

7.11 Land Use and Tenure

This section examines the potential effects of routine project activities and operations on non-traditional land and resource use in the vicinity of the project. Non-traditional land uses include activities that take place under formal tenures and licenses, and informal activities, such as recreational use. Traditional land uses, defined by First Nations with an interest in the project area, are discussed in Section 7.12: First Nations and Traditional Knowledge. Potential effects of accidents and malfunctions are discussed in Chapter 8.

7.11.1 Scope of Assessment

Issues and Selection of Valued Ecosystem and Cultural Components

Potential adverse effects of the project on land use and land tenure can include alienating or inhibiting access for other land uses (e.g., presence of project facilities conflicts with other resource extraction activities or non-consumptive use of the area), or changing the amount or quality of the resource or land use activity (e.g., increased access or presence of industrial facilities reduces quality of the area for wilderness recreation and guide outfitting; effluent discharges may affect the water quality for consumption or fishing).

Due to the nature of the LSA and RSA being predominantly wetlands and the somewhat remote location of the project, there are relatively low levels of use, although there are numerous mineral claims in the area. No specific issues have been raised during regulatory, public and First Nations consultations concerning potential conflicts of the project with existing and planned land use. The selected VECCs (Table 7.11-1) provide the basis for a systematic inventory of existing land tenures and existing and planned land use activities in the area, and an assessment of potential project effects during the project construction, operation, decommissioning and closure phases. The time frame for other land use activities in the area has been inferred from the status of tenures and consultation with land management and tenure granting agencies.

Temporal Boundaries

The timeframe for the assessment encompasses baseline conditions, as characterized from available information, compiled in 2007 and 2008, and all project phases from construction through closure. Incremental effects in relation to baseline conditions will be greatest during construction and persist through operations and the early stages of decommissioning. Progressive reclamation and phased decommissioning of facilities will result in a gradual reduction of effects until final reclamation and closure, when effects will be limited to those associated with the access road and airstrip, which will be left in place. In order to characterize the range of project and cumulative effects on land use and land tenure, effects characterization will focus on the baseline, full build out and operation of facilities and closure phases.

Table 7.11-1 Land Use and Land Tenure VECCs, Selection Rationale and Data

Proposed VECC	Rationale for Selection	Linkage to EAP Report Guidelines or Other Regulatory Drivers	Baseline Data for EAP
Settlement and transportation infrastructure	<ul style="list-style-type: none"> ▪ Project development could affect existing roads, power lines or other Infrastructure. 	<ul style="list-style-type: none"> ▪ Information requested in the EAP Report Guidelines. 	<ul style="list-style-type: none"> • Provincial mapping • 2007 - 2008 tenure information • Government and industry maps and data
Mineral and oil and gas activity	<ul style="list-style-type: none"> ▪ Potential for project effects due to the presence of numerous other tenures in the immediate vicinity of the project. 	<ul style="list-style-type: none"> ▪ Information requested in the EAP Report Guidelines. 	<ul style="list-style-type: none"> • 2007 – 2008 tenure information • Government and industry maps and data • Consultation with COI
Forestry and agriculture	<ul style="list-style-type: none"> ▪ Clearing for site development could affect productive land base. 	<ul style="list-style-type: none"> ▪ Information requested in the EAP Report Guidelines. 	<ul style="list-style-type: none"> • 2007 - 2008 tenure information • Government and industry maps and data
Non-traditional fishing	<ul style="list-style-type: none"> ▪ Ground disturbance and erosion during construction and potentially contaminated site drainage or effluent discharges could effect fish and associated fishing activity. 	<ul style="list-style-type: none"> ▪ Information requested in the EAP Report Guidelines. 	<ul style="list-style-type: none"> • Government and industry maps and data • Consultation with Aquatics discipline
Non-traditional hunting	<ul style="list-style-type: none"> ▪ Project transportation corridors could affect nature and level of hunting activity in the area. 	<ul style="list-style-type: none"> ▪ Information requested in the EAP Report Guidelines. 	<ul style="list-style-type: none"> • Government and industry maps and data • Consultation with Wildlife discipline
Trapping	<ul style="list-style-type: none"> ▪ Project access could affect level of trapping activity. ▪ Project-related disturbances could affect fur-bearer habitat and abundance. 	<ul style="list-style-type: none"> ▪ Information requested in the EAP Report Guidelines. 	<ul style="list-style-type: none"> • 2007 – 2008 tenure information • Government maps and Data Consultation with Trapline Owners • Consultation with Wildlife discipline
Tourism and non-consumptive recreation	<ul style="list-style-type: none"> ▪ Project could affect level of recreation activity. 	<ul style="list-style-type: none"> ▪ Information requested in the EAP Report Guidelines. 	<ul style="list-style-type: none"> • Government and industry maps and data
Guide-outfitting	<ul style="list-style-type: none"> ▪ Project site and access development could affect guide-outfitting areas. 	<ul style="list-style-type: none"> ▪ Information requested in the EAP Report Guidelines. 	<ul style="list-style-type: none"> • 2007 – 2008 tenure information • Government and industry maps and data
Protected and environmentally significant areas (ESAs)	<ul style="list-style-type: none"> ▪ Project site and access development could conflict with conservation areas or objectives. 	<ul style="list-style-type: none"> ▪ Information requested in the EAP Report Guidelines. 	<ul style="list-style-type: none"> • 2008 tenure information • Government maps and data

Study Area

Project effects on identified VECCs include potential direct effects of the project disturbance footprint on existing tenures and the resource or land use they host, and potential indirect effects on wildlife and fisheries resources, which support hunting, trapping, fishing and guide outfitting. Accordingly, the LSA for the land use assessment includes the project disturbance footprint, conservatively defined as the total area of all claim areas affected by project facilities and construction (Figure 7.11-1).

The RSA for land use is the same as the RSA for wildlife (Section 7.10), which is the area within which the project may affect hunting, trapping and guide outfitting, or contribute to a reduction in the productive capacity of wildlife populations to support these activities. The land use RSA also encompasses the RSA for potential effects on fisheries (Section 7.8) and associated capacity of the area to support fishing.

7.11.2 Baseline Conditions

7.11.2.1 Methodology

The objectives of baseline data collection for the land use and tenures assessment are to identify existing land uses and resource users in the region and establish land use and tenure trends and, where possible, indicate possible future uses.

Baseline land use and tenure data was collected for the LSA and RSA through a combination of reviewing and incorporating the findings of past studies in the project area and the surrounding region and collecting additional baseline information as necessary to update existing information and address data gaps.

Information sources include:

- government data bases, digital data and maps;
- hunting, trapping and outfitting areas;
- websites for government and non-government agencies and organizations; and
- personal communications with key government agency representatives regarding known resource requirements of other disclosed projects.

7.11.2.2 Results

Baseline conditions for selected VECCs are described in the following sections.

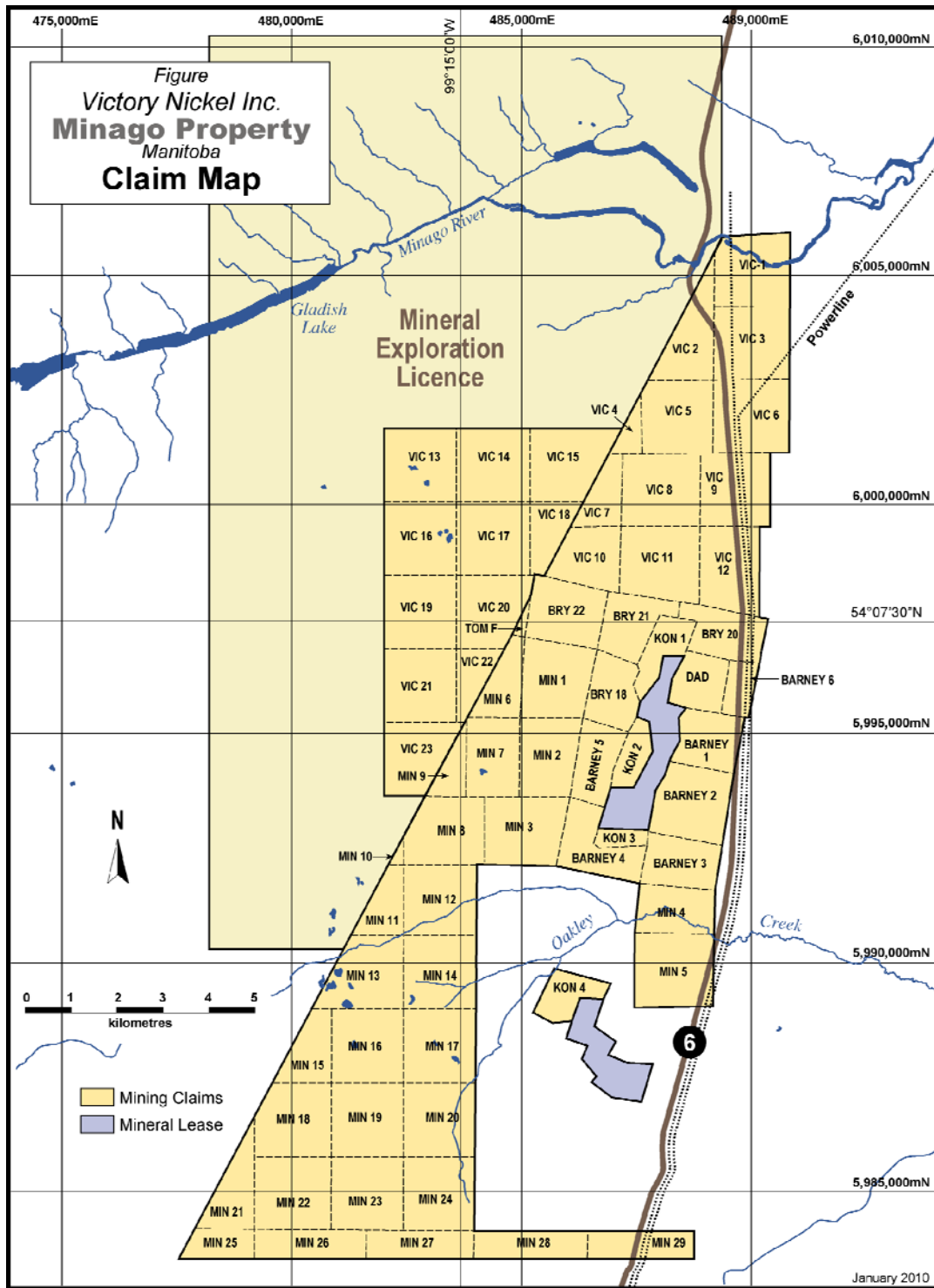


Figure 7.11-1 Minago Mineral Dispositions and Property Boundaries

Land Use Planning and Zoning

The Minago Project is located in the Norway House Resource Management Area (RMA). Lands within Manitoba are controlled by various levels of government:

- vacant lands within the territory are governed by the Manitoba government;
- First Nations control their settlement area;
- municipalities administer lands, community plans and zoning bylaws within their jurisdictions; and
- the Federal government controls lands consisting of National Parks.

The Resource Management Areas have been established by the Manitoba government. The RMA, in which the project area is located, is currently an inactive area so there are no current land use plans developed for the project area. As no development are currently occurring in these areas, they will not be directly affected by the development of the project in a cumulative manner.

Land Use Dispositions

In the RSA, there are land dispositions in the southern, northern and western sides of the Project area. The dispositions are in the Moose Lake territory, Cross Lake territory and Norway House Management Area.

Settlement and Transportation Infrastructure

Settlement

There are no established communities within the LSA or RSA. However, the nearest communities to the project area are:

- Grand Rapids First Nation and Town of Grand Rapids located approximately 110 km south of the project. Grand Rapids First Nation is governed by a Chief and Council. The Town of Grand Rapids is governed by a Mayor and Council. The population of Mispawistik Cree Nation (Grand Rapids First Nation) was 1,394 (Aboriginal Business and Communities Directory – Prairie Region, 2006 - 2007). Community services and facilities include postal service, Fire hall, band hall, RCMP, service station and restaurant, general store, fisherman's co-op, trucking, freight service, lodge, hotel, motel, campground, medical transportation, education authority, school buses, dental office, health authority, day care and school. The economic base is hunting, commercial fishing and trapping.

The population of the Town of Grand Rapids was 336 (Statistics Canada, 2006 Census). The economic base is hunting, commercial fishing and trapping.

The Town of Grand Rapids is located on the northwestern shore of Lake Winnipeg, at the mouth of the Saskatchewan River. Just over 400 kilometres from Winnipeg (Manitoba's Capital) along Provincial Trunk Highway 6, Grand Rapids is part of the Norman Region of the province. At one time, the community was an important hub of activity for many northern settlements. Today, Grand Rapids is an enterprising community, making its living off the abundant natural resources and tourist activities the area has to offer.

The economy of the area is based on tourism, commercial fishing, a forest products operation and trapping. A hydro electric generating plant located adjacent to the Town of Grand Rapids on the Saskatchewan River, is the largest employer. Tourist related occupations also provide employment for many residents of the town and surrounding area. The area is known for having some of the finest master angler fishing lakes in the province, and many tourists arrive each year to lodges and outposts, looking for guides and other services.

- Thompson is located approximately 225 km north of the project and is governed by an elected municipal council consisting of a mayor and council. The population of Thompson was about 13,300 in 2006. Thompson is the largest city in Northern Manitoba. Major economic activities include mining, government services, tourism, and transportation. Mining has shown steady growth over the years. The main mining company in the area is Vale Inco.
- Snow Lake is a small town located approximately 140 km northwest of the project area. The town is governed by an elected mayor and council. Snow Lake has experienced mine closures from time to time and the population of Snow Lake has had wide fluctuations, but has been stable at approximately 870 for the last two years. The main industry is and always has been mining; currently with one mine producing zinc and lately (late 2009) it was discovered that it could have the largest deposit of gold in Canada.
- Wabowden – located about 115 km north of the project and 111 km south of Thompson. From a high of over 1,000 during the mining boom years, Wabowden's population has since stabilized at a level just under 700. The local economy is now based on commercial fishing, hunting and trapping, logging, mining, rail transportation, government operations and tourism. The nearby Setting Lake Park, scenic attractions such as Sasagiu Rapids and Pisew Falls, and an abundance of clean lakes, rivers and streams make Wabowden a popular vacation spot. One of the main employers is Crowflight Minerals.
- Moose Lake is located approximately 240 km (by road) of the Project. Moose lake consists of Mosakahiken Cree Nation with a population of 1,635 and the Town of Moose Lake. Community services and facilities include postal service, First Nation constable, RCMP, general store, taxi, medical transportation, education authority, school buses, dental office, health authority, day care and school. The economic base is hunting, commercial fishing and trapping.
- Cross Lake is located approximately 190 air kilometers (118.5 miles) south of Thompson and 520 air kilometers (325 miles) north of Winnipeg along the shore of the Nelson River,

where it enters Cross Lake. It is approximately 227 km by road from the Minago Project. The Cross Lake Indian Reserve consists of Reserve No. 19, 19A, 19B, 19C, 19D, and 19E, which are adjacent to each other.

According to the regional population statistics as of December 31, 2002, the Band has an on-reserve population of 4,216 and an off-reserve population of 1,733. The total Band population is 5,949. There are individuals of non-aboriginal origin, as well as a number of Métis and others, residing on-reserve bringing the total population of Cross Lake to approximately 7,000 people. The majority of the population is treaty status. On-reserve facilities include a Band Administration Building, Community Hall, Awasis, Tobacco Sales office, Arena, Construction and Maintenance garage, Housing Warehouses, Daycare, Playgrounds, Ball fields, a fully developed track and field area, Royal Bank, and a Radio and TV Station building. There are facilities for fire and police (RCMP) protection, hydro services (from Jenpeg Generating Station), Postal Services (daily), Health Care (variety of services), and Child and Family services. The economic base is hunting, commercial fishing and trapping.

- Norway House is located approximately 264 kilometres by road from the Minago Project. The population of the Norway House Cree Nation (NHCN) is approximately 6,229. NHCN is governed by a Chief and Council and the Norway House Township is governed by a mayor and council. The main industries are fishing, trapping, hunting and logging. The community services and facilities include postal services, RCMP, First Nation Constable, fire hall, various government offices, health office, schools, family services, airport and marine operations, community and youth correctional services, gas and convenience stores, restaurants, taxi services, auto service and garage, small motor repairs, lodge, hotels, sports and recreation multiplex, industry mall, video store, hydro, landscaping, pharmacy, hospital, bakery, insurance and bank.

The locations of these communities are shown in Figure 7.11-2. Further information on these settlements is contained in Section 7.14: Socio-Economic Conditions. The major Aboriginal groups affected by the project are the Grand Rapids Cree Nation, Cross Lake Band of Indians, Norway House Cree Nation and Moose Lake Cree Nation.

Transportation Infrastructure

Transportation infrastructure affected by the project includes air and road transport systems in Manitoba. National airlines provide regular daily service from Thompson to Winnipeg, which is also the base for a number of charter companies. The Thompson airport has paved runways and a terminal that is staffed full-time and served by charter air services. The Pas, Cross Lake, Norway House have full service airports. Grand Rapids has a good quality gravel strip owned and operated by Manitoba Hydro. This gravel strip is only about 500 metres long and is unsuitable for upgrading to handle twin engine commuter airplanes.

The project will make use of the PTH6 which connects Winnipeg and the Northern communities. The project is located off PTH 6 (Figure 7.11-2). Highway traffic is minimal during the winter

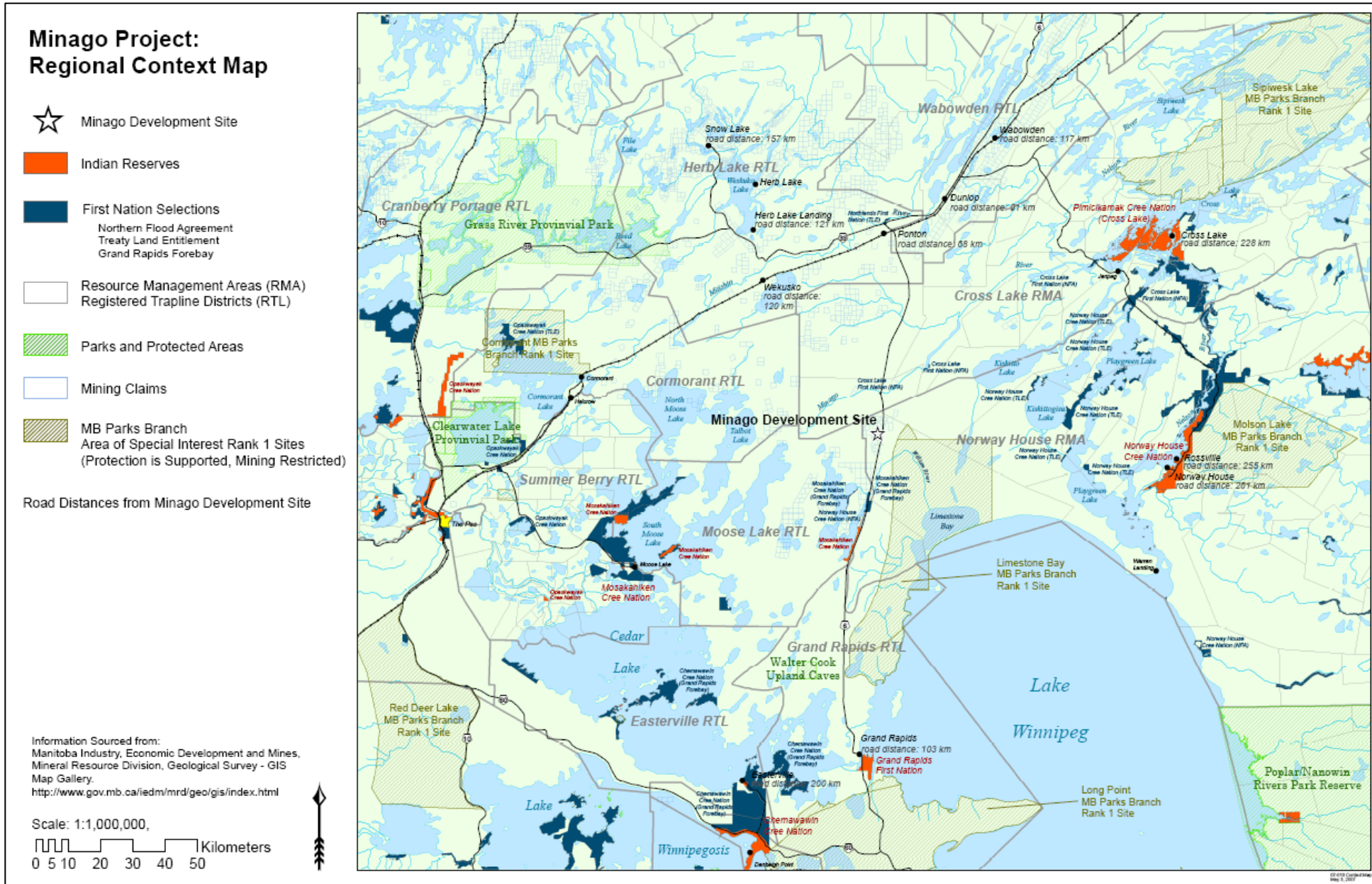


Figure 7.11-2 Context Map and Transportation Infrastructure

months and, although it increases in the summer months with the tourist traffic, it is still not yet up to design capacity.

Minerals

Mining is the primary sector of industrial development in the north. Today there are many companies conducting mineral exploration or active mining in Northern Manitoba. The Mines Branch is responsible for the development and management of Manitoba minerals. The project is situated within the Thompson Nickel Belt Mining District.

The area surrounding the project is very active from mineral exploration and mining perspectives. To the North there are operating mines in Thompson (Vale Inco), Snow Lake (HudBay), and Wabowden (Crowflight Minerals). In the RSA, there are many registered mineral dispositions (active and expired).

The status of activities at identified exploration areas, prospects, the past mines could not be found at the Mines Branch website. No coal mining leases, placer claims or potential diamond mining areas have been identified within or adjacent to the RSA. Just outside the RSA, however, there are operating mines (Vale Inco – Thompson and HudBay - Flin Flon), and some recent discoveries near Snow Lake, Manitoba.

Forestry

The Forestry Branch of Manitoba Conservation is one of several resource branches responsible for ensuring sustainable resource management for present and future generations of Manitobans.

Under the authority of the *Forest Act*, the Forestry Branch manages provincial Crown forests by setting forest harvest levels, monitoring forest management activities, ensuring forests are regenerated, providing protection from insects and diseases and collecting revenues for use of Crown timber.

The Forestry Branch also supports forest management programs outside of Crown forests. Through the Manitoba Habitat Heritage Corporation and the Manitoba Forestry Association, Manitoba Conservation delivers woodlot management programs to private landowners in southern Manitoba.

The department assists co-operating communities with urban forest management, in part, by administering the *Forest Health Protection Act*, *Forest Health Protection Regulations* and *Arborists Regulations*.

Applications for and allocation of wood and timber permits on Manitoba land are issued by Manitoba Conservation. Throughout the forest zone, regional forestry personnel implement forest management programs on behalf of the department. Regional personnel supervise the forest industry and work with other natural resources managers to provide maximum benefits

relating to wildlife, recreation and water to name a few. Regional forestry offices are located in Lac du Bonnet, Steinbach, Gimli, Swan River, The Pas, and Thompson.

Currently there are no pending woodlot application for the LSA and RSA.

Agriculture

Manitoba has vast amounts of land devoted to agriculture (for commercial crops and food crops production and pasture/grazing). The majority of the agricultural lands in Manitoba are located near in southern Manitoba.

There are no lands used for existing agriculture or slotted for future agricultural development in the LSA and RSA.

Non-traditional Sport Fishing

Both Manitoba Conservation and the federal Department Fisheries and Oceans (DFO) regulate fishing and angling in the Province. DFO protects the fish habitats under the *Fisheries Act*. The Manitoba government manages all fish species. Fisheries management is achieved through size selective harvest and the encouragement of live release fishing. Fishing during spawning seasons is prohibited.

Walleye or Pickerel is one of the most popular commercial and sport fish in the Manitoba.

Numerous studies have been conducted on watersheds in the project area at various times and locations between 2006 and 2008. Refer to Section 7.8: Fish Resources for the methods and findings of these investigations. Overall, six species of fish have been recorded in the lake systems around the project area and these include Northern pike, Walleye, Rainbow smelt, Yellow perch, White sucker and Longnose sucker. White and Longnose suckers are common in the Oakley Creek and the Minago River.

Non-traditional Hunting

The LSA and the RSA contain somewhat low wildlife values. Wildlife resources in the immediate project area and surrounding region include moose, black bear, fox, coyote, marten, beaver, various waterfowl, and a variety of other forest birds (Refer to Section 7.10: Wildlife). The lakes and small ponds/wetlands provide breeding and migratory habitats for waterfowl and other aquatic birds (Section 7.10: Wildlife).

Target species for hunting in Manitoba is mainly moose.

Trapping

The LSA and RSA are home to a number of furbearing mammals that are trapped for their fur, including beaver and marten. In the LSA, there is one trapping license holder. To the southwest

and north, there are more trapping license holders. Most of them are registered trapping concession holders, and the others are assistant trappers.

Manitoba has established trapping areas to regulate the harvest of fur-bearing species. A registered trapping concession (RTC) is a parcel of land on which the holder is given exclusive rights to harvest furbearing animals.

Manitoba conservation keeps track of the annual fur harvest by monitoring trapping licences, export permits, fur dealer and taxidermist records, and sealing certificates. Individual harvest information is confidential and is not normally released without the written permission of the RTC holder.

Guide Outfitting

There are no outfitters within the LSA and RSA.

Tourism and Non-Consumptive Recreation

The region surrounding the project supports little formal recreation or tourism. Lake Winnipeg to the south provides more formal recreational and tourism opportunities. There are no wilderness lodges or campgrounds in the LSA and in the RSA.

There are several recreational opportunities outside the RSA, including campgrounds in Grand Rapids, The Pas and Thompson.

Protected Areas

No special management or habitat protection areas, heritage rivers, National Wildlife Areas, or wildlife sanctuaries have been identified within the LSA and RSA.

There is a Reserve Park outside the RSA known as the Little Limestone Lake Park Reserve. The 4,095 hectare Little Limestone Lake Park Reserve is located amid unique "karst" (limestone) geology in the Manitoba Lowlands region. Located just north of Grand Rapids, this distinctive landscape is pockmarked with sinkholes and underlain by caves that have been largely shaped by the dissolving action of water on the limestone bedrock.

Little Limestone Lake is a majestic turquoise body of water. It is a marl lake that visibly changes colour as the calcite in the water, dissolved from the limestone bedrock, chemically reacts with the heat of the sun. On hot days the water turns a rich milky blue. It is considered by experts to be the largest and most outstanding example of a marl lake in the world.

The Little Limestone Lake Park Reserve lies in the traditional territory of Mosakahiken Cree Nation. All of the eastern shore of the lake is reserve land and the community will play a role in managing and protecting the lake.

Little Limestone Lake overlies the Thompson Nickel Belt, an area of high mineral potential. The park reserve was designated in co-operation with the mining industry. Xstrata Corporation made protection of Little Limestone Lake possible by removing its mining claims under and adjacent to the lake.

