Memo

To: Nunavut Impact Review Board
From: Agnico Eagle Mines Limited
Date: May 23, 2023
Subject: Additional Information – Location of the Windfarm - Meliadine Extension Proposal

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In response to the Nunavut Impact Review Board's (NIRB) request in the Pre-hearing Conference Decision on the Meliadine Extension Proposal (Decision Report[1]), Agnico Eagle Mines Limited (Agnico Eagle) was requested to provide additional information to the NIRB by May 23, 2023 to allow the NIRB and parties to meaningfully conduct the assessment of the Meliadine Extension Proposal. The following additional information is provided specific to the request made by the NIRB regarding the windfarm location:

> *More detailed information regarding Agnico Eagle's selection criteria applicable to the selection of the location for the windfarm, including whether any alternative locations closer to Rankin Inlet were considered and whether alternative locations as proposed by KIA or KHTO were considered*

1 INTRODUCTION

As presented in the Meliadine Extension Final Environmental Impact Statement (FEIS) Addendum, Agnico Eagle is proposing to build a windfarm at the Meliadine mine site, to reduce the mine's Greenhouse Gas Emissions.

The windfarm is planned to be built in a phased approach; whereby wind turbines will be constructed based on needs and other economic factors. It is anticipated that five wind turbines would be constructed during the first phase with a potential subsequent phase of six more wind turbines, for a total of 11 wind turbines. The proposed location of the wind turbines can be seen in Figure 1.

At the November 2022 Technical Meeting and March 2023 Pre-hearing Conference, the Kangiqliniq Hunters and Trappers (KHTO) recommended Agnico Eagle consider locating the windfarm closer to Rankin Inlet, in the Subblu area, rather than adjacent to the Meliadine mine due to concerns about interference with the caribou migration, as seen in Figure 2. At the April 12 Caribou Workshop, the Kivalliq Inuit Association (KivIA) suggested a joint meeting with KHTO to discuss further the Subblu option. Agnico Eagle has reached out to KHTO and KivIA to organise such a meeting, but KHTO has not provided their availability to date.

This memorandum presents the criteria examined to assess the best placement for the windfarm. These criteria were used to compare the Meliadine site and the Subblu area as potential locations to install the wind turbines. Based on that information, it will be demonstrated why placing the windfarm next to the Meliadine mine is the preferred option.

[1] Nunavut Impact Review Board. NIRB File No. 11MN034 – Update to the Nunavut Impact Review Board's Pre-Hearing Conference Decision Agnico Eagle Mines Limited's "Meliadine Extension" Project Proposal. Dated April 3, 2023.

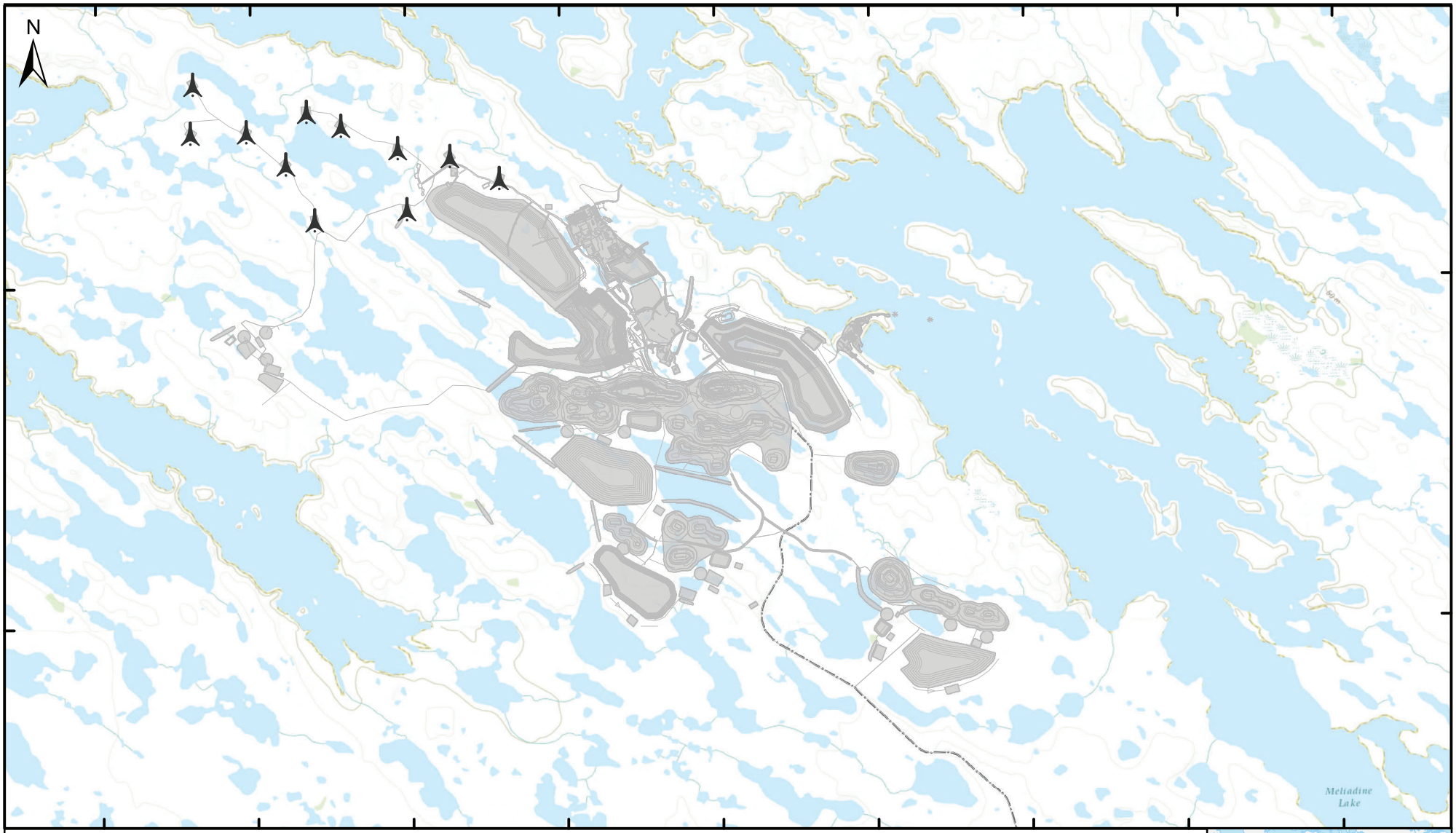


Figure 1:

Meliadine Extension

Wind Turbine Locations

0 1 2 3

1:60,000 km

Legend

- Wind Turbine
- Meliadine Extension Infrastructure
- All-Weather Access Road (AWAR)

Date: 5/17/2023

Map Number: MEL-011

Coordinate System: NAD 1983 UTM Zone 15N

Projection: Transverse Mercator

Datum: North American 1983

AGNICO EAGLE

ECOLOGIC consultants ltd.

