4. Existing Environment

Baseline information regarding the Local and Regional Project Areas was gathered using:

- Available desktop information;
- On-site studies during the fall of 2018;
 - Terrestrial reconnaissance;
 - o Medicinal plant investigation with Hollow Water First Nation Elder; and
 - Heritage Resource Impact Assessment study.
- Traditional Ecological Knowledge (TEK) sharing specifically for this Project Site and also from previously documented TEK for the East Side Road Authority all-season road project between PR 304 to Berens River (East Side Road Authority 2009). A summary of TEK information is provided in Section 5.1.

4.1 Physical Environment

4.1.1 Physical Setting

The physiographical location of the Project can be described using the Ecological Land Classification (ELC) system, used for overseeing ecological resources within Canada in a geographical representation. The Project is categorized as being within the following subsets of the stratification system, which are also illustrated in **Figure 4-1**:

- Boreal Shield Ecozone, which encompasses the;
- Lac Seul Upland Ecoregion, which contains the; and
- Wrong Lake Ecodistrict.

The Wrong Lake Ecodistrict, situated within the Precambrian Shield of Canada, has an annual average temperature of 1.1 degrees Celsius, with an average annual precipitation of 506 mm of which 402 mm are in the form of rain. The Project summer months of May to October have annual average temperatures of 12.8 degrees Celsius, while the winter months of November to April have annual average temperatures of -10.5 degrees Celsius (Farmzone 2018). Summers are typically short and warm, whereas winters are long and cold. Within the Wrong Lake Ecodistrict where drainage is good in the vicinity of lakes, such as the Project Site area, the Ecodistrict is generally characterized as having mixedwood stands of white spruce, balsam fir trembling aspen and balsam poplar (Smith, et al. 1998).

4.1.2 Geology/Topography

The sand deposit of interest regarding this Project was formed during the Paleozoic era of the Ordovician period, and is located near the eastern outcrop of the Winnipeg Formation of the Ordovician period. Similar sand deposits along the eastern outcrop of Lake Winnipeg have been investigated since 1900 by Tyrrell and Dowling (Watson 1985). These sand deposits, or "pits", consist mostly of sand, sandstone, and quartzose (Manitoba Rocks! 2016). A resource estimate conducted by P&E Mining Consultants Inc. in 2014 estimated that 25,959,000 tonnes of mineral resources, of which 94.31% is composed of silicon dioxide (or "silica"), occurs within the 2014 proposed Project Area (P&E Mining Consultants Inc. 2014). Topography elevations in the Project Site and surrounding area are illustrated in **Figure 4-2**.







AECOM Figure: 4-1

WANIPIGOW SAND EXTRACTION PROJ PHYSIOGRAPHIC SETTING CANADIAN PREMIUM SAND INC.



WANIPIGOW SAND EXTRACTION PROJECT TOPOGRAPHY CANADIAN PREMIUM SAND INC.

AECOM Figure: 4-2

Approved: Checked: Designer Project Management Initials:

STEPHANIE.CLARK (2018-11-09)

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4.1.3 Soils

The western half of the Wrong Lake Ecodistrict, where the Project Site is located, is known to have poorly draining Typic Fibrisolic, Terric Fibrisolic and Mesisolic Organic soils. Poorly draining Gleysols are also typical of the ecodistrict in lowland glaciolacustrine sediments, while moderately well to imperfectly-draining Gray Luvisolic soils are commonly seen in upland glaciolacustrine sediments. Soils within the ecodistrict are considered not useful for agriculture due to coarse surface textures, lack of rooting depth to bedrock, an abundance of cobbles and stones, and poor water and nutrient retention (Smith et al., 1998).

4.1.4 Groundwater

Twenty-four (24) groundwater wells are known to occur within the Project Region and surrounding areas (Manitoba Sustainable Development 2014). Locations and details of existing groundwater wells are shown in **Figure 4-3**. Hydrogeological testing will be undertaken by AECOM in January 2019 to confirm sufficient and sustainable groundwater volumes for wet plant processes while preserving the integrity of the aquifer.

4.2 Aquatic Environment

4.2.1 Surface Water and Drainage

There are no lakes, rivers or streams within the Project Site. Lake Winnipeg is the closest major waterbody which is located within 1 km of the Project Site boundary to the north and west. The Manigotagan River and Wanipigow River are the closest rivers to the Project Site, occurring respectively 3.5 km southwest and 2.5 km northeast, from the Project Site. Within the Project Site, surface water drainage occurs westwards towards Lake Winnipeg through low drainage areas including bogs. Water from the Lake Winnipeg basin then drains into Nelson River and flows into the Hudson Bay (Smith, et al. 1998).

4.2.2 Fish and Fish Habitat

Considering only low wet areas such as bogs occur within the Project Site area (Section 4.2.1), no fish habitat occurs within the Project Site. The nearest fish habitats within the Local Project Area are Lake Winnipeg, Wanipigow River and Manigotagan River (**Figure 1-1**).