Designation of Little Limestone Lake as a park reserve will provide protection for the lake while allowing time for a public review to take place regarding the management of the lake and the future of this area. Little Limestone Lake Park Reserve is categorized as an IUCN (International Union for Conservation of Nature) protected area Management Category III, that is, a protected area managed mainly for conservation of a specific natural feature of outstanding or unique value.

Furthermore, there is the proposed National Park outside of the RSA. The proposed National Park is distinct in that it consists of separate components - the Long Point area and some nearby islands in Lake Winnipegosis, the Limestone Bay area and the Black and Deer Islands - which together can represent the diversity of the Manitoba Lowlands natural region better than one site could on its own. There are mixed opinions regarding the establishment of the National Park and to date no agreement has been reached.

7.11.3 Effects Assessment Methodology

To characterize the potential range of project effects on land use and land tenure, activities and operations were assessed for the nine VECCs for the construction/operations and closure phases. Where effects are identified, mitigation measures are recommended to reduce or eliminate these effects. Residual effects remaining after mitigation are characterized.

The level of project effects is difficult to determine for the non-traditional land use discipline, as there is a lack of specific guidelines or thresholds set regarding acceptable levels of activity. In part, this is due to the inability to quantitatively determine impacts on a VECC for which there is no numerical base. For example, it is difficult to predict a quantitative change in informal recreational activities, perceived enjoyment of an activity, or harvest levels for sport hunting and fishing. Therefore, a qualitative method based on professional judgement and with linkages to other disciplines was employed. The determination of the level of project effects on land and tenure use were characterized in terms of direction, magnitude, geographical extent, duration, frequency, reversibility and likelihood of occurrence of the impact according to criteria, detailed in Table 7.11-2.

A project or cumulative effect is deemed significant if it is adverse, high magnitude, local to regional extent and medium to long-term. Otherwise, effects are rated as not significant.

7.11.4 Project Effects

The project will include the construction, operation, decommissioning and closure of mining and ore processing facilities and associated infrastructure. Development of the project has the potential to effect resources on the land and, in-turn, how those resources are used (i.e. land

Table 7.11- 2 Effect Attributes for Land and Tenure Use

Attribute	Definition
Direction	
Positive	Effect improves the status or condition of VECC.
Adverse	Effect worsens the status or condition of the VECC.
Neutral	Effect has no change on the status or condition of the VECC.
Magnitude	
Low	No effect or negligible effect to VECC.
Moderate	Effect on VECC is detectable, but within a normal range of variation.
High	Effect on VECC is detectable, but outside normal range of variation.
Geographic Extent	
Site-specific	Effect on VECC within disturbance footprint.
Local	Effect on VECC within Local Study Area (LSA).
Regional	Effect on VECC within Regional Study Area (RSA).
Duration	
Short term	Effect on VECC is limited to the construction period.
Medium term	Effect on VECC occurs through the operational phase.
Long-term	Effect on VECC lasts extends beyond the operational phase.
Frequency (Short term duration effects that occur more than once)	
Low	Effect occurs once.
Moderate	Effect occurs more than once.
High	Effect occurs continuously.
Reversibility	
Reversible	Effect is reversible.
Irreversible	Effect is irreversible.
Likelihood of Occurrence	
Unknown	Effect on VECC is not well understood and based on potential risk to the VECC or its economic or social/cultural values, effects will be monitored and adaptive management measures taken, as appropriate.
High	Effect on VECC is well understood and there is a high likelihood of effect on the VECC as predicted.

use). Project activities are identified as having either a direct or an indirect effect on land use and tenure. Direct effects (e.g., loss of land base and change in access) result from site clearing and construction of facilities and the access road. Indirect effects (e.g., changes in available resources resulting from effects to wildlife and fish abundance and distribution) may result from physical effects and disturbance related to construction, operation and decommissioning.

7.11.4.1 Settlement and Transportation Infrastructure

Approximately 422 people will be required for both the mine and mill operations. The majority of these people will come from the local communities of Grand Rapids, Norway House, Moose Lake, Snow Lake and Cross Lake, resulting in an economic benefit and increased employment in these communities.

Project effects on settlements are expected to be mainly socio-economic. Socio-economic effects on settlements are discussed in Section 7.14: Socio Economic Conditions.

During operations, transportation of concentrate and supplies will result in additional truck traffic on the PTH 6. Impacts may include slowing traffic movement. The potential for accidents and collisions with wildlife, and increasing noise in communities along the highways. The increase in traffic load on the PTH 6 between Grand Rapids and the site will be most noticeable, especially during the winter. Other mining operations such as those in Thompson and Snow Lake have similar effects on the PTH 6. Effects of traffic increases and mitigation measures are discussed in Section 7.10: Wildlife.

The effect of the project on road transportation during operation are expected to be adverse in direction for the PTH 6 and neutral to positive for the other highways. Effects for all highways will be of moderate magnitude, regional, medium term and ultimately reversible.

A majority of the employees required for operations will be transported by bus from the local communities and Winnipeg. Project effects on land transportation are expected to be mainly economic. Increased land freight in the project area could affect other land uses.

In order to minimize disturbances from land transportation on local residents and wildlife and associated land use activities, VNI will establish standard procedures, with appropriate avoidance windows in consultation with the Manitoba Government and the affected communities. As a result, disturbance effects of land transportation on other users are expected to be low.

During decommissioning, there will be a 6-year period of ongoing activities associated with reclamation, monitoring and related site access, accommodation and power supply. At closure, all mine site facility areas will be reclaimed and revegetated. The TWRMF will be reclaimed as a permanent pond and will remain in place. The pit will be flooded and left in place. There will be no residual effects of project-related transportation activities on existing infrastructure at closure.

Accordingly, effects of the project on transportation infrastructure at closure will be positive to adverse, moderate magnitude, long-term and reversible, depending on the ultimate fate and management of the transportation corridors.

7.11.4.2 Mineral and Oil and Gas Activity

The project will not alienate mineral resources from exploration or development by other interests. The effect on mineral activities will be neutral to positive in direction, low in magnitude, site-specific in extent, long-term in duration and reversible at closure. Since the extent of existing developments and disclosed mining proposals in the area is known, the likelihood of effects on mineral activities is high.

A majority of the oil and gas rich basins in Manitoba are located in the southern portion of Manitoba. There are currently no oil and gas wells, seismic exploration or dispositions located within or adjacent to the RSA. There will be no effect on oil and gas activities from any phase of the project.

7.11.4.3 Forestry and Agriculture

Currently, no forestry or agricultural tenures have been identified close to or in the LSA or RSA. The nearest agricultural tenures are in the vicinity of Gypsumville.

There are no existing environmental assessments for forest management plans in the RSA. Therefore, there will be no impact on forestry or agricultural resources from any phase of the project.

7.11.4.4 Non-traditional Sport Fishing

Aquatic resources (fisheries and benthic communities) can be directly affected through physical alteration of habitat for development purposes or indirectly affected by changes in water quality and hydrology resulting from mine construction and operation activities. These can, in turn, potentially affect the productivity of the fishery for sports fishing purposes. Increased number of people can also affect the level of fishing activity at the project site or at near-by fishing areas and lodges.

The nearest sport fishing lodges to the project area are located north of Wabowden (located outside the RSA). Increased visitation and awareness of the area due to project personnel may result in increased visitation to these lodges. On the other hand, increased truck traffic on the highway from the project may discourage use of the highway. Thus, effects of the project could range from positive, through neutral to adverse.

In the project area, much of the headwater and tributary reaches of Oakley Creek, potentially affected by the project, support limited fish habitat values. There is no major sport fishery in the

project area. No effects on fisheries in the Minago River and Oakley Creek due to potential changes in water quality are expected during operations.

An increased workforce in the area may potentially result in increased fishing pressures on fish stocks in lakes and fish-bearing streams in the area. The employees and contractors will be restricted from fishing. The potential impacts of increased fishing pressure from project personnel will be managed through government imposed harvest and seasonal restrictions. As noted in Chapter 9, an employee environmental awareness program will support sustainable fishing practices in accordance with Manitoba regulations.

In summary, the effects of the project on non-traditional fishing activity are expected to be positive through adverse in direction, low to moderate in magnitude, regional in extent and medium to long-term in duration and ultimately reversible, depending on the long-term fate and management of the access road and airstrip. The likelihood of effects on existing sport fishing lodges and on fishing opportunities and activities in the project area is unknown due to the subjective nature of user response to project effects and the unknown status of management measures on the access road at closure.

7.11.4.5 Non-traditional Hunting, Guide Outfitting and Trapping

Project facilities and operations have the potential to affect wildlife numbers and the distribution for wildlife species that inhabit or migrate through the area and indirectly affect hunting, trapping and guiding opportunities and success. The project can also directly affect these activities due to potential changes in the local access patterns. Since local trappers have management responsibilities for the Traplines in the Local Study Area and Regional Study Area, project effects on trapping will be considered, as appropriate, in the context of the traditional knowledge (First Nations and Traditional Knowledge). Effects will be mitigated to the mutual satisfaction of VNI and the trapline owners.

No significant effects on wildlife populations that support hunting and guiding are expected during the life of the project, because of the low level of project effects on habitat availability and implementation of various mitigation measures to prevent wildlife mortality (controlled access, prohibition of fire arms, speed limits on transportation corridors, etc.) (Section 7.10: Wildlife). The presence of transportation corridors will not enhance opportunities for hunting or outfitting during operations, due to these same mitigation measures. There is no guide outfitting in the LSA and RSA. Therefore, presence of the mine will not limit suitability of the immediate area for guide outfitting.

The project effects on hunting and guide outfitting during operations are expected to be neutral to adverse, low magnitude, local, medium term and reversible. The likelihood that effects on hunting during operations will occur as predicted is high because of VNI's commitment to mitigation measures. The likelihood of effects on guide outfitting concessions is unknown, because the current level of guiding in the RSA is uncertain and the potential for increased business to local guide outfitters from project personnel is unknown.

At closure, there is low potential for increased mortality and potentially significant effects on moose populations. The effect on hunting and guiding activity could be initially positive due to an increased population, changing to adverse, if moose populations decline. In the context of opportunities for moose hunting in the RSA, effects are expected to be moderate in magnitude, regional, long-term and reversible in the context of regional moose population management options.

7.11.4.6 Tourism and Non-consumptive Recreation

Enhanced maintenance and potential improvements to the PTH 6 as a result of project related traffic might attract increased tourist use for non-consumptive recreation or use of existing campground and lodge facilities. As noted above, increased awareness of the area by project personnel might result in increased use of recreational facilities and opportunities in the area. On the other hand, increased truck traffic for mine operations may counteract the potential positive effect.

The project transportation corridors will not affect tourism and recreation during the operations as the transportation corridors do not go to any touristic facilities or amenities. Accordingly, project effects on tourism and non-consumptive recreational effects are expected to range from positive through adverse, low to moderate magnitude, regional, medium to long-term and potentially reversible, depending on the management of the access road at closure.

7.11.4.7 Protected and Environmentally Significant Areas

No special management or habitat protection areas, Heritage Rivers, National Wildlife Areas, or wildlife sanctuaries are identified within the LSA and RSA. Therefore, there will be no effect on these areas from any phase of the project.

7.11.4.8 Residual Project Effects and Significance

The project is expected to have low magnitude of effects on PTH 6 transportation, mineral activities, sport fishing, hunting, guide outfitting and tourism and recreation. Positive effects include enhanced opportunities for mineral development, fishing, hunting, outfitting and non-consumptive recreational activities associated with enhanced access at closure. Negative effects include potential reduced attractiveness for some recreation uses due to project-related traffic and potential reduction in regional moose populations due to over-hunting during operations. Effects will mostly be local, but some will extend to regional transportation infrastructure and tourism facilities, and regional opportunities for moose hunting. All effects will be moderate to long-term and ultimately reversible. Based on the criteria and effects assessment provided in Section 7.10: Wildlife, these effects are determined to be not significant. The likelihood of effects is unknown due to a host of external (e.g., mineral prices, economic conditions) and internal (e.g., subjective response of land users to project effects, uncertainties regarding the wildlife hunting due to the presence of PTH 6) factors that will affect land use patterns in the area.

7.11.5 Cumulative Effects and Significance

The only other known project activities that could interact with project effects on land use is the increased traffic on the PTH 6 associated with the operation of the mines in Thompson and Snow Lake. Transportation of Vale Inco's concentrate from Thompson to Winnipeg also has the same effects as the Victory Nickel's concentrate transportation. PTH 6 already attracts more use of the highway and higher levels of activity associated with mining and recreational facilities, informal recreation, hunting, fishing and potential guide outfitting.

Effects of increased truck traffic on the highway due concentrate and Frac Sand hauling for the Minago project could deter the use of the highway. Accordingly, cumulative effects on land use from these sources are expected to be positive to adverse, low to moderate in magnitude, regional, long-term and reversible. The potential effects are determined to be not significant. The likelihood of effects is unknown due to a host of external (e.g., potential highway improvements, economic conditions and associated levels of tourism activity) and internal (e.g., subjective response of land users to project effects) factors that will affect traffic and associated land use patterns in the area.

7.11.6 Mitigation Measures

Mitigation measures identified in other sections pertaining to protection of fish, wildlife, traditional use, and socio-economic conditions also protect the land use and tenure.

Follow-up consultation with the Manitoba government, the COI and other interested parties is required to develop suitable management approaches to road infrastructure affected by the project. Based on the predicted insignificant effects of the project on land use and tenure, no additional impact mitigation measures are proposed. Table 7.11-3 summarizes mitigation measures that will be applied to reduce the effects on land use and tenure.

7.11.7 Monitoring and Follow-up

No project-specific monitoring programs are required related to effects on land use and tenure. Monitoring programs used for other disciplines will contribute to the understanding of effects on land use and tenure. As noted above, follow-up consultation with the Manitoba Government, COI and other interested parties is required to develop and confirm suitable PTH6 management practices during the life of the project and to address project and cumulative effects on the use of the PTH 6 and related effects on land use in the area.

7.11.8 Summary of Effects

Table 7.11-4 provides a summary of project effects assessment conclusions for the land use and tenure component.

Table 7.11-3 Mitigation Measures for Effects on Land Use and Tenures

Potential Project Effect	Mitigation Measures
Potential project effects on settlement and transportation infrastructure during operations	<ul style="list-style-type: none"> • Refer to Section 7.14: Socio Economic Conditions • Consultation with the Manitoba Government, COI and other interest holders
Project effects on fish and wildlife affecting fishing, hunting, trapping and guide outfitting uses	<ul style="list-style-type: none"> • Refer to mitigation measures for fish (Section 7.8), wildlife (Section 7.10), and First Nations and Traditional Knowledge (Section 7.12).
Potential Cumulative Effect	Mitigation Measures
Potential effects of the project, and other road users (Vale Inco) and mine traffic on the PTH 6, affecting highway use and related tourism and recreational activity	<ul style="list-style-type: none"> • Consultation with the Manitoba Government, COI and other interest holders

Table 7.11-4 Program Effects on Land Use and Tenures

Potential Effect	Level of Effect						Effect Rating	
	Direction	Magnitude	Extent	Duration/ Frequency	Reversibility	Likelihood	Project Effect	Cumulative Effect
All Phases								
Transportation infrastructure – increased traffic on PTH 6 during operations	Positive to Adverse	Moderate	Regional	Medium term	Reversible	High	Not significant	Not significant
Non-traditional fishing activities – increased use of lodges outside the RSA, effects on LSA watershed fishery (water quality and access) and fishing pressure from project personnel	Positive to Adverse	Low to Moderate	Regional	Medium to Long-term	Reversible	Unknown	Not significant	N/A
Hunting and Guide Outfitting - Operations effects of access on opportunity, effects on wildlife populations, business for outfitters, decreased attractiveness of area for guiding	Neutral to Adverse	Low	Local	Medium term	Reversible	High to Unknown	Not significant	N/A
Tourism and non-consumptive recreation – Operations effects (increased traffic in region affecting use of facilities)	Positive to Adverse	Low	Regional	Medium term	Reversible	Unknown	Not significant	N/A

Note: N/A not applicable.

7.12 First Nations and Traditional Knowledge

7.12.1 First Nations Communities around the Minago Project

The Minago Project is situated in undeveloped, low, water-saturated muskeg terrain. Coniferous vegetation and small to medium sized lakes are typical at the Minago Project and its surrounding area. The Minago River and Hargrave River catchments, surrounding the Minago Project Site to the north, occur within the Nelson River sub-basin. The William River and Oakley Creek catchments surrounding the Minago Project Site to the south occur within the Lake Winnipeg sub-basin, which flows northward into the Nelson River sub-basin. The Nelson River sub-basin drains northeast into the southern end of the Hudson Bay.

The Project is located in the Norway House Resource Management Area. Neighbouring communities to the Minago Property include Grand Rapids (GR), Moose Lake (ML), Cross Lake (CL), Snow Lake (SL) and Norway House (NH). With the exception of Snow Lake the other four communities are members of Treaty 5. The communities outside Treaty 5 have their own community councils and mayors. The First Nations have their own governing infrastructure usually collectively known as the First Nations in the Northern Region of Manitoba.

7.12.2 Traditional Knowledge

Traditional knowledge (TK) includes an understanding of the functioning of ecosystems (resource abundance, distribution and cycles); land and resources management; social, economic and cultural conditions; and the relationships between these factors. VNI made reasonable efforts to collect and facilitate the collection of traditional knowledge for integration into the EIS Report in collaboration with First Nations communities and organizations as well as local trappers.

VNI considered traditional knowledge in various stages of the project assessment including the scoping of VECCs, the description of existing environmental conditions, predictions of environmental effects, development of mitigation measures, evaluation of significance, and monitoring and follow-up as required.

7.12.2.1 Actions to Solicit Traditional Knowledge

Victory Nickel together with their consultants held a series of meetings and interviews throughout 2007 and 2008 with a wide range of key stakeholders to identify their views and opinions with respect to the Minago Project. The stakeholders included Norway House Cree Nation (NHCN) and Norway House Community (NHC); Grand Rapids Cree Nation (GRCN) and Grand Rapids Community (GRC); Cross Lake Band of Indians (CLBI) and Cross Lake Community (CLC); Moose Lake Cree Nation (MLCN) and Moose Lake Community (MLC); Snow Lake; Manitoba Metis Federation (MMF); Trapline Owners (TLO); Norway House Resource Management Board (NHRMB) and Government Agencies. Consultation and community engagement sessions, small group and open house meetings were held in the communities of Norway House, Cross Lake,

Grand Rapids, Moose Lake, Snow Lake, Thompson, The Pas and Winnipeg. Through these meetings, VNI solicited Traditional Knowledge.

VNI consulted with the various land users from the area with a goal to gather, document and preserve traditional knowledge by working in a genuine partnership.

In order to collect traditional knowledge for use in the EIS, VNI's consultants and personnel met with various community members from the Communities of Interest (Grand Rapids, Cross Lake, Moose Lake and Norway House). In addition, VNI's consultants conducted interviews with traplines owners (see Figure 7.12-1). Information gathered through Archaeological assessment was also used to determine valued ecosystem components of the area.



Figure 7.12-1 Meeting with the Trapline Owners (Land Use Meeting) in Norway House, May 23, 2007

Overall, the archaeological field investigations determined that archaeological potential of the Minago area is extremely low and it is highly improbable that the area was used by inhabitants prior to the introduction of the fur trade. The possibility of finding any evidence of pre-contact utilization of the area is next to impossible and likelihood of locating any evidence of Fur Trade or later use, other than prospecting and mining activities is extremely minimal.

Existing information on First Nations land use, water use, fish and terrestrial wildlife use was reviewed and compiled to assist in the identification and mitigation of the potential impacts from the project. Information provided during community engagement meetings with government and community members was also used to guide the development of baseline studies. In addition to the Communities of Interest, early input to baseline studies and information provided in subsequent meetings to VNI by members of the communities and Chiefs and Councils were used to guide project planning. It must be noted that VNI has not assumed that comments provided during meetings or during visits to the Minago site, while perhaps useful to the proponent, are Traditional Knowledge.

7.12.2.2 Incorporation of Traditional Knowledge

VNI will not compromise any aspects of traditional knowledge during any project phases.

In recognition of the principles of confidentiality with respect to TK, only impact mitigative measures are included in the EIS. For example, the local traplines owners did not want their historical harvest values made public. It is VNI's plan to incorporate traditional knowledge into the final project design work, the development of site-specific protection and management plans, and the development of monitoring programs.

7.13 Archaeology and Heritage Resources

Victory Nickel retained Quaternary Consultants Ltd. to conduct an archaeological impact assessment of the Minago Property as part of an Environmental Impact Statement for the site. The archaeological survey was conducted under the terms of Heritage Permit A40-08, issued by Historic Resources Branch, Manitoba Culture, Heritage and Tourism on June 19, 2008 (Appendix 7.13).

7.13.1 Scope of Assessment

Quaternary Consultants Ltd. (2008) investigated the Minago Property by foot traverses through the forest to the proposed open pit area and visually examined the ground surface. This was augmented by shovel testing in areas which could hold archaeological potential.

The archaeological impact assessment was directed by Sid Kroker, Senior Archaeologist of Quaternary Consultants Ltd. The field investigation team was led by David K. Riddle with Mark Paxton-MacRae as field assistant.

On the day of the survey (June 19, 2008), the archaeological field crew used the very wet, but useable, winter road (Figure 7.13-1) to gain access to the proposed mine location from Highway 6. In some areas, that road was too wet to walk and the crew utilized undeveloped edges of the road instead.

7.13.2 Archaeological Survey Results

Quaternary Consultants Ltd. (2008) found that the general Minago area is very low and wet and speculated that conditions in the past were probably much wetter than the current situation.

It quickly became obvious to the archaeological field crew that the thick, saturated sphagnum layer would cover any archaeological resources that would date back beyond twenty years. Shovel tests were attempted on route from the highway to the mine pit location (Figure 7.13-2), on cut lines radiating from the winter road (Figure 7.13-3), and on side roads (Figure 7.13-4). Once the upper layer of sphagnum was removed, standing water would infill the hole where the moss had been. It was impossible to see through this dark water. The base of each test pit appeared to be solid limestone, approximately 50 centimetres below the top of the existing sphagnum cover (Quaternary Consultants Ltd., 2008).

At the proposed pit location, the crew observed that, further to the south, water ponded on the surface. In non-flooded areas, there was no chance of locating heritage resources due to the impenetrability of the terrain and the thick sphagnum cover. Based on these results, a decision was made to terminate the archaeological field survey (Quaternary Consultants Ltd., 2008).



Source: Quaternary Consultants Ltd., 2008

Figure 7.13-1 Winter Road into Minago Site (facing west)



Source: Quaternary Consultants Ltd., 2008

Figure 7.13-2 Excavating Test Pit along Winter Road



Source: Quaternary Consultants Ltd., 2008

Figure 7.13-3 Excavating Test Pit on Cut Line (Quaternary Consultants Ltd., 2008)



Source: Quaternary Consultants Ltd., 2008

Figure 7.13-4 Secondary Access Road within the Minago Property (Quaternary Consultants Ltd., 2008)

Quaternary Consultants Ltd. (2008) stated that it is virtually impossible that any use could have been made of the mine site vicinity during Pre-contact times. The area is located at a considerable distance from lakes or navigable rivers and access at any time of the year would have been very difficult. Any use of this location that might have occurred would have happened during the winter months and probably would have been related to the fur trade. It would be impossible to predict where such activity would have taken place as traplines are relocated every year to accommodate animal movement. Even if resources from this activity were present, they would be buried deep in the sphagnum moss that covers the area and would be impossible to locate. Comprehensive testing in such conditions would prove nearly impossible and the odds of finding anything using such a technique would be astronomical (Quaternary Consultants Ltd., 2008).

7.13.3 Baseline Conditions

A desktop analysis of the Minago Property indicated a very low potential for archaeological resources. Field investigations by Quaternary Consultants Ltd. (2008) confirmed that archaeological potential is extremely low in this area.

None of the creeks surrounding the Minago Property are navigable and it is doubtful that the Minago area was ever utilized by Pre-contact people (Quaternary Consultants Ltd., 2008). Minago River, located a distance (approximately 12 km) north of the development, is somewhat navigable but too far away to be an influence in the development zone (Quaternary Consultants Ltd., 2008).

7.13.4 Project Related Effects

Quaternary Consultants Ltd. (2008) found that:

- it is highly improbable that the area was used by inhabitants prior to the introduction of the fur trade,
- the possibility of finding any evidence of Pre-contact utilization of the area is next to impossible, and
- the likelihood of locating any evidence of Fur Trade or later use, other than prospecting and mining activities, is extremely minimal.

Based on their work, Quaternary Consultants Ltd. (2008) concluded that the proposed mine development will have no impact upon archaeological resources.

7.14 Socio-Economic Conditions

As part of an Environmental Impact Statement (EIS) of the potential mine development, a Socio-Economic Assessment (SEA) of the communities surrounding the development area was undertaken from May to August 2007. Victory Nickel Inc. retained DHR Associates to conduct a socio-economic assessment of the development area.

Neighbouring communities to the Minago Property include Grand Rapids (GR), Moose Lake (ML), Cross Lake (CL), Snow Lake (SL) and Norway House (NH). All of these communities, with the exception of Snow Lake, are covered by Treaty 5 (Figures 7.14-1 and 7.14-2) and have their own governing infrastructure usually collectively known as the First Nations in the Northern Region of Manitoba. Community members residing outside of Treaty 5 lands have their own community councils and mayors.

To undertake the Socio-Economic Assessment (SEA), a series of meetings and interviews were held with a wide range of key stakeholders to identify their views and opinions with respect to the Minago Project. The stakeholders included Norway House Cree Nation (NHCN) and Norway House Community (NHC); Grand Rapids Cree Nation (GRCN) and Grand Rapids Community (GRC); Cross Lake Band of Indians (CLBI) and Cross Lake Community (CLC); Moose Lake Cree Nation (MLCN) and Moose Lake Community (MLC); Snow Lake; Manitoba Metis Federation (MMF); Trapline Owners (TLO); Norway House Resource Management Board (NHRMB) and Government Agencies. Consultation, small group and open house meetings were held in the individual communities (Norway House, Cross Lake, Grand Rapids, Moose Lake, Snow Lake), Thompson, The Pas and Winnipeg. Figures 7.14-3 through 7.14-6 give snapshots of meetings that took place in the respective communities.

Victory Nickel also has developed a Memorandum of Understanding with Cross Lake, Moose Lake and Grand Rapids First Nations' Bands (Fig. 7.14-7).

7.14.1 Objectives of the Socio-Economic Assessment

The objectives of the Socio-Economic Assessment (SEA) for the Minago Project were as follows:

- Introduce the Minago Project complete with its major components to a wide range of key stakeholders;
- Inform communities and stakeholders of potential impacts (positive and negative) and their relative magnitude on the communities' social and economic well-being;
- Provide an opportunity for the integration of diverse community values into the decision making process for the mine development;
- Understand the concerns of the communities and stakeholders to develop potential mitigative measures that are practical, cost effective and sustainable;
- Provide information to address potential impacts of the Minago Project on the socio-economic resources of the communities.