Legend

- Rankin Inlet
- Subblu Area
- IOL

0 2 4 Kilometers

Figure 2: Defined Subblu Area

Datum: NAD83 Projection UTM Zone 15

2 CRITERIA SELECTED FOR PLACEMENT OF THE WINDFARM

To place the windfarm at the most optimal location, Agnico Eagle considered several criteria:

1. Environmental Impact: Soil and vegetation, air quality, and wildlife.
2. Social Impact: Traditional land use and cabin disturbance.
3. Technological Constraints: Wind direction, wind velocity, and terrain evaluation.
4. Restricted zones
5. Project cost

These criteria determined where to place the wind turbines to minimize the impact on the environment, but also to make the project feasible. In the following sections, a comparison is made between the Meliadine site and the Subblu area as potential windfarm locations, based on criteria 1 to 5 listed above.

2.1 Environmental Impact Assessment

As presented in the Meliadine Extension FEIS Addendum, Agnico Eagle has developed a Windfarm Management Plan with best practices to minimize the environmental impact of the wind turbines. A mitigation plan will be set in place to minimize the effect that the wind turbines might have on soil and vegetation, air quality, and wildlife. The management plans and mitigation methods that are suggested for the current and proposed mine infrastructures will also extend to and include the windfarm. The following sections compare the environmental impact that the windfarm would have at the Meliadine Site and the Subblu area.

2.1.1 Impact on Soil and Vegetation

Compared to installing the windfarm in the Subblu area, installing the windfarm near the Meliadine site would require fewer new roads to be constructed, since existing roads of the mine will be primarily used, when possible, therefore less disturbance to soil and vegetation. Additionally, to reduce the windfarm footprint near the Meliadine site, temporary workspaces will be designed within previously disrupted areas of the mine, as where these workspaces would have to be installed on new undisturbed ground in the Subblu area. It is also to be noted that if the wind turbines were to be installed in the Subblu area, the power cables from Subblu to Meliadine will most likely be required to follow the roads to the site, and not the path of least resistance due to land licensing (i.e., shortest distance), which might further disturb the soil and vegetation. Overall, installing the wind turbines at the Meliadine site would impact the soil and vegetation less compared to a windfarm in the Subblu area.

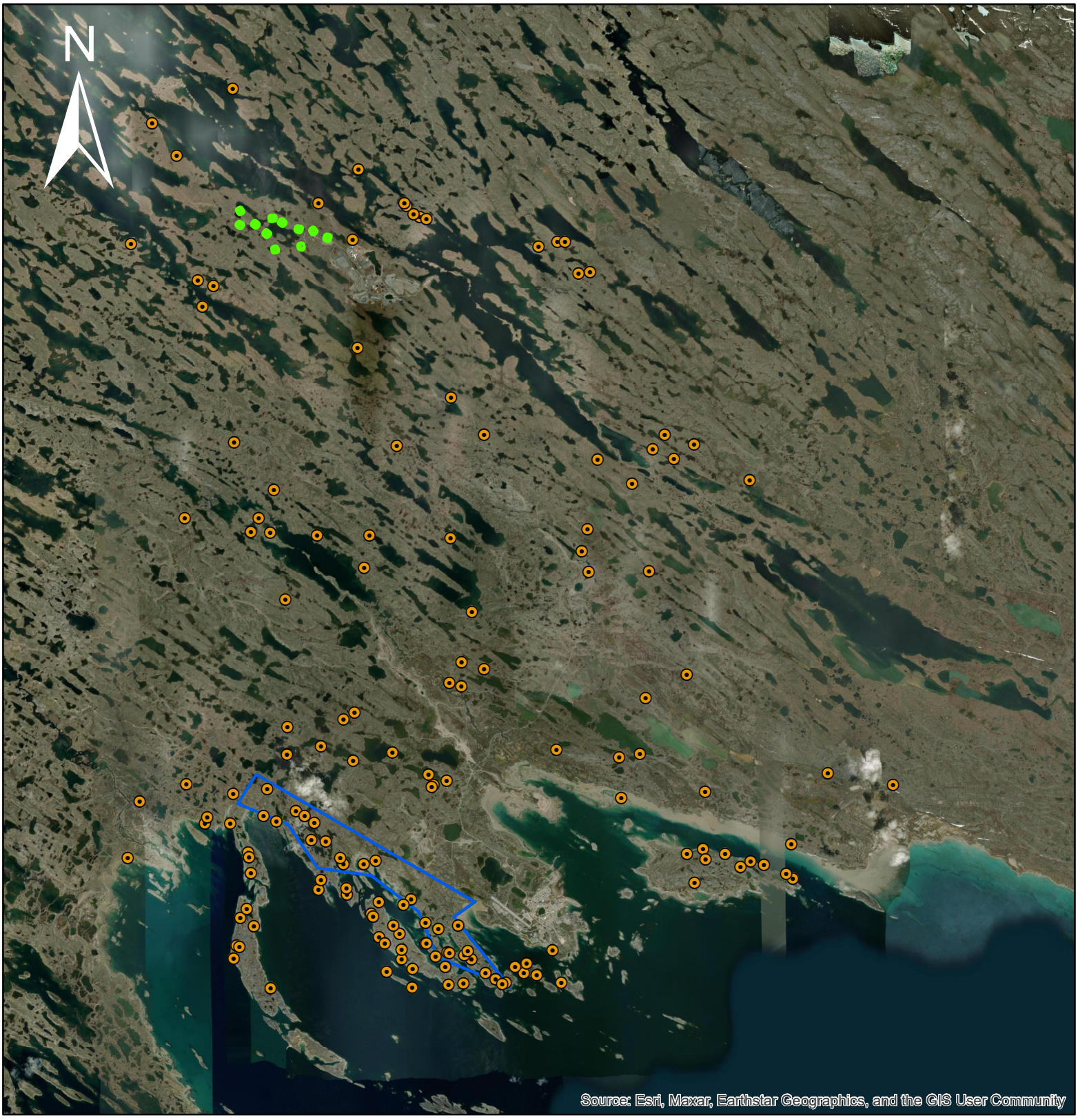
2.1.2 Impact on Air Quality

During the construction of the windfarm, increased traffic for material transportation could cause increased dust production and exhaust emissions from haul trucks. Approved mitigation measures will be implemented to reduce potential impacts of construction on air quality. Since the Meliadine mine site is located further away from the Itivia laydown area compared to the Subblu area, haul trucks would have to travel a bit further, meaning that the Meliadine site would be slightly less advantageous in terms of air quality during construction. However, since this situation would only be temporary during the construction of the wind turbines, this criterion is weighted less compared to other criteria considered in this memo.

