areas) are: (1) possible siltation as a consequence of operational activities and (2) increased hunting pressure due to improved access. The potential

risk from operational activities can be mitigated or eliminated by following environmental guidelines, respecting recommended buffers along watercourses, and avoiding areas where harlequin ducks have been sited until after the nesting season.

Major furbearing species such as lynx, fox, otter, marten, mink, weasel (2 species), beaver and muskrat occur in low to moderate numbers throughout the management district. Other represented mammals include squirrels (2 species), porcupine, hares (2 species) and various other rodents and insectivores. More than 140 avifaunal species occur in the district including raptors such as the bald eagle, rough-legged hawk, and merlin, as well as ducks, geese and upland game birds.

The management and/or protection of threatened and endangered species will be considered in concert with other management strategies. For each of the species which require different ages and conditions of forest, their specific habitat requirements will be incorporated into management strategies.

1.4.2.2 Genetic Diversity

Genetic diversity within a species is the foundation of all biodiversity. Assessing genetic diversity does not mean attempting to track every gene in the District 21 forests. It means designating and implementing practical measures that can maintain viable populations of all forest vegetation species and can utilize the genetic diversity of commercially important species to maximum benefit. Genetic diversity is the fundamental basis for the ability of populations (flora and fauna) to adapt to changing environmental conditions, therefore underlying both species and ecosystem diversity. These gene pools represent the years of natural selection for adaptation to local conditions.

The boreal forests in District 21 have evolved over time as even aged in response to disturbances such as fire and windstorms. This must be taken into consideration when determining the effects of forest management (including harvesting) on genetic diversity. The spatial patterns of clear felling should mimic natural disturbance across the landscape so that natural processes can continue. During the course of this plan, various cutting designs and patterns will be implemented with the necessary monitoring and evaluation. Exact harvest patterns (which should mimic natural disturbances) within the operating areas will be identified in the annual work schedules.

The management actions of tree planting and pre-commercial thinning may also affect genetic diversity. However, most forest sites in district regenerate from seed sources already on or near the site. Sites which will be selected for planting are those where there is an insufficient stocking of tree species to form a viable second growth forest to replace the one that was disturbed. During any planting efforts will be made to plant native species from local seed sources

on sites where they would be found naturally. The current practice, however, is to leave a representative proportion of all those woody tree species that are present in the stand before treatment.

1.4.2.3 Landscape Diversity

In Labrador, the predominant forest structure is over mature; this is also true for District 21. In addition, much of the forested area of the District is currently inaccessible. As a result, this forest stand structure and function can be maintained. Old growth forests are valued for their contributions to habitat and biodiversity in the area.

Riparian areas are characterized by a transition from aquatic to upland vegetation. The width of a riparian area varies depending on the steepness of slopes, the soil properties and the permanence of the water body. Riparian areas cover only a small portion of the land in a watershed, but because they are often more diverse and productive than upland areas, these habitats are critical to wildlife and fish and are important reservoirs of biodiversity.

Studies have shown that many wildlife species are more abundant in riparian areas. Some species are entirely dependent on riparian habitats, while others use them for a portion of their life requirements such as feeding or reproduction. The attraction that wildlife has to riparian areas is largely based on the presence of water and its effects on plant characteristics and interrelationships.

Maintaining a healthy riparian area for wildlife habitat is critical. Riparian vegetation not only provides important wildlife habitat, but it also stabilizes stream banks, thereby reducing erosion. The long-term stewardship of riparian habitat for the purpose of maintaining biodiversity ensures wildlife habitat, control of stream temperature, maintenance of plant and animal genetic variety and a legacy for future generations.

Ecosystem diversity is the variety and pattern of communities and ecosystems. Maintenance of the variety and quality of ecosystems is necessary for the preservation of species. At the ecoregion level, diversity is reflected in Damman's classification as determined by soil parent material, topography and climate. Different ecoregions have different plant communities and differences in processes.

It has been documented that a system of protected areas is a vital component of any biodiversity strategy. In agreement with the Canadian Forest Accord, National Forest Strategy, and Canadian Biodiversity Strategy, each ecoregion in the province is proposed to have a representative area in reserve status. At present, designated ecological reserves and protected watersheds cover less than 1 % of the district land base

1.5 Forest Characterization

The boreal forests in Labrador are characterized, for the most part, by an even age structure being dominated by an over mature age class. The tree canopy is poorly developed in many parts of the district (<25% crown cover). Among the factors that limit stand density and thus crown cover are severe climatic conditions, soils with restricted or excessive drainage, and proximity to the coast. Disturbances, either natural or human, have had impact on forest stands, particularly in the northern part of the district, where extensive fires occurred in 1958 and 1975.

Closed canopy forests occur only on rich, moist, mid to lower slopes. They contain a mixture of spruce, fir and hardwood tree species and commonly a well-developed ground layer of feather mosses (primarily *Pleurozium schreberi*). On coarse-textured soils (typical of river terraces and eskers), the dominant vegetation is lichen woodland, which is characterized by an open canopy of black spruce and a well-developed lichen layer. Most animal species found in forested areas of the district are typical of boreal forest regions across northern Canada.

The general characteristics of forest stands in District 21 (site class, age class, and working group) define the limits within which commercial forest development must function.

Although dominated by over-mature black spruce types, the management district contains a wide variety of forest types and ages (from juvenile to over mature stands) and other vegetation types (bogs, fens, marshes, scrub swamps, barrens and alpine tundra). These vegetation types provide habitat for various populations of many wildlife species including moose, caribou and a variety of large predators and small animal species.

Human uses of the forest resources in the District have had some influence on the overall forest structure. Fuelwood cutting has been a common practice however is mostly localized around the communities. Moderate to large scale commercial harvesting operations have also occurred close to the communities of Charlottetown and Port Hope Simpson. Indicators can be used as measurable variables to report on disturbances, resilience and extant biomass for evaluation of maintenance and enhancement of forest ecosystem condition and productivity. Using the CCFM approach, criteria and indicators will be selected to initiate measuring of these variables (CCFM 2000). Data for these indicators are considered attainable during the planning period.

Incidence of disturbance and stress refers to the frequency and severity of major biotic stresses. Depending on the particulars of the disturbance, stress negatively or positively affect forest conditions over time.

1.5.1 Land Classification

A hierarchical framework of ecological land classification has been recognized for some time in most jurisdictions as a means of stratifying the earth into progressively smaller areas of increasingly uniform ecological units. In Canada, the Canadian Ecological Land Classification

System has been adopted and provides for seven levels of organization based on ecological principles.

1.5.1.1 Available Inventory and Information

The Labrador Multi-Resource Inventory (Dreiman Curtis Inc.) consists of Landsat satellite imagery, at the 1:1,000,000 scale, which was interpreted to classify various vegetation cover types for Labrador. Several different vegetation, disturbance and wetland classification types were identified. This information was mapped and digitized for use on the GIS system. Table 2 summarizes the vegetation cover types and the percentage of area represented by each in District 21.

TABLE 2 VEGETATION COVER TYPES OF FOREST MANAGEMENT DISTRICT 21.

Vegetation Cover Type	Percentage of Type
Heavy Spruce/Fir Forest	**4.6%**
Moderate Spruce/Fir Forest	**16.7%**
Sparse Spruce/Sphagnum Forest	**17.2%**
Sparse Spruce/Lichen Forest	**8.5%**
Regenerating Forests	**2.2%**
Mixed Hardwood Forests	**2.2%**
Soil/Rock Barren	**11.7%**
Recent Burns	**4.8%**
Lichen Scrub/Bog	**5.8%**
Bog/Wetlands	**8.3%**
Water Bodies	**5.6%**
Unclassified	**12.4%**
Total	**100%**

The Province began its first complete inventory program over thirty years ago. In the beginning it encompassed the entire Island portion of Newfoundland and all of Labrador as far north as the 56th parallel. The program evolved over the years from a timber inventory to a broader ecosystem inventory, but the underlying focus of providing sound statistical information to ensure sustainable management has remained.

The forest inventory program is carried out on a continuous cycle with approximately 10 % of the Province being inventoried in each year. The inventory process is as follows:

- The latest process uses digital aerial photographs flown by fixed wing aircraft each year in selected locations throughout the Province. Each digital photograph partially overlaps the coverage of the previous photo so that interpreters can use software to view ground features in 3-dimensions (3-D). To facilitate this 3-D viewing, an interpreter uses computer imaging software which allows him/her to define the

height, species, age, and stand boundaries within the forest. The information derived from photographs is verified and supplemented by measuring a series of ground plots. These ground plots also supply information on wildlife habitat and abundance, timber volumes, soils, ground vegetation, etc.

- The next step in the inventory process is converting the boundaries and information digitized by the interpreter into a final typed digital map format. This is done by cartographic technicians who clean the interpreters' boundaries using a Geographic Information System (GIS).
- After the information has been loaded into GIS, planners use it to produce maps of forest landscapes for planning and other information needs. The information is also used with computer models to determine the Annual Allowable Cuts (AAC's) and impacts of fiber management practices on other resource values.

Inventories currently used for planning in District 21 were flown during the late 1980's and further digitized for use with the GIS during the mid-1990's. It was not until around 1995 that GIS technology was available for use at the Cartwright District Office and for planning purposes.

It should be noted that the 1992 forest inventory did not survey the entire district; it did however survey most of the non-isolated commercial forest in the district. At that time, the Trans-Labrador Highway (TLH) was not proposed and therefore access to much of the district was unrealistic. Since then, the construction of TLH has accessed new commercial timber resources of which the inventory has not been completed to date. Activities outlined in this operating plan are based on the current inventoried area only.

During the summer of 2006 a significant portion of the un-inventoried section of the District was flown and aerial photographs taken. As described earlier in the document, these photographs have been interpreted and digitized for use as forest cover type information. It is expected to provide minimal additional accessible annual allowable cut increase, due to its location on the landscape.

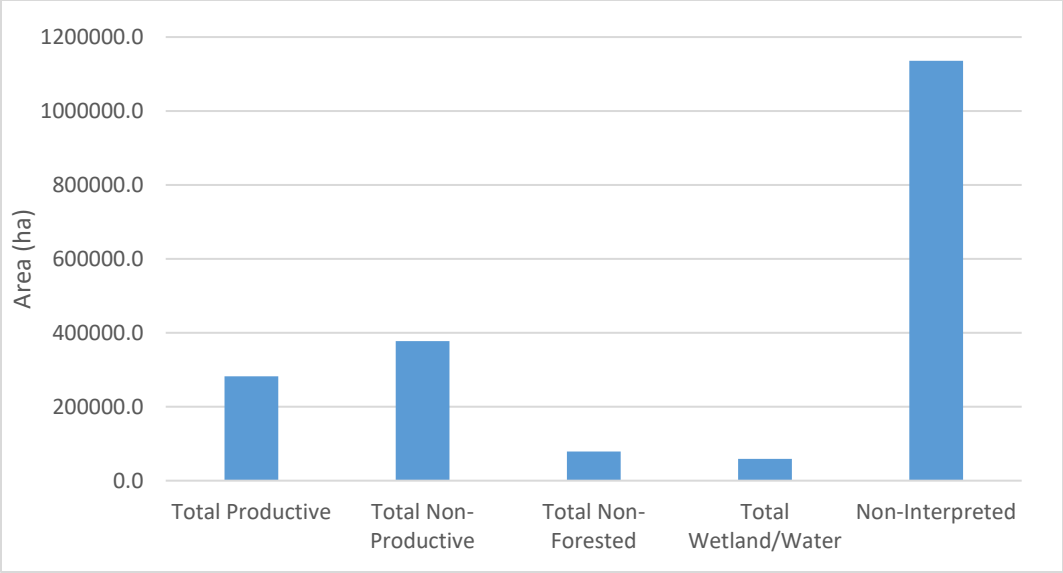

Figure 3: Land Class Breakdown for District 21

1.5.2 Age Class

Primarily, even- aged stands greater than 160+ years old, form the dominant age class structure in this forest, although an extensive area has yet to be classified. Most forest sites are classed as poor to medium (Figure 4). Silviculture intervention may enhance future productivity on some sites, but how such treatments will affect the long rotation period (120 years) of forest stands in southeastern Labrador is not fully understood at this time.

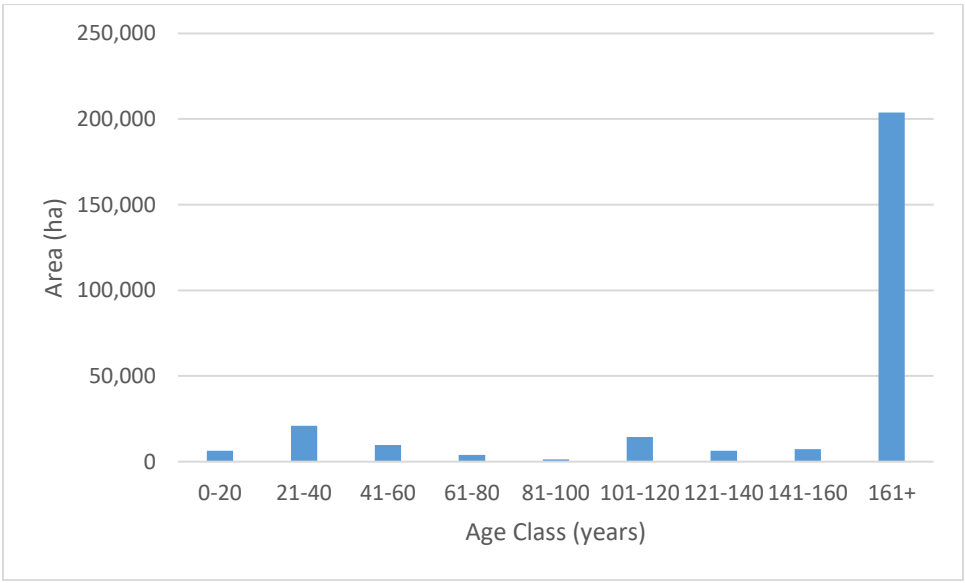

Figure 4: Age Class Distribution for District 21

1.5.3 Site Class

Many factors determine site class of productive forest including soil moisture, fertility, slope and geographic orientation. In District 21 medium and poor sites are most dominant accounting for approximately 83% of total on productive sites. The distribution of each site class is illustrated in Figure 5. Based upon its northern location it is estimated that the mean annual increment of a good site is 2.4 m^3/ha/yr, medium site 1.4 m^3/ha/yr and poor site 0.8 m^3/ha/yr. Site class often determines the limits of growth and along with the limits of existing harvesting and processing technologies this will define the limits within which commercial forest development can function in the District.

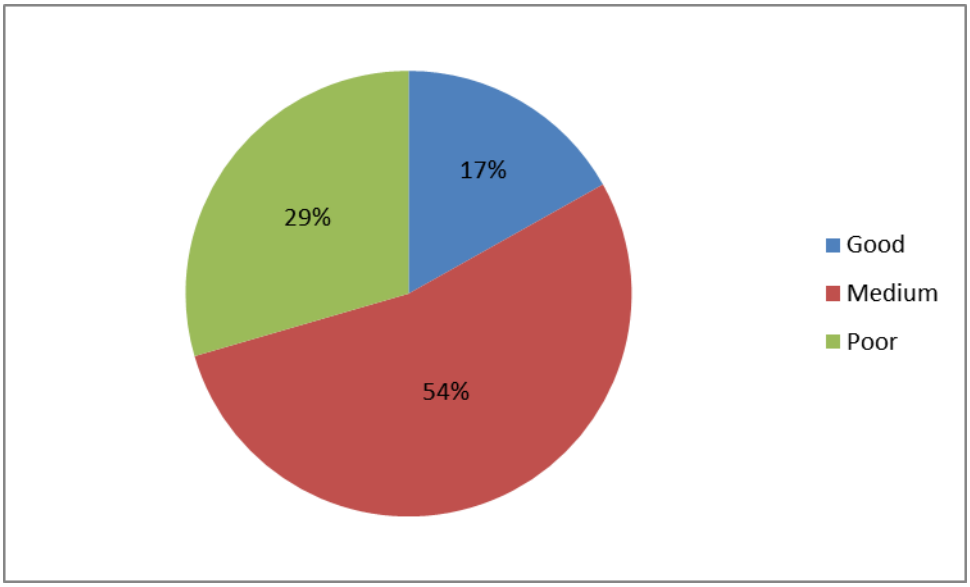

Figure 5: Site Cass Breakdown for District 21

1.5.4 Species and Working Group

Black spruce (*Picea mariana*) is the most common tree species in the management district, based on volume (approximately 57%) and working group (approximately 54%). Balsam fir (*Abies balsamea*) constitutes approximately 35% of the volume, while other softwood and hardwood species make up the balance (Figure 6).

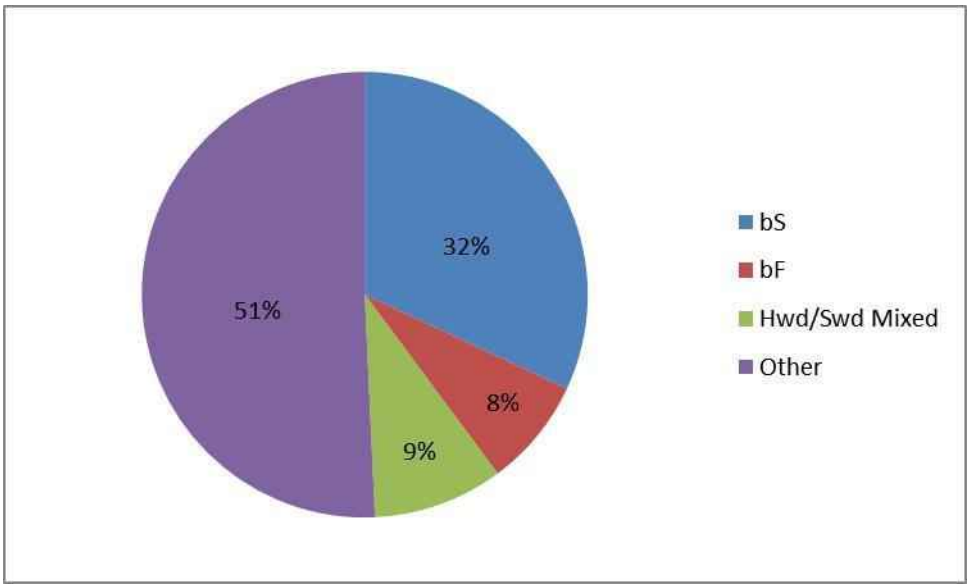

Figure 6: Working Group Breakdown for District 21

1.5.5 Forest Disturbances

The province actively participated in Phase II and Phase III of the Early Intervention Strategy to prevent the spread of Eastern Spruce Budworm populations since 2017. In the early years, Phase II of EIS the province concentrated its efforts on increasing survey efforts and increasing plot distribution on the province West Coast of the Island of Newfoundland or what is commonly referred to as the leading edge of the 'outbreak'. Commencing in 2020, coinciding with the beginning of the COVID-19 pandemic, the province began treating forested areas along the leading edge on the Great Northern Peninsula. While the province was successful in developing safe work practices to treat forested areas during the pandemic, other areas in Atlantic Canada did not treat that year.

During the summer of 2020, the province treated 32,063 hectares of forested land with an insecticide and at the same time witnessed the largest dispersal event from Atlantic Canada. Areas that had just received treatment received many immigrant moth populations from Atlantic Canada increasing local populations. Spruce Budworm female moths from Atlantic Canada laid half of their egg complement in Atlantic Canada, then dispersed to infest new areas. Weather patterns were ideal for long range transportation of female spruce budworm moths. Canadian Forestry Scientists tracked the dispersal of spruce female moths to the west coast of Newfoundland where the female spruce budworm moths laid the remaining half their egg compliment in Newfoundland and Labrador. From the period of 2020 to 2025 the province treated 593,056 hectares with one or more application of insecticide.

SECTION 2 PAST ACTIVITIES

The previous five-year forest management plan (2022-2026) was an overall success. Activities remained consistent over each year of the planning period. The underlying management objective was to support the sustainable development of the forest ecosystem ensuring the general well-being of all resources for present and future generations. The fundamental objective of this was to provide maximum social and economic benefits from the forest ecosystem, while maintaining its integrity at all spatial scales.

2.1 Forest Management District 21

2.1.1 Harvesting

2.1.1.1 Commercial

With the down turn of the forest industry globally and the closure of two newsprint mills in the Province, commercial activities have since decreased in the District. Since then, commercial timber harvesting activities have been relatively stable at a lower level over the past five years (Table 3).

TABLE 3 2022-2026 COMMERCIAL HARVEST DISTRICT 21

District 21 Crown		**Core**			**Operational (Available)**			**Non-AAC Wood**	
		AAC	Commercial	Deviation	AAC	Commercial	Deviation	Operational	Regulatory
SWD	2022	48,600	2,338	46,262					
	2023	48,600	2,461	46,139					
	2024	48,600	3,297	45,303					
	2025	48,600	2,300	46,300					
	2026	48,600	2,300	46,300					
	Sub-Total	243,000	12,696	230,304					
		Core			**Operational (Available)**			**Non-AAC Wood**	
		AAC	Commercial	Deviation	AAC	Commercial	Deviation	Operational	Regulatory
HWD	2022		0						
	2023		0						
	2024		0						
	2025		111						
	2026		111						
	Sub-Total		222						
District Total		243,000	12,918	230,304					

* 2026 Volumes estimated

2.1.1.2 Domestic

Domestic harvesting, which has been identified by local residents as a significant activity in the area, has been relatively consistent over the last five years with a five year (2022-2026) average of approximately 420 permits (@ 23m^3/permit). See table (Table 4). The majority of the domestic harvesting in the past took place near the communities.

Table 4 2022-2026 Domestic Harvest District 21

District 21 Crown		Core			Operational (Available)			Non-AAC Wood	
		AAC	Domestic	Deviation	AAC	Domestic	Deviation	Operational	Regulatory
SWD	2022	48,600	7,472	41,128					
	2023	48,600	8,384	40,216					
	2024	48,600	7,211	41,389					
	2025	48,600	6,801	41,799					
	2026	48,600	5,090	43,510					
	Sub-Total	243,000	34,958	208,042					
		Core			Operational (Available)			Non-AAC Wood	
		AAC	Domestic	Deviation	AAC	Domestic	Deviation	Operational	Regulatory
HWD	2022								
	2023								
	2024								
	2025								
	2026								
	Sub-Total								
District Total		243,000	34,958	208,042					

* 2026 Volumes estimated

2.1.2 Silviculture

Silviculture has been limited because of a lack of large-scale disturbance (harvesting or natural disturbance). As a result, there were no silviculture projects conducted during 2022-2026.

2.1.3 Road Construction

Majority of the forest access road that exists in the District was constructed in the past through Government funding to provide access to previous commercial harvest blocks. In the past five years there was minimal new construction of road, as well as grading, alder removal, ditching and reconstruction on various roads throughout the district (Table 5).

TABLE 5 2022-2026 ROAD CONSTRUCTION IN DISTRICT 21

Construction Type	Proposed (km)	Constructed (km)
New Construction	0.275	0.2
Re-Construction	43.4	43.4
Total	43.7	43.7
Bridges/Culvert	0/1	0/1

2.1.4 Natural Disturbance

2.1.4.1 Fire

Only six forest fires were reported during the past five years. The majority of these fires were small (<1.0 ha) and required minimal suppression efforts. Many of the fires in the district were as a result of lightning strikes. All fires were contained with minimal losses.

2.1.4.2 Insect

While numbers of Spruce Budworm and Hemlock Looper on the island portion of the province trend upward, District 21 did not seen such an increase in numbers during this time. No Insecticide treatments have been administered in District 21 during the 2022-2026 planning period. District 21 will continue to monitor leaves of each during the 27-31 planning period.

SECTION 3 TIMBER SUPPLY ANALYSIS

3.1 Introduction

The annual allowable cut (AAC) is the maximum volume that can be harvested on an annual basis while maintaining a sustainable supply of timber and providing a landscape, which supports non-timber values for future generations. Since the necessary growth and yield data required to run linear wood supply models (such as WOODSTOCK) are not yet calibrated for the District, the AAC was calculated using the following area/volume formula.

$$AAC\ (m^3/year) = \frac{\text{Net Commercial Forest Area (ha)}}{\text{Rotation Age (yrs)}} \times \frac{\text{Net Merchantable Volume } (m^3)}{\text{Hectar}}$$

Where:

- **Net Commercial Forest Area** is the net landbase of commercial forest.
- **Rotation Age** is the time period (in years) required to establish and grow trees to a condition of maturity following a disturbance.
- **Net Merchantable Volume** is the expected merchantable volume on a specified landbase taking into account losses for fire, waste and retention.

Net Commercial Forest Area Determination

TABLE 6 DISTRICT 21 STAND AREA AND VOLUMES

Landbase	Area (ha)	Softwood Volume (m^3)
Total District Area	1,933,290	N/A
Total Area (1992 inventory)	508,267	N/A
Productive Forest	177,393	15,598,406
Commercial Forest	109,458	13,526,618
Un-Alienated Commercial Forest	83,036	9,651,830
Net Commercial Forest (1992 Inventory)	58,125	6,756,281

Definitions and Assumptions:

Productive Forest: Stands that are capable of producing 35 m3/year at rotation. (All stands identified in inventory which have a volume associated with them).

Commercial Forest: Stands (bF, bS, wS, sH) that contain a minimum softwood volume of 90 m3/ha. Stands less than 9m in height and less than 75% crown closure on poor sites are not considered commercial.

Un-Alienated Com. Forest: Isolated stands and sensitive areas were not included in AAC calculations. Area reductions were applied to the landbase using the GIS to account for:

- 30m forested buffers on rivers, lakes, streams.
- 100m forested buffers on major rivers.
- Stands located on slopes > 30%.
- 30m forested buffer on groomed snowmobile trails.
- Town buffers & water supplies.
- Parks and reserves.

Net Com. Forest: Total commercial forest with a 30% reduction applied to account for finer stand level features that require protection such as:

- Additional buffers as required on small streams.
- Localized steep slopes.
- Wildlife dwellings and habitat.
- Buffering or raptor nests.
- Cabin development areas.

Rotation Age

Rotation age is the age at which the mean annual increment of merchantable volume reached its peak and yields the most volume per unit area per year. Normal yield tables show that rotation age increases as site quality decreases. They also show that the corresponding merchantable volume and mean annual increment decreases greatly from good to poor sites

(USDA 1990). Averages for black spruce stands of three site classes in the boreal forest of Canada are as follows:

TABLE 7 ROTATION AGE VS SITE CONDITION

	Good	Medium	Poor
Rotation Age (years)	95	113	132
Merchantable Volume (m^3/yr)	218	160	101
Mean Annual Increment (m^3/ha)	2.3	1.4	0.8

Approximately 51% or more of the area inventoried in District 21 are black spruce stands. The proportion of site classes of forest stands is approximately 29% poor, 54% medium, and 17% good. The average gross merchantable volume is approximately 120 m^3/ha. Considering these figures a best estimate of the rotation age for District 21 is **120 years**.

Furthermore, in areas which had sufficient data, yield curves for the predominant strata of Labrador were constructed. Since stand break up data is missing, it was assumed that the forest does not break up, but continues under a gap replacement system. Yield curves that were constructed were classed by strata and eco-region, high boreal forest, mid boreal forest and sub-arctic boreal forest. Further descriptions of the eco-region classification system are in the strategy document. Yield curves were assigned to stands based on working group (bS or bF), site class (good, medium, poor) and density class (1,2,3).

The majority of the inventoried area in District 21 falls within the mid boreal forest eco-region. The approximate rotation age for each graph was estimated and a weighted average based upon the amount of area in each stratum on the landbase was calculated. According to the available data the rotation age is approximately 108 years. This is a shorter timeframe than the rotation age used to calculate the AAC. Yield curves generated from TSP data for this eco-region support that on average the gross mean volume of a 120 year old stand is greater than the estimated.

Net Merchantable Volume Determination

The forest cover inventory used to derive the described landbase measures softwood and hardwood volumes per hectare of forestland. Analysis of 1:12,500 scale aerial photos identified height, species, age and productivity of the landbase. Ground truthing plots were used to verify this information and furthermore the resulting inventory has specific volume/hectare values for all forest cover types. During the landbase net-down exercise the commercial volume and the

commercial landbase area are determined. The gross volume/hectare is found by using the following formula:

$$\text{Gross Volume/Hectare} = \frac{\text{Net Commercial Volume}}{\text{Net Commercial Area}}$$

$$= \frac{6{,}756{,}281\ m^3}{58{,}125\ ha}$$

$$= 116\ m^3/ha$$

This number is then further refined to account for retention, waste, cull and natural disturbances. This number, referred to as the Net Commercial Volume, is then used in the AAC calculations. The expected net downs for District 22 were applied to account for the following losses:

Annual Allowable Cut Calculation Deductions

Cull	13%
Residual Stands	6%
Harvesting Losses	5%
Fire	1%
Total	25%

Net merchantable volume/hectare = Gross volume/hectare – 25% reduction

$= 116\ m^3/ha - 29\ m^3/ha$

$= 87\ m^3/ha$

AAC Calculations:

$$\frac{58{,}125\ ha \times 87\ m^3/ha}{120\ yrs} = 42{,}140\ m^3/year$$

3.2 Forest Profile Dynamics

Due to the methodology used to calculate the annual allowable cut for District 21, changes or outputs of forest profile dynamics are not predicted.

3.3 AAC Adjustments

Due to the methodology used to calculate the annual allowable cut for District 21, annual allowable cut adjustments are not used.

