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Agnico Eagle Mines Limited

Hope Bay Mine

2024 Wildlife Mitigation and Monitoring Program Compliance Report

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EXECUTIVE SUMMARY

Wildlife mitigation and monitoring requirements for the Hope Bay Mine (the Mine) are included in the Doris Project Certificate No. 003 (Nunavut Impact Review Board [NIRB] 2016, Amendment 002), the Madrid-Boston Project Certificate No. 009 (NIRB 2018), and the Framework Agreement with the Kitikmeot Inuit Association (KitIA; the Framework Agreement 2015). Monitoring activities are summarized in the Wildlife Mitigation and Monitoring Program Plan (WMMP), which is revised regularly.

The Mine is currently in Care and Maintenance status with advanced exploration activities. Madrid-Boston Final Environmental Impact Statement (Madrid-Boston FEIS) predictions assess steady state operations, and do not consider Care and Maintenance activities and/or an active exploration program. To this end, with the Mine presently in Care and Maintenance, current activities and observed effects are not comparable to steady state operations, as assessed in the Madrid-Boston FEIS.

In 2024, monitoring data were collected, as outlined in the WMMP (Agnico Eagle Mines Limited 2023). Results from the 2024 Wildlife Mitigation and Monitoring Program (hereafter referred to as the Program) are summarized in Table 1.

TABLE 1 SUMMARY OF THE 2024 WILDLIFE MITIGATION AND MONITORING PLAN (WMMP) COMPLIANCE REPORT RESULTS

Program Component	Reason for Program	Results	Comparison to Terms and Conditions, Predictions, and Program Objectives	Report Section
Habitat Loss	Addresses commitments in the WMMP (Agnico Eagle Mines Limited 2023)	• The total habitat loss in 2024 was 15.51 ha for a cumulative total of 159.67 ha overall. This is 3.4% of the approved PDA. • Additions to the Mine Footprint included new exploration tracks in the Madrid area and early work activities in the Doris area. • Habitat loss was <0.1% of the suitable habitat available in the Madrid-Boston FEIS RSA for caribou, muskox, grizzly bear, and wolverine. Habitat loss was 0.36% or less of all suitable habitat available in the Madrid-Boston FEIS LSA for upland breeding birds, waterbirds, and short-eared owls.	• The Madrid-Boston FEIS predicted a negligible magnitude effect of habitat loss for caribou, grizzly bear, and wolverine, and a low magnitude effect for upland breeding birds, waterbirds, and raptors. • The magnitude of habitat loss in 2024 is 3.4% of the Madrid-Boston FEIS PDA. Hence, the conclusions of the Madrid-Boston FEIS remain valid.	2.1
Road Traffic Monitoring	Addresses commitments in the WMMP (Agnico Eagle Mines Limited 2023) and Project Certificate Term and Condition 20 (NIRB 2018)	• The daily and monthly road traffic in 2024 was summarized between Roberts Bay and Doris/Madrid North and between Doris and Madrid North. Hauling traffic included trips in the Madrid area. • Average daily traffic from Roberts Bay to Doris (wildlife camera 18) and between Doris and Madrid North (camera 35) was summarized during the 3 months in which data was available. Daily average transits between Doris and Madrid exceeded Madrid-Boston FEIS predictions in June and August 2025. Daily average transits between Doris and Madrid North were below Madrid-Boston FEIS predictions. The traffic is attributed to exploration, and care and maintenance activities.	• Traffic levels exceeded daily average predictions between Roberts Bay and Doris. However, these did not occur in two consecutive months and as such, no additional evaluation of wildlife protection measures is required, and also reflect care and maintenance and exploration traffic, which is not part of Madrid-Boston FEIS predictions. Traffic levels between Doris and Madrid North were below predictions from the Madrid-Boston FEIS.	2.2
Helicopter and Fixed-Wing Flight Monitoring	Addresses commitments in the WMMP (Agnico Eagle Mines Limited 2023) and Project Commitment #GN-60 from Project Certificate No. 009 (NIRB 2018)	• Helicopter trips around Boston, Doris, and between Boston and Doris were summarized from 2024 flight records. • Helicopter trips between Boston and Doris, and around Boston occurred far below maximum frequencies predicted in the Madrid-Boston FEIS. Daily maximum activity in the Doris area was higher than predicted in the Madrid-Boston FEIS. • Fixed-wing aircraft flights occurred on average at 31% of the frequencies modelled for noise disturbance in the Madrid-Boston FEIS.	• The majority of helicopter and fixed-wing aircraft flight traffic levels were below levels predicted in the Madrid-Boston FEIS. • Helicopter traffic in the Doris area was higher than predicted maximums because of the Madrid drilling program; however, this exploration program was not included in the Madrid-Boston FEIS. To prevent impacts to wildlife, helicopters maintained 300 m vertical and 600 m horizontal separation (including starts and takeoffs) from caribou and muskox.	2.3
Snowbank Height Monitoring	Addresses Project Commitment #GN-49 from Project Certificate No. 009 Term and Condition 20 (NIRB 2018)	• Snowbank heights across all years of monitoring (2020–2023) indicate that the AWR has been consistently well managed for wildlife passage across all years of monitoring (ERM 2024).	• The snowbank monitoring program has been discontinued, following discussion of monitoring results at the 2024 IEAC meeting.	2.4
Noise Monitoring	Project Commitment Term and Condition 4 (NIRB 2018) and Final Hearing Commitment #GN-41 (Appendix B in Project Certificate No. 009)	• In 2024, noise monitoring was completed and summarized for 32 instances of blasting. • The results were inconsistent and impacted by ambient noise at site.	• The Madrid-Boston FEIS predicted that 96 Lpeak dBZ will not exceed at 2,800 m from the location of the blast. The results could not be used to confirm that the overpressure value of 96 Lpeak dBZ will not exceed at 2,800 m from the location of the blast. • Prior to blasting, prechecks were completed and there were no instances of caribou observed within line of sight out to 2.8 km of the blasting point. • The inconsistent results of the monitoring suggest that a local monitoring approach would be more effective to determine impacts to caribou at the Mine.	2.5
Construction Management	Addresses commitments in the WMMP (Agnico Eagle Mines Limited 2023)	• Wildlife residence (bird nests and dens) preclearing surveys were completed in 2024, as vegetation clearing / ground disturbance activities took place. • Three active and one inactive bird nest were found, which did not require mitigation (i.e., nest buffer), as they were outside of the vegetation clearing / ground disturbance areas. No dens were observed.	• Wildlife residence preclearing surveys followed commitments in the WMMP (Agnico Eagle Mine Limited 2023). No wildlife residences were impacted by vegetation clearing or ground disturbance activities.	2.6

Program Component	Reason for Program	Results	Comparison to Terms and Conditions, Predictions, and Program Objectives	Report Section
Facilities Camera Monitoring	Addresses Project Term and Condition 25 (NIRB 2016; Amendment 002)	• A total of two grizzly bear events were recorded at facility cameras. One event consisting of three individuals occurred at the ERM Fish Fence. The remaining event was of a lone adult traversing the TIA. • There were 16 events of caribou detections at specific monitoring cameras. This includes three events at crossing ramps and an additional 13 events at the TIA. However, caribou do not appear attracted to the TIA, as indicated by the low number of caribou events relative to the rest of the Mine.	• The Madrid-Boston FEIS predicted bears and wolverine would be attracted to the site at a "low" magnitude. No wolverines or bears were observed on the Waste Management Facility cameras in 2024, indicating grizzly bears and wolverines are not generally attracted to the waste site; therefore, current mitigation is effective, and the Madrid-Boston FEIS prediction is valid. • Events do not appear to indicate an attraction to the TIA specifically. No wolverine or muskox were recorded on cameras at the TIA. The overall low levels of wildlife recorded indicates that wildlife is seldom using the TIA area.	3.4 to 3.8 (Results within each Section)
Wildlife Interactions	Addresses Project Term and Condition 25 (NIRB 2016; Amendment 002); Framework Agreement Schedule 3.1; J. Wildlife; and Items 2 and 7	• In 2024, one caribou interaction occurred at the Mine. On July 20, 2024, two caribou were identified within Quarry D and the blast was postponed. As the caribou remained in the vicinity the following day and posed a safety concern, they were successfully deterred from the blasting area using a human line and drone. • In 2024, four grizzly bear interactions occurred at the Mine site. Two grizzly bears entered the core shack area, and were deterred using bear bangers and a drone. A grizzly bear was observed near drill 4 and required helicopter action to deter it, as it posed a safety risk to personnel. A grizzly bear was observed at the Vent Raise and a drone was flown over during monitoring of the grizzly bear, causing the grizzly bear to slightly move away (the intention was not to deter the bear, only monitor it). Lastly, a bear had to be deterred using a truck and a helicopter because it posed a safety risk to employees servicing wildlife cameras in the Roberts Bay area.	• Attraction to the Mine was predicted as low in the Madrid-Boston FEIS for grizzly bear and wolverine due to smells associated with the camp. There were four grizzly bear interactions and no wolverine interactions in 2024. Grizzly bears were all successfully deterred. • The predictions of the Madrid-Boston FEIS regarding attraction to the Mine remain valid.	3.4 to 3.11 (Results within each Section)
Wildlife Incidents	Addresses Project Term and Condition 25 (NIRB 2016; Amendment 002); Framework Agreement Schedule 3.1; J. Wildlife; and Items 2 and 7	• There were no wildlife incidents recorded in 2024.	• Direct mortality of raptors and upland birds was predicted as a low magnitude effect at the extent of the PDA.	3.4 to 3.11 (Results within each Section)
Wildlife Mortalities	Addresses Project Term and Condition 23 (NIRB 2018) and Term and Condition 25 (NIRB 2016; Amendment 002); Framework Agreement Schedule 3.1; J. Wildlife; and Items 2 and 7	• There were two wildlife mortalities, both involving non-VEC species: two Arctic ground squirrels were found deceased on Windy Road due to vehicle collisions.	• Wildlife mortalities were predicted to be negligible for all VECs. The predictions of the Madrid-Boston FEIS remain valid.	3.4 to 3.11 (Results within each Section)
Federal or Territorial Species at Risk	-	• There were 11 federal and/or territorial species at risk observed at the Mine in 2024, including: ◦ Beverly/Ahiak herd, and Dolphin and Union herd caribou (barren-ground caribou); ◦ Grizzly bear; ◦ Wolverine; ◦ Four upland bird species: American Golden-Plover, Hoary Redpoll, Red-necked Phalarope, and Semipalmated Plover; ◦ Two waterbird species: Common Eider and King Eider; ◦ Two raptor species: Golden Eagle and Short-eared Owl; and ◦ Ringed seal.	• Results of monitoring activities for these species are summarized in their respective sections.	Caribou—3.4 Grizzly bear—3.6 Upland breeding birds—3.9 Raptors—3.11

Program Component	Reason for Program	Results	Comparison to Terms and Conditions, Predictions, and Program Objectives	Report Section
Caribou Kernel Density Analysis of Beverly/ Ahiak Calving Range	Addresses commitments in WMMP (Agnico Eagle Mines Limited 2023)	• Collar data from the Beverly and Ahiak subpopulations were analyzed for their core calving range (50% kernel density) and the 95% kernel density calving range. • Neither the Beverly or Ahiak core calving ranges overlapped with the Study Area in 2024. Generally, the calving ranges were consistent with previous years (2002–2023), with some portions of both calving areas varying in their spatial extent.	• The Beverly and Ahiak populations calving grounds have shown variation between years, but the core areas remain consistent and do not overlap the Study Area.	3.4
Caribou Kernel Density Analysis of Dolphin and Union Winter Range	Addresses comments on 2016 Compliance Report (ERM 2017)	• Collar data from the Dolphin and Union herd were analyzed for their core (50% kernel density) and 95% kernel density winter range. • Neither the core winter range nor 95% winter ranges overlapped with the Study Area in 2024. The core winter range was largely similar to the long-term range, while the 95% range appeared to occur more substantially on west side of Bathurst Inlet, into the Coronation Gulf, and on Killinik (Victoria Island).	• The Dolphin and Union herd winter range has shown some variability in 2024, but the core areas remain consistent and do not overlap the Study Area.	3.4
Wildlife Camera Monitoring—Caribou	Addresses commitments in WMMP (Agnico Eagle Mines Limited 2023)	• There were 234 caribou events recorded in the Doris and Madrid areas during the recent monitoring period. These primarily occurred in the months of June and July, which contained over 75% of total events. • Caribou events were most commonly observed in the treatment zone, which is consistent with previous years.	• The Madrid-Boston FEIS predicted potential minor effects on caribou due to change in movement and behaviour from avoidance of infrastructure within <1–10 km^2 of the Mine, and possible avoidance of the Hope Bay Belt, a 3–4 km wide band of low-lying sedge meadows and rocky dykes. • Camera data suggest that caribou are not avoiding the Mine.	3.4
Wildlife Camera Monitoring—Muskox	Addresses commitments in WMMP (Agnico Eagle Mines Limited 2023)	• Detections of muskox by wildlife cameras continue to be rare. There were nine muskox events recorded in the Doris and Madrid areas during the recent monitoring period. These primarily occurred in the month of June, which contained over 50% of the total events. • Over 50% of total events were observed in the Control zone, with the remaining events occurring in the Treatment zone.	• The Madrid-Boston FEIS predicted potential minor effects on muskox due to change in movement and behaviour from avoidance of infrastructure around the Mine areas. • Muskox are rarely recorded in the Study Area. • The muskox camera data do not indicate avoidance of the Mine. The conclusions of the Madrid-Boston FEIS remain valid.	3.5
Wildlife Camera Monitoring—Grizzly Bear	Addresses commitments in WMMP (Agnico Eagle Mines Limited 2023)	• There were 33 grizzly bear events recorded in the Doris and Madrid areas during the recent monitoring period. These primarily occurred in the month of September, approximately 40% of the total events. • Approximately 40% of total events were observed in both the Treatment and ZOI zones, with the remaining approximately 20% occurring in the Control zone.	• The Madrid-Boston FEIS predicted a potential minor effect due to grizzly bear altering their movement and behaviour to avoid the Mine site. • The conclusions of the Madrid-Boston FEIS remain valid based on this monitoring method.	3.6
Wildlife Camera Monitoring—Wolverine	Addresses commitments in WMMP (Agnico Eagle Mines Limited 2023)	• There were two wolverine events recorded in the Doris and Madrid areas during the recent monitoring period. Both events occurred on October 1, 2023, and occurred in the Control zone. • Wolverine events remained low in 2024, which is consistent with historical results.	• The Madrid-Boston FEIS predicted potential minor effects on movement and behaviour of wolverine, including potential disruption of movement at the scale of the PDA or attraction to Mine infrastructure. • Using the criteria for residual effects ratings from the Madrid-Boston FEIS, the residual impact on wolverines remains the same (categorized as a low magnitude, medium duration, and reversible, not significant, effect).	3.7
Nest Predator Monitoring	Addresses commitments in WMMP (Agnico Eagle Mines Limited 2023)	• Based on the camera monitoring program, there is no evidence that nest predators are more common closer to the Mine site (ERM 2024).	• The nest predator monitoring program has been discontinued in 2024, after discussion of the program results at the 2024 IEAC meeting.	3.8
Upland Breeding Birds (Regional and TIA PRISM Surveys)	Addresses commitments in WMMP (Agnico Eagle Mines Limited 2023); and Project Certificate Terms and Conditions 25 (NIRB 2016; Amendment 002) and 26 (NIRB 2018)	• Regional upland bird surveys following the PRISM protocols were completed in 2024. • Upland bird surveys following PRISM protocols were completed at the TIA.	• Regional upland bird monitoring was completed in 2024 to contribute to a regional Arctic monitoring initiative by the CWS. • No species of conservation concern were detected during the TIA upland bird surveys.	3.9

Program Component	Reason for Program	Results	Comparison to Terms and Conditions, Predictions, and Program Objectives	Report Section
Waterbirds (Regional and TIA Shoreline Surveys)	Addresses commitments in WMMP (Agnico Eagle Mines Limited 2023); and Project Certificate Terms and Conditions 25 (NIRB 2016; Amendment 002) and 26 (NIRB 2018)	• Regional waterbird shoreline surveys were completed at various distances from the Mine (Treatment and Control sites). Overall, the number of species were similar between Control and Treatment, although Treatment sites had a higher range of waterbird abundance. • TIA waterbird shoreline surveys were completed in 2024 at Treatment (TIA) and Control (Ogama Lake) sites. Overall, the number of species between Treatment and Control sites were similar, but the abundance of birds was higher at Treatment sites.	• Regional waterbird monitoring is scheduled to occur every 2 years. These surveys were completed for the first time in 2022. As multiple years of monitoring are necessary to establish broader trends in waterbird activity, none are presented at this time. • No species of conservation concern were detected during the TIA shoreline surveys.	3.10
Waterbirds (TIA Water Quality Monitoring)	Addresses commitments in WMMP (Agnico Eagle Mines Limited 2023) and Project Term and Condition 26 (NIRB 2018)	• Water quality at the TIA was monitored weekly and did not exceed relevant CCME guidelines.	• Water quality did not exceed relevant CCME guidelines, so no ecological risk assessment was required.	3.10
Raptors	Addresses commitments in WMMP (Agnico Eagle Mines Limited 2023) and Project Certificate Term and Condition 27 (NIRB 2018)	• No construction of the Madrid North area occurred in 2024 and as such, no preconstruction surveys for raptors were completed.	• Preconstruction monitoring in Madrid North was not necessary in 2024.	3.11
Marine Mammals	Addresses commitments in WMMP (Agnico Eagle Mines Limited 2023); and Project Certificate Terms and Conditions 30, 31, 32, and 33 (NIRB 2018)	• The Roberts Bay marine mammal program was completed for the second year in 2024. One ringed seal was recorded and did not display behaviour changes as a result of shipping activity. • No marine wildlife incidents were reported along shipping routes. Vessel tracks from 2024 were summarized to confirm that mitigations for setbacks and designated routes were followed. Several marine mammal sightings were reported along shipping routes from the three vessels servicing the Mine.	• The monitoring program and shipping procedures for marine mammals were completed in accordance with the procedures detailed in the Shipping Management Plan.	3.12
Plants	Addresses commitments in WMMP (Agnico Eagle Mines Limited 2023); Project Term and Condition 17; and Commitment #GN-04 (NIRB 2018)	• Invasive plant surveys were completed in 2023 and were therefore not completed in 2024.	• No specific predictions around effects on plants were included in the Madrid-Boston FEIS. • Monitoring for invasive plants occurs every 5 years and will occur again in 2029.	3.13

Notes:
< = less than; % = percent; dBZ = Z-weighted decibel; ha = hectare; km = kilometre; km^2 = square kilometre; Lpeak = peak sound overpressure level; m = metre
AWR = All-Weather-Road; CCME = Canadian Council of Ministers of the Environment; CWS = Canadian Wildlife Service; FEIS = Final Environmental Impact Statement; IEAC = Inuit Environment Advisory Committee; LSA = Local Study Area; NIRB = Nunavut Impact Review Board; PDA = Project Development Area; PRISM = Program for Regional and International Shorebird Monitoring; RSA = Regional Study Area; TIA = Tailings Impoundment Area; VEC = Valued Ecosystem Component; WMMP = Wildlife Mitigation and Monitoring Plan; ZOI = Zone of Influence

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ACRONYMS AND ABBREVIATIONS

<	less than
>	more than
%	percent
Agnico Eagle	Agnico Eagle Mines Limited
AWR	All-Weather-Road
CCME	Canadian Council of Ministers of the Environment
cm	centimetre
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CWS	Canadian Wildlife Service
dBZ	Z-weighted decibel
ECCC	Environment and Climate Change Canada
ELC	Ecological Land Classification
ERM	ERM Consultants Canada Ltd.
FEIS	Final Environmental Impact Statement
GIS	Geographical Information System
GN DOE	Government of Nunavut Department of Environment
GPS	Global Positioning System
ha	hectare
HOL	Height of Land
IEAC	Inuit Environment Advisory Committee
KitIA	Kitikmeot Inuit Association
km	kilometre
km/hr	kilometre per hour
km^2	square kilometre
Lpeak	peak sound overpressure level
LSA	Local Study Area
m	metre
m^2	square metre
m^3	cubic metre
mg/L	milligram per litre
Mine, the	Hope Bay Mine, including the Doris North Project and the Phase 2 expansion of Madrid and Boston

Miramar	Miramar Mining Corporation
misc.	miscellaneous
MOU	Memorandum of Understanding
N	north
NIRB	Nunavut Impact Review Board
NW	northwest
PDA	Project Development Area
Phase 2 Project, the	Phase 2 development of the Madrid and Boston deposits
PRISM	Program for Regional and International Shorebird Monitoring
Program, the	Wildlife Mitigation and Monitoring Program
Project Certificate, the	Phase 2 Hope Bay Belt Project Certificate Nunavut Impact Review Board No. 009; issued November 18, 2018
Report, the	Wildlife Mitigation and Monitoring Plan Compliance Report
RSA	Regional Study Area
SARA	*Species at Risk Act*
SOP	Standard Operating Procedure
SW	southwest
t	ton
TEM	Terrestrial Ecosystem Mapping
TIA	Tailings Impoundment Area
TLR	Tail Lake Road
TMAC	TMAC Resources Inc.
UD	utilization distribution
VEC	Valued Ecosystem Component
WMMP	Wildlife Mitigation and Monitoring Plan
ZOI	Zone of Influence

GLOSSARY

COSEWIC	Committee on the Status of Endangered Wildlife in Canada—A federal committee of experts that assesses and designates the level of threat to wildlife and vegetation species in Canada.
Environment Personnel	Onsite environment technicians, wildlife biologists, and environment contractors.
Framework Agreement	Framework Agreement between the Kitikmeot Inuit Association and Agnico Eagle.
Hectare (ha)	10,000 m^2 or 0.01 km^2 or 2.47 acres.
Home Range	The area used by a wildlife species for living and moving. Home ranges can represent annual ranges (e.g., for animals, such as caribou and grizzly bear) or seasonal ranges (e.g., for birds).
LSA	Local Study Area. The permitted Madrid-Boston footprint of the Mine plus a buffer averaging 1,000 m radius around infrastructure and roads.
Migration	The regular seasonal or daily movement of animal populations to and from different areas, often considerable distances apart. Migration often occurs in corridors between preferred habitat types.
Migratory Birds Convention Act (1994)	*Migratory Birds Convention Act* (1994).
Mine, the	Hope Bay Mine, including the Doris North Project and the Phase 2 expansion of Madrid and Boston.
PDA	Project Development Area. The permitted Madrid-Boston footprint of the Mine plus a buffer averaging 250 m radius around infrastructure and 100 m radius around roads.
Phase 2 Project, the	Phase 2 development of the Madrid and Boston deposits.
PRISM	Program for Regional and International Shorebird Monitoring. Used to monitor Arctic shorebird populations.
Program, the	Wildlife Mitigation and Monitoring Program. Refers to the current WMMP, the monitoring that occurs, and the associated report for any given year.
Project Certificate, the	Phase 2 Hope Bay Belt Project Certificate Nunavut Impact Review Board No. 009; issued November 18, 2018.
Raptor	Birds of prey, including hawks, eagles, falcons, and owls. Common Raven is considered a functional raptor based on similar nesting preferences to other true raptor species in the Arctic.
Report, the	Wildlife Mitigation and Monitoring Plan Compliance Report.
RSA	Regional Study Area. This is the largest study area around the Madrid-Boston permitted infrastructure. The wildlife RSA encompasses an area large enough to characterize potential effects to species, which may come into contact with the Hope Bay Mine or Mine-related activities, approximately 30 km from Mine infrastructure.

SARA	*Species at Risk Act* (2002)—A Canadian federal statute, which is designed to meet one of Canada's commitments under the International Convention on Biological Diversity. The goal of the Act is to protect endangered or threatened organisms and their habitats. It also manages species that are not yet threatened, but whose existence or habitat is in jeopardy.
Shorebird	Any bird that lives, breeds, or forages on or near the shores of coastal or inland waters; also known as waders of the order Charadriiformes, such as a sandpiper or a plover. It excludes gull species.
TIA	Tailings Impoundment Area. A lake that has been dammed and is the location of the tailings deposition.
TLR	Tail Lake Road. The access road to the TIA.
Upland Breeding Bird	Passerines (with the exception of Common Raven, which is included as a functional raptor), shorebirds, and ptarmigan.
WMMP	Wildlife Mitigation and Monitoring Plan. The WMMP is the official document that outlines the program to be conducted to mitigate and monitor wildlife for the Doris Project.
Waterbird	Umbrella term used to encompass all birds that exclusively use water habitat for foraging, breeding, or staging during the year.
Wildlife Study Area	Wildlife Mitigation and Monitoring Program Study Area.

1. INTRODUCTION

The requirements for the wildlife monitoring program for the Hope Bay Mine (the Mine) are described in the Wildlife Mitigation and Monitoring Plan (WMMP; Agnico Eagle 2023). Agnico Eagle Mines Limited (Agnico Eagle) discusses the WMMP regularly with the Inuit Environmental Advisory Committee (IEAC) and circulates the WMMP to the Kitikmeot Inuit Association (KitIA) and various stakeholders for discussion. The WMMP specifies the activities to be undertaken during the annual Wildlife Mitigation and Monitoring Compliance Program (the Program). This document, the WMMP Compliance Report (the Report), summarizes the results of the Program.

1.1 MINE REQUIREMENTS AND MONITORING OBJECTIVES

1.1.1 MINE WMMP REQUIREMENTS

The wildlife mitigation and monitoring requirements for the Mine are set out in the Doris Project Certificate No. 003 (Nunavut Impact Review Board [NIRB] 2006, 2013, 2016), the Madrid-Boston Project Certificate No. 009 (NIRB 2018), and the Framework Agreement (2015) with the KitIA, as well as commitments made during the review of the Madrid-Boston Project Final Environmental Impact Statement (Madrid-Boston FEIS) associated with each Project Certificate.

The WMMP is designed to assess residual Mine-related effects on the Valued Ecosystem Components (VECs) predicted in the Madrid-Boston FEIS (TMAC Resources Inc. [TMAC] 2017). The Madrid-Boston FEIS identified seven terrestrial wildlife VECs, including caribou (*Rangifer tarandus*), muskox (*Ovibos moschatus*), grizzly bear (*Ursus arctos*), wolverine (*Gulo gulo*), upland breeding birds, waterbirds, and raptors. The Madrid-Boston FEIS predicted the following five residual Mine effects on wildlife VECs, none of which were predicted to be significant and all with negligible or low magnitude (Table 1.1-1):

- Habitat loss;
- Disturbance;
- Disruption of movement;
- Attraction to the Mine; and
- Direct mortality.

TABLE 1.1-1 MAGNITUDE OF MADRID-BOSTON FEIS RESIDUAL IMPACT PREDICTIONS

VEC	Habitat Loss	Disturbance	Disruption of Movement	Attraction	Direct Mortality
Caribou	Negligible	Low	Low	N/A[a]	N/A[a]
Muskox	Low	Low	Low	N/A[a]	N/A[a]
Grizzly Bear	Negligible	Not residual	Low	Low	N/A[a]
Wolverine	Negligible	Not residual	Low	Low	N/A[a]
Upland Breeding Birds	Low	Negligible	N/A[a]	N/A[a]	Low
Waterbirds	Low	Negligible	N/A[a]	N/A[a]	Low

VEC	Habitat Loss	Disturbance	Disruption of Movement	Attraction	Direct Mortality
Raptors	Low	Low	N/A[a]	N/A[a]	Low
Marine Mammals	N/A[a]	N/A[a]	N/A[a]	N/A[a]	N/A[a]
Rare Plants	Low	N/A[b]	N/A[b]	N/A[b]	N/A[b]

Notes:
FEIS = Final Environmental Impact Statement; VEC = Valued Ecosystem Component
[a] Not applicable as effect was not considered a residual effect to terrestrial and/or marine wildlife.
[b] Not applicable effect to plants.

This Report describes the results of the monitoring activities associated with those predictions and VECs, including:

- Habitat loss due to the Mine (Section 2);
- Disturbance and disruption of movement—traffic, helicopter and fixed-wing aircraft, and noise monitoring to confirm estimates used in the Madrid-Boston FEIS (Section 2);
- VEC-specific monitoring (Section 3); and
- Attraction and direct mortality—wildlife use of the Mine site, including any interactions, incidents, and mortalities (Section 3).

The Report also describes monitoring completed to guide adaptive management, such as:

- Construction Management (Section 2.6); and
- Incidental observations (within VEC subsections; Section 3).

The annual Compliance Reports are provided to the NIRB who distributes them to stakeholders, including Environment and Climate Change Canada (ECCC), the Government of Nunavut Department of the Environment (GN DOE), the Canadian Wildlife Service (CWS), and the KitIA for review and comments. The WMMP is updated as needed during the life of the Mine, in part based on these review comments, which is then reflected in this Program.

1.1.2 INCLUSION OF INUIT QAUAJIMAJATUQANGIT

Agnico Eagle is committed to considering and incorporating Inuit Qauajimajatuqangit, or Traditional Knowledge, into all stages of the WMMP, including identification of mitigation measures, monitoring study design, data collection, and follow-up programs. Agnico Eagle includes Traditional Knowledge through the following mechanisms.

- The IEAC was formed under the Mine's Inuit Impact and Benefit Agreement with the KitIA. The IEAC is comprised of Inuit who are Elders and/or active land users with extensive knowledge of wildlife and the environment, and with experience in the Hope Bay study area. Typically, two meetings are held annually with the IEAC to review existing and proposed mitigation and monitoring for wildlife, describe monitoring results to date, discuss adaptive management for wildlife and fish, and gain Inuit perspectives and local knowledge on the Mine site.
- A series of workshops was held with Elders and harvesters familiar with the Mine area prior to the Madrid-Boston FEIS application to review and support the Mine's caribou mitigation measures.

- The Inuit Traditional Knowledge report (Banci and Spicker 2016) has also been reviewed and information regarding trends in VEC species or group populations have been included in Sections 3.4 to 3.11 of this Report.
- The KitIA presents perspectives of Inuit and scientific review when they comment on WMMP Plans and Reports and Madrid-Boston FEIS documents, and during their regular site visits. Examples of incorporation of their input include the construction and monitoring of road crossing structures on the Doris-Windy All-Weather Road (AWR), using incinerators for food waste management to mitigate the attraction of bears, and assistance by land users in selecting the locations for site monitoring cameras. The WMMP and the Report are circulated to the KitIA and IEAC for review and comment.

1.1.3 PROGRAM AUDIT PROCESS

Project Certificate No. 009 Term and Condition 19 requires an audit process for the WMMP to identify updates that may be required (NIRB 2018). Agnico Eagle fulfills this requirement through the submission of annual reports and updated management actions to regulators and the IEAC, and through consultation and discussion at regular meetings with the IEAC and KitIA. In 2024, Agnico Eagle held two IEAC meetings with relevant review as part of the audit process. The specific engagement for this audit process in 2024, the feedback provided, and updates to the WMMP are included in Table 1.1-2.

1.2 PROGRAM COMPONENTS

The WMMP (Agnico Eagle 2023) identifies the monitoring and mitigation programs applicable to the Mine.

Agnico Eagle entered the Mine into Care and Maintenance in February 2022. Care and Maintenance status remained in effect for all developments (Doris, Madrid, and Boston sites) in 2024. Table 1.2-1 outlines the WMMP requirements relevant to the Mine in Care and Maintenance in 2024 and the associated Report section in which they are described.

1.3 PROGRAM STUDY AREA

The 2024 Wildlife Study Area (the Study Area) used a similar area as the Madrid-Boston Project Regional Study Area (RSA; Figure 1.3-1), with some slight extensions to the study area in order to encompass VECs, particularly marine mammals in Roberts Bay. The Doris Study Area used in previous years is also included on Figure 1.3-1 for comparative purposes. The Madrid-Boston RSA is provided on Figure 2.1-1 for comparison.

TABLE 1.1-2 WMMP PROGRAM AUDIT PROCESS RECORDS, 2024

Audit Process	Parties Included	Program Feedback	Program Updates
IEAC Meeting July 3–4, 2024	IEAC, KitIA	IEAC agreed that the snowbank monitoring program can be discontinued based on previous WMMP Compliance Report results.	The snowbank monitoring program will be discontinued and the WMMP will be updated accordingly.
		IEAC agreed to discontinue the nest predator monitoring program, as results have been consistent in showing no evidence that nest predators are attracted to the Mine.	The nest predator monitoring program will be discontinued and the WMMP will be updated accordingly.
		IEAC agreed to keep the cameras around Doris and Madrid, but to complete the camera analysis every 3 years rather than annually.	In accordance with the feedback, no camera analysis was completed in 2024 and the WMMP will be updated to reflect the updated timing of the camera analysis.
		IEAC indicated that the caribou herd identification protocol is working well.	No program update required.
		Snow track surveys were noted as needing to start when operations resume and the IEAC shared ideas on methods to use. It was also raised that a baseline should be established before construction occurs.	The snow track survey section of the WMMP will be updated according to the IEAC program feedback.
IEAC Meeting October 11, 2024	IEAC	No feedback relevant to the WMMP or the Report.	No program update required.

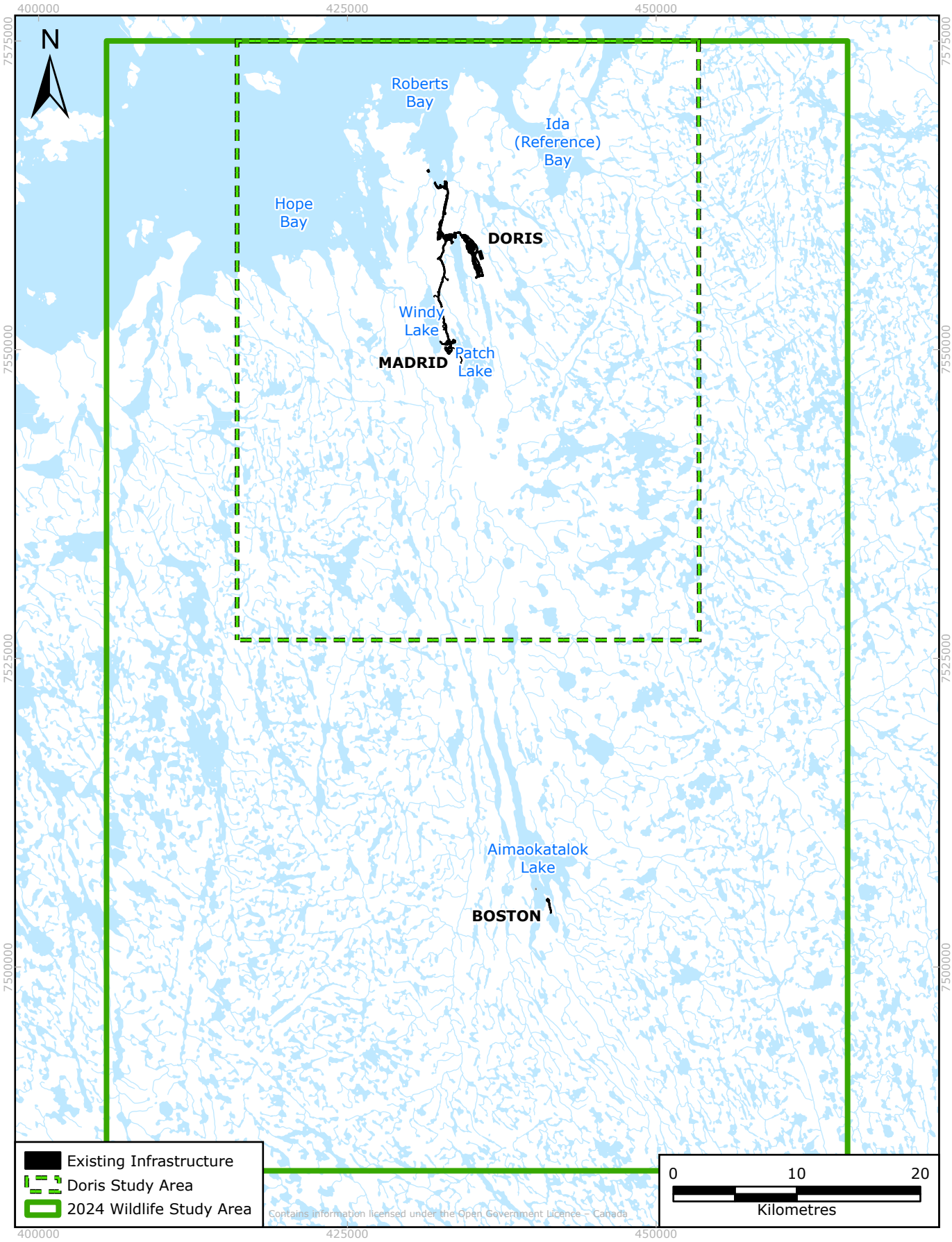
Notes:
IEAC = Inuit Environment Advisory Committee; KitIA = Kitikmeot Inuit Association; WMMP = Wildlife Mitigation and Monitoring Plan

TABLE 1.2-1 WILDLIFE MONITORING PROGRAMS, 2024

Monitoring Program	Relevant Report Section
Infrastructure Development and Activities	
a. Habitat Loss	Section 2.1
b. Traffic Monitoring	Section 2.2
c. Helicopter and Fixed-Wing Aircraft Monitoring	Section 2.3
d. Snowbank Monitoring	Section 2.4
e. Noise Monitoring	Section 2.5
f. Construction Management	Section 2.6
VECs and Other Species Monitoring and Mitigation	
a. Monitoring Methods and Results Common Across VECs	Section 3.2 and 3.3
b. Caribou	Section 3.4
c. Muskox	Section 3.5
d. Grizzly Bear	Section 3.6
e. Wolverine	Section 3.7
f. Nest Predators	Section 3.8
g. Upland Breeding Birds	Section 3.9
h. Waterbirds	Section 3.10
i. Raptors	Section 3.11
j. Marine Mammals	Section 3.12
k. Plants	Section 3.13

Note:
VEC = Valued Ecosystem Component

FIGURE 1.3-1 2024 WILDLIFE STUDY AREA



ERM

CLIENT: Agnico Eagle Mines Ltd.
GIS NUMBER: HB-23-614-01

DATE: 17 March 2025

PROJECTION: NAD 1983 UTM Zone 13N
SCALE: 1:425,000 when printed at 8.5x11

2. HABITAT LOSS AND SITE ACTIVITY MONITORING

2.1 HABITAT LOSS

Direct loss of wildlife habitat may occur through site clearing, infrastructure construction, and facility expansion. The amount of direct habitat loss due to the development and production phases of the Mine has been monitored annually since 2006. There were changes to the Mine Footprint in 2024; therefore, habitat loss was calculated and evaluated against the Madrid-Boston FEIS predictions for loss of suitable habitat for VEC species or groups (Section 2.1.3).