2.1.3 Impact on Wildlife

The proposed location of the windfarm at the Meliadine site avoids a concentrated area of nests and dens of species at risk and has considered the movement paths of caribou. As described in the Windfarm Management Plan (Appendix D-36 of the Meliadine Extension FEIS Addendum), Agnico Eagle will put in place a management plan to minimize the impact that the wind turbines might have on wildlife. Furthermore, the Terrestrial Environment Management and Monitoring Plan (TEMMP) will also be adhered to during the construction and operation of the wind turbines, meaning that all measures will be followed to monitor and minimize effects on wildlife, through mitigation strategies (refer to Appendix D-34 of the Meliadine Extension FEIS Addendum for more information).

As presented in Figure 3 there is a significantly higher concentration of raptor nests in the Subblu area compared to the proposed windfarm location near the Meliadine site. Installing the windfarm near the Meliadine mine would be more advantageous in terms of minimizing potential impact on raptor habitat and their collision with wind turbines. Additionally, community members have mentioned that the most southern point of the Subblu area is important due to the presence of Peregrine Falcons.



Legend

- Proposed Wind Turbines - Meliadine Site
- Subblu Area

0 5.5 11 Kilometers

Figure 3: Distribution of Raptor Nests

Datum: NAD83 Projection UTM Zone 15

Agnico Eagle investigated the caribou use of the landscape at a large scale by looking at heat maps of collar locations. During post-calving, there is a concentration of caribou usage to the north of the Meliadine Lake, to the south of the south arm of Meliadine Lake (approximately 6.5 km south-west of the mine) and across the AWAR between 15 and 25 km as presented in Figure 4. During the post-calving and summer periods, there is virtually no use of the Meliadine Lake itself and little use of the area between the mine and the south arm of Meliadine Lake. Agnico Eagle compared different locations based on the impact a windfarm would have on caribou:

1. Northwest of Meliadine – Caribou do not use Meliadine Lake itself (since there is no ice during summer) and largely avoid the area between the mine and the south arm of Meliadine Lake. Therefore, the only exposure of caribou to the windfarm would be from the north side of the lake. Results of the aerial trail mapping of the site agreed with this data, with the largest caribou trails passing south of the south arm of Meliadine lake, and the windfarm location itself supporting smaller secondary and tertiary trails. Therefore, this site was rated as a good location to install a windfarm in terms of caribou activity.

2. Southeast of Meliadine – East of Meliadine mine on Meliadine Lake was a second option. This area has more caribou than the northwest of Meliadine. Caribou cross the AWAR between 15 and 25 km and travel along the lake shore. This site is also downwind of the mine and so was rated as a poor location for the windfarm.

3. Discovery Road – The high site at the junction of the AWAR and the Discovery Road has the highest density of caribou use of any of the areas surrounding the project during the post-calving and was therefore rated as the worst location for the windfarm.

4. West of Rankin Inlet – The site proposed by the KivIA and KHTO, west of Rankin Inlet has low caribou usage during the post-calving but is used during summer as caribou travel south along the coast. It has a similar overall caribou usage to the site northwest of Meliadine and so could be rated as a good location for the installation of a windfarm.

To further understand the effect that the windfarm would have on wildlife, Agnico Eagle prepared a visual simulation of the wind turbines at the Meliadine site. The simulations were created at various distances from the mine site (i.e., 4.2km, 5.8km, 8.3km, 12.6km ad 26.3km away from the mine site), as seen in Figures 5 to 13.

As seen in these figures the wind turbines are visible to the human eye at 4.2km away, however, the mine is also in plain view, suggesting that if the mine is a visual disturbance, the wind turbines do not add a significant effect. Agnico Eagle has committed to shut down the turbines when there are more than 50 caribou within 5kms of the Meliadine mine. The turbines would thus not be moving which we heard through engagement activities that caribou would be responsive to moving objects more than to stationary objects. At 5.8km the visibility of the wind turbines reduces significantly. At 8.3km they are barely perceived by the human eye, at 12.6km they are mostly not visible, and at 26.3km they are not visible at all.

Placing the windfarm in the Subblu area could potentially cause a greater visual disturbance to wildlife compared to placing them at the Meliadine site, since there are currently no large structures in the Subblu area which could cause a greater visual contrast compared to the Meliadine site where large infrastructure already exists, and wildlife might have adapted over time. The windfarm may also be visible from Rankin Inlet and Diana River, which may be disrupting to the local inhabitants.