3.4 GMV Volume Adjustments

During calculation of the net AAC the GMV (Gross Merchantable Volume) is further refined to account for retention, waste, cull and natural disturbances. This number, referred to as the Net Commercial Volume, is then used in the AAC calculations. The expected net downs for District 21 were applied to account for the following losses for each calculation:

Cull	13%
Residual Stands	6%
Harvesting Levels	5%
Fire	1%
Total	25%

3.5 Spatial Blocking Adjustments

Due to the methodology used to calculate the annual allowable cut for District 21, spatial scheduling software is not used therefore spatial blocking adjustments are not required. Harvest blocks are identified in areas where stand volume meets minimum commercial volumes and road access is available or potentially available.

3.6 AAC Results and Outputs

The annual allowable cut (AAC) is the maximum volume that can be harvested on an annual basis while maintaining a sustainable supply of timber and providing a landscape, which supports non-timber values for future generations. Since the necessary growth and yield data required to run linear wood supply models (such as Woodstock) are absent for the district, the AAC was calculated using a basic area/volume formula. Based on the method used one output was derived as seen in table 8.

There is a large area of the district south of the Mary's Harbour planning unit to the Labrador Straits that doesn't have sufficient inventory data to calculate an annual allowable cut. Harvesting in this area is limited to domestic harvesting by residents of the Labrador Straits area and is expected to continue at the historic rate of approximately 4,000 m^3 /year (denoted as Pinware in the table below). Future planning exercises should attempt to fill this data gap and determine an AAC for this area of the district.

TABLE 8 RESULTS OF TIMBER SUPPLY ANALYSIS IN DISTRICT 21

Land Tenure		District #	Planning Unit	Softwood Volume (m3/yr)			Hardwood Volume (m3/yr)		
				Core	Const.	Sub-Total	Core	Constrained	Sub-Total
Crown	LAB	22	PHS NORTH	42,140	0	42,140	0	0	0
			PINWARE	4,000	0	4,000	0	0	0
			Total	46,140	0	46,140	0	0	0

3.6.1 Harvest Profile

Due to the methodology used to calculate the annual allowable cut for District 21, harvest profiling is not determined. When identifying commercial harvest areas, areas that fit the stand age, and height profile of the surrounding areas were identified if possible.

SECTION 4 CARBON ANALYSIS

4.1 Carbon in our forests

Forests remove carbon from the atmosphere in the form of carbon dioxide (CO_2). Through photosynthesis, carbon is extracted from the CO_2 to form glucose and other organic compounds which fuel the tree's biological processes and form structural biomolecules that constitute the tree's biomass. The process of removing CO_2 from the atmosphere and transforming it into a usable form is called carbon sequestration, while the incorporation and retention of the sequestered carbon within the trees' biomass is called carbon storage. The carbon remains stored in the trees until the tree dies and decays, is naturally disturbed, or the wood is harvested. The post-disturbance landscape carbon dynamics differ depending on the type of disturbance.

The main driver of forest carbon dynamics is the age class structure of the forest, resulting from the forest's disturbance history. Both carbon sequestration and storage are low in young forests as their photosynthetic capacity is limited from their smaller leaf area and lack of biomass accumulated. Middle-aged stands excel at carbon sequestration as this stage of succession undergoes rapid growth rates and biomass accumulation, requiring higher photosynthetic rates than at any other stage in development. By this stage, carbon storage has improved from the accumulation of biomass but is still progressing. Mature forests are important for carbon storage since they have the largest accumulated biomass that locks in the carbon they have sequestered throughout their lifetime. However, mature forests experience reduced

growth rates and stand break-up through senescence, so carbon sequestration is limited to maintenance of existing biomass rather than producing new tissue. For these reasons, a balanced age class structure is optimal for maximizing the long-term carbon potential of a forest.

4.1.1 Modelling Carbon

A tree's biomass is closely related to its volume, which is a function of its height and DBH, with variability due to differences in wood densities across species. To convert the gross merchantable volume from our inventory database into stand-level carbon estimates, we applied species-specific allometric biomass expansion factors (Boudewyn et al., 2007). It is widely accepted in the forest carbon field that carbon comprises half of a tree's dry biomass and following this assumption allowed us to estimate the current carbon storage for the FMD. Stocked non-commercial stands (assumed to be coniferous scrub) had area-based coefficients (Boudewyn et al., 2007) applied instead of the previously described volume-based expansion factors. In districts with complete inventories, these calculations are performed using our Remsoft Woodstock wood supply model. However, for FMD 21, the calculations were completed manually because the inventory was provided in tabular format. Non-stocked and disturbed stands do not have a leading species or merchantable volume assigned and therefore do not contribute to above ground carbon stocks.

4.1.2 Carbon Analysis – District 21

FMD 21 stores approximately 10.75 megatonnes (Mt) of carbon in aboveground biomass (i.e., stem wood, bark, branches, and foliage), with 8.70 Mt in the commercial forest (177,444 ha) and 2.05 Mt within the non-commercial forest (158,632 ha). The age class distribution of the commercial landbase is heavily skewed toward older stands, which maximizes present-day carbon storage due to their higher accumulated biomass (Figure 19a). Within the next decade, a decline in the aboveground carbon stocks is guaranteed for FMD 21 as stands are either harvested or undergo natural mortality. However, capturing imminent mortality through harvesting would accelerate forest renewal while reducing the slow release of carbon back into the atmosphere from the decay process following natural mortality.

As Figure 19a suggests, age class 17 dominates the landscape, while black spruce-dominated stands account for the highest levels of aboveground carbon storage (Figure 19b). FMD 21 has an allowable annual cut (AAC) of 48,600 m^3, with stands in age classes 14 and above have an average volume of 144 m^3/ha. At this yield level, harvesting the AAC would correspond to approximately 338 hectares annually. Using an average carbon yield of 55.67 tonnes per hectare for black spruce–dominated stands in age class 17, harvesting the full AAC would remove roughly 18,790 tonnes of aboveground carbon from the landbase each year. Additionally, the regenerating stands replacing the harvested stands will cause the aboveground carbon stocks to

decline, but as the younger stands mature, the carbon stocks will rebound as they sequester and store more carbon with age and biomass accumulation.

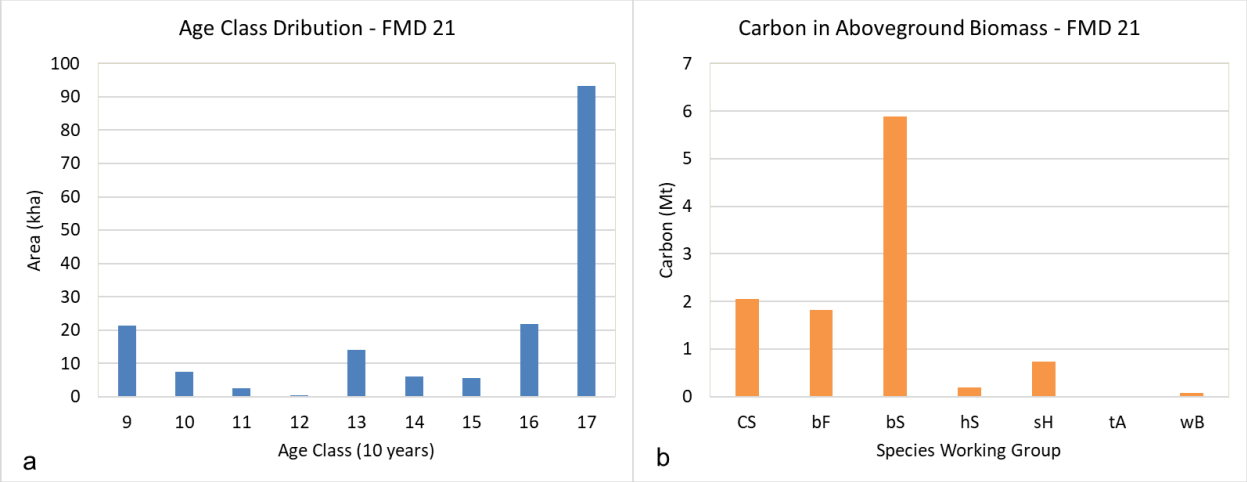

Figure 7: Age Class Distribution of District 21 and Carbon Stored in Aboveground Biomass

SECTION 5 VALUES

5.1 Guiding Principles of Sustainability

Environmental, Economic, Political, Social, and Cultural are considered the five guiding principles of sustainability.

Environmental Sustainability evaluates current and future ecosystem health. It ensures the needs of the present are obtained without compromising the ability of future generations' needs. Ecosystem health is determined by such factors as ecosystem integrity, biodiversity, productive capacity, and resiliency. The five-year operating plan strives to ensure these factors are maintained.

Economic Sustainability requires forest resources to be managed efficiently and equitably among stakeholders. Economic development remains high priority for many of the residents within the province. However, economic development should only proceed with the incorporation of the other principles of sustainability.

Political Sustainability refers to goals and management objectives being applicable, administrable, and practical. With the aid of public input and support, these goals and objectives must maintain these qualities into the future.

Social Sustainability means fairness and equity to all interested stakeholders. The forest management strategy should not jeopardize the basic requirements of the public. As a result, public involvement/awareness, participation and decision-making are considered necessary for the development of proper forest management plans.

Cultural Sustainability is attained by applying Newfoundland and Labrador'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, the public of Newfoundland and Labrador has 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 properly achieved.

5.2 Value Structure

The forest ecosystems of the district provide a wide range of values to different individuals and groups, which include:

(a) Consumptive values such as timber products, hunting, trapping, sport fishing, and berry picking.

(b) Non-Consumptive values such as skiing, snowmobiling, hiking, and bird watching.

(c) 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, spiritual values are considered to be a product or an accumulation of all values.

Other values such as water quality, parks, and protected areas provide the protection of forest ecosystems, which can enhance the above-identified values. Many of the values in the zone are identified by many years of forest management planning and engagement with interested stakeholders.

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

Individual values are 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 help to provide a mechanism for resolving potential 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) is identified to aid in the discussion of each value.

In many instances, the Environmental Protection Guidelines (EPG's) developed by the department help 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.

5.2.1 Aesthetic Values

Scheduled commercial harvesting activity may be visible from the TLH route or certain places along snowmobile trails. The arrangement of the operating areas should minimize the visual impact of these operations. Skyline reserves will be maintained, and roads will be located on the lower slopes and buffered to reduce visibility wherever possible. Preliminary work has been done to start identifying the view shed of the TLH. The view shed has been produced for the majority of the proposed commercial areas in this five-year plan and is considered a tool for managers to minimize visual effect of harvesting along the TLH. A digital elevation model (DEM) of a section of the district including the Charlottetown branch road and a section of the highway from north of Port Hope Simpson towards Cartwright approximately 12 km past the Charlottetown Branch Road was derived from 1:50 000 contours of the area. Using ArcGIS software, many observer points along this section of the TLH were analyzed and the areas that were visible from the line-of-sight points were combined to form the view shed.

The view shed identified for a portion of the TLH is approximately 43,254 ha in total size. An analysis of the effect that removing this view shed from the landbase was completed and revealed that if removed approximately 8500 ha of net commercial forest would be removed from the landbase resulting in a decrease in the Districts AAC, of approximately 8,600 m^3/year. It was agreed that the view shed would not be excluded from the landbase analysis for the AAC calculation for this reason.

Wherever possible, the following guidelines for operations will be applied within the view shed:

- Through operational planning, operations scheduled within the outlined view shed should be done during winter months, to limit ground disturbance and to protect advance regeneration.
- Closer operational planning by the Department and operators, within the view shed should occur to strategically locate skid trails to limit ground disturbance and their view from the TLH.
- Areas harvested within the view shed should be priority for regeneration surveys and for scheduled silvicultural prescriptions, in particular planting.

Currently there are no commercial operating areas that identified on or near snowmobile trails groomed by the Labrador Winter Trails. There are several domestic blocks which are accessible by groomed trails; however, since domestic harvesting is on such a small scale and often a selective

harvesting process, the visual impacts are anticipated to be negligible. Officers will monitor domestic operations along groomed trails.

5.2.2 Hunting and Trapping

During this planning period, domestic hunting and trapping opportunities will continue as permitted under domestic permit. Domestic harvesting of wild meat (small game), fish, berries and mushrooms for subsistence and furs for sale are common in the district. Current areas will allow these activities to continue within normal levels. Seasons and bag limits along with research requirements and regulations are prepared by the Wildlife Division of Department of Forestry Agriculture & Lands.

5.2.3 Non-Timber Forest Products

Other non-timber forest products, which are often consumed domestically or used frequently for crafts, are harvested in the area. Common forest products include the harvesting of other berries such as red berries, blue berries and squash berries and various types of fungi. These products are harvested from both natural and disturbed areas in the district. Possible economic opportunities exist in the sale of these products. It is expected that these activities will continue to be permitted in the area.

5.2.4 Parks and Natural Area Reserves

Significant natural features, habitat types and landscapes are represented across the Province as part of the Provincial Parks system. These parks provide areas for conservation, research benchmarks, recreation and educational opportunities and ecotourism in the Province.

Pinware River Provincial Park

Pinware River Provincial Park was designated in 1974. Located in the Forteau Barrens ecoregion, this 68-hectare park is the only Provincial Park in the District. The park area is composed of diverse vegetation types, pristine waters and wildlife. The park provides outdoor experiences such as camping, picnicking fishing and hiking opportunities.

There are no commercial harvesting operations planned in this five-year operating plan neither within the Pinware Provincial Park nor near the boundary of the park. There will also be no domestic harvesting within the park boundaries, which will be clearly identified on domestic harvesting maps. The Department will work with the Parks Division to determine if a no cutting buffer around the park is necessary during this planning period.

Hilbert Bay Marine Protected Area (GBMPA)

After many years of research, the Department of Fisheries and Oceans designated Gilbert Bay as a marine protected area in October of 2005. The bay itself is 47 km^2 in size and supports various marine resources such as shellfish, fish, marine mammals and aquatic plants. The bay also supports populations of migratory bird species. The most noted resource it supports is a resident population of reddish-brown cod fish that have been proven to be genetically distinct from other Labrador cod. Various conservation measures have been implemented in the GBMPA to protect the unique ecosystem. These measures apply to the bay itself and it is not anticipated that any activities planned in this management plan will impact the unique ecosystem due to the fact that all anticipated activities are scheduled to occur on land and far enough away from the bay.

5.2.5 Potential Developments

Various locations in the district were sites of traditional aboriginal activity and initial European contact. Although historical resources may be of significant value in the area, lack of data prevents a more comprehensive assessment of this resource.

The possibility exists for large and small scale hydro development along with potential for wind power generation within the district. Plans or proposals have yet to be developed that will determine the full potential of this resource. However, these hydro developments are not anticipated during the 5-year planning period.

Agricultural activities are underdeveloped in the district. Although some commercial and home gardening is practiced, climate and soil conditions are not conducive to an extensive agricultural effort. The harvesting of wild berries, particularly bake apples (*Rubus chamaemorus*) is a well-established practice that can generate considerable revenue in good years. This activity is usually confined to the coastal tundra or the boreal forest & barren zone (Boreal Forest Section B31; Rowe, 1972).

Rare earth mineral deposits of various types have also been identified and are being explored in the District. Sufficient data is not available to provide a complete economic assessment of these finds, although surveys continue to be carried out. Unless significant deposits are located, it is not expected that any mining will occur during the 5-year period of this management plan.

Formal planning for management of other resources in the management district has not been conducted previously. However, it can be assumed that potential may exist for development in such areas as:

- Value-added and non-timber forest products

- Recreation and tourism, including cottage development, private recreation and commercial tourist development
- Waterway developments, including fisheries enhancement projects and large or small scale hydro development sites.

Various other recognized and potential resources may exist in the management district. However, few facts are available relative to their location, extent, value and economic potential. Recognized values and resources existing in forested lands of the district include:

- Tourism and recreational opportunities
- Timber resources
- Wildlife habitat and resources
- Aesthetic values
- Fish habitat and resources
- Non-timber forest products (berries, medicinals, mushrooms)
- Mineral resources
- Subsistence (food)
- Water resources (watersheds)
- Historic resources
- Hydro potential
- Cover value (protection of land from soil erosion)

5.2.6 Recreational Cabin Development

Recreational cabin development is expected within the district during the outlined operating period at fairly modest levels. Although it's not apparent in the current situation, it is possible that cabin development areas may expand, in response to the increased construction of resource access roads. Common concerns identified include, i) land use conflicts, ii) density and expansion concerns and iii) possible effects on critical habitat. These concerns will be dealt with on a case-by-case basis and reflected to the appropriate agency. Current environmental guidelines require a 50-meter treed buffer between existing approved cabin development areas and any forest operation.

5.2.7 Timber Values

Forests in District 21 provide many values to local residents. One of the most apparent values noted is the value of the forest for timber sources. The harvesting of timber for domestic and commercial purposes in District 21 has been ongoing for several years. Commercially the timber can provide employment to local residents and in many communities was the main revenue generator.

The ability for local residents to harvest timber for personal use (fuelwood and sawlogs) was also noted as an important value for stakeholders. Many families rely on these resources to provide building materials and fuel to heat their homes, during harsh winter months.

Both commercial and domestic harvesting activities are expected to continue throughout the life of this five-year plan and in subsequent plans. Specific areas have been identified for commercial and domestic harvesting as described further in this document.

5.2.8 Tourism and Outfitting

Outdoor recreational activities play a significant role in the lifestyle of most residents of the district. Such activities include hunting, fishing, kayaking, hiking and camping. Access to more remote areas is provided by snowmobile, boat, helicopter or float planes.

Eleven scheduled Atlantic Salmon Rivers, including their tributaries, are located within the management district. These and other rivers support a considerable tourist industry, primarily sport-fishing for salmon, brook trout, arctic char and northern pike. Also, local recreational and subsistence fishing is pursued by many residents of the district.

Although intensive fisheries management plans have yet to be initiated, the potential for increased activity exists on various non-scheduled water systems within the district. The quality of the inland sport-fishery in Labrador has a worldwide reputation, particularly for consistency, frequency and large fish size.

Apart from hunting/fishing outfitting, little commercial tourism development, such as visitor lodges or wilderness touring has occurred in the district. However, considerable potential does exist for more formal and developed recreational facilities. This potential includes such projects as municipal and provincial parks and natural area reserves. Also, the extensive major river systems in the district may provide additional opportunities for the development of canoe or kayak routes. These activities are strongly linked to maintaining a natural and aesthetically pleasing environment. A deep appreciation of the natural environment has always been an integral part of the character of Labrador residents. An accurate measure of this value cannot be expressed adequately, but it is recognized as a definite resource.

5.2.9 Transportation

The transportation network in Forest Management District 21 was strongly influenced by the isolated nature of the Labrador coast. Intermittent air service is provided to most of the communities by gravel airstrips and a twin Otter service out of Goose Bay. Regular marine transportation is available at various developed harbors. Marine transportation to connect outport communities of Norman Bay, Williams Harbour and Battle Harbour are generally operational for

six months (from mid-June through mid-December), while the marine service across the Labrador Straits is operational year-round, depending upon ice conditions.

Currently, the Trans-Labrador Highway (TLH) connects communities from Cartwright south to Lanse au Clair and north to Happy Valley – Goose Bay. Proposed harvesting activities are not scheduled to occur within the right-of-way of TLH. A minimum of 100 meter no cutting buffer will be implemented for all domestic and commercial harvesting along the TLH and its access roads. Additionally, approximately 50km of forest access road has been constructed or maintained under the direction of the Newfoundland Forest Service.

Forest industry development on the coast of Labrador has always been somewhat limited due, in part, to transportation problems. Operators have had to resort to barging their product to market and have had to keep large inventories of product for extended periods between shipping seasons. Additionally, access to sufficient timber, the basis for any industry expansion, has been limiting.

In addition to the TLH, snowmobile trails are commonly used for transportation during the winter months. However, this mode of transportation is not practical to support commercial movement of goods and services. Overall, there are approximately 450 km's of groomed and occasionally groomed snowmobile trails in District 21. These trails connect numerous communities and provide access to domestic harvest blocks. The Government of Newfoundland and Labrador, through Labrador and Aboriginal Affairs Office continue to provide funding to support the Labrador Transportation Grooming Subsidy (LTGS). The purpose of the LTGS is to maintain snowmobile trails to remote Labrador Communities that do not have year-round transportation connections to service centers. The LTGS provides funding to maintain snowmobile trails to remote communities in District 21 including Norman Bay and Williams Harbor. Snowmobile trails are also used by adventure tourists. To protect the aesthetic value of the trails a minimum of 30 meter no cutting buffer will be implemented for all domestic and commercial harvesting along the trail systems. There are no commercial harvesting blocks scheduled for this planning period near any of the groomed trails.

5.2.10 Value Added Processing

Although limited by its sporadic distribution across the District, there is an indication that there is an adequate supply to support management for commercial timber extraction. Furthermore, there are opportunities for advancement in the sawmilling and value-added sectors of the forest industry.

Opportunity exists for secondary processing in the District and Region, furthermore, creating local employment. The Department along with other stakeholders is working towards advancing the forest industry in the District and region to further create local employment opportunities.

5.2.11 Water Resources

Water resources within the district were identified as an important value to local stakeholders. As well as being a significant attribute of ecosystem health, aquatic habitat plays an integral role in the lives of residents. Historically, water resources in the district have provided domestic food sources (fish & shellfish), supported various commercial fisheries (offshore & inland), and have provided tourism and recreational opportunities to residents and to tourists. District 21 has several scheduled salmon rivers and many trout and char fishing waters which attract many tourists to the south coast of Labrador.

There will be no commercial or domestic harvesting scheduled or permitted in any of the protected water supply areas. Furthermore, these protected areas will be identified on domestic maps supplied to harvesters and identified and enforced as no cutting areas.

5.2.12 Habitat Protection

The protection and conservation of wildlife habitat has been identified by stakeholders as an important objective of timber harvesting. Any critical habitat that may be identified during pre-operational surveys will be forwarded and discussed with the Wildlife Division of the Department of Environment and Conservation.

5.2.13 Mining, Mineral Exploration, and Quarrying

Characterization:

Mineral exploration, mining, and quarrying are recognized as separate and distinct activities, each of which is approved and regulated under a separate piece of legislation.

Mineral exploration activities may consist of prospecting, geological mapping, grid line-cutting, geochemical surveys, ground-based and airborne geophysical surveys, the preparation and use of access trails, mechanized trenching, diamond drilling, and – in remote areas – the preparation and use of campsites.

Mineral exploration takes place province-wide and is a significant contributor to the provincial economy, particularly in rural areas.

There are many active quarries throughout the province which generate significant royalties and which provide the raw material for the development and maintenance of infrastructure such as highways, building lots, and concrete.

There are several active mines in the province at any given time and mining represents a major component of the provincial economy.

Critical Elements:

- Forest Ecosystem

- Mining, quarrying, and mineral exploration activities can have potential negative impacts to Forest Ecosystems and future Wood supply calculations. Mining and quarrying represent permanent (but sequenced – not all at once) alterations to the landscape whereas mineral exploration activities at most involve temporary disturbance. Each activity is subject to rehabilitation requirements.

- Utilization of Timber Resource
  - When exploration activity occurs, merchantable trees may need to be harvested to gain access to work sites. Under the forestry act, all merchantable trees can only be removed with a cutting permit and that holders of a cutting permit must utilize all portions of the tree to a top diameter of 8cm (outside bark). Section 18 of cutting of timber regulations state that all timber cut shall be removed from the cutting area to a roadway while harvesting operations are in progress unless otherwise specified in the cutting permit.
- Additional:
  - The Forestry Branch will consult with the Mining and Mineral Development Branch in determining appropriate silviculture buffer distances from the boundaries of sites covered by a quarry permit or quarry lease. In many cases, 100 meters is an appropriate buffer distance that will accommodate discrepancies in plotting. However, in other cases, there may be valuable aggregate resources present and expectations that the area will see proposals for new quarry developments in the foreseeable future, in which case a buffer zone should be specially planned in consultation with Mines. In other cases, where quarry development is expected to proceed slowly, silviculture buffer distances may be much reduced.
  - For mine sites (including all associated infrastructure), an appropriate silviculture buffer distance should be chosen in consultation with the site operator and the Mining and Mineral Development Branch.
  - Mineral exploration activity that proposes to explore or develop within a silviculturally treated area must be undertaken with minimal disturbance and under approval of Forestry Branch. A standard condition has been developed by the Mineral Development Branch and Forestry Services Branch to include as a condition in mineral exploration approvals document where silviculture treatments may be impacted.
  - Mineral exploration and/or development on mineral licenses will not be impeded and will follow government policy. Specific proposed forest management activities are identified in annual operating plans for each upcoming calendar year.
  - Should future quarry or mineral resource developments or exploration programs (i.e., new quarry development, existing quarry expansion, new mine development, exploration for quarry materials, or mineral exploration) be considered by the Forestry Services Branch as having the potential to cause a significant impact on the forest resource and forest resource

users, the Forestry Services Branch will work closely with the Mining and Mineral Development Branch and the proponent to ensure that mutual impacts are minimized.

- For road construction, quarry permits or quarry leases are required only for aggregate material taken outside of the road right-of-way.
- Non-compliance with exploration permits identified by Forestry Branch will be passed to Mining and Mineral Development Branch.
- Many forest access roads and bridges are used by other land users, among them parties carrying out mineral exploration or quarrying. Where possible, the Forestry Services Branch will forward plans to decommission roads or bridges as a matter of course to ensure that all road/bridge rehabilitation and decommissioning plans are reviewed to consider whether mineral exploration, quarrying, or mining may be affected. Plans should be forwarded to MinesBranchReferrals@gov.nl.ca

- The guiding principles for Forest Ecosystem, Utilization of Timber Resource, and additional comments will apply to all crown operations within the province

SECTION 6 MITIGATIONS

6.1 General

SFM follows an adaptive management process. The best management practices adopted from previous planning processes will be incorporated in this plan, several of these include:

- A 30 m buffer will be maintained on lakes and both sides of rivers or brooks that are shown on 1:50,000 topographic maps. Brooks that are found within proposed cut blocks that are not identified on 1:50,000 topographic maps will be evaluated as per the Environmental Protection Guidelines.
- There will be no cutting within 100 meters of the center of Newfoundland T'Railway.
- There will be no cutting buffer within 100 meters of a cabin development area and 30 meters from an approved cabin license.
- Scheduled salmon rivers will be evaluated on a site-by-site basis, and buffers will vary in width from 30 -100 meters.
- No forestry activity is to occur within 800 meters of a bald eagle or osprey nest during the nesting season (March 15 to July 31) and 200 meters during the remainder of the year.
- Within protected water supplies, there will be no cutting within 150 meters of the intake pond or stream and no cutting within 75 meters of the main river channel. There will be no cutting within 50 meters of all ponds and streams flowing into the intake pond or stream.

- All forest activities, including, Road construction, harvesting and Silviculture will follow the most current Environmental Protection Guidelines for Forest Operations in Newfoundland and Labrador.

SECTION 7 STAKEHOLDER CONSULTATION

Forest Resource managers in Canada are striving for a society that successfully integrates economic, environmental and social considerations into all resource-related decision making. Since the early 1990's, there has been a country-wide shift from single resource management to a more comprehensive approach of forest ecosystem management. Sustainable Forest Management (SFM) must be balanced considering social, economic, and environmental issues. In the context of SFM, this shift has resulted in a move from the traditional narrow focus of timber management, to incorporate non-timber values into the management planning framework. Another term that has become closely associated with SFM is "sustainable development" or in this case "sustainable forests", which not only considers the social, cultural, economic, and environmental benefits of the present, but those of future generations as well. Involvement of Interested Stakeholders into the five-year planning process is recognized by the Forestry Services Branch as a key component to achieving sustainable development.

As a result of the 1995 Environmental Preview Report, the Forestry Services Branch adopted an adaptive management planning process, which has three objectives:

1. Establish a productive planning framework to include all stakeholders. An effective planning framework must have information and issues defined at the beginning of the process.

2. Learn more about forest ecosystems while they are being actively managed (i.e. adaptive management). Adaptive management incorporates strategies which help us learn about the forest ecosystem and deal with uncertainties.

3. Establish an ecosystem approach to forest management which integrates the scientific knowledge of ecological relations and limits of growth with social values. This will help to attain the goal of sustaining natural ecosystem integrity and health over the long term.

Adaptive management makes decisions based on input from interested stakeholders and establishes a continuous learning program. The adaptive approach allows us to communicate, share information and learn about forests being managed. This sharing of information, both old and new, then provides the flexibility necessary to adjust to changes and to set new goals. Such interaction is an absolute necessity for a subject as complex as an ecosystem.

7.1 Stakeholder Involvement

Since the mid 1990's, for each five-year plan, the Forestry Services Branch embarked upon a rigorous public consultation process involving a series of meetings spanning a number

of months at an established venue, where interested stakeholders could discuss a range of forest management issues at an operational level.

With respect to the strategic level, in 2025, the Forestry Services Branch released a 10-year Provincial Sustainable Forest Management Strategy (PSFMS) Document (2025-2034), which emerged through wide consultation with citizens of the Province. The 2025-2034 PSFMS builds on the strengths of the previous strategy plans and uses a landscape-scale planning approach to implement the progressive and innovative ecological policies required for Sustainable Forest Management (SFM). The strategy builds on the strengths of the many modern and high-quality forest management programs that are currently being implemented in this province to ensure a vibrant and competitive forest industry.