2.1.1 FEIS PREDICTIONS

In the Madrid-Boston FEIS (TMAC 2017), wildlife habitat was predicted to be lost within the Project Development Area (PDA), which extends 500 to 1,500 metres (m) surrounding planned infrastructure. This extent of the PDA allowed future development and operational flexibility. Infrastructure construction was predicted to result in the reduction of existing wildlife habitat. Habitat loss was predicted to not be a significant residual effect, and the magnitude was classified as negligible for caribou, grizzly bear, and wolverine, and low for muskox, upland breeding birds, waterbirds, and raptors. The geographic extent of habitat loss was the PDA for all wildlife VECs.

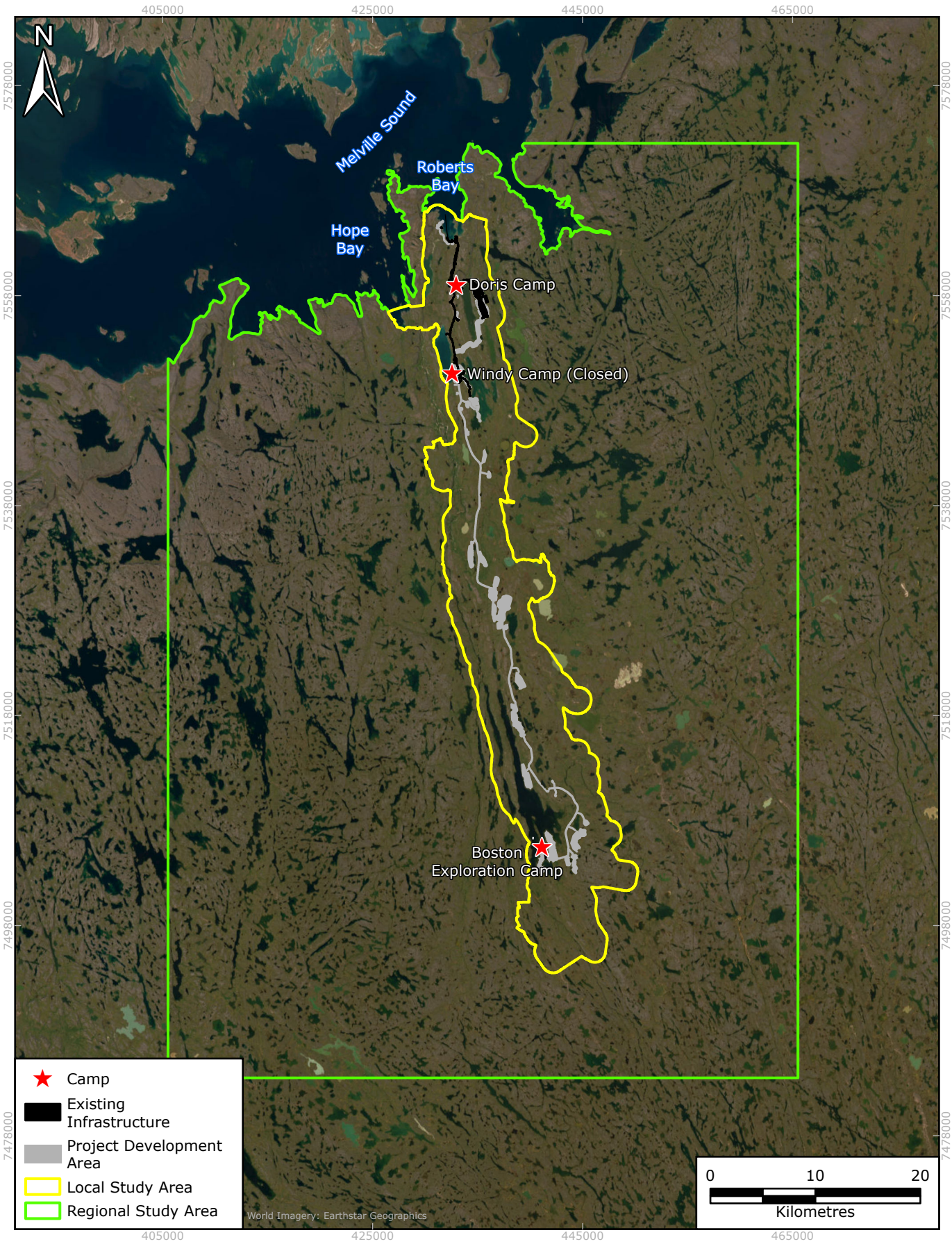
Habitat loss for rare plants was not assessed directly in the Madrid-Boston FEIS (TMAC 2017), but instead was evaluated by determining the loss of special landscape features. Special landscape features include riparian ecosystems, rare or sensitive wetlands, ecosystems that can contain eskers, cliffs, bedrock lichen, and outcrop ecosystems, and beaches and marine intertidal areas. Loss of special landscape features was predicated to be an effect with low magnitude that is not significant and at the geographic scale of the PDA.

2.1.2 METHODS

Habitat loss is evaluated as the direct loss of vegetation communities due to the Mine Footprint. Habitat loss is evaluated annually and is compared to the amount of habitat available within the relevant study area, Figure 2.1-1, and using Ecological Land Classification (ELC) for the Slave Geological Province and Terrestrial Ecosystem Mapping (TEM) ecosystem units.

To evaluate the loss of suitable habitat for VEC species or groups, the loss is expressed as a proportion of available suitable habitat within the relevant study area as determined in the Madrid-Boston FEIS (TMAC 2017). Any loss of special landscape features designated as potential rare plant habitat (i.e., riparian areas, rare wetlands, eskers, cliffs, or marine beaches) is reported directly as number of hectares (ha) lost.

FIGURE 2.1-1 WILDLIFE REGIONAL AND LOCAL STUDY AREAS FOR HOPE BAY MINE



ERM

CLIENT: Agnico Eagle Mines Limited
GIS NUMBER: HB-23-615-02

DATE: 04 April 2025

PROJECTION: NAD 1983 UTM Zone 13N
SCALE: 1:500,000 when printed at 8.5x11

2.1.3 RESULTS AND DISCUSSION

The total habitat lost in 2024 was 15.51 ha, adding to the approximately 144.15 ha previously lost to construction (Figure 2.1-2). Collectively, the Mine Footprint covers 159.66 ha to date, which is 3.4 percent (%) of the assessed PDA in the Madrid-Boston FEIS (4,706 ha, Boston PDA inclusive; TMAC 2017). In 2022 and 2023, the total habitat lost was incorrectly reported as 141.15 ha and should have been reported as 144.15 ha. The incorrectly reported amount was the total habitat loss for upland breeding birds at the Mine site.

Among each of the mammalian VECs, for which habitat loss is evaluated relative to the RSA, less than 0.1% of available suitable habitat within the RSA has been lost due to the Mine to the end of 2024 (Table 2.1-1). With respect to the proportion of suitable habitat for upland bird VECs, for which habitat loss is evaluated relative to the Local Study Area (LSA), habitat loss has accounted for 0.4% or less of suitable habitat to the end of 2024 (Table 2.1-1). No loss of special landscape features designated as potential rare plant habitat occurred.

The magnitude of predicted habitat loss was classified as negligible for caribou, grizzly bear, and wolverine, and low for muskox, upland breeding birds, waterbirds, and raptors (TMAC 2017). The predictions of the Madrid-Boston FEIS (TMAC 2017) remain valid, with respect to the constructed Mine Footprint.

2.2 TRAFFIC MONITORING

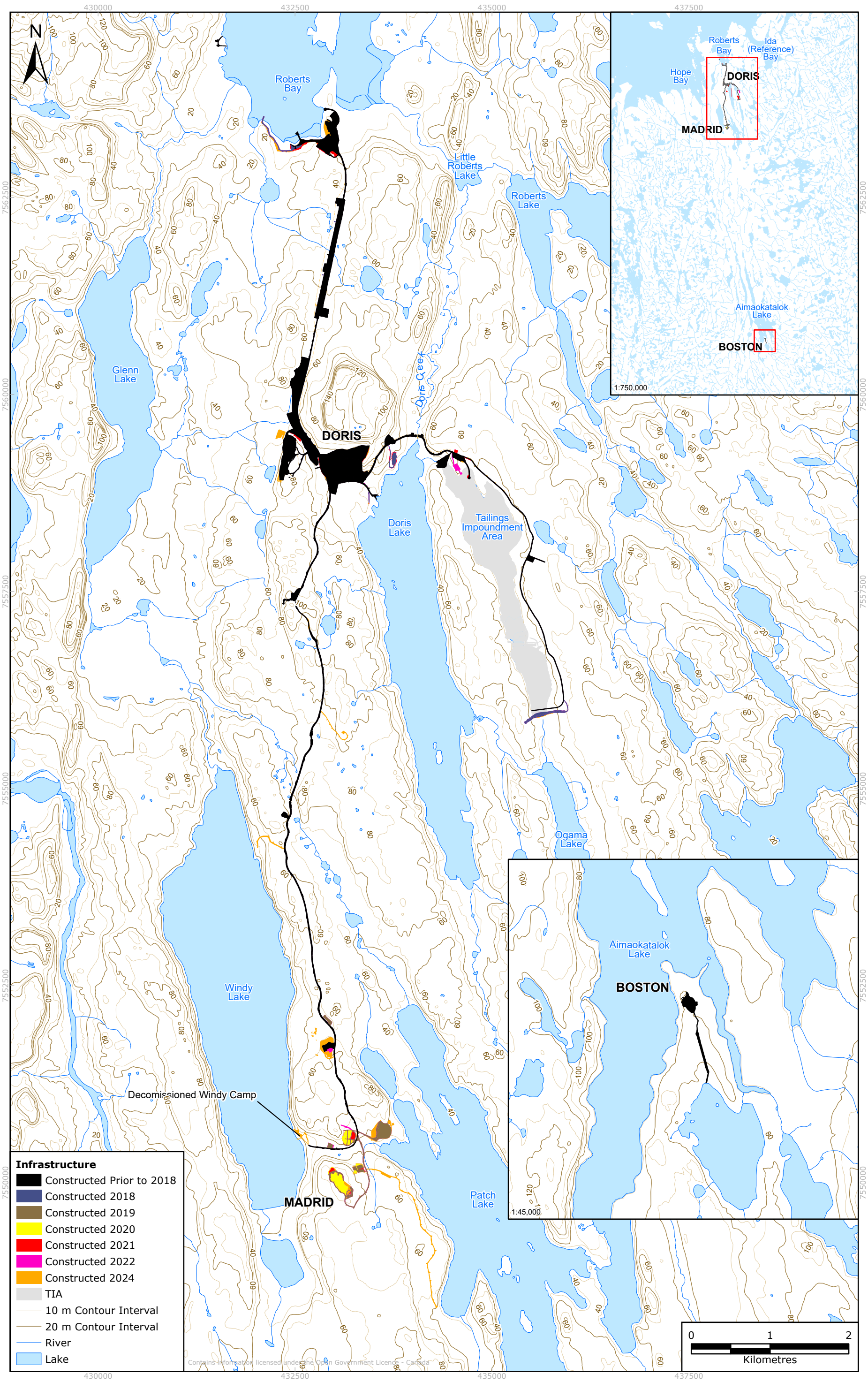
Road traffic is monitored as part of the Madrid-Boston FEIS commitments. Traffic was evaluated in the Madrid-Boston FEIS for its potential to pose a hazard to wildlife crossing roads or due to noise. Mitigation includes conservative speed limits, road signage, and employee training for wildlife avoidance. The WMMP also includes a Road Management Plan, which describes road safety, design, and monitoring practices (Agnico Eagle Mines Limited 2023).

2.2.1 FEIS PREDICTIONS

Peak vehicle traffic between Mine areas (i.e., Roberts Bay, Doris, Madrid, Windy Lake, and [in future years], Boston) was predicted in the Madrid-Boston FEIS (TMAC 2017), and is summarized in Table 2.2-1. Estimates of Peak Years were based on planned Mine development, starting in 2019. However, Madrid and Boston development has been paused, delaying the date estimates presented in the Madrid-Boston FEIS.

Traffic levels are reported in accordance with Project Certificate No. 009 Commitment 20 and Final Hearing Commitment 52 (NIRB 2018).

FIGURE 2.1-2 INFRASTRUCTURE DEVELOPMENT OF HOPE BAY MINE AS OF 2024



ERM

CLIENT: Agnico Eagle Mines Limited
GIS NUMBER: HB-23-615-03

DATE: 04/04/2025

PROJECTION: NAD 1983 UTM Zone 13N
SCALE: 1:45,000 when printed at 11x17

TABLE 2.1-1 HABITAT LOSS BY VEC AT HOPE BAY MINE THROUGH 2024

VEC	Season	Total Habitat Loss		LSA (56,340 ha)			RSA (491,824 ha)		
		Predicted Loss in the 2017 PDA (ha)	Actual Loss to 2024 (ha)	Suitable[a] Area (ha)	Predicted Loss (%)	Actual Loss to 2024 (%)	Suitable[a] Area (ha)	Predicted Loss (%)	Actual Loss to 2024 (%)
Caribou	Summer	3,741	148.9	46,835	8.0	0.3	420,608	0.9	<0.1
	Fall	1,086	19.7	14,332	7.6	0.1	302,692	0.4	<0.1
	Winter	1,875	88.4	19,782	9.5	0.5	227,934	0.8	<0.1
Grizzly Bear	Spring	1,404	56.4	20,287	6.9	0.3	272,214	0.5	<0.1
	Summer	3,198	109.6	37,824	8.5	0.3	221,903	1.4	<0.1
	Fall	3,326	120.5	40,256	8.3	0.3	224,335	1.5	<0.1
	Denning	465.6	23.2	9,132	5.1	0.3	86,731	0.5	<0.1
Muskox	Winter/Spring	2,949	73.4	34,411	8.6	0.2	141,209	2.1	<0.1
	Summer/Fall	3,630	133.0	45,657	8.0	0.3	328,236	1.1	<0.1
Wolverine	Denning	920	159.7	10,667	8.6	1.5	173,360	0.5	<0.0
Short-Eared Owl	Spring Nesting	3,486	127.9	40,279	8.7	0.3	198,843	1.8	<0.1
	Summer Brooding	3,608	147.8	42,411	8.5	0.3	200,975	1.8	<0.1
Waterbirds	Waterbodies	105	0.3	9,757	1.1	0.0	99,612	0.1	<0.1
	Wetlands	620	28.9	10,907	5.7	0.3	58,370	1.1	<0.1
	Terrestrial Habitat	1,333	65.1	18,812	7.1	0.4	185,952	0.7	<0.1
	Unspecified TEM Type	N/A	1.0	N/A	N/A	N/A	N/A	N/A	N/A
	Total	**2,058**	**95.3**	**39,476**	**5.2**	**0.2**	**343,935**	**0.6**	**<0.1**

VEC	Season	Total Habitat Loss		LSA (56,340 ha)			RSA (491,824 ha)		
		Predicted Loss in the 2017 PDA (ha)	Actual Loss to 2024 (ha)	Suitable[a] Area (ha)	Predicted Loss (%)	Actual Loss to 2024 (%)	Suitable[a] Area (ha)	Predicted Loss (%)	Actual Loss to 2024 (%)
Upland Birds	Dry Upland	1,848	60.8	19,901	9.3	0.3	280,133	0.7	<0.1
	Moist/Wet Lowland	2,329	95.8	26,524	8.8	0.4	183,326	1.3	<0.1
	Total	**4,177**	**156.6**	**46,425**	**9.0**	**0.3**	**463,459**	**0.9**	**<0.1**

Notes:
< = less than; % = percent; ha = hectare
LSA = Local Study Area; N/A = not applicable; PDA = Project Development Area; RSA = Regional Study Area; VEC = Valued Ecosystem Component
[a] Habitat loss models for caribou, grizzly bear, and muskox include high and moderate quality habitat assessed in the Madrid-Boston FEIS. All other VECs are modelled directly for suitable versus unsuitable habitat.

TABLE 2.2-1 PREDICTED MAXIMUM MINE VEHICLE TRAFFIC IN YEARS 1 TO 5

Transport Areas[a]	Peak Years[b]	Number of Daily Return Trips	Transport Categories	Vehicle Type
Roberts Bay to Doris/Madrid North	Year 1–Year 13 (2019–2030)	10	Fuel, supplies, service vehicles	60 m^3 tanker, flatbed trucks, misc. vehicles
Doris to Madrid North	Year 1–Year 13 (2019–2030)	78	Supplies, explosives, employees, service vehicles	Flatbed trucks, 40-person bus, misc. vehicles
Windy Lake to Doris	Year 1–Year 13 (2019–2030)	8	Transport of water	20 m^3 tanker
Roberts Bay to Boston[c]	Year 4–Year 12 (2022–2023)	2	Fuel, supplies	60 m^3 tanker, flatbed trucks
Boston to Doris[c]	Year 4–Year 13 (2022–2024)	31	Hauling, fuel, supplies, service vehicles	55 t haul truck, 60 m^3 tanker, flatbed trucks, misc. vehicles

Notes:
m^3 = cubic metre; t = ton
misc. = miscellaneous
[a] Multiply return trips by two for number of transits. Volume taken from the Madrid-Boston FEIS (Vol. 3, Section 4.5, Table 4.5-1; TMAC 2017).
[b] Peak Years and Dates are from the Madrid-Boston FEIS and do not represent current Mine progress.
[c] Indicates portions of road that have not been constructed, as of the current reporting year.

2.2.2 METHODS

In 2024, daily average traffic volumes were calculated using data from two wildlife cameras stationed along transit routes. See Section 3.2 for camera placement information and methods. For the 3 months (June 2024 to August 2024), data was collected; total daily traffic volume at camera 18 (Roberts Bay to Doris) and camera 35 (Doris to Madrid North) were determined using 1 week of motion-triggered photos. Typically, this was the first week of the month, starting on the first Sunday. Data were not available after August 2024 due to the timing of camera checks. The traffic logs from 2024 were summarized for the maximum, minimum, and average monthly traffic levels between each transport area: Roberts Bay to Doris, and Doris to Madrid North.

The Mine is currently in Care and Maintenance phase with advanced exploration activities.

2.2.3 RESULTS AND DISCUSSION

Two of 3 months with available data in 2024 had daily average transits from Roberts Bay to Doris that were above predictions from the Madrid-Boston FEIS. Daily average transits in 2024 from Doris Camp to Madrid North were below predictions from the Madrid-Boston FEIS (Table 2.2-2, Table 2.2-3). Traffic between Roberts Bay and Doris was above the predicted levels, with the overall average at 26.8 daily transits, compared to a predicted peak of 20 transits (Table 2.2-2). Traffic between Doris and Madrid North was below the predicted levels, with the overall average at 63.9 daily transits, compared to a predicted peak of 102 transits (Table 2.2-3). Camera data were not available along the Doris to Madrid route (camera 35) in September 2023 to May 2024 due to camera card malfunctions.

TABLE 2.2-2 VEHICLE TRAFFIC CALCULATED FROM ROBERTS BAY TO DORIS CAMP (CAMERA 18), SEPTEMBER 2023 TO AUGUST 2024

Month	Predicted Peak Daily Transits[a]	Daily Average	Daily Minimum	Daily Maximum
September 2023–May 2024*	20	No Data	No Data	No Data
June 2024	20	36.1	10	53
July 2024	20	15.0	10	26
August 2024	20	29.3	16	47

Notes:
* Vehicle traffic data unavailable for both Roberts Bay to Doris, and Doris to Madrid North in October to December 2023, and January to May 2024.
[a] Maximum predicted daily transits were calculated from two times maximum daily return trips.

TABLE 2.2-3 VEHICLE TRAFFIC CALCULATED FROM DORIS CAMP TO MADRID NORTH (CAMERAS 35), SEPTEMBER 2023 TO AUGUST 2024

Month	Peak Daily Predicted Transits[a, b]	Daily Average	Daily Minimum	Daily Maximum
September 2023–May 2024*	172	No Data	No Data	No Data
June 2024	172	72.3	25	83
July 2024	172	58	24	71
August 2024	172	61.6	47	75

Notes:
* Vehicle traffic data unavailable for both Roberts Bay to Doris, and Doris to Madrid North in October to December 2023, and January to May 2024.
[a] Maximum predicted daily transits were calculated from two times maximum daily return trips.
[b] Values are from Table 2.2-1 and include traffic from Doris to Madrid North, and Windy Lake to Doris.

Final Hearing Commitment 52 establishes the need to compare current traffic levels to predictions in the Madrid-Boston FEIS and to enhance wildlife protection measures if levels are exceeded in two consecutive monitoring periods. In August 2024, the average daily transit was exceeded by more than 25% from Roberts Bay to Doris. It was not exceeded in July 2024 and due to the timing of the collection of the camera cards, it is unknown if this number was exceeded during September 2024.

2.3 HELICOPTER AND FIXED-WING AIRCRAFT MONITORING

Helicopters and fixed-wing aircrafts currently operate from the Doris and Boston areas. Helicopters make trips between the Doris and Boston areas and take supplies (e.g., drilling gear for exploration activities) and crews to other areas. Fixed-wing aircrafts service crew and supply movement in and out of Hope Bay. Aircraft noise can pose a disturbance risk to wildlife (Manc et al. 1988), but the level of disturbance depends on both the frequency and altitude of aircrafts (e.g., more noise during take off and landing).

2.3.1 MADRID-BOSTON FEIS PREDICTIONS

2.3.1.1 HELICOPTER FLIGHTS

Helicopter flight traffic levels were modelled in the Madrid-Boston FEIS according to predicted frequency of routes, noise levels based on altitude, and flight duration (TMAC 2017). Helicopter traffic is monitored and reported annually in accordance with Project Certificate No. 009 Commitment #GN-45 (NIRB 2018). Helicopter flight frequencies were predicted and modelled by area; travel between Doris and Boston helipads was predicted at eight daily one-way trips (four round trips), as well as eight daily trips of general activity in the area of each Doris and Boston helipad (four round trips each). An additional scenario beyond this basic scenario predicted up to five additional roundtrips daily to service drilling sites from either Doris, Boston, or Windy helipads (TMAC 2017). Since the Mine is in Care and Maintenance with advanced exploration activities, predictions of helicopter activity are no longer aligned with the Madrid-Boston FEIS predictions that were made based on the year of Mine development, assuming ongoing construction and operation of Madrid and Boston, rather than Care and Maintenance.

2.3.1.2 FIXED-WING AIRCRAFT FLIGHTS

The wildlife chapter of the Madrid-Boston FEIS (TMAC 2017; Volume 4, Chapter 9, Section 9.8.3.2) evaluated the potential effects of noise on caribou from fixed-wing aircrafts using a standard noise model, estimating if a 737-200 and a Dash 8 took off and landed at both Doris and Boston airstrips in both directions for four take offs and four landings per day at each airstrip. The predicted Zone of Influence (ZOI) for other Mine effects on caribou was 4 km from infrastructure, which is wider than the estimated effects of aircraft noise.

2.3.2 METHODS

2.3.2.1 HELICOPTER FLIGHTS

Helicopter flight logs tracked general flight locations within the Mine area, each log corresponding to a one-way trip from either the Doris or Boston area, or between Doris and Boston. No helipad is currently in use at Windy Camp. Helicopter data were analyzed from machines associated with site maintenance, monitoring programs, and exploration support. The helicopter flight logs were summarized as number of flights per days within and between the Doris and Boston areas during the period that helicopters were present at site.

2.3.2.2 FIXED-WING AIRCRAFT FLIGHTS

Fixed-wing aircraft flights were summarized by the number of take offs and landings each day by month. Values were summarized for 2024 and compared to the predicted levels in the Madrid-Boston FEIS. Fixed-wing aircraft have standard flight altitudes and are only expected to pose a potential noise disturbance to wildlife during take off and landing. Therefore, this report does not examine average or daily flight elevations.

2.3.3 RESULTS AND DISCUSSION

2.3.3.1 HELICOPTER FLIGHTS

In 2024, data from 3,177 one-way helicopter trips were logged around the Mine. A total of 3,177 helicopter trips included both transport (359 flights) and exploration activities (2,819 flights). Activity was logged on helicopters from May 3, 2024, through October 12, 2024, for 163 helicopter monitoring days. Helicopter trips between Boston and Doris (an average of 0.1 daily trips) and around Boston (an average of 0.1 daily trips) occurred at much lower frequencies than the predicted maximum frequencies in the Madrid-Boston FEIS; a maximum of eight daily trips predicted for both areas. Trips around Doris occurred above the level predicted in the Madrid-Boston FEIS (eight flights maximum per day), with an average of 19 helicopter trips per day, primarily related to exploration activities. However, the Madrid-Boston FEIS predictions no longer aligned with Mine development progress, given that the site was in Care and Maintenance with an advanced exploration program in 2024. The WMMP specifies that helicopters avoid caribou by 300 m vertically and 600 m horizontally, thereby reducing potential impacts to caribou.

2.3.3.2 FIXED-WING AIRCRAFT FLIGHTS

Fixed-wing aircraft flights were active throughout 2024, with an overall frequency of 1.25 one-way flights (i.e., take off or landing) per day. Flight frequency was consistent throughout the year, ranging from 1.14 to 1.41 one-way flights per day (Table 2.3-1). Daily flights were around 31% of predicted levels in the Madrid-Boston FEIS (Table 2.3-1), and were therefore within predicted levels for the Mine.

TABLE 2.3-1 DAILY FIXED-WING AIRCRAFT TRAFFIC, 2024

Airstrip	Predicted Daily Trips[a]	Average Daily Trips	Average Daily Trips Jan–Mar	Average Daily Trips Apr–Jun	Average Daily Trips Jul–Sept	Average Daily Trips Oct–Dec
Doris	4	1.25	1.14	1.23	1.41	1.22
Boston	4	0	0	0	0	0

Notes:
[a] Maximum predicted daily take offs or landings, based on the Madrid-Boston FEIS. See Section 2.3.1.

2.4 SNOWBANK MONITORING

Monitoring of snowbank heights along Mine roads was completed to fulfill commitment #GN-49 in Project Certificate No. 009. The commitment states that the snowbank monitoring program "will continue until operational snow management is characterized." Snowbank monitoring was completed between 2020 and 2023, and all 4 years of data were compiled and assessed for broad-scale trends and consistency in snowbank management in the 2023 WMMP Compliance Report (ERM 2024). The average snowbank height across all years and months was 9.8 centimetres (cm), and the range in average height was 0.0 to 18.2 cm, indicating consistent management for wildlife passage across Mine roads since 2020 (ERM 2024). To this end, the snowbank monitoring program has been discontinued, following discussion with the IEAC during the 2024 meeting.

2.5 NOISE MONITORING

Project Certificate No. 009 (Term and Condition 4) indicates that a Noise Abatement Monitoring Plan includes a) measures to protect people, fish, and wildlife from mine noise, including quarry blasting; and b) monitor noise at least once during each phase of the Mine and following quarry blasts to demonstrate that noise levels remain within predicted levels. Noise monitoring during blasting is conducted to refine the setback distances required for caribou presence near a blast. This setback distance was proposed at 2.8 km based on noise modelling conducted in the Madrid-Boston FEIS (NIRB 2018). A 96 peak sound overpressure level (Lpeak) Z-weighted decibel (dBZ) was the sound level estimated at this distance. This sound level was deemed a conservative estimate of the sound level at which a blast may produce noise with the potential to produce a freeze or startle response in caribou. However, monitoring the distance at which quarry blasting results in a caribou behavioural change is more indicative of potential noise disturbance effects to caribou. This monitoring is not required as a Project Certificate compliance activity and is included as part of the adaptive management of mitigation actions.

2.5.1 METHODS

A Standard Operating Procedure (SOP) for noise measurement during quarry blasts has been in development and testing since 2018. The current draft of this SOP is provided in Appendix A. Tests were conducted using a SoundAdvisor™ Model 831C. The SOP recommended best practices to complete noise monitoring during periods of wind speeds of less than 5 m per second.

2.5.2 RESULTS AND DISCUSSION

The noise monitoring SOP was updated in 2024 to improve the process for capturing noise data during blasts at site. In August 2024, the most recent update was provided for use at site to accommodate the use of the SoundAdvisor™ Model 831C and to address the issues with ambient noise (i.e., wind) encountered while monitoring during blasting. Based on the recordings during 2024, ambient noise (i.e., wind) continues to impact the ability to accurately capture the noise from the blasts at site. Data collected in 2024 will be used to further refine the SOP and determine if the maximum wind speed of 5 m per second should be decreased.

In many of the monitoring events, the ambient noise (i.e., wind) could not be differentiated from the blasting. As part of the SOP, noise monitoring captured all noise 15 minutes before and after the blast. In that time period, it was commonly observed that the ambient noise was at a much higher decibel than the 96 Lpeak dBZ threshold.

It is recommended that, based on the inconclusiveness of the results captured during noise monitoring, that the staff move to a local monitoring approach of the reaction of caribou to the quarry blasts. The locations selected for Height of Land (HOL) monitoring could be used to monitor the response of caribou to blasting as long as it is safe to do so. In addition, continuing to delay blasting when caribou are in line of site from the quarries will minimize disturbance to caribou.

2.6 CONSTRUCTION MANAGEMENT

As per the WMMP (Agnico Eagle 2023), vegetation clearing and ground disturbance activities that may disturb wildlife residences (nests and dens) are avoided during specified periods of the year. If avoidance during these time periods is not possible, preclearing surveys are conducted to identify and buffer residences.

2.6.1 METHODS

Preclearing surveys followed protocols outlined in the Doris North Migratory Bird Preclearing Survey SOP and the WMMP (Agnico Eagle 2023). Nest preclearing surveys were completed for raptors, waterbirds, and upland birds from May 15 to August 5, as required (Agnico Eagle 2023). Den preclearing surveys were completed for grizzly bear (October 1 to April 30), wolverine (February 1 to May 15), and wolf (*Canis lupus*; May 1 to July 30), as required (Agnico Eagle 2023). Surveyors conducted ground transects within the area to be disturbed and recorded any wildlife residences observed. If a wildlife residence was found, the residence was buffered as outlined in the appropriate SOP and WMMP (Agnico Eagle 2023).

2.6.2 RESULTS AND DISCUSSION

In 2024, 17 nest preclearing surveys were completed between May 15 and August 15, 2024, and two den preclearing surveys were completed between November 14 and 16, 2024 (Table 2.6-1). Mine areas surveyed for wildlife residences included the Roberts Bay Fuel Line, the Tailings Impoundment Area (TIA) North Dam, Naartok Portal, Quarry E and D, the Exploration Track, Pad U Waste Rock / Ore Storage Area, and the Windy Lake North Freshwater Intake (Figure 2.1-2). A total of four nests were observed during preclearing surveys: three Common Redpoll nests (*Acanthis flammea*) and one redpoll sp. nest (*Acantis* sp.; Table 2.6-1). The redpoll sp. nest was found empty, indicating that it was likely an old nest or had been depredated, and all other nests were in the incubation stage (Table 2.6-1). No nest buffers were required because all nests, and their respective required buffer distances, were outside of the proposed vegetation clearing / ground disturbance areas. No dens were found during the den preclearing surveys.

TABLE 2.6-1 SUMMARY OF PRECLEARING SURVEYS COMPLETED IN 2024

Survey Type	Date	Survey Area	Start Time	End Time	Start Easting[a]	Start Northing[a]	End Easting[a]	End Northing[a]	Species	Residence Stage	Contents	Easting[a]	Northing[a]	Buffer?
Nests	May 16, 2024	Roberts Bay Fuel Line	9:30	10:20	432170	7563260	432448	7563082	No nests found					
Nests	May 22, 2024	Roberts Bay Fuel Line	14:00	15:00	432448	7563082	432170	7563260	No nests found					
Nests	June 1, 2024	Roberts Bay Fuel Line	11:00	11:45	432448	7563082	432170	7563260	Common Redpoll	Incubating	4 eggs	432244	7563149	Not needed[b]
Nests	June 4, 2024	Roberts Bay Fuel Line	11:00	11:40	432448	7563082	432170	7563260	No nests found					
Nests	June 6, 2024	North Dam	16:30	17:00	434417	7559221	434442	7539235	Common Redpoll	Incubating	5 eggs	434381	7559257	Not needed[b]
Nests	June 6, 2024	North Dam	16:00	16:30	434292	7559098	434261	7559106	No nests found					
Nests	June 10, 2024	Naartok Portal	9:30	10:00	433424	7550594	6433499	7550571	No nests found					
Nests	June 10, 2024	North Dam	8:30	9:00	434417	7559221	434442	7539235	No nests found					
Nests	June 10, 2024	North Dam	8:00	8:30	434292	7559098	434261	7559106	No nests found					
Nests	June 10, 2024	Roberts Bay Fuel Line	10:30	11:15	Not provided	Not provided	Not provided	Not provided	Common Redpoll	Incubating	5 eggs	Not provided	Not provided	Not needed[b]
Nests	June 13, 2024	Quarry E	14:00	15:45	433282	7550653	6433086	7550736	Repoll sp.	Old/ depredated	Empty	433012	7550765	Not needed[b]
Nests	July 8, 2024	Naartok Portal	10:30	11:00	433424	7550594	6433499	7550571	No nests found					
Nests	July 8, 2024	Quarry E	11:00	11:20	433282	7550653	6433086	7550736	No nests found					
Nests	July 22, 2024	Exploration Track	17:00	17:20	433430	7550138	433407	7550187	No nests found					
Nests	July 28, 2024	Exploration Track	16:30	16:45	433419	7550163	433400	7550194	No nests found					
Nests	August 15, 2024	Exploration Track	14:00	14:30	434036	7549696	434036	7549396	No nests found					
Nests	August 15, 2024	Quarry D	13:00	13:30	432849	7551847	Not provided	Not provided	No nests found					
Dens	November 14, 2024	Pad U Waste Rock/ Ore Storage Area	Not provided	Not provided	Not provided	Not provided	Not provided	Not provided	No dens found					
Dens	November 16, 2024	Windy Lake North Freshwater Intake	Not provided	Not provided	Not provided	Not provided	Not provided	Not provided	No dens found					

Notes:
[a] Zone 13 W.
[b] Buffers for wildlife residences were not required when vegetation clearing / ground disturbance activities would occur outside of the buffer distance or when an upland bird nest was no longer in use (e.g., old nest or depredated).

3. VEC AND OTHER SPECIES MONITORING AND MITIGATION

3.1 OBJECTIVES

The wildlife VECs identified in the Madrid-Boston FEIS included caribou, muskox, grizzly bear, wolverine, upland breeding birds, waterbirds, and raptors. The objective of monitoring the wildlife VECs is to assess the Madrid-Boston FEIS predictions of Project effects. This assessment is primarily executed through the camera monitoring program (TMAC 2017). In addition, the facility cameras monitor sites that have the potential to attract wildlife (waste management areas, landfills, and TIA). Some cameras are located to confirm wildlife use of wildlife mitigation structures (e.g., wildlife road crossings) to address Project Term and Condition 25 (NIRB 2016; Amendment 002).