4.3 Terrestrial Environment

4.3.1 Vegetation

The majority of the Project Site consists of deciduous-dominant mixedwood forest with dominant tree species being trembling aspen, balsam fir, white spruce, black spruce and jack pine in the Project Site, and less overall frequency of trembling aspen in the Regional Project area (**Figure 4-4** and **Figure 4-5**). The over-mature forest age class is most common in the Project Site, with mature and immature forest age classes being most common within the Regional Project Area (**Figure 4-6**). In October 2018, AECOM conducted a terrestrial reconnaissance within the Project Site where it was determined that the most frequent over story consisted of mature mixedwood forests, including jack pine, trembling aspen, white and black spruce, and balsam fir. No land cover or habitats considered rare for the Regional Project Area were observed in the Project Site area during the terrestrial reconnaissance. The areas and percentages of land cover types, dominant tree species and forest age classes within the Project Site as compared to

the Regional Project Area are provided in **Table 4-1**, **Table 4-2** and **Table 4-3**. In addition to natural land cover, there is some limited disturbance to the Project Site in the form of existing roads, trails, exploratory drilling activities and previous small quarry and tree cutting operations. Photographs of represented cover types observed within the Project Site area during the terrestrial reconnaissance investigations are provided in **Appendix C**



WANIPIGOW SAND EXTRACTION PROJECT GROUNDWATER WELLS CANADIAN PREMIUM SAND INC.

AECOM Figure: 4-3









1:110,000 NAD 1983 UTM Zone 14N



Basemap: Manitoba Land Initiative - Manitoba Forest Resource Inventory

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Basemap: Manitoba Land Initiative - Manitoba Forest Resource Inventory

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AECOM

Figure: 4-5





* Forest age information is based on the Manitoba Forest Resource Inventory data for 'Cutting Class' which is based on size, vigour, state of development and maturity of a stand for harvesting purposes.



Basemap: Manitoba Land Initiative - Manitoba Forest Resource Inventory

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AECOM

Figure: 4-6

Cover Type	Project Site		Regional Project Area		
	Hectares (ha)	Percent (± 1%)	Hectares (ha)	Percent (± 1%)	
Forested	1,110	94	31,090	59	
Treed Muskeg	37	3	4,476	8	
Developed Area	18	2	664	1	
Shrub	18	2	646	1	
Open Muskeg	0	0	69	0	
Wet Meadow	0	0	52	0	
Beaver Meadow	0	0	1,475	3	
and Pond					
Water	0	0	14,231	27	

Table 4-1: Land Cover in the Project Site and Regional Project Area

Project Site = 1,184 ha; Regional Project Area = 52,703 ha

Source: Manitoba Land Initiative (2017)

Table 4-2: Dominant Tree Species in the Project Site and Regional Project Area

Tree Species	Project Site		Regional Project Area		
	Hectares (ha)	Percent (± 1%)	Hectares (ha)	Percent (± 1%)	
Trembling Aspen	781	66	10,602	20	
Pine	159	13	7,465	14	
Spruce and Fir	157	13	11,678	22	
Non-forested	75	6	22,123	42	
Tamarack	13	1	768	1	
Birch	0	0	67	0	

Source: Manitoba Land Initiative (2017)

Table 4-3: Forest Age Classes in the Project Site and Regional Project Area

Forest Age Class*	Project	Site	Regional Project Area		
	Hectares (ha)	Percent (± 1%)	Hectares (ha)	Percent (± 1%)	
Over-mature	656	55	7,299	14	
Immature	164	14	9,537	18	
Young (> 3 m)	119	10	3,319	6	
Mature	99	8	9,667	18	
Young (< 3 m)	86	7	2,402	5	
Not Forested	59	5	6,836	13	
Water	0	0	13,642	26	

Source: Manitoba Land Initiative (2017)

* Forest age information is based on the Manitoba Forest Resource Inventory data for 'Cutting Class' which is based on size, vigour, state of development and maturity of a stand for harvesting purposes.

4.3.2 Wildlife

During a TEK session conducted in Hollow Water First Nation in October, 2018, local Elders indicated that a variety of wildlife typical for the Regional Project Area have been observed in the Local Project Area, including deer, timber wolves, black bears, grouse, pine martens, mink, lynx, foxes, and coyotes (Section 5.1). During the TEK session, Elders indicated that moose are not common in the Regional Project Area and caribou are not seen in the Regional Project Area. Results of a previous regional TEK study indicated that the Project Site Area has a low frequency of use of moose occurrence compared with other locations in the Regional Project Area (East Side Road Authority 2009; **Appendix G2**). Evidence of bear and wolf activity were observed during AECOM's terrestrial reconnaissance of the Project Site in October, 2018 (**Appendix C**).

4.3.3 Species of Conservation Concern

Manitoba Conservation Data Centre has compiled a list of Species of Conservation Concern that are "rare, disjunct, or at risk throughout their range or in Manitoba and in need of further research," which incorporates plant and animal species (Manitoba Conservation Data Centre, 2017a). A full list of Species of Conservation Concern for the Lac Seul Upland Ecoregion, within which the Project Site is located, has been included in **Appendix D**.

There are no plant 'Species at Risk²' that may occur in the area of the Lac Seul Upland Ecoregion within which the Project Site area occurs. Wildlife Species at Risk that may occur in the area of the Lac Seul Upland Ecoregion within which the Project site occurs include those listed in **Table 4-4**.

Common	Scientific Name	MBESEA	SARA	Probability of Occurrence within the
Name		Status	Status	Project Site Area
Boreal	Rangifer	Ihreatened	Ihreatened	Low
Voodiand	tarandus caribou			- The Project Sile and Regional Project
Caribou				Caribou Range ^a
				- Hollow Water First Nation TEK has
				indicted that caribou are not seen or
				hunted in the Local Project Area
				(Section 5.1)
				- No evidence of caribou presence was
				observed during reconnaissance
				Investigations of the Project Site area
Little	Myotis lucifuqus	Endangered	Endangered	Moderate to High
Brown	and Myotis	Lindangered	Lindangered	- Although limestone/karst caves use as
Bat/Myotis	septentrionalis			bat hibernacula are not known to occur
and				in the Local Project Area, the Project
Northern				Site area has wetland habitat that would
Long-eared				produce flying insects and attract
Bat/Myotis				foraging bats ^b

Table 4-4: Wildlife Species at Risk in the Lac Seul Upland Ecoregion

² 'Species at Risk' are defined for the purpose of this report as those species listed in <u>The Endangered Species and</u> <u>Ecosystems Act</u> of Manitoba (MBESEA) and/or those listed as 'Endangered' or 'Threatened' in Schedule 1 of the federal <u>Species at Risk Act</u> (SARA).