Considering the many five-year plans successfully implemented within the province since the mid 1990's through public consultation processes and the recent PSFMS developed through public consultations, The Forestry Services Branch strives to improve its methods to garner advice from the public while also mitigating land-use conflicts. To this effect, as new five-year plans are being developed and implemented provincially, relevant issues raised from previous planning processes are considered the foundation of the new plans.

In 2026, in addition to transferring issues/concerns/mitigations from previous planning processes, a revised approach of stakeholder involvement for the development of this plan was implemented. The plan will be available for public comment through the Engage NL online resource. Known interested stakeholders from previous planning processes will be engaged on a "one-on-one" basis to evaluate potential activity prior to the plan submission to the Environmental Assessment Process. Given the very low harvest levels in the previous 5 years and the fact that there has been no change in proposed domestic or commercial harvest areas over several planning periods, it is expected that stakeholder concerns will be very similar for this plan. The results of previous stakeholder involvement are identified in the Mitigations Tables (Appendix 3)

SECTION 8 MANAGEMENT OBJECTIVES AND STRATEGIES

The Forest Service defines sustainable forest management as "the maintenance of the long-term health of forest ecosystems while providing ecological, economic and cultural opportunities for the benefit of present and future generations". Implicit in the definition of ecosystem management are the following four basic ideas:

- It deals with using concepts, principles, and relationships which are not fully understood to make decisions. Management must, therefore, be conservative and adaptive.
- It places emphasis on long-term processes (i.e. ecological rotation)

- It looks to manage the health and vigor of whole ecosystems
- It manages for a broad range of complex social and natural values (i.e. it is humanitarian)

Holling (1978) suggests that adaptive management assumes knowledge is provisional and focuses on management as a learning process or continuous experiment, incorporating the results of previous actions and allowing managers to remain flexible and to adapt to uncertainty. Thus, adaptive management deals with what is not fully understood.

Much of the misunderstanding surrounding ecosystem management is the belief that short-term jobs, goods, services, and profits may have been provided at the possible expense of the long-term health of ecosystems. However, ecosystem management seeks to find a balance between short- term goals, while sustaining the functions and processes of the ecosystems (e.g. providing jobs and preserving the natural habitat of the indigenous wildlife species). Clearly, ecosystem management must be first concerned about the long-term viability of the ecosystems and then, about management of the outputs that can be obtained from them. Without first providing for the long-term health of the ecosystem, how can economic development be sustained?

Society and its economy are linked directly to the ability to manage ecosystems effectively. During the past few years, the province has been facing a crisis due to the collapse of the fishery. Thus, Newfoundlanders and Labradorians are well aware of the consequences of being more concerned about maximizing short-term jobs and profits instead of looking first to properly manage ecosystems. The specter of a similar situation occurring in the terrestrial ecosystem's haunts resource managers. However, this fear can serve as an impetus to ensure that a parallel situation does not happen in the forest industry. Implementing ecosystem management will mean finding new ways and approaches of understanding and managing ecological principles. It is increasingly understood and accepted that society and its economy must change to align itself with the ecosystems in which people live and work, not the reverse.

The Forest Service has spent a great deal of time and energy establishing balances between short-term outputs (primarily jobs) and long-term maintenance of the forest ecosystem. While Forest Service staff recognizes the desperate need for meaningful employment in this province, they recognize the potential long-term damage that can occur to land-based ecosystems and the economy, if short-term goals supersede the forest ecosystem's ability to meet these needs. The task is daunting, reaching far beyond the allocation of a timber resource. This has required the development of partnerships with other resource managers, stakeholders, and the general public. The fundamental issues are establishing trust, building relationships and changing attitudes towards management at the ecosystem level.

8.1 Harvesting

The *Forestry Act, 1990,* has produced a philosophical and pragmatic shift in forestry thinking in Newfoundland and Labrador from an output-oriented management (i.e. timber management) to an ecosystem-based management approach. Ecosystem management is based on the concept of sustainable development, as described by Gro Harlem Brundtland in *Our Common Future* (1987). Section 2 of the *Forestry Act* describes sustained yield forest management as "a policy, method or plan of management to provide for an optimum continuous supply of timber in a manner consistent with other resource management objectives, sound environmental practices and the principle of sustainable development". Further emphasis has been placed on this shift by the *Canada Forest Accord* and the 1992 National Forest Strategy, titled *Sustainable Forest: A Canadian Commitment*, of which the Government of Newfoundland and Labrador is a signatory. The goal of these two initiatives is "to maintain and enhance the long-term health of our forest ecosystems for the benefit of all living things, both nationally and globally, while providing environmental, economic, social and cultural opportunities for the benefit of present and future generations".

The Forest Service recognizes that single resource management is ineffective and too narrow in scope, to adequately address the requirement of managing forest ecosystems. Therefore, a new management strategy was adopted that focuses on ecological principles (i.e. adaptive ecosystem management or ecosystem management).

The management framework is the crucial element within the planning process. It integrates the past, present and future ecosystems into a meaningful context which reflects the aspirations and intentions of the stakeholders.

The model principles within the Terms of Reference reflect the philosophy of the management framework. The less than perfect understanding of all ecosystem's places considerable emphasis on the precautionary requirement, an adaptive approach with the consensual agreement of all stakeholders.

The management framework is outlined by (a) providing a vision statement and guiding principles, (b) identifying key values and associated goals, (c) relating appropriate indicators and objectives, (d) developing an appropriate strategy, and (e) ensuring additional factors, concerns or issues are addressed specifically within the plan or its appendices. The management framework is part of a dynamic process, which stresses continuity over extended time frames.

Also accepted within this context are the following six principles, which are required to support this vision statement and serve as a foundation from which the sustainable forest management framework will be developed:

- Forest ecosystems are managed to maintain their ecological integrity, productive capacity, resiliency and biodiversity.
- Management practices are to respect all forest land use and forest values.
- Partnerships will be fostered to provide meaningful participation in sustainable forest management.
- Economic benefits from the forest resource will be maximized.
- Adaptive management principles are to be applied in the management of forest ecosystems.
- Conservation and compliance that ensures the protection of wildlife and forest ecosystems.

The forest ecosystem includes a multitude of living and non-living components that interact with each other and their environment. This dynamic process, having both spatial and temporal dimensions, is of immense intrinsic value. Its existence influences life on earth, hence values and goals presented can only reflect a small subset of the potential of the forest ecosystem to present or future generations.

Recognizing the magnitude of any attempt to identify or imagine a complete list of values, present and future, adopted from the *Provincial Sustainable Forest Management Strategy,* the following is a broad-based list of **criteria** to be used as a measure of progression towards sustainable forest management within the forest ecosystems of the Province and District 21:

- Biodiversity of ecosystems
- Productivity and health of the ecosystems
- Soil, water, and physical environment conservation
- Forest ecosystem contribution to ecological cycles, both locally and globally
- Multiple benefits to society, both consumptive and non-consumptive
- Sustainable systems that endure through time

8.1.1 Commercial

Commercial operations will be confined to the 23 identified blocks in the plan. In general, mechanical harvesters and conventional harvesting methods will be used in commercial areas. Selective operations will be done manually using chainsaw and will mainly operate during the winter months. It is anticipated that, except for the selective-commercial snowmobile area, all commercial harvesting will be through the clearcut silvicultural system with the retention of non-merchantable and wildlife trees.

8.1.2 Domestic

Domestic harvesting is expected to continue at current levels (~10,000 m3/year) consequently; approximately 60,000 m^3 is estimated to be sufficient to meet district domestic requirements for the next five years. Most domestic cutting will occur near communities in the district. Majority of the domestic wood harvested will be during winter months with snowmobile and chainsaw. This harvesting method will have little environmental effect and ground disturbance within the domestic areas.

8.1.3 Hardwoods

Residents also use white birch (*Betula papyrifera*) for fuelwood and value-added products such as snowshoes. For this, and other domestic uses, white birch within the defined domestic harvesting areas is available for harvest, providing all other conditions (ex. buffers) are adhered to. It is requested that straight stemmed trees with clear boles not be harvested for firewood and left standing for future value-added opportunities.

8.2 Silviculture

Silviculture refers to the theory and practice of controlling the establishment, composition, growth and quality of forest stands to achieve the objectives of management (Smith, Larson, Kelty and Ashton 1997). Two of the most common techniques that are associated with this practice are planting and thinning.

Silviculture activities will focus on monitoring and research with the view of developing an effective silviculture strategy for this District. Possible areas for planting and thinning may be identified, and efforts will focus on the assessment of previous plantations.

8.2.1 Forest Renewal

The silviculture program in District 21 will focus on monitoring and research. However, cutovers which do not regenerate as expected or burns may be identified for planting during the operating period. Further refinements to each project will be described in the Annual Work Schedules developed each year.

8.2.2 Forest Improvement

These areas may also become suitable areas for pre-commercial thinning, hardwood management, or require site preparation in the operating period covered by this plan. Further refinements to each project will be described in the Annual Work Schedules developed each year.

8.3 Access Roads

The construction of an effective road network is essential to ensure the success of commercial operations in the area. To ensure this success, approximately 10 kilometers in total of

primary access road have been proposed for construction during this planning period. Based on current costs this will require a funding commitment well in excess of one million dollars.

Operational roads (secondary and tertiary) are not identified in the five-year plan. However, it may be necessary in order to ensure that the timber scheduled for harvest can be fully accessed. Royalty reductions, as per regulations, will be offered as incentive for commercial operators to construct their own access roads. These roads must adhere to established construction and environmental standards and will be subject to approval by District staff and identified in annual plans. Considering the limited access that currently exists within the District, decommissioning (barring or rehabilitating of access roads) has not been scheduled for this planning period. It will be considered when it is in the interest of protecting sensitive wildlife or fish habitat. Road construction activity will be carried out as per the Environmental Protection Guidelines, which are provided in Appendix III. Certificates of approval must be obtained from the Department of Environment and Conservation for any stream crossing.

8.4 Forest Protection

8.4.1 Insects and Disease

Protection of the region's forests, and related values continue to be a priority in Labrador. The hemlock looper insect control program has not been required since 2009 due to low insect numbers. No treatments are planned during this operating plan period due to expected low numbers. Monitoring for insects will continue with aerial and ground reconnaissance being conducted. The spruce budworm has caused defoliation in the Goose Bay area but there is no recent evidence of damage in this district.

8.4.2 Fire

Resource protection, in particular fire suppression, is necessary to protect Labrador's forest resource and is considered an essential operational activity. Even though large fires are uncommon in the recent past within District 21, forest fire occurrence is unpredictable. We must be prepared to respond quickly to reduce the loss of valuable commercial, recreational and non-commercial values on the landscape.

To determine initial attack strategies the FMD 21 has been loosely sub-divided into the following priority zones: 1) life, 2) property, 3) resources, 4) other.

8.4.3 Windthrow

Due to the old age class structure of the forests in District 21, areas of wind throw in the area is highly likely. Areas of wind throw have been observed on small scales throughout the District however with changing climate conditions with increased wind speeds and occurrences, wind throw will be more prevalent in the District over the next five years. Identified commercial

blocks have targeted some of the oldest stands first to try to salvage the wood before it can blow down. Should the District experience an excess of wind throw, additional measures will be considered. Existing measures for domestic permit holders include wind throw harvest outside of a domestic block with District Manager approval.

8.5 Environmental Protection

8.5.1 General Environment

The Department of Forestry, Agriculture and Lands have developed an Environmental Management System (EMS) that is registered with the International Standards Organization (ISO). As part of this process, an EMS Policy was developed, and proper operating procedures were developed for various forest management activities. Initial registration was on December 17, 2015, and through regular monitoring and audits (internal and external), the EMS remains registered. Under the EMS, the department has developed stringent operating procedures for fuel handling, working around waterbodies, and overall pollution prevention. In addition, inspection programs are implemented are implemented to evaluate forest operations and rectify any deviations from established protocols.

To ensure forestry activity is conducted to minimize any potential negative impacts to the environment, operating procedures and best management practices called Environmental Protection Guidelines (EPG's) have been developed and implemented across the province. Highlights of measures to avoid these impacts include no activity buffer zones, modification of harvesting design and equipment, avoidance of sensitive site during critical periods, consultation with other regulatory agencies, and monitoring.

Through implementation of the EMS and the EPG's, the department strives to be responsible stewards of the land base. Also, the programs illustrated in this document relating to forest protection from Insects and Fires, help to maintain a forested land base. As indicated in previous sections, harvested sites are evaluated for regeneration potential, and proper reforestation techniques are implemented to facilitate tree growth. Maintaining and achieving a stocked forest at the earliest timeframe helps provide carbon storage.

8.5.2 Surveys

Utilization surveys will be conducted on both commercial and domestic cutovers to ensure loss of merchantable timber is minimized. Results of these surveys will be used to evaluate the expected volume in an operating area compared to those actually attained. The results of this survey will help refine inventory deductions in future wood supply analysis.

Reconnaissance and intensive regeneration surveys will be conducted on commercial cutovers in this upcoming five-year period, as well as those created in the past five years to determine the requirement

for silvicultural activity. Reconnaissance surveys will be completed on regenerating stands to determine the suitability for pre-commercial thinning.

8.6 Information and Education

Efforts by District staff to educate and foster new ideas for the public and operators on ecosystem management initiatives will continue within the District. Continued interaction with the public and operators will likely result in better understanding of key management decisions made by managers, and their relationships with the goals and objectives of forest management. During this planning period it is expected that District staff will continue to:

- Deliver presentations to school and youth groups on forest ecosystem management topics.
- Maintain contact and good working relationships with town councils, resource groups, development associations and other Government Departments.
- Conduct operator workshop on various management issues including utilization, ground disturbance and road construction on a regular basis.
- Continue to participate in National forestry and wildlife weeks.

SECTION 9 PROPOSED ACTIVITIES

9.1 Overview

An overview of the proposed forest management activities scheduled for this five-year period (2027-2031) is outlined in appended maps. Activities include: i) commercial and domestic harvesting and ii) road construction.

The District 21 inventoried area has a total of ~230,000 m^3 solid is available for commercial and domestic harvest during the five years covered under this plan. Commercial operations may harvest ~170,000 m^3, which is scheduled to be harvested from twenty-three commercial areas identified. Domestic allocations are expected to continue at ~10,000 m^3/year, for a five-year harvest of 60,000 m^3 total. Most of the domestic harvesting will take place in designated domestic areas near communities.

Silviculture activities, namely planting, if required will be applied using a prescription approach during this planning period. Other activities will focus on monitoring and research with the intent of adapting an effective long-term strategy for the District.

Considerable amounts of primary and secondary access road will be required to be constructed to access commercial timber resources outlined in this planning period. Road construction will occur in three of the four planning areas. Access roads will also support other activities such as fire suppression, silviculture initiatives, and monitoring activities. Operational activities described in the following section should be considered within the context of the provincial sustainable forest management strategy.

9.2 Allocation of Timber Supply

Environmental Protection Guidelines were developed through the review of scientific literature, input from various Provincial and Federal Government departments and local stake holders (Appendix III). Any significant changes will be implemented immediately. All harvesting operations in the district will be subject to these guidelines along with the permit conditions and any requirements outlined in the five-year operating plan or the strategy document.

If the district experiences an excessive amount of windthrow, salvage areas will be considered and identified for both commercial and domestic harvesting. If required, amendments to the plan will be made to cover this activity.

The total volume identified may be over the final AAC for the district, but when scheduling activity, the maximum sustainable harvest over the five-year period will not be exceeded.

TABLE 9 PROPOSED FOREST HARVEST

	PROPOSED HARVEST TOTAL VOLUME m^3				
HARVEST TYPE	Core Softwood	Operationally Constrained Softwood	Core Hardwood	Operationally Constrained Hardwood	TOTAL
COMMERCIAL	285,165		24,482		309,647
DOMESTIC	55,000		5,000		60,000
TOTAL	340,165		29,482		369,647

9.2.1 Commercial

Commercial permits will be issued annually for the period of January 1 – December 31 upon approval from the District office. Currently there is additional AAC for allocation to new commercial permits or to increase allocations to existing permits.

Consideration will be given to existing commercial operators for increases in their allocations before any new permits are issued in the District. Increases in permit allocations will be subject to evaluation by the Forest Service and linked to local value-added processing capacity in the District.

All commercial operations will be scheduled to occur in the twenty-three operating blocks identified in this plan. Appendix 1 maps show the locations of these areas. Further refinements to the operating blocks accounting for site specific features will be made in the annual work schedule prior to the beginning of each operating year. An additional net down of -20% has been applied to the anticipated volume from each operating block to account for stand-level features that require protection.

Majority of the commercial harvesting in the district will utilize mechanical equipment such as mechanical harvesters and forwarders. Harvesting commercial timber on a small scale using manual cutters or some combination of both harvesting systems is expected. All commercial

harvesting will be through the clear-cut silvicultural system; full tree harvesting will not be permitted.

Permits <385 m^3 will be considered small scale commercial operations. These operations generally use chainsaws and most likely operate during the winter months. Furthermore, they will generally harvest areas that do not have road access and areas that cannot be accessed by mechanical equipment.

Proposed commercial harvesting is summarized in table below.

TABLE 10 FMD 21 PROPOSED COMMERCIAL HARVESTING

Operating Area FMD 21				Proposed Commercial Harvest Volume (m^3)							
				SOFTWOOD					HARDWOOD		
Name	OA	Tenure	Area (ha)	Number of Permits	Core	Operationally Constrained	Total	Non AAC	Core HW	Incidental HW	Total
1 Mary's Harbour	C21002	Crown	68		6,077		6,077		123		
Alexis River 2	C21003	Crown	74		4,028		4,028		119		
Alexis River 1	C21004	Crown	144		12,256		12,256		2,808		
Noralls Pond 3	C21005	Crown	142		9,972		9,972		2,264		
Noralls Pond 2	C21006	Crown	65		7,662		7,662		294		
Winter Block 7	C21007	Crown	38		3,504		3,504		86		
Winter Block 4	C21008	Crown	36		3,594		3,594		130		
Alexis to Gilberts 1	C21009	Crown	348		41,276		41,276		1,772		
A1 Alexis to Gilberts	C21010	Crown	17		1,745		1,745		658		
A3 Alexis to Gilberts	C21011	Crown	208		20,594		20,594		750		
Alexis to Gilberts 3	C21012	Crown	114		11,286		11,286		312		
Alexis to Gilberts 4	C21013	Crown	116		11,238		11,238		422		
Alexis to Gilberts 5	C21014	Crown	161		18,564		18,564		816		
Winter Block 2	C21015	Crown	103		8,335		8,335		1,482		
Winter Block 5	C21016	Crown	405		46,501		46,501		7,059		
Winter Block 6	C21017	Crown	120		12,679		12,679		2,650		
Winter Block 3	C21018	Crown	7		551		551		6		
Winter Block 1	C21019	Crown	19		2,653		2,653		120		
Charlottetown 1	C21020	Crown	138		14,605		14,605		664		
Charlottetown 3	C21021	Crown	189		15,535		15,535		613		
Charlottetown 4	C21022	Crown	263		24,210		24,210		1,157		
Charlottetown North 2	C21023	Crown	69		6,190		6,190		162		
		TOTAL:	**2,844**		**283,055**	**0**	**43,499**	**0**	**24,467**	**0**	**0**

9.2.2 Fuel Reduction Zone

A fuel reduction zone plays a vital role in protecting Port Hope–Simpson from the growing threat of wildfires, and its importance is amplified by the fact that the community itself approached the Department of Forestry, Agriculture, and Lands (FAL) to propose this initiative. Their proactive leadership demonstrates a clear understanding of local wildfire risks and a commitment to long-term safety.

The fuel reduction area is identified as **Operating Area CC21001** in this current five-year operating plan.

A designated fuel reduction zone like CC21001 provides several key benefits:

- Slows the spread of wildfire by reducing the amount of flammable vegetation surrounding the community.
- Lowers fire intensity, making suppression efforts more effective and reducing the likelihood of crown fires.
- Protects homes, infrastructure, and evacuation routes by creating a buffer where fire behaviour is more predictable and manageable.
- Improves firefighter access and safety, especially critical in remote regions where response times can be longer.
- Strengthens community resilience, ensuring Port Hope–Simpson is better prepared for increasingly severe wildfire seasons.

By initiating the idea and supporting the designation of Operating Area CC21001 as a fuel reduction zone, Port Hope–Simpson is taking a forward-thinking, community-driven step to safeguard residents, property, and essential infrastructure from future wildfire threats.

TABLE 11 FMD 21 PROPOSED FUEL REDUCTION ZONE

Name	OA	Tenure	Area (ha)	Number of Permits	Core	Operationally Constrained	Total	Non AAC	Core HW	Incidental HW	Total
1 Port Hope Simpson	C21001	Crown	48		2110		2110		15		2,125

9.2.3 Domestic

The harvesting of fuelwood, sawlogs and building materials by residents for domestic use will continue under a domestic permit, primarily in the twelve areas identified in this plan. Domestic permit sales are expected to remain relatively stable over the five years of this plan. On average 420 domestic permits are issued each year in the District. These permits are available in person,

online or by mail from any Forest Service office in the District. Domestic harvesters must wait until receiving their original domestic permit before harvesting activity can commence.

Domestic permits will be issued for the requested amount up to a maximum volume of 23 m^3/permit for the period from January 1 to December 31 each year, unless otherwise stated. Analyses of domestic returns have indicated that on average each permit holder is harvesting 16 m^3/year. The Forest Service will work over this planning period to gather more domestic harvesting data through mandatory regulatory returns, spot checks and random surveys. Each harvester is eligible to select a primary and secondary cutting area which will be shown on the permit. These areas are generally located close to the communities and are identified in appendix 1 maps and area sizes and volumes are depicted in Table 9. Permits, maps and conditions are required to be on person while harvesting and should be ready if checked by a Forestry Official. Domestic wood cutters will be encouraged to harvest insect killed wood.

Consensus was reached among local planning members that the following exceptions should apply to domestic harvesting in buffers:

1. Domestic harvesters should be allowed to harvest specialized boat timbers in any buffer.
2. Domestic harvesters should be able to cut dry wood or salvage blow-downs within the 100m buffer of the Trans-Labrador Highway.

These activities will require prior approval from District staff and occur within existing legislation. These activities will be closely monitored and subject to review on an annual basis. Modifications to these practices may be recommended as required.

Small volumes of wood are expected to be harvested outside of the identified domestic areas by cabin owners. Requests for domestic harvesting blocks outside the identified areas will require prior approval from District staff. Such operations will be monitored and will be subject to review on an annual basis. Modifications to this practice may be recommended and enforced as required.

Proposed domestic harvesting is summarized in table below.

TABLE 12 PROPOSED DOMESTIC HARVESTING

Proposed Domestic Harvest FMD 21				Estimated 5 Year Volume (m3)	
OA Name	OA #	Area (ha)	Number of Permits	Softwood	Hardwood
Forteau	CC21501	24,519	32	715	
Fox Pond	CC21502	84,955	3	75	
Upper Pinware	CC21503	109,833	4	89	
Lanse au Loup	CC21504	31,194	36	790	
Pinware West	CC21505	60,140	25	572	
Barge to Temple Bay	CC21506	97,705	19	420	
Chateau Pond	CC21507	48,922	2	40	
Pinware River FA	CC21508	34,043	14	312	
Charlottetown 3	CC21509	6,221	42	956	
Alexis to Gilberts 2	CC21510	9,651	10	232	
St. Lewis River 2	CC21511	31,981	17	379	
St. Lewis River 1	CC21512	49,102	29	641	
Mary's Harbour 1	CC21513	45,669	44	991	
Port Hope Simpson 2	CC21514	14,746	5	110	
Port Hope Simpson 1	CC21515	24,480	81	1855	
Lodge Bay 1	CC21516	22,021	18	432	
Charlottetown 5	CC21517	10,181	3	68	
Charlottetown 4	CC21518	13,637	6	135	
Charlottetown 1	CC21519	7,063	18	396	
Charlottetown 2	CC21520	6,531	14	442	
Total:			422	9,650	

9.3 Silviculture

Silviculture refers to the theory and practice of controlling the establishment, composition, growth and quality of forest stands to achieve the objectives of management (Smith, Larson, Kelty and Ashton, 1997). In the past, two of the most common techniques in District 21 are planting and pre-commercial thinning.

Historically, forest stands in District 21 have been subject to large scale disturbances including fire and harvesting. The occurrence of major fires in the district has had a strong influence on existing distribution of vegetation types including lichen woodlands and birch stands. Foster (1983) reported a strong correlation between fire distribution over the past 110 years and the location of lichen woodlands and birch stands.

Regeneration surveys completed in the district have indicated that the majority of the harvested areas adequately regenerate within a five year period and this can be easily seen on recent cutovers in the

District. Although no regeneration surveys have been conducted in burn areas, observations have indicated that some of these areas have not been regenerating as fast. Many factors may have contributed to this slower regeneration time such as pre-disturbance site characteristics, seed sources, repetitive burns or fire temperatures. Harvested areas will be monitored and detailed regeneration surveys will be conducted in areas where regeneration appears to be inadequate three to five years after the disturbance.

The primary silviculture prescription for this planning period will be planting/gap planting and if required, site preparation to prepare the site for planting. Stands harvested in the past five years or those scheduled for harvest in this plan or burn areas not adequately regenerating will be treated as candidate areas for planting. Any stands harvested during this plan will be located within the proposed commercial blocks outlined in Appendix 1. Selection of the species to be planted will be highly dependent upon the pre-disturbance stand structure and will be dealt with on a site-specific basis.

9.4 Primary Access Roads and Bridges

The system of resource access roads in the district is acceptable for the level of commercial forestry operations existing today, but for full harvest of the allocation to occur, additional road infrastructure is needed.

Road network construction is essential to the success of harvesting (domestic and commercial) operations, silviculture treatments and fire suppression in the district. In the past, all road construction in District 21 was constructed under the Provincial access road program, under the Forestry Services Branch. The anticipated road network to access the commercial harvesting areas for this operating period is summarized in table 9. Construction each year will depend on the amount of money available in the roads budget.

TABLE 13 TABLE 13: PROPOSED ROAD CONSTRUCTION

Proposed Road Activity FMD 21					
Area Name	OA #	Construction (Length km)	Reconstruction (Length Km)	Water Crossings	
				Culvers	Bridges
A3 Alexis to Gilberts	C21011	1.7			
Alexis to Gilberts 3	C21012	1.7			
Alexis to Gilberts 5	C21014	1.6			
Charlottetown 4	C21022	1.5			
Alexis River 1	C21004	1.7			
Alexis River 2	C21003	1			
Winter Block 6	C21017	0.5			
	Total:	9.7	0	0	0

Operational roads (secondary or spur) are not identified in this five-year plan. However, it will be necessary to ensure that timber scheduled for harvest is fully accessed. Operators will have to construct short spur roads to access all timber in each harvesting block. Royalty reductions, as per regulations, are offered as incentive for commercial operators to construct their own access. These roads are subject to established environmental standards and are subject to approval by District staff. Operator-built roads will be identified during the preparation of the annual work schedules.

Due to the relative lack of existing forest access roads, decommissioning was not considered by the stakeholders during this planning period. A detailed review of the access roads program will be undertaken towards the end of the planning period to establish whether or not decommissioning will be required during the next planning horizon. Individual operators will be expected to rehabilitate extraction trails to a standard acceptable to district guidelines.

Road construction activity will be carried out as per Forest Service specifications and the Environmental Protection Guidelines, which are provided in Appendix III. Under section 48 of the *Water Resources Act*, certificates of approval will be obtained from the Water Resources Management Division of the Department of Environment and Conservation for any culvert or bridge crossing. In addition, approval under section 5(1) of the *Navigable Waters Act* (NWPA) will also be obtained for any water crossing prior to the commencement of any work. An effort will be made to increase the number of bottomless culverts used on all fish bearing streams (1.0 m or greater).

The Forest Service will continue to work with the Department of Environment and Climate Change and the Department of Fisheries and Oceans to ensure unimpeded fish passage in all stream crossings involved in this and other operating plans.

9.5 Activities in Protected Water Supply Areas

There will be no commercial or domestic harvesting scheduled or permitted in either of the protected water supply areas. Furthermore, these protected areas will be identified on domestic maps supplied to harvesters and enforced as no cutting areas.

9.6 Surveys

Surveys are important management tools that are necessary to evaluate past action and provide data on which to base future management decisions. Several surveys are scheduled for this upcoming planning period subject to adequate staffing and budgets.

Proposed harvesting areas will be surveyed for sensitive habitats such as the presence of raptor nesting sites, critical spawning areas and the presence of aquatic furbearers. Detailed harvest sensitivity surveys (slope and drainage) may also be conducted to identify areas with high soil

compaction and erosion hazard potential. Results of the pre-harvest surveys will be used in the final determination of the harvest block layouts.

Regeneration surveys will be conducted in areas that have been disturbed (harvesting or fire) to determine the quantity and quality of natural regeneration. Areas will normally be surveyed three to five years after the disturbance to allow sufficient time for seedling establishment. Surveys will be conducted as outlined in the Regenerations Assessment Procedures by the Newfoundland and Labrador Forest Service.

Problems with improper utilization will be addressed through regular monitoring and enforcement by District Conservation Officers. Formal surveys, defined by the Newfoundland Forest Service, will be carried out to obtain baseline data or to resolve disputes.

While these surveys are necessary to measure the immediate impact of activities on the ecosystem, mechanisms to monitor change over the long term are also necessary. An important component of this long-term monitoring is the establishment and re-sampling of permanent sample plots and temporary sample plots in the District. In addition to obtaining growth and yield information, data pertaining to site, course woody debris and the presence of small mammals and songbirds will be recorded and monitored over time.