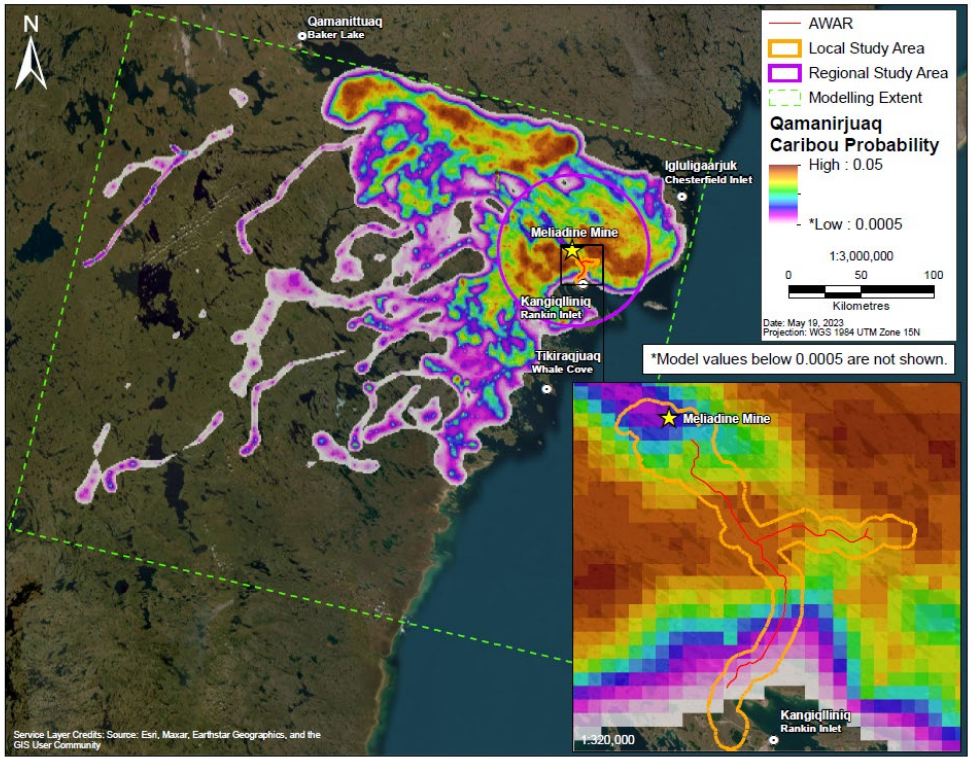


Figure 4a: BBMM for Qamanirjuaq Herd during Post-Calving, Construction and Operation Period (2018-2022)

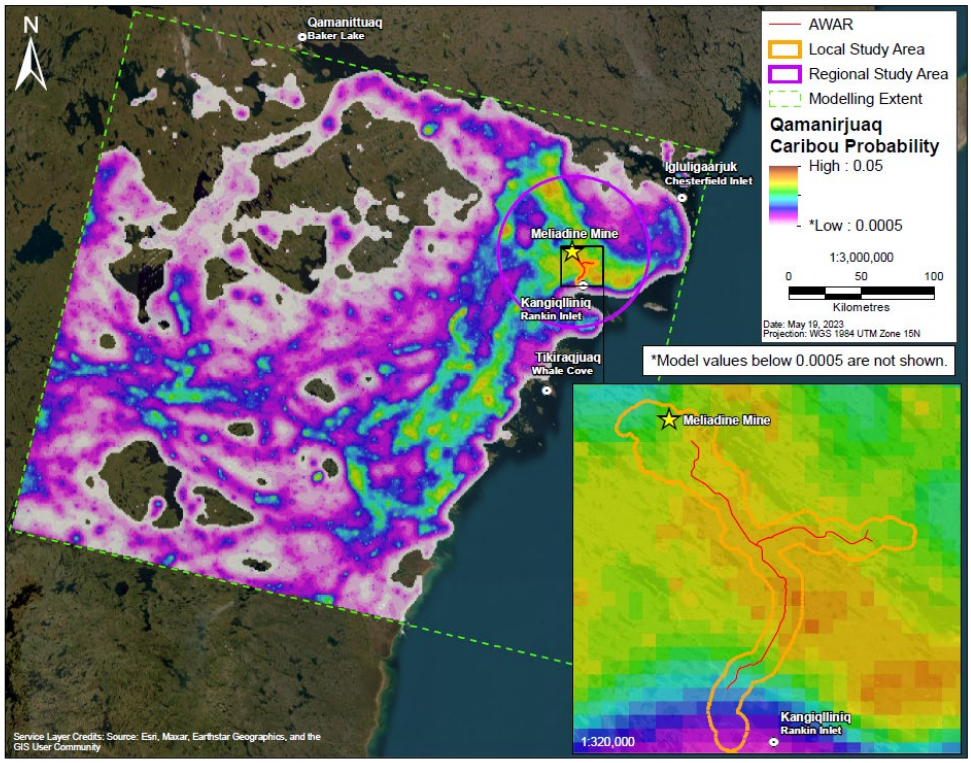


Figure 4b: BBMM for Qamanirjuaq Herd during Summer, Construction and Operation Period (2018-2022)