Common Name	Scientific Name	MBESEA Status	SARA Status	Probability of Occurrence within the Project Site Area
Rame		otatus	otatus	- Reconnaissance investigations of the Project Site area during October 10-12, 2018 indicated that abundant mature and over-mature aged trees occur (>25 cm diameter at breast height) that would be suitable for the development of cavities/snags that could be used as bat maternity roosts ^b
Common Nighthawk	Chordeiles minor	Threatened	Threatened	Low to Moderate - A limited amount of potentially suitable habitat occurs at the Project Site area for this ground-nesting species, i.e., cleared areas, burned areas, rocky outcrops; and peat bogs ^c for foraging - Probability of observation of this species in the Regional Project Area has been determined by the <u>Atlas of the</u> <u>Breeding Birds of Manitoba</u> to be between 30% and 40%
Eastern Whip-poor- will	Caprimulgus vociferus	Threatened	Threatened	Moderate - A limited amount of potentially suitable habitat occurs at the Project Site area for this ground-nesting species, i.e., semi-open forests or patchy forests with clearings such as forests that are regenerating following major disturbances ^d
Olive-sided Flycatcher	Contopus cooperi	Threatened	Threatened	Moderate - A limited amount of potentially suitable habitat occurs at the Project Site area for this tree-nesting species, i.e. forest openings/cleared areas, tall live or dead trees especially near wetlands/bogs ^e
Barn Swallow	Hirundo rustica	Not Listed	Threatened	Unlikely - No man-made structures such as buildings occur at the Project site, or natural (e.g. cliff overhang) nesting habitat for this species which builds a mud cup nest adhered to vertical surfaces under overhangs ^f
Bank Swallow	Riparia riparia	Not Listed	Threatened	Unlikely - No suitable steep riparian bank habitat occurs at the Project Site area that would be suitable nesting habitat for this species which burrows into banks for nesting ^g

Common Name	Scientific Name	MBESEA Status	SARA Status	Probability of Occurrence within the Project Site Area
Golden- winged Warbler	Vermivora chrysoptera	Threatened	Threatened	Low - A limited amount of potentially suitable habitat occurs at the Project Site area for this species, i.e., mature forest where canopy gaps create a patchy shrub layer that is comparable to the understorey of early successional sites, or the shrubby edge of wetlands ^h - Probability of observation of this species in the Regional Project Area has been determined by the <u>Atlas of the</u> <u>Breeding Birds of Manitoba</u> to be approximately 10%
Canada Warbler	Cardellina canadensis	Endangered	Threatened	Moderate - A moderate amount of suitable habitat for this species occurs at the Project Site area, i.e., mature mixed-wood forest with a dense understory dominated by hazel and other shrub species such as willow, alder, birch and wild rose ⁱ - Probability of observation of this species in the Regional Project Area has been determined by the <u>Atlas of the</u> <u>Breeding Birds of Manitoba</u> to be approximately 50% to 60%
Piping Plover	Charadrius melodus	Endangered	Endangered	Unlikely - This species nests on sandy beaches or rocky shorelines of larger waterbodies such as Lake Winnipeg. No suitable nesting habitat occurs at the Project Site ^j
Short- eared Owl	Asio flammeus	Threatened	Special Concern	Low to Moderate - This species nests on the ground in larger open grassland areas including bog and fen habitat. Although some limited open fen/bog habitat occurs within the Project Site area, the area extent is limited and may not be sufficient for nesting Short-eared Owls ^k

- ^a Manitoba Boreal Woodland
- Caribou Management Committee 2015
- ^b COSEWIC 2013^a
- ° COSEWIC 2007
- d COSEWIC 2015

- ^e Environment Canada 2016
- ^f COSEWIC 2011
- ^g COSEWIC 2013^b
- ^h Environment and Climate Change Canada 2016
- ⁱ COSEWIC 2008^a ^jCOSEWIC 2013^c ^k COSEWIC 2008^b

The Provincial recovery strategy for woodland boreal caribou identifies nine woodland caribou Management Units and 15 known ranges of the species in Manitoba (Manitoba Boreal Woodland Caribou Management Committee 2015). The Atikaki-Berens Management Unit (Atiko Range) overlaps with the Regional Project Area. According to the Manitoba Boreal Woodland Caribou Management Committee (2015), caribou population size within this management unit is considered 'acceptable' and the conservation status assessment is ranked as 'medium'.

4.3.4 Parks and Protected Areas

The nearest park or protected area to the Project Site is the Hecla/Grindstone Provincial Park, an island in Lake Winnipeg located approximately 2 km to the northwest of the Project Site boundary (**Figure 4-7**). The Hecla/Grindstone Provincial Park is home to Indigenous cultural sites and nature preservation initiatives, while also providing hiking, wildlife viewing and cross-country skiing, among other recreational activities (Manitoba Sustainable Development, 2017b).

The Manigotagan River Provincial Park located 5 km south of the Project Site, was established in 2004 and hosts a canoe route along the Manigotagan River, with opportunities for hunting, fishing and hiking (Manitoba Parks 2015).