These surveys, as defined in the Ground Disturbance Survey Guidelines developed by the Newfoundland Forest Service, will be conducted following harvesting in conjunction with the utilization surveys. These surveys will ensure compliance with the site disturbance and erosion sections of the Environmental Protection Guidelines.

9.7 Information and Education

Public awareness and education are a high priority for the Forest Service in District 21. Educating the public on best management practices is necessary and has proven beneficial. Staff will take part in several activities to ensure good communication and relations between the Forest Service and communities, such activities include visiting the local schools for presentations, career fairs, forestry and wildlife week and to judge science fairs. Some promotional materials will be distributed during special occasions. Throughout the life of this plan, we hope to build on the success of these activities.

SECTION 10 PLAN ADMINISTRATION

10.1 Monitoring

A monitoring committee, consisting of representatives from each stakeholder group, may be established to evaluate the results of the activities planned in this document. The Forest Services Branch will determine representation on this monitoring committee. The focus of the committee will be to monitor activities and evaluate the overall progress towards the long-term

goals outlined in this document and in the *Provincial Sustainable Forest Management Strategy 2025-2034* and make recommendations to the Forest Service where necessary. The Forest Service will prepare an annual work schedule for each operating year, which will be reviewed by the monitoring committee.

Adaptive management can be defined as a systematic process for continually improving management policies and practices by learning from the outcomes of operational programs. Furthermore, research and monitoring are key components of this process. During the planning process several research and monitoring initiatives were identified by local stakeholders. Subject to operational funding, this plan will follow the various research and monitoring initiatives, which are described in further detail in the PSFMS.

Some of the broad-scale research topics that will attempt to be targeted in this operating period are:

- Modification of harvest patterns
- Growth and yield data for strata
- Updated forest inventory and acquisition of new inventory areas
- Wind throw management regimes
- Visual assessment of forest harvesting (view sheds)
- Impacts of timber harvesting (ecological, social and economic)

Site specific information is also a key element in adaptive management. They provide benchmark data to base and evaluate forest management decisions. Numerous surveys are planned for this operating year, subject to funding and availability of staff, to provide this base line data.

10.2 Operational

Both short- and long-term monitoring are integral to the adaptive management process. District staff will monitor harvesting operations to ensure compliance with terms set out under the Forestry Act and with guidelines set out under this Five-Year Operating Plan. Long term monitoring will also continue for existing cutovers and silviculturally treated areas. Inspections will include documentation, reports, results and corrective actions if required.

10.3 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 Forest Service and one that

must be submitted to the Environmental Assessment Division for public review. Changes to this plan can be approved by the Forest Service if they are:

1. 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.
2. 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.
3. 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.
4. 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. Once approved through EA the amendment still must be approved by the Ecosystem Management Division of the Forest Service. Amendments requiring submission through EA will be reviewed by the planning team. Other amendments may also be reviewed by the monitoring committee if the District Manager deems that they represent a significant change to the plan.

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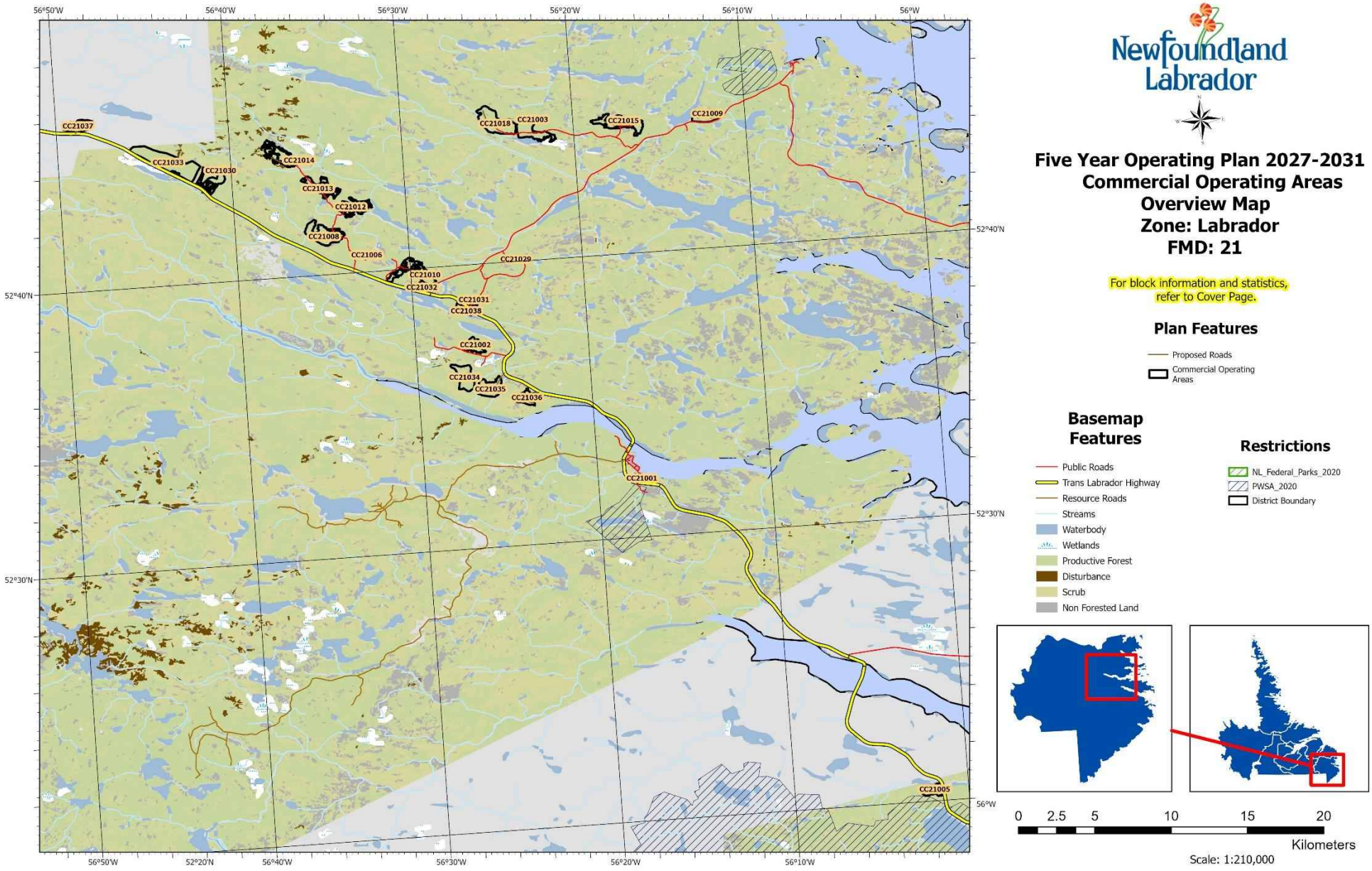
Appendix 1 - Overview and Individual Harvesting Maps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CC21001
CC21005
Newfoundland Labrador
Five Year Operating Plan 2027-2031
Commercial Operating Areas
Overview Map
Zone: Labrador
FMD: 21
For block information and statistics, refer to Cover Page.
Plan Features
Proposed Roads
Commercial Operating Areas
Basemap Features
Public Roads
Trans Labrador Highway
Resource Roads
Streams
Waterbody
Wetlands
Productive Forest
Disturbance
Scrub
Non Forested Land
Restrictions
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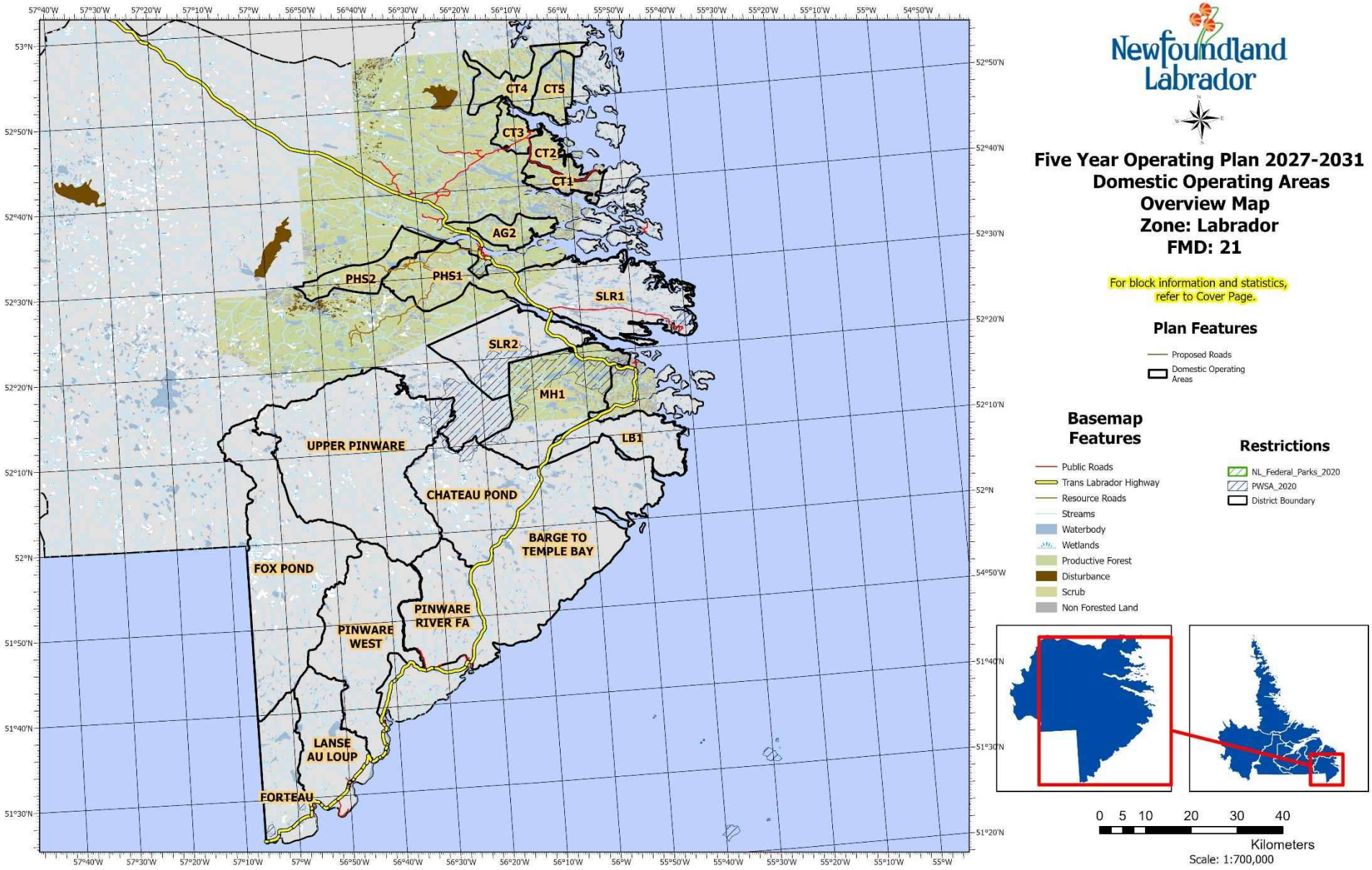
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CT5
CT3
CT2
CT1
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PHS2
PHS1
SLR1
SLR2
MH1
LB1
UPPER PINWARE
CHATEAU POND
BARGE TO TEMPLE BAY
FOX POND
PINWARE RIVER FA
PINWARE WEST
LANSE AU LOUP
FORTEAU
Newfoundland Labrador
Five Year Operating Plan 2027-2031
Domestic Operating Areas
Overview Map
Zone: Labrador
FMD: 21
For block information and statistics, refer to Cover Page.
Plan Features
Proposed Roads
Domestic Operating Areas
Basemap Features
Public Roads
Trans Labrador Highway
Resource Roads
Streams
Waterbody
Wetlands
Productive Forest
Disturbance
Scrub
Non Forested Land
Restrictions
NL_Federal_Parks_2020
PWSA_2020
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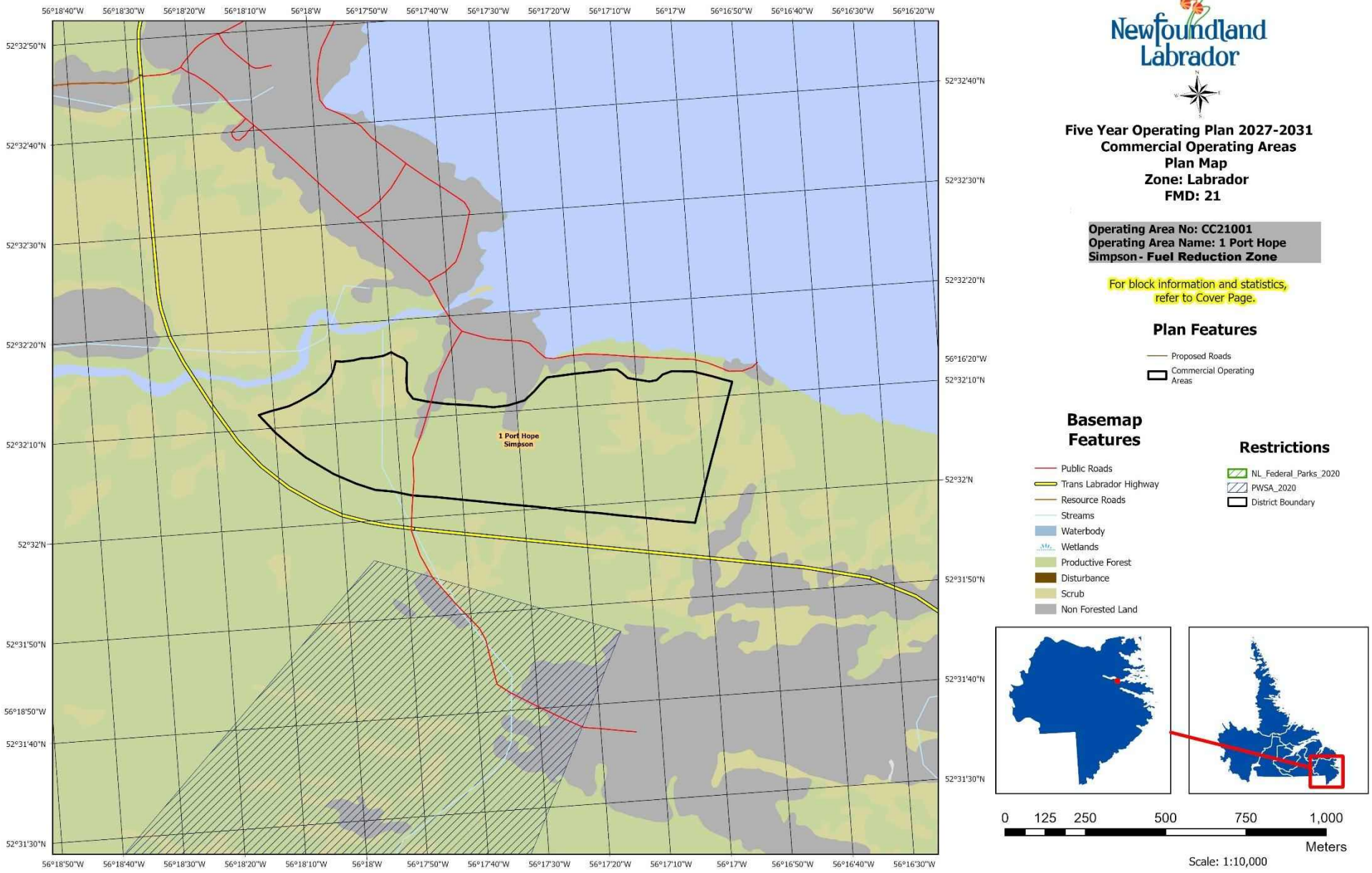
Kilometers
Scale: 1:700,000


Newfoundland Labrador
Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21
Operating Area No: CC21001
Operating Area Name: 1 Port Hope Simpson - Fuel Reduction Zone
For block information and statistics, refer to Cover Page.
Plan Features
Proposed Roads
Commercial Operating Areas
Basemap Features
Public Roads
Trans Labrador Highway
Resource Roads
Streams
Waterbody
Wetlands
Productive Forest
Disturbance
Scrub
Non Forested Land
Restrictions
NL_Federal_Parks_2020
PWSA_2020
District Boundary
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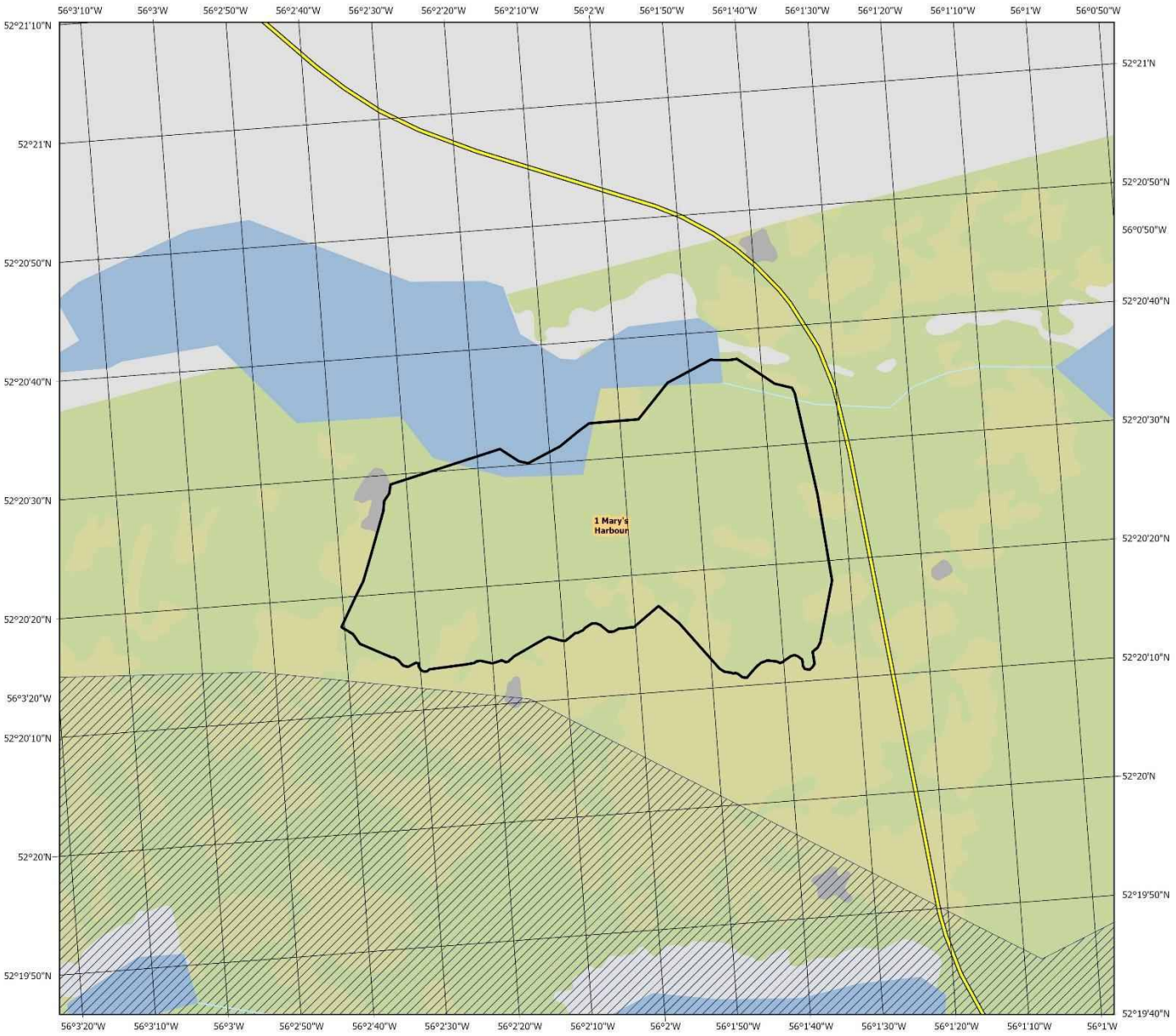


Newfoundland Labrador

Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21

Operating Area No: CC21002
Operating Area Name: 1 Mary's Harbour

For block information and statistics, refer to Cover Page.

Plan Features

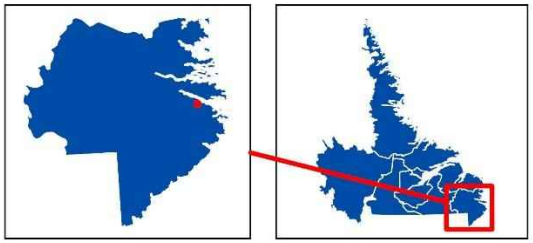
- Proposed Roads
- Commercial Operating Areas

Basemap Features

- Public Roads
- Trans Labrador Highway
- Resource Roads
- Streams
- Waterbody
- Wetlands
- Productive Forest
- Disturbance
- Scrub
- Non Forested Land

Restrictions

- NL_Federal_Parks_2020
- PWSA_2020
- District Boundary



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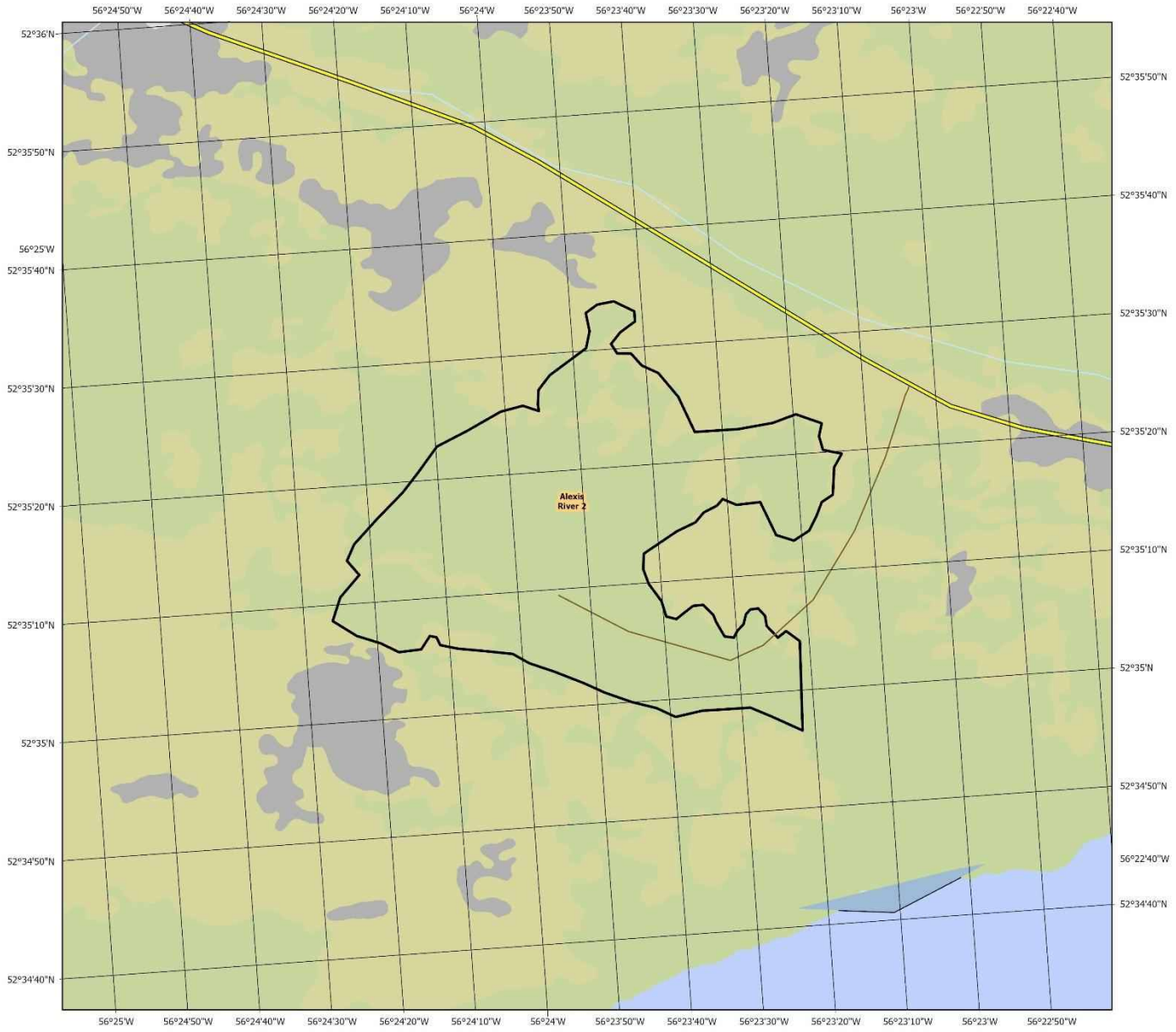


Newfoundland Labrador

Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21

Operating Area No: CC21003
Operating Area Name: Alexis River 2

For block information and statistics, refer to Cover Page.

Plan Features

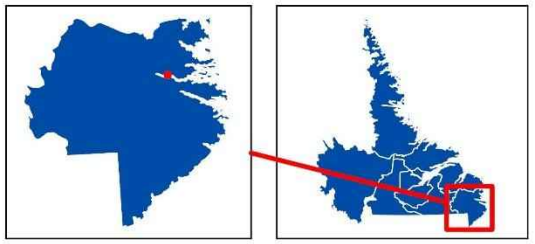
- Proposed Roads
- Commercial Operating Areas

Basemap Features

- Public Roads
- Trans Labrador Highway
- Resource Roads
- Streams
- Waterbody
- Wetlands
- Productive Forest
- Disturbance
- Scrub
- Non Forested Land

Restrictions

- NL_Federal_Parks_2020
- PWSA_2020
- District Boundary



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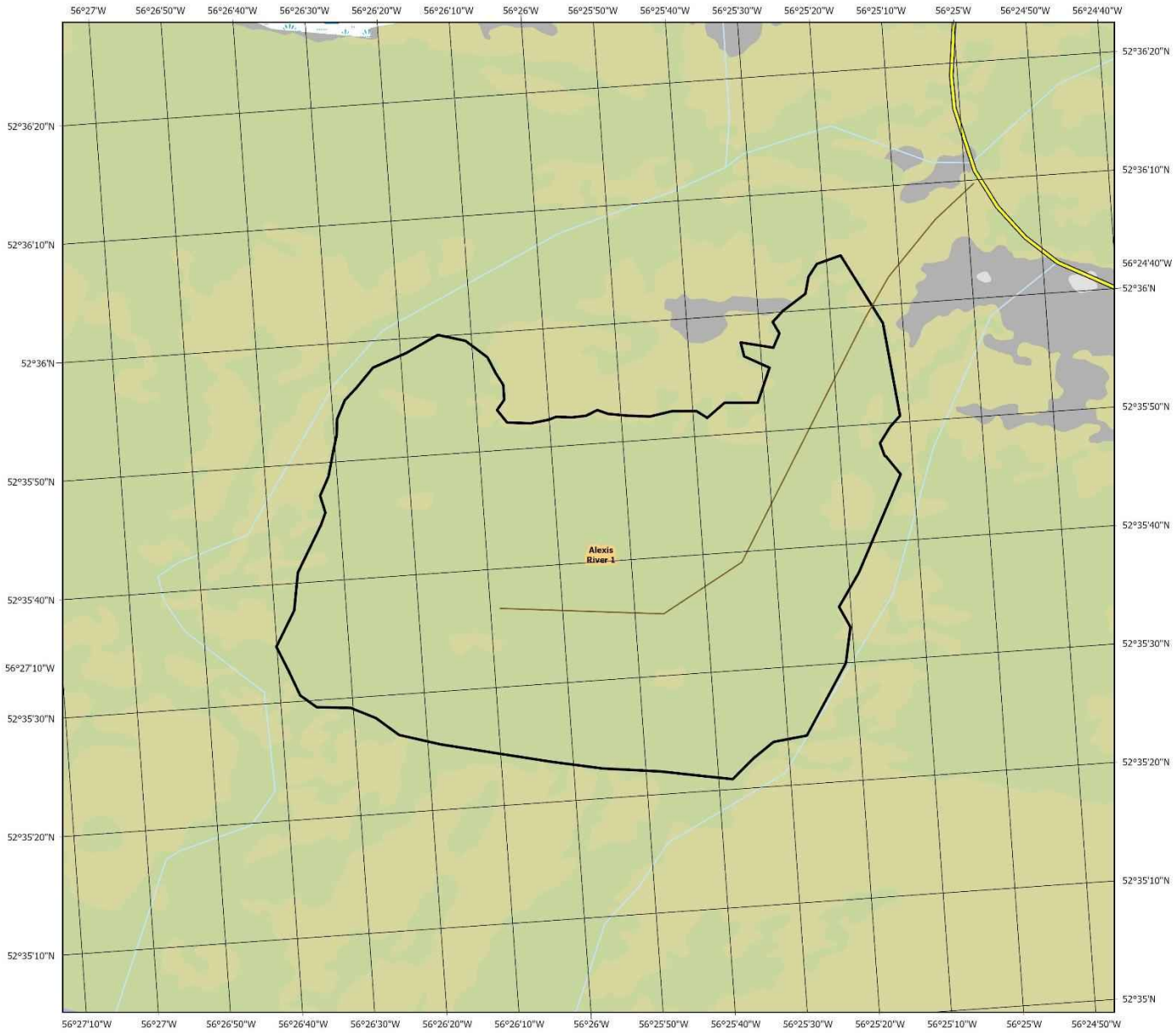


Newfoundland Labrador

Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21

Operating Area No: CC21004
Operating Area Name: Alexis River 1

For block information and statistics, refer to Cover Page.