Figure 5: Current View - 4.2km away from the mine site

Figure 6: Visual Simulation - 4.2km away from the mine site

Figure 7: Current View - 5.8km away from the mine site

Figure 8: Visual Simulation - 5.8km away from the mine site

Figure 9: Current View - 8.3km away from the mine site

Figure 10: Visual Simulation - 8.3km away from the mine site

Figure 11: Current View - 12.6km away from the mine site

Figure 12: Visual Simulation - 12.6km away from the mine site

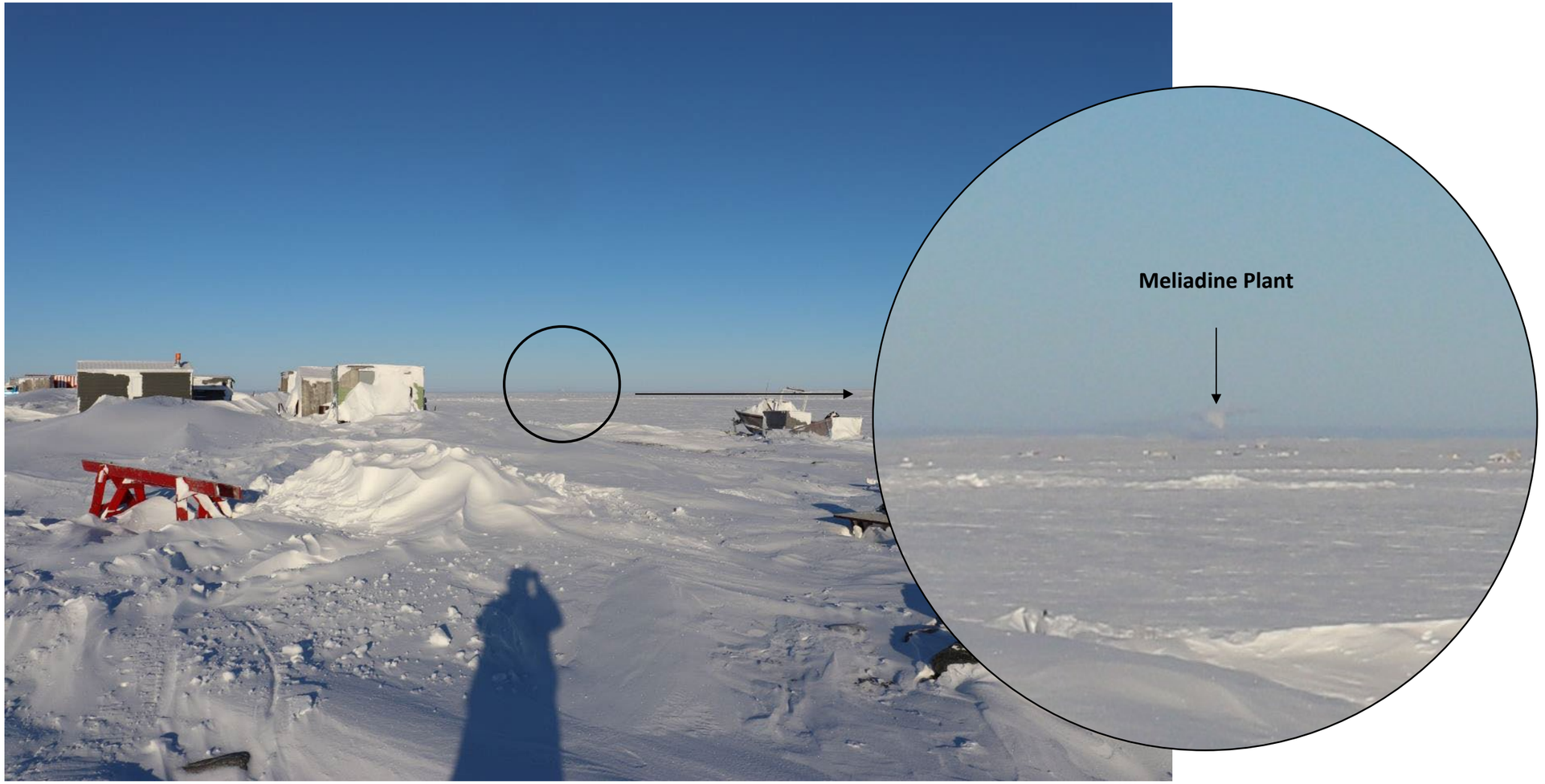


Figure 13: Current View - 26.3km away from the mine site

2.2 SOCIAL IMPACT ASSESMENT

When considering the location of the windfarm, Agnico Eagle also looked at the social impact that the wind turbines could have. Social impact refers to the impact on traditional activity which includes hunting and fishing and the use of cabins for recreational activities, as well as archaeological resources.

2.2.1 Traditional Activity

Figure 14 shows the area where there is a higher concentration of hunting and fishing based on the number of different species harvested. Species considered include hare, muskox, fox, caribou, wolf, and wolverine, as well as birds, fish and marine mammals. As seen in this figure, there is a higher concentration of species harvested near the Subblu area, compared to the Meliadine site. The Subblu area is also known for seal hunting and mussel picking.

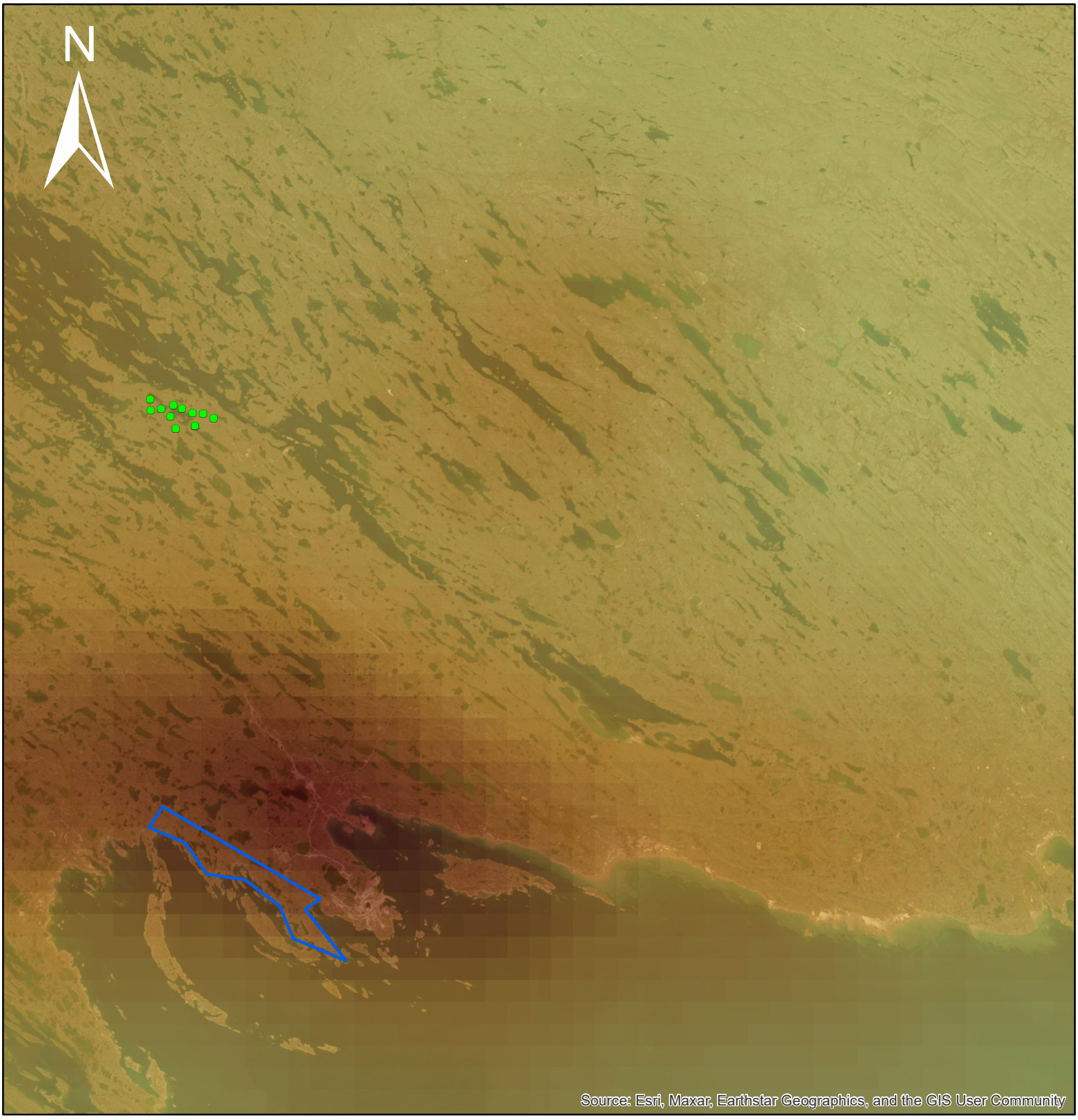
The only species that have been recorded to have been harvested near the Meliadine mine is caribou. To better understand the land use in terms of caribou hunting, Figure 15 illustrates where the land is most used for caribou harvesting. As seen in this figure, caribou is more often hunted East of the Meliadine site; however, there is a low concentration of hunting within an approximately 10km radius of the mine.