Nest predators were not considered a VEC, but are monitored in the Mine area during the bird breeding season (May 15 to August 15) to detect possible attraction to the Mine and indirect impacts on upland breeding birds. Marine mammals and plants are also included, as they are monitored for their Project Certificate No. 009 commitments (NIRB 2018).

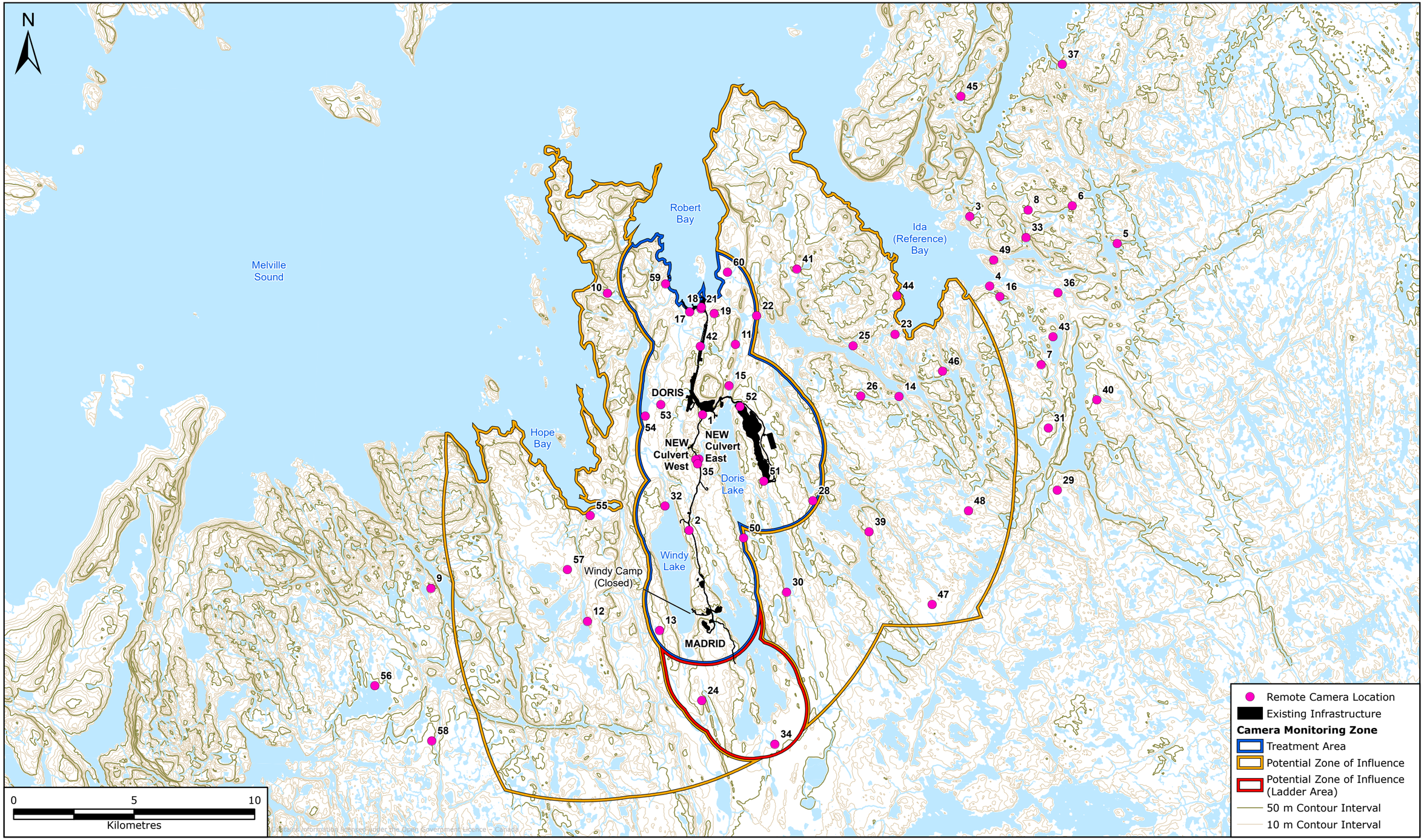
3.2 METHODS COMMON TO MULTIPLE VECS

3.2.1 WILDLIFE CAMERA MONITORING

Currently, 60 Reconyx™ PC800 HyperFire Professional wildlife cameras are used to monitor caribou, muskox, grizzly bear, wolverine, and other wildlife within focal areas of the Study Area, as described in Section 3.2.1. The camera monitoring design has been employed since 2016; however, camera monitoring has been ongoing at the Mine since September 2012. Cameras are currently placed in three primary zones, including a Treatment zone within 2 km of the Mine (21 Cameras), a ZOI from 2 to 10 km from the Mine (17 Cameras), and a Control zone beyond 10 km from the Mine (19 Cameras; Figure 3.2-1). There is also the Ladder area, which is part of the ZOI and will be included in the Treatment zone once Madrid is fully developed. Some cameras also have site-specific monitoring objectives and monitor specific Mine facilities. Two additional wildlife cameras were deployed near a culvert on Windy Road to investigate potential caribou use (as an alternative road crossing) in August 2022. All cameras are serviced twice annually, once in June and once in September. Data from the cameras were classified into "events," which represent the detection of an animal or animals. Events were considered independent based on a 30-minute temporal interval between captures of the same species. Wildlife camera event data for the Doris-Madrid area is summarized in Appendix C.

Twenty-nine wildlife cameras were previously deployed in the Boston area (Figure 3.2-2). Five cameras were deployed in the Treatment zone, five in the ZOI, five in the Control zone, and 14 along the proposed AWR route. These cameras have collected baseline data since September 2017. The Boston camera program (Figure 3.2-2) was discontinued in spring 2024. There is currently no planned construction in the Boston area, and no monitoring is required. Therefore, the cameras will be redeployed prior to the onset of any construction in the Boston area.

FIGURE 3.2-1 WILDLIFE CAMERA LOCATIONS, DORIS AND MADRID AREAS, 2016 TO 2024



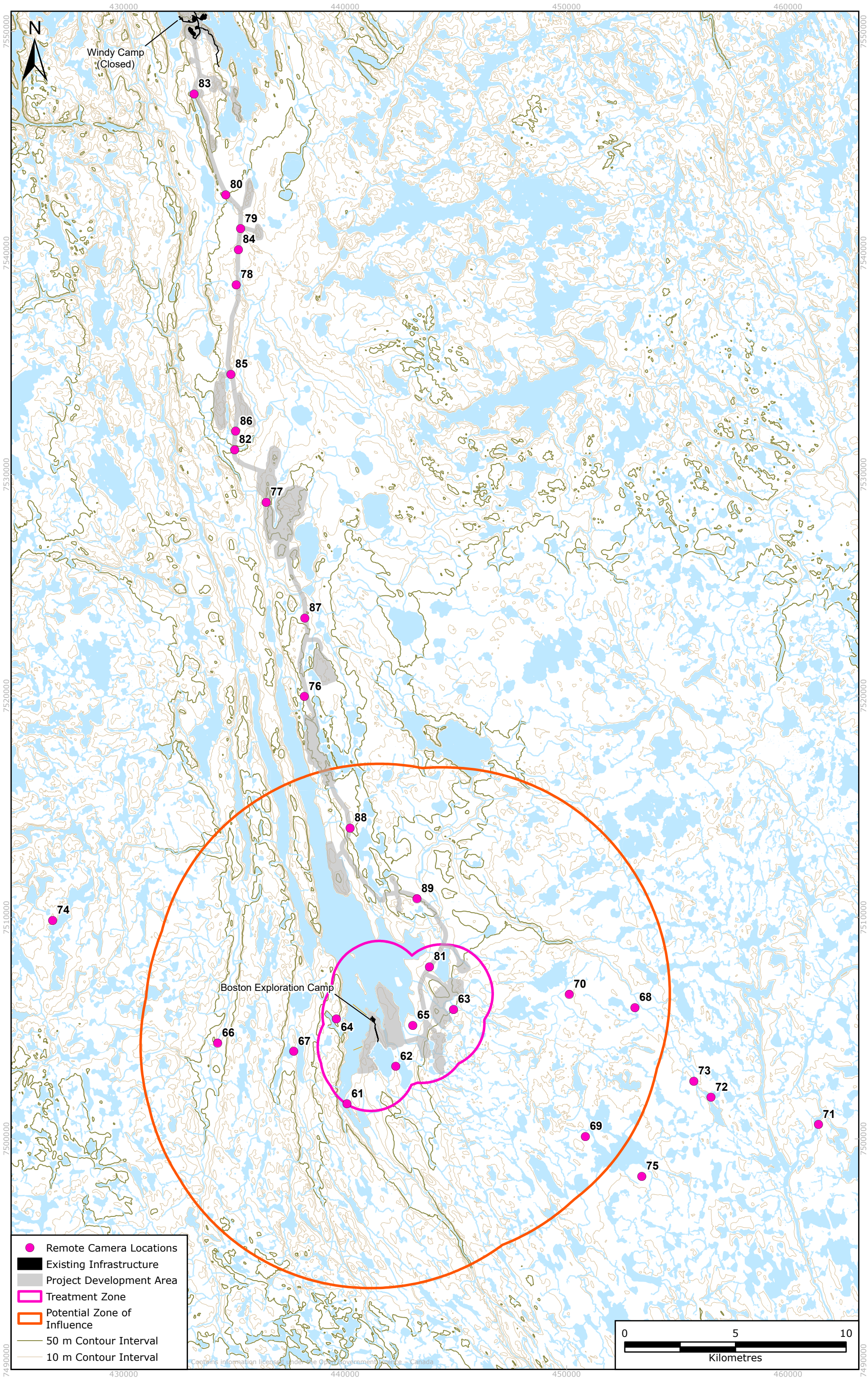
ERM

CLIENT: Agnico Eagle Mines Ltd.
GIS NUMBER: HB-23-614-09

DATE: 03/17/2025

PROJECTION: NAD 1983 UTM Zone 13N
SCALE: 1:150,000 when printed at 11x17

FIGURE 3.2-2 WILDLIFE CAMERA LOCATIONS, BOSTON AREA, 2018 TO 2024



ERM

CLIENT: Agnico Eagle Mines Ltd.
GIS NUMBER: HB-23-614-10

DATE: 03/17/2025

PROJECTION: NAD 1983 UTM Zone 13N
SCALE: 1:160,000 when printed at 11x17

3.2.2 WILDLIFE INTERACTIONS, INCIDENTS, AND MORTALITIES

Agnico Eagle records wildlife interactions, incidents, and mortalities as part of the Wildlife Sightings/Reporting Program and reports these interactions to the NIRB. An **interaction** occurs when wildlife comes into contact and acts upon or is acted upon by people or Mine infrastructure (e.g., a bear being observed on a road); deterrents may be used, but direct harm, injury, damage, or wildlife mortality does not occur. An **incident** is an interaction where there is active deterrent and direct harm, injury, damage, or wildlife mortality occurs.

Agnico Eagle executes various processes to mitigate wildlife interactions, incidents, and mortalities. Information about interactions, incidents, and mortalities recorded in the 2024 calendar year are included with the relevant section for each VEC (Sections 3.4 to 3.11) and data are summarized in Appendix E.

3.2.3 INCIDENTAL WILDLIFE OBSERVATIONS

Incidental observations of wildlife are collected through various sources, which include the Agnico Eagle wildlife sightings log (as part of the Wildlife Sightings/Reporting process), and by environment personnel, including wildlife biologists (Appendices F and G). Incidental observations by wildlife biologists have been collected since 1996 while conducting field surveys, and the wildlife sightings log has been maintained since 2009. Agnico Eagle wildlife sightings log data are corrected for the average number of employees and contractors onsite (Appendix H) as a measure of standardization for observations of caribou (Appendix K), muskox (Appendix M), grizzly bear (Appendix O), and wolverine (Appendix Q). Incidental wildlife data cannot be used quantitatively (e.g., to estimate population sizes or density) because it is not collected using standardized survey methods.

3.2.4 SPECIES OF CONSERVATION CONCERN

Annual observations of species of conservation concern are summarized in the relevant section of each VEC. Species of conservation concern are included if they have been assessed with a threat status by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), are listed under the federal *Species at Risk Act* (SARA; Government of Canada 2024), or if they have a Nunavut territorial status (NatureServe 2025). The species of conservation concern with the potential to occur at the Mine are listed in Table 3.2-1. Note that the Snow Bunting (*Plectrophenax nivalis*) was removed as it is no longer considered Vulnerable in Nunavut.

3.3 RESULTS AND DISCUSSION COMMON TO MULTIPLE VECS

3.3.1 CAMERA EFFORT

Camera effort is calculated to correct for periods when cameras are not capturing images (e.g., when knocked down, or obscured by snow or fog). Effort is summarized by the number of functional days for each camera in each month from September 2023 to September 2024. The total and average number of active camera days for available cameras are presented in Table 3.3-1. The total number of camera days for individual cameras is provided in Appendix B.

TABLE 3.3-1 SPECIES OF CONSERVATION CONCERN KNOWN TO OCCUR IN THE STUDY AREA

Species Group	Common Name	Species Name	Nunavut (General Status)	SARA	COSEWIC	Recorded in 2024?
Mammals	Caribou (Dolphin and Union)	*Rangifer tarandus*	Vulnerable (S3S4)	Special Concern	Endangered	Y
	Caribou (Beverly/Ahiak)	*Rangifer tarandus*	Vulnerable (S3S4)	N/A	Threatened	Y
	Grizzly bear	*Ursus arctos*	Vulnerable (S3)	Special Concern	Special Concern	Y
	Wolverine	*Gulo gulo*	Vulnerable (S3)	Special Concern	Special Concern	Y
Upland Birds	American Golden-Plover	*Pluvialis dominica*	Vulnerable (S3S4B)	N/A	N/A	Y
	Harris's Sparrow	*Zonotrichia querula*	Apparently Secure (S4B)	Special Concern	Special Concern	N
	Hoary Redpoll	*Acanthis hornemanni*	Vulnerable (S3)	N/A	N/A	Y
	Red-necked Phalarope	*Phalaropus lobatus*	Vulnerable (S3B)	Special Concern	Special Concern	Y
	Semipalmated Sandpiper	*Calidris pusilla*	Vulnerable (S3B)	N/A	N/A	Y
Waterbirds	Common Eider	*Somateria mollissima*	Vulnerable (S3B, S3N)	N/A	N/A	Y
	King Eider	*Somateria spectabilis*	Vulnerable (S3S4B, SUN)	N/A	N/A	Y
Raptors	Golden Eagle	*Aquila chrysaetos*	Vulnerable (S3B)	N/A	Not at Risk	Y
	Short-eared Owl	*Asio flammeus*	Vulnerable (S3B)	Special Concern	Threatened	Y
Marine Mammals	Beluga (Eastern High Arctic-Baffin)	*Delphinapterus leucas*	Not Present	Under Consideration	Special Concern	N
	Bowhead whale (Bering-Chukchi-Beaufort)	*Balaena mysticetus*	Not Present	Special Concern	Special Concern	N
	Bowhead whale (Eastern Canada-West Greenland)	*Balaena mysticetus*	Not Present	Under Consideration	Special Concern	N
	Killer whale	*Orcinus orca*	Not Present	Under Consideration	Special Concern	N
	Narwhal	*Monodon monoceros*	Not Present	Under Consideration	Special Concern	N
	Ringed seal	*Pusa hispida*	Not Present	N/A	Special Concern	Y
	Walrus (High Arctic)	*Odobenus rosmarus*	Vulnerable (S3)	Under Consideration	Special Concern	N

Notes:
COSEWIC = Committee on the Status of Endangered Wildlife in Canada; N/A = not applicable; SARA = *Species at Risk Act*

Consistent with previous years of the camera program, effort was low during winter from December through February due to snow covering the camera lenses, resulting in loss of effort for most days (Table 3.3-2). Effort was higher in the Treatment zone during this period. This has historically occurred because some Treatment zone cameras are easily accessible from site facilities or roads, so the cameras can be cleared of snow more frequently.

An increasing number of cameras have been knocked down each period, typically by grizzly bears, based on 2019 data. This issue was discussed with the IEAC in 2020 and 2021 along with plans to improve the camera tripod infrastructure. Of the 60 Doris cameras, 11 were found knocked down during camera checks in September 2024; this is an 18% knock-down rate, lower than the 30% knock-down rate noted in 2019. Camera tripods are repaired as required.

3.3.2 BASELINE RESULTS OF BOSTON CAMERA PROGRAM

Cameras in the Boston area were removed in the spring and summer of 2024 as the Boston baseline camera program has been discontinued. The camera program will resume once construction is planned in the Boston area. In-depth analyses of camera detections of each VEC in the Boston area will be conducted once data have been collected during both baseline and construction phases. Boston camera event data is included in Appendix I.

Consistent with previous years camera effort was low in winter months, however, unlike previous years camera effort remained low through the spring and summer due to the removal of cameras (Table 3.3-3). Across all VECs, caribou were the most frequently observed species in the Boston area. Caribou activity was highest in September with 55% of total caribou observations. Grizzly bear were only observed in September and October. Muskox were observed for the fourth and fifth time on Boston cameras, with two observations in September 2024. No wolverines were observed between September 1, 2023, and September 1, 2024. Low detections of all species are likely due to the majority of camera effort occurring over the winter months and the decommissioning of the Boston camera program.

3.3.3 NON-VEC WILDLIFE SIGHTINGS LOG, INCIDENTAL OBSERVATIONS, AND INTERACTIONS

In 2024, several observations of non-VEC species were recorded via the wildlife sightings log and through incidental observations by biologists, details of which are found in Appendix F and Appendix G. There were two mortality incidents involving non-VEC species: two Arctic ground squirrels were found deceased on Windy Road due to vehicle collisions, one on August 2, 2024, and one on August 8, 2024. Details regarding the non-VEC mortalities are included in Appendix E.

3.4 CARIBOU

Two caribou herds use habitat near the Mine: the Dolphin and Union herd, and the Beverly/Ahiak herd. The Mine overlaps with the winter range of the Dolphin and Union herd, and is near the summer, fall, and winter range of the Beverly/Ahiak herd.

TABLE 3.3-2 SUMMARY OF CAMERA EFFORT RECORDED AT TREATMENT ZONE, ZOI, AND CONTROL ZONE CAMERAS BY MONTH, SEPTEMBER 2023 TO AUGUST 2024

Year	Month	Treatment Zone			ZOI			Control Zone		
		Number of Cameras	Total Active Days	Average Active Days	Number of Cameras	Total Active Days	Average Active Days	Number of Cameras	Total Active Days	Average Active Days
2023	September	21	444	21.14	17	258	15.18	19	386	20.32
	October	21	297	14.14	17	156	9.18	19	212	11.16
	November	21	202	9.62	17	80	4.71	19	39	2.05
	December	21	142	6.76	17	59	3.47	18	44	2.32
2024	January	21	128	6.10	17	47	2.76	18	110	5.79
	February	21	159	7.57	17	56	3.29	18	121	6.37
	March	21	174	8.29	17	87	5.12	18	114	6.00
	April	21	138	6.57	17	75	4.41	18	151	7.95
	May	21	120	5.71	17	80	4.71	18	107	5.63
	June	21	416	19.81	17	368	21.65	18	294	15.47
	July	21	534	25.43	17	434	25.53	18	324	17.05
	August	21	483	23.00	17	314	18.47	18	200	10.53

Note:
ZOI = Zone of Influence

TABLE 3.3-3 CAMERA EFFORT AND VEC SPECIES SUMMARIES FOR BOSTON CAMERAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Year	Month	Camera Effort[a]	Caribou		Muskox		Grizzly Bear		Wolverine	
			Number of Events	Number of Individuals	Number of Events	Number of Individuals	Number of Events	Number of Individuals	Number of Events	Number of Individuals
2023	September	547	5	8	2	2	1	1	-	-
	October	402	2	2	-	-	2	2	-	-
	November	205	-	-	-	-	-	-	-	-
	December	198	-	-	-	-	-	-	-	-
2024	January	293	-	-	-	-	-	-	-	-
	February	270	-	-	-	-	-	-	-	-
	March	295	-	-	-	-	-	-	-	-
	April	257	1	1	-	-	-	-	-	-
	May	165	-	-	-	-	-	-	-	-
	June	60	1	1	-	-	-	-	-	-
	July	33	-	-	-	-	-	-	-	-
	August	47	-	-	-	-	-	-	-	-
Total	**-**	**2,772**	**9**	**12**	**2**	**2**	**3**	**3**	**-**	**-**

Notes:
- = No detections of species in photos
VEC = Valued Ecosystem Component
[a] Camera effort is presented as the total number of camera days by month; lower camera effort in the summer is due to the camera program being decommissioned.

The Dolphin and Union herd winters on the mainland near the coast, both east and west of Bathurst Inlet, and travels on the sea ice during spring to Victoria Island to calve and spend the summer and fall (Poole et al. 2010). The herd return across the sea ice following freeze-up in November. The Dolphin and Union herd are listed as Special Concern under SARA and as Endangered by COSEWIC (Government of Canada 2024). Territorially, caribou are listed as Vulnerable in Nunavut (NatureServe 2025).

The Beverly/Ahiak herd calves to the east of the Mine area in the Queen Maude Gulf Bird Sanctuary and the herd then spreads south and west from the Queen Maude Gulf for the late summer and fall. The Beverly/Ahiak herd are barren-ground caribou assessed as Threatened by COSEWIC (Government of Canada 2024), but not yet listed under SARA. Caribou of the Beverly/ Ahiak herd winter above the treeline on the tundra and also below the treeline in the Northwest Territories and northern Saskatchewan.

Currently, there is some disagreement over whether the Beverly/Ahiak herd should be referred to as a single herd, or separately as two subpopulations of the Beverly/Ahiak herd. The Government of Nunavut surveys the two groups separately and refers to them as two subpopulations in their population survey reports, rather than a distinct herd or separate herds. This document refers to these caribou either separately (as subpopulations) or together as the Beverly/Ahiak herd, where relevant. Calving areas for these two subpopulations are calculated separately, in response to a request from the Government of Nunavut.

Traditional Knowledge shared by the land users from the IEAC indicate that Dolphin and Union caribou now cross the sea ice to the east of Bathurst Inlet and the Mine, near Wellington Bay. IEAC members also indicate that Dolphin and Union caribou no longer winter on the northern part of the Kent peninsula and instead winter on the mainland. Other than these shifts, which began before 2019, the Dolphin and Union caribou have maintained a consistent usage of the area surrounding the Mine for over 20 years, with some animals transiting the area during spring and fall migration, and low numbers of caribou in the area during winter.

Agnico Eagle and the Government of Nunavut have signed a new Memorandum of Understanding (MOU) for collaborative monitoring for Dolphin and Union caribou as of March 2023, after the previous MOU with TMAC expired in 2019. Agnico Eagle has donated fuel for caribou work in 2020, directly donated to the muskox program in 2022, and provided support in kind by shipping fuel and lumber to Hope Bay in 2023 to assist with the Government of Nunavut’s DNA Hair Snagging Barren-Ground Grizzly Bear population survey.

3.4.1 FEIS PREDICTIONS

The residual effects of disturbance and disruption of movement on caribou within the Madrid-Boston FEIS RSA were predicted to be not significant and low magnitude in the Madrid-Boston FEIS (TMAC 2017).

3.4.2 METHODS

Monitoring for caribou is completed using multiple approaches. The first approach is through analysis of collar data during specific seasonal periods. The analysis of collar data can detect shifts in the calving range for the Beverly/Ahiak herd. A shift towards the Mine would trigger additional mitigation measures for caribou. For Dolphin and Union caribou, winter range analyses are conducted to examine the amount of overlap between the Mine and this seasonal range, following a request from the KitIA (KIA 2017). The collar data are analyzed using kernel density analyses (ERM 2022).

The second approach is using wildlife cameras (see general wildlife camera methods in Section 3.2.1). Camera data are statistically analyzed every 3 years to investigate potential differences in the occurrence of caribou within the Treatment, Control, and ZOI areas. Wildlife cameras are also used to better understand seasonal use by caribou of the Mine. Caribou are also identified by herd based on a request by the IEAC to understand potential changes in the presence of Dolphin and Union caribou on the mainland year-round. Caribou herd identification differentiates individuals belonging to the Beverly/Ahiak herd from individuals belonging to the Dolphin and Union herd.

HOL monitoring was completed for the first time in 2024 as a monitoring method for caribou. This monitoring protocol is completed during the spring and fall migrations, and is triggered based on reported caribou activity onsite. Lastly, caribou are monitored through the Wildlife Sightings/Reporting program.

3.4.2.1 ANALYSIS OF CARIBOU COLLAR DATA

To determine how different caribou herds use areas in proximity to the Mine, an analysis using kernel density and utilization distribution (UD) methods was conducted using Global Positioning System (GPS) collar data. Kernel density and UD methods assess spatial caribou use through a bivariate probability function. Kernel density estimates were created with the resulting 50% UD representing the "core" range and 95% UD representing the "overall" range.

Beverly and Ahiak Subpopulation Calving Ground Locations

Collar data for the Beverly and Ahiak subpopulations were supplied by the Government of Northwest Territories Department of Environment and Natural Resources for 2024 as well as historical data (2012 to 2023). Analysis on the Beverly and Ahiak subpopulations was limited to the calving season to determine each subpopulation's calving range. For the purposes of this analysis, the calving season is defined as occurring from June 6 to June 19 (Nagy 2011; Table 3.4-1). During some years, females may arrive on the calving grounds later than expected and/or leave earlier than expected. To further refine the "calving" season to only include calving females, daily movement rates of individual females were examined in more detail. Caribou occupying a restricted area with daily movement rates less than (<) 5 km were considered to be calving. In contrast, if daily movement rates more than (>) 5 km were observed leading into or out of the calving ground, this was interpreted as indicating that the individual was still migrating or had concluded calving. Collar location data for these days were excluded from further analysis.

TABLE 3.4-1 CARIBOU EVENTS RECORDED BY MONTH AT TREATMENT ZONE, ZOI, AND CONTROL ZONE CAMERAS, SEPTEMBER 2023 TO AUGUST 2024

Year	Month	Treatment Zone		ZOI		Control Zone	
		Camera Effort[a] Total Active Days	Number of Events	Camera Effort[a] Total Active Days	Number of Events	Camera Effort[a] Total Active Days	Number of Events
2023	September	444	4	258	4	386	10
	October	297	1	156	1	212	4
	November	202	-	80	-	39	-
	December	142	-	59	-	44	-
2024	January	128	-	47	-	110	-
	February	159	-	56	-	121	-
	March	174	-	87	-	114	-
	April	138	-	75	-	151	2
	May	120	-	80	-	107	2
	June	416	35	368	26	294	5
	July	534	85	434	34	324	19
	August	483	-	314	2	200	-
Total		**-**	**125**	**-**	**67**	**-**	**42**

Notes:
- = No caribou recorded in camera images
ZOI = Zone of Influence
[a] A total of 60 cameras were deployed across the Treatment, ZOI, and Control zones.

Dolphin and Union Herd Winter Range Locations

Dolphin and Union herd data was supplied by the GN DOE for 2024 as well as historical data (2001 to 2023). This analysis was temporarily paused from 2019 to 2022, as the data was unavailable from the GN DOE prior to the reporting deadline. The output of the analysis determines the amount of overlap between Dolphin and Union winter range (November 1 to April 14) and the Study Area both currently and historically. This analysis was requested by the KitIA in 2017 (KIA 2017). It is noted that the overlap between the Dolphin and Union caribou herd with the Mine area does not trigger any additional mitigation for caribou, as there are year-round caribou mitigation measures (Agnico Eagle 2023).

3.4.2.2 SUMMARY OF WILDLIFE CAMERA DATA

Camera data were corrected for daily effort, where the camera was considered to have no effort during periods when snow covered the camera or if the camera was knocked over for more than 24 hours. Caribou detection data was summarized.

Further details on methodology for this monitoring program can be found in Appendix A and in Section 3.2. Datasets of 2024 camera effort and detection events are presented in Appendices D to F.

Caribou Herd Identification

Caribou were classified by herd, which was determined based on the Mine's Caribou Identification Guide developed via a caribou identification workshop with the IEAC. Caribou from each herd in the Mine area have distinct physical features and can be identified to herd level with clear photos of the whole animal. Identifications were made considering all consecutive images taken of each caribou. Classification of caribou herd was conducted by ERM staff trained to identify Beverly/Ahiak and Dolphin and Union individuals. Caribou detections with uncertain herd characteristics are provided to the IEAC for additional input.

3.4.2.3 HEIGHT OF LAND

HOL surveys were requested by the IEAC as a traditional Inuit way to survey caribou from a distance. Surveys are completed during the spring and fall migration and are triggered if 25 or more individual caribou are observed within 5 km of Mine infrastructure during a 24-hour time period. HOL surveys are completed for a 1-week period. Surveys are preferentially completed by an Inuit Monitor chosen by the Cambridge Bay Hunters and Trappers Organization. HOL surveys followed methods outlined in the Caribou Height of Land Monitoring SOP. The Caribou Height of Land Monitoring SOP and survey sites were developed during several workshops with the IEAC held between 2021 and 2023. HOL surveys are completed at three predetermined sites along Windy Road. Surveyors scan the landscape for caribou for 10 minutes and record caribou observed. Surveys are completed twice per day, spaced out as much as possible temporally, at each of the three survey sites.

3.4.3 RESULTS AND DISCUSSION

3.4.3.1 CARIBOU COLLAR DATA

Beverly and Ahiak Subpopulation Calving Ground Locations

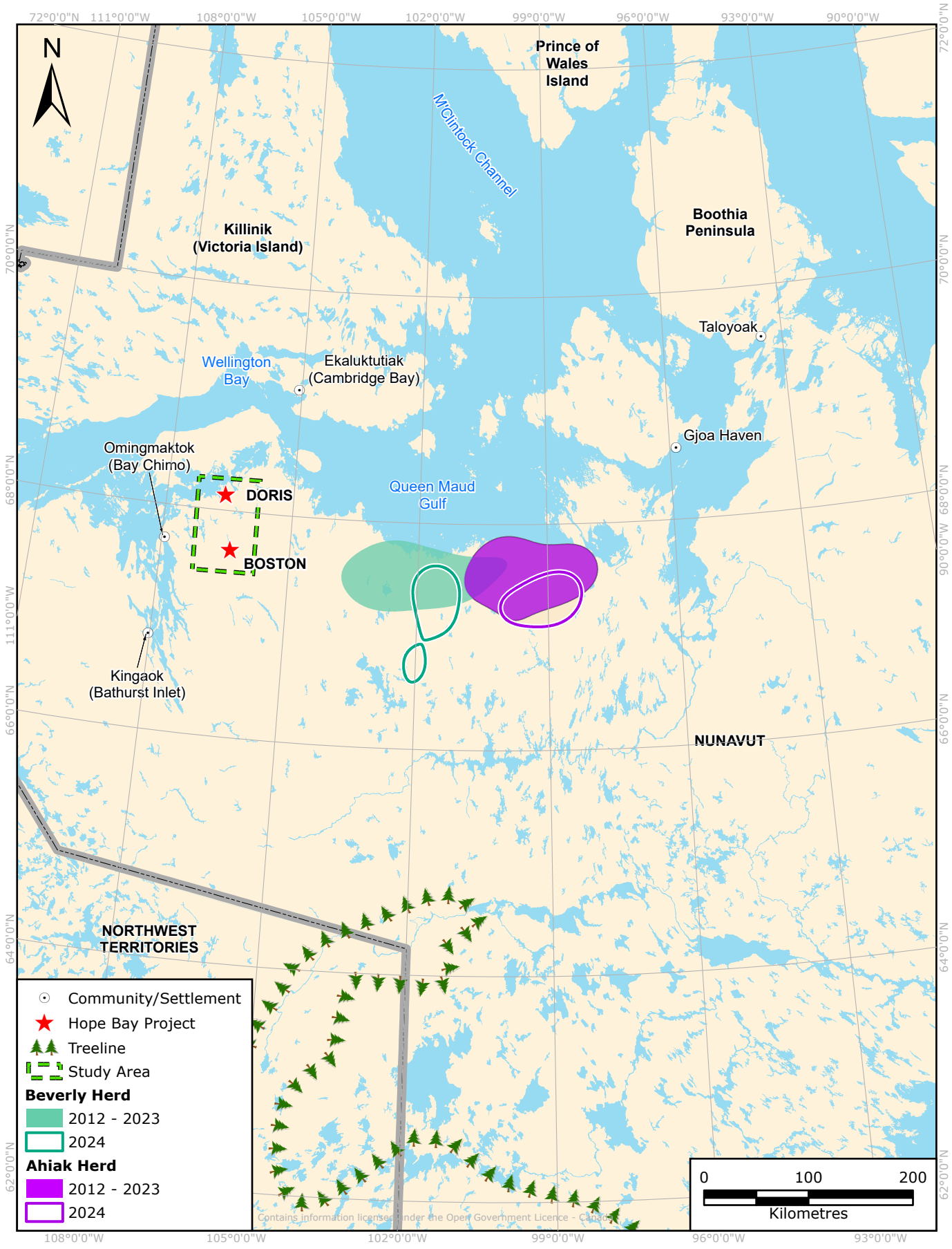
The results of the Beverly and Ahiak subpopulations calving range analysis indicate the 2024 calving ranges for these two subpopulations are generally consistent with historical data. Both the core (50% UD) and overall ranges (95% UD) of each subpopulation were generally centred along the Queen Maud Gulf and to the east of the Study Area (Figure 3.4-1, Figure 3.4-2). The calving range of the Beverly subpopulation generally occurs further west and extends further south than the Ahiak subpopulation. The calving ranges of each subpopulation show historical overlap with one another (Figure 3.4-1, Figure 3.4-2).

The core Beverly and Ahiak calving ranges occur along the coastline of the Queen Maud Gulf and extend southwards. The Ahiak subpopulation's core range in 2024 overlapped with the historical range, but occurred generally more southwards further away from the coast (Figure 3.4-1).
The Beverly subpopulation in 2024 saw a notable shift southward compared to the historical range. Additionally, this range appears to be more elongated longitudinally as opposed to occurring along the coastline (Figure 3.4-1). In 2024, the core calving ranges of these two subpopulations do not overlap, which contrasts with the modest overlap observed in the historical ranges (Figure 3.4-1). Neither subpopulations core calving ranges overlap with the Study Area either historically or in 2024.

The Ahiak subpopulation's overall range in 2024 appears to occur within a centralized location of the historical range, with almost the entirety of the 2024 range located within the historical range (Figure 3.4-2). This location continues to be along the Queen Maud Gulf coastline. Similar to the historical range, 2024 has some overall calving range located towards the Boothia Peninsula south of Taloyoak. The Beverly subpopulation had greater variation between the 2024 and historical range compared to the Ahiak subpopulation. The Beverly 2024 overall calving range generally overlaps with the historical range, but it extends more southwards beyond the historical range. The historical range also has small, isolated pockets of calving range towards the tree line in both Nunavut and the Northwest Territories, but these were much further south than the main calving area (Figure 3.4-2).

The historical overall range of the Beverly subpopulation overlaps both the Doris and Boston sites, and extends across over half of the Study Area (Figure 3.4-2). The overlap was caused by several collared females in 2019 and 2021. One collared female appeared to calve within the northern half of the Study Area in 2019, in the vicinity of the Doris area. Three collared females appeared to calve in the southeastern corner of the Study Area in 2021, in the vicinity of the Boston area. These overlaps were described in the respective annual reports (ERM 2020, 2022). Notably, the calving female that was observed to overlap the Study Area in 2019 was described in the associated 2019 report, but was excluded from historical range analyses in subsequent report years (ERM 2023, 2024). It is included here, in the 2024 report, in order to provide representation of the historical distribution of calving females. The 2019 overlap will continue to be included in future annual reports. Despite these occasional incidents, the core range of the Beverly herd remains outside the Study Area and the majority of collared individuals continue to calve to the east of the Study Area, with no collared Beverly caribou observed in the Study Area during calving from 2022 to 2024. Additional mitigation has not been implemented at site for calving caribou, since the core range of the Beverly subpopulation does not overlap the Hope Bay Study Area.