Plan Features

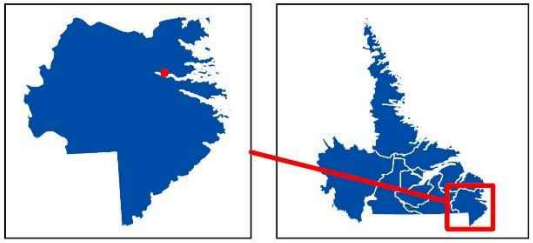
- Proposed Roads
- Commercial Operating Areas

Basemap Features

- Public Roads
- Trans Labrador Highway
- Resource Roads
- Streams
- Waterbody
- Wetlands
- Productive Forest
- Disturbance
- Scrub
- Non Forested Land

Restrictions

- NL_Federal_Parks_2020
- PWSA_2020
- District Boundary



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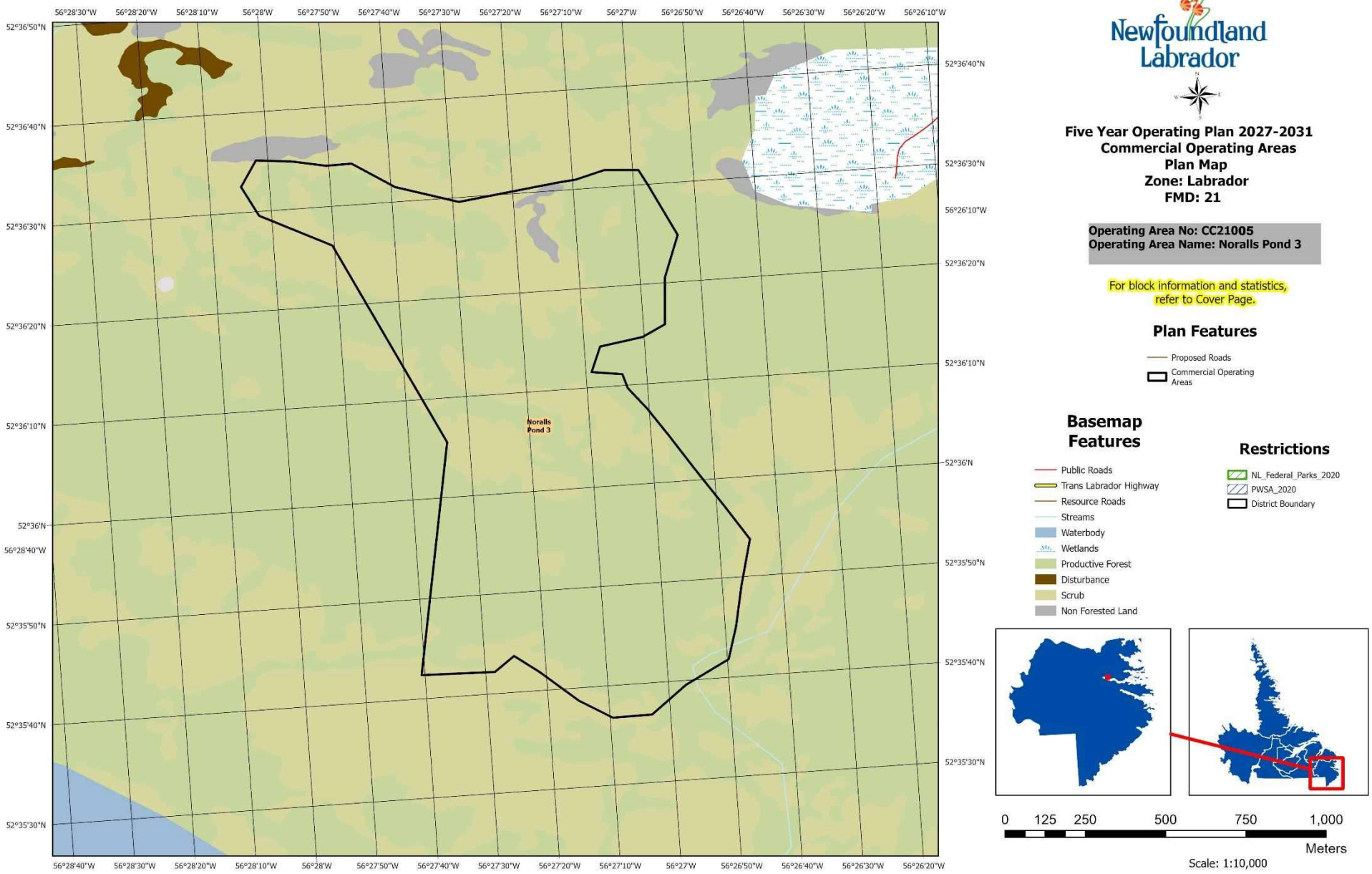
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56°27'10"W
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56°26'20"W
56°26'10"W
52°36'50"N
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52°36'20"N
52°36'10"N
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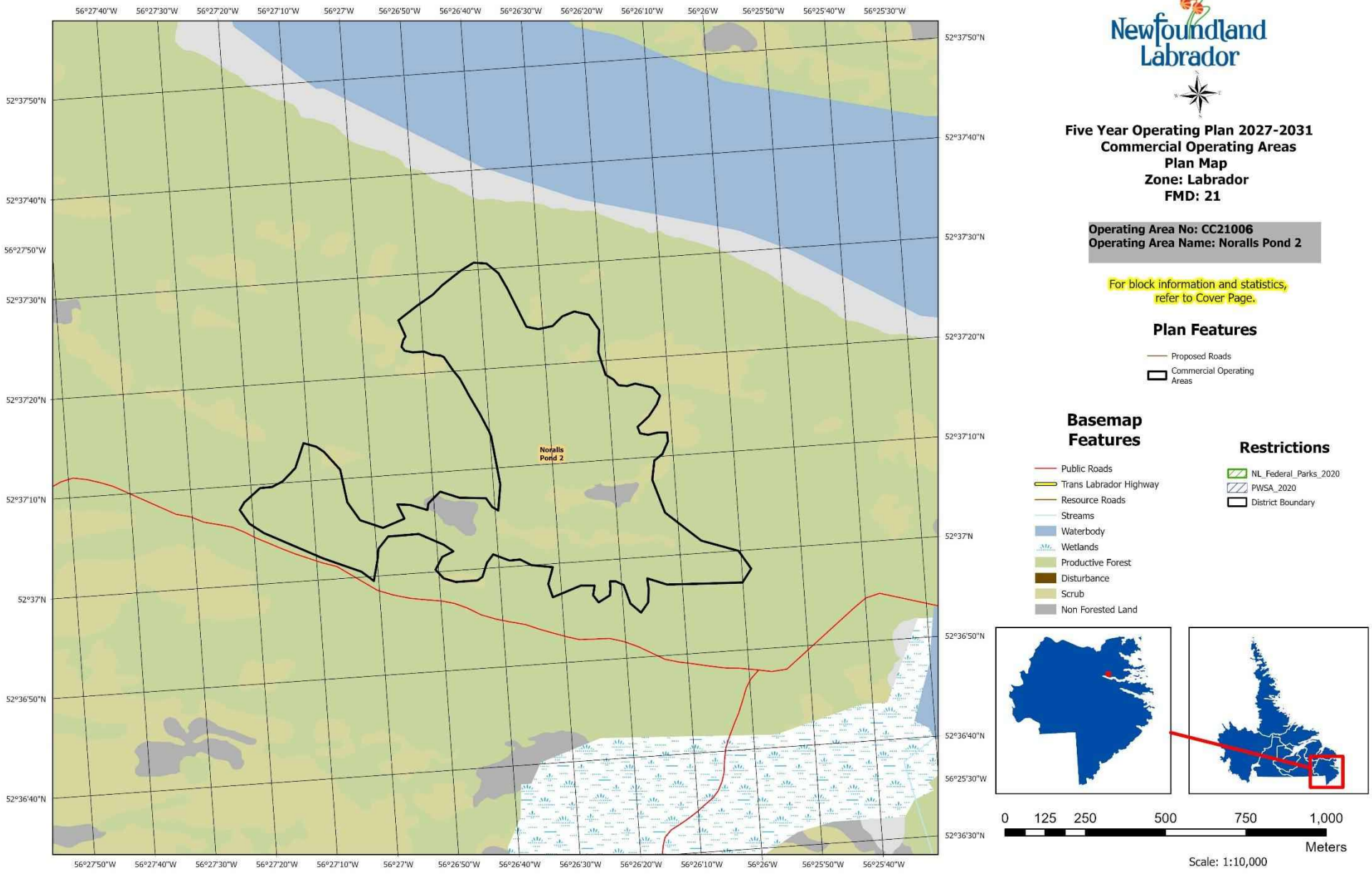
52°35'40"N
52°35'30"N
Noralls Pond 3
Newfoundland Labrador
Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21
Operating Area No: CC21005
Operating Area Name: Noralls Pond 3
For block information and statistics, refer to Cover Page.
Plan Features
Proposed Roads
Commercial Operating Areas
Basemap Features
Public Roads
Trans Labrador Highway
Resource Roads
Streams
Waterbody
Wetlands
Productive Forest
Disturbance
Scrub
Non Forested Land
Restrictions
NL_Federal_Parks_2020
PWSA_2020
District Boundary
0 125 250 500 750 1,000
Meters
Scale: 1:10,000


Newfoundland Labrador
Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21
Operating Area No: CC21006
Operating Area Name: Noralls Pond 2
For block information and statistics, refer to Cover Page.
Plan Features
Proposed Roads
Commercial Operating Areas
Basemap Features
Public Roads
Trans Labrador Highway
Resource Roads
Streams
Waterbody
Wetlands
Productive Forest
Disturbance
Scrub
Non Forested Land
Restrictions
NL_Federal_Parks_2020
PWSA_2020
District Boundary
Noralls Pond 2
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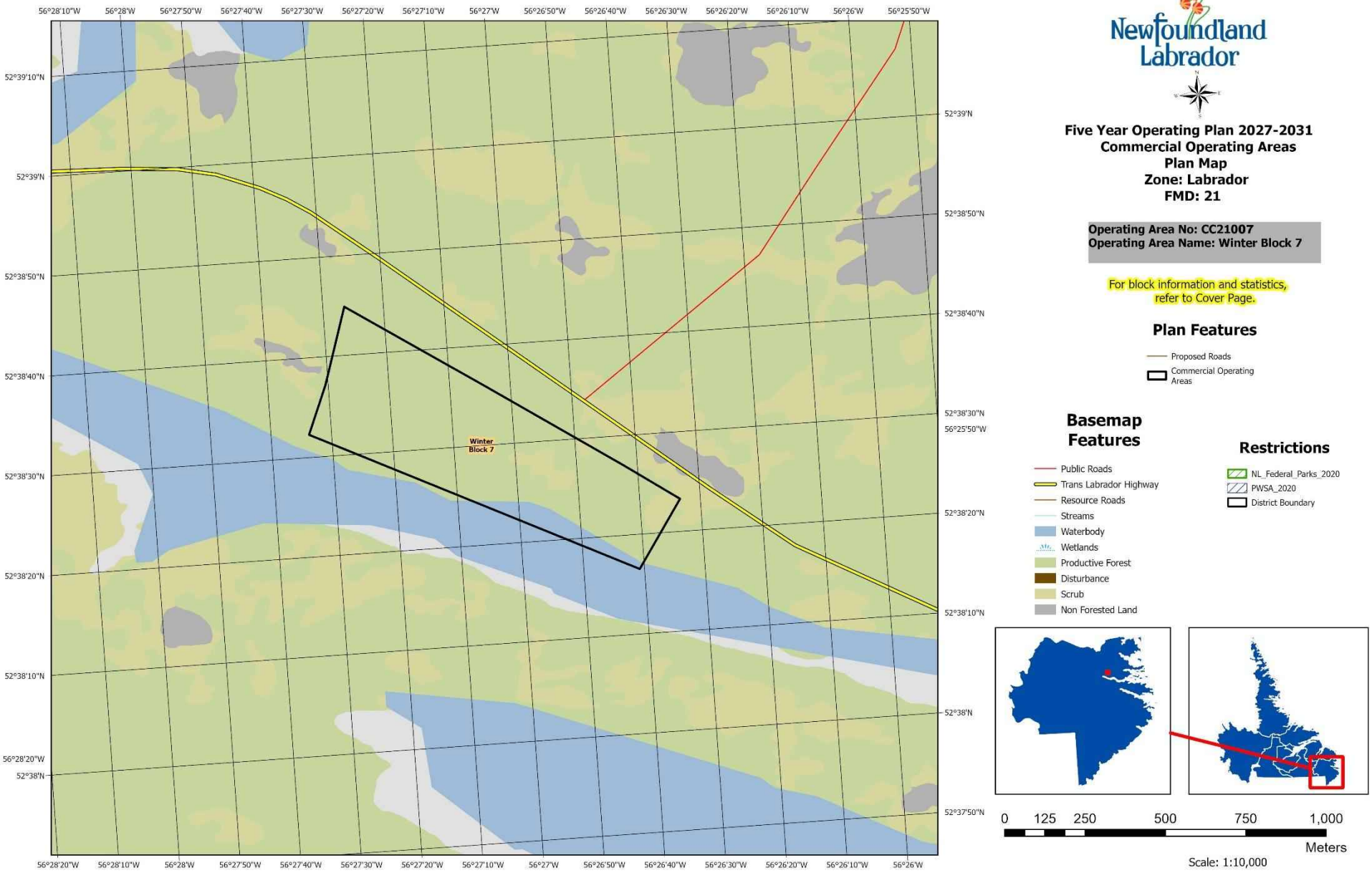
Meters
Scale: 1:10,000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56°26'10"W
56°26'W
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52°39'N
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52°38'30"N
52°38'20"N
52°38'10"N
52°38'N
52°37'50"N
56°28'20"W
56°25'50"W
Winter Block 7
Newfoundland Labrador
Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21
Operating Area No: CC21007
Operating Area Name: Winter Block 7
For block information and statistics, refer to Cover Page.
Plan Features
Proposed Roads
Commercial Operating Areas
Basemap Features
Public Roads
Trans Labrador Highway
Resource Roads
Streams
Waterbody
Wetlands
Productive Forest
Disturbance
Scrub
Non Forested Land
Restrictions
NL_Federal_Parks_2020
PWSA_2020
District Boundary
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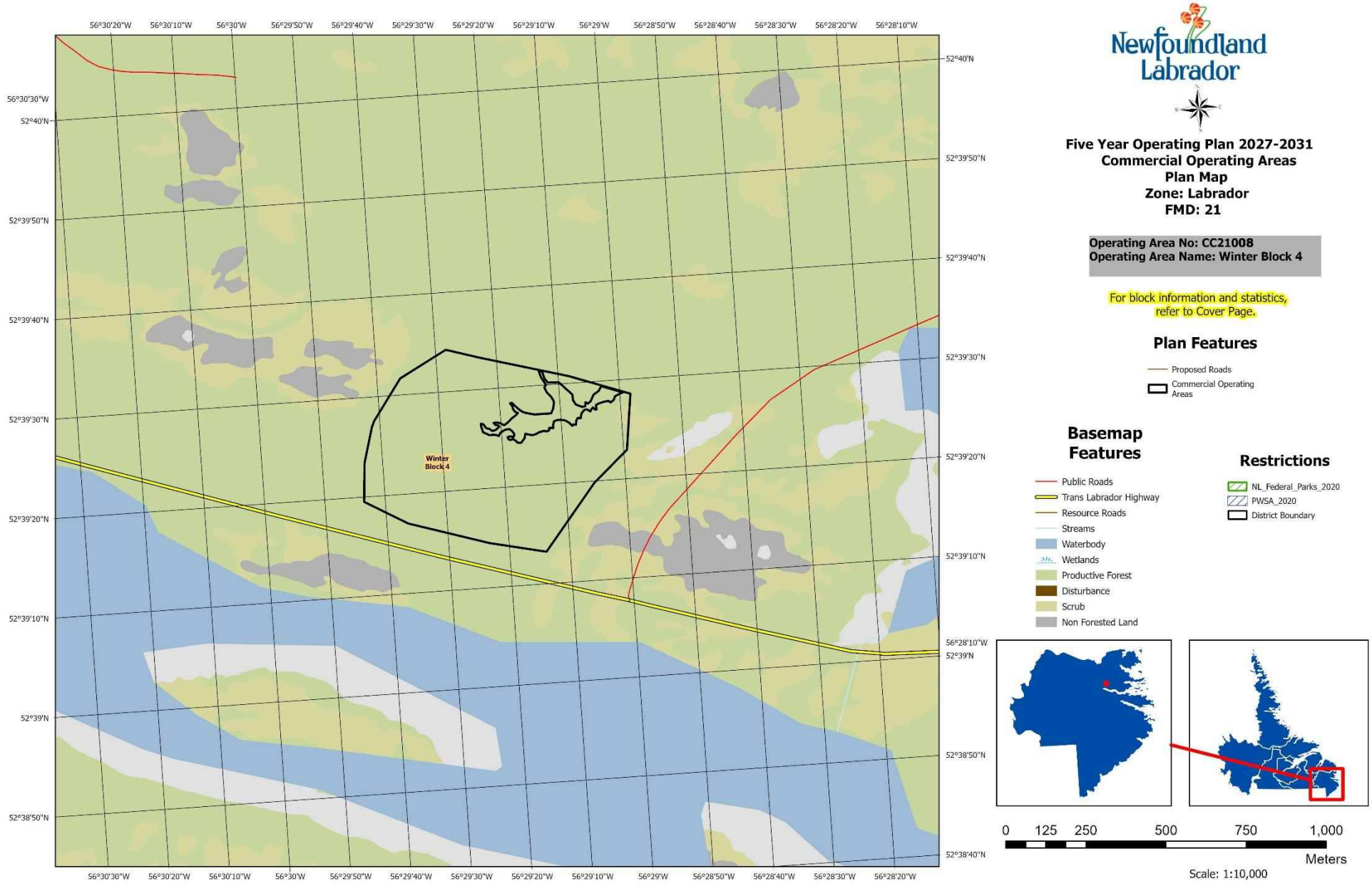
Scale: 1:10,000


Newfoundland Labrador
Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21
Operating Area No: CC21008
Operating Area Name: Winter Block 4
For block information and statistics, refer to Cover Page.
Plan Features
Proposed Roads
Commercial Operating Areas
Basemap Features
Public Roads
Trans Labrador Highway
Resource Roads
Streams
Waterbody
Wetlands
Productive Forest
Disturbance
Scrub
Non Forested Land
Restrictions
NL_Federal_Parks_2020
PWSA_2020
District Boundary
Winter Block 4
56°30'20"W
56°30'10"W
56°30'W
56°29'50"W
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52°39'N
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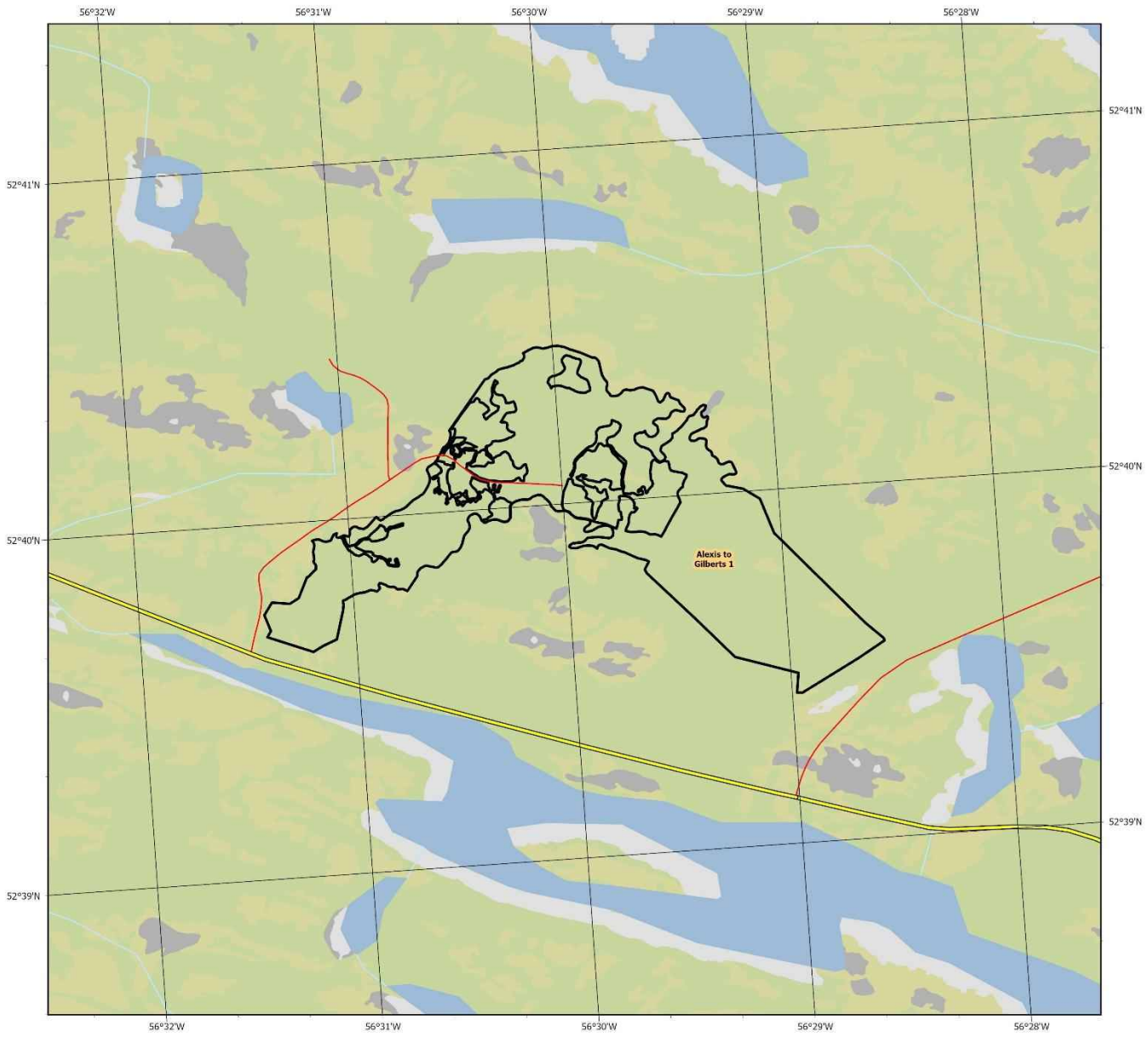
125
250
500
750
1,000
Meters
Scale: 1:10,000



Newfoundland Labrador

Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21

Operating Area No: CC21009
Operating Area Name: Alexis to Gilberts 1

For block information and statistics, refer to Cover Page.

Plan Features

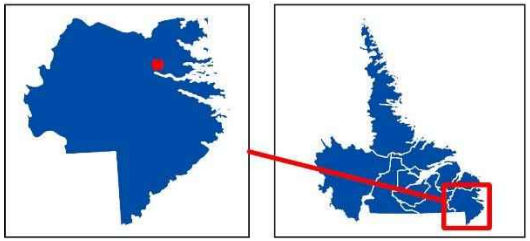
- Proposed Roads
- Commercial Operating Areas

Basemap Features

- Public Roads
- Trans Labrador Highway
- Resource Roads
- Streams
- Waterbody
- Wetlands
- Productive Forest
- Disturbance
- Scrub
- Non Forested Land

Restrictions

- NL_Federal_Parks_2020
- PWSA_2020
- District Boundary



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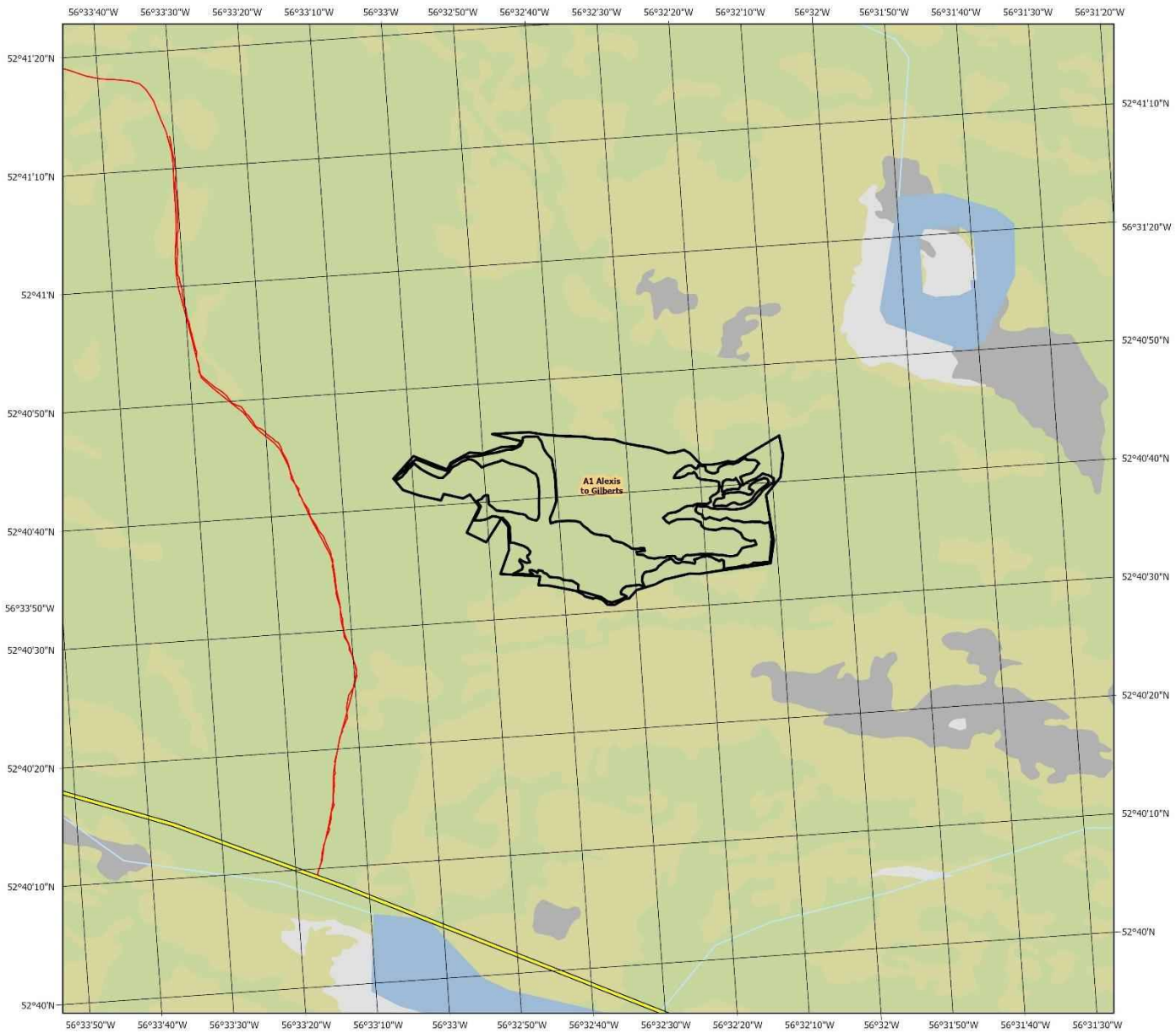


Newfoundland Labrador

Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21

Operating Area No: CC21010
Operating Area Name: A1 Alexis to Gilberts

For block information and statistics, refer to Cover Page.