Observation Point Wildlife Management Area, located approximately 9 km south of the Project Site on the east side of Lake Winnipeg and south of the Manigotagan River, was recently established to protect the boreal forest and extensive wetlands. Of the 6,530 hectare-area of the wildlife management area, 6,010 ha are protected and deemed free from industrial activity and any other activities that may cause adverse effects to the sensitive habitat (Manitoba Sustainable Development, 2017c).



WANIPIGOW SAND EXTRACTION PROJECT PARKS AND PROTECTED AREAS CANADIAN PREMIUM SAND INC.

AECOM Figure: 4-7

4.4 Atmospheric Environment

4.4.1 Air Quality

Specific measurements of baseline air quality in the Regional Project Area are not available. However, air quality in this area should generally be very good compared with cities and commercial and industrial areas in Manitoba. The closest regional influences of air quality are associated with vehicle traffic on adjacent community roads and PR 304. Within the Project Site, periodic influences to air quality are primarily due to on-gong exploratory drilling within the quarry lease areas and vehicle use of existing roads and trails. Existing baseline air quality parameters for the Project Site were estimated to complete an air quality impact assessment for this Project (Section 6.5.1; **Appendix E**).

4.4.2 Noise and Vibration

The above-described influences on regional air quality (Section 4.4.1), would also contribute to noise levels at the Project Site. Based on the planned equipment use and activities, the Project is not expected to be a source of significant vibration. Therefore, vibrations are not considered further in this report. Noise has limited distance influence depending on the nature of the noise source (e.g., size and weight of trucks and other machinery) and landscape features surrounding the sources of noise that may act to attenuate noise (e.g. tree cover; Yip et al. 2017; Albert 2004; and surrounding geology, e.g. Kumar et al. 2016). Although baseline noise information is not available for the Project Site area, existing noise at the Project Site area is currently primarily influenced by trucks and other vehicle traffic on the Local Project Area roads. Existing baseline noise and estimated Project-related noise levels were estimated to complete a noise impact assessment for this Project (Section 6.5.2; **Appendix F**).

4.5 Indigenous Peoples

The Project Site is located within Treaty No. 5 Territory (INAC 2014). Hollow Water First Nation is within the Local Project Area. There are no statistical details for the Incorporated Community of Seymourville, but we understand that most of its residents are members of Hollow Water First Nation. Manigotagan has a substantial number of residents that self-identify as members of Indigenous groups. Overviews of these Indigenous communities are provided in Sections 4.5.1 to 4.5.4. Information on population, employment, infrastructure and services, land and resource use and recreation and tourism can be found in Section 4.6.

4.5.1 Hollow Water First Nation (Wanipigow)

Hollow Water First Nation (Wanipigow) is home to the Anishinaabe (Ojibway) people. The name 'Wanipigow' is a Cree word meaning 'Hollow Water' or 'hole in the water'. Habitation of the area began approximately 6,000 years ago, with intensive use of the site occurring approximately 2,000 years ago, shifting reliance from grassland resources towards forest and aquatic resources, such as fish, mammals and waterfowl (Province of Manitoba Historic Resources Branch 2017). The current economic activities which are focused on fishing, hunting, trapping and wild rice harvesting continue to be of economic and cultural importance (SERDC n.d.).

Hollow Water First Nation is located on the east side of Lake Winnipeg located approximately 200 km north east of Winnipeg, and approximately 85 km north of Powerview-Pine Falls, with access via PR 304. The community is governed by an elected Council of Chief and Councillors, and is a member of the Southeast Resource Development Council (SERDC) (SERDC n.d.).

4.5.2 Incorporated Community of Seymourville

The Incorporated Community of Seymourville is located on the southeast boundary of Hollow Water First Nation, approximately 200 km north east of Winnipeg. The Village is located within the larger 'Incorporated Community of Seymourville' which was incorporated in 2004 and is governed by a Mayor and Councillors under *The Northern Affairs Act* of Manitoba (Province of Manitoba 2016a).

Economic activity consists primarily of industry jobs, such as fishing and trapping (Province of Manitoba 2016a). In 2003, the Seymourville Community Development Corporation was incorporated to support social and economic needs of the community (Community Futures Winnipeg River 2018; Province of Manitoba 2016a).

4.5.3 Manigotagan

Manigotagan is located near the mouth of the Manigotagan River, approximately 11 km south of Hollow Water First Nation and approximately 190 km northeast of the City of Winnipeg. Manigotagan was founded to provide access to timber resources in the area. Manigotagan is governed by a Mayor and Councillors under *The Northern Affairs Act* (Province of Manitoba Community Profiles 2016b).

The main economic activity primarily includes the production of sawlogs, commercial fishing, trapping and hunting (Province of Manitoba Community Profiles 2016b).

4.5.4 Aghaming

The Northern Affairs Settlement of Aghaming is located on the eastern short of Lake Winnipeg, 1 km northeast of Wanipigow on the east side of the Wanipigow River. Aghaming is a small community defined as a settlement under *The Northern Affairs Act* of Manitoba. Economic opportunities are primary resource related and include fishing, trapping and hunting (Province of Manitoba 2016c).

4.6 Socioeconomic Environment

The baseline socioeconomic environment data was collected using Statistics Canada, Province of Manitoba, and other available online information (e.g., community web pages and previous studies). Due to the small size of several of the Local Project Area communities, some statistical data was unavailable.

The socioeconomic Local Project Area extends beyond the Project Site to include Hollow Water First Nation, Seymourville and Manigotagan. The Regional Project Area communities may benefit from Project employment opportunities.