Figure 16 shows the distribution of cabins and trails near the Subblu area and the Meliadine site. As seen in this figure, there is a higher concentration of cabins near the Subblu area, as well as trails that intersect the region which lead to cabins near Diana River. This could mean that the wind turbines might be more visible by locals occupying the cabins near the Subblu area, which could potentially diminish the sense of wilderness.

Comparing the Subblu area to the Meliadine site as a potential location for the windfarm in terms of hunting and fishing, both locations could be considered as having the same importance. The Subblu area is harvested for a larger variety of species, as where the area closer to the Meliadine site is an area used for caribou hunting which has an important role for the local community. However, the Meliadine site is a better option when considering the concentration of cabins and access trails in the area.

2.2.2 Archaeological Resources

Although there is limited information and studies completed on archeological sites in the Subblu area, the Subblu region is a location where there is a high potential for unrecorded archaeological sites given the location immediately next to the coast. There might be a relatively high density of archaeological sites in this area and likely sites of high significance such as longer-term campsites given the resources (sea mammals) available; longer term campsites next to areas with high availability of resources are typically more complex and of higher significance. The proposed windfarm at Meliadine is likely a lower risk location in terms of archaeological site disturbance given its distance from the coast. There are some archaeological sites that have already been identified near the Meliadine site, but which can be avoided during the construction of the windfarm.



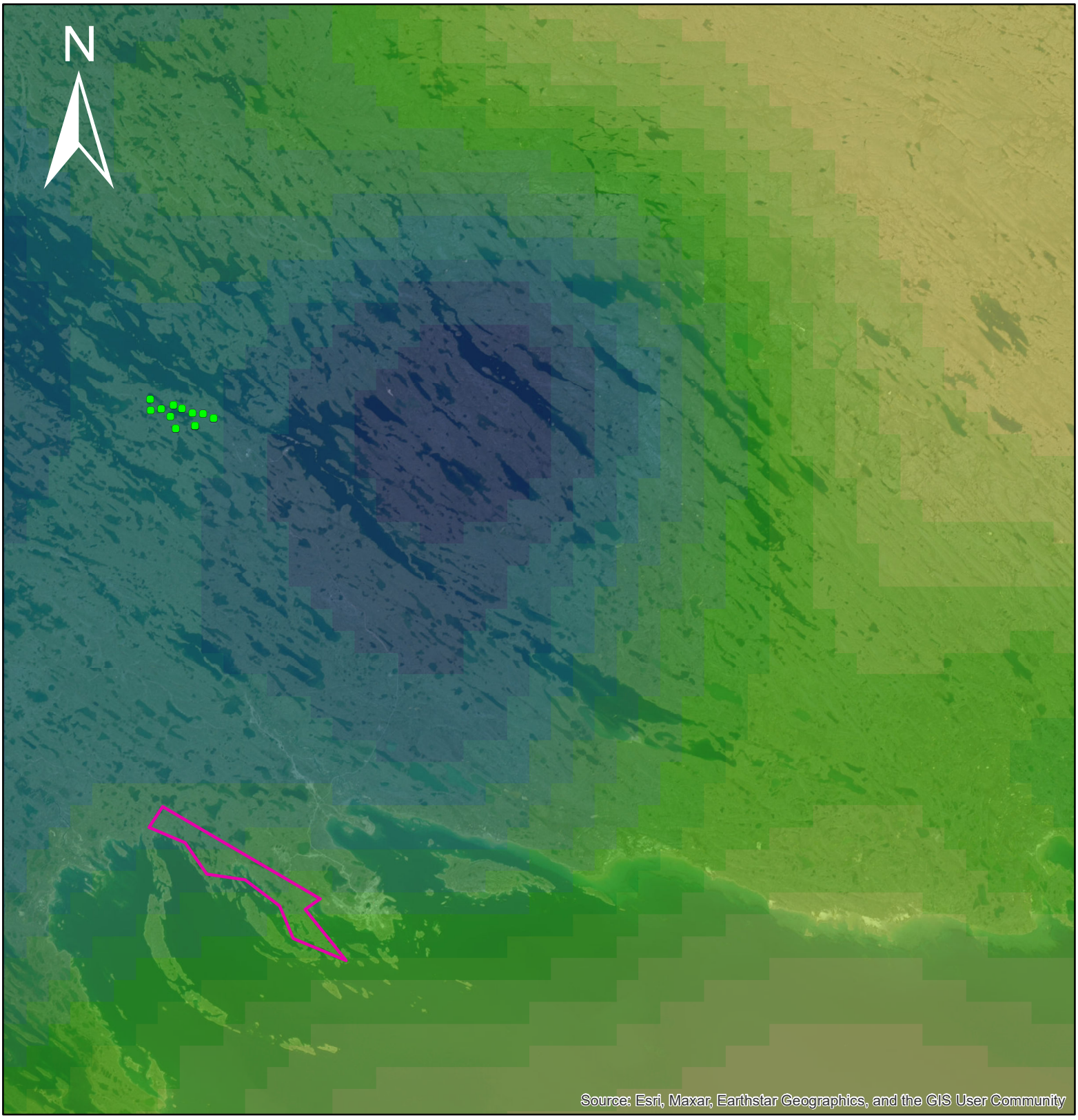
Legend

- Proposed Wind Turbines - Meliadine Site
- Subblu Area
- Lowest to Highest Number of Species Harvested