Plan Features

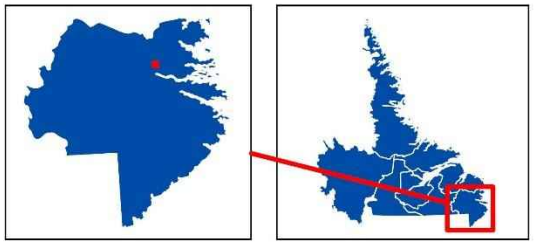
- Proposed Roads
- Commercial Operating Areas

Basemap Features

- Public Roads
- Trans Labrador Highway
- Resource Roads
- Streams
- Waterbody
- Wetlands
- Productive Forest
- Disturbance
- Scrub
- Non Forested Land

Restrictions

- NL_Federal_Parks_2020
- PWSA_2020
- District Boundary



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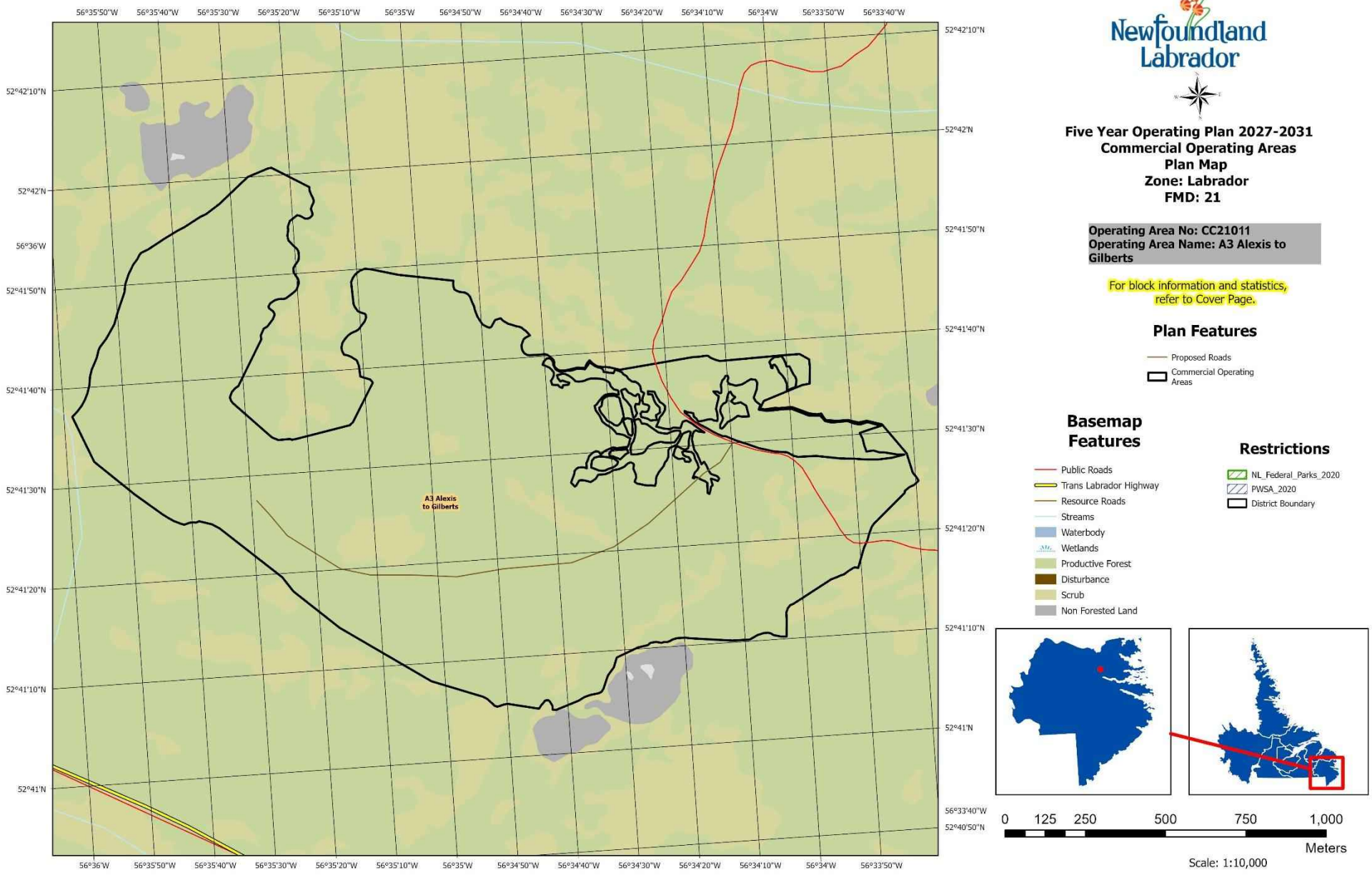
Meters

Scale: 1:10,000


Newfoundland Labrador
Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21
Operating Area No: CC21011
Operating Area Name: A3 Alexis to Gilberts
For block information and statistics, refer to Cover Page.
Plan Features
Proposed Roads
Commercial Operating Areas
Basemap Features
Public Roads
Trans Labrador Highway
Resource Roads
Streams
Waterbody
Wetlands
Productive Forest
Disturbance
Scrub
Non Forested Land
Restrictions
NL_Federal_Parks_2020
PWSA_2020
District Boundary
A3 Alexis to Gilberts
56°35'50"W 56°35'40"W 56°35'30"W 56°35'20"W 56°35'10"W 56°35'W 56°34'50"W 56°34'40"W 56°34'30"W 56°34'20"W 56°34'10"W 56°34'W 56°33'50"W 56°33'40"W
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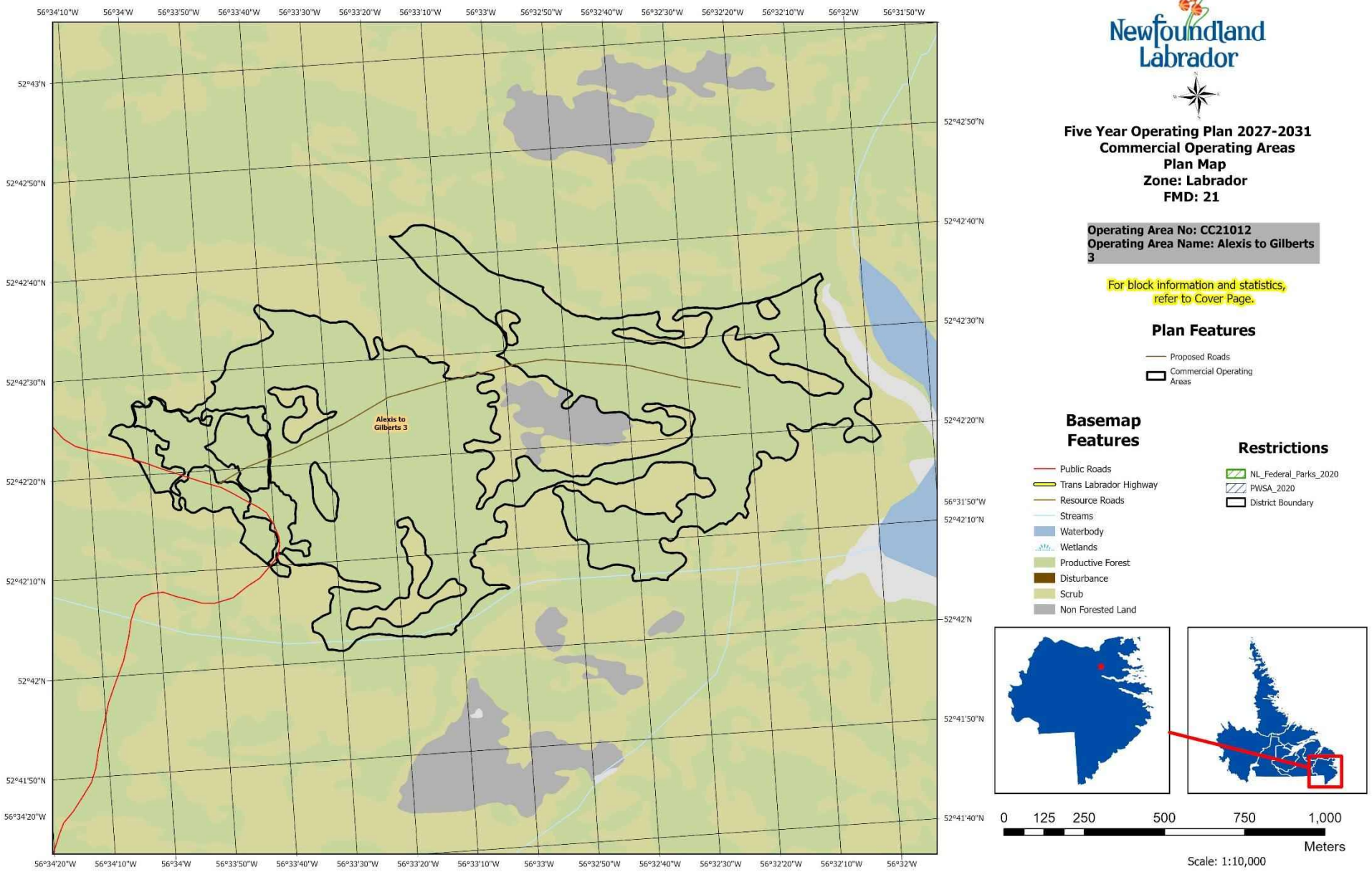
Newfoundland Labrador
Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21
Operating Area No: CC21012
Operating Area Name: Alexis to Gilberts 3
For block information and statistics, refer to Cover Page.
Plan Features
Proposed Roads
Commercial Operating Areas
Basemap Features
Public Roads
Trans Labrador Highway
Resource Roads
Streams
Waterbody
Wetlands
Productive Forest
Disturbance
Scrub
Non Forested Land
Restrictions
NL_Federal_Parks_2020
PWSA_2020
District Boundary
Alexis to Gilberts 3
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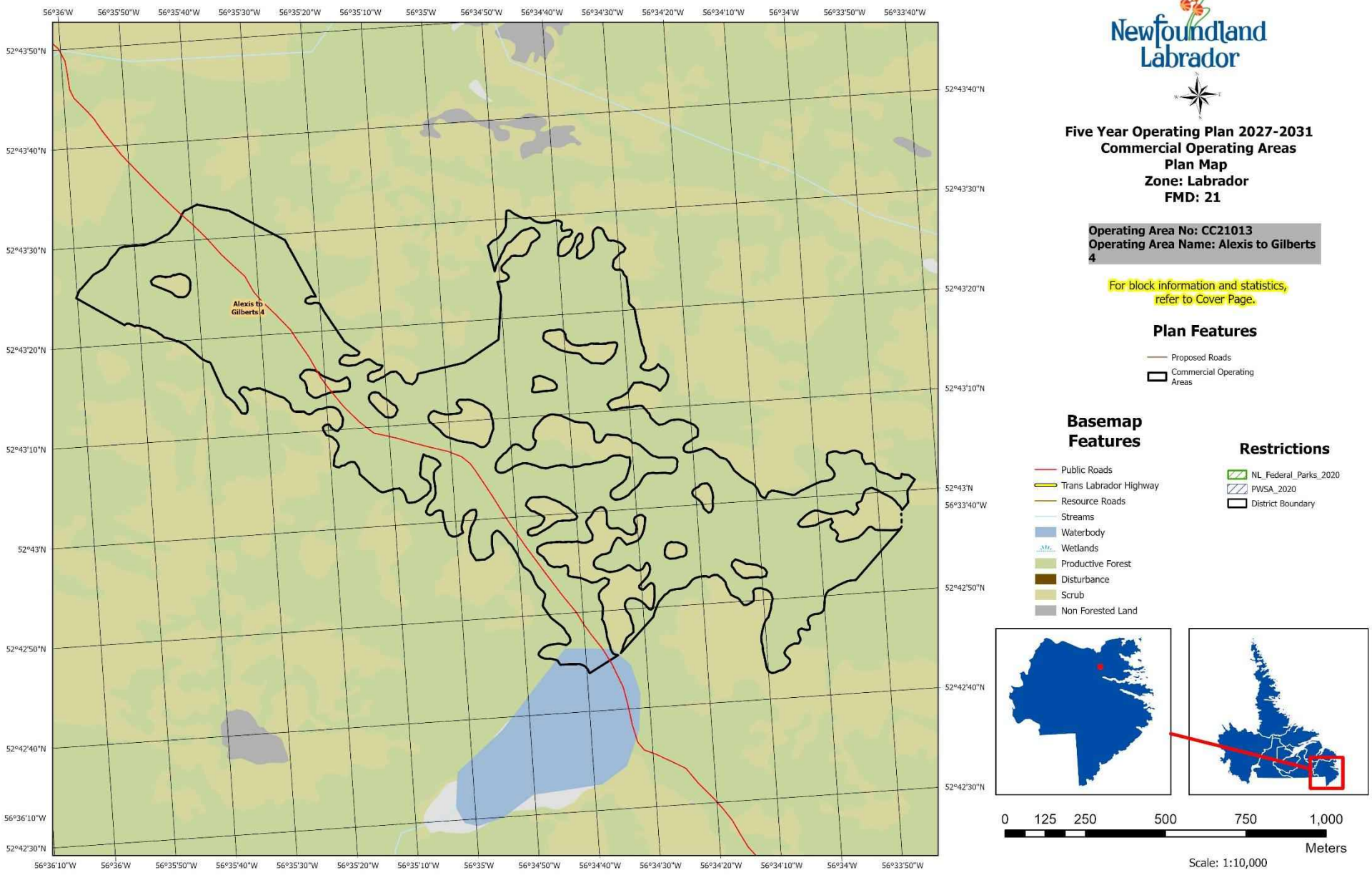
Meters
Scale: 1:10,000


Newfoundland Labrador
Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21
Operating Area No: CC21013
Operating Area Name: Alexis to Gilberts 4
For block information and statistics, refer to Cover Page.
Plan Features
Proposed Roads
Commercial Operating Areas
Basemap Features
Public Roads
Trans Labrador Highway
Resource Roads
Streams
Waterbody
Wetlands
Productive Forest
Disturbance
Scrub
Non Forested Land
Restrictions
NL_Federal_Parks_2020
PWSA_2020
District Boundary
Alexis to Gilberts 4
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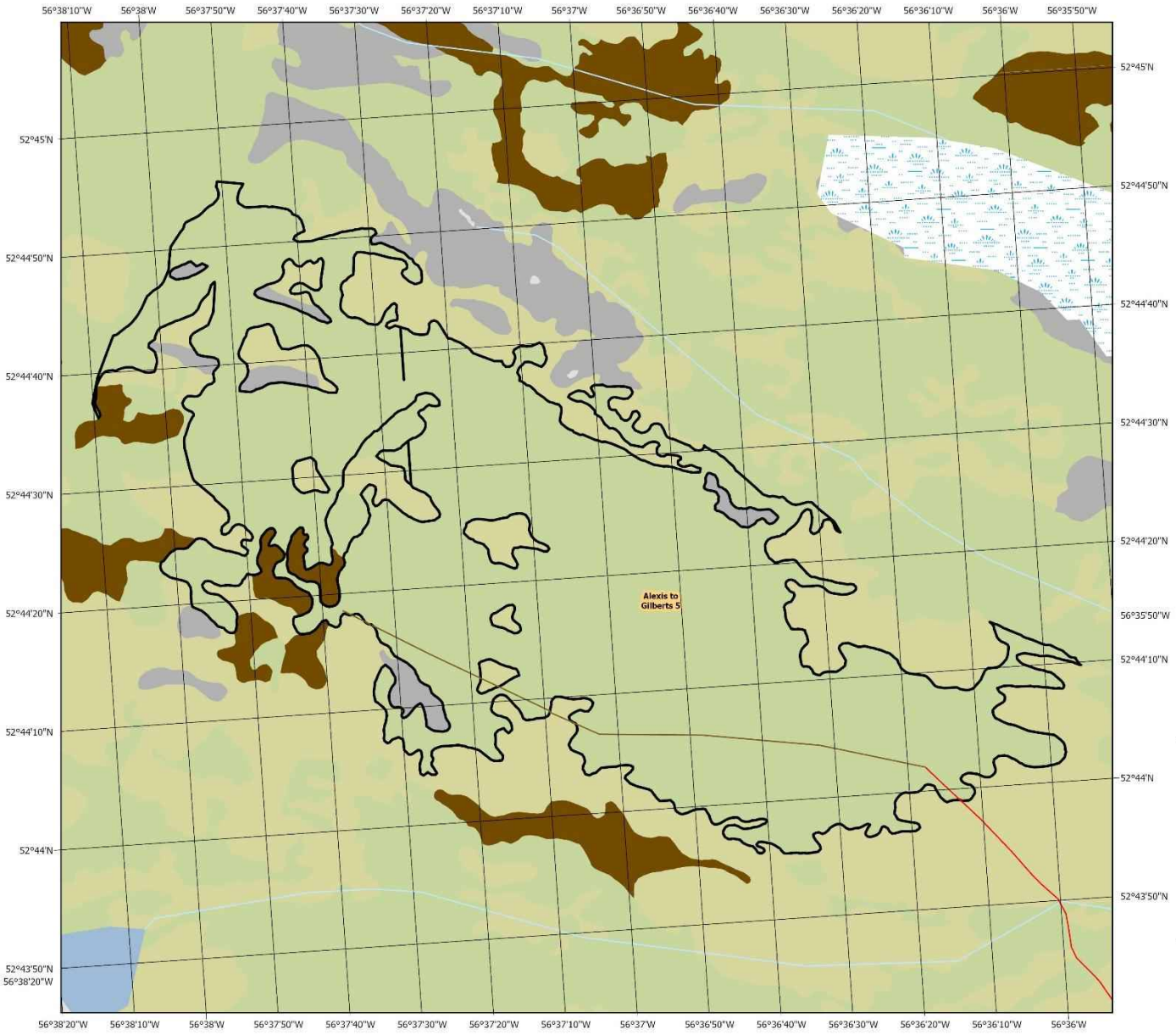
Meters
Scale: 1:10,000



Newfoundland Labrador

Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21

Operating Area No: CC21014
Operating Area Name: Alexis to Gilberts 5

For block information and statistics, refer to Cover Page.

Plan Features

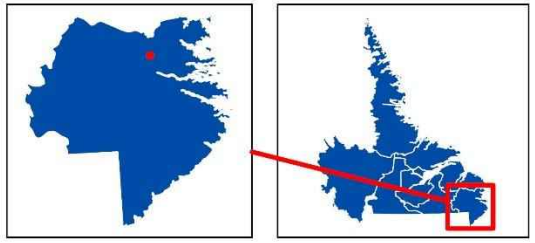
- Proposed Roads
- Commercial Operating Areas

Basemap Features

- Public Roads
- Trans Labrador Highway
- Resource Roads
- Streams
- Waterbody
- Wetlands
- Productive Forest
- Disturbance
- Scrub
- Non Forested Land

Restrictions

- NL_Federal_Parks_2020
- PWSA_2020
- District Boundary



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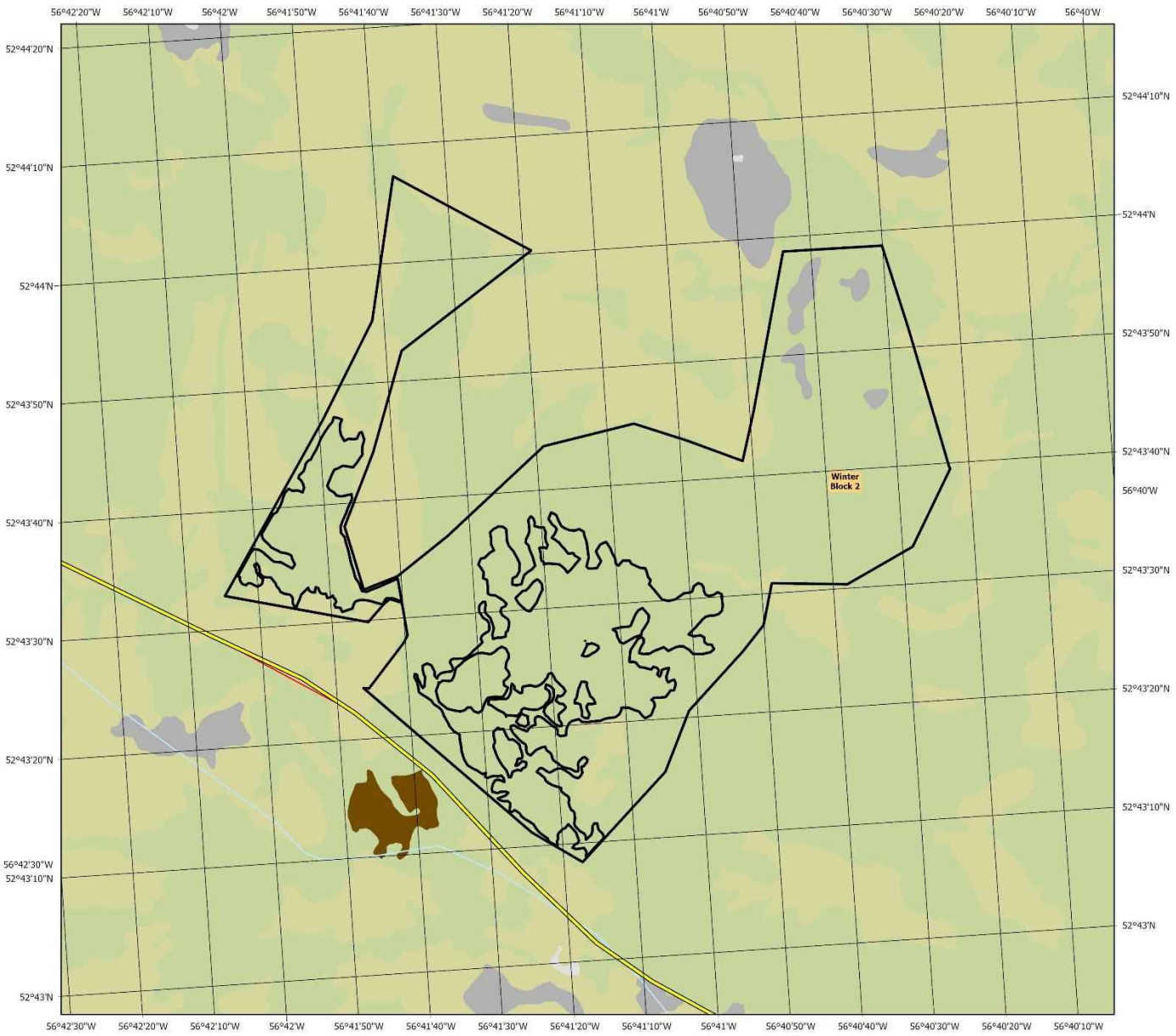
Scale: 1:10,000



Newfoundland Labrador

Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21

Operating Area No: CC21015
Operating Area Name: Winter Block 2

For block information and statistics, refer to Cover Page.

Plan Features

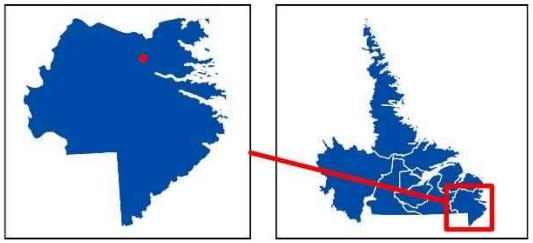
- Proposed Roads
- Commercial Operating Areas

Basemap Features

- Public Roads
- Trans Labrador Highway
- Resource Roads
- Streams
- Waterbody
- Wetlands
- Productive Forest
- Disturbance
- Scrub
- Non Forested Land

Restrictions

- NL_Federal_Parks_2020
- PWSA_2020
- District Boundary



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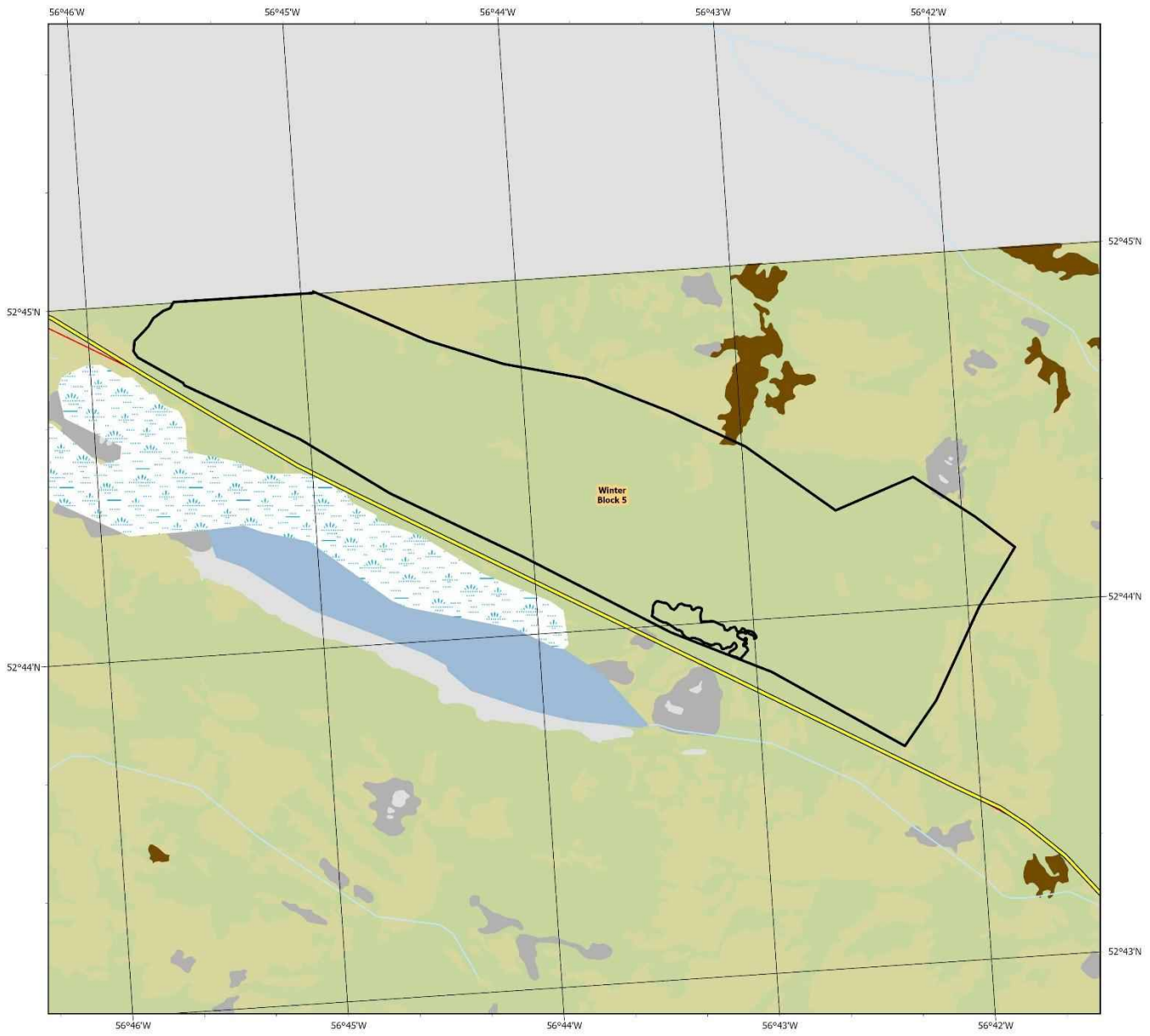


Newfoundland Labrador

Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21

Operating Area No: CC21016
Operating Area Name: Winter Block 5

For block information and statistics, refer to Cover Page.

Plan Features

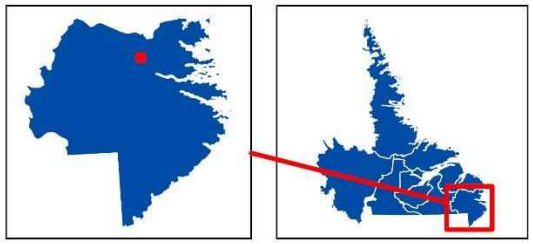
- Proposed Roads
- Commercial Operating Areas

Basemap Features

- Public Roads
- Trans Labrador Highway
- Resource Roads
- Streams
- Waterbody
- Wetlands
- Productive Forest
- Disturbance
- Scrub
- Non Forested Land

Restrictions

- NL_Federal_Parks_2020
- PWSA_2020
- District Boundary



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Meters

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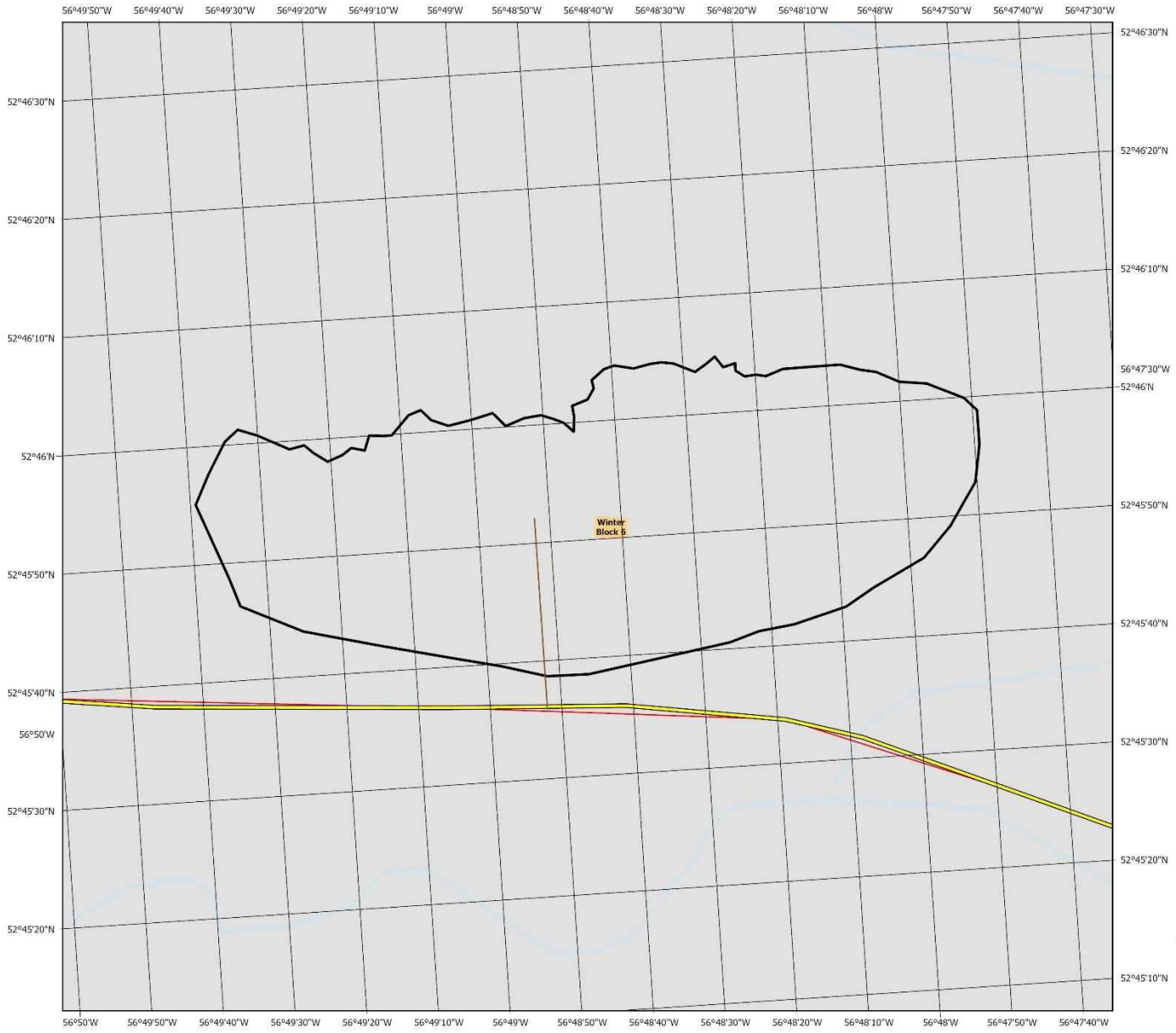


Newfoundland Labrador

Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21

Operating Area No: CC21017
Operating Area Name: Winter Block 6

For block information and statistics, refer to Cover Page.