4.6.1 Demographic Profile

4.6.1.1 Population Characteristics

The Local Project Area is located in a sparsely populated area east of Lake Winnipeg. Using the most recent population information available online is the Statistics 2016 census information for the communities within the Local Project Area, Hollow Water First Nation, Seymourville and Manigotagan, experienced population declines between the 2011 and 2016 census periods. Seymourville had the smallest population with 95 people in 2016, while Hollow Water First Nation had the largest population with 582 (**Table 4-5**).

In the Statistics Canada data, population change is defined as the change in demographics resulting from births, deaths, in- and out-migration from the community. The communities in the Local Study Area experienced negative population growth between 2011 and 2016, although Seymourville experienced the largest population decline between 2016 and 2011 at -24.2%.

The communities in the Regional Project Area (i.e., Black River First Nation and Sagkeeng First Nation/Fort Alexander) had a larger population base in the 2016 Statistics Canada Census compared to the communities in the Local Study Area (**Table 4-5**). Black River First Nation experienced a 34% population increase between the 2011 and 2016 Statistics Canada Census, while during the same time period Sagkeeng First Nation/Fort Alexander experienced a population decline of -8.1%.

Local Study Area Populations							
Population	Hollow Water First Nation	Seymourville	Manigotagan	Aghaming	Manitoba		
2016 Census	582	95*	176	15	1,278,365		
2011 Census	627	118	213	15	1,208,268		
Population Change (%)	-7.2	-24.2	-17	0	5.8		

Table 4-5: Population of Local and Regional Study Area Communities

Source: Statistics Canada 2017a-g; 2018

* After the release of the 2016 Census population and dwelling counts, issues affecting the 2016 data were uncovered. Data was updated in release tables, presented in Statistics Canada 2018. The updated population counts were used for this table

The Project is located in an area that is generally younger than the Provincial median (with the exception of Manigotagan, which is slightly older than Provincial median). The 2016 median age of the population in Hollow Water First Nation was approximately 15 years younger than the median age for Manitoba and half the median age of the residents of Manigotagan (Statistics Canada 2017a-f). In 2016, the Regional Study Area (*i.e.*, Black River First Nation and Sagkeeng First Nation) had populations younger than the provincial median (**Table 4-6**).

Table 4-6: Distribution (%) of Local and Regional Study Area Communities by Age Groups

Local Study Area Age Distributions							
Population – Age (years)	Hollow Water First Nation	Seymourville	Manigotagan	Aghaming	Manitoba		
0 – 14	29.9	-	18.8	-	19.1		
15 – 64	64.1	-	62.5	-	65.4		
64 and over	4.3	-	15.6	-	15.6		
85 and over	0	-	0	-	2.3		
Average age of population	29.6	-	42.4	-	39.2		
Median age of population	23.6	_	47.5	-	38.3		

Source: Statistics Canada 2017a-g; 2018

Notes: "-" indicates area and data suppression

4.6.1.2 Aboriginal Identity

Within the Local and Regional Project Areas, the majority of the population indicated 'Aboriginal Identity'. The majority of the population that indicated an 'Aboriginal Identity' identified as First Nations in Hollow Water First Nation, Black River First Nation and Sagkeeng First Nation (**Table 4-7**). The population in Manigotagan equally identified as Aboriginal and Metis.

Local Study Area – Aboriginal Identity								
Aboriginal Identity	Hollow Water First Nation	Seymourville	Manigotagan	Aghaming	Manitoba			
Non-Aboriginal Identity	10	-	20	-	1,017,385			
Aboriginal Identity	580	-	150	-	223,310			
First Nations (%)	98	-	45	-	59			
Metis (%)	2	-	42	-	40			
lnuk (Inuit) (%)	0	-	0	-	0			
Multiple Aboriginal Responses (%)	0	-	13	-	1			

Table 4-7: Aboriginal Identity of Local and Regional Study Area Communities

Source: Statistics Canada 2017a-g; 2018 Notes: "-" indicates area and data suppression

4.6.2 Labour Force and Employment

Based on the 2016 Statistics Canada data, the percentage of community members in the Local and Regional Project Areas that have obtained a certificate, diploma, or degree from a post-secondary educational institution is lower than the provincial average (**Table 4-8**). The 2016 Statistics Canada Census educational attainment data suggest that levels of education and training are generally lower than the Province. In the Local and Regional Project Area, the population generally has the same or higher rates of training in the trades, Manigotagan with 2.4 times more people trained in trades compared to the Province of Manitoba.

	Local	Study Area			Province
Education (aged 25 – 64)	Hollow Water First Nation	Seymourville	Manigotagan	Aghaming	Manitoba
Total population aged 25-64	245	-	95	-	654,670
No Certificate, diploma or degree	38	-	19	-	14
Secondary (high) school diploma or equivalency	34	-	48	-	28
Apprenticeship or Trades certificate, diploma or degree	8	-	19	-	8
College or non- university certificate or diploma	10	-	14	-	21
University certificate or diploma below bachelor level	4	-	0	-	3
University certificate, diploma or degree at bachelor level or above	6	-	0		25

Table 4-8: Education Attainment (%) of Local and Regional Study Area Communities

Source: Statistics Canada 2017 a-g

Notes: "-" indicates area and data suppression

4.6.2.1 Employment Rate

Table 4-9 presents labour force indicators including the total population aged 15 years and over, population in the labour force and participation, employment and unemployment rates for the Local and Regional Project Areas and the Province of Manitoba. The 2016 participation and employment rates in the Local and Regional Project Areas were lower in comparison to the Province, while the unemployment rates were higher. While the unemployment rates ranged from 22.2% to 40.0%, the highest unemployment rate in the Local Project Area was in Hollow Water First Nation, 5.1 times higher when compared to the Province (6.7%). The highest unemployment rate in the Regional Project Area was in Black River First Nation, 6.0 times higher in comparison to the Province.