0 8 16 Kilometers

Figure 14: Heat Map of Multi-Species Harvested in the Region

Datum: NAD83 Projection UTM Zone 15



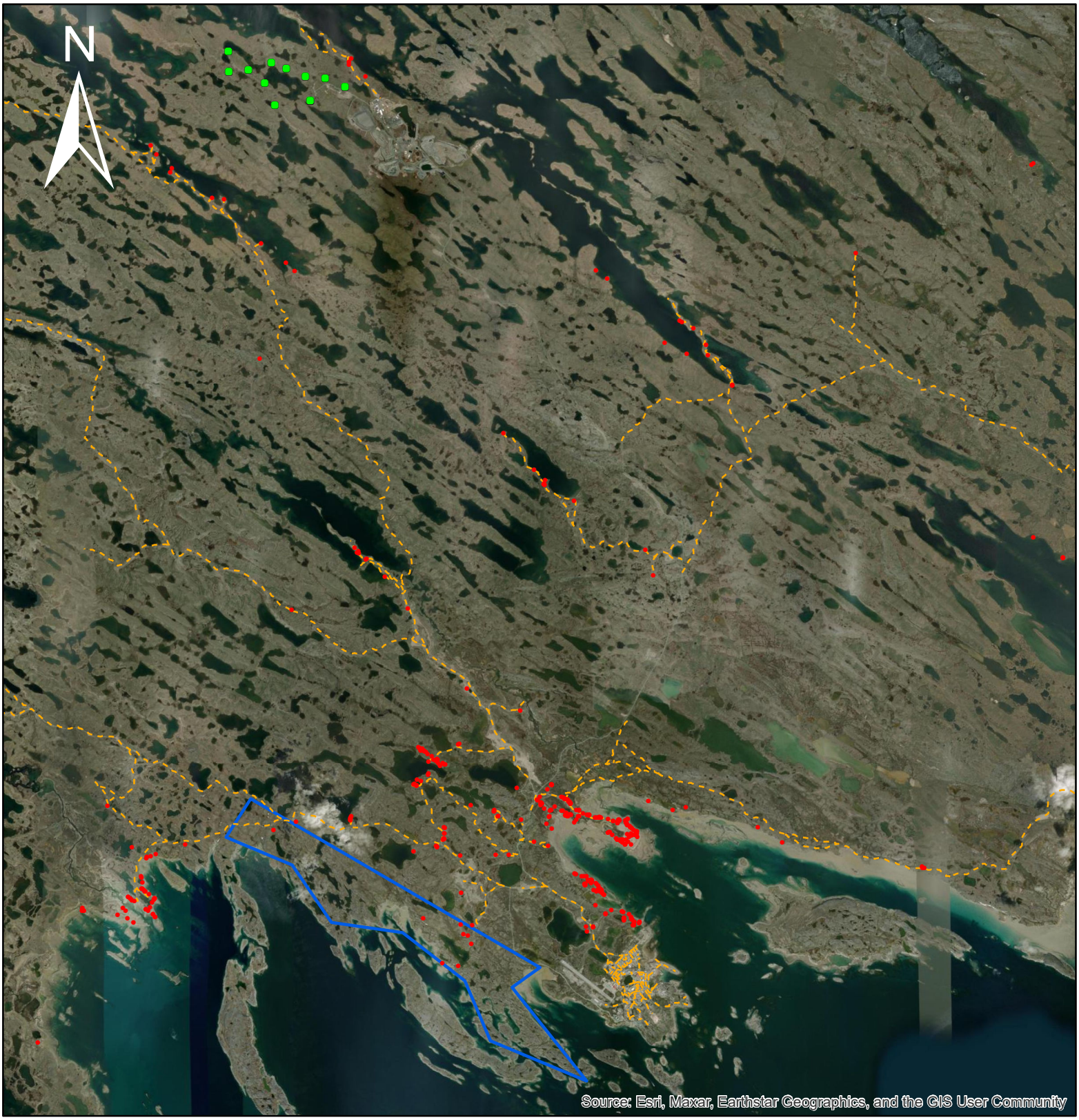
Legend

- Proposed Wind Turbines - Meliadine Site
- Subblu Area
- Lowest to Highest Concentration of Caribou Harvested

0 8 16 Kilometers

Figure 15: Heat Map of Caribou Harvesting in the Region

Datum: NAD83 Projection UTM Zone 15



Legend

- Proposed Wind Turbines -Meliadine Site
- Subblu Area
- Recreational Trails
- Regional Cabins

0 4.5 9 Kilometers

Figure 16: Regional Cabins and Trails

Datum: NAD83 Projection UTM Zone 15

2.3 TECHNOLOGICAL CONSTRAINTS

2.3.1 Wind Direction, Wind Velocity, and Terrain Evaluation

Some important factors to consider when choosing the location of the windfarm is the wind direction and velocity, as well as the terrain on which the wind turbines would be placed on. An unobstructed exposure to north-western prevailing winds in the area is critical in determining the layout of the wind turbines. In addition, it is important to place the wind turbines on solid ground to ensure their secure installation as well as to have a 500m spacing between the wind turbines. Furthermore, easy access to the turbines is essential not only for their installation but also for their maintenance.

Currently the proposed location of the windfarm near the Meliadine site, has taken these factors into account to maximize the energy output and ensure they are placed on high points and solid ground. Furthermore, having the wind turbines located next to the mine facilitates troubleshooting as there are qualified people and equipment in closer proximity.

A preliminary evaluation determined that the Subblu area would be an acceptable location to install the wind turbines in terms of terrain and wind availability, however, it is to be noted that power will be lost through energy transportation from the Subblu area to the Meliadine mine site.