Plan Features

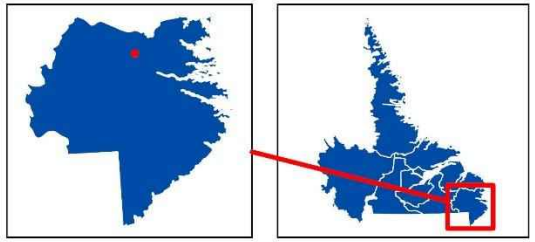
- Proposed Roads
- Commercial Operating Areas

Basemap Features

- Public Roads
- Trans Labrador Highway
- Resource Roads
- Streams
- Waterbody
- Wetlands
- Productive Forest
- Disturbance
- Scrub
- Non Forested Land

Restrictions

- NL_Federal_Parks_2020
- PWSA_2020
- District Boundary



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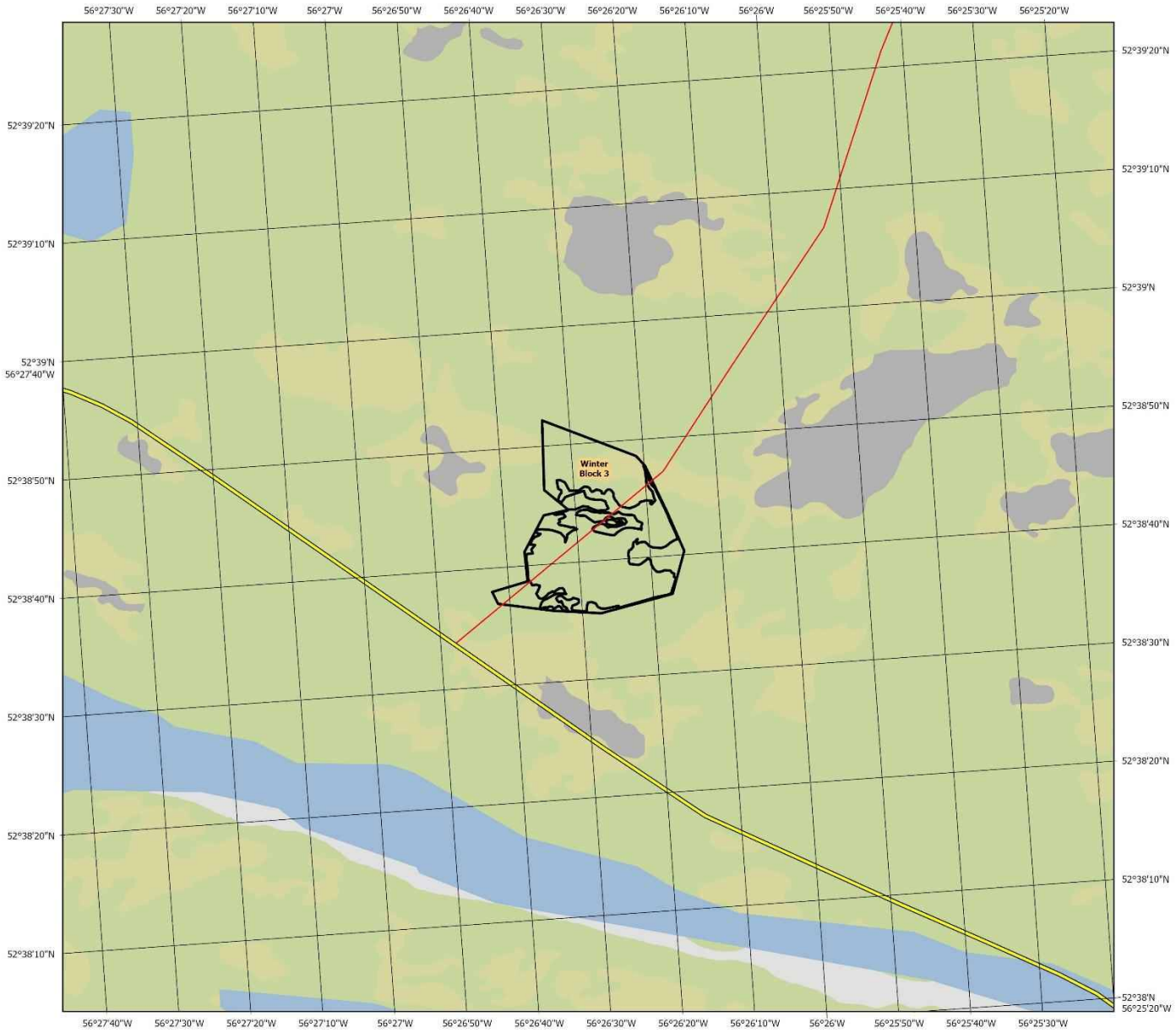
Meters

Scale: 1:10,000



Newfoundland Labrador

Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21

Operating Area No: CC21018
Operating Area Name: Winter Block 3

For block information and statistics, refer to Cover Page.

Plan Features

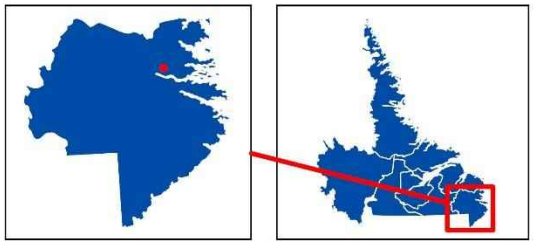
- Proposed Roads
- Commercial Operating Areas

Basemap Features

- Public Roads
- Trans Labrador Highway
- Resource Roads
- Streams
- Waterbody
- Wetlands
- Productive Forest
- Disturbance
- Scrub
- Non Forested Land

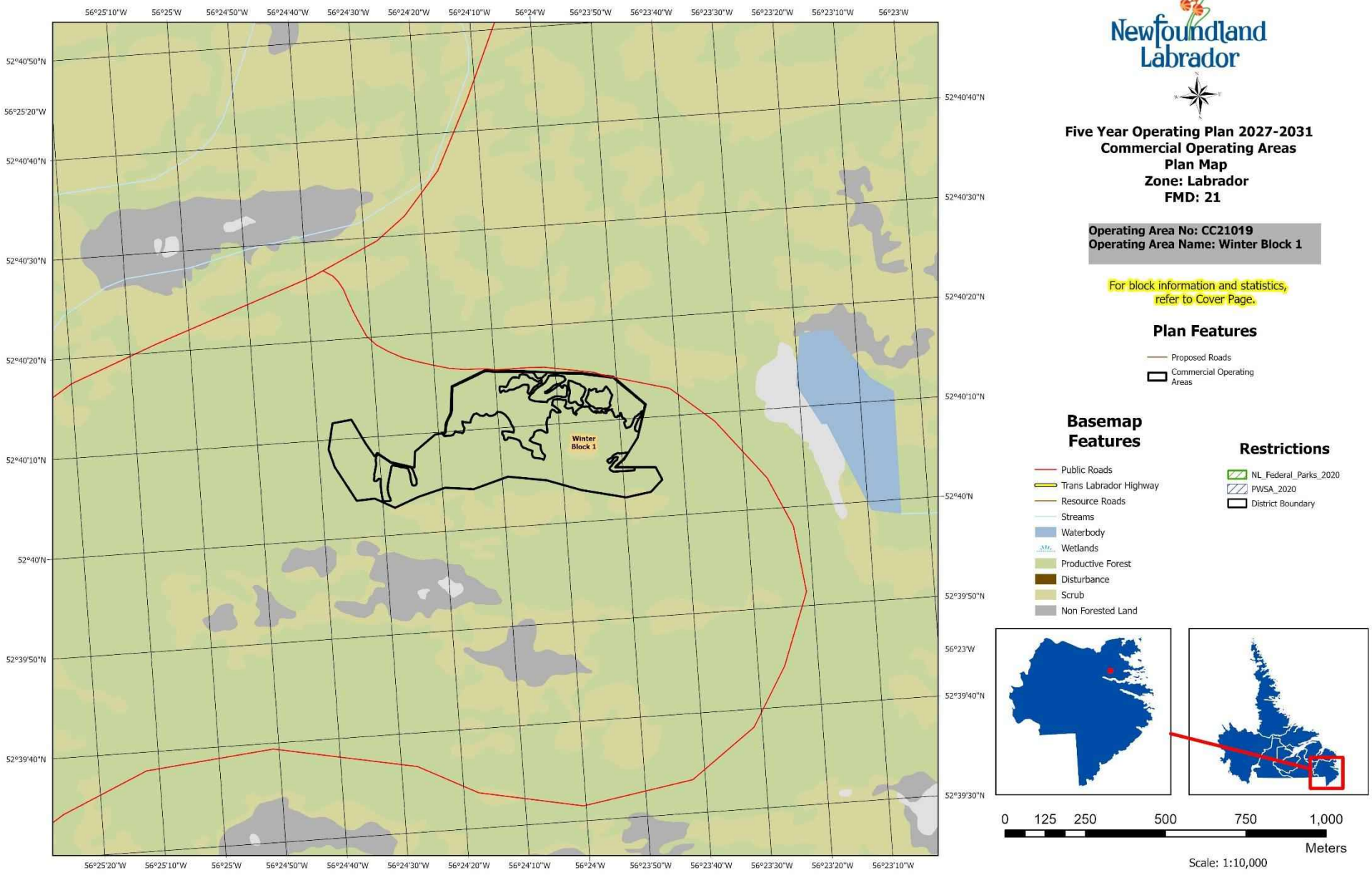
Restrictions

- NL_Federal_Parks_2020
- PWSA_2020
- District Boundary



0 125 250 500 750 1,000
Meters

Scale: 1:10,000


Newfoundland Labrador
Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21
Operating Area No: CC21019
Operating Area Name: Winter Block 1
For block information and statistics, refer to Cover Page.
Plan Features
Proposed Roads
Commercial Operating Areas
Basemap Features
Public Roads
Trans Labrador Highway
Resource Roads
Streams
Waterbody
Wetlands
Productive Forest
Disturbance
Scrub
Non Forested Land
Restrictions
NL_Federal_Parks_2020
PWSA_2020
District Boundary
Winter Block 1
56°25'10"W
56°25'W
56°24'50"W
56°24'40"W
56°24'30"W
56°24'20"W
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56°24'W
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52°40'N
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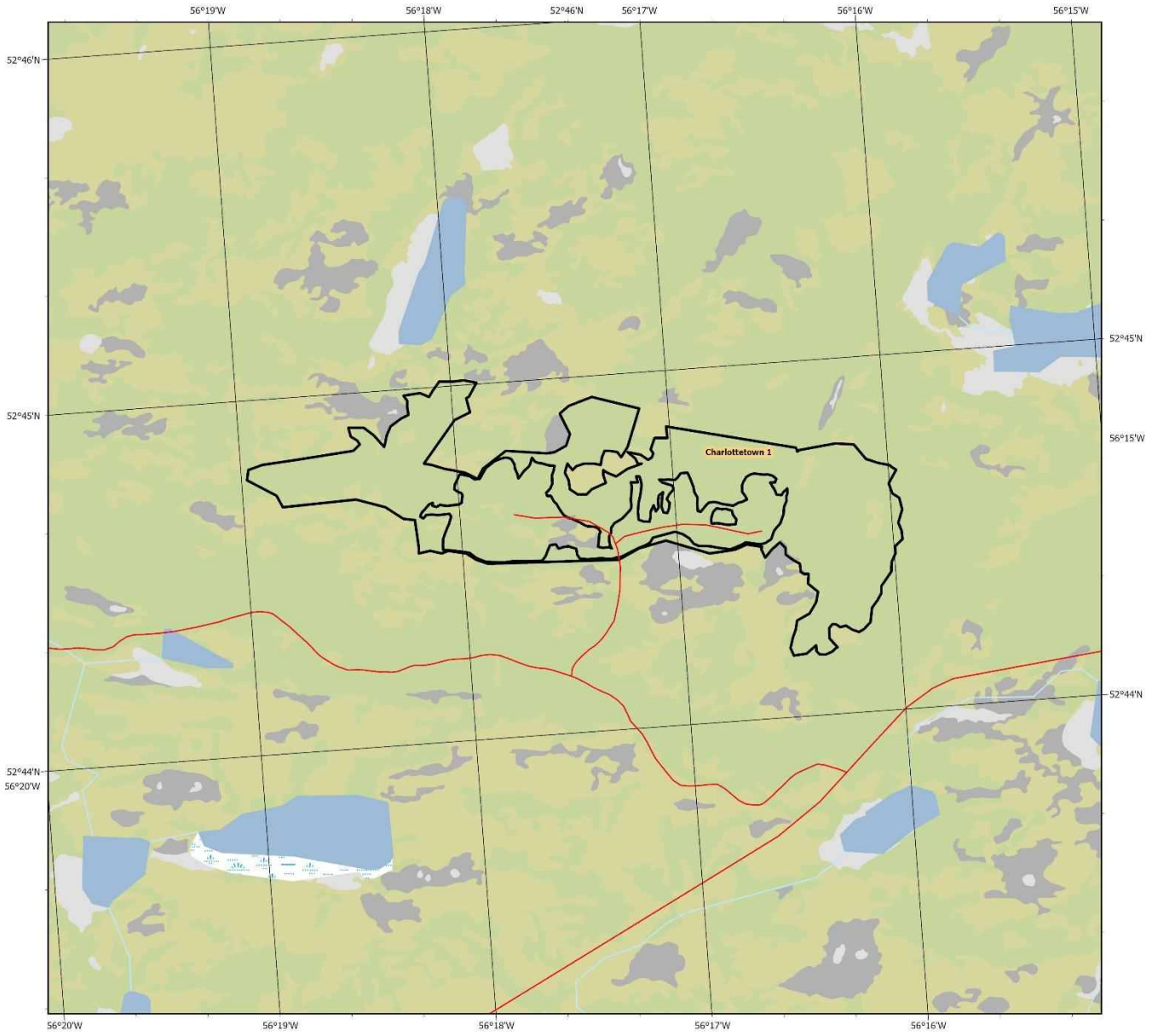
0 125 250 500 750 1,000
Meters
Scale: 1:10,000



Newfoundland Labrador

Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21

Operating Area No: CC21020
Operating Area Name: Charlottetown 1

For block information and statistics, refer to Cover Page.

Plan Features

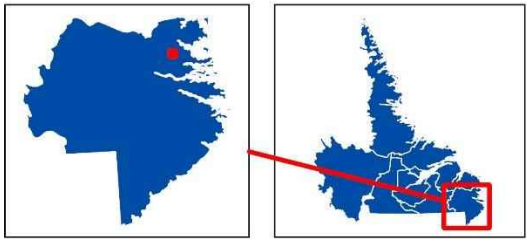
- Proposed Roads
- Commercial Operating Areas

Basemap Features

- Public Roads
- Trans Labrador Highway
- Resource Roads
- Streams
- Waterbody
- Wetlands
- Productive Forest
- Disturbance
- Scrub
- Non Forested Land

Restrictions

- NL_Federal_Parks_2020
- PWSA_2020
- District Boundary



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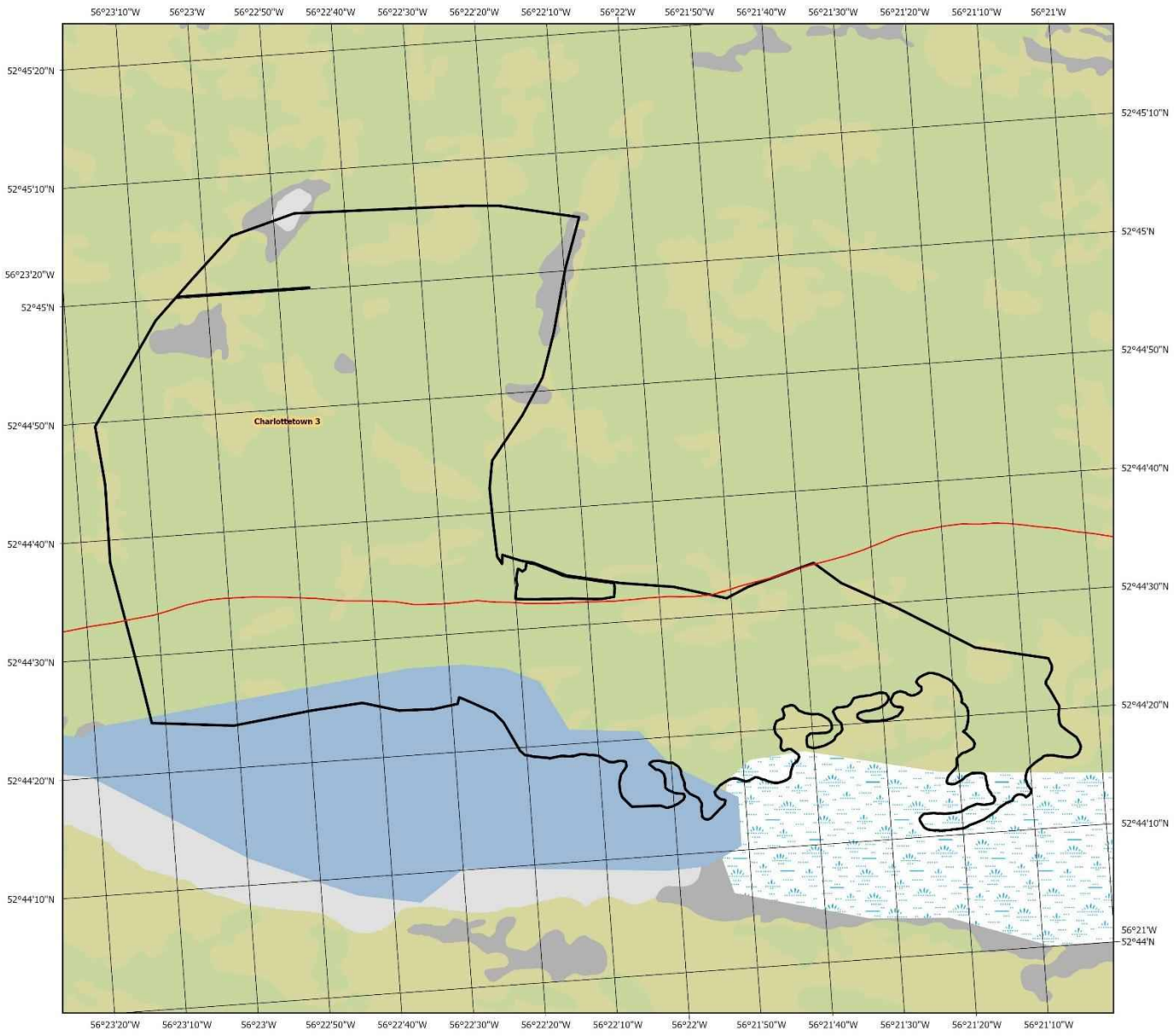


Newfoundland Labrador

Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21

Operating Area No: CC21021
Operating Area Name: Charlottetown 3

For block information and statistics, refer to Cover Page.

Plan Features

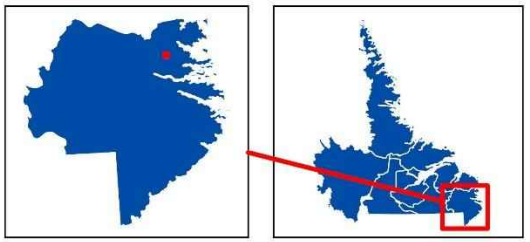
- Proposed Roads
- Commercial Operating Areas

Basemap Features

- Public Roads
- Trans Labrador Highway
- Resource Roads
- Streams
- Waterbody
- Wetlands
- Productive Forest
- Disturbance
- Scrub
- Non Forested Land

Restrictions

- NL_Federal_Parks_2020
- PWSA_2020
- District Boundary



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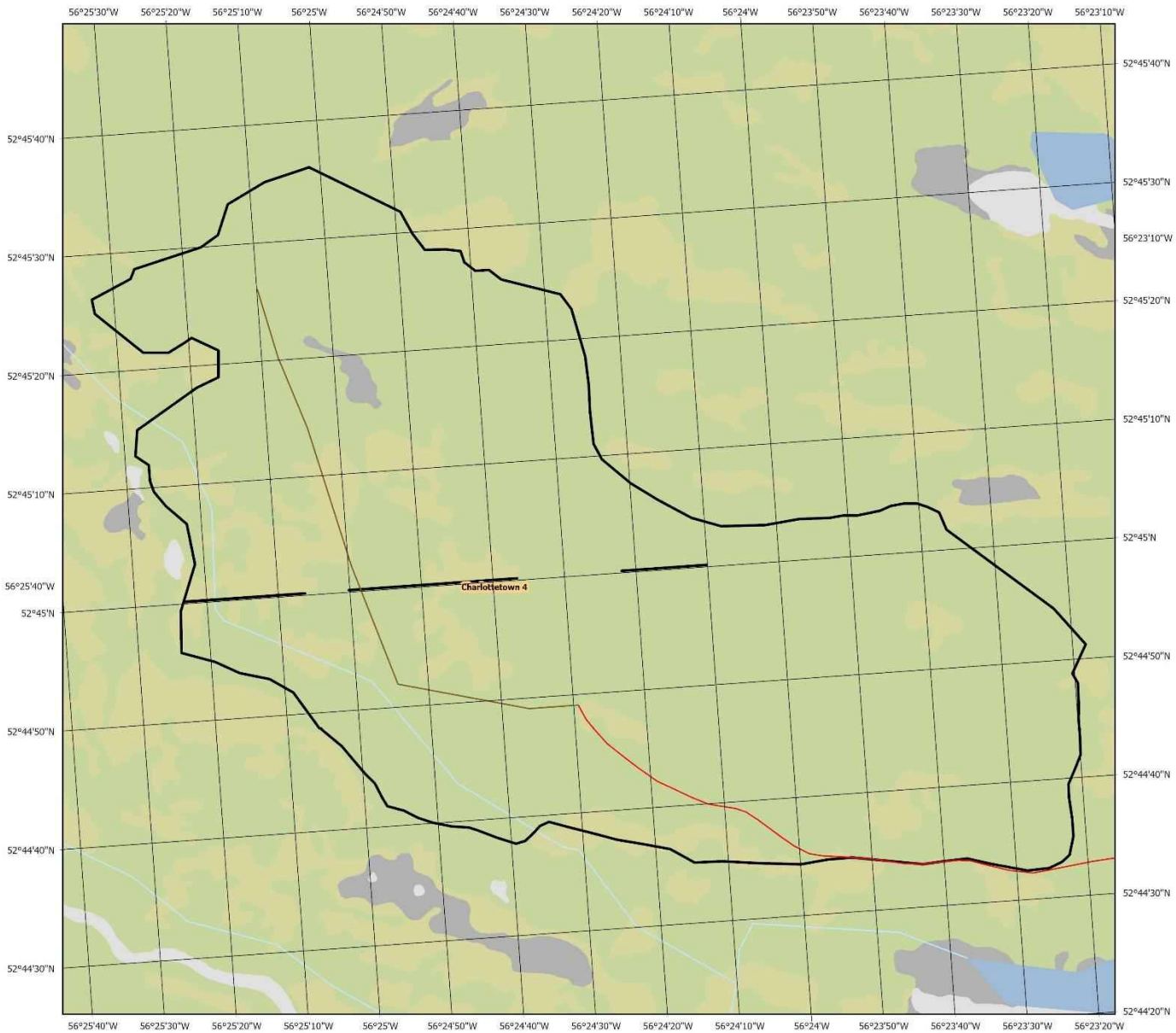


Newfoundland Labrador

Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21

Operating Area No: CC21022
Operating Area Name: Charlottetown 4

For block information and statistics, refer to Cover Page.

Plan Features

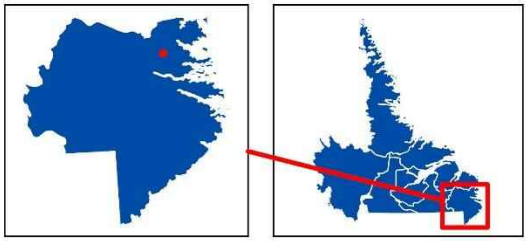
- Proposed Roads
- Commercial Operating Areas

Basemap Features

- Public Roads
- Trans Labrador Highway
- Resource Roads
- Streams
- Waterbody
- Wetlands
- Productive Forest
- Disturbance
- Scrub
- Non Forested Land

Restrictions

- NL_Federal_Parks_2020
- PWSA_2020
- District Boundary



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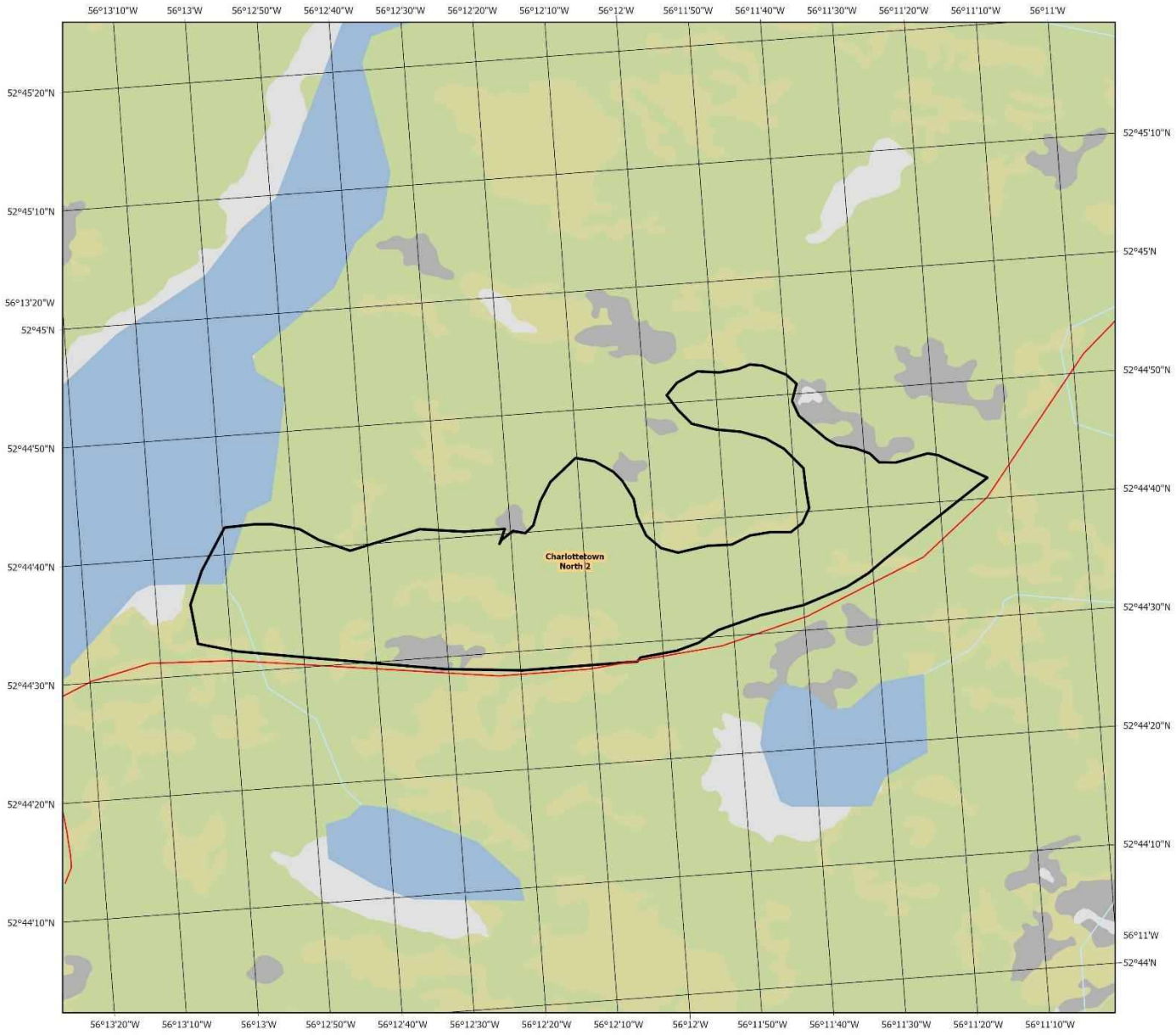
Scale: 1:10,000



Newfoundland Labrador

Five Year Operating Plan 2027-2031
Commercial Operating Areas
Plan Map
Zone: Labrador
FMD: 21

Operating Area No: CC21023
Operating Area Name: Charlottetown North 2

For block information and statistics, refer to Cover Page.