FIGURE 3.4-1 50% KERNEL DENSITY ESTIMATES OF THE CALVING HOME RANGE OF BEVERLY AND AHIAK SUB-POPULATIONS COLLAR DATA, 2012–2023 AND 2024



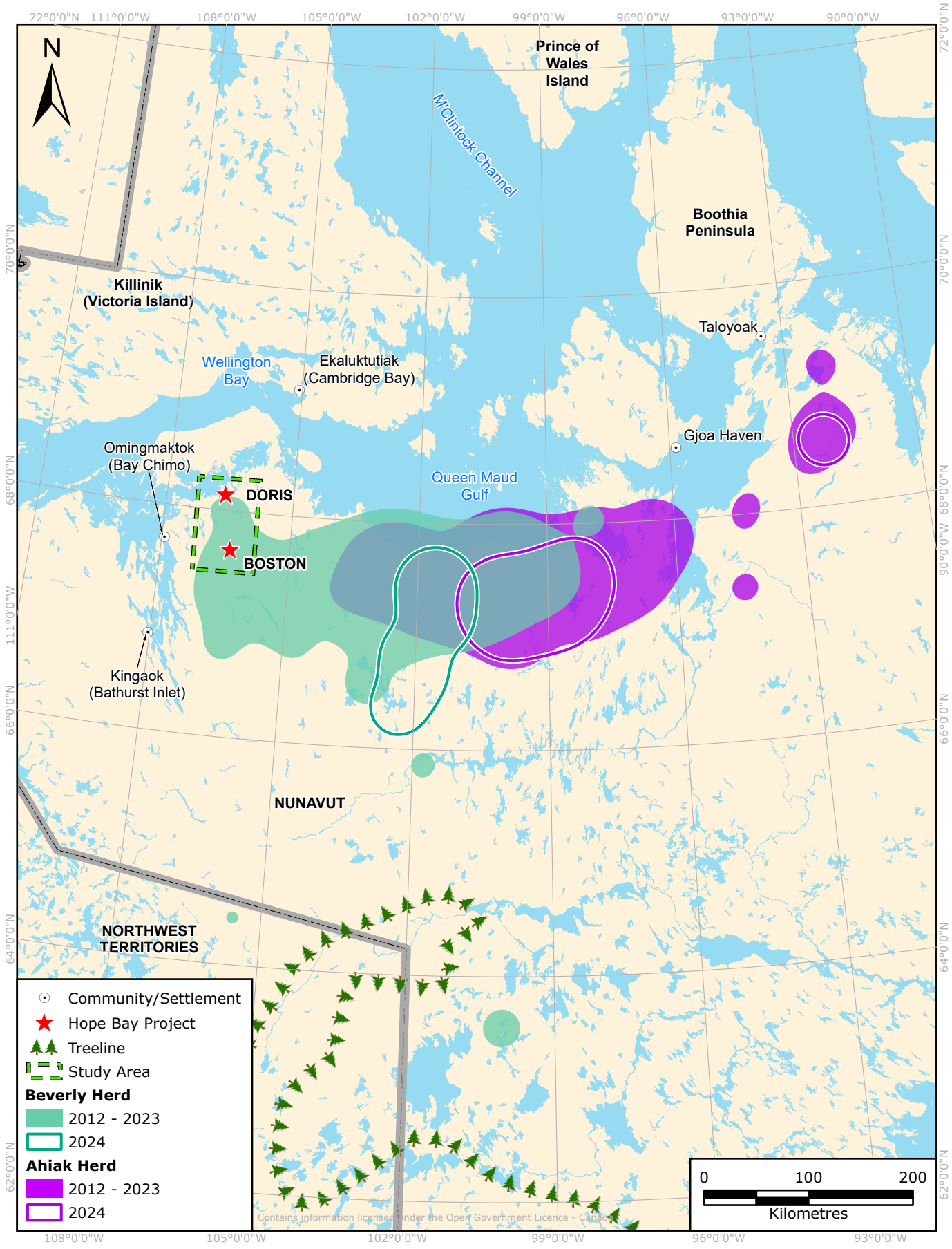
ERM

CLIENT: Agnico Eagle Mines Limited
GIS NUMBER: HB-23-616-01

DATE: 26 March 2025

PROJECTION: NAD 1983 Statistics Canada Lambert
SCALE: 1:5,000,000 when printed at 8.5x11

FIGURE 3.4-2 95% KERNEL DENSITY ESTIMATES OF THE CALVING HOME RANGE OF BEVERLY AND AHIAK SUB-POPULATIONS COLLAR DATA, 2012–2023 AND 2024



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CLIENT: Agnico Eagle Mines Limited
GIS NUMBER: HB-23-616-02

DATE: 26 March 2025

PROJECTION: NAD 1983 Statistics Canada Lambert
SCALE: 1:5,000,000 when printed at 8.5x11

Dolphin and Union Herd Winter Range Locations

The Dolphin and Union herd winter range analysis indicate that both the core winter range and overall ranges were smaller compared to the historical range (Figures 3.4-3 and 3.4-4). Neither the core nor the overall ranges in 2024 overlapped with the Study Area. This differed from historic ranges in which the overall range overlapped the entirety of the Study Area. The core wintering area occurred exclusively on the west side of the Bathurst Inlet, both historically and in 2024. In 2024, the overall range was largely located on the west side of Bathurst Inlet with unconnected range pockets on Kent Peninsula, west of Wellington Bay, and on the northern shore of the Coronation Gulf.

The core wintering range had a high degree of overlap between 2024 and the historical data. There was a contraction in the range; however, the 2024 range was almost exclusively located within the range of historical data, except with a slight extension to the north in 2024 (Figure 3.4-3).

The 2024, overall winter range was distributed into four distinct areas, the largest of which mainly overlapped with the historical winter range on the mainland and was only on the west side of Bathurst Inlet. An isolated pocket of winter range was located to the northwest of the Doris site, which continued to primarily overlap with the historical range. Unlike the historical winter range, the 2024 data had two isolated pockets on Victoria Island, including one on the western side of Wellington Bay. The second isolated range pocket was located directly north of the main winter range across the Coronation Gulf on the southern coastline of Killnik (Victoria Island).

3.4.3.2 CAMERA MONITORING

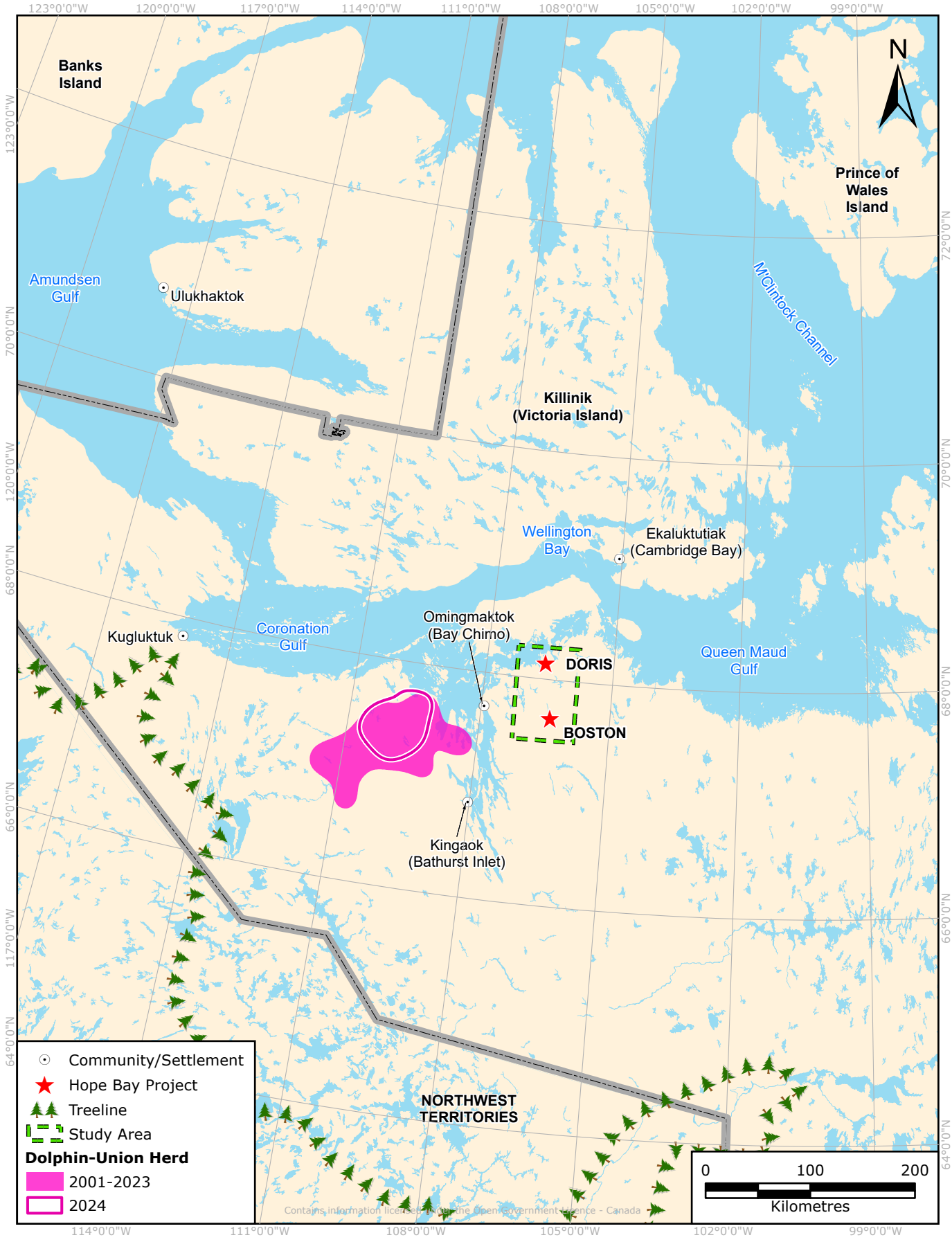
Between September 1, 2023, and August 31, 2024, 60 cameras were active for 7,818 days averaging 130 active days per camera. Camera effort within monitoring zones for the most recent year is summarized by month in Table 3.3-2; effort summaries per camera are provided in Appendix D. A brief summary of the images and caribou events recorded across all cameras during is provided below. Data from cameras 2 and 35 (monitoring the road crossing ramps) as well as cameras 20 and 27 (monitoring the under-road culvert) are also included in the summary below.

A total of 234 events were recorded between September 1, 2023, and August 31, 2024 (Table 3.4-1). A total of 1 485 events were recorded of caribou between 2016 and 2024 (Figure 3.4-5; Appendix J). Caribou events occurred primarily in June and July, with 76% of caribou events occurring in these 2 months. Overall, caribou events were most common in the Treatment zone and represented 46% of total caribou events compared to 25% in the ZOI, and 16% in the Control zone. Occasional events were also recorded in fall and spring months, which is consistent with previous monitoring years.

Facilities Camera Monitoring

Under the current camera program design, there are four cameras that have site-specific monitoring objectives for caribou. These are cameras 2 and 35, installed at the two caribou crossing ramps along the Doris-Windy AWR, and cameras 51 and 52, installed at the north and south end of the TIA. Individual camera effort information is provided in Appendix D. Camera effort varied greatly across facility monitoring cameras in 2024, with camera 51 having the most effort (220 active days), followed by camera 52 (129 active days), camera 2 (87 active days), and camera 35 (84 active days). This represents an increased number of active camera days for each specific monitoring camera in comparison to 2023.

FIGURE 3.4-3 50% KERNEL DENSITY ESTIMATES OF THE WINTER RANGE OF DOLPHIN AND UNION HERD COLLAR DATA, 2001-2023 AND 2024



ERM

CLIENT: Agnico Eagle Mines Limited
GIS NUMBER: HB-23-616-03

DATE: 26 March 2025

PROJECTION: NAD 1983 Statistics Canada Lambert
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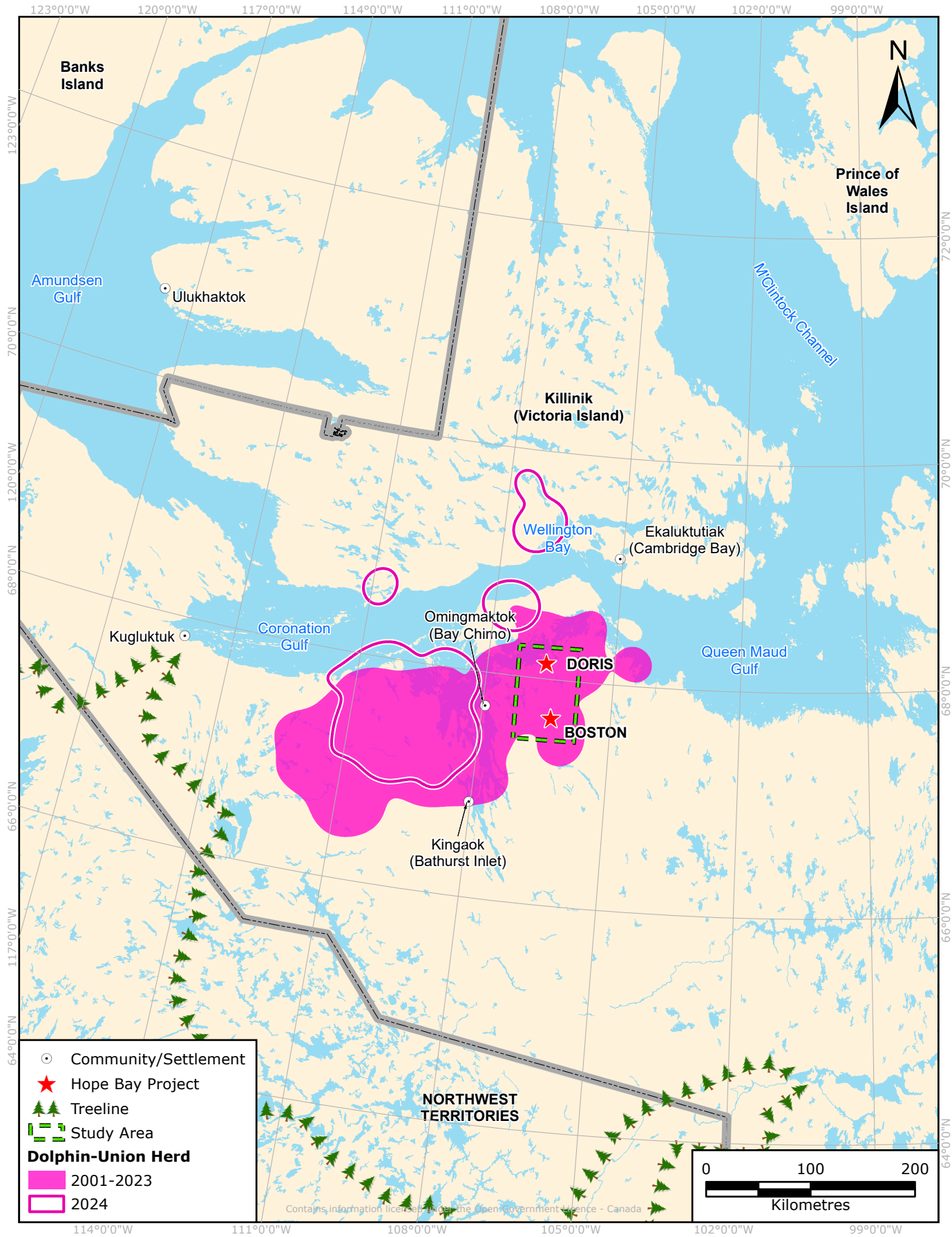
FIGURE 3.4-4 95% KERNEL DENSITY ESTIMATES OF THE WINTER RANGE OF DOLPHIN AND UNION HERD COLLAR DATA, 2001-2023 AND 2024



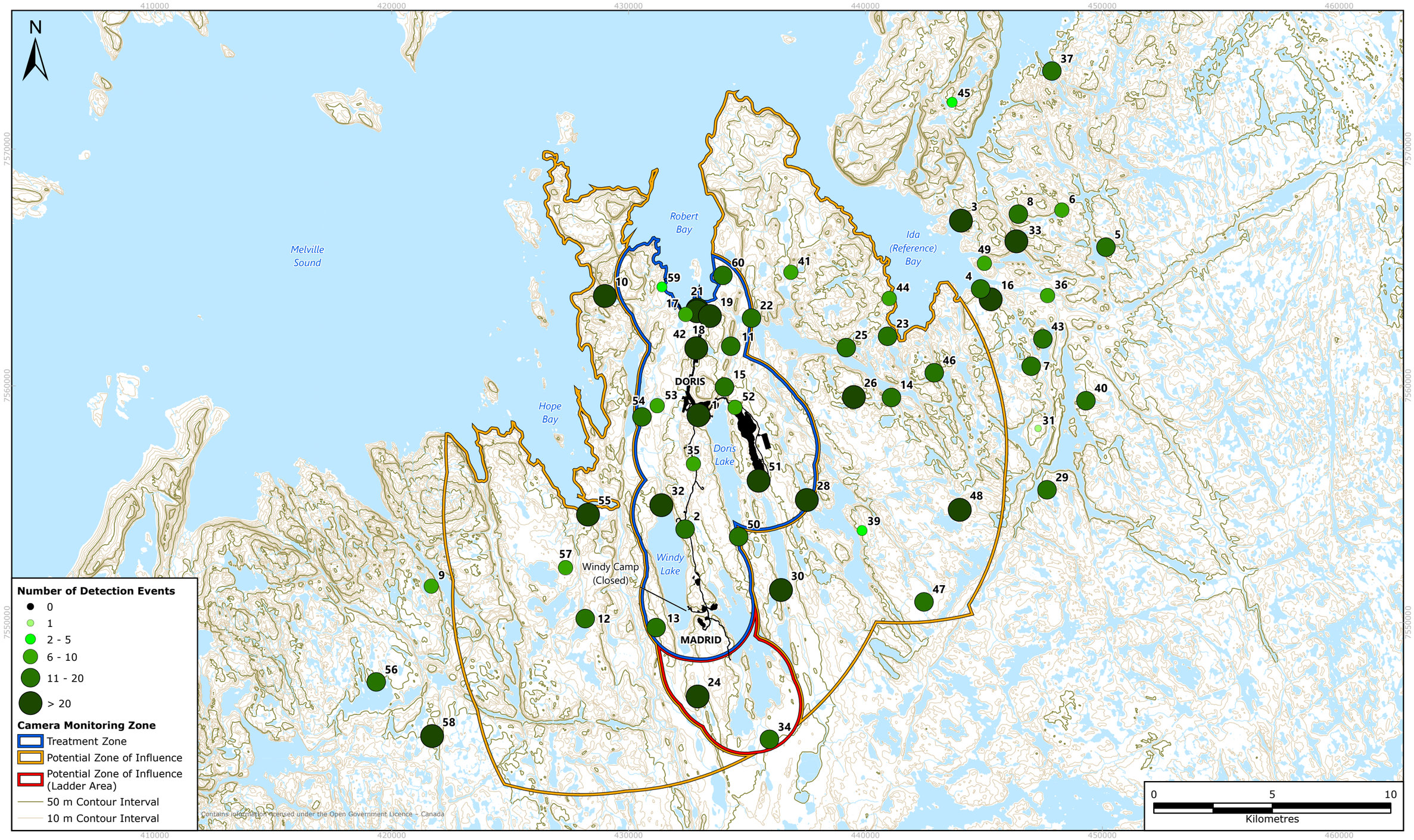
ERM

CLIENT: Agnico Eagle Mines Limited
GIS NUMBER: HB-23-616-04

DATE: 26 March 2025

PROJECTION: NAD 1983 Statistics Canada Lambert
SCALE: 1:5,000,000 when printed at 8.5x11

FIGURE 3.4-5 DETECTIONS OF CARIBOU ON MOTION-TRIGGERED PHOTOS RECORDED BY WILDLIFE CAMERAS IN DORIS AND MADRID AREAS, 2016 TO 2024



ERM

CLIENT: Agnico Eagle Mines Ltd.
GIS NUMBER: HB-23-617-01

DATE: 04/04/2025

PROJECTION: NAD 1983 UTM Zone 13N
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Facility monitoring cameras recorded 16 caribou events between September 1, 2023, and September 1, 2024. Camera 2 on the road crossing ramp had three caribou events between July 9, 2024, and July 27, 2024, each comprised of a lone adult (Appendix J). A total of 13 caribou events were recorded between June 25, 2024, and July 27, 2024, on camera 51 located on the TIA. Events were comprised of one to two adults in all cases with a total of 14 caribou observed. Caribou presence around site, noted through the Wildlife Sightings/ Reporting process, is discussed in Section 3.4.3.4.

In 2022, two cameras were deployed at the Windy Road culvert, approximately 160 m north of one of the caribou crossing ramps. A total of five events were captured on these cameras between June 12 and July 18, 2024. A total of six adult caribou and one juvenile caribou were observed on the culvert cameras.

Caribou Herd Identification

Caribou were identified by herd (either Beverly/Ahiak or Dolphin and Union) for all camera data from June 2023 to September 2024 across 641 caribou detections (Section 3.4-2). The Beverly/ Ahiak herd accounted for the majority of events (79%), followed by unknown individuals (15%), and finally the Dolphin and Union herd (6%; Table 3.4-2). The majority of unknown classifications of caribou were due to caribou being too close or too far away from the camera to show identifiable herd characteristics. Unknown identifications due to uncertainty in the herd will be provided to the IEAC for identification assistance.

TABLE 3.4-2 BEVERLY/AHIAK AND DOLPHIN AND UNION CARIBOU HERD IDENTIFICATION, 2023 TO 2024

Date		Herd		
		Dolphin and Union	Beverly/Ahiak	Unknown
2023	June	10	30	11
	July	-	74	1
	August	-	7	2
	September	1	28	3
	October	1	6	2
	November	-	-	-
	December	-	-	-
2024	January	-	-	-
	February	-	-	-
	March	-	-	-
	April	1	-	1
	May	-	2	1

Date		Herd		
		Dolphin and Union	Beverly/Ahiak	Unknown
2024 *(cont'd)*	June	24	82	29
	July	2	164	31
	August	-	91	12
Total		**39**	**484**	**93**

Note:
- = No caribou detected

Individuals from the Beverly/Ahiak herd were observed from June to October in 2023 and between May and August in 2024. The month with the highest number of observations of individuals from the Beverly/Ahiak herd in both years was July, with 74 events in 2023 and 164 events in 2024 (Table 3.4-2). This peak in observations corresponds to the post-calving period for the Beverly/ Ahiak herd.

Twelve individuals from the Dolphin and Union herd were observed in 2023 between June and October, and 27 individuals were observed between April and July in 2024. The month with the highest number of observations of the Dolphin and Union herd occurred in June of 2024 (n = 24; Table 3.4-2). These observations align with the spring migration (May to June) period to Victoria Island. However, Dolphin and Union individuals observed in later June and July in both 2023 and 2024 may not be migrating to Victoria Island for calving, given the annual timing of sea ice melt.

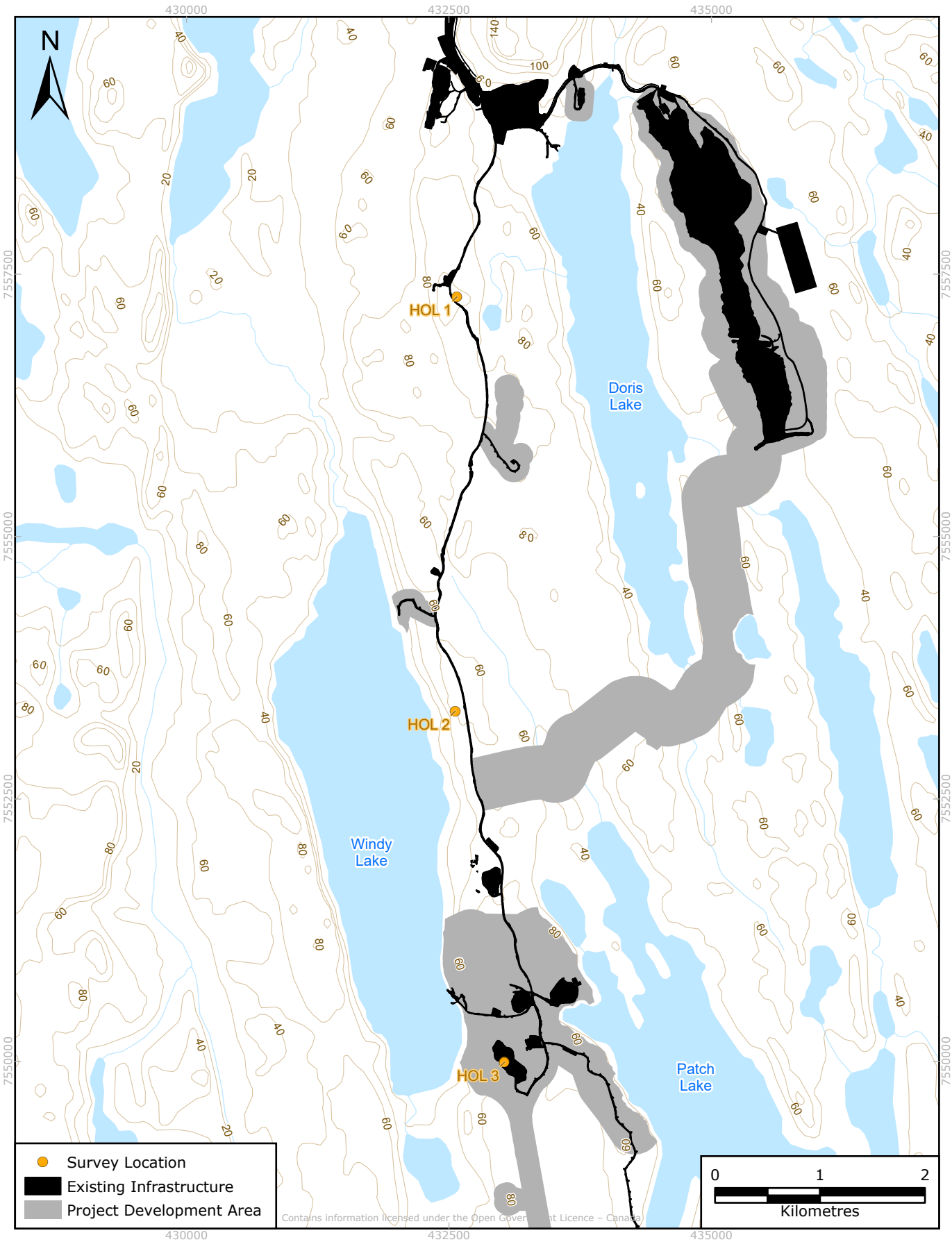
3.4.3.3 HEIGHT OF LAND

HOL surveys were completed during the fall migration as per the WMMP (Agnico Eagle 2023). HOL surveys were not completed in the spring because the first round of surveys began after discussions at the IEAC meeting in July 2024. Surveys were completed for 1 week in August and 1 week in September at the three predetermined survey sites (Figure 3.4-6). No additional HOL surveys were triggered (i.e., >25 caribou observed within 5 km of infrastructure). Of the 22 total surveys completed, 41% of surveys recorded caribou presence. Of the surveys with caribou observed, abundance was low with 89% of surveys recording one caribou and 11% of surveys recording two caribou, with only adult males and females observed (Table 3.4-3).

3.4.3.4 INTERACTIONS, INCIDENTS, AND MORTALITIES

In 2024, one caribou interaction occurred and there were no mortalities. On July 20, 2024, two caribou were identified within Quarry D and the blast was postponed until July 21, 2024. As the caribou remained in the vicinity of the quarry and posed a safety concern, they were deterred from the blasting area using a human line and drone (Appendix E). July is the peak time period when caribou frequent the site to escape biting insects. Caribou are only deterred in situations where they may be harmed.

FIGURE 3.4-6 HEIGHT OF LAND SURVEY LOCATIONS, 2024



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CLIENT: Agnico Eagle Mines Ltd.
GIS NUMBER: HB-23-614-03

DATE: 17 March 2025

PROJECTION: NAD 1983 UTM Zone 13N
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TABLE 3.4-3 SUMMARY OF CARIBOU OBSERVATIONS DURING THE HOL SURVEYS, 2024

Survey ID	Date	Site	Male	Female	Young	Total	Direction	Distance (m) to Caribou
HOL7	September 18, 2024	HOL-1	1	0	0	1	SW	700
HOL8	August 18, 2024	HOL-3	1	0	0	1	SW	600
HOL11	August 19, 2024	HOL-3	1	0	0	1	SW	700
HOL12	August 19, 2024	HOL-1	1	0	0	1	SW	1,000
HOL12	August 19, 2024	HOL-2	1	0	0	1	NW	1,000
HOL15	August 20, 2024	HOL-3	1	0	0	1	SW	100
HOL16	August 20, 2024	HOL-2	1	0	0	1	SW	1,600
HOL19	August 21, 2024	HOL-3	0	1	0	1	N	1,000
HOL20	August 21, 2024	HOL-3	1	1	0	2	SW	400

Notes:
m = metre
HOL = Height of Land; N = north; NW = northwest; SW = southwest

3.4.3.5 WILDLIFE SIGHTINGS LOG AND INCIDENTAL OBSERVATIONS

In 2024, caribou were recorded on 220 occasions in the wildlife sighting log. In 2024, the highest number of caribou observed by personnel occurred in June, with 1.25 caribou per personnel (Appendix K). This is the highest number of individuals recorded at site in a month, since the previous high of 1.95 caribou per personnel recorded in March 2016. The greatest number of events for caribou from the camera monitoring in the Treatment zone and ZOI were in June and July.

Incidental observations of caribou by site personnel did not include the specific herd identification; however, we can infer from the caribou herd identification section (Section 4.4.3.2) which herd was more prevalent near site when incidental observations were made. The majority of incidental observations of caribou occurred between June and August 2024, which aligns with the highest number of camera events that observed caribou (Section 3.4.3.2). Additionally, the majority of the camera events that recorded caribou occurred in the Treatment zone, where incidental observations by site employees would most likely occur. The highest number of individual observations of caribou, both Dolphin and Union and Beverly/Ahiak, were in June and July. Caribou observed in June to July 2024 were primarily of the Beverly/Ahiak herd, which indicates that the individuals observed by the personnel were likely mostly Beverly/Ahiak (Table 3.4-4; Appendix F).

TABLE 3.4-4 CARIBOU SIGHTINGS AND INCIDENTAL OBSERVATIONS, 2024

General Location	Months	Total Sightings[a]	Total Individuals[b]
Doris Area	June–October	88	249
Roberts Bay	June–August	10	24
Windy Road / Madrid	February–October	101	199
TLR/TIA Area	May–August	17	52
Not Specified	July	4	9
Various Wildlife Survey Sites	June–July	-	22

Notes:
TIA = Tailings Impoundment Area; TLR = Tail Lake Road
[a] Total sightings are not provided for incidental biologist observations because these totals are combined from several wildlife surveys.
[b] The total number of individuals provided may not always be representative of the true number of individuals recorded, as certain wildlife sightings may include double counting of the same individual(s).

Several reported sightings were likely the same individuals moving through the area (e.g., caribou reported in the same group size, general locations, and on the same date; Appendix F). Most sightings took place in July and August. Caribou groups ranged in size from one to 16 individuals. In addition, 22 caribou were incidentally observed by biologists at various survey locations throughout the Study Area (Appendix G).

The majority of caribou sightings occurred in the Windy Road / Madrid area and in the Doris area. Seventeen caribou sightings occurred near the TIA / Tail Lake Road (TLR) area (Table 3.4-4). Caribou observed near the TIA were monitored to ensure that they left the area. None of the caribou were observed interacting with the tailings. Site personnel were made aware when caribou were sighted near active camp areas to allow mitigation measures to be implemented to avoid disturbing caribou until they had moved away from the active camp areas.

3.5 MUSKOX

Muskox inhabit Arctic tundra environments and occur in varying densities throughout Nunavut, including in the northern islands archipelago (Leclerc 2015). In recent years, possible declines in some muskox populations have been reported; the cause and extent of these declines are still uncertain, but it is likely related to disease, climate, and anthropogenic pressures (Cuyler et al. 2020). Although muskox are not listed as a species of conservation concern, federally or in Nunavut, these concerns have led to increased monitoring and research efforts throughout the Arctic.

3.5.1 FEIS PREDICTIONS

Disturbance to muskox within the RSA was predicted as a not significant and low magnitude residual effect in the Madrid-Boston FEIS (TMAC 2017). Disruption of movement in the PDA was predicted as a low magnitude residual effect that was not significant. The previous Doris FEIS did not include muskox as a VEC (Miramar 2005); inclusion in the Madrid-Boston FEIS is a reflection of increased interest in monitoring muskox throughout the Canadian Arctic.

3.5.2 METHODS

The potential effects of Mine-related activities on muskox are monitored through the wildlife camera monitoring program (see general wildlife camera methods in Section 3.2.1). Although detections of muskox have been recorded since 2016, very few camera events are recorded each year.

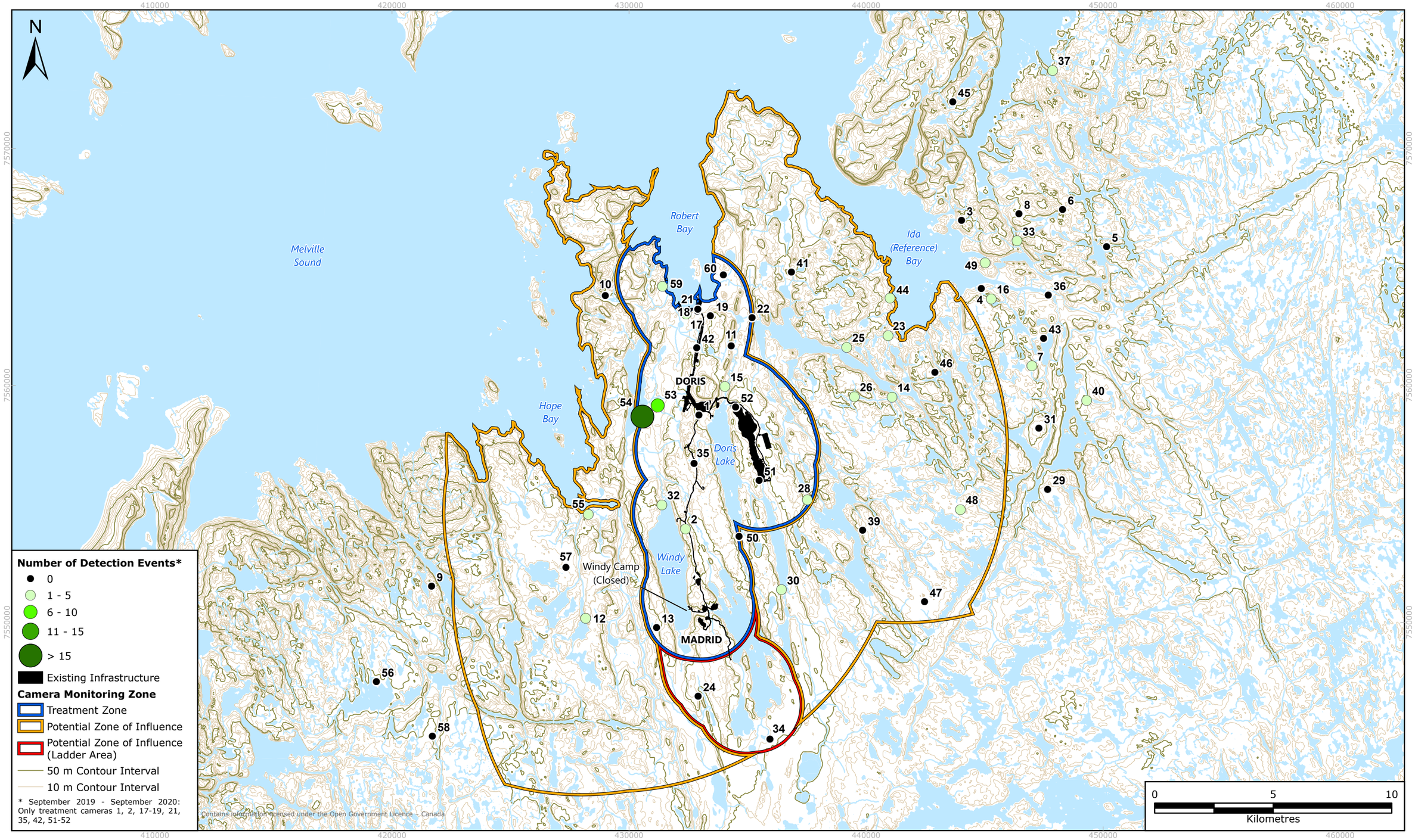
3.5.3 RESULTS AND DISCUSSION

3.5.3.1 CAMERA MONITORING

Between September 1, 2023, and August 31, 2024, 60 cameras were active for 7,818 days, averaging 130 active days per camera. Camera effort within monitoring zones for the most recent year is summarized by month in Table 3.3-2; effort summaries per camera are provided in Appendix D.

A total of nine events were recorded between September 1, 2023, and August 31, 2024. A total of 63 events were recorded of muskox between 2016 and 2024 (Figure 3.5-1; Table 3.5-1; Appendix L). Muskox events primarily occurred in June 2024, with 56% of the total muskox events. Overall, muskox events were most common in the Control zone, which also represented 56% of the total events. All five June events occurred between June 23 and June 25 between two different cameras. The remaining four events occurred in October to December in the Treatment zone and were all captured on the same camera. Detections of muskox by wildlife cameras continue to be rare, with only camera 54 in the Treatment zone having a larger number of events.