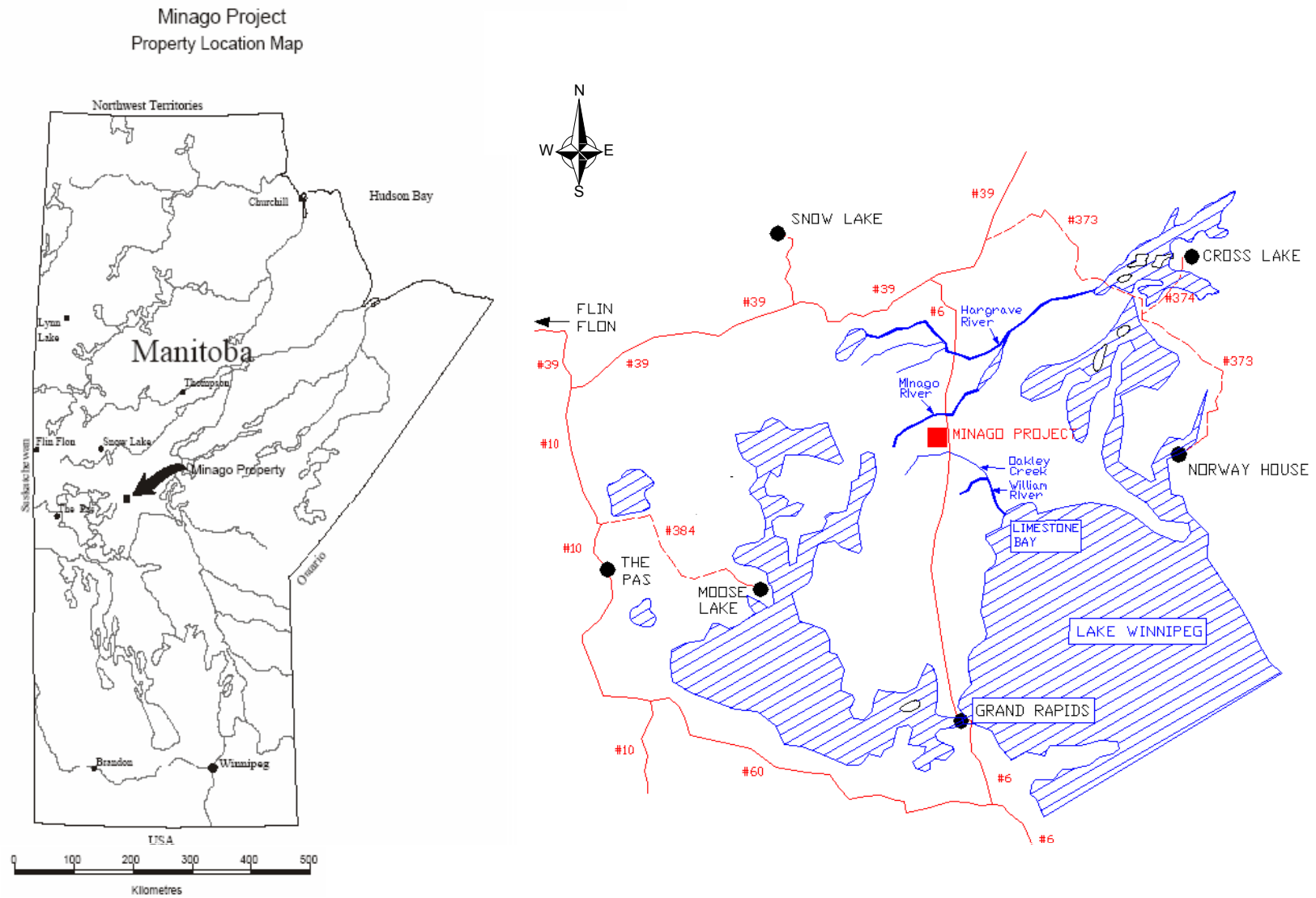
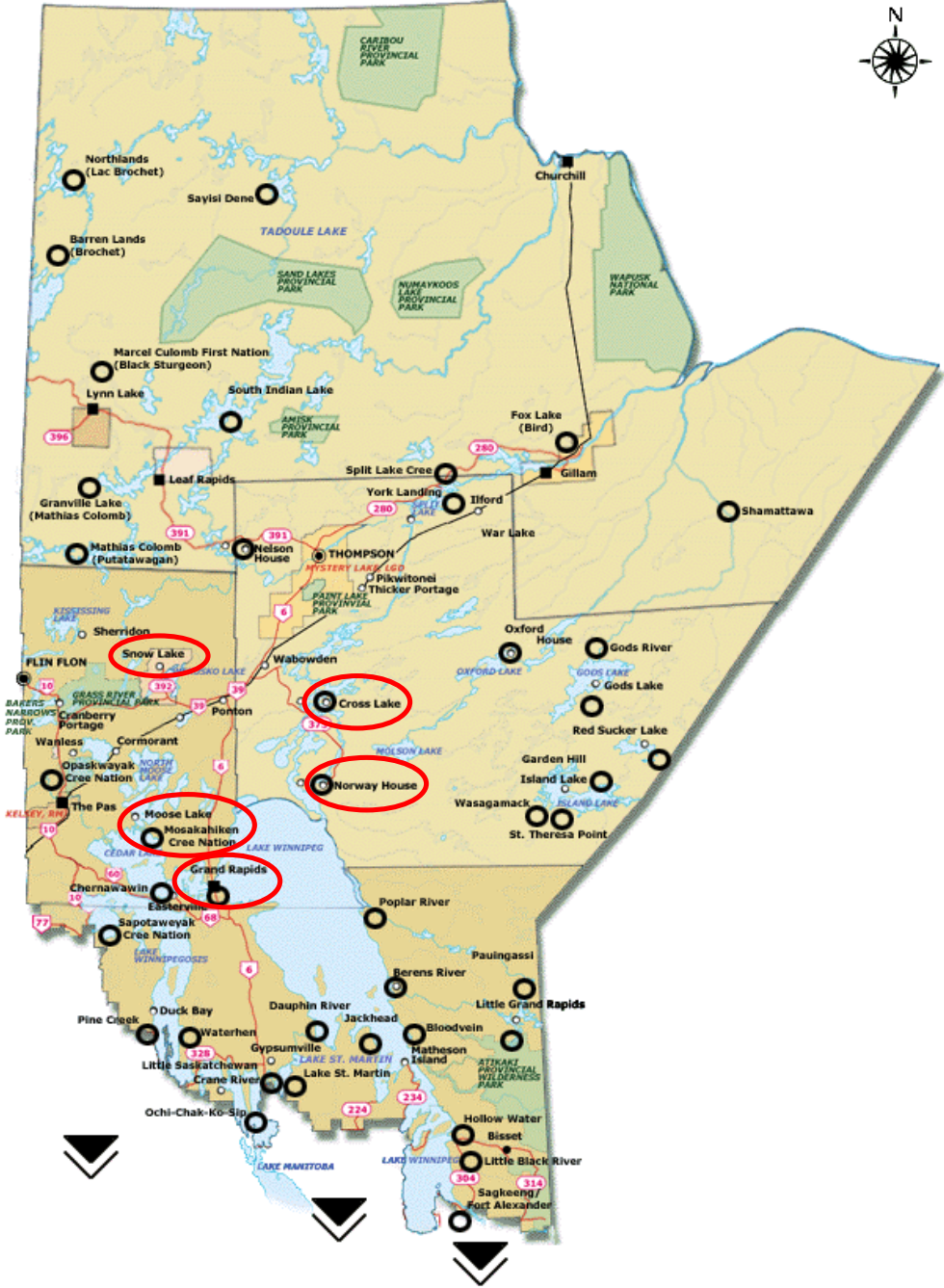


Figure 7.14-1 Site Location Map



Source: Manitoba Government, Manitoba Community Profiles

Figure 7.14-2 Communities of Interest Surveyed



Figure 7.14-3 Open House Meeting in Cross Lake held on 17 May, 2007



Figure 7.14-4 Open House Meeting in Grand Rapids held on May 08, 2007



Figure 7.14-5 Open House Meeting in Norway House held on May 23, 2008



Figure 7.14-6 Meeting with the Trapline Owners (Land Use Meeting) in Norway House held on May 23, 2007



Figure 7.14-7 Signing of the MOU – Victory Nickel Inc. and Cross Lake, Moose Lake and Grand Rapids (December 07, 2007)

7.14.2 Assessment Approach of the Socio-Economic Assessment

The Socio-Economic Assessment examined how the proposed mining project would change the lives of current and future residents of the surrounding communities; both socially and economically. Indicators used to measure the potential social-economic impacts included:

- Demographics,
- Market analysis – businesses and services,
- Public services,
- Social structure,
- Social well-being,
- Occupational skills, and
- Aesthetic quality.

7.14.2.1 Data Sources and Limitations

The Socio-Economic Assessment essentially relied on available data in the public domain. Economic and social data on small rural communities is sparse. An important data source was information collected through the Canadian Census. A Canadian Census is conducted every five years and contains information on a number of important economic and social indicators. Economic data available includes information on population, education, labour force, employment and unemployment, income, occupational information, and employment by industry. The censuses also have a number of different social indicators including religion, age and sex distribution, education, family composition and housing. These formal data have been supplemented and complemented with more qualitative information about the communities. Based on a set community profiles and field assessments through interviews with various community members, qualitative information was collected to provide a more holistic sense of baseline socio-economic conditions of the study area.

Census Data

Starting in 1971, Statistics Canada began publishing community profiles. At first, profiles were only available for communities over 5,000 people, but beginning in 1981 profiles have been done on all communities. However, hardly any economic data is published for communities with fewer than 200 people to protect the confidentiality of Census respondents. There are also other sources of population information for the communities of interest. These include, but are not limited to, Indian and Northern Affairs Canada (INAC) and individual Bands and Municipality databases.

Income Tax Data

Another source of information was the Canada Customs and Revenue Agency, which publishes income tax statistics for every community in Canada. However, for small communities both the Census and income tax data is not complete to protect people's confidentiality.

Data on Business and Tourism

Data on businesses is even more limited. The only source of information on small communities are the local Chambers of Commerce. But even then, the available data is limited to protect the unintentional revealing of confidential business data.

7.14.2.2 The Assessment Process

The Socio-economic assessment process consists of two stages. During Stage 1, DHR Associates:

- profiled Victory Nickel Inc. and communities surrounding the Minago Property (SL,GR,CL,ML,NH) based on a questionnaire and personal interviews and meetings;
- identified key stakeholders and relevant issues related to the socio-economic impact indicators, and
- interviewed key stakeholders to elicit the positive and negative impacts of the project.

In Stage 2, the socio-economic impacts will be assessed and results will be shared with stakeholders. The process will involve the following three steps:

- Step A: Identification of significant impacts;
- Step B: Integration of environmental assessment findings; and
- Step C: Assessment of the project's mitigation measures and initiatives.

7.14.3 Socio-economic Profiles

Following are summaries of the socio-economic profiles for the communities of interest surrounding the Minago Project. These summaries are based on the DHR Associates (2008) report and commence with general descriptions of the communities followed by a comparison of their community characteristics in terms of:

- Population and age distribution,
- Labour force activity,
- Educational attainment,
- Experienced Labour Force 15 years and over by Industry, and
- Vocational Skills.

7.14.3.1 Misipawistik Cree Nation and Grand Rapids

The community of Grand Rapids is governed by two authorities: Misipawistik Cree Nation, a community of 651 (Statistics Canada, 2006 Census) and the Town of Grand Rapids, a community of 336 (Statistics Canada, 2006 Census). The Grand Rapids community is divided into three distinct areas: the Misipawistik Cree Nation, the Town of Grand Rapids, and the Hyrdo Sub-division. The Misipawistik Cree Nation (Misipawistik CN) constitutes the part of the community, which is located on reserve land, and is governed by a Chief and Council (1 Chief and 3 Councillors). The Town of Grand Rapids and the hydro sub-division are situated on land under provincial jurisdiction. The hydro sub-division is the area in the community where many of the staff and families who work for Manitoba Hydro reside. The Town of Grand Rapids was incorporated on January 1, 1997. A Mayor and Council govern

both the town and the hydro sub-division (Source: NOR-MAN Regional Health Authority, 2007).

7.14.3.1.1 Misipawistik Cree Nation

The Misipawistik Cree Nation (or Grand Rapids First Nation (GRFN)) is located 426 kilometres north of Winnipeg on Highway #6 (PTH #6). It is situated at the confluence of the Saskatchewan River with Lake Winnipeg on the east and south banks of the Saskatchewan River, immediately across from the town site of Grand Rapids. The total land area of the Misipawistik Cree Nation is 18.52 square km.



The Misipawistik Cree Nation is still reliant upon the traditional pursuits including fishing, trapping and hunting (Fig. 7.14-8). Community members are also employed by Manitoba Hydro and in forestry and mining sectors. The Misipawistik Cree Nation is also looking towards developing opportunities in eco-tourism (Source: National Cree Gathering 2007 Web Site).

Alcohol and drug abuse within the community are rampant. Assaults, break-ins and thefts are common occurrences, as is armed robbery and rape (DHR Associates, 2008). As well, family violence and divorces are common within the community. There is a high rate of school drop-out, and a large number of people within the community depend on social assistance – 80% of members of the reserve and 20% of those within the town. The standard of housing within the community is poor to average (DHR Associates, 2008).



Figure 7.14-8 Fishing and Recreational Activities (Lake Winnipeg)

7.14.3.1.2 The Town of Grand Rapids

Grand Rapids is located on PTH #6 approximately 250 kilometres south east of the Town of The Pas and 400 kilometres north of the City of Winnipeg (Fig. 7.14-1). Grand Rapids is situated at the confluence of the Saskatchewan River with Lake Winnipeg and has a land area of 85.95 square km.

The economic base of the Town of Grand Rapids depends on commercial fishing, tourism, to some extent trapping, and the Manitoba Hydro Plant. The School Board is also one of the largest employers in the area. Manitoba Hydro is the largest public employer with 58 employees. The town of Grand Rapids has established infrastructure to accommodate commercial development in the service and tourism sectors. Tourism and related activities provide employment for many residents of the town and surrounding area. The area is known for having some of the finest master angler fishing lakes in the province, and many tourists arrive each year and stay at lodges and outposts and look for guides and other services (DHR Associates, 2008).

7.14.3.1.3 Businesses in Grand Rapids

The Mispawistik Cree Nation and the Town of Grand Rapids offer various commercial and business services (Tables 7.14-1 and 7.14-2). Half of the businesses are owned by Aboriginals. In spite of it being a small community with a population of 336 people, the town offers a large number and variety of services (DHR Associates, 2008).

7.14.3.2 Norway House Cree Nation and Community

Norway House is a northern community, located 30 km north of Lake Winnipeg on the bank of the eastern channel of Nelson River. The community has two settlements - Norway House Cree Nation (NHCN Indian Reserve) and the Norway House community (NHC) settled by Métis and Non-Aboriginals. The community is 456 air kilometres north of Winnipeg, 208 air kilometres east of The Pas and 190 air kilometres south of Thompson, Manitoba. Norway House has a land area of 72.99 square km, which is less than one percent of the whole province of Manitoba (Manitoba has 552,369.9 sq. km).



Major economic activities include government services (NHCN, NHC, and Provincial government), commercial fishing, trapping and logging in the community. Because of these activities, seasonal unemployment varies, with peaks as high as 70%. The overall community's unemployment rate was approximately 24% (DHR Associates, 2008). This means that a lot of people depend on social welfare for their living.

Norway House Cree Nation and Community offer several public services. In fact, Norway House is one of the most well developed reserves and in many ways in Canada. There are

Table 7.14-1 Commercial Business and/or Services operated by GRFN, Métis or Others

	GRAND RAPIDS FIRST NATIO N (GRFN)	MÉTIS	OTHER
Eso Service Station/ Restaurant (off-reserve; non-Aboriginal owned)			X
Grand Rapids Fishermen's Co-op (on-reserve; commercial fishermen owned; bulk are Aboriginal)	X		
E.T. Trucking Freight service (on-reserve; privately owned by First Nation)			X
Grand Rapids Lodge (off-reserve; Métis owned)		X	
Grand Rapids Laundromat (off-reserve)			X
Hilltop Motel (off-reserve; Métis owned)		X	
Riverview Campground (off-reserve)			X
Moak Lodge (off-reserve)			X
Pine Grove Cabins (off-reserve)			X
Herb Cook & Sons/heavy machines (off-reserve; privately owned by First Nation)			
Riverview Video (off-reserve)			X
Consumer Co-op Grocery (on-reserve; member owned)	X		
Pelican Landing Gas Station (on-reserve; First Nation owned)	X		
Grand Wish Restaurant (@ Pelican Landing; privately owned leased from Band)			X
Median Credit Union (@ Pelican Landing; on reserve member owned; all members Aboriginal)	X		
Maskiki Health (@ Pelican Landing; First Nation owned)	X		
Misipawistik Telecommunications Coop (on reserve; First Nation owned)	X		
King's Boat Repair (off reserve; non-Aboriginal owned)			X
Johnnie's Garage (off-reserve; Métis owned)		X	
Big Joe's Convenience Store (off-reserve; Métis owned)		X	
Northbrook Inn (off-reserve; privately owned)			X
Siggy's Taxi (health trips only)			X
Little Niska Day Care (on-reserve; First Nation owned)	X		
Little Minnow Day Care (off-reserve)			X
TOTAL	7	4	12

Source: DHR Associates Survey (2008)

Table 7.14-2 Business, Trades and Professional Services in the Town of Grand Rapids in 2008

Businesses, trades and professional	Number
Accommodations	
Campgrounds	1
Hotels	2
Automotive	
Auto body repair	2
Auto fuel sales (no mechanic-gas)	1
Auto/truck parts / accessories (new)	1
Auto/truck parts / accessories (used)	1
Diesel sales	1
Propane gas	1
Service stations with mechanic(s)	1
Specialty auto parts / service (tires,	1
Construction / Hardware	
Concrete / Cement suppliers	1
Gravel, sand suppliers	1
Lumber / Hardware stores	1
Road construction	1
Financial	
Credit unions / Caisse Populaire	1
Food And Beverages	
Beverage rooms, lounges, etc.	1
Candy stores	2
Coffee / Tea Rooms, Donut shops	1
Convenience stores	2
Grocery stores	2
Liquor stores	1
Meat shops, butchers	1
Restaurants, drive-through or drive-in	2
Restaurants, licensed	1
Restaurants, sit-down, not licensed	1
General Merchandise	
Hobby / craft shops	1
Hunting, fishing, bait stores	1
Other Services	
Barber shops / hair salons	1
Repair Services	
Machine shops / welding	2
Small engine repair	1
TOTAL	37

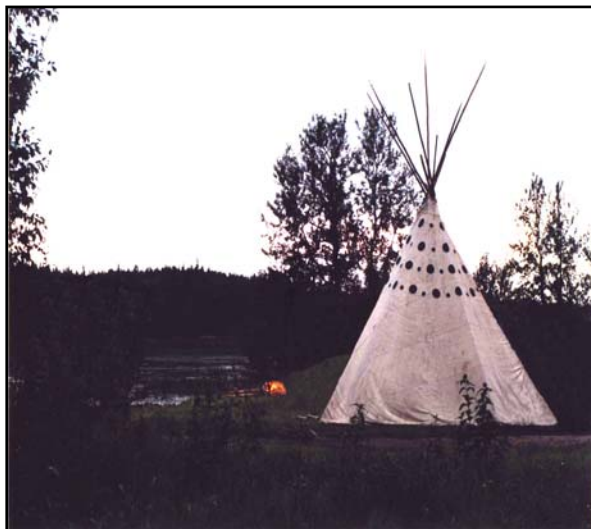
Source: Government of Manitoba. The Town of Grand Rapids Community Profile, Web site accessed: July, 2008

several restaurants, two hotels, a Royal Bank with ATM facilities, an insurance company (Ranger Insurance Broker), two Northern stores, a full service post office, a video store, a school (kindergarten to high school) and paved roads within the community. The Kinosao Sipi Mall and the recently added cell phone service are improvements to this northern community. It is home to a regional centre of the University College of the North and has a satellite degree programming from Brandon University's Faculty of Education and the University of Manitoba (DHR Associates, 2008).

Both the Norway House Cree Nation (Indian Reserve) and the Community have reported many incidences of drug addiction, alcohol abuse and several suicides, property damage, shoplifting, break-ins into houses. Also reported are many incidences of family violence, divorces and incest (DHR Associates, 2008). This has been happening mainly because of lack of employment and high dependency on social welfare (DHR Associates, 2008).

7.14.3.3 Pimicikamak Cree Nation and Cross Lake Community

Cross Lake is located in Northern Manitoba approximately 520 air kilometres north of Winnipeg along the shores of the Nelson River, and 130 air kilometres south of Thompson, Manitoba. It is accessible by aircraft with two daily flights from Winnipeg via Perimeter Air. With a newly constructed bridge, there is also all weather road access from provincial roads 373 and 374 to the community. Grey Goose Bus Lines also provides daily service to Cross Lake. Most of the roads in the community are paved.



The Cross Lake Community is composed of two closely related and adjoining, but independent settlements. One is the Cross Lake Indian Reserve (Pimicikamak Cree Nation) where the main developed area is called Cross Lake, and the other is provincial Crown Land (Division No. 1 and No. 22, unorganized territory). These unorganized territories cover 91,947 square kilometres. The population density (persons per square kilometre) for this land is low at 0.035 compared to a population density of 2.1 for the Province of Manitoba.

In this report, the term 'Cross Lake Community' is used to describe the Divisions No. 1 and No. 22 unorganized territories. In the Cross Lake

Community, the two main languages spoken are Cree and English. The young population is bilingual.

The Cross Lake Band is a signatory to Treaty 5 signed in 1875 and is one of the five Bands covered by the provision of the Northern Flood Agreement. The Cross Lake Band has been affected by the Manitoba Hydro's Jenpeg Dam Project and Lake Winnipeg Control Structure located 15 kilometres upstream from the reservation.

Most full time jobs in Cross Lake are offered by the Awasis Agency, the Band office and the Cross Lake Education Authority where school teaching staff is 80% Aboriginal. The Band office and the Cross Lake Education Authority are the largest employers along with the Northern Stores and Family Foods.

Most of the individuals within the Cross Lake Community who were over the age of 65 in 2007 were self-employed. Some of the types of jobs that are available within the community are in the service, construction, electrical and mechanical industries. Businesses include those related to construction, restaurants (4), mechanical garages (2), gas vendors (2), grocery stores (2), and retail and general merchandise (Table 7.14-3). The Cross Lake Community also has a motel with a lounge and vending services (DHR Associates, 2008). However, there is a very high unemployment rate (9.1% in the Cross Lake Community of 25.4% for the Pimicikamak Cree Nation), as well as a high rate of people surviving off welfare. This has led to a high level of poverty within the community (DHR Associates, 2008).

Drug and alcohol abuse problems are common within the Pimicikamak Cree Nation, as is suicide (DHR Associates, 2008). As well, gang violence and vandalism are common. Family violence and divorce occur at an average level. The rates of school dropout are low within the community, but there have been reported incidents of bullying at school (DHR Associates, 2008).

7.14.3.4 Mosakahiken Cree Nation and Moose Lake

Mosakahiken Cree Nation (Mosakahiken CN) and the Moose Lake Métis Settlement are two closely related but independent communities located on the northern limits of the Saskatchewan River Delta, situated about 100 kilometres south east of The Pas, Manitoba. The community is only accessible by gravel road which is approximately 64 kilometres from the nearest paved highway (Highway #10).

The Mosakahiken Cree Nation is located on the adjoining Reserve 31A, Big Island, Trader's Lake, Crossing Bay and Little Limestone.

The Band is the main employer for the Mosakahiken Cree Nation. However, there are a few businesses such as grocery and retail/general merchandise stores that offer jobs in

Table 7.14-3 Businesses and Services in Cross Lake

Allan McLeod Construction	Merle's Flower Shop and Confectionery
Bethanie's Restaurant	Mid-North Development Corporation
Blacksmith Transportation (Emergency Ambulance)	Mistasineek Gas Bar
C.F.N.C. (Local Radio Station)	Multi-Channel MCTV
Canada Post Corporation	Muskego's Service and Towing
CLEA Adult Education Centre	Natural Resources
Chicken Chef	Northern Stores
Child and Family Services	Northern Quick Stop
Cross Lake Community Council	Nursing Station
Cross Lake Day Care	Pharmacy
Crisis Centre	Dental Office
Cross Lake Family Foods	Public Health
Cross Lake Inn - Restaurant and Lounge	Perimeter Airlines
Cross Lake Sports Complex	R.C.M.P.
D.R. Hamilton School	Ross Video
Fire Garage	Royal Bank
Fire Hall	Triple R Electric
Flo's Crafts and Video Centre	William Muswagon Construction
Kasayak Center (Elderly Home)	24/7 Confectionery
Kipapanow's Restaurant	
Manitoba Hydro	

Source: Cross Lake Education Authority Web Site, consulted July 2008.

the service, clerical, management and administration fields. Fishing and trapping are the main economic activities of the community. However, approximately 95% of the community was unemployed in 2007 and relied upon welfare as their base income (DHR Associates, 2008). This unemployment rate is extremely high compared to the provincial 2007 unemployment rate of 4.0%.

The available public education is a school (from kindergarten to grade 9) within the community. Students must travel to The Pas to attend High School. The lack of high school facilities within the community is a major problem, especially considering that the closest high school is located 74 kilometres away from the community and that 39% of the population is younger than 15. However, there are plans to build a new high school.

There is gender discrimination within the community. Levels of divorce, spousal abuse (especially directed towards wives) and general abuse are all on the rise, along with domestic violence, child abuse and neglect (DHR Associates, 2008). Alcohol and drug abuse are fairly high within the community, as well as the incidence of youth gangs, fighting and vandalism. The housing is of poor quality, as most of the units are lacking general maintenance (DHR Associates, 2008). There have been a few reported incidences of public violence, including property damage.

7.14.3.5 Snow Lake

The Town of Snow Lake was brought to life by gold mining. Prospectors discovered this spectacularly beautiful place in the 1940's and officially made it a town in 1947. The town quickly became successful due to the bounty of mineral resources.

Snow lake is a small community situated mid-way between Thompson, Flin Flon and The Pas (Figures 7.14-1 and 7.14-2). The community is located along Provincial Road 392. Snow Lake is 685 km north of Winnipeg and has a land area of 1,212 square kilometres, which is 0.2% of the total land area of Manitoba.

The Hudson's Bay Mining and Smelting facility used to be a prominent feature in the Town of Snow Lake. The mine used to employ a large number of residents of Snow Lake and its surrounding communities. The mining activity has gone down since 2001. However, most of Snow Lake's population is still employed in mining and mining related sectors.

Another industry, that is growing, is tourism. Snow Lake is characterized by excellent fishing opportunities and a natural beauty that attract tourists from all parts of North America. The town has all businesses and facilities needed to be a wilderness vacation destination. These facilities include restaurants, hotel and motel accommodations, and facilities for recreation.

Few characteristics of Snow Lake's social structure are (DHR Associates, 2008):

- The presence of one High school - Joseph H. Kerr School – that has 273 students and a student/teacher ratio of 13 to 1;
- The medium gross family income was between \$45,000 to \$50,000 per year (DHR Associates Survey-2007);
- The community is well organized in terms of Civic associations and clubs making it comparable to larger cities in the province;
- Political participation is excellent at 95%;
- The governance of the community is under the leadership of one mayor and six councillors.

The DHR Associates Survey (2008) confirmed that the social well-being of this community is good. No serious crime has been reported in Snow Lake. There has been a zero crime rate and zero public violence. Alcohol and drug abuse has been almost negligible, mental illness unknown. No family violence or family disruption has been noted. Gender discrimination is rarely experienced. The education system is excellent and the school drop out rate has been negligible. In 2007, all of the community's labour force was engaged in income generating activities. In other words, the labour force employment was 100%. Less than 5 people were welfare recipients. Accommodation and housing standards are good and comparable to standards in larger cities of the province (DHR Associates, 2008).