Local Study Area						
Occupations	Hollow Water First Nation	Seymourville	Manigotagan	Aghaming	Manitoba	
Total Population aged 15 and over	405	-	120	-	1,001,305	
In the Labour Force	190	-	45	-	662,155	
Participation Rate (%)	46.9	-	37.5	-	66.1	
Employment Rate (%)	30.9	-	25.0	-	61.7	
Unemployment Rate (%)	34.2	-	22.2	-	6.7	

Table 4-9: Labour Force Indicators of Local and Regional Study Area Communities

Source: Statistics Canada 2017 a-g

Notes:

"-" indicates area and data suppression

4.6.2.2 Occupation

Economic activity in the Local Project Area includes fishing, hunting, trapping, logging, wild rice harvesting and tourism (Province of Manitoba 2016a, SERDC n.d.). Businesses and services in the Local Project Area include a band office, health centre, Wanipigow Producer Co-Op, gas station, chip stands, campground, daycare, water treatment plant, sanitation services and a septic service (SERDC n.d., Province of Manitoba 2016a-c).

Based on the 2016 Statistics Canada data, the percentage of community members in the Local and Regional Project Areas are more likely to be employed in occupations related to natural resources and trades, transport and equipment operation (**Table 4-10**).

	Loca	al Study Area			Province
Occupations	Hollow Water First Nation	Seymourville	Manigotagan	Aghaming	Manitoba
All Occupations	140	-	45	-	649,525
Management	8	-	0	-	11
Business, Finance and Administration	8	-	18	-	15
Natural and Applied Sciences	0	-	0	-	5
Health	0	-	0	-	8
Education, law and Social, Community and Government	35	-	0	-	13
Art, Culture, Recreation and Sport	0	-	0	-	2
Sales and Services	15	-	18	-	22
Trades, Transport, and Equipment Operators	19	-	27	-	16
Natural Resources, Agriculture	15	-	36	-	3
Manufacturing and Utilities	0	-	0	-	5

Table 4-10: Occupations of Local and Regional Study Area Community Members

Source: Statistics Canada 2017 a-g

Notes: "-" indicates area and data suppression

4.6.2.3 Employment Initiatives

The Community Futures Winnipeg River (CFWR) is a regional economic development organization that works to enhance community growth and knowledge for businesses in the north Eastman region, including Seymourville and Manigotagan (CFWR 2018a) and the Communities Futures Southeast that includes Hollow Water First Nation (CFS 2018).

4.6.3 Infrastructure and Services

4.6.3.1 Transportation

<u>Road</u>

The Local Project Area can be accessed by an all-weather gravel road intersecting with PR 304 that connects Seymourville and Hollow Water First Nation to Manigotagan. The Project Site area currently has limited access via existing local roads and trails to the north and west sides of the Project Site area.

<u>Air</u>

No airports or aerodromes are located in Hollow Water First Nation or other communities in the Local Project Area. The nearest airport is located approximately 52 km east in Bissett, Manitoba (CFS 2018; SERDC n.d.) and the largest regional airport is the Winnipeg James Armstrong Richardson International Airport located in Winnipeg, Manitoba.

<u>Bus</u>

Bus service was previously available from Pine Falls to Manigotagan (EcoMetrix 2015), but Greyhound Bus lines ceased operation as of October 2018 (Dacey 2018). It is unknown at this time if smaller local businesses have started offering bus service to the Local Project Area. M. Osadchuk Trucking and Gardewine North provide freight transportation services (Province of Manitoba 2016a, b).

<u>Rail</u>

There is no railway located in the Local Project Area.

4.6.3.2 Emergency Services

<u>Fire</u>

Hollow Water First Nation has a pumper truck, ancillary firefighting equipment and a volunteer fire department (East Side Road Authority 2009).

Fire service in Seymourville is based mostly on a small 'fast-attack' vehicle that has a limited water supply, hoses and equipment. Seymourville has portable forestry-style equipment available for use on grass and brush fires (Province of Manitoba 2016a).

Manigotagan has a pumper truck and equipment, as well as portable forestry firefighting equipment available for grass and brush fires (Province of Manitoba 2016b).

Police

RCMP police service is available from the Powerview RCMP detachment. The communities also share a Community Safety Officer with Bissett (Province of Manitoba 2016a,b).

Ambulance and Hospital

Ambulance service is available from Powerview-Pine Falls (Province of Manitoba 2016a,b). The nearest hospital is the Pine Falls Health Complex located in Powerview-Pine Falls (Province of Manitoba Community Profiles 2016a, b, Powerview-Pine Falls 2011). The Pine Falls Health Complex provides health and social services to over 13 communities and rural municipalities. The Pine Falls Health Complex in managed by the Interlake-Eastern Regional Health Authority and provides 24-hour emergency care, diagnostic services, laboratory investigation, inpatient care, medical attention to children and the elderly and mental health services. The health complex has a 23 bed inpatient unit, which includes two Hi-Care beds; two Observation beds; one minor treatment room and three cribs; a six-station hemodialysis unit; and a 20-bed personal care home (Powerview-Pine Falls 2011). The nearest medical clinic to the Project Site is the Adam Hardisty Health Centre in Hollow Water First Nation which does not have emergency or ambulance service (SERDC n.d.).

4.6.3.3 Community Services

Communications

Phone service in the Local Project Area is available through Bell-MTS. Cell and Wi-Fi service is currently unavailable. Rural high-speed internet is available through ExploreNet via satellite (Province of Manitoba 2016a,b).