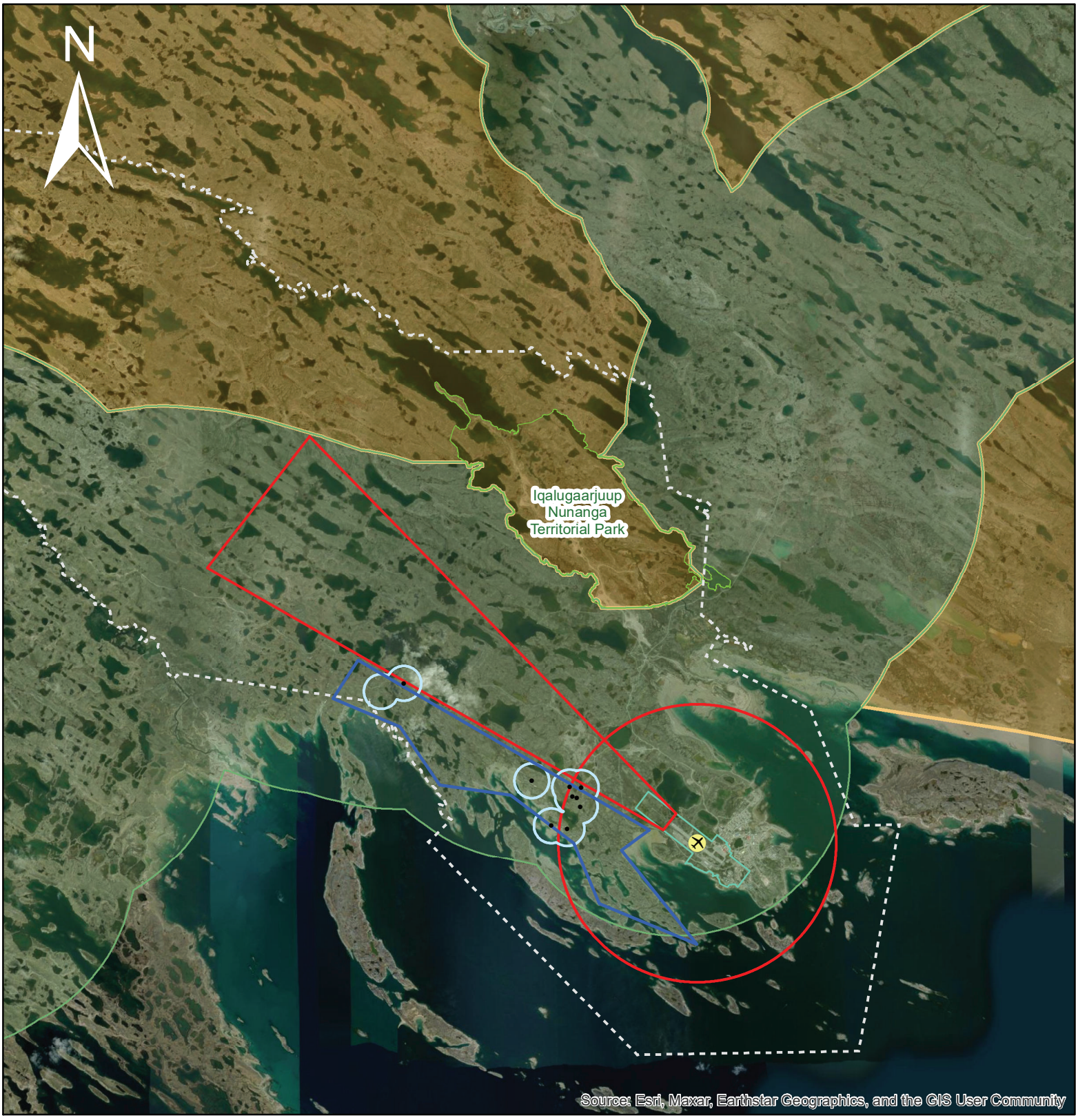
2.4 RESTRICTED ZONES

Restricted zones also need to be considered when choosing the location of the windfarm. The windfarm is required to be at least 500m away from infrastructures, which is the case of the current proposed wind turbine placement near the Meliadine site.

The suggested Subblu area is near the airport, therefore the restricted buffer zone defined by the airport needs to be taken into consideration in addition to the 500m buffer away from infrastructures. As seen in Figure17 there is a 4km radius around the airport and 15km length polygon from the end of the airstrip that outlines the restricted airport buffer zone, as defined by the Transport Canada Airport Zoning Regulations of the Rankin Inlet Airport. A preliminary meeting between Agnico Eagle and Transport Canada took place on May 4, 2023 to determine the feasibility of installing a windfarm near the airport, and understanding the restrictions that may be applied. Although it is feasible to install the wind turbines in the Subblu area outside the restricted zones, it was suggested by Transport Canada that it would be more prudent to install the windfarm near the Meliadine site to decrease the risk of aircraft collision, as there are multiple aircrafts that come and leave the airport daily at the Rankin Inlet airport, compared to the Meliadine site where no airplanes come within close proximity.

In addition to the airport buffer zone, a 500m clearance from other infrastructures and cabins is also required, limiting furthermore the area accessible to install the wind turbines.

It is to be noted, that the Caribou “Post-Calving” and “Kivalliq-Manitoba Linear Infrastructure” areas have been identified as conditional land use areas where restrictions on construction would apply should the Draft Nunavut Land Use Plan be adopted by the signatories.



Legend

- Subblu Area
- Subblu Cabin Locations
- Airport Reference Point
- Rankin Inlet Airport Boundary
- Cabin Buffer Zones
- Caribou Post-Calving Zone
- Airport Restricted Zone
- Kivalliq-Manitoba Linear Infrastructure Zone
- Municipal Boundary
- Territorial Park

0 4.5 9 Kilometers

Figure 17: Restricted Buffer Zones in the Subblu Area

Datum: NAD83 Projection UTM Zone 15

2.5 COST

To make this project feasible, the cost required to install the windfarm needs to be attainable. Having the wind turbines near the Meliadine site will reduce the cost associated with the installation of long electrical cables that would transport power to the mine site, which would be the case if the windfarm was located in the Subblu area. The power lines could add a 30 to 40% cost increase which could make the project non-feasible.

3 PREFERED WINDFARM LOCATION

Based on the criteria considered and presented in this memo, the preferred location to install the windfarm is near the Meliadine mine. The table below compares the Subblu area and the Meliadine mine in terms of these criteria.

	Meliadine		Subblu	
Environmental Impact:				
Impact on soil and vegetation	More advantageous Fewer new roads constructed	✓	Less advantageous	
Impact on air quality	Less advantageous		More advantageous Slightly less dust emissions during construction.	✓
Impact on wildlife	More advantageous Similar impact on caribou. Smaller impact on raptor activity.	✓	Less advantageous	
Social Impact: Traditional land use and cabin disturbance	More advantageous Similar impact on species harvesting. Smaller disturbance to cabin inhabitants.		Less advantageous	
Technological Constraints: Wind direction, wind velocity and soil stability	More advantageous Less power lost from energy transportation.	✓	Less advantageous	
Restricted Zones	More advantageous Smaller risk of aircraft collision and fewer restricted zones.	✓	Disadvantageous	
Cost	More advantageous 30 to 40% less expensive due to fewer and shorter power lines.	✓	Disadvantageous	