7.14.3.6 Overview of Community Characteristics

Following is a summary and comparison of the communities of interest in terms of the following community characteristics:

- Population and age distribution,
- Labour force activity,
- Educational attainment,
- Experienced Labour Force 15 years and over by Industry, and
- Vocational Skills.

Complete details of the Socio-economic assessment are presented elsewhere (DHR Associates, 2008).

Of the communities considered, the largest communities were Cross Lake with 3,854 Pimicikamak Cree Nation and 3,455 residents in the Cross Lake Community and Norway House with 4,071 residents. The populations of the other communities were much smaller; 837 residents lived in Snow Lake, 700 lived in Mosakahiken Cree Nation (Moose Lake), 651 lived in Misipawistik Cree Nation (Grand Rapids), and 336 lived in the Town of Grand Rapids (Tables 7.14-4 and 7.14-5).

One striking difference between the communities of interests is that the populations of the primarily native communities of Mosakahiken Cree Nation (Moose Lake), Pimicikamak Cree Nation (Cross Lake), Misipawistik Cree Nation (Grand Rapids), and Norway House Cree Nation are much younger with a median age ranging from 20.1 to 22.1 than the populations of Cross Lake community, Snow Lake, and Manitoba as the whole. The median age of the populations of the Cross Lake Community, Snow Lake, and Manitoba as the whole were 35.5, 41.9, and 38.1 respectively (Table 7.14-4). This difference in age distribution is also illustrated in Figure 7.14-9.

Table 7.14-4 Population and Age Distribution in Communities of Interest (in 2006)

Age Category		Mosakahiken Cree Nation (Moose Lake Cree Nation)	Pimicikamak Cree Nation (Cross Lake Band of Indians)	Misipawistik Cree Nation (Grand Rapids Cree Nation)	Norway House Cree Nation	Cross Lake Community (Div. 1 and Div. 22; Unorganized Territory)	Town of Grand Rapids (Grand Rapids Community)	Town of Snow Lake	Manitoba
1	0 to 14 years	39%	37%	36%	34%	23%		20%	20%
2	15 to 29 years	24%	27%	25%	26%	19%		14%	20%
3	30 to 44 years	22%	19%	20%	21%	18%		20%	20%
4	45 to 64 years	12%	13%	18%	15%	23%		35%	26%
5	65 years and over	4%	4%	5%	3%	14%		12%	14%
Total Population in 2006		700	3,854	651	4,071	3,455	336	837	1,148,400
Population Change from 2001 to 2006		-5.4%	51.5%	10.1%	-3.1%		-5.4%	-30.7%	2.5%
Median age		20.1	20.3	21.6	22.1	35.5		41.9	38.1

Source: adapted from DHR Associates, 2008

Table 7.14-5 Labour Force Activity Data

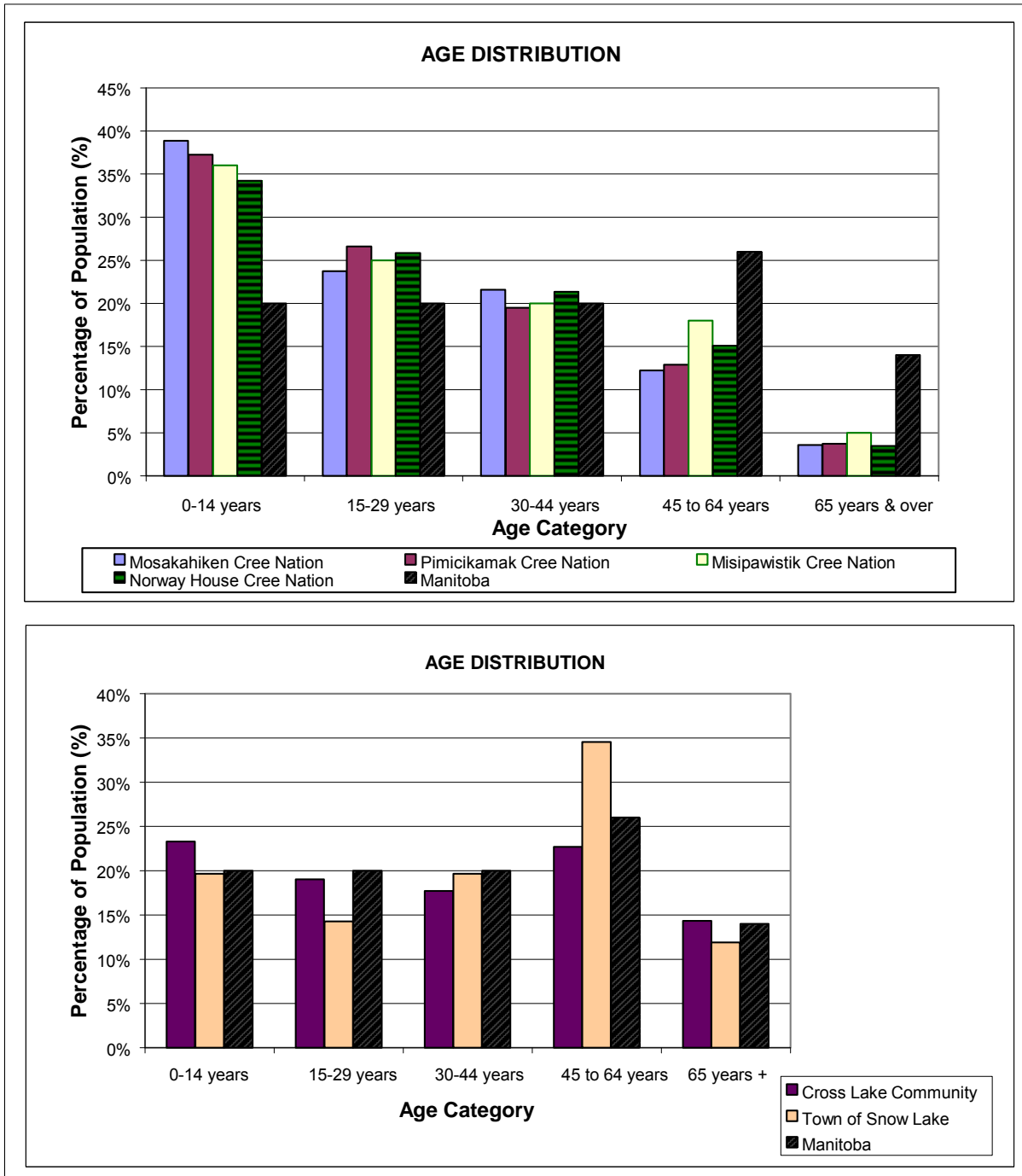
LABOUR FORCE ACTIVITY		Mosakahiken Cree Nation (Moose Lake)	Pimicikamak Cree Nation (Cross Lake)	Misipawistik Cree Nation (Grand Rapids)	Norway House Cree Nation (Norway House)	Community of Cross Lake (Div. 1 and Div. 22; Unorganized Territory)	Community of Cross Lake Division No. 1	Community of Cross Lake Division No. 22	Town of Grand Rapids	Town of Snow Lake	Manitoba
Year		2006	2006	2006	2006	2006	2006	2006	2006	2006	2006
Population	Total Population	700	3,854	651	4,071	3,455			336	837	1,148,400
	Total population 15 years and over	425	2,418	443	2,630	2,665	1,005	1,660	245	665	908,450
Native/Non-Native	Aboriginals	100.0%	98.9%	99.8%		52.7%		Majority of Community of Cross Lake Aboriginals live in Div. 22	57.0%		
	Metis	1.4%	0.5%	3.1%						14.3%	
Population	Non-Aboriginal	0.0%	0.6%	0.0%		47.3%			43.0%		
	In the labour force			415	1,190	1,490	605	885	160	395	611,280
Labour Force	Employed			185	900		545	665	160	375	577,710
	Unemployed			90	290	280	55	225	0	20	33,570
	Not in the labour force			140	1,435	1,170	400	770	85	275	297,170
Employment Rate	Participation rate ¹	37.6%	42.9%	65.0%	45.2%	55.9%	60.2%	53.3%	65.3%	59.4%	67.3%
	Employment rate ²	27.1%	30.3%	45.0%	34.2%	45.4%	54.2%	40.1%	67.3%	56.4%	63.6%
	Unemployment rate ³	28.1%	29.3%	33.3%	24.4%	18.8%	9.1%	25.4%	0.0%	5.1%	5.5%
Income	Median income in 2005 – All private households	\$28,011	\$32,704		\$27,456		\$60,750	\$51,461	\$51,286	\$75,515	\$47,875

Source: adapted from DHR Associates, 2008

Notes: 1 Participation rate is the proportion of persons in the labour force (individuals actively employed and persons receiving unemployment benefits) compared to the population aged 15 years and over.

2 The employment rate — also known as the employment-population ratio — refers to the percentage of individuals employed compared to the population aged 15 years and over.

3 The unemployment rate represents the number of persons receiving unemployment benefits as a percentage of the labour force.



Source: adapted from DHR Associates, 2008

Figure 7.14-9 Age Distribution in the Communities of Interest in 2006

Another noticeable difference between the communities of interests is that the rate of unemployment in the primarily native communities of Mosakahiken Cree Nation (Moose Lake), Pimicikamak Cree Nation (Cross Lake), Mispawistik Cree Nation (Grand Rapids), and Norway House Cree Nation was much higher (ranging from 18.8% to 33.3% in 2006) than in Snow Lake, the Town of Grand Rapids, and Manitoba as the whole. The unemployment rate was 5.1% in Snow Lake, 0% in the Town of Grand Rapids, and 5.5% in Manitoba (Table 7.14-5).

Another noticeable difference between the communities of interests is their median income. For the primarily native communities of Mosakahiken Cree Nation (Moose Lake), Pimicikamak Cree Nation (Cross Lake), and Norway House Cree Nation the median income ranged from \$27,456 to \$32,704 in 2005 (Table 7.14-5). This median income was \$15,000 to \$20,000 below the provincial median income of \$47,875 in 2005. All other communities considered had higher median incomes than the provincial average. In 2005, the median incomes were \$51,286 for the Town of Grand Rapids, \$51,461 for Division No. 22 of the Cross Lake Community, \$60,750 in Division No. 1 of the Cross Lake Community, and \$75,515 in Snow Lake (DHR Associates, 2008).

The educational attainment in the communities of interest is summarized in Table 7.14-6. The educational attainment was below the provincial average for all communities, except for the Town of Grand Rapids. In the Town of Grand Rapids, 39% of the population older than 15 years had a university certificate, diploma or degree compared to the provincial average of 19%. The percentage of the population 15 years and older that had a university certificate, diploma or degree ranged from 4.1% in Pimicikamak Cree Nation (Cross Lake) to 16.3% in Norway House Cree Nation in the primarily native communities (Table 7.14-6).

Table 7.14-7 summarizes the experienced work force by industry. In the communities of interest, the top three industries as far as employment is concerned were 'Health Care and Social Services', 'Educational Services', and 'Agriculture and other Resource-based Industries'.

Table 7.14-8 summarizes the vocational skills of residents queried in some of the communities of interest. In total, residents possessed 31 different vocational skills. In 2007, the highest number of skilled people (354) resided in Norway House, followed by Grand Rapids (79), Cross Lake (55), Snow Lake (42), and Moose Lake (35). The top three vocational skills were truck driver, heavy equipment operator, and carpenter.

Table 7.14-6 Educational Attainment in the Communities of Interest in 2006

	Mosakahiken Cree Nation (Moose Lake)	Pimicikamak Cree Nation (Cross Lake)	Misipawistik Cree Nation (Grand Rapids)	Norway House Cree Nation (Norway House)	Community of Cross Lake (Div. 1 and Div. 22; Unorganized Territory)	Town of Grand Rapids	Town of Snow Lake	Manitoba
Total population 15 years and over	425	2,418	443	2,630	2,665	245	665	908,450
No Certificate, Diploma or Degree	376 88.5%	1,596 66.0%	265 59.8%	1,875 71.3%	1,060 39.8%	71 29.0%	163 24.5%	N/D N/D 172,606 (19%)
Highschool Diploma					560 21.0%		235 35.3%	
Apprentiship / Trades Certificate	17 4.0%				275 10.3%		110 16.5%	
College Degree	22 5.2%	185 7.7%	N/D	N/D	290 10.9%	N/D	115 17.3%	
University Certificate below Bachelor	10 2.4%	100 4.1%	N/D	N/D	90 3.4%	N/D	6 0.9%	
University certificate, diploma or degree		100 4.1%	55 12.4%	428 16.3%	390 14.6%	96 39.2%	30 4.5%	

Note: N/D Not Determined

Source: adapted from DHR Associates, 2008

Table 7.14-7 Experienced Labour Force 15 Years and over by Industry in 2006

	Mosakahiken Cree Nation		Pimicikamak Cree Nation		Misipawistik Cree Nation		Norway House Cree Nation		Community of Cross Lake		Town of Grand Rapids		Town of Snow Lake		TOTAL
	(Moose Lake)		(Cross Lake)		(Grand Rapids)		(Norway House)		(Div. 1 and Div. 22; Unorganized Territory)						
Health Care & Social Services	65	15.2%	320	21.9%	65	15.7%	220	20.0%	141	10.0%	10	6.0%	45	11.8%	865
Educational Services	82	19.3%	320	21.9%			165	15.0%	197	14.0%	34	20.9%	20	5.3%	817
Agriculture and other Resource-based Industries	50	11.8%			130	31.3%	66	6.0%	183	13.0%	29	18.0%	135	35.5%	592
Business Services	82	19.3%					132	12.0%	141	10.0%			20	5.3%	375
Retail Trade							99	9.0%	141	10.0%	38	23.9%	45	11.8%	323
Construction Industries	31	7.3%					88	8.0%	126	9.0%			10	2.6%	255
Finance and Real Estate							44	4.0%	42	3.0%					86
Manufacturing Industries							11	1.0%	14	1.0%			45	11.8%	70
Wholesale Trade							11	1.0%	28	2.0%			10	2.6%	49
Other Services	115	27.1%	350	23.9%	130	31.3%	264	24.0%	393	28.0%	50	31.2%	50	13.2%	1,352
TOTAL	425	100.0%	1,464	67.6%	415	78.3%	1,100	100.0%	1,405	100.0%	160	100.0%	380	100.0%	

Source: adapted from DHR Associates, 2008

Table 7.14-8 Vocational Skills recorded in 2007

	Mosakahiken Cree Nation (Moose Lake)	Pimicikamak Cree Nation (Cross Lake)	Misipawistik Cree Nation (Grand Rapids)	Norway House Cree Nation (Norway House)	Town of Snow Lake	TOTAL
Truck drivers	13	6	5	50	2	76
Heavy equipment operators	8	21	9	33	2	73
Carpenters	8	4	8	41		61
Housekeepers		6	9	14	4	33
Pipe Fitters			1	32		33
Surveyors		1	1	27		29
Catering	1	4	4	14	5	28
Electricians			1	23		24
Security officers	2	2	4	10	3	21
Clerks		1	5	10	4	20
Computer Technicians		1		14		15
Marketing Personnel				15		15
Supervisors			3	10	2	15
Mechanics	3	2	1	8		14
Miners		1	3		9	13
Accountants			2	8	1	11
Trainers				10	1	11
Administrative assistants		1	4	3	1	9
Millwrights			1	6	2	9
Assayers				7	1	8
Nurses			5	2	1	8
Welders			1	7		8
Drillers and blasters		2	3		2	7
Laboratory technicians				5	1	6
Engineers and Technicians			1	3		4
Human Resource Specialists			2	2		4
Geologists		2			1	3
Managers and Executives			2			2
Public Relations Specialists			2			2
Safety Experts		1	1			2
Photographers			1			1
TOTAL	35	55	79	354	42	565

Source: adapted from DHR Associates, 2008

7.14.4 Key Issues raised by Stakeholders

A series of meetings were held with key stakeholders to identify their views on Victory Nickel Inc. and the Minago Project in general. It should be noted that there is a salient resentment to development projects in the area due to past adverse consequences and experience with some companies. However, many stakeholders were aware of the Minago Project and Victory Nickel Inc. and were appreciative of the company's consultation process (DHR Associates, 2008).

The results of the fact-finding process were overwhelmingly positive. Following is a summary of the expected positive and negative impacts of the Minago project as identified by the consulted communities.

7.14.4.1 Misipawistik Cree Nation and the Town of Grand Rapids

Positive Impacts

- The First Nation people living off reserve would move back here, especially if there was work available.
- Victory Nickel will create opportunities for local individuals and businesses through contracts.
- Victory Nickel would likely arouse the interest of having more resource use especially in recreation and potentially improve the quality of life in Grand Rapids.
- The mine development could lead to better sales, more workers, and possible business expansions.
- Definitely the development of the mine will lead to hiring more staff and finding a better and more convenient location for a new post office.
- Victory Nickel development will have a positive impact because it would mean more business for the lodge due to recreational use of the facilities and resources.
- The mine development will mean for us to get better school facilities.
- Development of the mine is a good idea. It may bring about the changes Grand Rapids had always wanted e.g. better grocery store, a strip mall with a variety of services.
- Victory Nickel will affect everybody in Grand Rapids because there will be more jobs, more money and less welfare.
- The mine development may bring about new positive behaviours in Grand Rapids such as shopping options and evening recreational activities.
- Victory Nickel will have a positive impact on the community. It would solidify the improvement in the relationship between the RCMP detachment, the Town of Grand Rapids, Missipawistik Cree Nation and Chemawawin (Easterville). These communities have the same goal – better and healthier community life.

- People need jobs and long-term work. The Minago Project is what we need for the future younger generation. It is true that the mine may affect trapping but the majority of the residents of Grand Rapids do not live that way anymore. Victory Nickel Inc. should study the effect of the mine in order to avoid problems in the future.
- It is great that Victory Nickel is bringing the mining industry to Grand Rapids. The company will have to train people, because the employment base is not here. The greatest opportunities would be in sub-contracting part of the mine development activities.
- The socio-economic impact of the mine will be good for Grand Rapids not just for the First Nation but for the town as well. Economically it will generate more business, which is an excellent opportunity for our grandchildren and their future.
- The mine will be good for the young people if they could be given the opportunity to work there.
- Victory Nickel will be good for the economy and will not have severe effect on fishing.
- Victory Nickel will have positive impact economically and business wise. It is great and really good because it is time to move ahead.

Negative Impacts

- There are environmental concerns, which will require more information before the Band can support the mine.
- Fishing, trapping and logging activities maybe affected negatively although Minago is located rather far from Grand Rapids.
- The open-pit operations will affect the eco-system: air, water, vegetation, animals, and humans.
- Economic benefits may be outweighed by resulting social problems such as crack and meth abuse.

7.14.4.2 Norway House Cree Nation

Positive Impacts

- The project will create jobs and generate revenue.
- The project may stimulate side economic developments and services like Mc Donald's, Wal-Mart badly needed in Norway House.
- The project will result in more people in the area for sports competitions.
- The project may bring spin off economic activities.
- The project may stimulate educational initiatives.
- The project will create an opportunity that will open doors for employment and increase the economic base of NHCN.
- The project may indirectly increase operational funds for the Norway House Cree Nation.

- The project will create jobs even though people will have to be trained.
- The project will promote community exposure.
- The project will alleviate poverty in the community.
- The youth will have something to look forward to in the future in terms of jobs.
- The project will lead to an improvement of lifestyle since people will be off social welfare.

Negative Impacts

- Environmental degradation of the Lake (Lake Winnipeg), Limestone Bay.
- The project will interfere with the water table and pollute the air (toxins) and the water.
- The project may affect the trappers and fishers.
- Economic development will come with its social problems such as drug abuse and alcoholism.
- Families may be uprooted by relocating to the campsite.
- Animals and other wildlife will be affected.

7.14.4.3 Pimicikamak Cree Nation and the Town of Cross Lake

Positive Impacts

- Victory Nickel is doing the proper thing by interviewing residents of Cross Lake. I welcome the process and the project. The residents will benefit especially from spin-off jobs.
- The project is positive because it will bring employment and jobs to Cross Lake. This means there will be more money in the community directly and indirectly through subcontracting.
- What Victory Nickel is doing is good since we will have jobs, employment and training.
- One can only think of the positives – good jobs, more money, happy families, and schools.
- The mine will bring more business to Cross Lake.
- Victory Nickel may be our chance to improve the community infrastructure and public services such as Youth Programs, Fire Protection, and Drug Enforcement.
- The mine will be beneficial to all residents of Cross Lake. It will offer employment, school improvement, and entice people to come back home. The mine may bring money in the community to build the badly needed Youth Centre and Job Centre.
- The Minago Project may mitigate the socio-economic helplessness, which is the main cause of suicide incidents in the community.

- It will definitely create a huge opportunity for employment and training. However, promises must be kept.
- Victory Nickel will benefit both businesses and the community.
- The development of the mine will give employment to our young people. It will also create awareness of and put Cross Lake on the map. This may increase economic activities in the area.
- The mine will create more business, which will result in more work and employment.
- The project will increase and improve business through gas sales and rooms/accommodation.
- There will be more jobs and business for our community.
- The mine is welcome. We need more work for the young people.

Negative Impacts

- Spillway from the mine into Minago River will affect trapping and fishing especially in Zone E.
- Currently, drug and alcohol abuse is very serious in the community and the mine may increase the problem.

7.14.4.4 Mosakahiken Cree Nation and the Community of Moose Lake

Positive Impacts

- The Minago Project is welcome. As long as Victory Nickel hires Moose Lake residents there will be socio-economic benefits.
- The mine will have economic benefit especially for the youth. It may increase the gang activities, but this can be controlled through workshops and law enforcement.
- The mine is good for the economy of all Moose Lake residents, the majority of whom are on welfare.
- The project will create work for our young people.
- In general, the mine is a good thing for Moose Lake. It will bring jobs, but the youth have to be given the training on work ethics, money management, and time management.
- It will generate a lot of work/employment opportunities for our community.
- The mine will have positive impact on the community. With more financial resources we can pave our roads and develop various business initiatives.
- There will be a lot of spin-off businesses, which will create jobs and develop a sense of purpose for the youth.

- The mine operation will help the community in mitigating the effect of welfare. There will be more jobs and luxury life.
- Victory Nickel will give jobs and employment to Moose Lake residents, but the company should take care of the environment.
- Having a big employer in the vicinity will improve family behaviour of residents.
- The mine operation will be good for the community since there will be jobs for people.

Negative Impacts

- People have not forgotten the mistreatment by other companies, which did not keep their promises.
- The mine will contaminate herbs that the locals use for medicine and food.
- Sudden influx of money in the community may cause crime to go up.

7.14.4.5 Snow Lake Community

Positive Impacts

- Victory Nickel will stimulate the economy of Snow Lake and hence improve the infrastructure to accommodate growth and increase society social interaction.
- The Mine will be good for Snow Lake's high school graduates who may be hired by the company.
- We need a company like Victory Nickel in our community. It will stimulate the economy and increase business.
- The socio-economic impact of the mine will be nothing but positive. The mine will reduce unemployment.
- The mine will bring new businesses to our town.
- The mine will give occupational focus to young people who hence will stay away from criminal activities.
- The mine will help the town regarding population growth, which is needed badly.
- The impact of the mine will always be positive to businesses and eventually to the entire Snow Lake Community.

Negative Impacts

- The mine may increase alcohol and drug abuse incidents.

7.14.5 Potential Opportunities for the Communities of Interest

7.14.5.1 Employment Opportunities

The Minago Project, should it become a reality, it will create significant number of direct employment for Northern Manitobans. The open pit (Mining, Milling, and Services) and Frac Sand Operations (Processing and Transportation) will create 410 and 200 direct jobs, respectively. In addition, there will be many more employment opportunities for the provision of transportation; maintenance; camp and hospitality services; security; and site support (services) contractors.

7.14.5.2 Business Opportunities

The Minago Project will create business opportunities for the Communities of Interest. The communities could create transportation entities to transport materials and personnel (150 to 180 employees per week) between the mine site and the communities.

Other business opportunities include, but are not limited to, camp and hospitality services (catering, camp maintenance and hospitality services); site services (garbage removal, snow removal, supply of aggregates); and suppliers (consumables, spare parts, fuels, and other services).

The Communities of Interest can also enter into Joint Ventures arrangements with major contractors responsible for Mining; Equipment Maintenance; Construction; Explosive Manufacturing and Camp and Hospitality Services. The Communities of Interest could bid for these contracts individually or in the form of Joint Venture arrangements with large companies.

Trucking of Frac Sand is also a great opportunity for a Joint Venture requiring a capital investment of about \$3M. Trucking of Frac Sand will involve movement of some 900,000 tonnes of sand per annum with projected revenue of between \$9M and \$10M.

Mine Site Catering is another opportunity that the Communities of Interest could Joint Venture with a Company like Sodexo. A Joint Venture of this nature would create 60 direct jobs. Victory Nickel Inc. will contribute a kitchen and dining facilities. There exist successful models that the Communities could learn from. The Athabasca Catering Limited Partnership is a useful model and it is wholly owned by Aboriginal (Five First Nations) partners. This organization provides catering and janitorial services for a number of Saskatchewan mines.

Site closure and reclamation is another opportunity for the Communities to get involved. The potential here include decommissioning of infrastructure, site reclamation, maintenance and post closure environmental monitoring, if required.

7.14.6 Effects Assessment

Project effects on socio-economic environs are covered in the next Sections.

7.14.6.1 Economic Impact Assessment

The socio-economic assessment combines the quantitative tools of a conventional economic assessment with the more qualitative tools of socio-cultural effects assessment. Where appropriate, mitigation measures to optimize benefits and minimize adverse effects are identified.

An economic impact assessment is a standard economic tool designed to measure the total effect of an injection of funds into a local or regional economy. The assessment is a snapshot, measuring the impact of that injection. It cannot measure costs and benefits over time nor can it provide measures to judge whether an equivalent expenditure of funds for something else would have generated more or less benefit. Economic impacts are usually classified as direct, indirect or induced.

Direct impacts refer to the value-added increase in employment, local incomes and local Gross Domestic Product (GDP) retained in the area, and tax receipts to all governments.

Indirect impacts refer to the value-added increase in employment, local incomes and local GDP retained in the area, and tax receipts to all governments from local suppliers of goods and services to the project.

Induced impacts refer to the increase in employment and local incomes. Induced impacts include local GDP and tax receipts from the spending and re-spending of all labour incomes generated by the original expenditure.

The calculation of all impacts requires the use of multipliers. The multipliers used to calculate direct and indirect impacts for the Minago project came from Statistics Canada's 2000 Inter-provincial Open Input-Output model. Induced impacts were not calculated as Statistics Canada no longer includes these values in its models.

The findings of the socio-economic assessment were used to assess the Minago project effects on the employment and contracting opportunity. Specific parameters and assumptions used for characterizing economic effects are detailed below.

Gross Domestic Product (GDP)

There are different methods to estimate the Gross Domestic Product (GDP), which, in theory, should produce the same result:

- **Expenditure Method:** The expenditure method adds up consumer spending, gross capital expenditures by private businesses and government, government direct spending on goods and services (not transfer payments such as social assistance, employment insurance or pensions) and net exports;
- **Income Method:** The income method adds up everyone's wages and salaries, income from unincorporated businesses, corporation profits, interest income, and adjustments for depreciation and indirect taxes such as GST;

- **Value added Method:** The value added method adds up all the values directly produced by each industry. Value added is defined as the total sales of an industry minus what it buys from other industries.