Electricity

Manitoba Hydro provides electric power to the residents in the Local Project Area (Province of Manitoba Community Profiles 2016a,b).

Water and Waste Water

Drinking water for Hollow Water First Nation is sourced from the Wanipigow River, then treated and distributed through the community piped distribution systems (East Side Road Authority 2009). Treated water is supplied from a pump house located at Hollow Water First Nation to a standpipe to the five houses in Aghaming (Province of Manitoba 2016c). Sewage is piped to a sewage collection system and then treated in a two-cell sewage lagoon. Effluent is discharged to a ditch draining to the Wanipigow River. A few houses at Hollow Water First Nation use pit privies (East Side Road Authority 2009).

In Manigotagan, drinking water is sourced from the Manigotagan River to a nano-filtration water treatment plant before distributed through the community piped distribution system. The majority of the sewage in the community is piped to a Sewage Batch Reactor (SBR) plant, with the remainder collected by a sewage pump-out truck and transferred to the SBR plant (Province of Manitoba 2016b).

In Seymourville, water is sourced from Lake Winnipeg into the pumphouse to a chemical feed treatment plant before distribution through the community piped distribution system. A low-pressure sewage line transfers sewage into a lagoon for treatment (Province of Manitoba 2016a). Liquid waste from Aghaming is transported to Seymourville using a private pump-out truck (Province of Manitoba 2016c).

Waste Disposal

A regional Class 3 solid waste disposal site (on Crown land), owned and operated by Seymourville, is located along the road to Hollow Water First Nation that is used by the Local Project Area communities (Province of Manitoba 2016a,b).

4.6.3.4 Schools

The Frontier School Division operates the Wanipigow School used by the communities in the Local Project Area. The school has 336 students from Kindergarten to grade 12 (Province of Manitoba 2016a,b).

4.6.4 Land and Resource Use

4.6.4.1 Trapping

Trapping is organized under the Hole River and Lac du Bonnet Registered Trapline Zones and is shared with the nearby communities of Hollow Water First Nation, Manigotagan, Seymourville and Aghaming (Province of Manitoba 2016a,b,c). The Project Site is located within Home Block (trapping) areas of Hollow Water First Nation and Seymourville **(Figure 4-8).** The Local Project Area falls within the Eastern Registered Trapline District in Open Trapping Area Zone 3 (Province of Manitoba 2018).

Findings from a Project Area TEK has indicated that snaring of rabbits occurs within the Project Site and some traps for other fur bearers occur within the Local Project Area (**Appendix G1**).Results of a previous regional TEK study indicated that 6 to 10 participants used the Project Site and Local Project Area for trapping, with some other areas further north and west having a higher frequency of trapping (East Side Road Authority 2009; **Appendix G2**).Currently, there is only one recognized / licenced trapper using the Project Site area (pers. com. D. Bushie). However, information provided by local people who attended the Community Information Session and participated in the TEK session for this Project during November 2019 indicated that several Indigenous people trap in the community trapline area which is within the Local Project Area.



WANIPIGOW SAND EXTRACTION PROJECT TRAPLINE AREAS IN THE VICINITY OF THE PROJECT SITE CANADIAN PREMIUM SAND INC.

AECOM Figure: 4-8

Approved: Checked: Designer: Project Management Initials:

Last Plotted: Mon Dec 10, 2018

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4.6.4.2 Hunting

The Local Project Area falls within Game Hunting Area (GHA) 26 (Manitoba Sustainable Development 2017d). Small game such as grouse and rabbits are primarily hunted in the Local Project Area (**Appendix G1**). Results of a previous regional TEK study indicated that the Project Site Area has a low frequency of use for small game hunting compared with other locations in the Regional Project Area (East Side Road Authority 2009; **Appendix G2**).

<u>Caribou</u>

Caribou hunting does not occur in the Local Project Area (**Appendix G1**). Therefore, the potential socioeconomic effects of the Project on caribou hunting will not be assessed in this document.

<u>Moose</u>

The Local Project Area falls within GHA 26, Moose Conservation Zone, where licenced moose hunting is prohibited (Province of Manitoba n.d.). As indicated in Section 4.3.2, results of a previous regional TEK study indicated that the Project Site Area has a low frequency of use of moose occurrence compared with other locations in the Regional Project Area (East Side Road Authority 2009; **Appendix G2**).Considering moose hunting is not currently conducted in the Local Project Area, the potential socioeconomic effects of the Project on moose hunting will not be assessed in this document.

4.6.4.3 Plant Use

Information from a Project Site TEK study indicated that blueberry gathering occurs within the Project Site Area (**Appendix G1**). Results of a previous regional TEK study indicated that the Project Site Area has a relatively low frequency of use for plant gathering for 'special purposes' compared with other locations in the Regional Project Area (East Side Road Authority 2009; **Appendix G2**). A reconnaissance walk through the Project Site Area with a local respected Elder with knowledge of Traditional medicines indicated that although medicinal plant occur within the Project Site, those plants are common within the Regional Project Area (**Appendix G1**).

4.6.4.4 Fishing

No Project component or activities occur in or immediately adjacent to fish-bearing waterbodies and no Project effects to fish-bearing waterbodies, including Lake Winnipeg are anticipated (Section 6.3). Therefore, the potential socioeconomic effects of the Project on fishing will not be assessed in this document.

4.6.4.5 Forestry

The Local Project Area falls within Forest Section Lake Winnipeg East within Forest Management Unit 31 (Province of Manitoba 2013). There are currently no Forest Management Licence (FML) areas at or near the Project Site.