FIGURE 3.5-1 DETECTIONS OF MUSKOX ON MOTION-TRIGGERED PHOTOS RECORDED BY REMOTE CAMERAS, DORIS AND MADRID AREAS, 2016 TO 2024



CLIENT: Agnico Eagle Mines Ltd.
GIS NUMBER: HB-23-617-02

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PROJECTION: NAD 1983 UTM Zone 13N
SCALE: 1:150,000 when printed at 11x17

TABLE 3.5-1 MUSKOX EVENTS RECORDED BY MONTH AT TREATMENT, ZOI, AND CONTROL CAMERAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Year	Month	Treatment		ZOI		Control	
		Camera Effort[a] Total Active Days	Number of Events	Camera Effort[a] Total Active Days	Number of Events	Camera Effort[a] Total Active Days	Number of Events
2023	September	444	-	25	-	386	-
	October	297	2	156	-	212	-
	November	202	1	80	-	39	-
	December	142	1	59	-	44	-
2024	January	128	-	47	-	110	-
	February	159	-	56	-	121	-
	March	174	-	87	-	114	-
	April	138	-	75	-	151	-
	May	120	-	80	-	107	-
	June	416	-	368	-	294	5
	July	534	-	434	-	324	-
	August	483	-	314	-	200	-
Total		**3237**	**4**	**1781**	**0**	**2102**	**5**

Notes:
- = No muskox detected
ZOI = Zone of Influence
[a] A total of 60 cameras were deployed across the Treatment, ZOI, and Control zones.

Facilities Camera Monitoring

Two cameras have site-specific monitoring objectives for muskox: cameras 51 and 52 installed at the north and south end of the TIA. No muskox events were recorded on motion-triggered or timed photo events at these two cameras between September 1, 2023, and August 31, 2024, which suggests that muskox use of the areas surrounding the TIA is infrequent.

3.5.3.2 INTERACTIONS, INCIDENTS, AND MORTALITIES

No muskox interactions, incidents, or mortalities were recorded in 2024 (Appendix E).

3.5.3.3 WILDLIFE SIGHTINGS LOG AND INCIDENTAL OBSERVATIONS

In 2024, muskox were recorded on 24 occasions in the wildlife sighting log (Table 3.5-2; Appendix F). Several sightings were likely repeats of the same group based on the date, location, and group size (Appendix F). In particular, a herd of 25 muskox were observed repeatedly throughout February 2024 in the Windy Road / Madrid area. The muskox sighting in the TIA/TLR area did not note any interactions with the tailings. No muskox were incidentally observed by biologists in 2024 (Appendix G).

TABLE 3.5-2 MUSKOX SIGHTINGS AND INCIDENTAL OBSERVATIONS, 2024

General Location	Months	Total Sightings	Total Individuals[a]
Doris Area	June	3	32
Windy Road/Madrid	January–July	19	321
TLR/TIA	June	1	Not specified
Not Specified	July	1	2

Notes:
TIA = Tailings Impoundment Area; TLR = Tail Lake Road
[a] The total number of individuals provided may not always be representative of the true number of individuals recorded, as certain wildlife sightings may include double counting of the same individual(s).

Muskox observations from the wildlife sightings log were corrected for the number of people onsite each month from 2009 to 2024 (Appendix M). Across years, sightings are variable and have occurred in all months. In 2024, corrected muskox observations peaked at 1.92 observations per personnel (Appendix M). Peaks in muskox sightings typically represent sightings of larger herds, rather than more sightings of a few individuals (Appendix M).

3.6 GRIZZLY BEAR

Grizzly bear is considered a species of Special Concern under COSEWIC and SARA (Government of Canada 2024). Additionally, grizzly bear is listed as Vulnerable in Nunavut (NatureServe 2025). Barren-ground grizzly bears are at the most northern and eastern limits of the continental grizzly bear range. Consequently, grizzly bears in the central Arctic have the largest annual home ranges and likely have the lowest densities of any grizzly bear population studied in North America (McLoughlin 1999). The RSA is located within a 200,000 square kilometre (km^2) portion of the northwestern mainland of Nunavut that was previously estimated to contain 800 grizzly bears (TMAC 2017).

3.6.1 FEIS PREDICTIONS

The residual effects of disturbance and disruption of movement on grizzly bear within the RSA were predicted to be not significant and low magnitude in the Madrid-Boston FEIS (TMAC 2017).

3.6.2 METHODS

The potential effects of Mine-related activities on grizzly bear are monitored through the wildlife camera monitoring program (see general wildlife camera methods in Section 3.2.1). Camera data are statistically analyzed every 3 years to investigate potential differences in the occurrence of caribou within the Treatment zone, Control zone, and ZOI, and to monitor areas of possible bear attractants, such as the Roberts Bay Waste Management Facility. Bears may be attracted to specific infrastructure—despite mitigation to reduce the attractiveness—resulting in these cameras recording more events than other areas at/near the Mine.

3.6.3 RESULTS AND DISCUSSION

3.6.3.1 CAMERA MONITORING

Between September 1, 2023, and September 1, 2024, a total of 60 cameras were active for 7,818 days, averaging 130 active days per camera. Camera effort within monitoring zones for the most recent year is summarized by month in Table 3.3-2; effort summaries per camera are provided in Appendix D. A brief summary of the images and grizzly bear events recorded across all cameras during the current periods is provided below. Data from facility monitoring cameras 18, 21, and 22 are also included in the summary below.

A total of 33 events were recorded between September 1, 2023, and August 31, 2024 (Table 3.6-1). A total of 952 events were recorded of grizzly bear between 2016 and 2024 (Figure 3.6-1; Appendix N). Grizzly bear events were primarily recorded in September 2023, which included 39% of all grizzly bear events. Overall, grizzly bear events were most common in the Treatment zone and ZOI, with each zone representing 39% of total grizzly bear events compared to 22% in the Control zone. Temporally, grizzly bears were observed between May and November, which is consistent with when bears are active and not hibernating.

Facilities Camera Monitoring

Under the current camera design, there are five cameras that have site-specific monitoring objectives for grizzly bear: cameras 18 and 21 at the Roberts Bay Waste Management Facility, camera 22 at the Roberts Lake Outflow / Fish Fence, and cameras 51 and 52 at the north and south ends of the TIA.

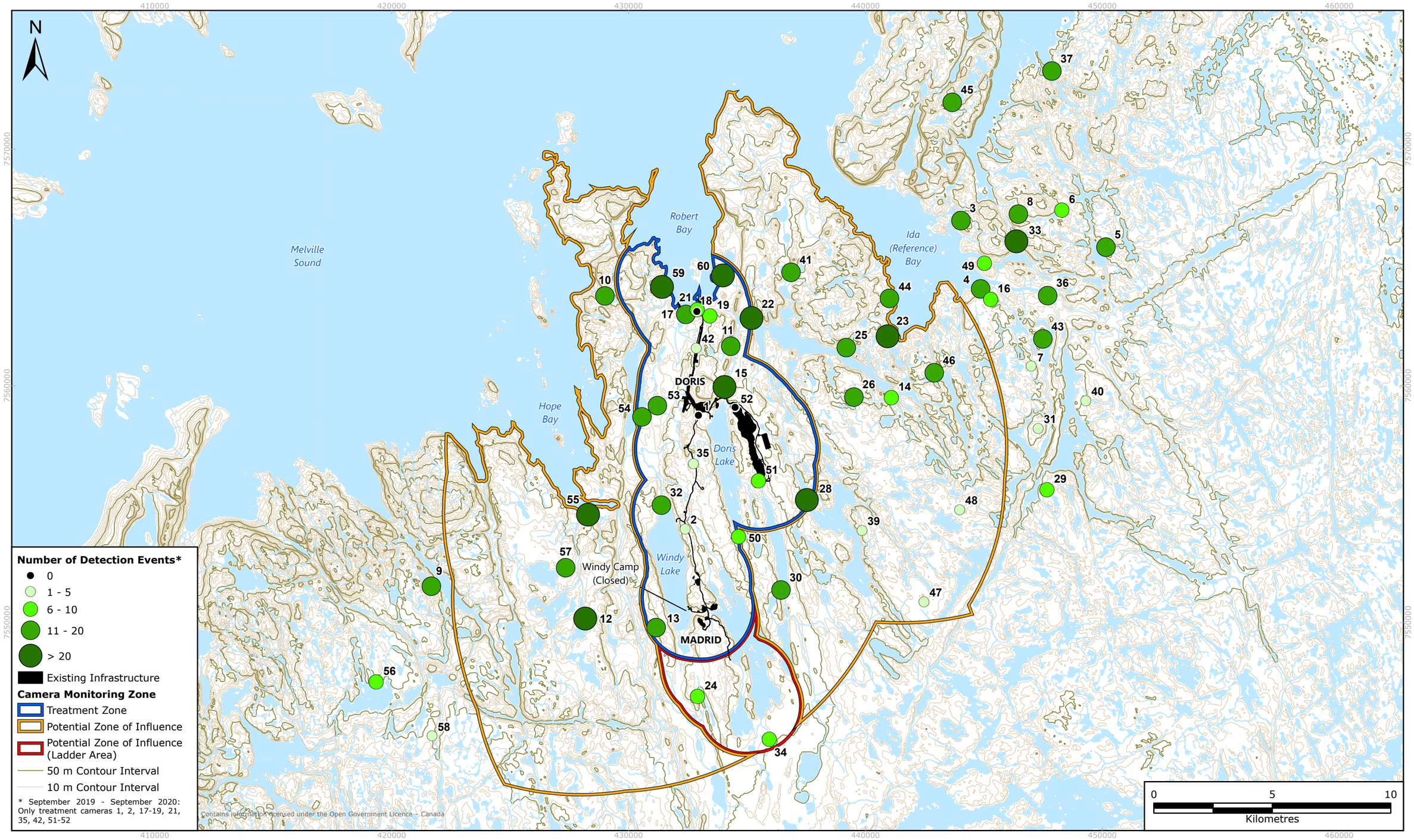
A total of two grizzly bear events were captured on facility monitoring cameras between September 1, 2023, and August 31, 2024. An event involving three grizzly bears was captured in September 2023 on camera 23 located at the Roberts Lake Outflow / Fish Fence. The other event consisted of a lone grizzly bear in November on camera 51 at the north end of the TIA. No grizzly bear events were recorded on cameras 18 and 21 at the Roberts Bay Waste Management Facility. There were less grizzly bear events at facility monitoring in 2024 than in the previous year (Figure 3.6-1). However, events occurred in similar locations as 2023, with no observations at the Roberts Bay Waste Management Facility and low levels of events at the Roberts Lake Outflow / Fish Fence and at the TIA.

TABLE 3.6-1 GRIZZLY BEAR EVENTS RECORDED BY MONTH AT TREATMENT ZONE, ZOI, AND CONTROL ZONE CAMERAS, SEPTEMBER 2023 TO AUGUST 2024

Year	Month	Treatment		ZOI		Control	
		Camera Effort[a] Total Active Days	Number of Events	Camera Effort[a] Total Active Days	Number of Events	Camera Effort[a] Total Active Days	Number of Events
2023	September	444	6	258	5	386	2
	October	297	2	156	1	212	-
	November	202	1	80	-	39	-
	December	142	-	59	-	44	-
2024	January	128	-	47	-	110	-
	February	159	-	56	-	121	-
	March	174	-	87	-	114	-
	April	138	-	75	-	151	-
	May	120	-	80	2	107	-
	June	416	1	368	-	294	1
	July	534	3	434	5	324	4
	August	483	-	314	-	200	-
Total		**3237**	**13**	**1781**	**13**	**2102**	**7**

Notes:
- = No grizzly bear detected
ZOI = Zone of Influence
[a] A total of 60 cameras were deployed across the Treatment, ZOI, and Control zones.

FIGURE 3.6-1 DETECTIONS OF GRIZZLY BEAR ON MOTION-TRIGGERED PHOTOS RECORDED BY REMOTE CAMERAS, DORIS AND MADRID AREAS, 2016 TO 2024



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GIS NUMBER: HB-23-617-03

DATE: 04/04/2025

PROJECTION: NAD 1983 UTM Zone 13N
SCALE: 1:150,000 when printed at 11x17

3.6.3.2 INTERACTIONS, INCIDENTS, AND MORTALITIES

In 2024, four grizzly bear interactions occurred at the Mine (Appendix E). On October 11, 2024, two grizzly bears entered the core shack area. A bear banger and drone were used to deter the grizzly bears from the area. However, the grizzly bears remained in the area and were monitored before they moved toward camp for a second time. Bear bangers were used again, which moved the grizzly bears out of sight. On June 4, 2024, a grizzly bear was observed near drill 4, which required action to deter it away as it posed a safety risk to personnel. A helicopter was used to redirect the grizzly bear to a safe location. On July 5, 2024, a grizzly bear was observed at the Vent Raise and a drone was flown over during monitoring of the grizzly bear causing the grizzly bear to move away by approximately 20 m. Lastly, on June 7, 2024, employees servicing wildlife cameras in the Roberts Bay area were unable to return to their truck because a grizzly bear approached them. Another truck in the vicinity was able to prevent the bear from crossing the road, although the grizzly bear remained in the area until a helicopter safely deterred the bear to the west and the personnel were able to move to safety (Appendix E).

3.6.3.3 WILDLIFE SIGHTINGS LOG AND INCIDENTAL OBSERVATIONS

In 2024, grizzly bears were recorded on 53 occasions on the wildlife sighting log. Grizzly bear observations from the wildlife sightings log were corrected for the number of people onsite each month from 2009 to 2024 (Appendix O). Across years, grizzly bear sightings peak in July and August. However, in 2023, grizzly bear sightings peaked in September, with the highest proportion of grizzly bears per onsite personnel since data collection begin in 2009 (0.31 grizzly bear recorded per personnel). In 2024, the highest proportion of grizzly bear per onsite personnel was recorded in August at 0.16, similar to trends in previous years (Appendix O; Table 3.6-2; Appendix F).

TABLE 3.6-2 GRIZZLY BEAR SIGHTINGS AND INCIDENTAL OBSERVATIONS, 2024

General Location	Months	Total Sightings	Total Individuals[a]
Doris Area	June–October	11	16
Roberts Bay	May–October	13	19
Windy Road/Madrid	April–September	25	41
TLR/TIA	July–August	4	5

Notes:
TIA = Tailings Impoundment Area; TLR = Tail Lake Road
[a] The total number of individuals provided may not always be representative of the true number of individuals recorded, as certain wildlife sightings may include double counting of the same individual(s).

Sightings occurred between April and October, with the majority of events recorded in August (Appendix F). The latest sighting occurred on October 10, 2024 (Appendix F). Most of the sightings were of either a single bear or two bears (Appendix F). Four sightings were recorded near the TIA/TLR; however, no bears were noted interacting with the tailings. No grizzly bears were incidentally observed by biologists in 2024 (Appendix G).

3.7 WOLVERINE

The wolverine is considered a species of Special Concern under COSEWIC and SARA (Government of Canada 2025). Additionally, wolverine is listed as Vulnerable in Nunavut (NatureServe 2025). The geographic range of the wolverine includes the West Kitimeot region of Nunavut (TMAC 2017). Due to the reliance of wolverine on caribou as their main food source, the distribution and abundance of wolverine is affected by trends in caribou populations (Banci and Spicker 2016).

3.7.1 FEIS PREDICTIONS

The residual effects of the disruption of movement and attraction in the PDA were predicted to be not significant and low magnitude for wolverine in the Madrid-Boston FEIS (TMAC 2017).

3.7.2 METHODS

The potential effects of Mine-related activities on wolverine are monitored through the wildlife camera monitoring program (see general wildlife camera methods in Section 3.2.1) as well as through the Wildlife Sightings/Reporting program. Camera data are statistically analyzed every 3 years to investigate for potential differences in the occurrence of wolverine within the Treatment zone, Control zone, and ZOI areas.

3.7.3 RESULTS AND DISCUSSION

3.7.3.1 CAMERA MONITORING

Between September 1, 2023, and August 31, 2024, 60 cameras were active for 7,818 days, averaging 130 active days per camera. Camera effort within monitoring zones for the most recent year is summarized by month in Table 3.3-2; effort summaries per camera are provided in Appendix P. A summary of the images and wolverine events recorded across all cameras during the current periods is provided below. Data from cameras 18, 21, and 22 with specific monitoring objectives are also included in the summary below.

Two events were recorded between September 1, 2023, and September 1, 2024 (Table 3.7-1). A total of 118 events were recorded of wolverine between 2016 and 2024 (Figure 3.1-1; Appendix P). Both wolverine events were captured on October 1, 2023, on the same camera. Both events occurred in the Control zone and were comprised of a single adult. Wolverine events were lower than previous years, with 11 events occurring from September 2022 to September 2023. However, the two events that occurred in 2024 were in the Control zone, which is where the majority of historical observations occurred (Figure 3.7-1).

Facilities Camera Monitoring

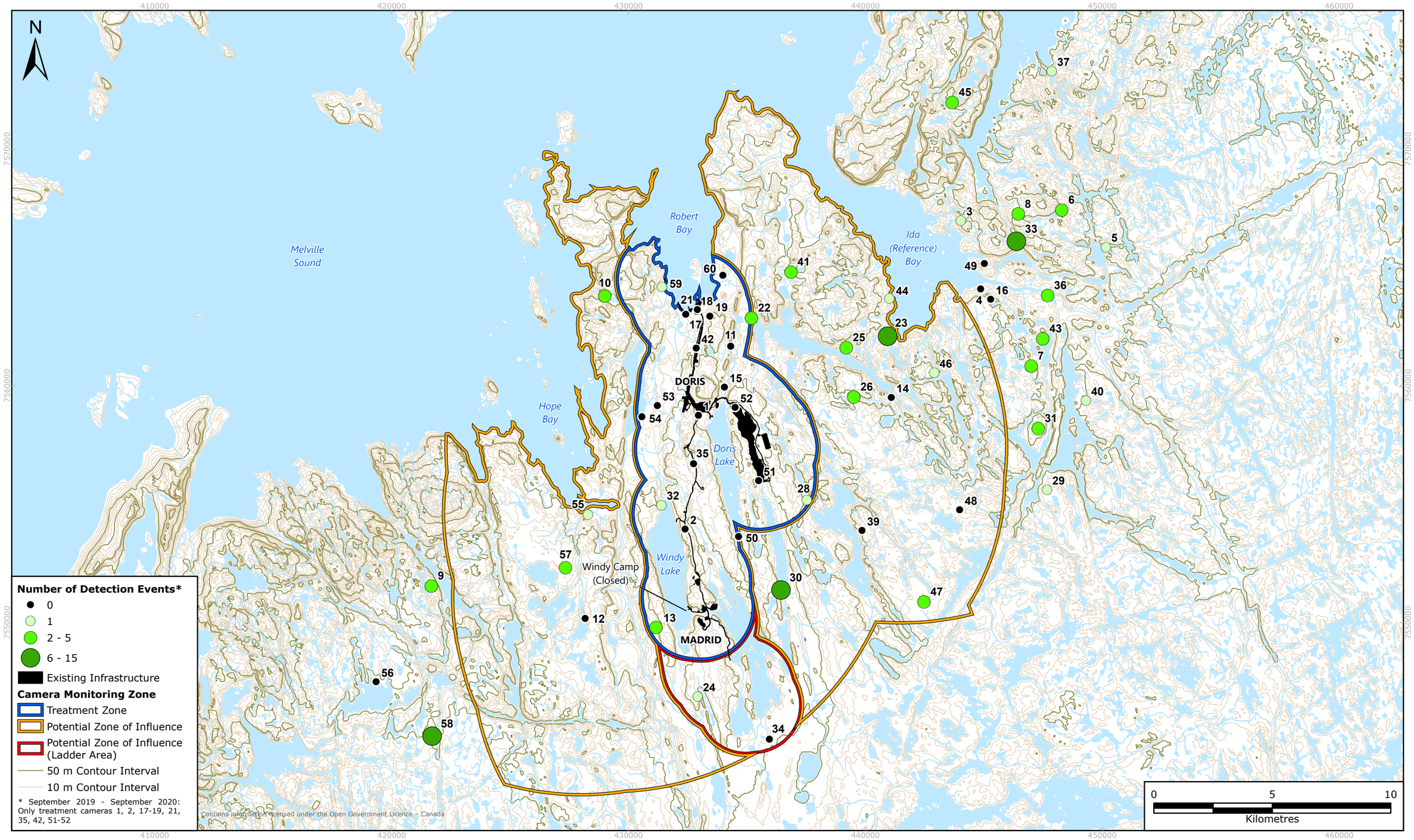
Under the current camera design, five cameras have a site-specific monitoring objective for wolverine (the same cameras with site-specific monitoring objectives for grizzly bear): camera 18 and camera 21 at the Roberts Bay Waste Management Facility, camera 22 at the Roberts Lake Outflow / Fish Fence, and cameras 51 and 52 at the north and south end of the TIA. No wolverine events were recorded on facility cameras between September 1, 2023, and August 31, 2024.

TABLE 3.7-1 WOLVERINE EVENTS RECORDED BY MONTH AT TREATMENT, ZOI, AND CONTROL CAMERAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Year	Month	Treatment		ZOI		Control	
		Camera Effort[a] Total Active Days	Number of Events	Camera Effort[a] Total Active Days	Number of Events	Camera Effort[a] Total Active Days	Number of Events
2023	September	444	-	258	-	386	-
	October	297	-	156	-	212	2
	November	202	-	80	-	39	-
	December	142	-	59	-	44	-
2024	January	128	-	47	-	110	-
	February	159	-	56	-	121	-
	March	174	-	87	-	114	-
	April	138	-	75	-	151	-
	May	120	-	80	-	107	-
	June	416	-	368	-	294	-
	July	534	-	434	-	324	-
	August	483	-	314	-	200	-
Total		**3237**	**0**	**1781**	**0**	**2102**	**2**

Notes:
- = No wolverine detected
ZOI = Zone of Influence
[a] A total of 60 cameras were deployed across the Treatment, ZOI, and Control zones.

FIGURE 3.7-1 DETECTIONS OF WOLVERINE ON MOTION-TRIGGERED PHOTOS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, 2016 TO 2024



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SCALE: 1:150,000 when printed at 11x17

3.7.3.2 INTERACTIONS, INCIDENTS, AND MORTALITIES

No wolverine interactions, incidents, or mortalities were recorded in 2024 (Appendix E).

3.7.3.3 WILDLIFE SIGHTINGS LOG AND INCIDENTAL OBSERVATIONS

In 2024, wolverines were recorded on three occasions on the wildlife sighting log (Table 3.7-2; Appendix F). No wolverines were incidentally observed by biologists in 2024 (Appendix G).

TABLE 3.7-2 WOLVERINE SIGHTINGS AND INCIDENTAL OBSERVATIONS, 2024

General Location	Months	Total Sightings	Total Individuals[a]
Doris Area	March	1	1
Windy Road / Madrid	January and October	2	2

Note:
[a] The total number of individuals provided may not always be representative of the true number of individuals recorded, as certain wildlife sightings may include double counting of the same individual(s).

Wolverines have been recorded variably across years, with sightings most commonly occurring in winter and spring (Appendix F). Very few individual wolverines are typically seen in a given year compared to other large mammal VECs (see Sections 3.4 to 3.6).

3.8 NEST PREDATORS

Nest predators include omnivorous or carnivorous species that frequently depredate bird nests. In the Mine area, this includes Common Ravens (*Corvus corax*), Arctic fox (*Vulpes lagopus*), red fox (*Vulpes vulpes*), grey wolf (*Canis lupus*), gulls (*Laridae* sp.), and small-bodied mammals, such as weasels (*Mustilidae* sp.). Nest predator monitoring was initiated due to concerns that the Mine may attract nest predators and have a potential impact on upland breeding bird nests. Nest predators are monitored through the wildlife camera monitoring program and the incidental wildlife observations program. However, monitoring has not indicated any attraction of nest predators to the Mine area (ERM 2024). Across years, nest predators are typically equally common across all camera zones. Additionally, the Madrid-Boston FEIS did not predict any effects related to nest predators; neither Project Certificate No. 003 nor Project Certificate No. 009 have any commitments related to nest predators. Therefore, the nest predator monitoring program has been discontinued in 2024, after discussion of the program results at the 2024 IEAC meeting. This program discontinuation will be included in the updated WMMP.

3.9 UPLAND BREEDING BIRDS

Upland breeding birds considered in the WMMP consist of passerines, shorebirds, and ptarmigans. In 2021, the upland bird program for the purposes of measuring effects of the Mine on birds and bird habitat was officially discontinued, as discussed in the WMMP (Agnico Eagle 2023). Currently, upland bird monitoring for the Mine is included in the following two programs, which were both completed in 2024:

- Program for Regional and International Shorebird Monitoring (PRISM) Surveys: an upland bird monitoring program specific to identifying breeding birds within tundra ecosystems that contributes to the PRISM program for the Canadian Arctic led by CWS, as described in the WMMP (Agnico Eagle 2023).
- TIA upland bird monitoring: an upland bird monitoring program completed every 2 years to monitor bird use of the habitat around the TIA (Agnico Eagle 2023).

3.9.1 FEIS PREDICTIONS

There were two potential residual effects for upland breeding birds—disturbance and mortality—in the Madrid-Boston FEIS predictions. These were assessed as a nonsignificant, negligible magnitude effect of disturbance in the Madrid-Boston LSA, and a nonsignificant, low magnitude effect of direct mortality in the PDA (TMAC 2017). Regardless, upland breeding bird monitoring occurs at the TIA and the associated Control site of Ogama Lake (Project Certificate No. 009 Term and Condition 26; NIRB 2018).

3.9.2 METHODS

In 2024, upland breeding birds were monitored through the wildlife interactions, incidents, and mortalities program, and the incidental sightings program. General methods for these programs are described in Section 3.2 and detailed findings are available in Appendices E to G. In addition, the 2024 upland bird program for the Mine includes the regional PRISM monitoring and TIA upland bird monitoring that are described below.

3.9.2.1 REGIONAL PROGRAM FOR REGIONAL AND INTERNATIONAL SHOREBIRD MONITORING

In 2024, regional PRISM surveys following the CWS PRISM protocol (CWS 2024) were completed. PRISM surveys were completed from mid-June to early July to correspond with the upland bird nesting season. PRISM survey plots were 300 m by 400 m in size (12 ha) and the CWS provided location coordinates. Each PRISM plot is given a priority level by the CWS based on the temporal urgency to survey the plot: high, medium, and low. Plots were accessed by helicopter, with landing locations spaced at least 200 m from the plot boundaries to minimize disturbance to birds. Weather variables were recorded at the beginning of each survey, and plot photos were taken from at least one corner of the plot. Habitat cover and characterization were also recorded for each plot. Observers systematically surveyed the plot, starting from one corner and walking in tandem along the north-south transects spaced 25 m apart (CWS 2024).

PRISM surveys consisted of recording and mapping all birds seen or heard within plots according to species, sex, and age, where possible. Breeding territories within a plot were determined based on behavioural cues (e.g., carrying food or nesting materials, courtship displays, breeding pairs, alarm calling, and distraction displays). All nests observed during PRISM surveys were georeferenced and photographed. Nest details were recorded for each nest found and included the associated species, nest stage, number of eggs/nestlings, flushing distance, nest cover, and nest substrate. All birds or nonbird species outside of the PRISM plot boundaries were also recorded, but designated as incidental observations (Section 3.2.3).

3.9.2.2 TIA PROGRAM FOR REGIONAL AND INTERNATIONAL SHOREBIRD MONITORING

TIA PRISM monitoring followed an identical PRISM survey protocol used for the regional PRISM monitoring outlined above (Section 3.9.2.1; CWS 2024).

TIA PRISM surveys were completed at six sites along the shoreline of the TIA (Treatment sites) and six sites along Ogama Lake (Control sites). All TIA PRISM plot sites were established in 2018 to address concerns regarding the residual effect of potential direct mortality, particularly regarding shorebird species of conservation concern. Historically, seven Treatment sites were surveyed, but one site along the southern shoreline of the TIA, PR-UB2, is no longer within suitable surveying habitat, as the TIA sediment and water now cover the entire plot. Therefore, the plot was not surveyed and has been removed from the TIA PRISM monitoring program.

PRISM monitoring at the TIA is set to occur every 2 years according to the WMMP (Agnico Eagle 2023) and will be completed again in 2026.

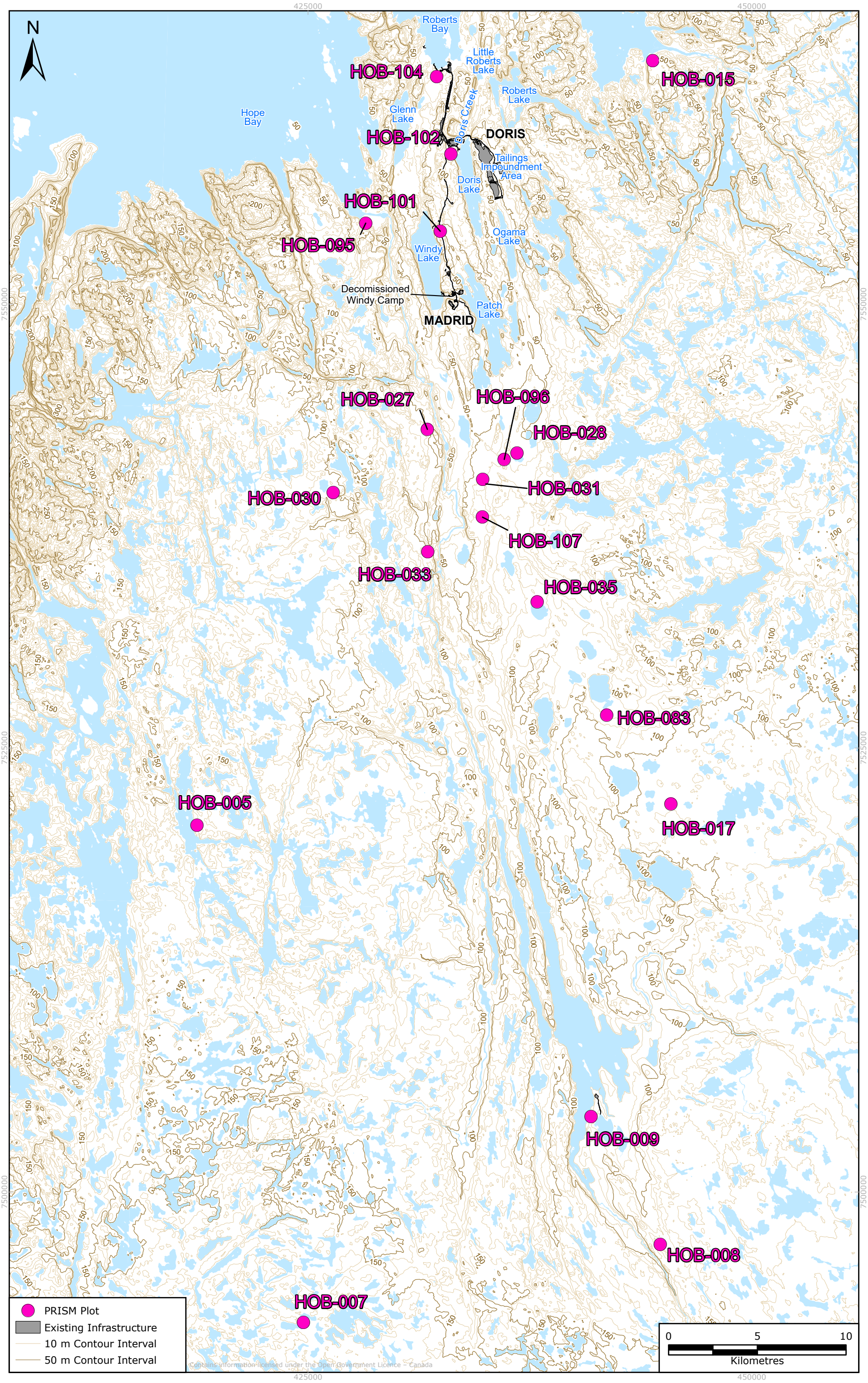
3.9.3 RESULTS AND DISCUSSION

3.9.3.1 REGIONAL PROGRAM FOR REGIONAL AND INTERNATIONAL SHOREBIRD MONITORING

Between June 21 and July 2, 2024, PRISM surveys were completed at 19 plots: six high-priority plots and 13 medium-priority plots (Figure 3.9-1; Appendix R). As of 2024, all high-priority plots from the CWS plot list have been surveyed.

Most PRISM plots had mixed habitat types with some aquatic portions (i.e., ponds, lakes, streams, and ocean), and ranged in topography from flat to hilly. Plots varied extensively in the proportions of upland and lowland habitat types (e.g., barren, herbaceous, and shrubby). PRISM surveys averaged 1 hour 26 minutes per plot for a total survey time of 27.75 hours to complete surveying 19 PRISM plots. The weather was generally mild, with an average temperature of 5.8°C and an average wind speed of 12 to 19 kilometre per hour (km/hr; 3 on the Beaufort scale; Appendix R).

FIGURE 3.9-1 REGIONAL PRISM SURVEY LOCATIONS, 2024



ERM

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GIS NUMBER: HB-23-614-04

DATE: 03/17/2025

PROJECTION: NAD 1983 UTM Zone 13N
SCALE: 1:200,000 when printed at 11x17

Within the PRISM plots, the species richness ranged from two to 12 species, and bird abundance ranged from eight to 47 birds. Overall, 381 upland birds from 20 upland bird species were detected (Table 3.9-1; Appendix S). Several additional avian species were incidentally detected during the PRISM surveys (Appendix G). The most abundant upland bird species were Savannah Sparrow (*Passerculus sandwichensis*), Lapland Longspur (*Calcarius lapponicus*), and Common Redpoll (Table 3.9-1). Least Sandpiper (*Calidris minutilla*) was the most common shorebird species recorded. Additionally, four species of conservation concern were observed: Red-necked Phalarope (*Phalaropus lobatus*), American Golden-Plover (*Pluvialis dominica*), Hoary Redpoll (*Acanthis hornemanni*), and Semipalmated Sandpiper (*Calidris pusilla*). Two Red-necked Phalarope nests, a species of conservation concern, were found during the PRISM surveys, one within a PRISM plot and one incidentally outside a plot boundary. A total of 15 upland bird nests from a variety of species were recorded within the PRISM plots, and several other nests were incidentally observed (Photo 3.9-1, Photo 3.9-2; Table 3.9-2). Lapland Longspur nests were the most frequently observed (Table 3.9-2).

The number of species detected in 2024 was higher than in 2022, with 20 upland bird species detected in 2024 and 16 species recorded in 2022 when the last round of PRISM surveys was completed. However, more plots were surveyed in 2024, and the survey sites differed; therefore, the two survey years are not directly comparable. Similar to 2022, Lapland Longspur and Savannah Sparrow were the most commonly detected upland bird species, while Least Sandpiper remained the most abundant shorebird species.

3.9.3.2 TIA PROGRAM FOR REGIONAL AND INTERNATIONAL SHOREBIRD MONITORING

Between June 20 and June 30, 2024, PRISM surveys were completed at six TIA plots (Treatment) and six Ogama plots (Control; Figure 3.9-2; Photo 3.9-3; Appendix T). Most PRISM plots consisted of upland habitat and ranged in topography from undulating to hilly. Overall, there was a low amount of wet lowland habitat within both the TIA and the Ogama plots, which is the preferred habitat of most shorebird species. PRISM surveys averaged 1 hour 10 minutes per plot for a total survey time of 13.66 hours to complete 12 PRISM plots. The weather was generally mild, with an average temperature of 9.6°C and an average wind speed of 6 to 11 km/hr (2 on the Beaufort scale; Appendix T).

Within TIA Treatment plots, species richness ranged from five to six species, and bird abundance ranged from 16 to 31 birds (Table 3.9-3; Appendix U). Within Ogama Control plots, species abundance ranged from five to seven species, and bird abundance ranged from 14 to 27 birds. Overall, the upland bird species richness and abundance between Treatment and Control plots were similar (Table 3.9-3). Several additional species were incidentally detected during the TIA PRISM surveys (Appendix G). Two Least Sandpipers were observed incidentally at TIA Treatment plots outside of plot boundaries (Appendix G). The most abundant upland bird species for both the Treatment and Control plots were Savannah Sparrow, Lapland Longspur, Common Redpoll, and White-crowned Sparrow (*Zonotrichia leucophrys*). The Hoary Redpoll was the only upland bird species of conservation concern detected during the TIA PRISM surveys. A total of five nests were recorded within the TIA PRISM plots from a variety of upland bird species (Table 3.9-4; Photo 3.9-4). More nests were recorded in the Treatment plots compared to the Control plots, but the overall number of nests was quite low, in accordance with the less suitable, dry upland habitat of the general area.