Calculating direct impacts of the construction of the Minago Nickel Project can be done in two ways. For the construction phase, mine construction is part of gross capital expenditures. It can be added directly in the Expenditure Method. However, imports need to be subtracted from this figure in order to arrive at the direct impacts. In the operations phase, exports of concentrate are part of net exports, so they can also be added directly to GDP, but imports by the mine also need to be deducted.

Multipliers

The model and multipliers used for the economic assessment of the Minago Project are based on Statistics Canada's 2000 Interprovincial Open Input-Output model. Multipliers for direct impacts of mine construction and of mine operation were calculated. Direct impacts can be calculated using information from the mine plan. Indirect impacts on Manitoba and Canada as a whole can readily be calculated using published multipliers. As well, overall multipliers published for "Construction" and "Mining and Oil and Gas Extraction" can be used. Unfortunately, induced impacts are no longer available, as Statistics Canada no longer includes these in its models. While induced impacts could have been estimated, it was not done in the economic assessment for the Minago Project to not overstate the effects of spending.

Statistics Canada's 2000 Interprovincial Open Input-Output model only applies to provincial/territorial jurisdictions, but not to local communities. Other models exist to compute local economic impacts, but in the absence of knowledge about how much money and employment will be generated in each community, it is impossible to calculate local impacts.

7.14.6.2 Socio-Cultural Effects Assessment

The findings of the socio-economic assessment provided the basis for predicting effects on community health and well-being, including the potential for in-migration and out-migration and effects on local health, law enforcement and social services. Information on project shifts, personnel transportation, etc. provided further information which were used to estimate potential social and cultural effects of the Minago project on local communities and associated effects on community health and well-being Valued Socio-economic Components (VSCs). Socio-economic effect attributes are summarized in Table 7.14-9.

Information on haul frequency and scheduling and mitigation measures to address potential traffic and safety concerns were used to determine the potential effects of the traffic VSC.

The significance of residual project and cumulative effects on socio-economic conditions was determined based on the nature and magnitude of the effects, the mitigation strategies that are available for reducing or eliminating adverse effects and optimizing positive effects for the well-being of affected communities. A residual effect will be considered significant if it:

- Raises strong concern among stakeholders;
- Results in substantial changes in the well-being of affected populations of communities; and
- Significant socio-economic effects could either be positive or adverse.

7.14.6.3 Project Effects

Project effects are assessed in relation to project activities including construction and operations.

Table 7.14-9 Socio-Economic Effect Attributes

ATTRIBUTES	DEFINITIONS
Magnitude	
High	Major changes from existing baseline conditions
Medium	Moderate changes from local baseline conditions
Low	Minor changes from local baseline conditions
Spatial Extent	
Regional	Thompson/The Pas
Local	In the vicinity of the mine, including the communities the Norway House, Cross Lake, Snow Lake, Moose Lake and Grand Rapids.
Duration	
Short-term	Impact continues during construction only.
Medium-term	Impact continues beyond construction.
Long-term	Impact continues for the life of the project.
Frequency (during the Project Life)	
Continuous	Impact occurs continuously during the project life.
Frequent	Impact occurs several times during the project life.
Infrequent	Impact occurs very occasionally during the project life.
Reversibility	
Reversible	Impact can be reversed once the project activity ceases.
Irreversible	Impact that cannot be reversed once the project activity ceases.
Likelihood of Occurrence	
High	The likelihood of occurrence of the effect as predicted is high.
Unknown	The likelihood of occurrence of the effect as predicted is unknown.

7.14.6.3.1 Construction

It should be noted that the data presented and analyzed in this section are preliminary based on the Feasibility Study, and are expected to change with time as the project moves into construction.

Regional Economic Effects

Capital expenditures for the mine construction were estimated to be \$596 million in the first three years as summarized in Table 7.14-10.

A construction camp with a capacity for handling 422 personnel will be required during the construction phase. It will be located near the project site, a few kilometres south of the main industrial complex. Construction of the concentrator, Frac Sand Plant, mine site buildings, power line road, and mine pre-production development is estimated to require over 600 people during the construction period. Construction workers required during the construction period will be locally sourced, if possible. On average, there will be 300

construction workers on-site per year through the construction period. Workers were assumed to work for

**Table 7.14-10 Minago Sulphide Nickel Project – Capital Cost Estimates
(M\$ in CDN)**

Description	Total Construction & Sustaining Expenditures		
	Pre-Production (CAN\$)	Sustaining (CAN\$)	Total (CAN\$)
Direct Costs:			
General	\$5,900,000	\$0	5,900,000
Site Development	\$37,200,000	\$0	\$37,200,000
Site Utilities	\$45,600,000	\$2,000,000	\$47,000,000
Tailings Management	\$15,200,000	\$1,300,000	\$16,500,000
Frac Sand Plant	\$26,600,000	\$0	\$26,600,000
Mine Infrastructure	\$35,600,000	\$0	\$35,600,000
Mobile Equipment	\$107,000,000	\$0	\$107,000,000
Ore Processing Facilities	\$146,700,000	\$0	\$146,700,000
Non-Process Buildings	\$19,100,000	\$0	\$19,100,000
Total Direct Costs	\$438,900,000	\$3,300,000	\$442,200,000
Overhead Costs:			
Indirect Costs	\$91,400,000	\$0	\$91,400,000
Owner's Costs	\$12,800,000	\$0	\$12,800,000
Contingency	\$49,900,000	\$0	\$49,900,000
Total Overhead Costs	\$154,100,000	\$0	\$154,100,000
Total Capital Costs	\$593,000,000	\$3,300,000	\$596,300,000

10 hours per day and 7 days per week with turnarounds as required by the schedule of construction activities. Project work shifts will operate with two-week turnarounds.

Most economic impacts will result from the \$596 million capital spending on the construction of the mine and related facilities. Construction spending will affect the Gross Domestic Product (GDP), employment, business revenues, and taxes. Multipliers for direct impacts of mining construction are kept confidential by Statistics Canada, but total direct and indirect impacts can readily be calculated using published multipliers.

Multipliers for the overall construction industry are available and were used in the economic assessment for the Minago Project (Table 7.14-11). The estimated 2000 Manitoba multipliers for construction expenditures on different components of GDP are presented

below. The meaning of each multiplier is explained below in the relevant section. To calculate the final economic impact, the initial amount of expenditure (\$596,000,000) was multiplied by the appropriate multiplier.

It should be noted that the Statistics Canada employment multipliers are average figures for all construction. The mine planning exercise provides more accurate numbers on direct employment for the Minago Project. So rather than using the Statistics Canada indirect impact multipliers, the ratio of the indirect to direct jobs was used to calculate indirect impacts on employment. Thus, the number of direct jobs was multiplied by the employment ratio to estimate indirect jobs.

Direct and indirect impacts on GDP are presented in Table 7.14-12. The initial \$596 million in construction expenditure will result in a total of \$721.2 million worth of purchases (output) in Manitoba and \$1.144 Billion worth of purchases (output) in Canada as a whole. Note that the "Output" amount double-counts many expenditures. For example, a construction contract would include fuel for heavy equipment. Both the total value of the contract and the value of the fuel purchases are added up in the total output indirect impact measures.

The GDP impacts are a better measure as it eliminates double counting and takes economic leakages into consideration, i.e., it subtracts the value of those goods and services that must be imported for the project. The direct impact in Manitoba of the construction of the mine will directly increase GDP by \$202.6 million. When purchases in Manitoba are accounted for, the province's GDP will be increased to \$268.2 million total. Manitoba's GDP in the year 2008 was approximately \$51,000,000,000 (Stats Canada). The \$268.2 million total (direct + indirect, excluding \$51 billion reported in 2008) impact in Manitoba will therefore, likely account for a 0.5% boost in GDP, which represents a substantial increase.

Note that the total impact on Manitoba's GDP is less than half of what the project will cost. This is largely due to the need to import many goods and services needed for the project. The input-output model only calculates international imports, estimated at \$125.1 million (Direct and indirect impacts in Canada).

Government Revenues and Spending

Tax Revenues

The input-output model allows calculating indirect taxes such as the GST and property taxes directly, but income taxes have to be estimated. Based on the 2009 Taxable income rates (federal and provincial), the lowest combined minimum marginal tax rate in Manitoba was 25.80% on the first \$31,000 of taxable income and 27.75% on earnings between \$31,000 and \$40,726 of taxable income (Table 7.14-13). Between \$40,726 up to \$67,000 the combined (federal personal income tax rate) was 34.75%. Provincial tax was 10.8% on the first \$30,544 of taxable income and 12.75% on the next \$34,456 (Manitoba's provincial income tax). Note that some of the income tax revenues could go to First Nations

governments, if workers on the job live on Manitoba's First Nation settlement land. The tax rates can be applied to wages and salaries to yield an estimate of personal income taxes. Corporation income taxes are much more difficult to estimate and the model does not yield a

Table 7.14-11 Construction Expenditure Multipliers for Manitoba in 2000

	Direct Impact in Manitoba	Direct + Indirect Impacts in Manitoba	Direct + Indirect Impacts in Canada
Total GDP	0.34	0.45	0.78
Output	1.00	1.21	1.92
International imports	0.11	n/a	0.21
Indirect taxes on products	0.00	0.01	0.01
Indirect taxes on production	0.00	0.01	0.02
Wages and salaries	0.23	0.29	0.46
Supplementary labour income	0.02	0.03	0.05
Mixed income	0.02	0.03	0.04
Other operating surplus	0.06	0.10	0.21
Employment (person-years per million \$)	5.93	7.97	12.48
Employment ratios (person-years per direct job)	1.00	1.34	2.11

Table 7.14-12 Construction Impact on GDP

	Direct impact in Manitoba	Direct + Indirect Impacts in Manitoba	Direct + Indirect Impacts in Canada
Output	\$596,000,000	\$721,160,000	\$1,144,320,000
Total GDP	\$202,640,000	\$268,200,000	\$464,880,000
International imports	\$65,560,000	n/a	\$125,160,000

useful number for corporate profits. The tax effects of the mine construction are summarized in Table 7.14-14.

As detailed in Table 7.14-14, overall, construction of the project is estimated to yield \$6.3 million in personal income taxes to governments in Canada and about \$4.3 million in personal income taxes to governments in Manitoba.

Table 7.14-13 2009 Tax Table – Manitoba (Combined Provincial & Federal Rates)

2009 Taxable Income	Combined Tax Rates	Provincial	Federal
First \$31,000	25.80%	10.80%	15%
Over \$31,000 up to \$40,726	27.75%	12.70%	15%
Over \$40,726 up to \$67,000	34.75%	12.75%	22%

Table 7.14-14 Estimated Taxes on Construction Expenditures for Manitoba and Canada (assuming 600 Construction Workers)

	Tax Revenues*
Federal income taxes	\$6,358,524
Manitoba/provincial income taxes	\$4,294,974
Total tax revenues	\$10,653,498

Note : * based on 600 construction workers earning on average \$60,000 per annum. Calculation based on tax rates cited in the above paragraph titled 'Tax Revenues'.

Government Spending

Project construction workers will be housed in an on-site camp and therefore will place little or no pressure on the housing market, local health facilities, local education facilities, local social services and recreation facilities in the project vicinity.

Construction activities will place no pressure on local waste management facilities. A package sewage treatment plant will be provided for the construction camp and construction waste will be disposed of in a landfill near the tailings facility.

There will be chemicals or hazardous wastes associated with project construction. Waste oils/lubricants will be disposed of by transferring the material to a recognized recycling plant.

There will be an increase of road use associated with the construction activities. Provincial Highway 6 will experience some increase traffic periodically during construction but little or no public inconvenience is anticipated.

Employment

Job creation numbers can also be estimated from the multipliers presented above. Construction of the concentrator, mine site buildings, power line, road and mine pre-production is estimated to directly require 600 person-years. Once employment generation in industries that supply goods and services to the contractors is factored in, the project will create an additional 1,608 person-years in Manitoba and an additional 2,532 person-years in other Canadian provinces or territories (Table 7.14-15).

On average, there will be 600 construction workers on-site throughout the construction (2 years). Workers are planned to work 10 hours per day and 7 days per week with turnarounds as required by the schedule of construction activities.

Table 7.14-15 Employment Impacts of Construction Expenditures in Manitoba and Canada (Two Year Projection)

	Manitoba Direct Impact	Manitoba Direct + Indirect Impacts	Canada Direct + Indirect Impacts
Employment (person-years)	1,200	1,608	2,532
Wages and salaries	\$16,560,000	\$20,880,000	\$33,120,000
Supplementary labour income	\$1,440,000	\$2,160,000	\$3,600,000
Mixed income	\$1,440,000	\$2,160,000	\$2,880,000
Other operating surplus	\$4,320,000	\$7,200,000	\$15,120,000
Totals	\$23,760,000	\$32,400,000	\$54,720,000

Note: Approximately 2.016 million person hours will be required for construction.

Assuming a total work period of 48 weeks per annum, total work hours for one year period equal 1,680 hours per person (24x7x10). For one year, the total hours would be 1.008 million with over 2 million employable hours over the two year period, assuming two-week turnarounds. The average salary per worker was estimated to be \$60,000 per annum. This results in a total base salary of \$36,000,000 per annum, for two years bringing the total to \$72,000,000.

Wages

As detailed in Table 7.14-15, direct wage impact paid to on-site construction workers will amount to \$16.5 million dollars. If both on-site as well as wages paid to supplier industries are accounted for, the direct and indirect impacts of construction in Manitoba will be over \$20.8 million and on Canada will be almost \$33.1 million.

Training Plans

There are no specific training plans developed for the construction of the project. It is anticipated that normal complements of apprentices will be used on the project.

Labour Availability

While Manitoba and local communities have a reasonable complement of workers with the required skills, availability of skilled workers and contractors might be a problem because of potentially conflicting projects and high demand in parts of western Canada. A number of major projects could compete directly with the current one, including other mining developments, Manitoba Hydro Power Generation Projects and the Crowflight Project. As well, many Manitoba trades people are currently working in the Fort McMurray area and other areas in Western Canada with strong oil and gas development.

Contract and Business Opportunities

VNI is committed to providing employment and business opportunities for local residents, including First Nations to the extent possible based on qualifications, quality of service, cost and capability to deliver in a timely manner. As previously mentioned, VNI will target as high a number as possible for the construction workforce from the local labour market. This will ensure local benefits will flow during construction.

A number of contracts will be tendered for mine construction, including camp construction, camp services, access road building, mill construction, frac sand plant construction, Tailings and Ultramafic Management Facility (TWRMF) construction and mine construction. In addition to the \$593 million capital costs, the mine construction will result in additional sales of \$57.3 million for Manitoba businesses supplying goods and services to the companies involved in the mine construction. In the absence of current multipliers, it is difficult to estimate what business opportunities could be created by the expenditures of workers and contractors.

Effects on Community Health and Well-being

Construction is not expected to have any cost-of-living impacts in the communities of interest. The population effect during construction of a project like this, with an on-site construction camp, is very small. Construction workers typically do not relocate but tend to maintain their homes elsewhere and live in the on-site camp during their shift. As a result no excessive demands on local health, law enforcement or social services are expected.

Effects on Traffic and Safety

It is anticipated that supplies and equipment will be trucked to the project site using the Provincial Highway #6. Some modest interruption of the traffic can be expected as large pieces of equipment move through. No effect on general highway safety is anticipated.

Effects on Traditional Ways of Life

No effects on traditional ways of life are anticipated. However, opportunities for working on the construction site by local residents might reduce subsistence activities.

7.14.6.3.2 Operations

The nickel mine is slated for production start-up in 2014 with an ore production rate of 10,000 tonnes per day with total ore production and processing of 25.2 million tonnes. Annual expenditures associated with mine operations at full production were estimated in the scoping study to be \$95.6 million. A breakdown of these annual expenditures is summarized in Table 7.14-16.

Table 7.14-16 Life of Mine Projected Operating Expenditures (including Frac Sand)

Minago Sulphide Nickel Project – Projected Operating Costs	
By Cost Centre	\$millions
General and Administration	109.1
Surface Facilities	39.9
Frac Sand Plant	73.3
Ore Processing	249.3
Open Pit Mining	388.1
TOTAL	859.7

Note: Derived from the December 14th, 2009 Victory Nickel Inc. press release.

Regional Economic Effects

Economic impacts can be calculated using total expenditures on operations and maintenance and applying the requisite multipliers. The calculated impacts are average annual amounts over the planned mining and frac sand plant processing life of 9 years.

Multipliers for direct impacts of mining are kept confidential by Statistics Canada, but overall multipliers for direct impact of 'Mining and Oil Gas Extraction' can be used where data is not available for 'Metal Ore Mining'. The estimated 2000 Manitoba multipliers of mining expenditures on different component of the GDP are presented in Table 7.14-17.

The meaning of each multiplier is explained below in the relevant section. To estimate the final economic impact, the annual operating expenditure including concentrate haulage costs (\$95.6 million) is multiplied by the appropriate multiplier.

Direct and indirect impacts on GDP are presented below (Table 7.14-18). The annual \$95.6 million in output will result in a total amount of \$114.7 million worth of purchases (direct and indirect impact) in Manitoba and \$161.5 million in Canada (direct and indirect) as a whole. Note that the "Output" amount double-counts many expenditures.

The GDP impacts are a better measure as it eliminates double accounting and takes economic leakages into consideration, i.e., it subtracts the value of these goods and services that must be imported for the project. The direct impact in Manitoba of the operation of the mine is that it directly increases Manitoba's GDP by an annual average of \$57.3 million, if purchases from Manitoba suppliers are included. Canada's estimated GDP in 2008 was \$1.4 Trillion. The \$50.6 million total (direct + indirect) annual impact of the Minago Project in Manitoba will therefore likely account for about 0.004% of the nations annual GDP (Table 7.14-18).

Table 7.14-17 Mining Expenditure Multipliers for Manitoba in 2000

	Mining and oil and gas extraction	Metal Ore Mining	
	Direct Impact in Manitoba	Direct + Indirect Impacts in Manitoba	Direct + Indirect Impacts in Canada
Total GDP	0.60	0.53	0.76
Output	1.00	1.20	1.69
International imports	0.09	0.00	0.23
Indirect taxes on products	0.00	0.01	0.01
Indirect taxes on production	0.01	0.00	0.01
Wages and salaries	0.14	0.28	0.38
Supplementary labour income	0.02	0.04	0.05
Mixed income	0.00	0.01	0.02
Other operating surplus	0.42	0.20	0.29
Employment (person-years per million \$)	3.56	5.41	8.22
Employment ratios (person-years per direct job)	1.50	1.52	2.31

Table 7.14-18 Mine Operation Impact on GDP

	Direct Impacts in Manitoba ¹	Direct + Indirect Impact on Manitoba ²	Direct + Indirect Impact in Canada ²
Total GDP	57,360,000	\$50,668,000	\$72,656,000
Output	\$95,600,000	\$114,720,000	\$161,564,000
International imports	\$8,604,000	n/a	\$21,988,000

Notes: 1 Based on "Mining and oil and gas extraction" multipliers.

2 Based on "Metal ore mining" multipliers.

Numbers are calculated based on one year of operating expenditures of \$95.6 million.

Note that the total impact on the Manitoba GDP is a little more than half of what the project will cost per annum (Table 7.14-18). This is largely due to the need to import many of the goods and services needed for the project.

Government Revenues and Spending

Tax Revenues

The project will generate additional revenues for the different levels of government. This includes indirect taxes such as federal GST and municipal/territorial property taxes. As well,

a number of direct taxes will be paid, including provincial, federal and potentially First Nations individual and corporation income taxes, as well as federal and territorial royalties. A summary of the impacts on taxes of mine operations expenditures is given in Table 7.14-19.

Table 7.14-19 Impacts on Taxes of Mine Operation Expenditures on Manitoba and Canada

	Direct Impact in Manitoba ¹	Direct + Indirect Impacts in Manitoba ²	Direct + Indirect Impacts in Canada ²
Indirect taxes on products	0	1,147,200	1,147,200
Indirect taxes on production	\$956,000	0	1,147,200
Federal corporation income taxes	\$19,598,000 ³	Multipliers unavailable	Multipliers unavailable
Manitoba/provincial corporation income taxes	\$12,428,000 ³	Multipliers unavailable	Multipliers unavailable
Total tax revenues	\$32,982,000	\$1,147,200	\$2,294,400

- Notes:**
- 1 Based on 'Mining and Oil and Gas Extraction' multipliers using a base of \$95.6 million for GDP (Table 7.14-18).
 - 2 Based on 'Metal Ore Mining' multipliers using a base of \$114.72 million for GDP (Table 7.14-18).
 - 3 Number derived from base of \$95.6 million with a federal tax rate of 20.5% and a provincial tax rate of 13%.

The input-output model allows calculating indirect taxes such as the GST and property taxes directly, but income taxes and royalties have to be estimated. The current lowest minimum marginal tax rate in Manitoba is 15% for federal personal income taxes and 10.8% for Manitoba income tax. Note that some of the income tax revenues could go to First Nations governments, if mine employees live on Manitoba First Nations settlement land. The tax rates can be applied to wages and salaries to yield an estimate.

Government Spending

By creating jobs, the mine operation is likely to reduce spending on social assistance and Employment Insurance. However, depending on the effect on the population, spending on other government programs such as health care and education could increase, depending on how many people end up migrating to northern Manitoba as a result of the mine. Given the proponent's commitment to employ as many local residents as possible, the effects are likely to be small, as the Manitoban government is already providing services to the residents.

Employment

Approximately 422 employees will be required to operate and maintain the open pit mining operation. In addition, approximately 200 employees will be required on a full-time basis.

Total payroll costs are estimated to be approximately \$37 million annually during operation. This estimate is likely to be lower rather than higher than the actual payroll, once operations begin for a number of reasons. First, the base hourly wage for many of the positions appear to be on low side given the current intense competition for skilled labour in the mining and other industries such as oil and gas and construction, which tap into the same labour pool.

Regional Employment

In addition to the people directly employed by the operating mine, there will be employment created both through the mine's purchase of goods and services and through the spending of employees in their communities. The effect on employment of the mine's purchases is an indirect impact, while re-spending of employees' wages is an induced impact.

VNI plans to directly employ 422 people on a full-time basis as outlined above. This is the operation's direct employment in Manitoba.

Ratios derived from Statistics Canada's Interprovincial Input-Output model show that a hard-rock mine in Manitoba will create 1.52 person years for direct and indirect employment in the province for every job created. With annual operating employment expenditures estimated at \$25.3 million, the mine will create a total of 642 person-years of employment annually directly and indirectly.

Direct and indirect employment impacts in terms of person-years on Manitoba are summarized in Table 7.14-20 whereas Table 7.14-21 details the impacts in terms of income.

There will be further employment impacts created through the spending of employee's wages and salaries, known as induced impacts. Unfortunately, Statistics Canada no longer provides the multipliers necessary to calculate these induced impacts.

Table 7.14-20 Direct and Indirect Employment

	Direct Impact Manitoba	Direct & Indirect Impact in Manitoba
Mining, Oil & Gass Extraction	633	
Metal Ore Mining		642
TOTAL	633	642

Note: Based on a need of 422 employees working at the mine once operational.

Table 7.14-21 Employment and Income of Operation Expenditures, Manitoba and Canada ongoing Jobs

Metal Ore Mining	Direct Impact in Manitoba ^{1,2}	Direct + Indirect Impacts in Manitoba ²	Direct + Indirect Impacts in Canada ²
Employment (person-years)	633	642	975
Wages and salaries	\$3,544,800	\$7,089,600	\$9,621,600
Supplementary labour income	\$506,400	\$1,012,800	\$1,266,000
Mixed income	\$0	\$253,200	\$506,400
Other operating surplus	\$10,634,400	\$5,064,000	\$7,342,800
TOTAL	\$14,685,600	\$13,419,600	\$18,736,800

- Notes:**
- 1 Of the 422 direct jobs created, many will flow outside Manitoba initially. As familiarity with Manitoba grows, it is anticipated that families will relocate to Manitoba communities. Based on the 422 direct jobs with an average wage of \$60,000 per annum, the total wages will be \$25,320,000.
 - 2 Multiplier used in column one is based on mining, oil and gas extraction, while column two and three multipliers used only metal ore mining multipliers. Wages of \$25,320,000 were used as the base number for the multipliers.

The mine will also create jobs through spending on equipment and suppliers in other area of Canada. Statistics' Canada mine employment multiplier for Canada as a whole is 12.48 person-years per \$1.0 million in expenditures (Table 7.14-11). The employment ratio presented in Table 7.14-17 estimates 2.31 person years of employment created in Canada for every direct mine job. This indicates that VNI's operations will create a total of 975 person-year of employment in other parts of Canada in addition to the 642 jobs in Manitoba (direct and indirect).

Local Employment

It is the Company's desire to hire and train locally as much as possible, both for the positive impact on the local community, and to reduce turnover and transportation costs. VNI stated staffing policy is that preference will be given to applicants in the following priority:

- Members of the four First Nations communities (NHCN, GRCN, MLCN, CLCN) and Métis;
- Local residents (GR/SL/NH/ML/CL);
- Manitoba residents; and
- Other applicants.

While this preferential hiring structure obviously gives advantages to local people, both First Nation and non-First nation, and to Manitobans as a whole, the key factor is how many local and Manitoban people will be considered qualified. As discussed in the section on labour

availability below, it is unlikely that all qualified and experienced workers will be found in Manitoba alone. The management, supervisory and engineering positions are unlikely to be filled from the local labour pool given the competitive nature of the business today. In addition, the skilled mechanical and electrical trades are also in very short supply. However, the mine will require a wide variety of employees, from clerks to apprentice electrician to truck drivers, that the region and the current Manitoba labour is likely to supply more readily. There is also a chance that some of the workers from northern Manitoba working in places such as Alberta may choose to come back to their communities as the Minago Project will provide the necessary employment.

Unfortunately, there is no way of accurately estimating how many of the positions required to operate the Minago mine will be filled by residents of the local region or even by Manitobans as a whole.

Labour Availability

The shortage of labour – and particularly skilled labour – required for mining projects has been an increasing concern for the industry throughout Canada. A number of factors are contributing to the general shortage:

- There is very stiff competition for qualified people in a variety of trades and skills from the oil and gas construction industries. The oil sands developments in northern Alberta in particular have been attracting many skilled workers.
- The prolonged slump in the mining industry in the 1980s and 1990s led to many workers leaving the industry and to a cutback of training apprentices and other new entrants.
- There has been increasing difficulty in both the mining and oil and gas industries to find people who have both the desire and stamina to work in physically demanding jobs in sometimes harsh conditions.

Anecdotal evidence is strong that Manitoba has seen a substantial number of skilled and experienced workers in mining and related fields migrate to other jurisdictions to find work or leave the industry altogether especially before the latest mining boom.

However, Manitoba retains the advantage of a relatively stable workforce – and particularly the First Nation workforce – that wishes to remain rooted in the territory.

Training

VNI will work with the Northern Sector First Nations and relevant government agencies to train the required workforce for the Minago Project. These will include but not be limited to securing funding and the right candidates for training. Victory Nickel will also provide refresher courses and on the job training for its workers.