Plan Features

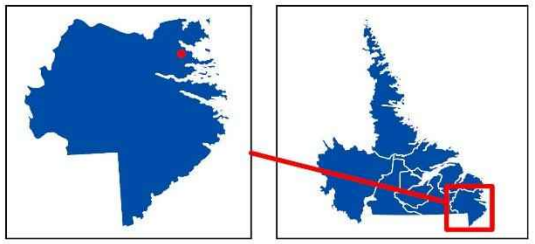
- Proposed Roads
- Commercial Operating Areas

Basemap Features

- Public Roads
- Trans Labrador Highway
- Resource Roads
- Streams
- Waterbody
- Wetlands
- Productive Forest
- Disturbance
- Scrub
- Non Forested Land

Restrictions

- NL_Federal_Parks_2020
- PWSA_2020
- District Boundary



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Meters

Scale: 1:10,000

Appendix 2 – Operating Area Summaries

Operating Area Name: 1 Port Hope Simpson	Operating Area #: C21001
NFS Inventory Map #: 369-12	NTS Map # 13A9

Description of Area: The 1PHS commercial cutting block is located within the Mid-boreal forest ecoregion. This is a 48 ha block of spruce and fir. It is visible from Route 510, however with implementation of a 100m buffer, that should have little impact on the aesthetics of this area**.**

Harvesting Activities: The area will be harvested by commercial permit for sawlogs, energywood and fuelwood. There will be a combination of summer and winter harvesting and extraction. It is estimated that approximately 2,110 m^3 of softwood and 15 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: Current road network in place.

Non-Timber Considerations and Mitigations:

This is a Fuel Reduction Area as per request of the town of Port Hope-Simpson. This will not be included in the Landbase. Future maintenance on this block will be conducted by the town of Port Hope-Simpson and will not be the responsibility of the department of Forestry, Agriculture, and Lands.

A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is visible from the Trans Labrador Highway, Route 510.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: 1 Marys Harbour	Operating Area #: C21002
NFS Inventory Map #: 392-24	NTS Map # 13A08

Description of Area: The 1MH commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a moderately sized 68 ha block of spruce and fir. It is not visible from Route 530, therefore that should have little impact on the aesthetics of this area.

Harvesting Activities: The area has not had any previous harvesting activity and it will be harvested by commercial permit for sawlogs, energywood and fuelwood. There will be a combination of summer and winter harvesting and extraction. It is estimated that approximately 6,077 m^3 of softwood and 123 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: Current road network in place.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is not visible from Route 530

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Alexis River 2	Operating Area #: C21003
NFS Inventory Map #: 369-21	NTS Map # 13A09

Description of Area: The AR2 Commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 74ha block of spruce and fir. This block is not visible from the Trans Labrador Highway Route 510 therefore that should have little impact on aesthetics of the area.

Harvesting Activities: There will be a combination of summer and winter harvesting and extraction, but most activity will be in the winter with snowmobile. It is estimated that approximately 4,028 m^3 of softwood and 119 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: There is 1.0 km of forest access road proposed for construction during 2027-2031 to access stands in this operating area for harvest.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Alexis River 1	Operating Area #: C21004
NFS Inventory Map #: 369-21	NTS Map # 13A09

Description of Area: The AR1 Commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 144ha block of spruce and fir. This block is not visible from the Trans Labrador Highway Route 510 therefore that should have little impact on aesthetics of the area.

Harvesting Activities: There will be a combination of summer and winter harvesting and extraction, but most activity will be in the winter with snowmobile. It is estimated that approximately 12,256 m^3 of softwood and 2,808 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: There is 1.7 km of forest access road proposed for construction during 2027-2031 to access stands in this operating area for harvest.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Noralls Pond 3	Operating Area #: C21005
NFS Inventory Map #: 369-21, 369-31	NTS Map # 13A9

Description of Area: The NP3 commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 142ha block of spruce and fir located on a south facing slope. It is not visible from Route 530, therefore that should have little impact on the aesthetics of this area.

Harvesting Activities: The area has not had any previous harvesting activity, and it will be harvested by commercial permit for sawlogs, energywood and fuelwood. There will be a combination of summer and winter harvesting and extraction. It is estimated that approximately 9,972 m^3 of softwood and 2,264 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: Current road network in place.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Noralls Pond 2	Operating Area #: C21006
NFS Inventory Map #: 369-21	NTS Map # 13A09

Description of Area: The NP2 commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 65 ha block of spruce and fir located on a south facing slope. It is moderately visible from Route 530, however that should have little impact on the aesthetics of this area.

Harvesting Activities: The area has not had any previous harvesting activity and it will be harvested by commercial permit for sawlogs, energywood and fuelwood. There will be a combination of summer and winter harvesting and extraction. It is estimated that approximately 7,662 m^3 of softwood and 294 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: Current road network in place.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is visible from the TLH.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Winter Block 7	Operating Area #: C21007
NFS Inventory Map #: 369-31	NTS Map # 13A09

Description of Area: The WB6 Commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 38 ha block of spruce and fir. This block is visible from the Trans Labrador Highway Route 510, however with the implementation of a 100m buffer, that should have little impact on aesthetics of the area.

Harvesting Activities: There will be a combination of summer and winter harvesting and extraction, but most activity will be in the winter with snowmobile. It is estimated that approximately 3,504 m^3 of softwood and 86 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: Current road network in place.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

Block is visible from the Trans Labrador Highway, Route 510.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Winter Block 4	Operating Area #: C21008
NFS Inventory Map #:369-31	NTS Map # 13A09

Description of Area: The WB4 Commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 36 ha block of spruce and fir. It is marginally visible from the Charlottetown Access Road and the Trans Labrador Highway Route 510, however that should have little impact on the aesthetics of this area**.**

Harvesting Activities: There will be a combination of summer and winter harvesting and extraction, but most activity will be in the winter using a snowmobile. It is estimated that approximately 3,594 m^3 of softwood and 130 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: Current road network in place.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is visible from the Charlottetown Access Road, Route 514.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Alexis to Gilberts 1	Operating Area #: C21009
NFS Inventory Map #: 369-31, 368-34	NTS Map # 13A09, 13A10

Description of Area: The AG1 commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 348 ha block of spruce and fir located on a south facing slope. It is not visible from Route 530, therefore that should have little impact on the aesthetics of this area.

Harvesting Activities: The area has not had any previous harvesting activity, and it will be harvested by commercial permit for sawlogs, energywood and fuelwood. There will be a combination of summer and winter harvesting and extraction. It is estimated that approximately 41276 m^3 of softwood and 1772 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: Current road network in place.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is visible from Route 530.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: A1 Alexis to Gilberts	Operating Area #: C21010
NFS Inventory Map #: 368-34, 368-44	NTS Map # 13A10

Description of Area: The A1AG Commercial Cutting Block is located within the Mid-boreal forest ecoregion. There are 17 ha remaining in this partially harvested, mixed species block of spruce, fir and hardwoods. It is not visible from Route 530, therefore that should have little impact on the aesthetics of this area.

Harvesting Activities: Most of this area has been previously commercially harvested, however the remaining volume is suitable to be harvested by commercial permit for sawlogs, energywood and fuelwood. There will be a combination of summer and winter harvesting and extraction. It is estimated that approximately 1745 m^3 of softwood and 658 m3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: Current road network in place.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is visible from the Route 530.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: A3 Alexis to Gilberts	Operating Area #: C21011
NFS Inventory Map #: 368-34, 368-44	NTS Map # 13A10

Description of Area: The A3AG Commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 208 ha mixed species block of spruce, fir and hardwoods. It is not visible from Route 530, therefore that should have little impact on the aesthetics of this area.

Harvesting Activities: The area has had minimal harvesting activity, and it will be harvested by commercial permit for sawlogs, energywood and fuelwood. There will be a combination of summer and winter harvesting and extraction. It is estimated that approximately 20,594 m^3 of softwood and 750 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: There is 1.7 km of forest access road proposed for construction during 2027-2031 to access stands in this operating area for harvest.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is not visible from Route 530.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Alexis to Gilberts 3	Operating Area #: C21012
NFS Inventory Map #: 368-44	NTS Map # 13A10

Description of Area: The AG3 commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is 114 ha block of spruce and fir with some hardwoods. It is not visible from Route 530, therefore that should have little impact on the aesthetics of this area.

Harvesting Activities: The area has not had any previous harvesting activity, and it will be harvested by commercial permit for sawlogs, energywood and fuelwood. There will be a combination of summer and winter harvesting and extraction. It is estimated that approximately 11,286m^3 of softwood and 312 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: There is 1.7 km of forest access road proposed for construction during the 2027-2031 to access stands in this operating area for harvest.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is not visible from Route 530.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Alexis to Gilberts 4	Operating Area #: C21013
NFS Inventory Map #: 368-44	NTS Map # 13A10

Description of Area: The AG4 commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 116 ha block of spruce and fir with some hardwoods. It is not visible from Route 530, therefore that should have little impact on the aesthetics of this area.

Harvesting Activities: The area has not had any previous harvesting activity, and it will be harvested by commercial permit for sawlogs, energywood and fuelwood. There will be a combination of summer and winter harvesting and extraction. It is estimated that approximately 11,238 m^3 of softwood and 422 m3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: Current road network in place.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is not visible from Route 530.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Alexis to Gilberts 5	Operating Area #: C21014
NFS Inventory Map #: 368-44, 368-43	NTS Map # 13A10

Description of Area: The AG5 commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 161 ha block of spruce and fir located on a south facing slope. It is not visible from Route 530, therefore that should have little impact on the aesthetics of this area.

Harvesting Activities: The area has not had any previous harvesting activity, and it will be harvested by commercial permit for sawlogs, energywood and fuelwood. There will be a combination of summer and winter harvesting and extraction. It is estimated that approximately 18,564 m^3 of softwood and 816 m3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: There is 1.6 km of forest access road proposed for construction during 2027-2031 to access stands in this operating area for harvest.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is not visible from Route 530.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Winter Block 2	Operating Area #: C21015
NFS Inventory Map #: 368-43	NTS Map # 13A10

Description of Area: The WB2 Commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 103 ha block of spruce and fir. With the implementation of a 100 m buffer, the block should be only marginally visible from the Trans Labrador Highway Route 510 and that should have little impact on the aesthetics of this area**.**

Harvesting Activities: There will be a combination of summer and winter harvesting and extraction, but most activity will be in the winter with snowmobile. It is estimated that approximately 8,335 m^3 of softwood and 1482 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: Current road network in place.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is visible from the Charlottetown Access Road, Route 514.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Winter Block 5	Operating Area #: C21016
NFS Inventory Map #:344-12, 344-13, 368-43, 368-42	NTS Map # 13A10

Description of Area: The WB5 Commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 405 ha block of spruce and fir. It is visible from the Trans Labrador Highway Route 510, however with implementation of a 100m buffer, that should have little impact on the aesthetics of this area**.**

Harvesting Activities: There will be a combination of summer and winter harvesting and extraction, but most activity will be in the winter using a snowmobile. It is estimated that approximately 46,501 m^3 of softwood and 7,059 m3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: Current road network in place.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is visible from the Charlottetown Access Road, Route 514.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Winter Block 6	Operating Area #: C21017
NFS Inventory Map #: 344-12	NTS Map # 13A15

Description of Area: The WB6 Commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 120 ha block of spruce and fir. This block is visible from the Trans Labrador Highway Route 510, however with the implementation of a 100m buffer, that should have little impact on aesthetics of the area.

Harvesting Activities: There will be a combination of summer and winter harvesting and extraction, but most activity will be in the winter using a snowmobile. It is estimated that approximately 12,679m^3 of softwood and 2,650 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: There is 0.5 km of forest access road proposed for construction during 2027-2031 to access stands in this operating area for harvest.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

Block is visible from the Trans Labrador Highway, Route 510.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Winter Block 3	Operating Area #: C21018
NFS Inventory Map #: 369-31	NTS Map # 13A09

Description of Area: The WB3 Commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 7 ha block of spruce and fir. It is marginally visible from the Trans Labrador Highway Route 510, however that should have little impact on the aesthetics of this area**.**

Harvesting Activities: There will be a combination of summer and winter harvesting and extraction, but most activity will be in the winter using a snowmobile. It is estimated that approximately 551 m^3 of softwood and 6 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: Current road network in place.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is visible from the Charlottetown Access Road, Route 514.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Winter Block 1	Operating Area #: C21019
NFS Inventory Map #: 369-31	NTS Map # 13A10

Description of Area: The WB1 Commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 19 ha block of spruce and fir. It is marginally visible from the Charlottetown Access Road, however that should have little impact on the aesthetics of this area**.**

Harvesting Activities: There will be a combination of summer and winter harvesting and extraction, but most activity will be in the winter using a snowmobile. It is estimated that approximately 2,653 m^3 of softwood and 120 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: Current road network in place.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is visible from the Charlottetown Access Road, Route 514.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Charlottetown 1	Operating Area #: C21020
NFS Inventory Map #: 369-42	NTS Map # 13A09, 13A16

Description of Area: The C1 Commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 138 ha block of spruce and fir. It is marginally visible from the Charlottetown Access Road, however that should have little impact on the aesthetics of this area**.**

Harvesting Activities: There will be a combination of summer and winter harvesting and extraction, but most activity will be in the winter using a snowmobile. It is estimated that approximately 14,605 m^3 of softwood and 664 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: Current road network in place.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is visible from the Charlottetown Access Road, Route 514.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Charlottetown 3	Operating Area #: C21021
NFS Inventory Map #: 345-11, 345-12. 369-41, 369-42	NTS Map # 13A09

Description of Area: The C3 Commercial Cutting Block is located within theMid-boreal forest ecoregion. This is a 189 ha mixed species block of spruce and fir. It is not visible from the Charlottetown Access Road, therefore that should have little impact on the aesthetics of this area.

Harvesting Activities: There will be a combination of summer and winter harvesting and extraction, but most activity will be in the winter with snowmobile. It is estimated that approximately 15,535 m^3 of softwood and 613 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: Current road network in place.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is not visible from the Charlottetown Access Road, Route 514.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Charlottetown 4	Operating Area #: C21022
NFS Inventory Map #: 369-41, 345-11	NTS Map # 13A09, 13A16

Description of Area: The C4 Commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 263 ha block of spruce and fir with some hardwoods. It is not visible from the Charlottetown Access Road; therefore, it should have little impact on the aesthetics of this area**.**

Harvesting Activities: There will be a combination of summer and winter harvesting and extraction, but most activity will be in the winter using a snowmobile. It is estimated that approximately 24,210 m^3 of softwood and 1157 m^3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: There is 1.5 km of forest access road proposed for construction during 2027-2031 to access stands in this operating area for harvest.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is not visible from the Charlottetown Access Road, Route 514.

Provisions of the Environmental Protection Guidelines will be adhered to.

Operating Area Name: Charlottetown North 2	Operating Area #: C21023
NFS Inventory Map #: 369-43	NTS Map # 13A9

Description of Area: The CN2 Commercial Cutting Block is located within the Mid-boreal forest ecoregion. This is a 69 ha block of spruce and fir. It is visible from the Charlottetown Access Road, however a 100 meter no cut buffer should minimize impact on the aesthetics of this area.

Harvesting Activities: There will be a combination of summer and winter harvesting and extraction, but most activity will be in the winter with snowmobile. It is estimated that approximately 6,190 m^3 of softwood and 162 m3 of hardwood will be harvested out of this area between 2027 and 2031. The difference between inventory to proposed volume is 20% for culls, residual stands, harvesting losses and fire disturbance.

Silviculture Activities: Regeneration surveys will be conducted to determine level of natural regeneration 3-5 years after harvesting. A possible silviculture prescription of planting and/or gap planting of black spruce seedlings may be applied.

Forest Access Road Construction: The area will be accessed by the Charlottetown Access Road.

Non-Timber Considerations and Mitigations: A 30 meter buffer will be maintained on both sides of all rivers, brooks, ponds or other water bodies that are shown on 1:50,000 topographic maps.

This area is visible from the Charlottetown Access Road, Route 514.

Provisions of the Environmental Protection Guidelines will be adhered to.

Appendix 3 – Mitigation Table

Department / Agency	Contact Date	Response Date	Issue / Concern	Action / Comments from Forestry
Tourism	February 2, 2026	March 5, 2026	The Department of Tourism, Culture, Arts and Recreation is responsible for implementing the provincial tourism strategy. The strategy aims to grow the tourism industry in all regions, enhance the visitor experience, and lead responsible, regenerative, and sustainable tourism development. Demand continues to increase for authentic, engaging, and personalized experiences that connect visitors with the province's people and places. Natural assets. such as scenic landscapes, wildlife, and wilderness areas, remain key drivers of visitation and are essential to sustainable growth. Maintaining balance among provincial tourism priorities, private tourism operators, and forestry management is critical. Touring Corridor/Viewscapes · TCAR recommends that any development affecting scenic settings near touring corridors be managed to minimize negative visual impacts. The Trans Labrador Highway is a strategically important touring route for the province. · Cut blocks along the Trans Labrador Highway (Route 500) should be developed using landscape design techniques to ensure visibility of harvesting is minimized for visitors. o Applicable cut blocks include (OA_NO): CC22003, CC22002, CC22001, CC22007 Recommendations · Mitigation measures should be used to preserve visitor experience and maintain viewscapes along key touring corridors. Forestry harvesting along main highways and other identified routes should be kept out of view, and harvest blocks should be designed using landscape techniques that reduce visual impacts. o TCAR recommends that FAL continue direct consultations with Julia Penney, Manager of Tourism Product Development at TCAR, to minimize visibility of clear cuts from identified routes. · It is recommended that the proponent engage with Julia Penney (JuliaPenney@gov.nl.ca, 709-729-6588)	Forest management harvesting activities are designed to mimic natural disturbance patterns Forestry activities are carried out on a small percentage of the landscape and natural regeneration occurs soon after, or reforestation is managed with silviculture treatments. While there may be specific special areas where viewscapes may be designed, it is not reasonable to carry viewscape design on large planning areas

Department / Agency	Contact Date	Response Date	Issue / Concern	Action / Comments from Forestry
Mines	February 2, 2026	March 17, 2026	Our review comments: GIS data Shapefiles for mineral licences currently in issuance can be obtained from the Department's Geoscience Atlas (https://gis.geosurv.gov.nl.ca/) – select the 'Map Staked Claims' layer in the Mineral Lands layer group. Mapping for the boundaries of areas covered by quarry permits and quarry leases is posted online in KMZ format at https://www.gov.nl.ca/iet/mines/quarries/ under Quarry Maps and Boundaries. Please note that the boundaries should be considered preliminary and that, currently, not all boundaries are contained in the KMZ file. Please read DISCLAIMER.pdf at the same file location for further information on the limitations of this data. Interested parties are invited to contact the Mineral Lands Division directly at quarries@gov.nl.ca to confirm the locations of specific boundaries, particularly in instances where the absence of a boundary on file is indicated by a circle in the KMZ file.	Forestry will design cut blocks that do not overlap onto other non-compatible land use areas, however as per the Lands Act Section 28, it is the responsibility of the land holder to maintain boundaries.
			Overlap with mineral licences Mineral exploration activity should be expected within areas covered by mineral licences. Parties engaged in domestic or commercial harvesting should be advised of the potential to encounter mineral exploration activity and of potential hazards that may be associated with mineral exploration activity. Mineral exploration activities may include traditional prospecting, geochemical sampling, geophysical surveys carried out on foot, airborne geophysical surveys, the cutting of survey lines, the excavation of trenches and exposure of bedrock, and the drilling of cores of rock, and may be accompanied by the creation of new (temporary) access trails and equipment laydown areas. Certain potential future mineral exploration activities within domestic or commercial cutting areas may present hazards to human safety, such as the excavation of trenches (potential fall hazards, sudden drop hazards) and the drilling of core (potential hazards associated with the active use of machinery and large equipment).	Forestry will design cut blocks that do not overlap onto other non-compatible land use areas, however as per the Lands Act Section 28, it is the responsibility of the land holder to maintain boundaries.

Department / Agency	Contact Date	Response Date	Issue / Concern	Action / Comments from Forestry
Mines	February 2, 2026	March 17, 2026	Specific comments for FMD 21 Proposed domestic harvest areas overlap a number of areas corresponding to quarry permits, most of which are located near communities. Proposed domestic harvest areas also overlap a number of areas covered by mineral licences, representing areas where mineral exploration is a land use that should be expected to take place. Most mineral licences in overlap are located west of St. Lewis and inland from there towards the interior. One of the proposed commercial harvest areas (Winter Block 2, CC21030) overlaps an area corresponding to a quarry permit. While it is apparent that an attempt was made to avoid the area of the quarry permit when planning the commercial harvest area, there remains an area of overlap and Forestry is advised to: • consult the quarry boundaries KMZ layer (referenced above) in order to remove the area of overlap; and • include in their commercial cutting permits an advisory addressing the presence (or potential presence) of quarries (see below, general comments).	Forestry will design cut blocks that do not overlap onto other non-compatible land use areas, however as per the Lands Act Section 28, it is the responsibility of the land holder to maintain boundaries.
			Quarry sites are potentially hazardous and government cannot condone the unauthorized entry of parties involved in harvesting wood into quarry sites. Areas subject to quarry operations may present a variety of safety hazards, including moving heavy equipment, large pieces of stationary equipment, loading ramps, changing site topography, steep drops, and excavated faces. Furthermore, it must be emphasized that areas subject to quarrying remain hazardous even when quarry operations are idle or after the quarry site becomes inactive or is abandoned.	Forestry advises the safe work practices for all work on public lands where the public has a right of access should be followed.

Department / Agency	Contact Date	Response Date	Issue / Concern	Action / Comments from Forestry
Mines	February 2, 2026	March 17, 2026	Table of values We ask that the most recent version of the Table of Values for Mining, Mineral Exploration and Quarrying be included in the FYOP document. Overlap of harvesting areas with quarry sites Parties engaged in domestic and commercial harvesting should not enter quarry sites and should be advised of the potential hazards that would be associated with entering a quarry site. While we acknowledge that the inclusion of quarry sites within domestic cutting areas appears to represent a regional approach to drawing the polygons, we nonetheless consider that domestic (and commercial) harvesters should be advised of the hazard potential associated with quarry sites and directed not to enter, and not to closely approach, areas subject to current or past quarrying. In addition, domestic and commercial harvesters should be advised that they are not permitted to use quarry sites for staging, laydown or wood storage areas. In addition, domestic and commercial harvesters should be advised that trees located between woods roads and quarry sites are not to be harvested. Where a quarry exists alongside a woods road, the trees located between the access road and the quarry should not be harvested but rather left in place to serve as a natural barrier to help to prevent unauthorized access into the quarry. Each quarry operator is required to prevent unauthorized access into their quarry. New quarries are not permitted within 15 m of a woods road and the site boundaries accepted by the Department of Energy and Mines reflect this buffer. Some established quarries also have a treed buffer between the woods road and their workings. While gating, berms, or boulders may be used to restrict access at the entrance point, the preservation of natural tree screens is a very effective and convenient means of restricting access along the wider boundary.	Forestry will include Mining values in the plan. Forestry will identify any Quarry boundaries that are on the Land Use Atlas, or any mapping files provided by Mines. Forestry requests that mine's provide signage for any areas that reasonably are required for public safety. Quarry boundaries for Mines for operations should be clearly marked, bermed, or fenced for the prevention of trespass as per requirements under the Lands Act Section 28 (1). Forested areas that may be required by Mines for screens, or other purposes should be established following consultation with the District Ecosystem Manager.

Department / Agency	Contact Date	Response Date	Issue / Concern	Action / Comments from Forestry
Mines	February 2, 2026	February 2, 2026	Overlap of domestic harvesting areas with mine sites Again, we acknowledge that the inclusion of mines sites within domestic cutting areas represents a regional approach to drawing the polygons, however nonetheless consider that domestic harvesters in Labrador West should be advised of the hazard potential associated with mines and mine-related infrastructure and directed not to enter areas subject to current or past mining activity or to use mine-related infrastructure such as haul roads.	Forestry will not encroach on any Land identified on the Land Use Atlas as a freeze area that is not Crown land. Harvesting will not be knowingly carried out on any land that has boundaries marked on the ground as per section 28 (1) of the Lands Act.
Water Resources	February 2, 2026	February 24, 2026	Comments regarding permits under Section 48 of the Water Resources Act are below: 1.Roads: a.Roads passing through wetlands or within 15m of a body of water will require S48 approval. b.Culverts associated with waterbodies visible on 1:50k topo mapping will require S48 approval. 2.Any clearing of land associated with commercial or domestic harvesting within 15m of a body of water/wetland will require S48 approval. a.Any equipment crossing a body of water or wetland will require S48 approval. 3.Activities associated with “Silviculture Treatment” that take place within 15m of a body of water may require S48 approval.	Forestry follows all recommendations and permit requirements undo the Water Resources Act.
			Prior to the start of forest management activities, the proponent must apply for and obtain a permit under the Water Resources Act, 2002, specifically Section 39 http://assembly.nl.ca/Legislation/sr/statutes/w04-01.htm for any proposed development adjacent to or within any Protected Public Water Supply Areas (PPWSA) which include and not limited to roads, silviculture, commercial and domestic harvesting.	

Department / Agency	Contact Date	Response Date	Issue / Concern	Action / Comments from Forestry
Water Resources	February 2, 2026	February 24, 2026	Based on the 5-year plan for FMD 21, Section 39 permits would be required before activities occur inside the following PPWSAs: • Middle Pond PPWSA for Charlottetown, • Tub Harbour Pond PPWSA for St. Lewis, • St. Mary's River PPWSA for Mary's Harbour, • Trout Brook PPWSA for Forteau, and • Park Pond PPWSA for L'Anse au Clair	Forestry follows all recommendations and permit requirements undo the Water Resources Act.
			WRMD are currently working with the Town of Red Bay and the Town of L'Anse au Loup on the protection of the watershed areas for their drinking water systems. Based on the 5-year plan for FMD 21, Domestic Operating Areas overlap these proposed PPWSAs. If these areas are ultimately protected under the Water Resources Act, Section 39 permits would be required before activities occur: • Northern Brook watershed area for Red Bay • L'Anse au Loup River watershed area for L'Anse au Loup	

Department / Agency	Contact Date	Response Date	Issue / Concern	Action / Comments from Forestry
Crown Lands	February 12, 2026	March 4, 2026	• The Crown Lands Administration Division advises that the proponent is to operate under the established legislation and regulations of the Lands Act. It is the proponent's responsibility to identify Crown lands required for their undertaking. • The project area overlaps Crown lands issued titles. It is recommended that the proponent advise title holders of their proposed activities and the associated timelines. Approximate locations of these titles can be viewed on the Provincial Land Use Atlas viewer here: https://www.gov.nl.ca/landuseatlas/details/. All activities within the proposed boundary should take into consideration the titles that have been issued to ensure the proposed activities does not conflict with the approved/existing uses, as well as appropriate buffers around existing developments. Title holders must be permitted to develop their property for the intended use. • There may be private land located within this area which may not be on record with the Crown Lands Office. If work is planned on private lands, permission is required from the land owners. • Identify areas where cottage application can be accepted withing the five-year operating plan boundaries. • Any activities that occur within the 15m Shoreline Reserve of any water body must strictly adhere to the regulations in Section 7 of the Lands Act. • All constructed resource roads for this project are to remain open for public access. • All roads constructed for the purposes within the operating plan, the Land Management Division requires consultations before any roads become decommissioned and/or removal of infrastructure (roads/culverts).	Forestry will not encroach on any Land identified on the Land Use Atlas that is not considered available Crown land. Forest access roads are designed under several time period classes - some roads are for short periods, and the removal of culverts and bridges are planned soon after harvest. Forest access roads are public roads and are available for public use, subject to reasonable safety and maintenance restrictions deemed necessary. Forestry requests that Lands inquire on specific forestry roads for other use cases. Any private land, identified in the LUA, will not be shown on Forestry Maps as available for harvest. Harvesting will not be carried out on any land, not in the LUA, that forestry becomes aware of, that may be private. If forestry becomes aware of boundaries (not in the LUA), however, are marked on the ground as per section 28 (1) of the Lands Act, harvesting will not be permitted without approval from Lands. Forestry management activities do not generally impact any areas that would be within the 15-meter reservation. Foret access roads, constructed under an approved Forest Management plan and cross a reserve are not grants, leases, licenses, or Quitclaims and are not considered subject to the Lands Act Section 7. Cottage applications should follow the current referral process to forestry for a forestry analysis of impacts.

Department / Agency	Contact Date	Response Date	Issue / Concern	Action / Comments from Forestry
Agriculture Lands Section	February 12, 2026	March 4, 2026	**Agriculture Lands Section** The area of application overlaps several Agriculture properties, Agriculture Development Areas (ADA) and Agriculture Areas of Interest. In general, the Agriculture Lands Section does not have concern with the proposed activities at this time. If activities should interfere with the agriculture properties and future production in this area, the Land Management Division will work with the proponent to mitigate any potential issues.	Forestry will work with Agriculture on any issues
Land Management	February 12, 2026	March 4, 2026	LMD Planning FMD 22 encompasses several Cottage Development Areas (see attachments). Both FMD 21 & 22 encompass Issued titles. The proposed activities are not to encroach on existing titles and the proponent should keep the safety of cottage owners and other recreational users in mind during the proposed activities. Approximate locations of these titles can be viewed on the Provincial Land Use Atlas on the website at www.gov.nl.ca/landuseatlas/details/. No further concerns from an LMD Planning perspective.	Forestry will not encroach on any Land identified on the Land Use Atlas as a freeze area that is not Crown land. Harvesting will not be knowingly carried out on any land that has boundaries marked on the ground as per section 28 (1) of the Lands Act

Department / Agency	Contact Date	Response Date	Issue / Concern	Action / Comments from Forestry
Natural Areas	February 12, 2026	No response		
Wildlife Division	February 12, 2026	February 26, 2026	Wildlife Div has no concerns with the proposed activities in 21/22	