TABLE 3.9-1 SUMMARY OF UPLAND BREEDING BIRD OBSERVATIONS FROM THE REGIONAL PROGRAM FOR REGIONAL AND INTERNATIONAL SHOREBIRD MONITORING SURVEYS, 2024

Common Name	Scientific Name	Total Number of Observations					
		Male	Female	Pairs	Unknown[a]	Young	Total[b]
American Golden-Plover*	*Pluvialis dominica*	0	0	0	4	0	**4**
American Pipit	*Anthus rubescens*	0	0	3	0	0	**6**
American Tree Sparrow	*Spizelloides arborea*	5	0	2	3	0	**12**
Baird's Sandpiper	*Calidris bairdii*	0	0	1	1	0	**3**
Common Redpoll	*Acanthis flammea*	6	4	14	9	6	**53**
Dunlin	*Calidris alpina*	0	0	0	2	0	**2**
Hoary Redpoll*	*Acanthis hornemanni*	0	0	2	0	3	**7**
Horned Lark	*Eremophila alpestris*	2	4	5	2	0	**18**
Lapland Longspur	*Calcarius lapponicus*	31	6	19	0	0	**75**
Least Sandpiper	*Calidris minutilla*	0	0	11	13	0	**35**
Pectoral Sandpiper	*Calidris melanotos*	0	0	2	1	0	**5**
Red-necked Phalarope*	*Phalaropus lobatus*	4	9	6	0	0	**25**
Rock Ptarmigan	*Lagopus muta*	0	0	2	0	0	**4**
Savannah Sparrow	*Passerculus sandwichensis*	25	0	16	31	2	**90**
Semipalmated Plover	*Charadrius semipalmatus*	0	0	4	2	2	**12**
Semipalmated Sandpiper*	*Calidris pusilla*	0	0	1	0	0	**2**
Stilt Sandpiper	*Calidris himantopus*	0	0	1	3	0	**5**
White-crowned Sparrow	*Zonotrichia leucophrys*	3	0	2	11	0	**18**
Willow Ptarmigan	*Lagopus lagopus*	2	0	0	0	0	**2**
Wilson's Snipe	*Gallinago delicata*	0	0	0	3	0	**3**
Total		**78**	**23**	**91**	**85**	**13**	**381**

Notes:
* Indicates a species of conservation concern, either federally or in Nunavut.
[a] Birds are recorded as unknown when the species is not sexually dimorphic and no sex-specific behaviours are observed (e.g., singing).
[b] The total number of observations is calculated by adding up the number of observations in all preceding columns, including doubling the number in the "Pairs" column, as a pair is two birds.

Photo 3.9-1 Nest Hob017—nest1 with four nestling Lapland longspurs, 2024.

Photo 3.9-2 Nest Hob104—nest1 belonging to a Baird's Sandpiper with four eggs, 2024.

TABLE 3.9-2 SUMMARY OF ALL NEST OBSERVATIONS FOR THE REGIONAL PROGRAM FOR REGIONAL AND INTERNATIONAL SHOREBIRD MONITORING SURVEYS, 2024

Species Group	Nest ID	Species	Nest in Plot	Nest Stage	Egg Number[a]	Nestling Number[a]
Upland Birds	Hob005-nest1	Lapland Longspur	Yes	Incubating	4	0
	Hob008-nest1	Common Redpoll	Yes	Incubating	5	0
	Hob008-nest2	Red-necked Phalarope*	No	Incubating	4	0
	Hob009-nest1	Lapland Longspur	Yes	Nestlings	0	4
	Hob009-nest2	Lapland Longspur	Yes	Nestlings	0	5
	Hob015-nest1	Lapland Longspur	Yes	Incubating	5	0
	Hob015-nest2	American Pipit	Yes	Incubating	6	0
	Hob017-nest1	Lapland Longspur	Yes	Nestlings	0	4
	Hob028-nest1	Savannah Sparrow	Yes	Incubating	5	0
	Hob030-nest1	American Tree Sparrow	Yes	Incubating	4	0
	Hob033-nest1	Common Redpoll	Yes	Abandoned	2	0
	Hob035-nest2	Savannah Sparrow	Yes	Incubating	5	0
	Hob095-nest1	Red-necked Phalarope*	Yes	Incubating	4	0
	Hob104-nest2	Common Redpoll	Yes	Incubating	2	0
	Hob104-nest1	Baird's Sandpiper	Yes	Incubating	4	0
Waterbirds	Hob007-nest1	Yellow-billed Loon	Yes	Incubating	2	0
	Hob028-nest2	Pacific Loon	No	Incubating	-	-
	Hob035-nest1	Greater White-fronted Goose	Yes	Incubating	6	0
	Hob083-nest1	Arctic Tern	Yes	Incubating	-	-
	Hob083-nest2	Long-tailed Duck	Yes	Incubating	-	-
	Hob095-nest2	Pacific Loon	No	Incubating	-	-
	Hob101-nest1	Red-throated Loon	No	Incubating	-	-
	Hob107-nest2	Northern Pintail	Yes	Fledged	0	3
	Hob107-nest1	Red-throated Loon	Yes	Incubating	-	-

Notes:
- = Indicates an unknown number of eggs or nestlings because the adult was incubating and not disturbed
* Indicates a species of conservation concern, either federally or in Nunavut.
[a] The number of eggs or nestlings was not always recorded, as some nests with incubating adults remained undisturbed.

FIGURE 3.9-2 TAILINGS IMPOUNDMENT AREA AND OGAMA LAKE PRISM SURVEY LOCATIONS, 2024

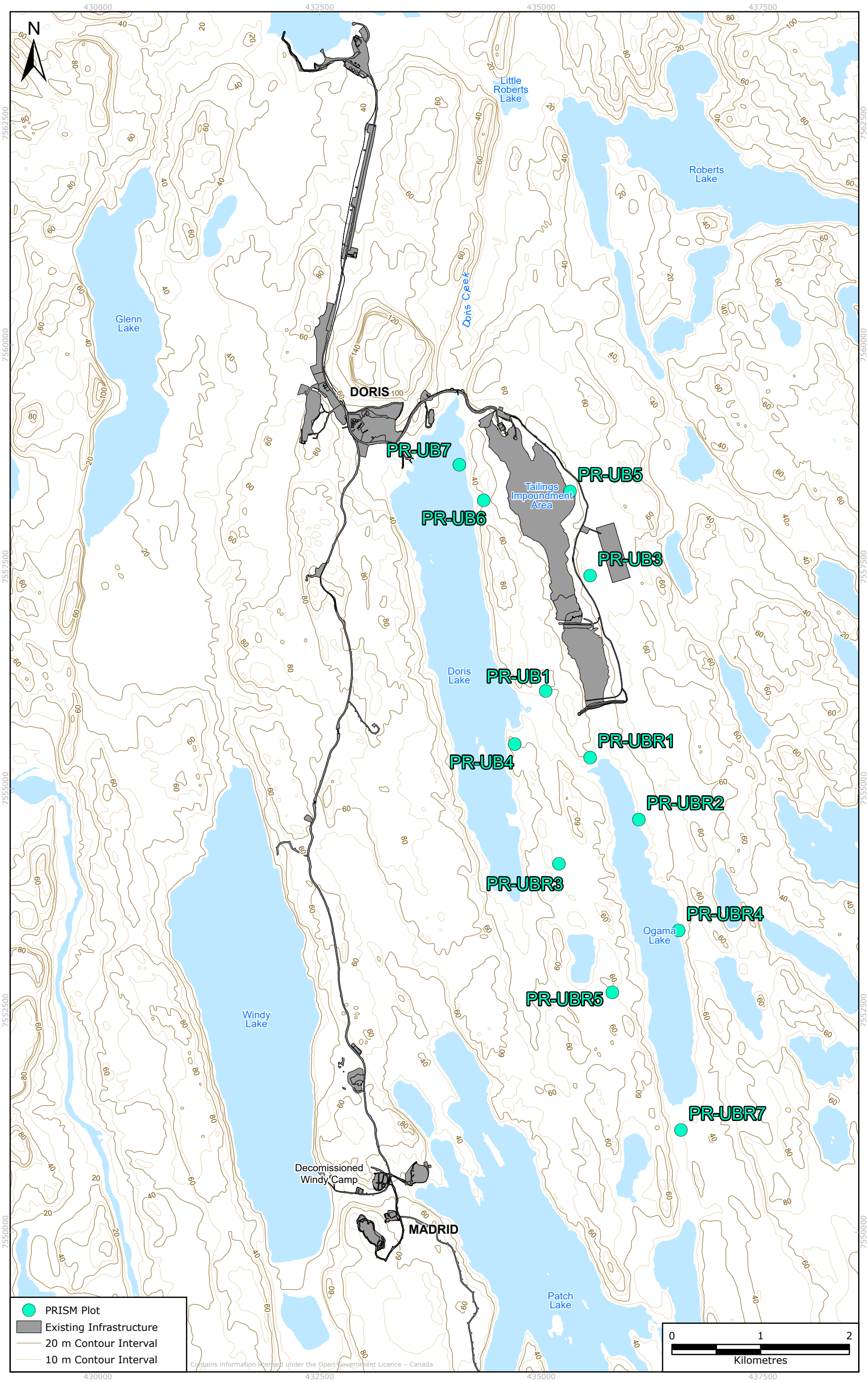

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Photo 3.9-3 TIA Program for Regional and International Shorebird Monitoring Treatment plot PR-UB7, 2024.

Photo 3.9-4 Nest Prub1—nest1 belonging to a Common Redpoll with three eggs at a TIA Program for Regional and International Shorebird Monitoring Treatment plot, 2024.

TABLE 3.9-3 SUMMARY OF BIRD OBSERVATIONS FROM THE TIA AND OGAMA LAKE PROGRAM FOR REGIONAL AND INTERNATIONAL SHOREBIRD MONITORING SURVEYS, 2024

Plot Type	Species Name	Scientific Name	Total Number of Observations					
			Male	Female	Pairs	Unknown[a]	Young	Total[b]
TIA Treatment	American Pipit	*Anthus rubescens*	0	0	1	4	0	6
	American Tree Sparrow	*Spizelloides arborea*	4	0	2	1	0	9
	Common Redpoll	*Acanthis flammea*	2	2	8	10	1	31
	Horned Lark	*Eremophila alpestris*	0	0	2	1	0	5
	Hoary Redpoll*	*Acanthis hornemanni*	0	0	1	0	2	4
	Lapland Longspur	*Calcarius lapponicus*	13	3	3	0	0	22
	Savannah Sparrow	*Passerculus sandwichensis*	16	0	3	11	0	33
	White-crowned Sparrow	*Zonotrichia leucophrys*	5	0	7	10	0	29
	Willow Ptarmigan	*Lagopus lagopus*	0	0	1	0	0	2
Ogama Lake Control	American Pipit	*Anthus rubescens*	0	0	0	1	0	1
	American Tree Sparrow	*Spizelloides arborea*	6	0	4	6	0	20
	Common Redpoll	*Acanthis flammea*	2	3	5	4	4	23
	Horned Lark	*Eremophila alpestris*	0	0	1	0	0	2
	Lapland Longspur	*Calcarius lapponicus*	7	1	6	3	0	23
	Savannah Sparrow	*Passerculus sandwichensis*	3	0	8	8	0	27
	White-crowned Sparrow	*Zonotrichia leucophrys*	2	0	5	13	0	25
	Willow Ptarmigan	*Lagopus lagopus*	1	0	0	0	0	1
Total			**61**	**9**	**57**	**72**	**7**	**263**

Notes:
TIA = Tailings Impoundment Area
[a] Birds are recorded as unknown when the species is not sexually dimorphic and no sex-specific behaviours are observed (e.g., singing).
[b] The total number of observations is calculated by adding up the number of observations in all preceding columns, including doubling the number in the "Pairs" column, as a pair is two birds.

TABLE 3.9-4 SUMMARY OF ALL NEST OBSERVATIONS FOR THE TIA AND OGAMA LAKE PROGRAM FOR REGIONAL AND INTERNATIONAL SHOREBIRD MONITORING SURVEYS, 2024

Plot Type	Nest ID	Species	Nest in Plot	Nest Stage	Egg Number	Nestling Number
TIA Treatment	Prub5-nest01	White-crowned Sparrow	Yes	Incubating	5	0
TIA Treatment	Prub3-nest1	American Tree Sparrow	Yes	Incubating	5	0
TIA Treatment	Prub1-nest1	Common Redpoll	Yes	Incubating	3	0
TIA Treatment	Prub6-nest1	Savannah Sparrow	Yes	Incubating	4	0
Ogama Lake Control	Prubr2-nest1	Common Redpoll	Yes	Incubating	5	0

Note:
TIA = Tailings Impoundment Area

The number of upland bird species detected in 2024 was slightly lower than in 2021, when the last round of TIA PRISM surveys was completed. The 2024 results indicate that similar species were abundant in 2022, including Common Redpoll, whose nests were the most frequently found in both survey years. Similarly to 2022, species richness and bird abundance was quite similar between the TIA Treatment and Ogama Control plots.

3.9.3.3 INTERACTIONS, INCIDENTS, AND MORTALITIES

No upland breeding bird interactions, incidents, or mortalities were recorded in 2024 (Appendix E).

3.9.3.4 WILDLIFE SIGHTINGS LOG AND INCIDENTAL OBSERVATIONS

In 2024, upland breeding birds were observed on 60 occasions as recorded in the wildlife sightings log (Table 3.9-5; Appendix F). The majority of wildlife sightings log observations were of ptarmigan. Additional upland bird species recorded via the wildlife sightings log included American Pipit (*Anthus rubescens*), American Robin (*Turdus migratorius*), Common Redpoll, Hoary Redpoll, Horned Lark (*Eremophila alpestris*), Say's Phoebe (*Sayornis saya*), Snow Bunting, Semipalmated Plover, and Least Sandpiper (Appendix F). The Semipalmated Plover and Least Sandpiper observations were recorded in the Windy Road / Madrid areas. In addition, many upland birds were recorded incidentally by biologists throughout the Study Area and details can be found in Appendix G (Table 3.9-5).

TABLE 3.9-5 UPLAND BREEDING BIRDS SIGHTINGS AND INCIDENTAL OBSERVATIONS, 2024

General Location	Months	Total Sightings	Total Individuals[a]
Doris Area	February–December	27	170
Roberts Bay	January–December	7	47
Windy Road / Madrid	February–December	14	142
TLR/TIA	February–November	11	63
Unspecified	September	1	12
Various Wildlife Survey Sites	June–July	-	297

Notes:
- = Total sightings are not provided for incidental biologist observations because these totals are combined from several wildlife surveys
TIA = Tailings Impoundment Area; TLR = Tail Lake Road
[a] The total number of individuals provided may not always be representative of the true number of individuals recorded, as certain wildlife sightings may include double counting of the same individual(s).

Similarly to 2023, the majority of upland birds recorded on the wildlife sightings log occurred in the Doris area. The total number of individuals and number of species recorded was much higher in 2024 compared to 2023; however, this is accounted for by wildlife monitoring programs being completed in 2024 and the lack of programs in 2023.

3.9.3.5 SPECIES OF CONSERVATION CONCERN

In 2024, several upland bird species of conservation concern were observed (Table 3.3-1). American Golden-Plovers were observed both incidentally and during upland bird monitoring by biologists (Section 3.9.3.1; Appendix G). The most commonly observed species of conservation concern was the Red-necked Phalarope, with 25 adults and two nests found during the regional PRISM surveys (Section 3.9.3.1), and five observed incidentally by biologists (Appendix G). The Semipalmated Plover was observed on 12 occasions during the regional PRISM surveys (Section 3.9.3.1) and observed incidentally by biologists (Appendix G). Hoary Redpolls were observed with young during both regional PRISM surveys and TIA PRISM surveys, and were the least commonly observed species of conservation concern with 11 detections (Section 3.9.3.1, Section 3.9.3.3). No upland bird species of conservation concern were observed via the wildlife sightings log. Many more species of conservation concern were observed in 2024 compared to 2023; however, this is accounted for by upland bird monitoring programs being completed in 2024 as opposed to no programs in 2023.

3.10 WATERBIRDS

Waterbird monitoring for the Doris compliance program is currently completed every 2 years, with surveys completed in 2024. Waterbird field surveys for the Doris compliance program have been scaled back from previous years, after comprehensive analyses of the dataset from 2006 to 2018 (TMAC 2019) and discussion with CWS. Waterbird monitoring currently includes the following two survey programs:

- Regional shoreline monitoring, which consists of ground surveys along the shorelines of waterbodies at varying distances from the site infrastructure (sites were established in 2022).
- TIA shoreline monitoring, which consists of ground surveys for the detection of waterbirds and as supplemental surveys to the TIA PRISM monitoring (Section 3.9) along the shorelines of the TIA (Treatment sites) and Ogama Lake (Control sites; sites were established in 2018).

Water quality is monitored at the TIA, in accordance with Commitment 31 and Condition 26 (NIRB 2018). If water quality exceeds guidelines, a toxicological risk assessment is required to determine if it is safe for birds to use or nest on the TIA. If that assessment determines that there is a risk to waterbird health, then waterbirds require deterrence from the TIA. Water quality was monitored at the TIA in 2024 and did not exceed guidelines for wildlife; therefore, no risk assessment was warranted (Section 3.10.3.3; Appendix Z).

3.10.1 FEIS PREDICTIONS

The residual effect of disturbance in the LSA for waterbirds was predicted to be nonsignificant and of negligible magnitude in the Madrid-Boston FEIS, and the residual effect of direct mortality in the PDA was predicted to be nonsignificant and of low magnitude (TMAC 2017). Regardless, waterbird monitoring occurs at the TIA and the associated Control site of Ogama Lake (Project Certificate No. 009 Term and Condition 26; NIRB 2018).

3.10.2 METHODS

In 2024, the potential effects of Mine-related activities on waterbirds were determined by ground-based surveys; monitoring water quality in the TIA (Section 3.10.2.3); the interactions, incidents, and mortalities program; and the wildlife sightings log. General methods for these programs are outlined in Section 3.2.

3.10.2.1 REGIONAL SHORELINE MONITORING

Regional ground-based waterbird surveys were completed along the shorelines of waterbodies at varying distances from the site infrastructure. All regional shoreline monitoring sites were established in 2022 and consist of the following (Figure 3.10-1):

- Six Treatment sites within 2 km of the Mine infrastructure;
- Six Control sites that are further than 2 km from the Mine infrastructure; and
- Three "Ladder" sites that are currently more than 2 km (Control) from the Mine infrastructure, but may change in future years as development potentially expands.

Surveys were completed during the nesting season (late June 2024) to determine breeding waterbird use of the area. Surveys consisted of fixed radius (200 m) counts for a set time of 20 minutes to record all birds seen or heard. Survey locations were approached on foot from 200 m or further away to avoid disturbance to birds prior to surveys (e.g., noise and visual disturbance from trucks or helicopters). At each survey site, all bird observations were recorded according to species, number of individuals, sex, age, and behaviour, if possible. Weather variables and habitat information were also recorded at each site. Bird observations were recorded as incidental if they were observed more than 200 m from the observer, were flying over, or if they were seen or heard before or after the survey window.

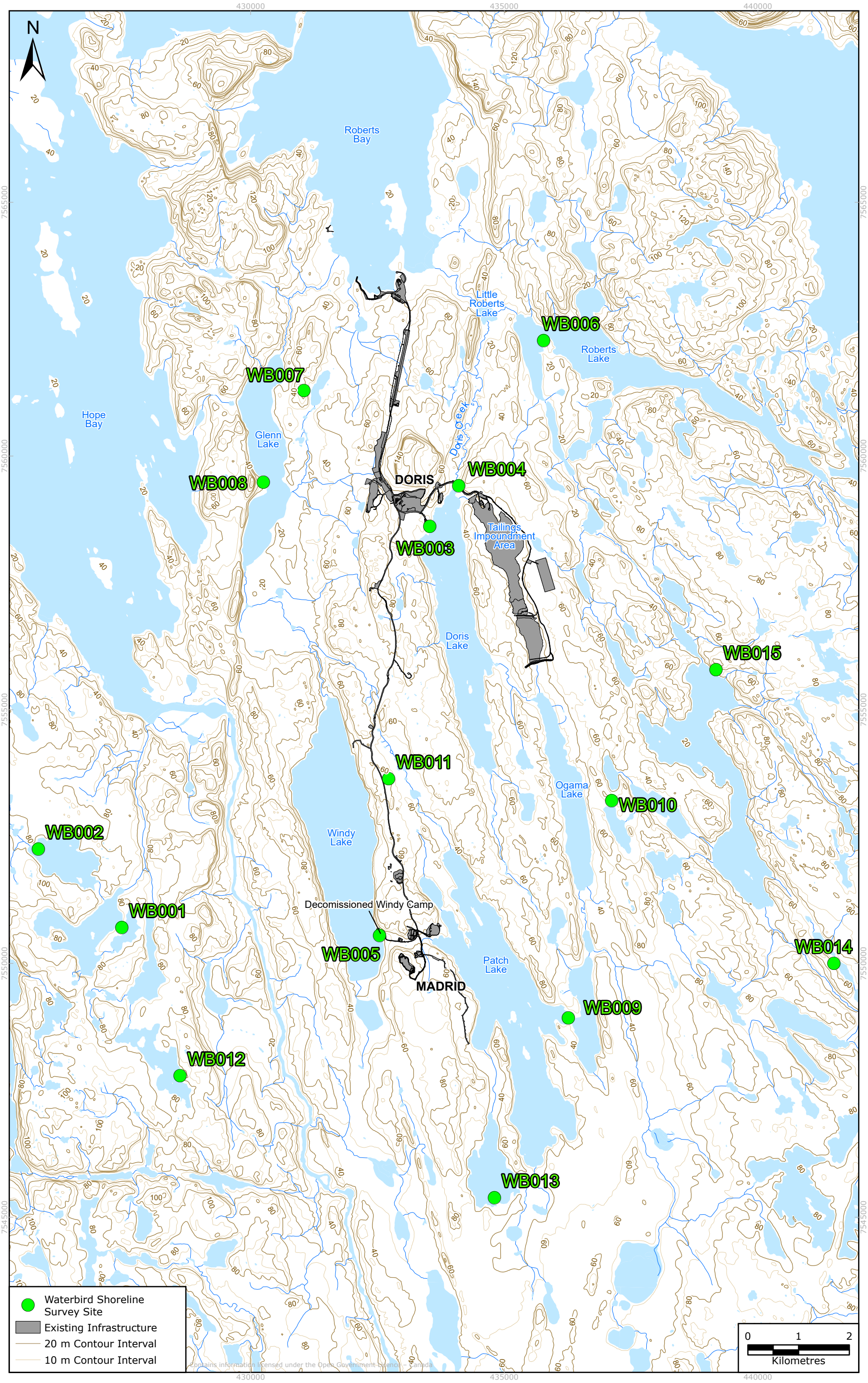
3.10.2.2 TIA SHORELINE MONITORING

TIA ground-based waterbird surveys were completed along the shorelines of the TIA (Treatment sites) and at Ogama Lake (Control sites). All TIA shoreline monitoring sites were established in 2018: six sites at the TIA and six sites at Ogama Lake. Surveys methods were identical to those used for the regional shoreline monitoring outlined in Section 3.10.2.1.

3.10.2.3 WATER QUALITY MONITORING IN THE TIA FOR WATERBIRDS

As part of the existing water licence requirements and WMMP commitments (Agnico Eagle 2023), onsite staff sampled water quality in the TIA at location TL1 every week in 2024 (n = 50). Water quality monitoring results were compared to the CCME's Water quality guidelines for the Protection of Agriculture—Livestock, as those are the guidelines that are available and most relevant for wildlife (CCME 2021).

FIGURE 3.10-1 REGIONAL SHORELINE SURVEY LOCATIONS, 2024



ERM

CLIENT: Agnico Eagle Mines Ltd.
GIS NUMBER: HB-23-614-06

DATE: 03/17/2025

PROJECTION: NAD 1983 UTM Zone 13N
SCALE: 1:70,000 when printed at 11x17

3.10.3 RESULTS AND DISCUSSION

3.10.3.1 REGIONAL SHORELINE MONITORING

Regional shoreline surveys were completed at 15 sites: six Treatment sites (<2 km from infrastructure), six Control sites (>2 km from infrastructure), and three Ladder sites (currently included as Control sites; Figure 3.10-1). Most sites consisted of medium to large wetlands, ponds, or lakes. The weather was relatively mild, with an average temperature of 8.3°C and an average wind speed of 16 km/hr (Appendix V).

Findings from the 2024 surveys reveal somewhat similar findings to the 2022 surveys, when the last round of regional shoreline monitoring was completed. The total number of waterbird species detected was similar, and the number of species across sites was comparable between Control and Impact sites. Conversely to 2022, the 2024 surveys recorded a higher range of waterbird abundance at Treatment sites rather than at Control sites, both years being influenced by larger flocks of waterbirds (e.g., Cackling Geese; Table 3.10-1) at certain sites.

At Treatment sites, species richness ranged from one to three waterbird species, and bird abundance ranged from one to 37 waterbirds. At Control sites (including Ladder sites), species richness ranged from one to four waterbird species, and bird abundance ranged from one to 13 waterbirds. Overall, the number of waterbird species were similar between Control and Treatment, although Treatment sites had a higher range of waterbird abundance (Table 3.10-1; Appendix W). Several additional avian species were incidentally detected during the regional shoreline surveys (Appendix G).
The most abundant waterbird species at the Treatment sites were Cackling Goose (*Branta hutchinsii*) and Greater White-fronted Goose (*Anser albifrons*). The most abundant waterbird species at Control sites (including Ladder sites) were Northern Pintail (*Anas acuta*) and Pacific Loon (*Gavia pacifica*).
No species of conservation concern were detected during the regional shoreline surveys. Young were observed for several species of waterbirds: Cackling Goose, Greater White-fronted Goose, Northern Pintail, Canada Goose (*Branta canadensis*), and Tundra Swan (*Cygnus columbianus*; Photo 3.10-1; Appendix W). Two waterbird nests were found during regional shoreline surveys, either within the point count radius or incidentally: one Canada Goose nest and one Red-throated Loon (*Gavia stellata*) nest.

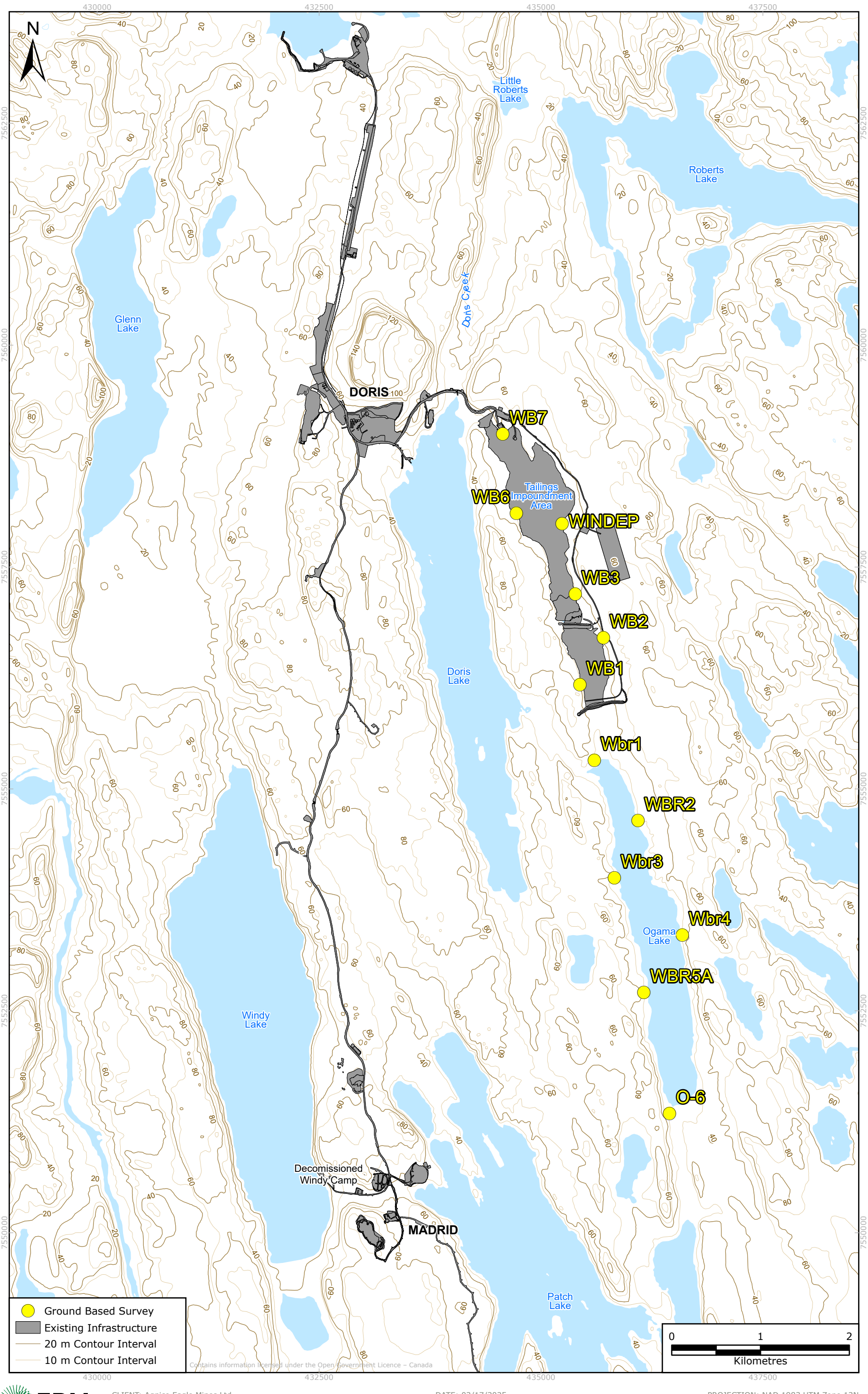
3.10.3.2 TIA SHORELINE MONITORING

TIA shoreline surveys were completed at 12 sites: six TIA Treatment sites and six Ogama Lake Control sites (Figure 3.10-2). The weather was relatively mild, with an average temperature of 5.8°C and an average wind speed of 15 km/hr (Appendix X).

TABLE 3.10-1 SUMMARY OF WATERBIRD OBSERVATIONS FROM THE REGIONAL SHORELINE SURVEYS, 2024

Species Group	Species	Scientific Name	Treatment	Control	Ladder (Currently Control)	Total
Waterbirds	Cackling Goose	*Branta hutchinsii*	28	3	0	**31**
	Canada Goose	*Branta canadensis*	3	0	0	**3**
	Greater Scaup	*Aythya marila*	0	3	0	**3**
	Greater White-fronted Goose	*Anser albifrons*	7	0	0	**7**
	Herring Gull	*Larus smithsonianus*	0	1	0	**1**
	Long-tailed Duck	*Clangula hyemalis*	2	5	0	**7**
	Northern Pintail	*Anas acuta*	0	5	11	**16**
	Pacific Loon	*Gavia pacifica*	2	1	5	**8**
	Red-breasted Merganser	*Mergus serrator*	0	5	0	**5**
	Red-throated Loon	*Gavia stellata*	1	0	0	**1**
	Sandhill Crane	*Grus canadensis*	4	0	0	**4**
	Tundra Swan	*Cygnus columbianus*	4	0	0	**4**
Total			**51**	**23**	**16**	**90**

FIGURE 3.10-2 TAILINGS IMPOUNDMENT AREA AND OGAMA LAKE SHORELINE SURVEY LOCATIONS, 2024



ERM

CLIENT: Agnico Eagle Mines Ltd.
GIS NUMBER: HB-23-614-07

DATE: 03/17/2025

PROJECTION: NAD 1983 UTM Zone 13N
SCALE: 1:40,000 when printed at 11x17

Photo 3.10-1 Greater White-fronted Goose with goslings observed during regional shoreline monitoring, 2024.

A total of eight waterbird species were detected between the Treatment and Control sites. At Treatment sites, species richness ranged from zero to three waterbird species, and waterbird abundance ranged from zero to 17 birds. At Control sites, species abundance ranged from zero to two waterbird species, and waterbird abundance ranged from zero to three birds. Overall, the numbers of waterbird species between Treatment and Control sites were similar, but the abundance of birds was higher at Treatment sites (Table 3.10-2; Appendix Y). Several additional avian species were incidentally detected during the regional shoreline surveys (Appendix G). The most abundant waterbird species at the Treatment sites were Canada Goose and Long-tailed Duck (*Clangula hyemalis*). The most abundant waterbird species at the Control sites were Pacific Loon, Red-throated Loon, and Greater Scaup (*Aythya marila*; Table 3.10-2; Appendix Y). No species of conservation concern were detected during the regional shoreline surveys. No young or nests were observed during the TIA shoreline surveys. Additionally, some shorebirds were incidentally detected at TIA Treatment sites: Least Sandpiper and Semipalmated Plover (Appendix G). This is likely due to the TIA having some areas of shoreline more suitable for foraging shorebirds (e.g., soft substrate) compared to the Ogama Lake shoreline.

The overall number of waterbird species detected in 2024 was comparable to 2021, when the last round of TIA shoreline surveys was completed. Additionally, the Canada Goose was the overall most abundant waterbird species in both years. Compared to 2021 surveys, which did not incidentally detect any shorebird species, two shorebird species were detected in relatively low abundance at TIA Treatment sites in 2024, indicating that certain shorebird species use this area in low abundance during the breeding season (Appendix G).

TABLE 3.10-2 SUMMARY OF WATERBIRD OBSERVATIONS FROM THE TIA AND OGAMA LAKE SHORELINE SURVEYS, 2024

Species Group	Species	Scientific Name	TIA (Treatment)	Ogama (Control)	Total
Waterbirds	Canada Goose	*Branta canadensis*	28	1	**29**
	Greater Scaup	*Aythya marila*	0	2	**2**
	Greater White-fronted Goose	*Anser albifrons*	5	0	**5**
	Long-tailed Duck	*Clangula hyemalis*	9	0	**9**
	Northern Pintail	*Anas acuta*	2	1	**3**
	Pacific Loon	*Gavia pacifica*	3	2	**5**
	Red-breasted Merganser	*Mergus serrator*	2	0	**2**
	Red-throated Loon	*Gavia stellata*	0	2	**2**
Total			**49**	**8**	**57**

Note:
TIA = Tailings Impoundment Area

3.10.3.3 WATER QUALITY MONITORING IN THE TIA FOR WATERBIRDS

Table 3.10-3 presents summary statistics for water quality parameters measured at TL1 in the TIA in 2024 and the corresponding CCME water quality guidelines (CCME 2021). The comparison of maximum concentrations to respective guideline values indicates that water quality in the TIA meets guidelines for wildlife. Therefore, no parameter was screened for further evaluation in an ecological risk assessment. Detailed water quality monitoring results are presented in Appendix Z.

3.10.3.4 INTERACTIONS, INCIDENTS, AND MORTALITIES

No waterbird interactions, incidents, or mortalities were recorded in 2024 (Appendix E).

3.10.3.5 WILDLIFE SIGHTINGS LOG AND INCIDENTAL OBSERVATIONS

In 2024, waterbirds were recorded on 61 occasions on the wildlife sightings log (Table 3.10-4; Appendix F). A variety of waterbird species were observed via the wildlife sightings log, including two Arctic Terns, one Cackling Goose, 70 Canada Geese, 107 Sandhill Cranes (*Grus canadensis*), 26 Greater White-fronted Geese, 20 Greater Scaup, one Northern Pintail, two Pacific Loons, one Red-throated Loon, 52 Snow Geese (*Anser caerulescens*), and 15 Tundra Swans, two unidentified duck, one unidentified eider, 192 unidentified geese, three unidentified loons, and five unidentified gulls (Appendix F). In addition, many waterbirds were recorded incidentally by biologists throughout the Study Area and details can be found in Appendix G (Table 3.10-4).

Similarly to 2023, the majority of waterbirds recorded on the wildlife sightings log occurred in the Windy Road / Madrid area. The total number of individuals and number of species recorded was much higher in 2024 compared to 2023; however, this is accounted for by wildlife monitoring programs being completed in 2024 and the lack of programs in 2023.

3.10.3.6 OBSERVATIONS FROM ABOARD VESSELS

Wildlife sighting logs were completed along shipping routes by shipping vessel operators (Appendix AB), program details of which are described in Section 3.12. Between the three vessels that serviced the Mine, waterbirds were observed on 15 occasions from September to October 2024. Nine Northern Fulmar (*Fulmarus glacialis*), three Razorbills (*Alca torda*), 31 Glaucous Gulls (*Larus hyperboreus*), two Iceland Gulls (*Larus glaucoides*), one Herring Gull (*Larus smithsonianus*), one unidentified gull, and 10 unidentified waterbirds were recorded. Additional details regarding waterbird observations from aboard vessels are provided in Appendix AB.