Wages and Salaries

A breakdown of employee wages and salaries by position is shown in Table 7.14-22. Salaried positions range from an estimated base salary of \$33,000 annually for a liaison officer to \$150,000 annually for the mine manager. The estimated base hourly pay rate for the non-salaried positions is summed up in the Table 7.14-23. The base rates are all over \$20 per hour with the highest being for the skilled trade positions.

It should be noted that, given the general difficulties faced by the mining and similar industries in finding sufficient skilled labour as noted above, the base pay rates shown may be understated. Higher pay is the most basic means of attracting workers in a tight labour market.

Contracting and Business Opportunities

As with any project of this magnitude, the opening and operation of the project will create a number of commercial opportunities both in the region and within Manitoba. The following goods and services will be required by VNI in its operation of the Minago mine and mill.

While not exhaustive by any means, the following represent opportunities for both local and Manitoba businesses:

- Trucking, both ore haul from mine to mill and concentrate haul to Ponton for Frac Sand and Concentrate to smelters,
- camp operations including catering and janitorial,
- supply of fuel and lubricants,
- supply of parts,
- supply of other goods and services,
- road maintenance, snow removal and related activities,
- site security and road patrol.

The communities of interest and their citizens are in a good position to benefit from a number of these business opportunities through their existing corporations and other firms.

Effects on Community Health

Cost of Living Impacts

The project is expected to have no measurable impact on the cost of living for Manitoba as a whole. The size of the project, while not insignificant, it is not large enough to impact the provincial inflation rate. It is also unlikely that the mine will cause any increases in cost of living, in the communities of interest, for example. There will be no sudden demand for new housing since Minago will be a camp operation. Also, almost all mine purchases will be made in Winnipeg or outside where they will not affect local cost of living.

Table 7.14-22 Breakdown of Salaries

Position	Manpower	Base Salary CDN\$
Mine Site Manager	1	\$150,000
Secretary	1	\$36,000
Personnel Superintendent	1	\$100,000
Environmental Engineer	1	\$82,000
Liaison Officer	2	\$33,000
Purchasing Agent	1	\$82,000
Buyer	1	\$66,000
Warehouseman	4	\$51,000
Safety and Training Officer	1	\$77,250
First Aid	1	\$55,000
Controller	1	\$51,000
Payroll Clerk	1	\$51,000
Accounting Clerk	1	\$51,000
Surface Crew		
Lead Hand	1	\$77,250
Surface Operator	3	\$55,000
Mine Staff		
Mine Manager	1	\$90,000
Shift Forman	2	\$65,000
Maintenance Foreman	1	\$60,000
Chief Engineer	1	\$75,000
Senior Engineer	1	\$60,000
Geologist	2	\$55,000
Surveyor	1	\$45,000
Surveyor Helper	1	\$42,000
Technician	1	\$42,000
Sampler	1	\$40,000
Mill Staff		
Mill Superintendent	1	\$97,290
General Foreman	1	\$77,250
Supervisors	3	\$66,519
Metallurgist	1	\$79,560
Mill Technician	1	\$41,818
Environmental Technician	1	\$41,818
Clerk	1	\$39,140
Mill Maintenance & Assay		
Maintenance Superintendent	1	\$85,000
Heavy Equipment Supervisor	1	\$65,000
Electrical Supervisor	1	\$65,000

Table 7.14-22 (Cont'.d) Breakdown of Salaries

Position	Manpower	Base Salary CDN\$
Mill Maintenance & Assay		
Maintenance Engineer	1	\$61,000
Planner	2	\$55,000
Clerk	1	\$41,000
Assayer	3	\$69,340

Table 7.14-23 Breakdown of Hourly Pay

Description	Manpower	Base Pay Rate CDN\$/hour
Jumbo Operator	8	\$23.77
LHD Operator	8	\$23.77
Rockbolter	4	\$23.77
Ground Support	2	\$23.77
Shotcrete	2	\$23.77
Truck Driver	4	\$23.77
Truck Loader Operator	0	\$23.77
Blasting Crew	8	\$21.96
Utility Crew	8	\$20.08
Mechanics	16	\$25.56
Electrician	2	\$20.08
Crusher Operator	4	\$24.09
Grinding Operator	4	\$24.09
Dewatering Operator	4	\$24.09
Reagents/Water Treatment Op.	4	\$24.09
Tailing/Concentrate Loadout Op.	4	\$22.69
Labourer	2	\$22.69
Bucker	2	\$22.69
Millwright	2	\$26.79
Machinist	2	\$26.79
Machinist Apprentice	2	\$22.79
Camp Maintenance	2	\$22.79
Instrument Mechanic	2	\$25.56
Electrician	2	\$25.56
Electrician Apprentice	2	\$20.08

Migration

Operations workers from Manitoba and elsewhere will be housed in the camp at the mine site. Thus, initially it is not anticipated that many, if any, staff hired outside will relocate to Manitoba. As experience with the project grows, it can be anticipated that workers may desire to obtain housing in Manitoba communities and relocate to Manitoba.

In summary, little population change is anticipated in Manitoba as a result of worker relocation to the project area. Accordingly, no undue demands on existing health, law enforcement or social services are expected in the community of interest.

Effects on Traffic/Safety

It is currently planned that there will be 4 loads per day of concentrate and 62-63 loads of Frac Sand Plant products per day. This will result in slightly more than 3 trucks per hour, on average, passing any point on the haul route. This minor pressure is expected to pose little or no pressure on current traffic and traffic safety. The company is committed to the highest standards of safety and will closely watch the interaction of its trucks with other traffic with a view to enhance safety wherever possible.

Effects on Traditional Lifestyle

An operating mine can impact an area's subsistence economy in a number of ways. If the operation's footprint is large and/or is located directly in areas of exceptionally high wildlife values, the mine's operations can directly reduce the number or quality of the wildlife resources that subsistence depends on. The project is not expected to create this form of negative impacts during project operations (refer to the Wildlife section). At closure, it is planned that the mine access road will remain in place, but will be blocked to limit access. This will initially enhance access for the trappers and subsistence hunting. Initially, there will be enhanced opportunity for subsistence hunting, but increased hunting could reduce regional moose populations, which utilize the project area, with a resulting adverse effect on subsistence hunting in the longer term. Effects will depend on access management measures implemented at closure.

The subsistence economy can also be impacted through an increase in employment created by the mine in the region. Increasing full-time employment in communities with high levels of under-employment and unemployment both reduces the economic need for subsistence activities and reduces the amount of time available for them. However, a work schedule that gives extended periods (e.g., two weeks) at home increases opportunities for subsistence activities. Based on the project turn around of two weeks, it is unlikely that it will have a large impact – positive or negative – on the region's subsistence economy.

7.14.6.3.3 Closure

Following the final decommissioning of the mine all direct project effects on employment and business and contracting opportunities will cease.

Smaller rural communities in Manitoba as elsewhere frequently suffer from a too-narrow economic base and would benefit from greater economic diversification. The business and contracting opportunities arising from projects such as the Minago project can assist in diversifying small local economies not just for the period of operation but beyond.

One of the main means of extending the local benefits beyond the life of the project is the capacity building that occurs in the local communities. Capacity is built not just for individuals who improve their job skills and experience, but also for local businesses. The development of business skills and experience assists greatly in the economic diversification process and the skills are highly transferable to future projects and developments.

No changes in community health and well-being, apart from the potential benefits of economic diversification, noted above, are expected at closure.

As the project is not expected to have any significant effects on fish and wildlife during its operational life, no residual effects on resource bases for traditional pursuits are expected at closure. The project access road will remain at closure. This could enhance access for traditional use activities. While this could be seen as a positive effect initially, there is a risk that moose hunting in the project area could have detrimental effect on populations and ultimately have an adverse effect on moose hunting for traditional purposes.

7.14.6.4 Residual Project Effects and Significance

Tables 7.14-24 and 7.14-25 summarize the socio-economic impacts of the construction and operations phases of the project.

Table 7.14-24 Summary of Socio-Economic Impacts of the Minago Project in the Construction Phase

Valued Socio-economic Component (VSC)	Probability	Frequency	Magnitude	Spatial Extent	Duration	Reversibility	Impact
Traffic interruption/safety	Unlikely	Infrequent	Low	Local	Short-term	Reversible	Minor & Negative
Employment Opportunities	Certain	Continuous	High	Regional	Short-term	Reversible	Moderate & Positive
Contract & Business Opportunities	Certain	Continuous	Medium	Regional	Medium-term	Reversible	Moderate & Positive
Community Health	Moderate	Infrequent	Low	Regional	Short-term	Reversible	Minor
Maintenance of the traditional way of life	Unlikely	Infrequent	Low	Regional	Medium-term	Reversible	Minor

Table 7.14-25 Summary of Socio-Economic Impact of the Minago Project in the Operations Phase

Valued Socio-economic Component (VSC)	Probability	Frequency	Magnitude	Spatial Extent	Duration	Reversibility	Impact
Traffic interruption/safety	High	Continuous	High	Regional	Long-term	On-going (impact ends at closure and abandonment)	Medium to high & Negative
Employment Opportunities	Certain	Continuous	High	Regional	Long-term	On-going	Medium to high & Positive
Contract & Business Opportunities	Certain	Continuous	High	Regional	Long-term	On-going	Medium to high & Positive
Community Health	Medium	Continuous	Medium	Local	Long-term	Reversible (impact ends at closure and abandonment)	Minor
Maintenance of the traditional way of life	High	Continuous	Low	Regional	Long-term	On-going (impact ends at closure and abandonment)	Minor

7.14.6.5 Mitigation Measures

Table 7.14-26 summarizes potential effect and related mitigation measures.

Table 7.14-26 Mitigation Measures for Socio-Economic Effects

Potential Project Effect	Mitigation Measures
Effects on local employment	Local advertisement of opportunities; Training programs; Impact and Benefit Agreements (IBAs).
Effects on business and contracting opportunities	Local advertisement of opportunities, IBAs.
Effects on community health	Utilization of mine camp for all mine workers.
Effects on traffic/safety	Driver education; Compliance with all Manitoba and Federal traffic laws.
Effects on traditional lifestyle – increased access into project area for traditional activities	Access to the site will remain open with gated or limited access.

7.14.6.6 Cumulative Effects and Significance

Although there may be some difficulty in recruiting workers to the project given the cumulative demand for workers in the western and northern Canada, it is not anticipated that there will be any measurable cumulative effects on socio-economic conditions.

7.14.6.7 Monitoring and Follow-up

Given the size and relatively negative impacts of the project, a monitoring program will be developed to compare baseline with operation conditions.

7.15 Power Supply

7.15.1 Power Line

The primary source of electrical power will be the Manitoba Hydro 230 kV line along the east side of PTH6. The hydrogrid runs approximately 300 m east of PTH6 and is about 500 m from the Minago Property boundary. From the connection at PTH6, a 6.3-km, 230 kV power transmission line will feed the main substation located to the west of the process plant in the northwest corner of the site (i.e. Industrial Complex). The connection from the Manitoba Hydro 230 kV line will be provided with gas-filled isolation switches. The overall site plan is given in Figures 7.15-1 and 7.15-2. The related drawings for the electrical systems are given in Figures 7.15-3 to 7.15-16.

7.15.2 Main Substation

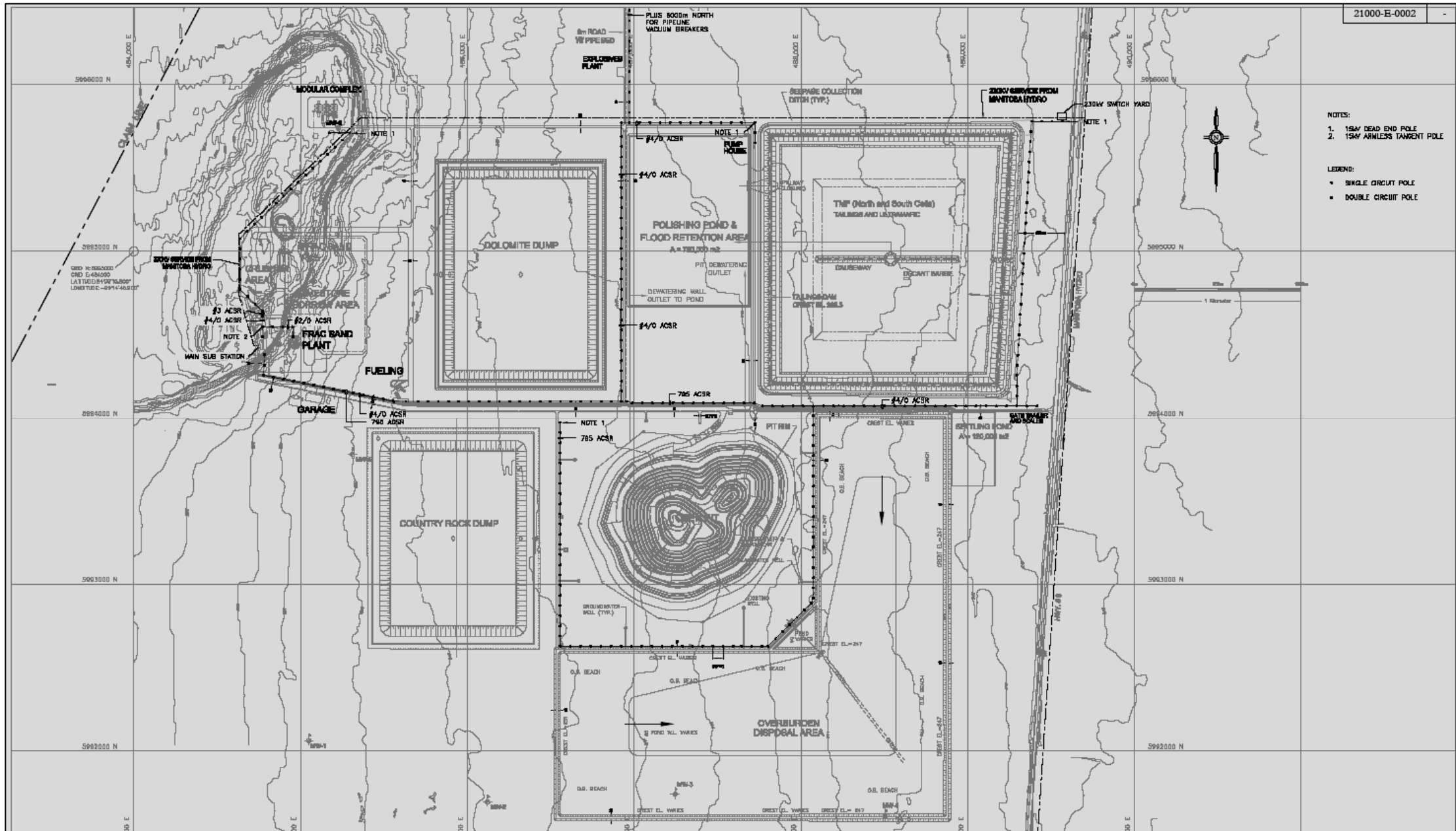
The main substation will consist of two main transformers rated at 50 MVA each capable of supplying the full load. The transformers will transform the power down from 230 kV to 13.8 kV to the main 13.8 kV switch room via metal clad switchgear. The system is sized and configured for full redundancy, allowing the transformers to operate in parallel or individually while maintaining full production. Each transformer must accommodate the full operational loads in the event of a failure of the other. The main substation will be protected by a secure chain link fence surrounding a crushed stone bed for easy maintenance and to ensure effective drainage.

7.15.2.1 Power Distribution

Power from the main switchgear room will be distributed at 13.8 kV via overhead line to the various distribution centres around the site. As necessary, outdoor oil filled transformers will transform the primary 13.8 kV to 6,600 V, 4,160 V and 600 V.

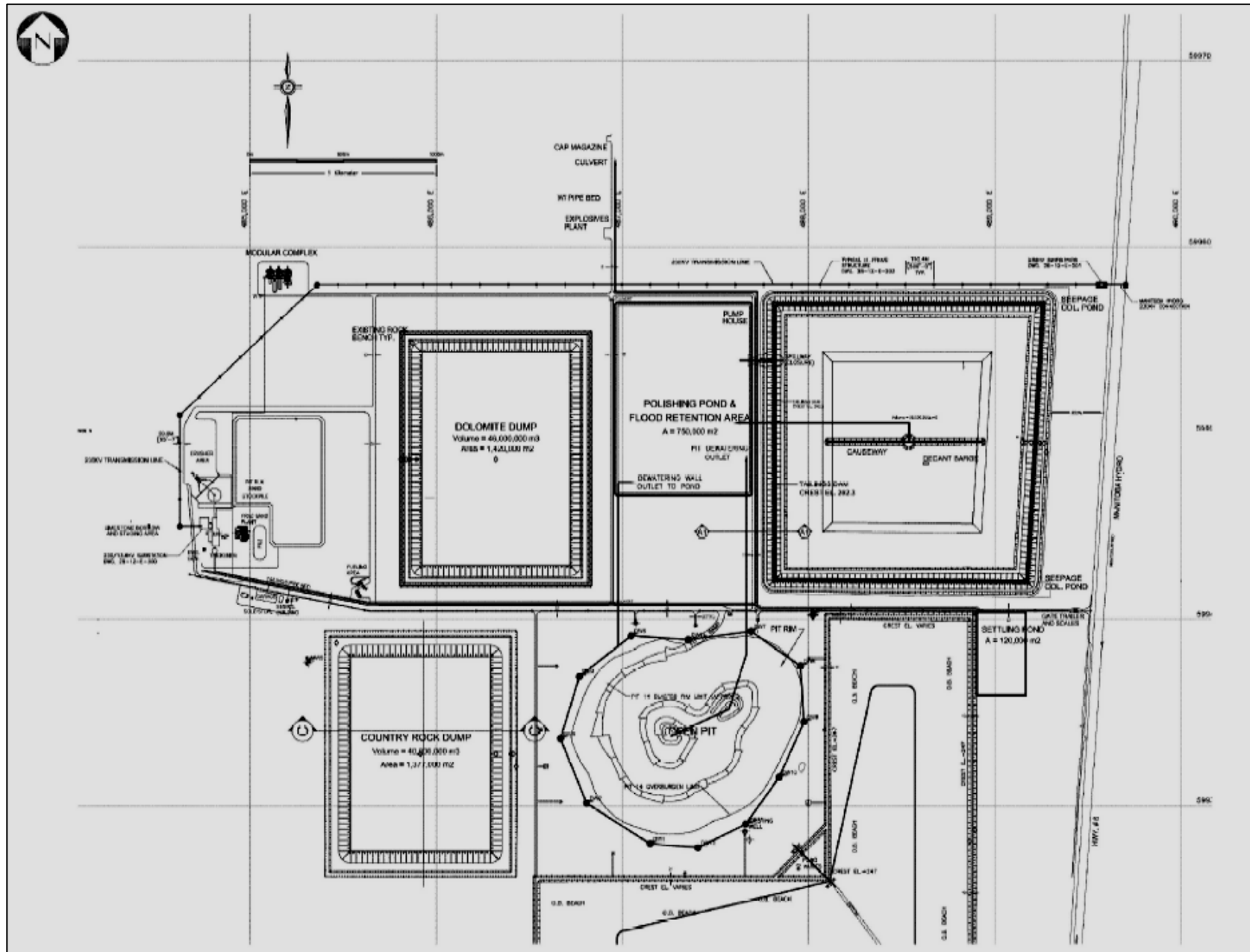
Open Pit Mining

A 13.8 kV overhead distribution line circling the pit will provide power to the pit shovels, drills, dewatering pumps and surface pumps. Outdoor oil-filled transformers on portable substations will transform from 13.8 kV to 6.6 kV to feed the shovels and drills for mining. Within the pit, other portable substations will transform the primary 13.8 kV to 600 V to power the dewatering pumps.



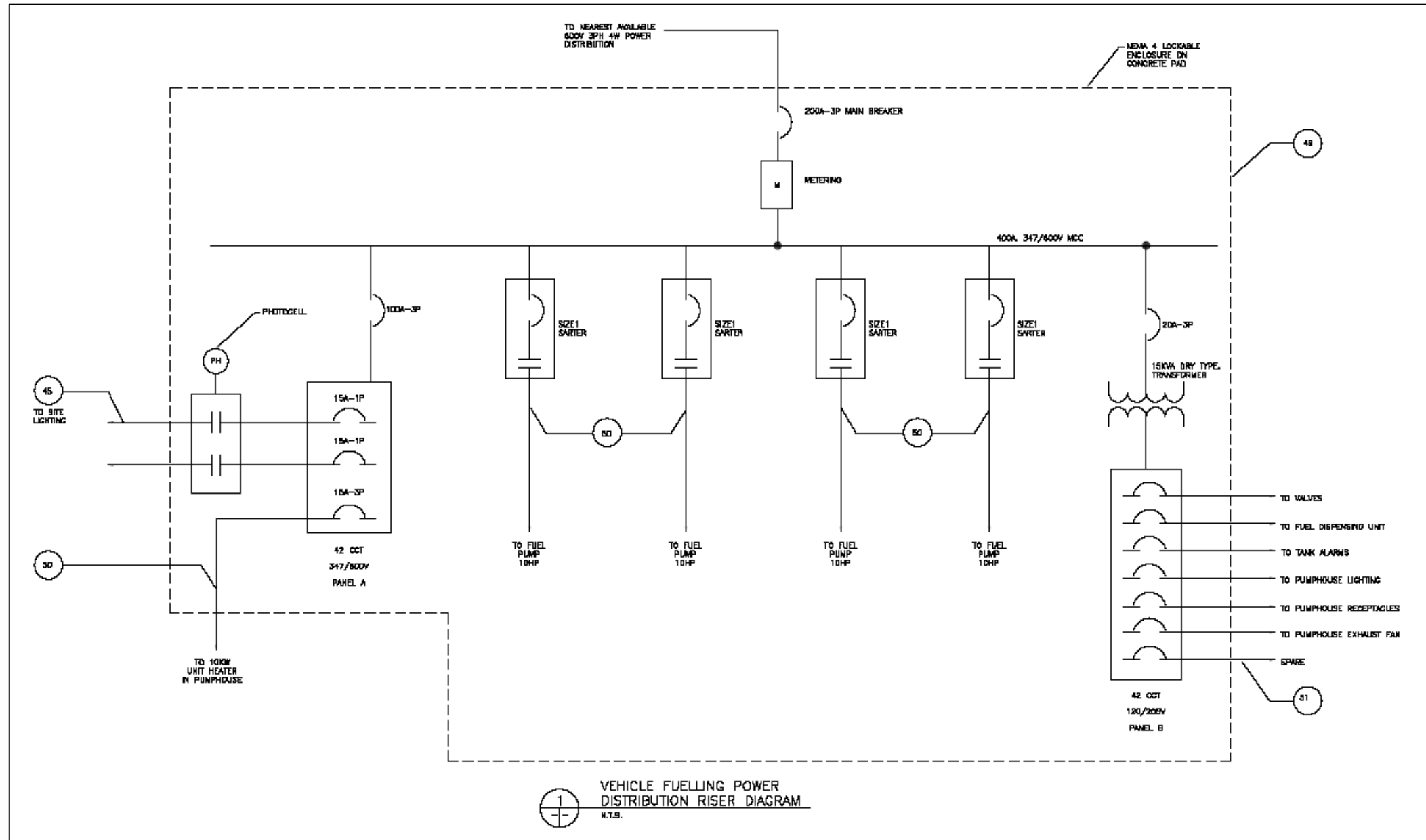
Source: adapted from Wardrop's drawing 0951330400-E0002 (Wardrop, 2009b)

Figure 7.15-1 Location of Power Line and Other Site Infrastructures (Electrical 13.8 kV Site Distribution)



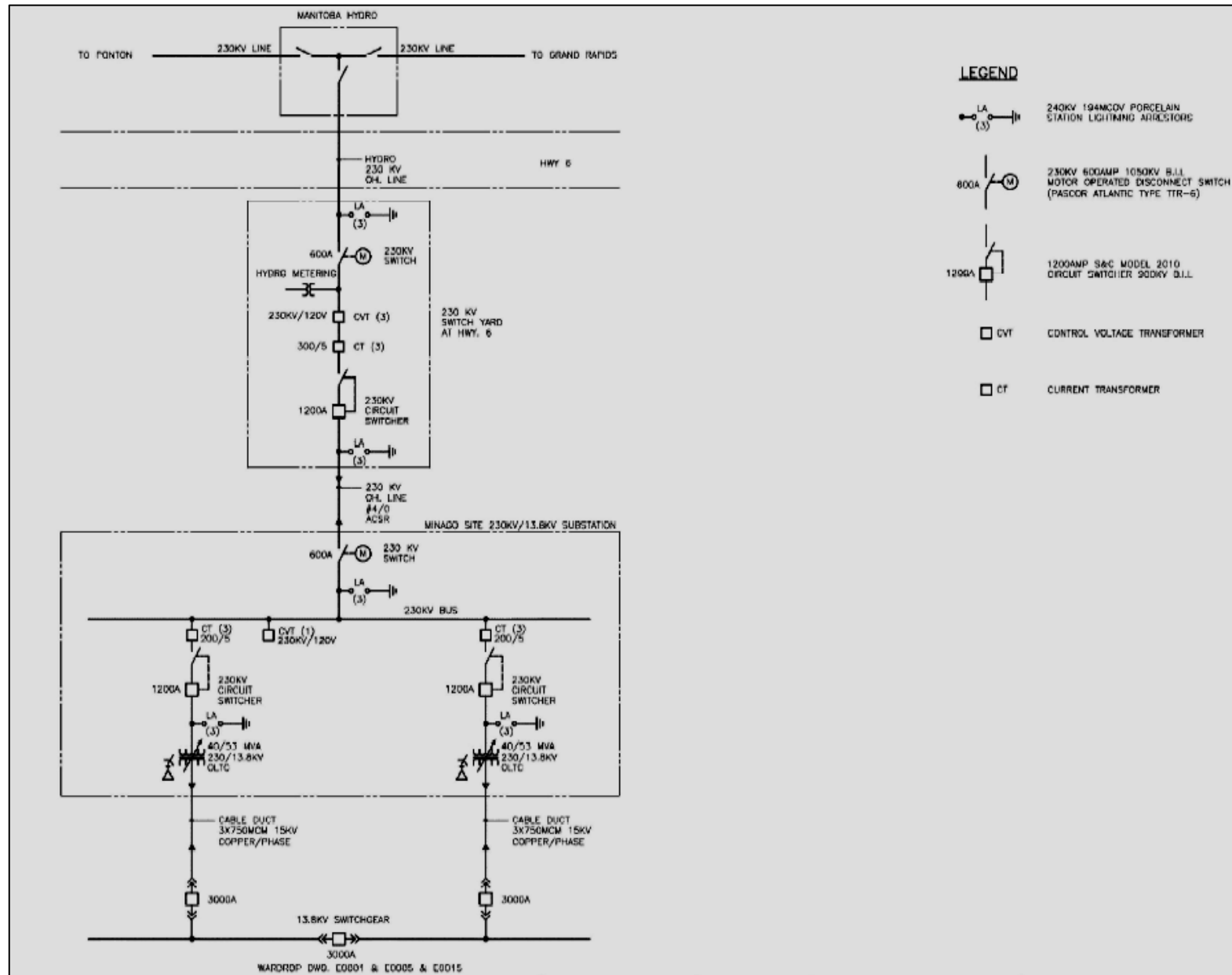
Source: adapted from Wardrop's drawing 0951330400-E0008 (Wardrop, 2009b)