As of September 21, 2018, the Department of Sustainable Development of the Province of Manitoba provided public notice of a proposal received pursuant to *The Forest Act*. A First Nation consortium consisting of several First Nation communities, have proposed a potential Indigenous-led commercial forest development (Manitoba Sustainable Development 2018b). An optional licence may be granted to provide the consortium with the opportunity to investigate the potential of forest development in the area and decide if they would like to pursue negotiations with the Province to obtain an FML. The area of the Option Licence overlaps with the Project Site area (Manitoba Sustainable Development 2018b).

No forestry operations or FML areas are currently active in the Local Project Area. Therefore, the potential socioeconomic effects of the Project on forestry will not be assessed in this document. During Project Site clearing activities during construction phase, usable and merchantable timber will be cut and stacked at the Project Site for no more than one year, for local use as firewood, and/or potential auction for merchantable timber.

4.6.4.6 Wild Rice

Wild rice is grown in the water, in shallow bays (NAC 2015; Isaacs 2017). Wild rice planting and harvest occurs along the Manigotagan River to Turtle Lake and surrounding area including Wanipigow. No areas of wild rice harvest are present at the Project Site area and none were identified during the TEK study (**Appendix G1**). As a result, the potential socioeconomic effects of the Project on wild rice harvest will not be assessed in this document.

4.6.4.7 Protected Lands

There are no provincial parks, wildlife management areas or other designated protected lands located within the Local Project Area (Section 4.3.4).

4.6.5 Recreation and Tourism

Tourism in the Regional Project Area includes eco-tourism and local events. Eco-tourism activities include camping, canoeing and kayaking along the Manigotagan River, and local events including Black Island Days hosted by Hollow Water First Nation (East Side Road Authority 2009).

4.6.5.1 Recreation

In the Local Project Area community recreational infrastructure include baseball diamonds, basketball and volleyball courts, a curling rink, outdoor rink, playground areas with play structures, a mini-gymnasium, recreational buildings and picnic shelters (Province of Manitoba 2016a,b).

4.6.5.2 Seasonal Accommodations

Seasonal accommodations in the Local Project Area include the Wood'n Bell Motel, bed and breakfast in Manigotagan, English Brook Campground and Manigotagan campground facilities (Province of Manitoba 2016b). The Manigotagan Community Campground has 15 sites with views of the Manigotagan River (Winnipeg Canoe Rentals 2008). The Mantago Bay RV Park and Campground, located 7 km northeast of Manigotagan, has 110 sites available (Campendium 2018; Travel Manitoba 2018).

4.6.5.3 Cottages

Cottages are located along the eastern shore of Lake Winnipeg, west of Manigotagan across the Manigotagan Bridge. The lots range in size; lake-front lots are 35 m x 75 m and back lots are 70 m x 70 m. Cottage subdivisions include the Driftwood Beach, Blueberry Point and Ayers Cove Eagle's Nest subdivisions (Province of Manitoba 2015a; Saberestates 2018). Pelican Harbour is a gated community consisting of 128 water-front and wilderness cottage lots (Pelican Harbour n.d.). Local cottages are as close as 630 m from the boundary of the Project Site, and approximately 4 km west to north-west of the proposed wash and dry facility location.

4.6.6 Community Health

The Southeast Regional Development Council (SERDC) provides health services to Hollow Water First Nation (and seven other communities). Programs include an Aboriginal diabetes initiative, addictions services, environmental health (*e.g.*, public health inspections, identifying and preventing public health risks), home and community care, Indian residential schools resolution health support program, mental wellness, 'Success Through Advocacy and Mentoring' program (e.g., pre- and post-natal support), a tobacco strategy and tribal nursing (SERDC Health Services 2018).

4.6.7 Heritage Resources

A screening request to Historic Resources Branch was submitted on October 10, 2018 for the proposed Project to determine if there are any potential heritage resources that may be affected by the proposed development and if a Heritage Resources Impact Assessment (HRIA) is required. The Archaeological Unit of the Historic Resources Branch had indicated concern that the Project may potentially impact significant heritage resources which have been determined by the Archaeological Unit as having a high risk of occurrence in the Project Site area. Therefore, the Historic Resources Branch recommended that a HRIA be completed for the Project Site. A copy of the correspondence received from Historic Resources Branch is included in **Appendix H.** As recommended by the Historic Resources Branch, a HRIA was conducted within the Project Site area during November 1 - 8, 2018. The HRIA study report is provided in **Appendix I**. Results of the HRIA study concluded that no archaeological artifacts or features were identified.

Based on the response from Historic Resources Branch, the proposed Project area lies on a peninsula with pre-contact and historic significance. According to Historic Resources Branch records, known archaeological sites surround the purposed Local Project Area from north of Wanipigow along the shoreline south to Manigotagan, east of Clangula Lake south to English Brook and all along the Manigotagan River to the south. It was also noted that within this region there is a history of fur trade posts; Manigotagan Post (also known as Bad Throat Post) and Winnipeg Lake Post. However, a TEK study conducted in October 2018 with respected Elders of Hollow Water First Nation indicated that Elders had no knowledge of the presence of historic fur trading posts in the Regional Project Area (Appendix G1).

Results of a previous regional TEK study indicated that the Project Site Area has a relatively low frequency of use for 'burial / spiritual areas' compared with other locations in the Regional Project Area (East Side Road Authority 2009; **Appendix G2**). The closest known heritage resource to the Project Site is a new Catholic cemetery located on the west side of the main access road to Seymourville and immediately adjacent to the eastern edge of quarry lease # 1798 at the north-eastern edge of the Project Site.