TABLE 3.10-3 SUMMARY STATISTICS FOR WATER QUALITY PARAMETERS WITH CCME GUIDELINES AT THE TIA (TL1), 2024

Parameter	CCME Water Quality Criteria—Livestock[a] (mg/L)	Mean (mg/L)	Standard Deviation (mg/L)	Maximum (mg/L)	Selected for Further Assessment?
Arsenic (As)—Total	0.025	0.00222	0.00036	0.00282	No
Cadmium (Cd)—Total	0.08	0.00003	0.00001	0.00005	No
Copper (Cu)—Total[b]	5	0.01500	0.00460	0.03240	No
Lead (Pb)—Total	0.1	0.00027	0.00008	0.00055	No
Mercury (Hg)—Total	0.003	0.00001	0.0000	0.00001	No
Nickel (Ni)—Total	1	0.00917	0.00799	0.06070	No
Selenium (Se)—Total	0.05	0.00031	0.00011	0.00077	No
Zinc (Zn)—Total	50	0.01528	0.00314	0.03000	No

Notes:
mg/L = milligram per litre
CCME = Canadian Council of Ministers of the Environment
[a] CCME Water Quality Guidelines for the Protection of Agriculture—Livestock (CCME 2021).
[b] Guideline is variable and 5 mg/L for poultry was used from the CCREM's 1987 (updated in 2008) Canadian Water Quality Guidelines.

TABLE 3.10-4 WATERBIRD SIGHTINGS AND INCIDENTAL OBSERVATIONS, 2024

General Location	Months	Total Sightings[a]	Total Individuals[a, b]
Doris Area	March—August	11	39
Roberts Bay	May—August	3	20
Windy Road / Madrid	May—August	37	353
TLR/TIA	May—September	9	81
Unspecified	August	1	7
Various Wildlife Survey Sites	June—July	-	609

Notes:
- = Total sightings are not provided for incidental biologist observations because these totals are combined from several wildlife surveys.
TIA = Tailings Impoundment Area; TLR = Tail Lake Road
[a] The counts also include gull species that are included as part of the nest predator VEC as well.
[b] The total number of individuals provided may not always be representative of the true number of individuals present, as certain wildlife sightings may include double counting of the same individual(s).

3.10.3.7 SPECIES OF CONSERVATION CONCERN

In 2024, both waterbird species of conservation concern with the potential to occur at the Mine were observed: Common Eider (*Somateria mollissima*) and King Eider (*Somateria spectabilis*; Table 3.3-1; Section 3.2.4). One Common Eider and one King Eider were observed incidentally by biologists (Appendix G). Additionally, one unidentified eider species was observed via the wildlife sightings log and, as the Common Eider and King Eider are the only eider species whose distributions include Nunavut, the observation was very likely one of these two species of conservation concern (Appendix F). Compared to 2023, where no waterbird species of conservation concern were recorded, all potential waterbird species of conservation concern were observed at low abundance in 2024. However, this is accounted for by bird monitoring programs being completed in 2024 as opposed to no programs in 2023.

3.11 RAPTORS

The raptor monitoring for the Doris compliance program was discontinued following a comprehensive statistical analysis of raptor nesting data to test Madrid-Boston FEIS predictions (ERM 2019), and discussion with ECCC and the Government of Nunavut. In 2024, raptors were monitored through methods common to multiple VECs (Section 3.3).

Occupancy surveys of raptor territories in Madrid North were not completed in 2024 because construction did not occur in the area during the raptor breeding period. These surveys are required if construction occurs during the raptor breeding period as part of Condition 27 for Project Certificate No. 009 (NIRB 2018).

3.11.5 FEIS PREDICTIONS

The residual effect of disturbance in the RSA and direct mortality in the PDA for raptors was predicted to be not significant and of low magnitude in the Madrid-Boston FEIS (TMAC 2017).

3.11.6 METHODS

Raptors were monitored in 2024 through the wildlife interactions, incidents, and mortalities program, and the incidental sightings program. General methods for these programs are described in Section 3.2.

3.11.7 RESULTS AND DISCUSSION

3.11.7.1 INTERACTIONS, INCIDENTS, AND MORTALITIES

No raptor interactions, incidents, or mortalities were recorded in 2024 (Appendix E).

3.11.7.2 WILDLIFE SIGHTINGS LOG AND INCIDENTAL OBSERVATIONS

In 2024, 53 observations of raptors were recorded on the wildlife sightings log (Table 3.11-1; Appendix F). Six species of raptors were observed in 2024: Golden Eagle (*Aquila chrysaetos*), Bald Eagle (*Haliaeetus leucocephalus*), Gyrfalcon (*Falco rusticolus*), Peregrine Falcon (*Falco peregrinus*), Rough-legged Hawk (*Buteo lagopus*), and Snowy Owl (*Bubo scandiacus*). Eagles were observed on 10 occasions and included observations of nine Golden Eagles, one Bald Eagle, and

four unidentified eagles. Falcons were observed on 14 occasions and included 10 Gyrfalcons and 10 Peregrine Falcons. Hawks were observed on 11 occasions and included 14 Rough-legged Hawks and four unidentified hawks. One Snowy Owl was recorded in December 2024. In addition, several raptors were recorded incidentally by biologists throughout the Study Area and details can be found in Appendix G (Table 3.11-1). A single raptor nest was observed in 2024—a Golden Eagle nest recorded incidentally by biologists (Section 3.11.7.3). Biologists also observed a Short-eared Owl (*Asio flammeus*; Section 3.11.7.3).

TABLE 3.11-1 RAPTOR SIGHTINGS AND INCIDENTAL OBSERVATIONS, 2024

General Location	Months	Total Sightings	Total Individuals[a]
Doris Area	April—July	7	13
Roberts Bay	August and December	2	2
Windy Road / Madrid	March—August	21	32
TLR/TIA	May—August	5	5
Unspecified	August	1	1
Various Wildlife Survey Sites	June—July	-	26

Notes:
- = Total sightings are not provided for incidental biologist observations because these totals are combined from several wildlife surveys.
TIA = Tailings Impoundment Area; TLR = Tail Lake Road
[a] The total number of individuals provided may not always be representative of the true number of individuals recorded, as certain wildlife sightings may include double counting of the same individual(s).

More species and total sightings were recorded in 2024 compared to 2023; however, this is somewhat accounted for by wildlife monitoring programs being completed in 2024 in addition to the wildlife sightings log. In addition, as opposed to 2023, raptors were most often recorded on the Windy Road / Madrid area rather than the Doris area.

3.11.7.3 SPECIES OF CONSERVATION CONCERN

In 2024, both raptor species of conservation concern with the potential to occur at the Mine were observed: Golden Eagle and Short-eared Owl (Table 3.3-1; Section 3.2.4). Nine Golden Eagles were recorded via the wildlife sightings log (Appendix F) and seven were incidentally observed by biologists (Appendix G). In addition, a Golden Eagle nest site was found incidentally by biologists during the regional shoreline monitoring near site WB008, on a cliff near the western shoreline of Glenn Lake (Photo 3.11-1; Section 3.10.3.1). The nest site contained three alternative nest sites on a cliff face, with one nest being actively built by the Golden Eagle pair when found. The nest site coordinates were communicated to Agnico Eagle onsite staff to ensure appropriate mitigation was followed as per the WMMP, particularly for any helicopters flying in the area (Agnico Eagle 2023). One Short-eared Owl was observed incidentally by biologists during a regional PRISM survey (Photo 3.11-2; Appendix G).

Photo 3.11-1 Golden Eagle nest site, with an adult Golden Eagle, observed incidentally during a regional shoreline survey at site WB008, 2024.

Photo 3.11-2 Short-eared Owl observed incidentally during a regional Program for Regional and International Shorebird Monitoring survey, 2024.

3.12 MARINE MAMMALS

Mitigation measures for marine mammals related to shipping activity are described in the Shipping Management Plan (based on Conditions 30, 31, and 32 in Project Certificate No. 009; NIRB 2018). Mitigation measures include required measures for shipping vessels, and reporting of incidental sightings and incidents on shipping routes.

The Shipping Management Plan was updated in early 2023 to include monitoring for marine wildlife in Roberts Bay during the shipping season to assess disturbance to marine wildlife resulting from Mine-related underwater noise, following Condition 33 in Project Certificate No 009 (NIRB 2018). Appropriate indicators and thresholds to determine if negative impacts on marine wildlife are occurring will be established after at least 2 years of data collection. Adaptive management measures to mitigate adverse impacts of Mine-related noise will be developed, if required. Monitoring for this program was completed for the second time in 2024.

3.12.1 FEIS PREDICTIONS

The assessment determined that there was no potential of residual effects on ringed seals (*Pusa hispid*a), which were used as an indicator for the larger marine mammal community, and therefore the residual effects were predicted to be not significant in the Madrid-Boston FEIS (TMAC 2017). However, marine mammal monitoring occurs due to Project Certificate requirements (NIRB 2018).

3.12.2 METHODS

Marine mammals are monitored via observation surveys at Roberts Bay during shipping activity, vessel observations and tracking, as well as through the Wildlife Sightings/Reporting program (Section 3.2.3).

3.12.2.1 MARINE MAMMAL MONITORING

The marine wildlife monitoring program is used to assess the disturbance of marine wildlife during shipping season from vessel noise. In 2024, the surveys were completed in Roberts Bay once per day for at least 4 days during each of the following: before the ships arrived in the bay, while they were anchored in the bay, and after they had departed. Surveys followed the Hope Bay Marine Mammal Monitoring SOP, which details data collection protocols and provides resources for common species identification. Surveys were completed from the shore, at locations with the best view of Roberts Bay (the jetty or the 730 building). Surveys lasted 30 minutes and observers scanned for the presence and behaviour of any marine mammals in Roberts Bay. In addition, mitigation measures actioned, if required, were recorded.

3.12.2.2 SHIPPING MITIGATIONS AND WILDLIFE SIGHTING LOGS

Wildlife sightings and incidents along shipping routes were reported by shipping vessel operators. Vessel operators were provided with Mine-specific training, including review of marine wildlife setbacks and appropriate mitigation measures. In addition, operators were trained on reporting requirements prior to the shipping season as described in the Shipping Management Plan. Operators were also provided with identification guides for seabirds, whales, and pinnipeds.

Additionally, vessel tracks were assessed via data from the Wood Mackenzie vessel tracking database to confirm that setbacks and avoidance areas (e.g., avoidance of key habitat sites for migratory birds; ECCC 2016) were followed.

3.12.3 RESULTS AND DISCUSSION

3.12.3.1 MARINE MAMMAL MONITORING

In 2024, 33 marine mammal surveys were completed in Roberts Bay. Surveys occurred once per day from September 1 to October 2, 2024 (Appendix AA; Table 3.12-1). Three vessels arrived in Roberts Bay during the shipping season: the Mitiq, the Nordika Desgagnes, and the Qikiqtaaluk W (Figure 3.12-1). The only marine mammal recorded, one ringed seal, was observed during a survey when the Mitiq and Qikiqtaaluk W were anchored in Roberts Bay, and a barge and tugboat were actively moving between the Mitiq and the shore (Table 3.12-1; Appendix AA). The ringed seal was observed resting on an exposed rock in the water and did not demonstrate any behavioural changes in response to the shipping activity.

TABLE 3.12-1 MARINE MAMMAL MONITORING AT ROBERTS BAY, 2024

Monitoring Period	Monitoring Dates	Total Marine Mammals	Notes
Before Shipping	September 1–9, 2024	0	None
During Shipping	September 10–28, 2024	1	1 ringed seal, resting, undisturbed by shipping activity
After Shipping	September 29–October 2, 2024	0	None

3.12.3.2 SHIPPING MITIGATION AND WILDLIFE SIGHTING LOGS

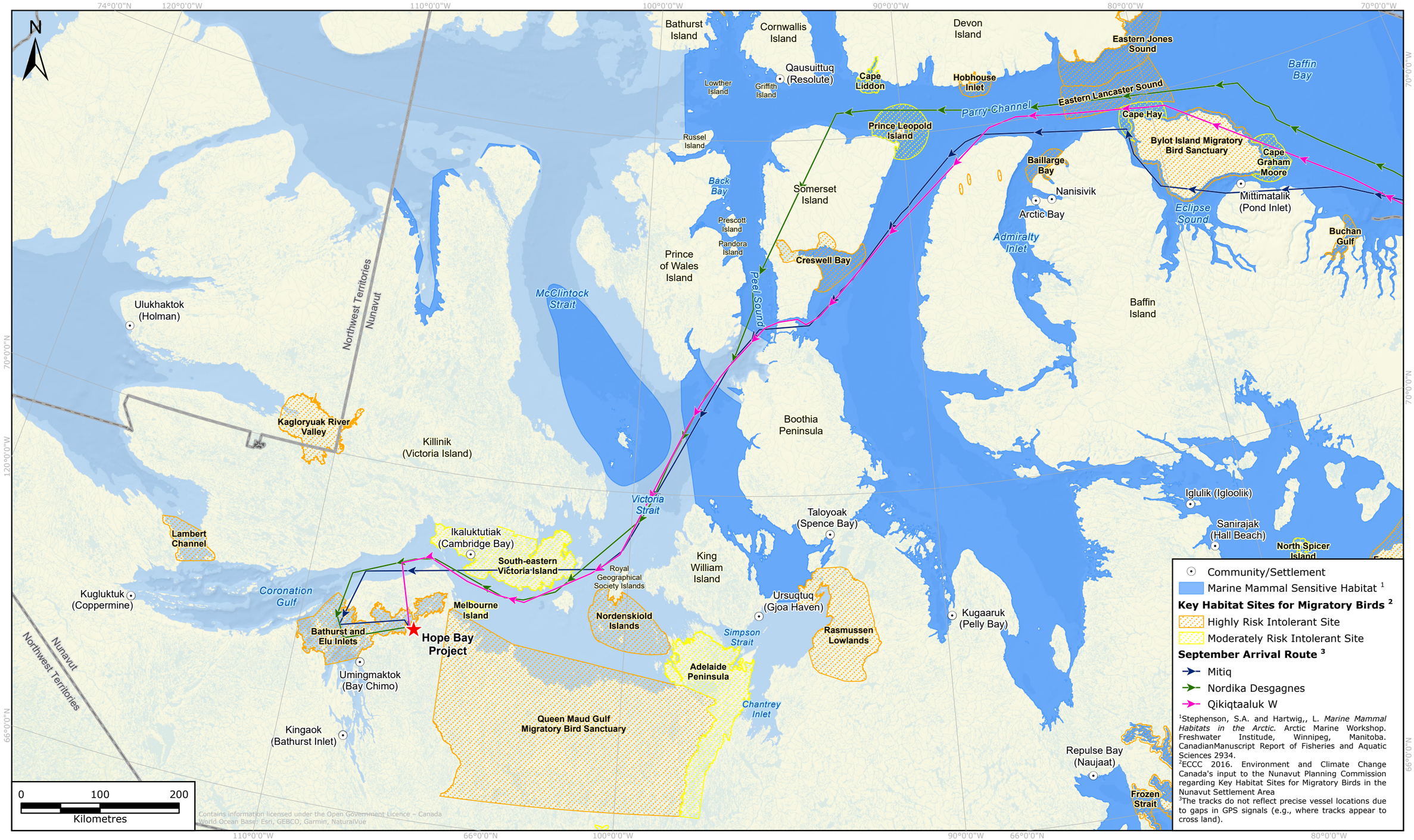
In 2024, three vessels recorded marine wildlife sightings during the shipping season: the Mitiq, the Nordika Desgagnes, and the Qikiqtaaluk W (Appendix AB). No marine wildlife incidents were reported in 2024. Between the three vessels, 15 bearded seals (*Erignathus barbatus*), eight narwhals (*Monodon monoceros*), and seven unidentified seals were recorded. The group of 15 swimming bearded seals was recorded by personnel on the Mitiq, who successfully initiated mitigation action, altering the course to starboard, to provide a minimum 500 m buffer to the bearded seals as per the Shipping Management Plan (Appendix AB). This was the only mitigation action required in response to marine mammal observations in 2024. In addition to marine mammal sightings, incidental sightings of seabirds (i.e., waterbirds) are included in Section 3.10.3.6.

The vessel tracks for all three vessels were summarized to confirm that mitigations for setbacks and designated routes were followed (Figure 3.12-1). The tracks do not reflect precise vessel locations due to gaps in GPS signals (e.g., where tracks appear to cross land). The vessels had no deviations from the nominal shipping routes.

3.12.3.3 INTERACTIONS, INCIDENTS, AND MORTALITIES

No marine mammal interactions, incidents, or mortalities were recorded in 2024 (Appendix E).

FIGURE 3.12-1 VESSEL TRACKS DURING SHIPPING SEASON, 2024



ERM

CLIENT: Agnico Eagle Mines Ltd.
GIS NUMBER: HB-23-614-08

DATE: 03/17/2025

PROJECTION: Canada Lambert Conformal Conic
SCALE: 1:4,500,000 when printed at 11x17

3.12.3.4 WILDLIFE SIGHTINGS LOG AND INCIDENTAL OBSERVATIONS

In 2024, 13 marine mammals were recorded in the wildlife sightings log (Table 3.12-2; Appendix F). Sightings included two sightings of three ringed seals (likely the same group on separate days), five sightings of a single unidentified seal, and one sighting of two unidentified seals, all within Roberts Bay (Table 3.12-2). No marine mammals were observed incidentally by biologists in 2024 (Appendix G).

TABLE 3.12-2 MARINE MAMMAL SIGHTINGS AND INCIDENTAL OBSERVATIONS, 2024

General Location	Months	Total Sightings	Total Individuals[a]
Roberts Bay	May–October	8	13

Note:
[a] The total number of individuals provided may not always be representative of the true number of individuals recorded, as certain wildlife sightings may include double counting of the same individual(s).

3.13 PLANTS

Ongoing monitoring for invasive plants is required by Condition 17 and Commitment GN#04 in Project Certificate No. 009 (NIRB 2018). The WMMP includes invasive plant monitoring along Project infrastructure at 5-year intervals (Agnico Eagle 2023). Monitoring for invasive plants was completed during the baseline for the Madrid-Boston FEIS, and again in 2023. Surveys will be completed again in 2029.

Furthermore, a sedge sampling program for tissue metal concentrations was initiated in 2018. Additional data collection will be discussed when operation of the Madrid and/or Boston areas is underway.

4. REFERENCES

1994. *Migratory Birds Convention Act*, SC. C. 22.

2002. *Species at Risk Act*, SC. C. 29.

2015. Framework Agreement Between Kitikmeot Inuit Association and TMAC Resources Inc.

Agnico Eagle (Agnico Eagle Mines Limited). 2023. *Wildlife Mitigation and Monitoring Plan, Hope Bay Project, Nunavut.*

Aiken, S.G., M.J. Dallwitz, L.L. Consaul, C.L. McJannet, R.L. Boles, G.W. Argus, J.M. Gillett, P.J. Scott, R. Elven, M.C. LeBlanc, L.J. Gillespie, A.K. Brysting, H. Solstad, and J.G. Harris. 2007. *Flora of the Canadian Arctic Archipelago: Descriptions, Illustrations, Identification, and Information Retrieval.* National Research Council of Canada. Ottawa: NRC Research Press.

Andren, H. 1994. "Effects of Habitat Fragmentation on Birds and Mammals in Landscapes with Different Proportions of Suitable Habitat: A Review." *Oikos*, 71(3): 355–66.

Banci, V., and R. Spicker. 2016. *Inuit Traditional Knowledge for TMAC Resources Inc. Proposed Hope Bay Project Naonaiyaotit Traditional Knowledge Project (NTKP).* Kugluktuk, NU: Kitikmeot Inuit Association.

BC Ministry of Forests. 2023. *Invasives BC Reference Guide.* Version 2: June 2023. Invasive Plant Program, Ministry of Forests, Province of BC. https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/invasive-species/invasivesbc-resources/invasivesbc_guidance_document.pdf.

CESCC (Canadian Endangered Species Conservation Council). 2020. *Wild Species 2020: The General Status of Species in Canada.* National General Status Working Group.

CCME (Canadian Council of Ministers of the Environment). 2021. *Canadian Water Quality Guidelines for the Protection of Agriculture—Livestock: Summary Table.* https://ccme.ca/en/summary-table.

Canadian Food Inspection Agency. 2008. *Invasive Alien Plants in Canada.* Ottawa: CFIA. https://publications.gc.ca/collections/collection_2008/inspection/A104-74-2008E.pdf.

Clements, D.R., and A. DiTommaso. 2011. "Climate Change and Weed Adaptation: Can Evolution of Invasive Plants Lead to Greater Range Expansion Than Forecasted?" *Weed Research*, 51: 227-240. https://doi.org/10.1111/j.1365-3180.2011.00850.x.

COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2002. *COSEWIC Assessment and Update Status Report on the Grizzly Bear* Ursus arctos *in Canada.* Ottawa: Committee on the Status of Endangered Wildlife in Canada.

COSEWIC. 2012. *COSEWIC Assessment and Update Status Report on the Grizzly Bear* Ursus arctos *in Canada.* Ottawa: Committee on the Status of Endangered Wildlife in Canada.

COSEWIC. 2014. *COSEWIC Assessment and Status Report on the Wolverine* Gulo gulo *in Canada.* Ottawa: Committee on the Status of Endangered Wildlife in Canada.

COSEWIC. 2015. *Wildlife Species Search.* Accessed December 2015. Retrieved from: http://www.cosewic.gc.ca/eng/sct1/searchform_e.cfm.

Cuyler, C., J. Rowell, J. Adamczewski, M. Anderson, J. Blake, T. Bretten, V. Brodeur, M. Campbell, S.L. Checkley, H.D. Cluff, S.D. Côté, T. Davison, M. Dumond, B. Ford, B. Gruzdev, A. Gunn, P. Jones, S. Kutz, L. Leclerc, C. Mallory, F. Mavrot, J.B. Mosbacher, I.M. Okhlopkov, P. Reynolds, N.M. Schmidt, T. Sipko, M. Suitor, M. Tomaselli, and B. Ytrehus. 2020. "Muskox Status, Recent Variation, and Uncertain Future." *Ambio*, 49: 809–815.

CWS (Canadian Wildlife Service). 2024. *Arctic Program for Regional and International Shorebird Monitoring (Arctic PRISM)—General Instructions for Industry Partners.*

ECCC (Environment and Climate Change Canada). 2016. *Environment and Climate Change Canada's Input to the Nunavut Planning Commission Regarding Key Habitat Site for Migratory Birds in the Nunavut Settlement Area.* Canadian Wildlife Service.

Environment Canada. 2017. *Instructions for Conducting the Breeding Bird Survey (BBS).*

ERM (ERM Canada Ltd.). 2016a. *Doris North Project: 2015 Wildlife Mitigation and Monitoring Plan Compliance Monitoring Report.* Prepared for TMAC Resources Inc.

ERM. 2016b. *Doris North Project: 2016 Wildlife Mitigation and Monitoring Plan.* Prepared for TMAC Resources Inc. by ERM Consultants Canada Ltd.

ERM. 2017. *Doris Project: 2016 Wildlife Mitigation and Monitoring Plan Compliance Report.* Prepared for TMAC Resources Inc.

ERM. 2019. *Doris Project: 2018 Wildlife Mitigation and Monitoring Plan Compliance Report.* Prepared for TMAC Resources Inc.

ERM. 2021. *Hope Bay Project: 2020 Wildlife Mitigation and Monitoring Plan Compliance Report.* Prepared for TMAC Resources Inc.

ERM. 2023. *Hope Bay Project: 2022 Wildlife Mitigation and Monitoring Plan Compliance Report.* Prepared for Agnico Eagle Mines Limited.

ERM. 2024. *Hope Bay Project: 2023 Wildlife Mitigation and Monitoring Plan Compliance Report.* Prepared for Agnico Eagle Mines Limited.

Fahrig, L. 1997. "Relative Effects of Habitat Loss and Fragmentation on Population Extinction." *The Journal of Wildlife Management*, 61(3): 603–10.

Government of Canada. 2024. *Species at Risk Public Registry.* Accessed February 2025. Retrieved from: https://species-registry.canada.ca/index-en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10.

Government of Nunavut. 2022. *Non-Native and Invasive species in Nunavut.*

Government of the Northwest Territories. 2022. *NWT State of the Environment Report.* NWT Department of Environment and Climate Change, Government of the Northwest Territories.

Government of the Northwest Territories. 2023. *NWT Species Infobase.* Accessed 1 February 2023. Retrieved from: https://www.gov.nt.ca/species-search/.

Gunn, A., B. Fournier, and J. Nishi. 2000. *Abundance and Distribution of the Queen Maud Gulf Caribou Herd, 1986–98.* Manuscript Report 126. Yellowknife, NT: Department of Resources, Wildlife and Economic Development.

Health Canada. 2016. *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise.* Ottawa: Healthy Environments and Consumer Safety Branch, Health Canada.

Hobbs, R.J., and S.E. Humphries. 1995. "Society for Conservation Biology: An Integrated Approach to the Ecology and Management of Plant Invasions." *Conservation Biology* 9(4), 761–770. https://doi.org/10.1046/j.1523-1739.1995.09040761.x.

Inman, R.M., A.J. Magoun, J. Persson, and J. Mattisson. 2012. "The Wolverine's Niche: Linking Reproductive Chronology, Caching, Competition, and Climate." *Journal of Mammalogy*, 93(3): 634–44.

KIA (Kitikmeot Inuit Association). 2017. *Review of TMAC's 2016 Annual Report for Doris North Gold Mine Project Certificate NIRB No. 003.* July 2017.

Leclerc, L.M. 2015. *Muskox Aerial Survey (*Ovibos moschatus*) of the Kitikmeot Region, Nunavut.* Project Number 32-13-11. Kugluktuk, NU: Government of Nunavut, Department of Environment.

Manci, K.M., D.N. Gladwin, R. Villella, and M.G. Cavendish. 1988. *Effects of Aircraft Noise and Sonic Booms on Domestic Animals and Wildlife: a Literature Synthesis.* Fort Collins: NERC-88/29.

Matthews, S., H. Epp, and G. Smith. 2001. *Vegetation Classification for the West Kitikmeot / Slave Study Region.* Prepared for the West Kitikmeot / Slave Study.

McLoughlin, P.D., R.L. Case, R.J. Gau, S.H. Ferguson, and F. Messier. 1999. "Annual and Seasonal Movement Patterns of Barren-Ground Grizzly Bears in the Central Northwest Territories." *Ursus*, 11: 79–86.

Miramar. 2005. *Final Environmental Impact Statement, Doris North Project, Nunavut, Canada.* Miramar Hope Bay Limited.

Mulders, R. 2000. *Wolverine Ecology, Distribution, and Productivity in the Slave Geological Province.* Yellowknife, Northwest Territories: Department of Resources, Wildlife, and Economic Development, Government of the Northwest Territories.

NatureServe. 2025. *NatureServe Explorer.* Accessed 1 February 2025. Retrieved from: https://explorer.natureserve.org/Search.

NIRB (Nunavut Impact Review Board). 2006. *Project Certificate NIRB No. 003. In the Matter of the Nunavut Land Claim Agreement,* Nunavut Land Claims Agreement Act*, S.C., 1993 c. 29, Article 12, Part 5 and in the matter of an Application by Miramar Hope Bay Limited for Mine Development of the Doris North Mine Project Proposal in the Kitikmeot Region of Nunavut.* Cambridge Bay, NU.

NIRB. 2013. *Project Certificate NIRB [No.: 003], Amendment 001. In the Matter of the Nunavut Land Claim Agreement,* Nunavut Land Claims Agreement Act*, S.C., 1993 c. 29, Article 12, Part 5 And in the matter of an Application by TMAC Resources Inc. for Mine Development of the Doris North Gold Mine Project Proposal in the Kitikmeot Region of Nunavut.* Cambridge Bay, NU.

NIRB. 2016. *NIRB Project Certificate [No.: 003], Amendment 002. In the Matter of the Nunavut Land Claim Agreement,* Nunavut Land Claims Agreement Act*, S.C., 1993 c. 29, Article 12, Part 5 and in the matter of an Application by TMAC Resources Inc. for Mine Development of the Doris North Gold Mine Project Proposal in the Kitikmeot Region of Nunavut.* Cambridge Bay, Nunavut.

NIRB. 2018. *NIRB Project Certificate [No.: 009]. In the Matter of the Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada, S.C., 1993, c. 29 Article 12, Part 5 And in the matter of an application by TMAC Resources Inc. for development of the Phase 2 Hope Bay Belt Project Proposal in the Kitikmeot Region of Nunavut.* Cambridge Bay, Nunavut.

Persson, J., P. Wedholm, and P. Segerstrom. 2010. "Space Use and Territoriality of Wolverines (Gulo gulo) in Northern Scandinavia." *European Journal of Wildlife Research*, 56(1): 49–57.

Poole, K.G., A. Gunn, B.R. Patterson, and M. Dumond. 2010. "Sea Ice and Migration of the Dolphin and Union Caribou Herd in the Canadian Arctic: An Uncertain Future." *Arctic*, 63(4): 414-28.

Rescan (Rescan Environmental Services Ltd.). 2011. *Doris North Project: 2011 Wildlife Mitigation and Monitoring Program Report.* Prepared for TMAC Resources Ltd.

Rew, L.J., K.L. McDougall, J.M. Alexander, C.C. Daehler, F. Essl, S. Haider, C. Kueffer, J. Lenoir, A. Milbau, M.A. Nuñez, A. Pauchar, and W. Rabitsch. 2020. "Moving Up and Over: Redistribution of Plants in Alpine, Arctic, and Antarctic Ecosystems Under Global Change." *Arctic, Antarctic, and Alpine Research*, 52(1): 651–665. https://doi.org/10.1080/15230430.2020.1845919.

Ricciardi A., T.M. Blackburn, J.T. Carlton, J.T.A. Dick, P.E. Hulme, J.C. Iacarella, J.M. Jeschke, A.M. Liebhold, J.L. Lockwood, H.J. MacIsaac, P. Pyšek, D.M. Richardson, G.M. Ruiz, D. Simberloff, W.J. Sutherland, D.A. Wardle, and D.C. Aldridge. 2017. "Invasion Science: A Horizon Scan of Emerging Challenges and Opportunities." *Trends in Ecology and Evolution*, 32(6): 464–474. https://doi.org/10.1016/j.tree.2017.03.007.

Saarela, J.M., P.C. Sokoloff, L.J. Gillespie, R.D. Bull, B.A. Bennett, and S. Ponomarenko. 2020. "Vascular plants of Victoria Island (Northwest Territories and Nunavut, Canada): A Specimen-Based Study of an Arctic Flora." *PhytoKeys*, 141: 1–330. https://doi.org/10.3897/phytokeys.141.48810

Slough, B. 2007. "Status of the Wolverine Gulo gulo in Canada." *Wildlife Biology*, 13: 76–82.

TMAC (TMAC Resources Inc.). 2017. *Madrid-Boston Project Final Environmental Impact Statement.* Toronto, ON.

TMAC. 2019. *Doris and Madrid Projects: 2018 Wildlife Mitigation and Monitoring Plan Compliance Report.* Prepared by ERM Consultants Canada.

APPENDIX A QUARRY BLAST NOISE MONITORING AT HOPE BAY SOP

Hope Bay Project

Quarry Blasting Noise Monitoring at Hope Bay

STANDARD OPERATING PROCEDURE

March 2025 Version A.1

Scope of Work:	This SOP provides guidance for noise monitoring measurement commitments during quarry blasts.	
Associated Documents:	Appendix A: Acoustical Concepts and Terminology Appendix B: Larson Davis Measurement Setup Appendix C: Noise Baseline Study Field Data Sheet	
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LIST OF PHOTOS

1. BACKGROUND INFORMATION AND OBJECTIVE

Agnico Eagle Mines Limited (Agnico Eagle) has committed to stopping blasting when caribou are within 96 dB LPeak (noise level when blasting; ERM 2019). This threshold for halting blasting was chosen from a review of available literature, which indicates that ungulates may have a freezing or startle response when exposed to 96 dB LPeak overpressure (Manci et al. 1988; Weisenberger et al. 1996; Reimers and Colman 2006). ERM Consultants Canada Ltd. (ERM) completed previous noise modeling in 2019, suggesting that the 96 dB LPeak noise level is reached at 2.8 km from the blast (ERM 2019). Blasting is therefore stopped at the Hope Bay Mine (the Mine) when caribou are within 2.8 km of site. This value was deemed extremely conservative by noise modelers.

The objective of the 2024 noise monitoring is to measure noise levels at 2.8 km from the blasts to confirm previous modeling predictions, as per the Mine's Project's Commitment #41 from the Final Hearing, presented in Appendix B of the Nunavut Impact Review Board (NIRB) Project Certificate (009; NIRB 2018). The Project Commitment states:

- TMAC Resources Inc. (TMAC) will conduct noise measurements during quarry blasts at 2.8 km and 4 km to confirm predictions; and
- TMAC will confirm that the overpressure value of 96 dBZ Lpeak will not exceed at 2,800 m from the location of the blast.

This Noise Monitoring Standard Operating Procedure (SOP) has been developed to guide the stated noise monitoring measurement commitments during quarry blasts. The SOP describes procedures for Agnico Eagle staff to follow to accurately collect noise data, including:

- Required equipment for noise monitoring, the procedure to collect noise measurements in the field, metadata to record in the field, and the procedure for downloading data after monitoring; and
- How to proceed based on noise measurement results and reporting requirements.

Agnico Eagle will update this SOP as necessary in response to data collected in the field or scientific advances, or in response to feedback from stakeholders or regulators, including the Kitikmeot Inuit Association (KIA), Government of Nunavut (GN), or Canadian Wildlife Service (CWS). Acoustical Concepts and Terminology are described in Appendix A for further context.

2. SAFETY CONSIDERATIONS

Due safety considerations should be given to each of the following prior to starting work:

- Working at a remote site;
- Working with hand tools;
- Weather;
- Wildlife;
- Slips, trips, and falls; and
- Travel via helicopter or truck.

3. EQUIPMENT LIST

Specific equipment for noise monitoring is provided below:

- Larson Davis SoundAdvisor Model 831c;
- SoundAdvisor Portable Noise Monitoring System Model NMS044;
- Larson Davis calibrator (cal200);
- Portable weather station;
- Handheld GPS;
- Digital camera;
- Field datasheet; and
- Writing utensil.

4. PROCEDURE

4.1 PERSONNEL REQUIREMENTS

Trained technicians will conduct noise monitoring site visits during blasts to ensure that equipment is properly managed and set up, and that proper documentation and field observations are made to identify audible noise sources. Staff responsibilities are as follows:

Environmental Technician

- Ensure noise monitoring equipment is fully charged and calibrated.
- Ensure safety conditions are considered and met before commencing field work.

Environmental Coordinator

- Provide SOP to field staff for review and assess level of competency of field staff to complete task.
- Provide UTM coordinates and monitoring distance from blast site.

4.2 PREPARATION FOR THE FIELD

Prior to leaving the office to conduct noise monitoring, technicians must:

- Check the local weather forecast:
  - Avoid taking measurement in winds >5 m/s (12 mph) or rain (other than light showers). Excessive wind can introduce low frequency noise due to air movement over the windscreen and can result in non-typical noise due to wind in trees. Heavy rain can increase background noise levels. Even light rain can increase tire noise when monitoring near roadways.
- Adapt to site-specific wind conditions:
  - Recognizing that typical site conditions often involve wind speeds above 5 m/s (12 mph); noise measurements will still be conducted under these conditions.

- Given the restriction of one measurement per blast, data collection should be systematically planned. Start by collecting data at 2.8 km from the blast. If wind conditions remain consistently above 5 m/s, progressively reduce the distance of the monitoring site in subsequent blasts, moving 250 m closer each time until measurements are taken as close as 1 km from the blast site.
- The goal is to gather data across all specified distances (2.8 km to 1 km), allowing for a comprehensive understanding of blast noise under varying wind conditions. If wind conditions are below 5 m/s (12 mph), return to collecting data at 2.8 km from the blast.
- Note that if wind is below 12 mph, please monitor at 2.8 km from blast, since this is the distance in the commitment and there is an objective to measure at this distance when the noise is unobstructed/masked by the wind.

- Confirm site access:
  - Arrange for or confirm access to proposed monitoring sites if necessary. Noise data will be collected at sites 2.8 km away from the blast under low wind conditions. Factors to consider in site selection include:
    - Locations that could be affected by nearby construction noise or added noise from nearby personnel, creeks, or any objects able to be moved by wind. These locations should be avoided.
    - Sound reflections off buildings or other solid objects can significantly affect measured levels. Microphone should be at least 3 m away from large reflecting surfaces.
- Ensure equipment readiness:
  - Ensure batteries are charged for sound level meters, cameras, and GPS units.

4.3 DEPLOYMENT SETUP

Step 1: Sound Level Meter Software Program

Technicians are to follow the procedure outlined in Appendix B of this SOP to properly set up the instrument software program.

Step 2: Monitoring Station Set-Up

1. At the prescribed monitoring location (~2.8 km from blast location), set up the microphone using the yellow broom pole and the molded bracket on the side of the pelican case.
2. On the microphone cable, slide the two cable ties up to the microphone grip. Then, slide the microphone with cable ties over the yellow pole as pictured in Photo 1.
3. Using the two pieces of Velcro material on the microphone cable, secure the microphone cable to the yellow pole to prevent wind from rattling the cable on the yellow pole during monitoring.
4. Once the microphone and pole are secure, take photos from all four cardinal directions, depicting both the audio recording gear and the background.

Photo 1 Microphone affixed to vertical pole.