Figure 7.15-2 Minago Substation 230/13.8 kV Transmission Lines Layout



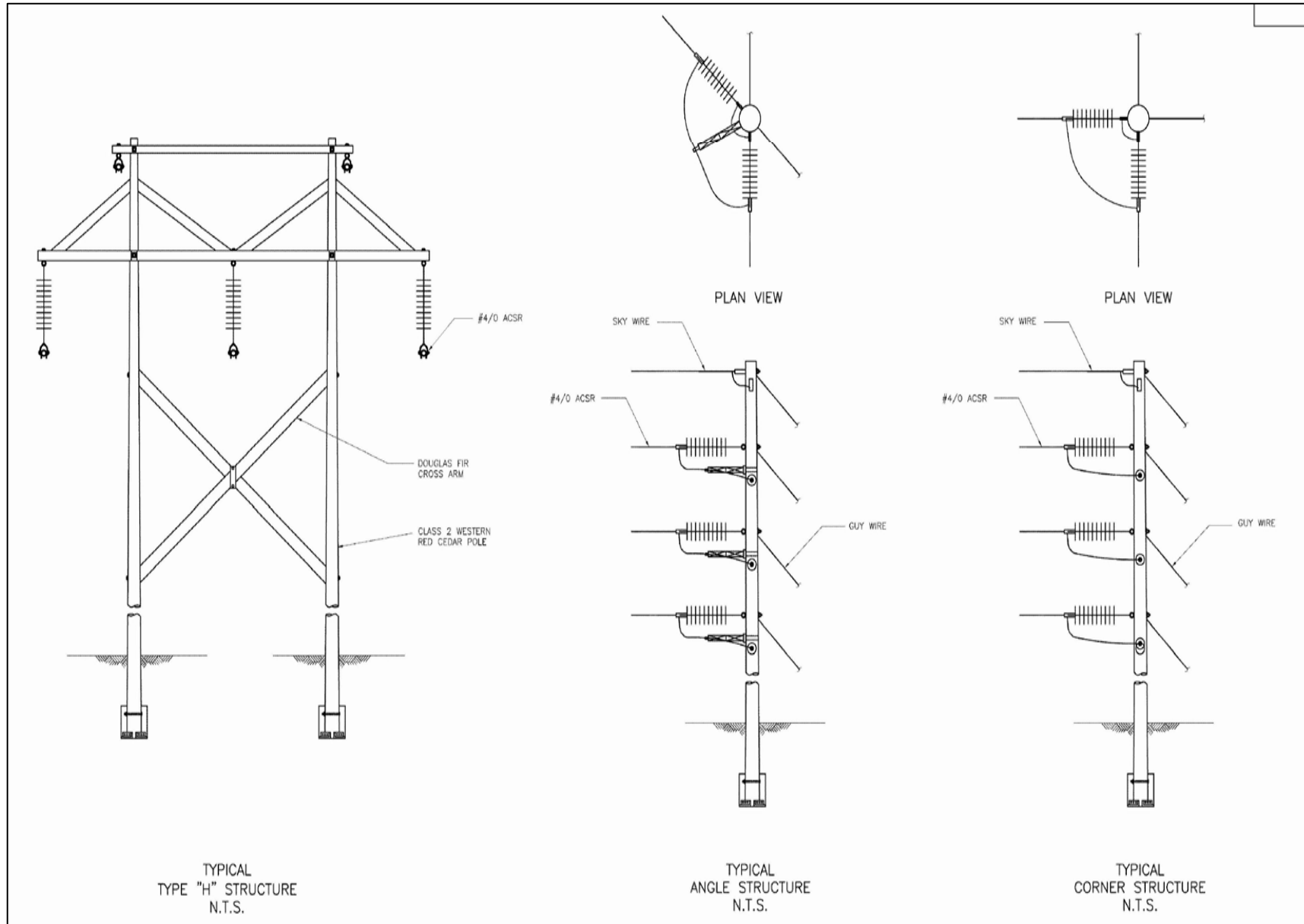
Source: adapted from Wardrop's drawing 0951330400-E0006 (Wardrop, 2009b)

Figure 7.15-3 Vehicle Fuelling – Single Line Drawing



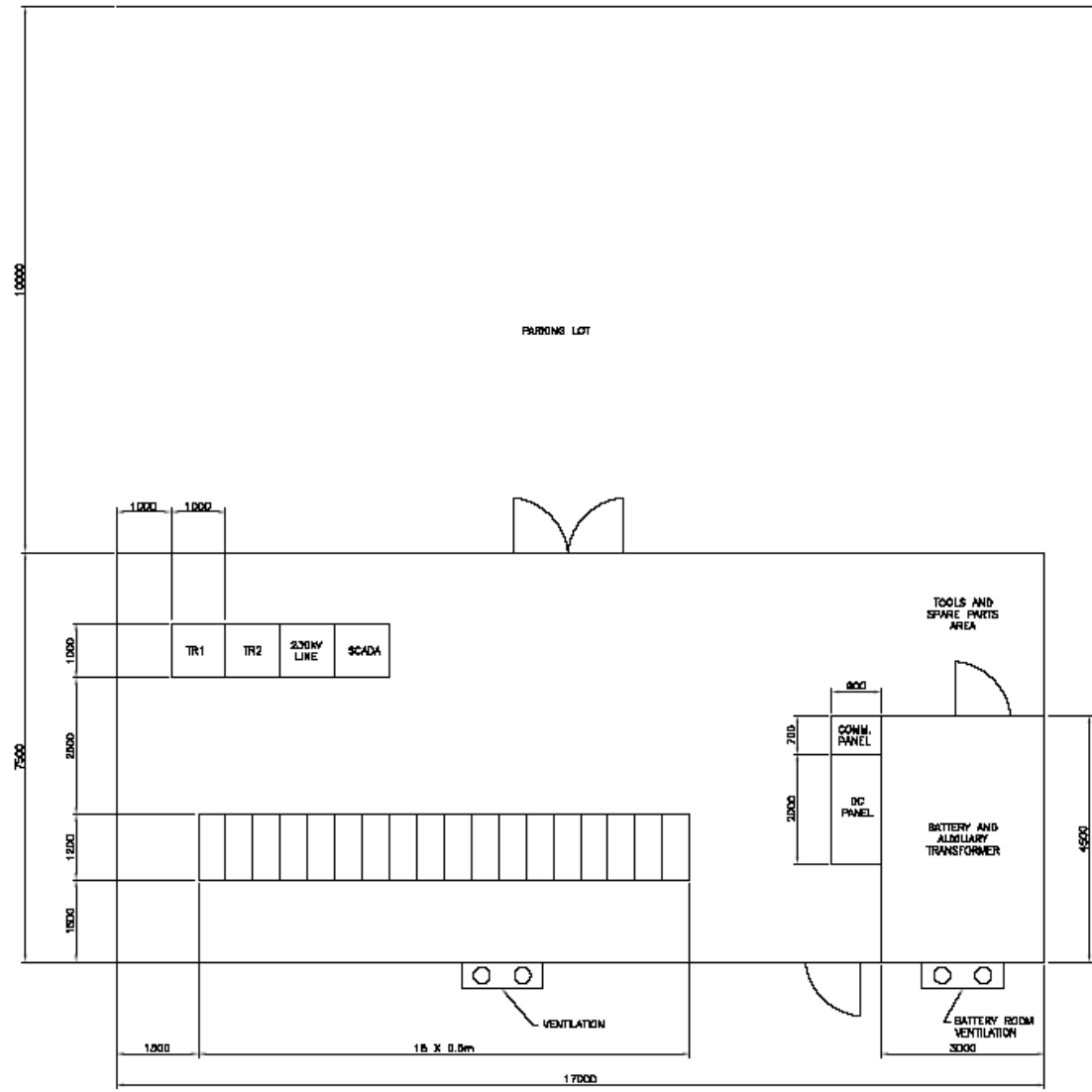
Source: adapted from Wardrop's drawing 0951330400-E0007 (Wardrop, 2009b)

Figure 7.15-4 Substation – 230/13.8 KV Single Line Drawing



Source: adapted from Wardrop's drawing 0951330400-E0011 (Wardrop, 2009b)

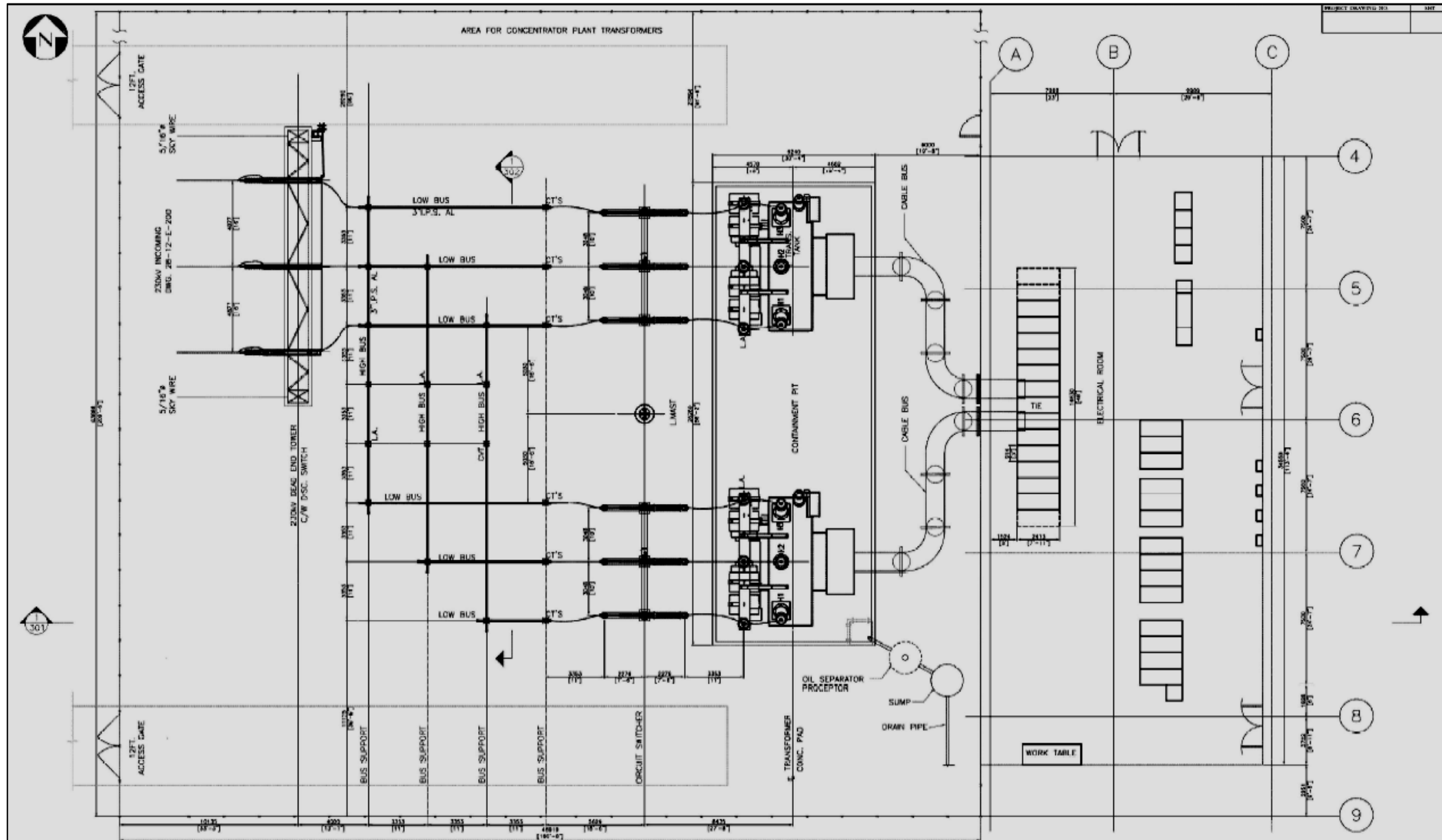
Figure 7.15-5 Substation – 230 KV & 15 KV Transmission Line Details



NOTES:
1. ALL DIMENSIONS IN MM UNLESS OTHERWISE NOTED.

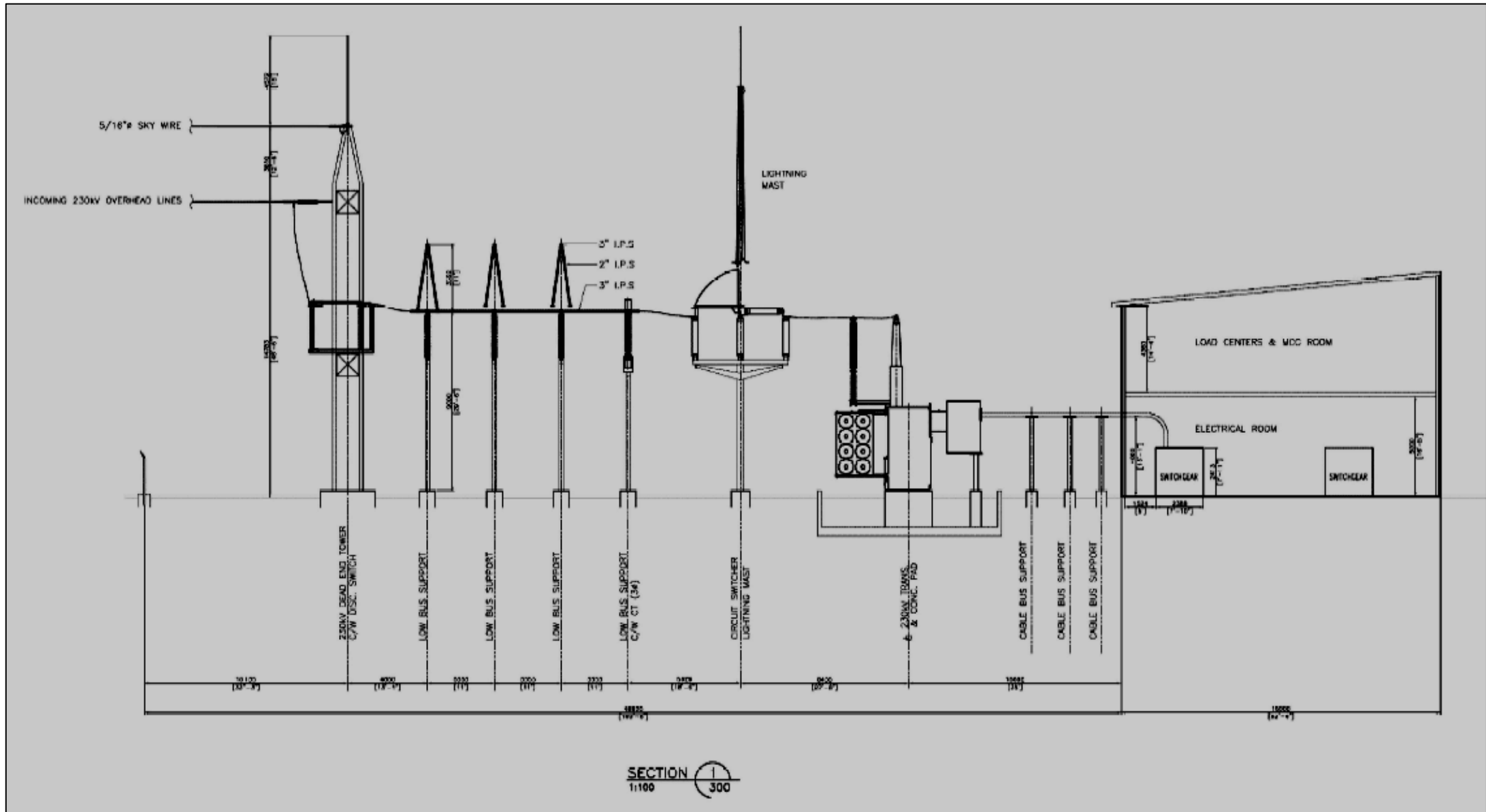
Source: adapted from Wardrop's drawing 0951330400-E0004 (Wardrop, 2009b)

Figure 7.15-6 Substation – 230 kV Layout



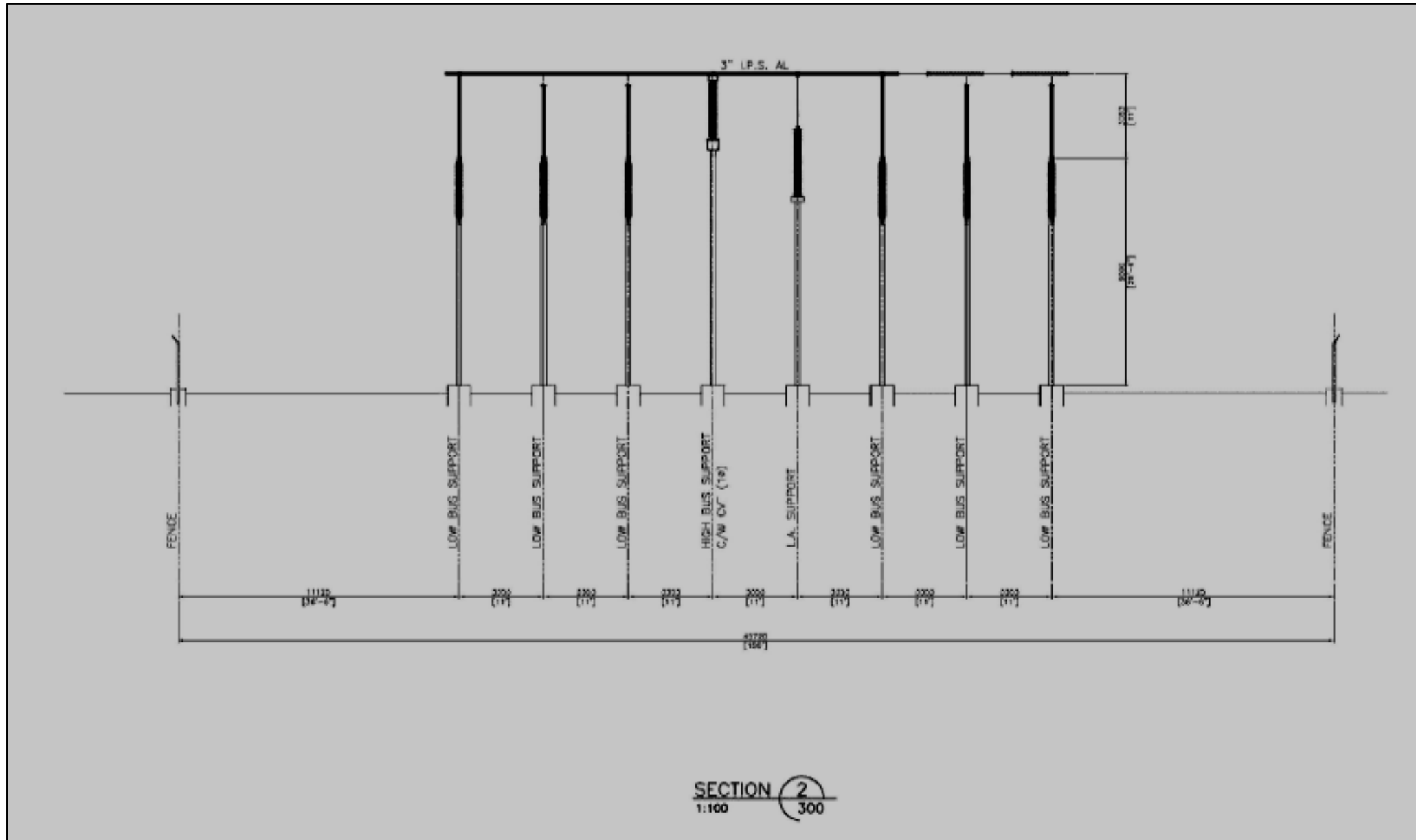
Source: adapted from Wardrop's drawing 0951330400-E0012 (Wardrop, 2009b)

Figure 7.15-7 Substation – 230/13.8 kV Layout



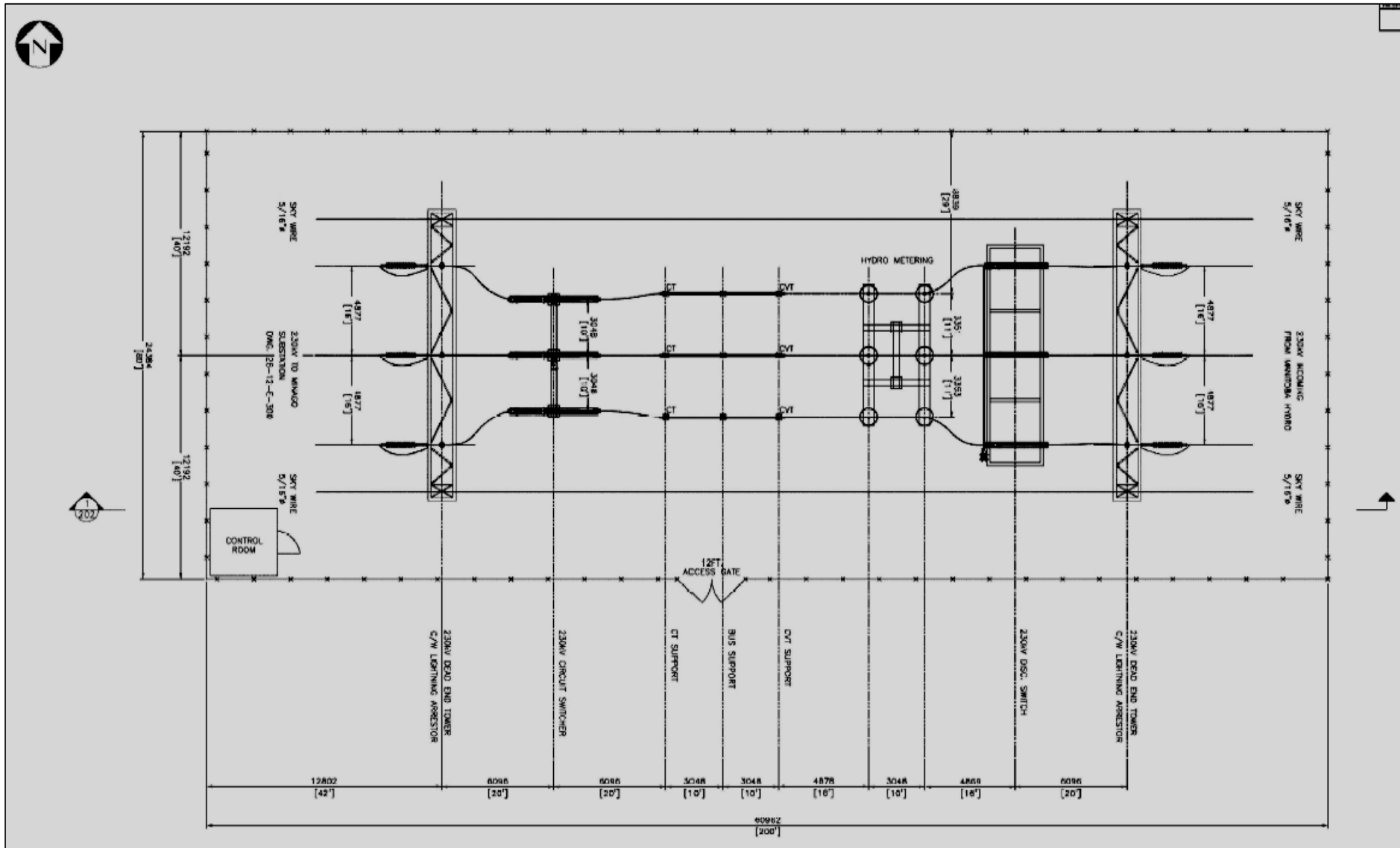
Source: adapted from Wardrop's drawing 0951330400-E0013 (Wardrop, 2009b)

Figure 7.15-8 Substation – 230/13.8 kV Section



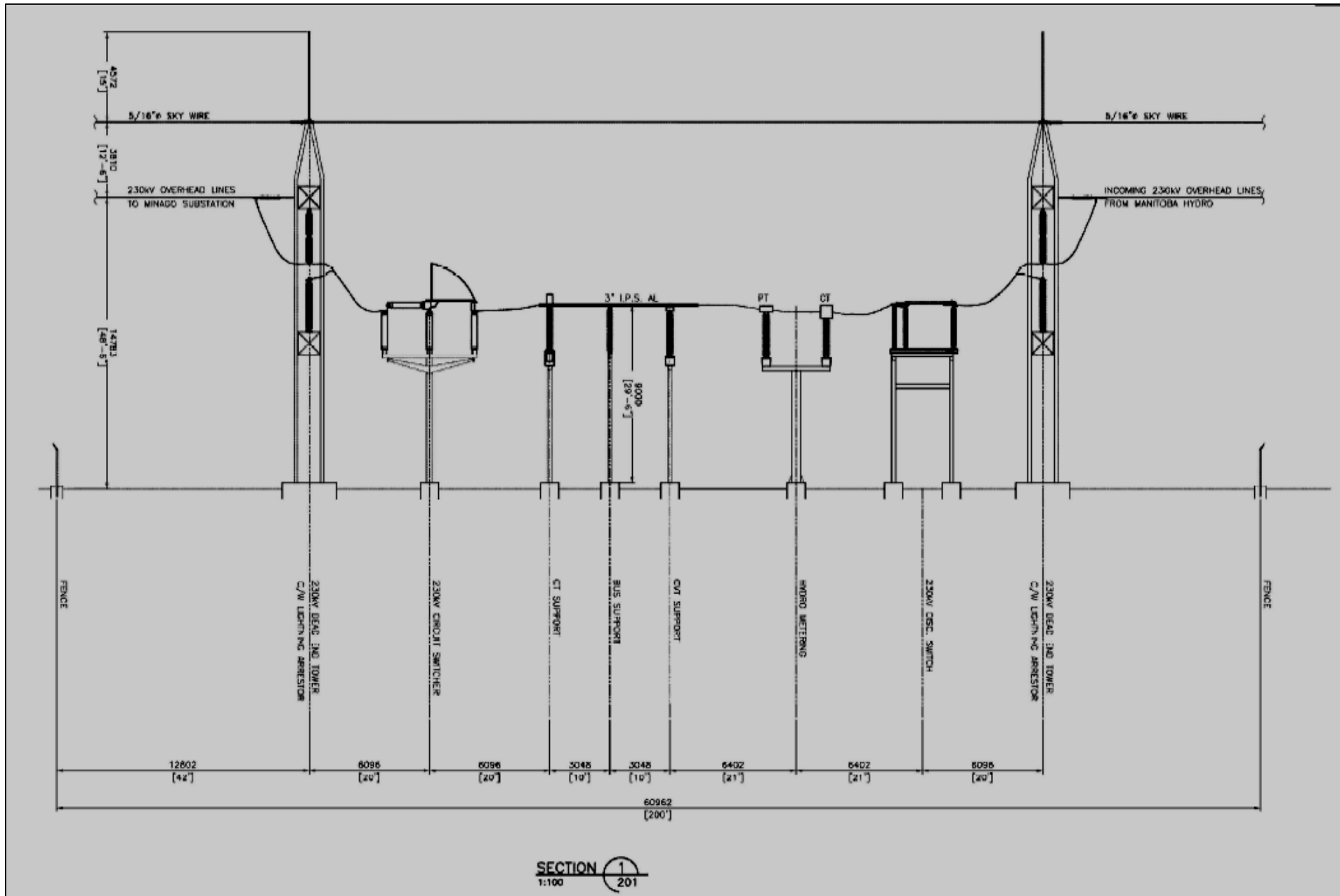
Source: adapted from Wardrop's drawing 0951330400-E0014 (Wardrop, 2009b)

Figure 7.15-9 Substation – 230/13.8 kV Section



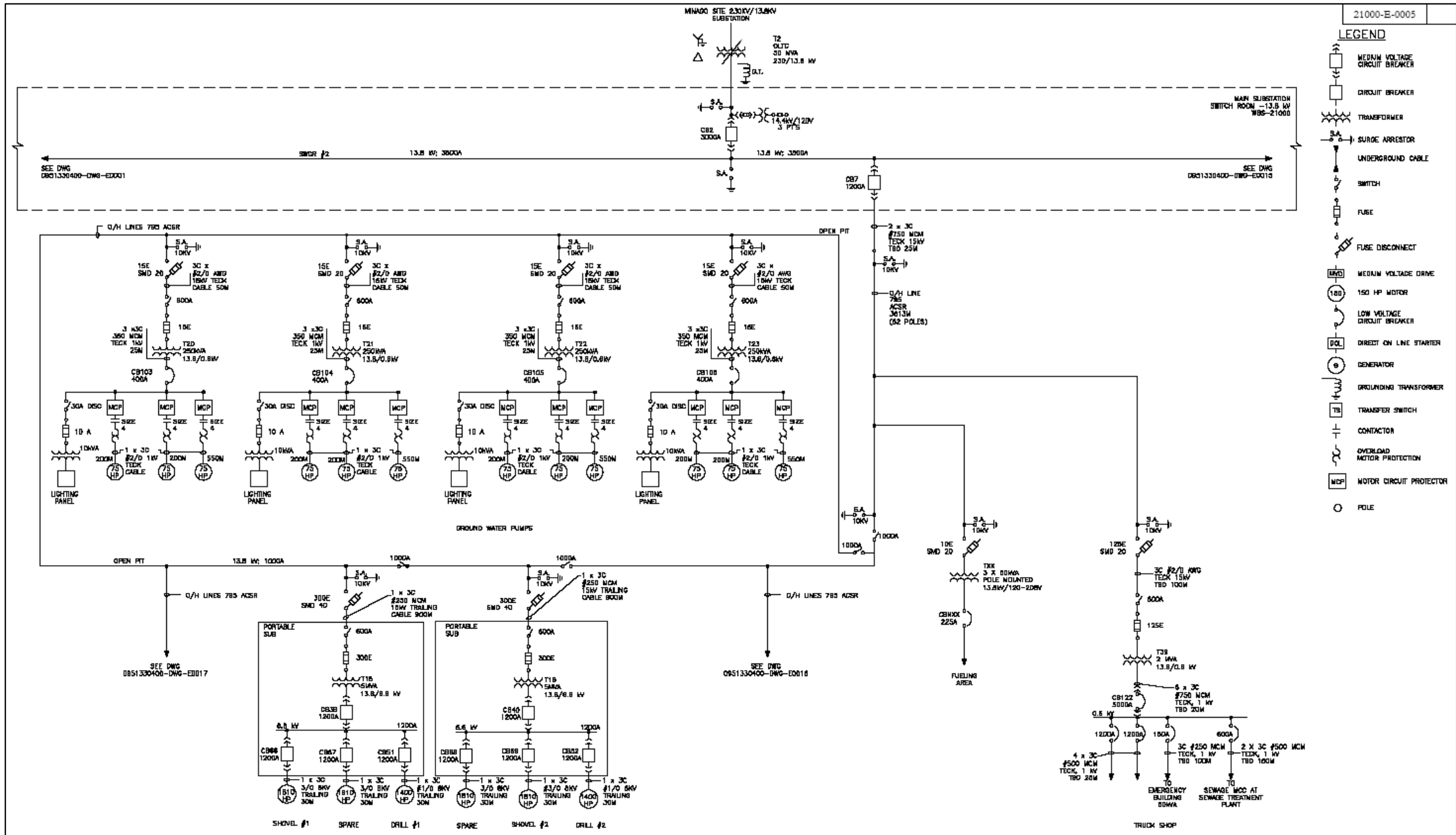
Source: adapted from Wardrop's drawing 0951330400-E0009 (Wardrop, 2009b)

Figure 7.15-10 Switchyard at Highway 6 – Layout



Source: adapted from Wardrop's drawing 0951330400-E0010 (Wardrop, 2009b)

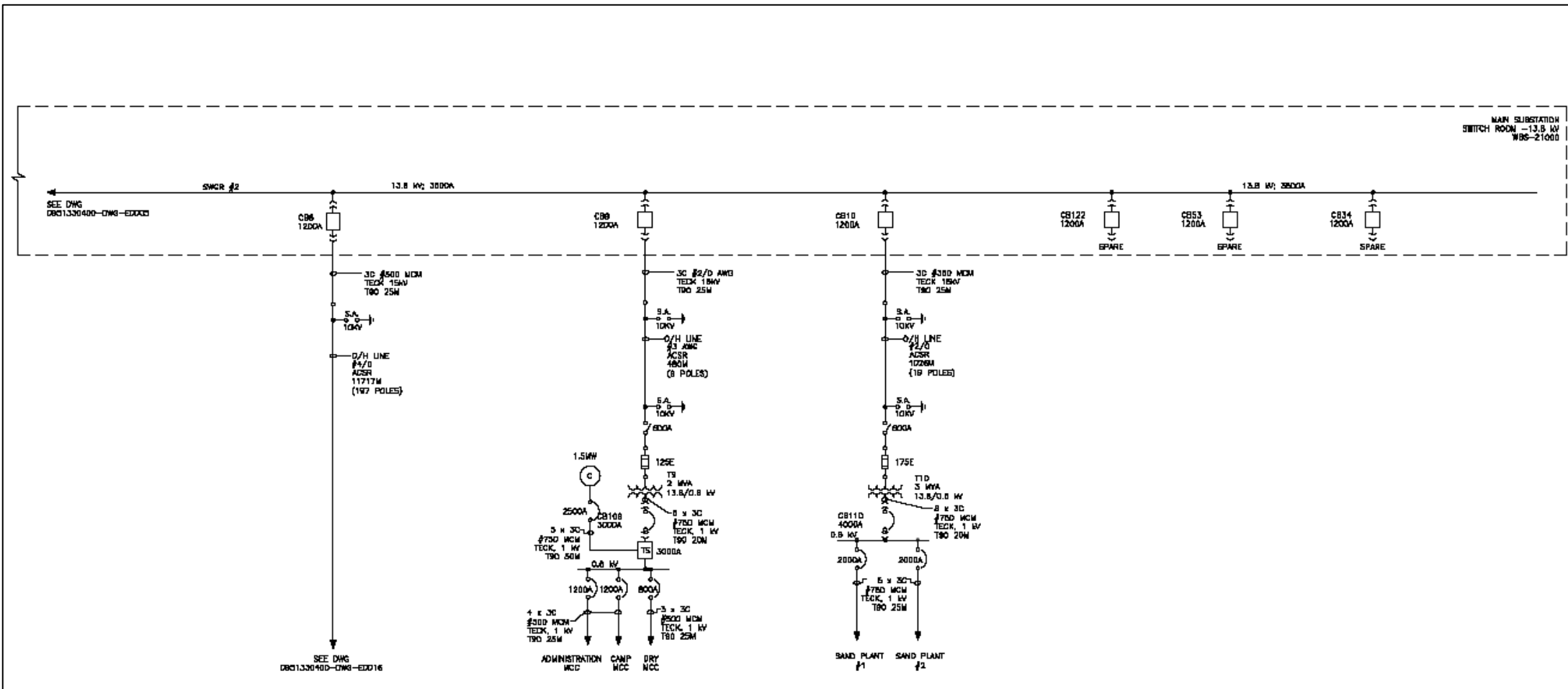
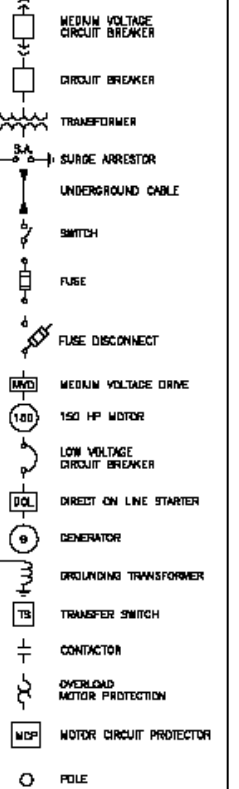
Figure 7.15-11 Switchyard at Highway 6 – Section



Source: adapted from Wardrop's drawing 0951330400-E0001 (Wardrop, 2009b)

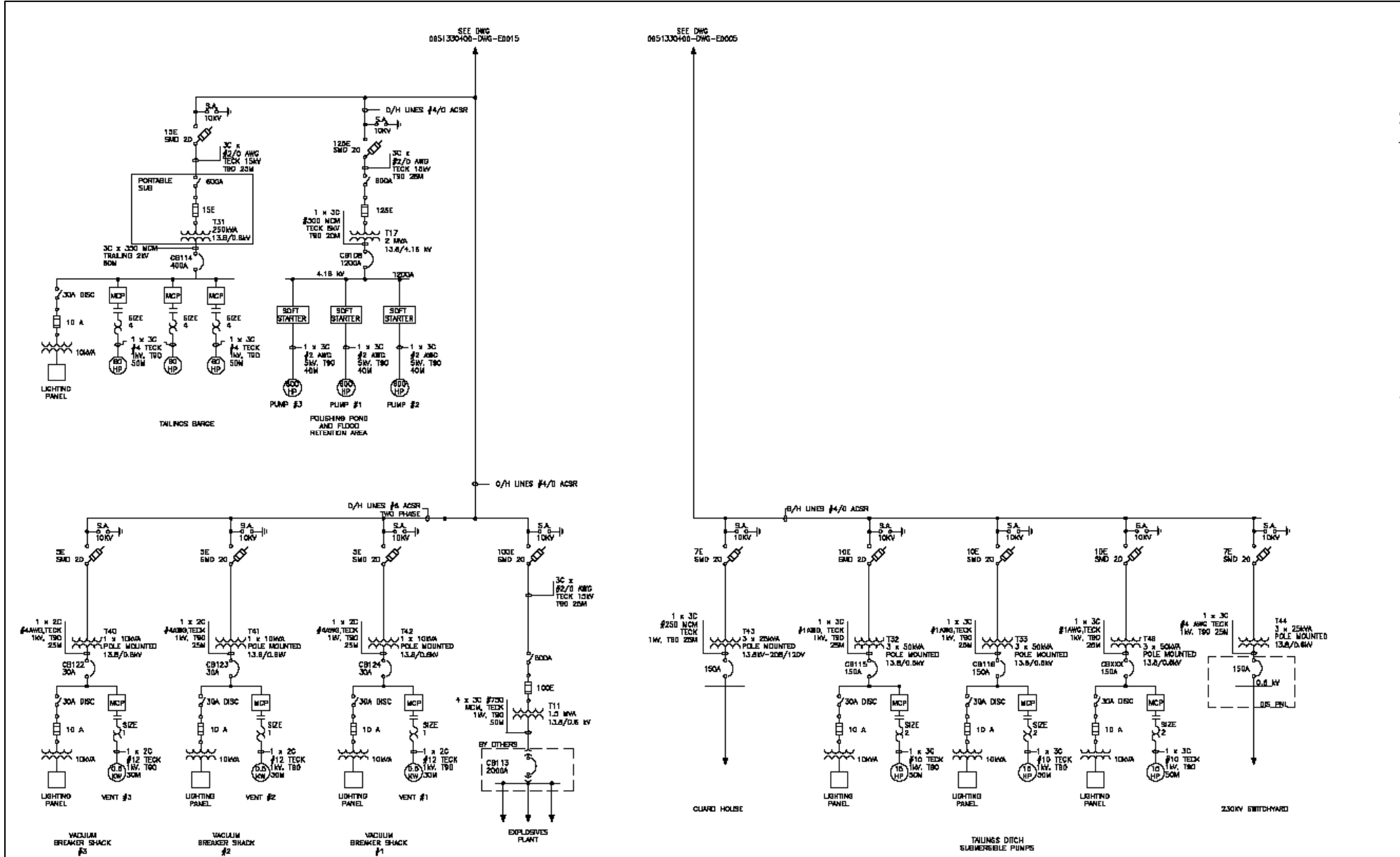
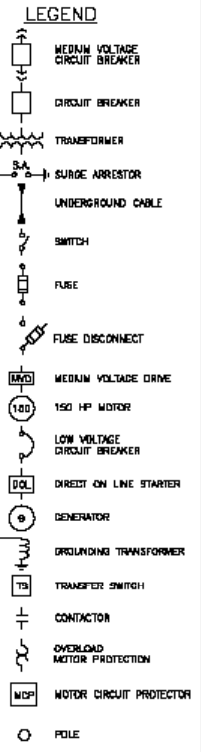
Figure 7.15-12 Single Line Drawing – 1/5

LEGEND



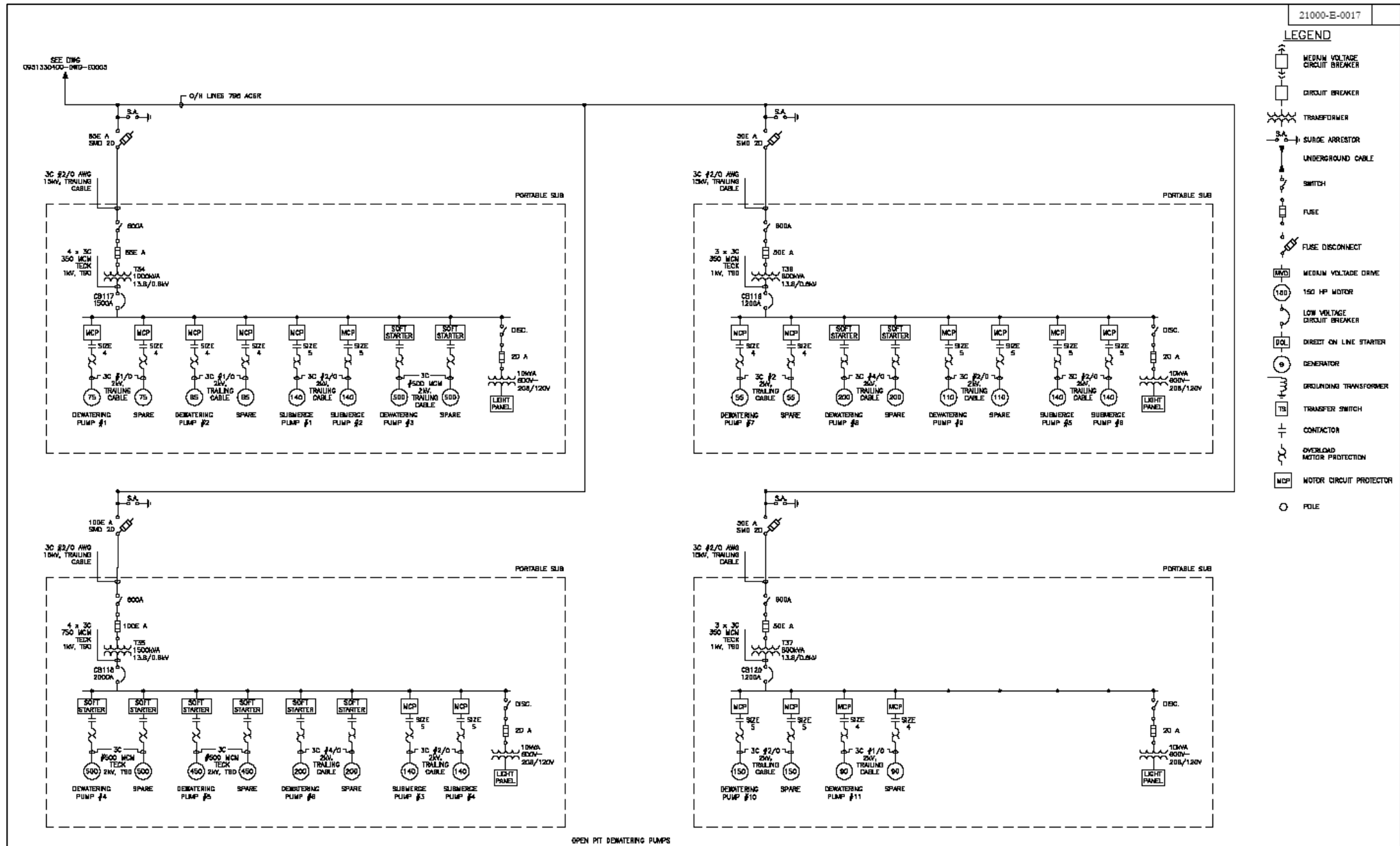
Source: adapted from Wardrop's drawing 0951330400-E0015 (Wardrop, 2009b)

Figure 7.15-14 Single Line Drawing – 3/5



Source: adapted from Wardrop's drawing 0951330400-E0016 (Wardrop, 2009b)

Figure 7.15-15 Single Line Drawing – 4/5



Source: adapted from Wardrop's drawing 0951330400-E0017 (Wardrop, 2009b)

Figure 7.15-16 Single Line Drawing – 5/5

Ore Processing Plant

The ore processing plant, including crushing and grinding, will be provided with separate electrical rooms to support the motor control centres (MCCs) for the facility. The ball mill and SAG mill will operate at 4,160 V and will be provided with liquid rheostat starters. The primary crusher, cyclopack pump with VFD and process water pumps, which will operate at 4,160 V, will be provided with soft starters to reduce inrush current. Motor control centers will be housed in two electrical rooms, one above the other. The upper room will house the low voltage switchgear and the lower room will be dedicated to the medium voltage equipment. A separate MCC will be installed in the gyratory crushing plant to house 4,160 V and 600 V switchgear associated with this building.

Frac Sand Processing Plant

The frac sand plant will be powered from the main switchgear by its own overhead 13.8 kV line. Outdoor oil-filled transformers will transform from 13.8 kV to 600 V to feed the various loads. From a separate room, the motor control centers and 600 V panel boards will distribute power in each area.

General

The modular complex building, water treatment plant, maintenance building, fuelling area, emergency building and sewage treatment plant will be provided with power via an overhead 13.8 kV line. At these locations, outdoor oil-filled transformers will transform primary power at 13.8 kV to 600 V to feed the various loads. From a centrally-located room, motor control centers and 600 V panel boards will distribute power in each of these areas.

Site Facilities

Another 13.8 kV overhead distribution line will feed the Polishing Pond pumping station, the water discharge line, the Explosive Plant, and the Tailings and Ultramafic Waste Rock Management Facility (TWRMF). An extension from the open pit 13.8 kV overhead line will service the guardhouse and scalehouse located at the site entrance. Each plant and pumping station will have the necessary transformation and motor control centers for their application.

7.15.3 Emergency Power

Two diesel generator sets rated at 1.5 MW, 13.8 kV with associated switchgear will be housed in a dedicated building located near the main electrical substation.

The system will be designed to provide power during the construction phase and then emergency power during the operations phase for life-sustaining and critical process equipment. The

emergency power system will feed the entire plant grid with operators isolating non-emergency switchgears to direct the standby power to the critical services. The emergency power will provide critical power to the dewatering pumps in the event of a utility power failure.

7.15.4 Estimated Load

The peak connected load is estimated to be 42.4 MW (50 MVA), based upon the power requirements of operations and auxiliary equipment on the site and an average power factor of 0.85. The operational load was estimated by analyzing load characteristics and applying a load factor of 0.75 and a utilization factor of 0.8 to the connected load. The effects of seasonal variation in load were analyzed and determined to be negligible. The estimated operating load for the five cost centres including future growth is 30 MVA. Estimated electrical loads are given in Table 7.15-1.

Table 7.15-1 Estimated Electrical Loads

Cost Centre	Connected Load (MVA)	Operational Load (MVA)
1 Open Pit Mining	14.3	8.6
2 Frac Sand Processing Plant	2.5	1.5
3 Ore Processing Plant	23.4	14.0
4 Site Facilities/General & Admin	5.2	3.1
5 Future Growth	4.6	2.8
TOTAL	50.0	30.0

7.15.5 Effects Assessment

The 230 kV power transmission line will go through about 6.3 km of muskegs to get to the Minago substation. That area has already been partially disturbed as part of the mining exploration program and will be disturbed more during the planned mining activities. A maintenance road for the power line will also have to be constructed along the future power line in such a way that a 20-m wide strip will have to be cleared, for a total of about 12.6 ha without accounting for historical exploration and future mining related disturbances. Some areas within this 20-m wide strip have already been cleared during the exploration program so that these 12.6 ha do not all represent newly cleared surfaces. Moreover, such an area represents less than 1 % of the entire surface, which will have to be cleared as part of the Minago project.

Section 7.9: Vegetation provides a description of the baseline data gathered in 2007 and 2008 which was used to characterize the Minago Project Area. Plant communities and species in the Project Area are quite abundant and common both at the regional and local levels; they are not of conservation concern. Moreover, no special-status plant species were observed in the vicinity of the Project Area.

Wildlife species identified as Valued Ecosystem and Cultural Components (VECCs) are provided in Section 7.10. Wildlife that was identified to include, but not be limited to, woodland caribou, moose, black bear, beaver, lynx, American marten and the song bird community. Potential impacts on wildlife from the implementation of the power line may occur from changes to habitat availability associated with minor site clearance, minor landscape disturbance creating disruptions to animal movement patterns, and population declines related to increased mortality risk along the maintenance road. These potential effects were assessed for the seven VECCs and are detailed in Section 7.10: Wildlife.

The greatest direct loss of habitat will occur during construction as a result of isolated clearing for the construction of the power line and its maintenance road. The majority of the maintenance road will be located in an area that has been disturbed during the exploration activities and also the planned mining activities. New disturbances will be insignificant. One of the most important effects is the potential for increased rates of wildlife mortality resulting from human access provided by the proposed maintenance road that will be also used for mining activities. The power line maintenance road will turn into a multi-purpose road. In the past, the project area has not been accessible by vehicle, but as of March, 2010 an access road has been constructed and the power line will run almost along the access road and as such there will be no significant loss of terrestrial habitat. The power line will not cross any water streams. With the road comes noise and traffic flow, causing behavioural disturbance and increased mortality from collisions, as well as increased access for legal hunters and poachers.

Most of those VECCs wildlife species have been observed to cross high-use roads less frequently than low use roads (see Section 7.10: Wildlife for more precise information), implying that movement disruptions will not be significant along the maintenance road since even with its multiple use status. Such a multi-use road and the fact that it will not be open to the public will also help to minimize the number of incidents related to collisions with wildlife. It has also been shown that most wildlife species tend to avoid project footprints during actual construction, but will not significantly shift their territorial distributions in response to rights-of-way activities (see Section 7.10: Wildlife for more precise information). As the density of disturbance due to the power line construction is low in the project area, impacts resulting in habitat fragmentation and isolation are unlikely. A Wildlife Protection Plan (Section 9.5) will also be implemented to mitigate the effects of the project on wildlife.

No rivers or creeks will be crossed by the power line and thus implementation will not impact any stream habitats. Road construction and the implementation of the power line could however have potential effects on erosion and sediment input into the Oakley Creek watershed. However, the

area is surrounded by wetlands (treed bogs), which act as natural filter and therefore, limits the runoff of sediments towards the Oakley Creek. Moreover, an Erosion and Sediment Control Plan and a Site Water Management Plan will be implemented during all project phases.

Also, since the electrical power infrastructures will be built at the surface and no underground works will be needed to do so, impacts on groundwater and hydrogeology is considered to be not significant.

The construction phase will have the greatest incremental impact on the terrain, surficial geology, and soils in the project area. Effects in this phase include road building processes such as land consumption, movement and alteration of surficial materials and corresponding reductions in soil capability. This includes alteration of the road, as well as impacts caused by the removal of aggregate from borrow pits for use in surfacing the roads. Aggregate from borrow pits will also be used for construction material and to stabilize sites underlain by soft soils where required. Reduction of soil capability can be caused by a number of factors including loss of topsoil, creation of impermeable layers during overburden replacement, and soil compaction (e.g., bottom of borrow pits).

Erosion control is a critical aspect of the construction phase. VNI will incorporate into the construction program provisions requiring that during all phases of construction best management practices (BMPs) are implemented to reduce and eliminate soil erosion

Various mitigation measures will be employed to minimize these effects, including topsoil salvage and stockpiling for use during reclamation, limiting soil compaction where applicable, by limiting clearing and site disturbance to periods when the soil is dry or frozen, and progressive reclamation of disturbed areas during construction. Progressive reclamation throughout the life of the project will provide the opportunity to test reclamation approaches and modify them as required to optimize productive capacity of reclaimed areas.

Consequently, the effects of the implementation of a power line and its maintenance road on vegetation, wildlife, surface water and soil quality are considered to be adverse, low magnitude, site-specific and long-term, as detailed in Table 7.15-2. The likelihood of those effects to occur as predicted is high given the baseline data that has been gathered as part of this project. These effects are considered to be reversible since a Reclamation Plan will be implemented and disturbed surfaces will be re-vegetated with indigenous species (green alder, willows). Since road surfaces will be reclaimed at closure, there will not be any additional access to the area provided in the far future.

VNI will decommission the power line and revegetate the disturbed areas with green alders or any other suitable local species. The Closure Plan will provide for rehabilitation of the site to a condition that is safe, environmentally stable and compatible with surrounding lands. The overall Closure Plan for the powerline is detailed in a separate report.

Table 7.15-2 Effects of the Installation of a Power Line and its Maintenance Road

Environmental Components	Potential Effect	Level of Effect						Effect Rating	
		Direction	Magnitude	Extent	Duration/ Frequency	Reversibility	Likelihood	Project Effect	Cumulative Effective
Construction									
Vegetation	Site clearing	Adverse	Low	Local	Long term	Reversible	High	Not significant	Not significant
Wildlife	Reduction in seasonal habitat availability due to clearing and sensory disturbance	Adverse	Low	Local	Long term	Reversible	High	Not significant	Not significant
	Disruption to movement patterns due to sensory disturbance	Adverse	Low	Regional	Long term	Reversible	High	Not significant	Not significant
	Increase mortality risk from collisions	Adverse	Low	Regional	Long term	Irreversible	High	Not significant	Not significant
Surface Water Quality	Changes in water quality in Oakley Creek from construction site runoff	Adverse	Low	Local	Long term	Reversible	High	Not significant	Not significant
Soil Quality	Damage to key terrain features	Adverse	Low	Local	Long term	Reversible	High	Not significant	Not significant
	Modification of surficial materials and reduction in soil capability	Adverse	Low	Local	Long term	Reversible	High	Not significant	Not significant
	Increased soil erosion	Adverse	Low	Local	Long term	Reversible	High	Not significant	Not significant
Operation									
Wildlife	Reduction in seasonal habitat availability due to clearing and sensory disturbance	Adverse	Low	Local	Long term	Reversible	High	Not significant	Not significant
	Disruption to movement patterns due to sensory disturbance	Adverse	Low	Regional	Long term	Reversible	High	Not significant	Not significant
	Increase mortality risk from collisions	Adverse	Low	Regional	Long term	Irreversible	High	Not significant	Not significant
Surface Water Quality	Changes in water quality in Oakley Creek from construction site runoff	Adverse	Low	Local	Long term	Reversible	High	Not significant	Not significant