Step 3: Calibration

1. Remove foam oval windscreen and unscrew bird spike to reveal the microphone.
2. Carefully slide calibration pack hole located on the bottom of the unit over the microphone tip, ensuring that when the unit is placed on a flat surface the entire tip of the microphone is covered.
3. With the unit powered on, select "TOOLS/CALIBRATION."
4. Select 94Db by using the cursor to highlight the dropdown menu.
5. On the calibration pack, press the black button—this starts the tone for the microphone to use as an audial reference tone.
6. On the 831C, use the cursor to highlight "CALIBRATION."
    a. The unit will now enter calibration mode and run a diagnostic. Once calibration is complete, the 831C will prompt you to save—select yes.
    b. Calibration procedure complete.

Step 4: Field Data

Record all pertinent information using the appropriate field datasheet (Appendix C).

Technicians are to record the following data:

- Project name and field personnel;
- Date and time of setup and tear down;
- Date and time of the blast down to the second[1];

[1]It is advised to check the time settings on the sound level meter and compare them to the device used to record blast times. If these devices are not in sync with one another, it should be noted in the field data sheet.

- Blast location and coordinates;
- UTM coordinates of sampling station;
- Ground cover type and terrain;
- Distance from all obstacles in the area (cannot be closer than 3 m to any surface, except the ground surface);
- Weather conditions at each site at the time of set up and tear down including:
  - Temperature (°C);
  - Relative humidity (%);
  - Cloud cover;
  - Wind speed (km/h or m/s) using handheld wind meter;
  - Wind direction (degrees from true North); and
  - Precipitation (mm).
- Instrument model;
- Calibration information;
- Notable observations including:
  - Audibility of blast; and
  - Additional noise sources (vehicle noise, birds, insects, wind, rain, etc.).
- Photos of the deployed monitoring equipment (showing every direction at each monitoring location).

NOTE—complete a field data sheet even if blasting activities have been suspended. Note pertinent details to keep records of all blasting attempts.

Step 5: Noise Monitoring Using the SoundAdvisor Model 831C

At the bottom of the 831C screen, there are three menu items:

LIVE CLOSE LOG

1. Select "LIVE" to determine if the microphone is working—audible noise will register indicating the microphone is picking up ambient sounds. IF yes, proceed. IF not, check all connections in the Pelican case, and along the microphone.
2. If the microphone is working, use the arrow keys to select "LOG." Once in the LOG screen, the unit is ready to start recording.
3. Select the Record button 15 minutes prior to blasting. When the blast event is complete, wait another 15 minutes, then press the stop button to cease operation. Data is saved to the internal memory of the unit.
4. Once the meter has been started, try to minimize any noise. It is recommended to leave the area while monitoring is occurring. Attempt to be as quiet as possible while leaving or, if this is not practical, make a note of the time at which you departed from the site. If personnel stay in the area, all engines must be shut off and silence is required.

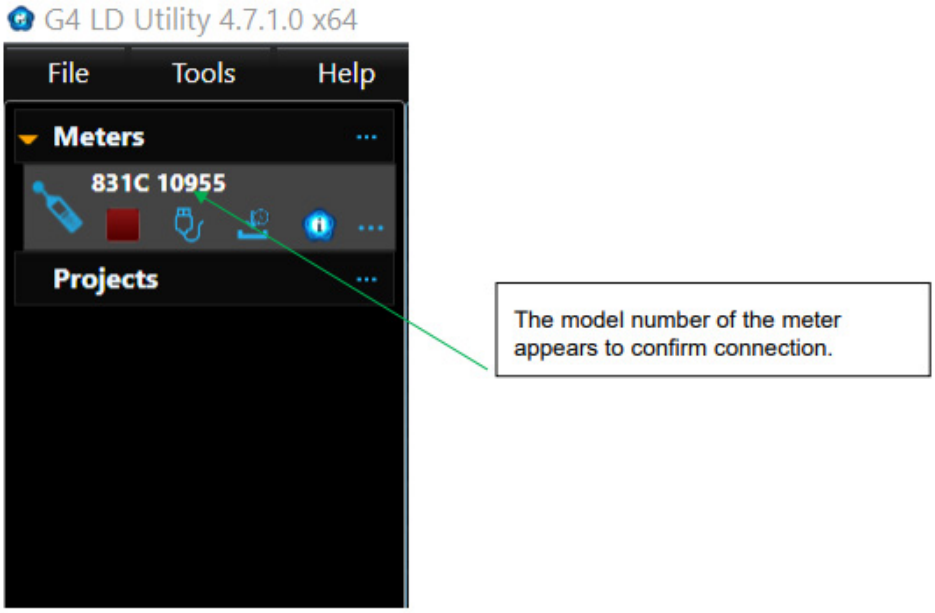
4.4 RETRIEVING DATA FROM SOUNDADVISOR MODEL 831C

Interfacing the noise meter requires installation of the G4 LD Utility software and a standard USB cable connecting to either a PC or laptop computer.

With software loaded, open G4 LD Utility application.

Step 1: Connect Device

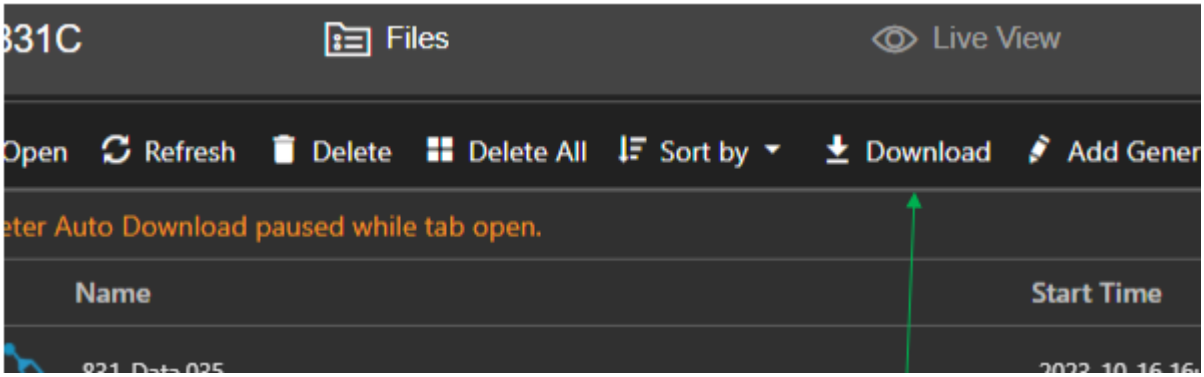
Connect the noise meter to the computer using a standard USB cable. The connected meter model number will appear in the top left corner of the screen.



Step 2: Select Data Files

Select the data files from the sampling event from the list on the right side of the screen.

- Once the file(s) are highlighted, select the "Download" option to begin data transfer to the connected computer.
- Navigate to the "Downloads" folder on the PC to retrieve data.



5. REPORTING

Agnico Eagle will complete an annual noise monitoring report following data collection. The report is to include a summary of the methods and equipment used to gather noise data, summary tables indicating weather conditions, noise data, graphs of raw noise data, a map showing the location of the monitoring sites, and photos of each site.

Any noise sources that cause noise criteria to be exceeded will be identified in the report. The noise monitoring report will also confirm the distance from the blast where 96 dBZ Lpeak (noise threshold for caribou disturbance) is recorded. The location of the 96 dBZ Lpeak will provide input and potential for further mitigation measures for caribou in the continuously updated Wildlife Mitigation and Monitoring Plan (WMMP).

6. REFERENCES

ERM. 2019. *Doris, Madrid, and Boston Projects: 2019 Wildlife Mitigation and Monitoring Plan.* Prepared for TMAC Resources Inc. by ERM Consultants Canada Ltd.: Vancouver, BC.

Manci, K.M., D.N. Gladwin, R. Villella, and M.G. Cavendish. 1988. *Effects of Aircraft Noise and Sonic Booms on Domestic Animals and Wildlife: a Literature Synthesis.* NERC-88/29. 88pp: Fort Collins, Colorado.

NIRB 2018. NIRB Project Certificate (No.: 009). In the matter of the Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada, SC, 1993, c. 29 Article 12, Part 5, And In the matter of an application by TMAC Resources Inc. for development of the Phase 2 Hope Bay Belt Project in the Kitikmeot Region of Nunavut. Nunavut Impact Review Board: Cambridge Bay, Nunavut.

Reimers, E. and J.E. Colman. 2006. "Reindeer and Caribou (*Rangifer tarandus*) Response Toward Human Activities." *Rangifer*, 26 (2): 55-71.

Weisenberger, M.E., P.R. Krausman, M.C. Wallace, D.W. DeYoung, and O.E. Maughan. 1996. "Effects of simulated jet aircraft noise on heart rate and behavior of desert ungulates." *Journal of Wildlife Management*, 60 (1): 52-61.

APPENDIX A ACOUSTICAL CONCEPTS AND TERMINOLOGY

A.1 GLOSSARY – ACOUSTICAL CONCEPTS AND TERMINOLOGY

A.1.1 What Is Noise And Vibration?

Noise

Noise is often defined as a sound, especially one that is loud or unpleasant or that causes disturbance[1] or simply as unwanted sound, but technically, noise is the perception of a series of compressions and rarefactions above and below normal atmospheric pressure.

Vibration

Vibration refers to the oscillating movement of any object. In a sense noise is the movement of air particles and is essentially vibration, though in regards to an environmental assessment vibration is typically taken to refer to the oscillation of a solid object(s). The impact of noise on objects can lead to vibration of the object, or vibration can be experienced by direct transmission through the ground, this is known as ground-borne vibration.

Essentially, noise can be described as what a person hears, and vibration as what they feel.

A.1.2 What Factors Contribute To Environmental Noise?

The noise from an activity, like construction works, at any location can be affected by a number of factors, the most significant being:

- How loud the activity is?
- How far away the activity is from the receiver?
- What type of ground is between the activity and the receiver location e.g. concrete, grass, water or sand?
- How the ground topography varies between the activity and the receiver? For example, is it flat, hilly, mountainous? Blocking the line of sight to a noise source will generally reduce the level of noise.
- Any other obstacles that block the line of sight between the source to receiver e.g. buildings or purpose built noise walls.

[1] Copyright © 2011 Oxford University Press

A.1.3 How to Measure and Describe Noise?

Noise is measured using a specially designed 'sound level' meter which must meet internationally recognised performance standards. Audible sound pressure levels vary across a range of 10^7 Pascals (Pa), from the threshold of hearing at 20μPa to the threshold of pain at 200Pa. Scientists have defined a statistically described logarithmic scale called Decibels (dB) to more manageably describe noise.

To demonstrate how this scale works, the following points give an indication of how the noise levels and differences are perceived by an average person:

- 0 dB - represents the threshold of human hearing (for a young person with ears in good condition).
- 50 dB – represents average conversation.
- 70 dB – represents average street noise, local traffic etc.
- 90 dB – represents the noise inside an industrial premises or factory.
- 140 dB - represents the threshold of pain – the point at which permanent hearing damage may occur.

A.1.4 Human Response to Changes in Noise Levels

The following concepts offer qualitative guidance in respect of the average response to changes in noise levels:

- Differences in noise levels of less than approximately 2 dB are generally imperceptible in practice, an increase of 2 dB is hardly perceivable.
- Differences in noise levels of around 5 dB are considered to be significant.
- Differences in noise levels of around 10 dB are generally perceived to be a doubling (or halving) of the perceived loudness of the noise. An increase of 10 dB is perceived as twice as loud. Therefore an increase of 20 dB is four times as loud and an increase of 30 dB is eight times as loud etc.
- The addition of two identical noise levels will increase the dB level by about 3 dBA. For example, if one car is idling at 40 dB and then another identical car starts idling next to it, the total dB level will be about 43 dB.
- The addition of a second noise level of similar character which is at least 8 dB lower than the existing noise level will not add significantly to the overall dB level.
- A doubling of the distance between a noise source and a receiver results approximately in a 3 dB decrease for a line source (for example, vehicles

travelling on a road) and a 6 dB decrease for a point source (for example, the idling car discussed above).

- A doubling of traffic volume for a line source results approximately in a 3 dB increase in noise, halving the traffic volume for a line source results approximately in a 3 dB decrease in noise.

A.1.5 Terms to Describe the Perception of Noise

The following terms offer quantitative and qualitative guidance in respect of the audibility of a noise source:

- **Inaudible / Not Audible** - the noise source and/or event could not be heard by the operator, masked by extraneous noise sources not associated with the source. If a noise source is 'inaudible' its noise level may be quantified as being less than the measured L_{A90} background noise level, potentially by 10 dB or greater.

- **Barely Audible –** the noise source and/or event are difficult to define by the operator, typically masked by extraneous noise sources not associated with the source. If a source is 'barely audible' its noise level may be quantified as being 5 - 7 dB below the measured L_{A90} or L_{Aeq} noise level, depending on the nature of the source e.g. constant or intermittent.

- **Just Audible –** the noise source and/or event may be defined by the operator. However there are a number of extraneous noise sources contributing to the measurement. The noise level should be quantified based on instantaneous noise level contributions, noted by the operator.

- **Audible** - the noise source and/or event may be easily defined by the operator. There may be a number of extraneous noise sources contributing to the measurement. The noise level should be quantified based on instantaneous noise level contributions, noted by the operator.

- **Dominant –** the noise source and/or event are noted by the operator to be significantly 'louder' than all other noise sources. The noise level should be quantified based on instantaneous noise level contributions, noted by the operator.

The following terms offer qualitative guidance in respect of acoustic terms used to describe the frequency of occurrence of a noise source during an operator attended environmental noise measurements:

- **Constant –** this indicates that the operator has noted the noise source(s) and/or event to be constantly audible for the duration of the noise measurement e.g. an air-conditioner that runs constantly during the measurement.

- **Intermittent –** this indicates that the operator has noted the noise source(s) and/or event to be audible, stopping and starting intervals for the duration of the noise measurement e.g. car pass-bys.

- **Infrequent** – this indicates that the operator has noted the noise source(s) and/or event to be constantly audible, however; not occurring regularly or at intervals for the duration of the noise measurement e.g. a small number of aircraft are noted during the measurement.

A.1.6 How to Calculate or Model Noise Levels?

There are two recognised methods which are commonly adopted to determine the noise at particular location from a proposed activity. The first is to undertake noise measurements whilst the activity is in progress and measure the noise, the second is to calculate the noise based on known noise emission data for the activity in question.

The second option is preferred as the first option is largely impractical in terms of cost and time constraints, notwithstanding the meteorological factors that may also influence its quantification. Furthermore, it is also generally considered unacceptable to create an environmental impact simply to measure it. In addition, the most effective mitigation measures are determined and implemented during the design phase and often cannot be readily applied during or after the implementation phase of a project.

Because a number of factors can affect how 'loud' a noise is at a certain location, the calculations can be very complex. The influence of other ambient sources and the contribution from a particular source in question can be difficult to ascertain. To avoid these issues, and to quantify the direct noise contribution from a source/site in question, the noise level is often calculated using noise modelling software packages. The noise emission data used in may be obtained from the manufacturer or from ERM's database of measured noise emissions.

A.1.7 Acoustic Terminology & Statistical Noise Descriptors

Environmental noise levels such as noise generated by industry, construction and road traffic are commonly expressed in dBA. The A-weighting scale follows the average human hearing response and enables comparison of the intensity of noise with different frequency characteristics. Time varying noise sources are often described in terms of statistical noise descriptors. The following descriptors are commonly used when assessing noise and are referred to throughout this acoustic assessment:

- **Decibel (dB is the adopted abbreviation for the decibel)** – The unit used to describe sound levels and noise exposure. It is equivalent to 10 times the logarithm (to base 10) of the ratio of a given sound pressure to a reference pressure.

- **dBA** - unit used to measure 'A-weighted' sound pressure levels. A-weighting is an adjustment made to sound-level measurement to approximate the response of the human ear.

- **dBC** – unit used to measure 'C-weighted' sound pressure levels. C-weighting is an adjustment made to sound-level measurements which takes account of low-frequency components of noise within the audibility range of humans.

- **dBZ or dBL** – unit used to measure 'Z-weighted' sound pressure levels with no weighting applied, linear.

- **Hertz (Hz)** - the measure of frequency of sound wave oscillations per second. 1 oscillation per second equals 1 hertz.

- **Octave –** a division of the frequency range into bands, the upper frequency limit.

- **1/3 Octave –** single octave bands divided into three parts.

- **Leq** - this level represents the equivalent or average noise energy during a measurement period. The $L_{eq, 15min}$ noise descriptor simply refers to the L_{eq} noise level calculated over a 15 minute period. Indeed, any of the below noise descriptors may be defined in this way, with an accompanying time period (e.g. $L_{10, 15\ minute}$) as required.

- **Lmax** - the absolute maximum noise level in a noise sample.

- **L_N -** the percentile sound pressure level exceeded for N% of the measurement period calculated by statistical analysis.

- **L_{10} -** the noise level exceeded for 10 per cent of the time and is approximately the average of the maximum noise levels.

- **L_{90}** - the noise level exceeded for 90 per cent of the time and is approximately the average of the minimum noise levels. The L_{90} level is often referred to as the "background" noise level and is commonly used as a basis for determining noise criteria for assessment purposes.

- **Sound Power Level (L_W)** - this is a measure of the total power radiated by a source. The Sound Power of a source is a fundamental property of the source and is independent of the surrounding environment.

- **Sound Pressure Level (L_P)** - the level of sound pressure; as measured at a distance by a standard sound level meter with a microphone. This differs from L_W in that this is the received sound as opposed to the sound 'intensity' at the source.

- **Background noise** – the underlying level of noise present in the ambient noise, excluding the noise source under investigation, when extraneous noise is removed. This is described using the L_{A90} descriptor.

- **Ambient noise** – the all-encompassing noise associated within a given environment. It is the composite of sounds from many sources, both near and far. This is described using the L_{Aeq} descriptor.

- **Cognitive noise** – noise in which the source is recognised as being annoying.

- **Masking** – the phenomenon of one sound interfering with the perception of another sound. For example, the interference of traffic noise with use of a public telephone on a busy street.

Industrial Noise Policy (INP) Terminology

The following terminology is from the NSW Environment Protection Authority – *NSW Environmental Noise Management – Industrial Noise Policy* (INP), January 2000 and relevant application notes:

- **Assessment Background Level (ABL)** - is defined in the INP as a single figure background level representing each assessment period (day, evening and night). Its determination is by the tenth percentile method (of the measured L_{A90} statistical noise levels) described in Appendix B on the INP.

- **Rating Background Level (RBL)** - is defined in the INP as the overall single figure background level representing each assessment period (day, evening and night) over the whole monitoring period (as opposed to over each 24 hour period used for the ABL). This is the level used for assessment purposes. It is defined as the median value of:

  - All the day assessment background levels over the monitoring period for the day;

  - All the evening assessment background levels over the monitoring period for the evening; or

  - All the night assessment background levels over the monitoring period for the night.

- **Extraneous noise** – noise resulting from activities that are not typical of the area. Atypical INP activities may include construction, and traffic generated by holiday periods and by special events such as concerts or sporting events. Normal daily traffic is not considered to be extraneous.

- **Most affected location(s)** – locations that experience (or will experience) the greatest noise impact from the noise source under consideration. In determining these locations, one needs to consider existing background levels, exact noise source location(s), distance from source (or proposed source) to receiver, and any shielding between source and receiver.

- **Noise criteria** – the general set of non-mandatory noise level targets for protecting against intrusive noise (for example, background noise plus 5 dB) and loss of amenity (for example, noise levels for various land uses).

- **Noise limits** – enforceable noise levels that appear in conditions on consents and licences. The noise limits are based on achievable noise levels which the proponent has predicted can be met during the environmental

assessment. Exceedance of the noise limits can result in the requirement for either the development of noise management plans or legal action.

- **Project Specific Noise Levels** – target noise levels for a particular noise generating facility. They are based on the most stringent of the intrusive criteria or amenity criteria. Which of the two criteria is the most stringent is determined by measuring the level and nature of existing noise in the area surrounding the actual or propose noise generating facility.

- **Compliance** – the process of checking that source noise levels meet with the noise limits in a statutory context.

- **Non-compliance** – development is deemed to be in non-compliance with its noise consent/ licence conditions if the monitored noise levels exceed its statutory noise limit by more than 2 dB.

- **Feasible and Reasonable measures** – feasibility relates to engineering considerations and what is practical to build. reasonableness relates to the application of judgement in arriving at a decision, taking into account the following factors:

  - Noise mitigation benefits (amount of noise reduction provided, number of people protected);

  - Cost of mitigation (cost of mitigation versus benefit provided);

  - Community views (aesthetic impacts and community wishes); and

  - Noise levels for affected land uses (existing and future levels, and changes in noise levels).

- **Meteorological Conditions** – wind and temperature inversion conditions.

- **Temperature Inversion** – an atmospheric condition in which temperature increases with height above the ground.

- **Adverse Weather** – weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).

1.1.2 Operator Attended Noise Measurements

Table A.1 below presents typical abbreviations that are used to describe common noise sources that may be noted during environmental noise measurements.

Table A.1 General Field Note Abbreviations

Abbreviation	Noise Source
ANML (B-I-D-L)	Animals (birds – insects – domestic - livestock)
ACF T	Aircraft
CPBY	Car pass by
DLCN	Dialogue, conversations e.g. with passers-by
DTRF	Distant traffic
LTRF	Local traffic
OIND	Other industry/industrial sites
OPTR	Operator
RDOC	Residential/occupants
RHUM	Rural harm
SHUM	Suburban harm
UHUM	Urban harm
WBVG	Windblown vegetation

During operator attended noise measurements, the sound level meter will present the instantaneous noise level and record acoustical and statistical parameters. In certain acoustical environments, where a range of noise sources are audible and detectable, the sound level meter cannot measure a direct source noise level and it is often necessary to account for the contribution and duration of the sources.

Noted Percentile Contribution – *Table A.2* presents noise level deductions that are typically applied based on the percentage contribution of a noise source(s). **Noted Time Contribution** – *Table A.3* presents noise level deductions that may be applied based on the percentage of time that a noise source(s) is audible during a 15 minute measurement. Where the noise emission from a source is clearly detectable and the contribution can be measured, these deductions are not necessary.

Table A.2 Noise Level Deductions – Noted Percentile Contribution

Percentage Contribution	Noise Level Adjustment, dBA
5%	-13.0
10%	-10.0
15%	-8.2
20%	-7.0
25%	-6.0
30%	-5.2
35%	-4.6
40%	-4.0
45%	-3.5
50%	-3.0

Percentage Contribution	Noise Level Adjustment, dBA
55%	-2.6
60%	-2.2
65%	-1.9
70%	-1.5
75%	-1.2
80%	-1.0
85%	-0.7
90%	-0.5
95%	-0.2
100%	0.0

1. **EXAMPLE:** the measured $L_{Aeq,\ 15\ minute}$ noise level is 49 dB and the site contribution was observed to be 10% of this level (extraneous noise sources were noted to dominate the measurement), therefore the $L_{Aeq,\ 15\ minute}$ noise level deduction is 10 dB, with a resultant noise level contribution of approximately 39 dB.

Table A.3 Noise Level Deductions – Noted Time Contribution

Event Duration (minutes)	Noise Level Adjustment, dBA
1	-11.8
2	-8.8
3	-7.0
4	-5.7
5	-4.8
6	-4.0
7	-3.3
8	-2.7
9	-2.2
10	-1.8
11	-1.3
12	-1.0
13	-0.6
14	-0.3
15	0.0

1. **EXAMPLE:** the measured $L_{Aeq,\ 15\ minute}$ noise level contribution of an excavator was noted to be 56 dB, however it was only audible for 6 minutes during the 15 minute measurement period, therefore the $L_{Aeq,\ 15\ minute}$ noise level deduction is 4 dB, with a resultant noise level contribution of approximately 52 dB.

A.1 VIBRATION - GLOSSARY OF TERMS, DEFINITIONS AND METHODOLOGY

A.1.1 How to Measure and Control Vibration

Vibration refers to the oscillating movement of any object. In relation to construction projects, ground-borne vibration is the most likely outcome of works and potentially has three (3) effects on vibration sensitive receivers, these are:

- Ground-borne vibration that may cause annoyance.

- Ground-borne vibration that may have adverse effect on a structure e.g. a building.
- Regenerated noise due to ground-borne vibration.

Each of these potential effects can be assessed in accordance with the relevant standard. Perceptible levels of vibration often create concern for the surrounding community at levels well below structural damage guideline values; this issue needs to be managed as part of the vibration monitoring program.

Vibration is typically measured using specific devices that record the velocity or acceleration at a designated receiver location – usually being the closest premises to works. Modern vibration monitoring devices will typically capture amplitude data for the three (3) orthogonal axes being, the transverse, longitudinal and vertical and also the frequency at which the measured vibration event occurs.

Monitoring of this level of detail enables analysis of significant vibration events to determine compliance with relevant guidelines such as the NSW Department of Environment and Conservation – NSW Environmental Noise Management – *Assessing Vibration: a Technical Guideline* (the NSW vibration guideline), February 2006 and the German Institute for Standardisation – DIN 4150 (1999-02) Part 3 (DIN4150-3) – *Structural Vibration - Effects of Vibration on Structures*.

Vibration propagates in a different manner to noise and can be difficult to control depending on the frequency of the source in question, although identifying the strategy best suited to controlling vibration follows a similar approach to that of noise. This includes elimination, control at the source, control along the propagation path and control at the receiver and/or a combination of these, such as no work/respite periods.

A.1.2 Vibration Descriptors

The following terms are often used to describe measured vibration levels.

- **Parameter** – an attribute with a value - for example, weighting.
- **Particle Velocity** – the instantaneous value of the distance travelled by a particle per unit time in a medium that is displaced from its equilibrium state by the passage of a sound or vibration wave.
- **Peak Component Particle Velocity (PCPV)** – is the highest (maximum or peak) particle velocity which is recorded during a particular vibration event over the three (3) axes. PCPV is measured in the unit, mm/s.
- **Phase** – the relative position of a sound wave to some reference point, the phase of a wave is given in radians, degrees, or fractions of a wavelength.
- **Acceleration** – the change in velocity over time. Acceleration is dependent on the velocity and the frequency of the vibration event (velocity is a

vector), as such acceleration changes in two ways - magnitude and/or direction. Acceleration is measured in the unit, m/s^2.

- **Perceptible** – vibration levels that a receiver of building occupant may 'feel'. 0.2mm/s is typically considered to be the human threshold for perception of vibration.

- **Geophone or accelerometer** – the transducer/device typically used to measure vibration.

- **Damage** – is defined in DIN 4150-3 to include minor non-structural effects such as cosmetic damage or superficial cracking in paint or cement render, the enlargement of cracks already present, and the separation of partitions or intermediate walls from load bearing walls.

- **Vibration Dose Value (VDV)** – a concept outlined in the NSW vibration guideline, which is a calculative approach to assessing the impact of intermittent vibration or extended periods of impulsive vibration. VDV require the measurement of the overall weighted RMS (Root Mean Square) acceleration levels over the frequency range 1Hz to 80Hz. To calculate VDV the following formula (refer Section 2.4.1 of the guideline) is used:

$$VDV = \left[\int_0^T a^4(t)dt \right]^{0.25}$$

  Where VDV is the vibration dose value in $m/s^{1.75}$, $a\ (t)$ is the frequency-weighted RMS of acceleration in m/s^2 and T is the total period of the day (in seconds) during which vibration may occur.

- **MIC** - Maximum Instantaneous Charge or explosive charge mass (kg) detonated per delay (any 8ms interval).

- **SD** (m) - The scaled distance for air-blast and ground vibration from the charge to the receiver.

APPENDIX B LARSON DAVIS MEASUREMENT SETUP

APPENDIX B: LARSON DAVIS MEASUREMENT SETUP

Equipment

Noise Meter

Create Measurement Setup (Module 6 in Manual):

- Tools > Setup Manager
- Note the name of the setup file you are editing or make a new setup file. Press **Enter** to name the file and then **Save As > Ok**.
- Use left and right keys to scroll through setup pages.
    - General Tab: file name and description (description is optional)
    - SLM Tab:
        - Frequency Rating: **Z**
        - Detector: **Fast**
        - Peak Weighting: **Z**
        - Integration Method: **Linear**
    - OBA Tab:
        - Bandwidth: **1/1,1/3**
        - Freq. Wt.: **Z**
        - Max. Spec.: **Bin Max.**
        - Spectral Ln.: **On**
    - Ln. Percentiles Tab: make sure there are **10%, 50%, and 90%** percentiles
    - Control Tab:
        - Select Manual Run/Stop or Timed Stop; enable Measurement History checkbox
    - Select preferred exceedance triggers:
        - SPL Trigger: leave default
        - Peak Trigger:
            - Peak 1—96 dB
            - Peak 2—100 dB
            - Peak 3—15 dB
    - Day/Night Settings Tab:
        - Day: **7:00**
        - Evening: **22:00; 0 dB penalty**
        - Night: **22:00; 0dB penalty**
    - Do not need weather data
    - **Close > Yes** to save setup > **Enter** on the name of setup > **Set to Active > Enter**

Set Up Measurement Time History (Module 15 in Manual):

- Tools > Setup Manager > Highlight Setup
    - Time History Tab: **check Enable Time History**

- Period: **100 ms**
- Enable the following Time History options: **Leq, Lpeak, LFmax, and LFmin**
- **Check A, C, and Z weight for Leq, LSmax, LFmax, LSmin, LFmin, 1/3 OBA bandwidth (Leq), and Ln stats**

Set Up Event History (Module 17.1 in Manual):

- Need to verify firmware option 831C-ELA has been installed and enabled on your meter
- Tools > Setup Manager > Highlight the name your Setup
  - Event Triggers Tab:
    - **Add 1/3 octave band as event trigger**
    - **If needed, edit the trigger source and trigger level values**
  - Event History:
    - Minimum Duration: **1 second**
    - Continuation Period: **do not select one**
    - Enable Event Time History:
      - Period: **2 seconds**
      - Spectral Mode: **On**
      - Pre/Post Event: **10 and 10**
      - Event Samples: **1000**
    - Trigger Method: **Dynamic**
    - Spectral Tab:
      - **Select On from Spectral Mode dropdown**
- Close and save setup, enter the Setup Manager, highlight the name of the Event History setup, and set it as the Active setup file

APPENDIX C NOISE BASELINE STUDY FIELD DATA SHEET

Noise Baseline Study Field Data Sheet

Samplers: KW / RS

Project Name: HOPE BAY

Blast ID (ie: 24-13-DD/MM/YYYY ~~24-07-2024~~ 24-20-27/07/2024

Blast Location : Quarry D

Blast Coordinates: UTM Coordinates :
13W 0432946 E 7551638 N

Ground Cover (e.g. soil/vegetation type): Dwarf shrub, sedge, grass

Start Date/Time 27-07-24 16:51:30

Terrain (e.g. flat, hills, mountains): Rocky outcrop, rolling

Finish Date/Time 27-07-24 17:03

Weather:

Temperature (°C): 6.8 Cloud Cover (%): 100%

Precipitation: ☐ Heavy ☐ Moderate ☐ Mild ☒ ~~None~~

☐ Snow ☐ Rain ☐ Other _____

Wind: Speed ☐ Strong ☑ ~~Moderate~~ ☐ Light ☐ None 23.5km/h Direction E

Instrument:

Type Sound Advisor 831C Serial # x

Calibration: ☑ Before C] After Method x

Weighting (i.e. A) x Other Settings x

Response (i.e. fast/slow) x x

Observations: **Include directions and estimated distances to the instrument in this section **

Audible noise observed Talking, paper, rocks, ~~vehicle~~, radio chatter wind, foot steps, flags

Potential noise sources Vehicles, wind, footsteps, talking radio, animals (birds), helicopter, flags

Obstacles (e.g. trees, buildings) Rocky out crops, hills

Notes:

- strong wind gusts while recording

BLAST DATE AND TIME: 27-07-24 17:01:05

WILDLIFE SURVEY COMPLETED? (YES) NO

NOISE MONITORING UTM 13W 0432317 E 7554312 N

PIease be sure to take a few photos of the instrument and the surrounding area (i.e. one in each direction) and put them in the project folder with appropriate labels upon return to the office!

APPENDIX B WILDLIFE CAMERA LOCATIONS AND CAMERA EFFORT BY MONTH, DORIS AND MADRID AREAS, AND BOSTON AREA, 2016 TO 2024

APPENDIX B1: WILDLIFE CAMERA LOCATIONS AND CAMERA EFFORT BY MONTH, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera_ID	Zone	Easting	Northing	CamBearing	CamDegrees	Boundary	Specific Monitoring Objective	September	October	November	December	January	Febuary	March	April
1	13 W	432949	7558756	SE	150	Treatment	-	30	12	0	0	0	0	0	0
2	13 W	432387	7553947	N	0	Treatment	Road Crossing Ramp	4	0	0	0	0	0	0	0
3	13 W	444031	7566975	NW	310	Control	-	30	17	0	9	31	23	29	28
4	13 W	444861	7564091	W	270	Control	-	16	0	0	0	0	0	0	0
5	13 W	450151	7565854	E	82	Control	-	30	12	0	0	0	0	0	0
6	13 W	448290	7567418	E	78	Control	-	16	0	0	0	0	0	0	0
7	13 W	446995	7560826	N	12	Control	-	30	22	1	1	20	24	11	27
8	13 W	446453	7567249	W	276	Control	-	28	18	0	0	4	11	1	9
9	13 W	421674	7551536	S	180	Control	-	17	0	0	0	0	0	0	0
10	13 W	429000	7563795	SW	210	ZOI	-	32	13	0	0	0	0	0	0
11	13 W	434312	7561671	SE	135	Treatment	-	30	13	0	0	0	0	0	0
12	13 W	428170	7550169	S	164	ZOI	-	30	14	0	0	0	0	0	0
13	13 W	431162	7549789	S	160	Treatment	-	30	13	0	0	0	0	0	0
14	13 W	441096	7559506	W	270	ZOI	-	29	19	10	7	22	26	31	30
15	13 W	434048	7559949	S	188	Treatment	-	32	31	30	29	31	24	31	30
16	13 W	445286	7563652	NW	314	Control	-	30	31	26	14	30	29	31	30
17	13 W	432414	7563015	NW	298	Treatment	-	13	0	0	0	0	0	0	0
18	13 W	432884	7563146	E	76	Treatment	Waste Management Facility	10	0	0	0	0	0	0	0
19	13 W	433432	7562946	W	288	Treatment	-	6	0	0	0	0	0	0	0
20	13 W	-	-	-	-		Culvert Crossing	28	31	22	5	15	18	15	0
21	13 W	432902	7563215	S	190	Treatment	Waste Management Facility	0	0	0	0	0	0	0	7
22	13 W	435190	7562859	SE	152	Treatment	ERM Fish Fence	30	27	26	27	21	19	31	30
23	13 W	440934	7562091	E	76	ZOI	-	3	17	17	0	0	0	0	0
24	13 W	432915	7546879	SE	140	ZOI/Ladder	-	30	31	30	31	8	3	19	15
25	13 W	439189	7561613	SW	220	ZOI	-	5	0	0	0	0	0	0	0
26	13 W	439511	7559524	E	108	ZOI	-	8	16	1	0	0	0	0	0
27	13 W	-	-	-	-	-	Culvert Crossing	34	29	13	5	12	20	31	30
28	13 W	437525	7555177	SE	132	Treatment	-	29	31	29	26	31	27	16	15
29	13 W	447664	7555608	E	110	Control	-	30	14	0	0	0	0	0	0
30	13 W	436434	7551376	NE	40	ZOI	-	4	0	0	0	0	0	0	0
31	13 W	447294	7558194	SE	142	Control	-	4	0	0	0	0	0	0	0
32	13 W	431386	7554959	E	82	Treatment	-	30	31	20	4	7	10	13	0
33	13 W	446370	7566101	S	162	Control	-	30	31	1	0	0	0	0	0
34	13 W	435945	7545070	NE	50	ZOI/Ladder	-	30	31	22	21	17	26	31	30
35	13 W	-	-	-	-	-	Road Crossing Ramp	1	0	0	0	0	0	0	0
36	13 W	432743	7556706	E	88	Treatment	-	6	0	0	0	0	0	0	0
37	13 W	447689	7563809	N	350	Control	-	0	0	0	0	0	0	0	0
38	13 W	447868	7573293	NE	62	Control	-	4	0	0	0	0	0	0	0
39	13 W	439855	7553886	NE	62	ZOI	-	10	0	0	0	0	0	0	0
40	13 W	449306	7559369	NW	328	Control	-	30	20	0	0	1	7	11	27
41	13 W	436856	7564792	SE	114	ZOI	-	16	8	0	0	0	1	6	0
42	13 W	432858	7561589	S	192	Treatment	-	5	0	0	0	0	0	0	0
43	13 W	447488	7561980	W	258	Control	-	4	0	0	0	0	0	0	0
44	13 W	441011	7563691	S	198	ZOI	-	4	0	0	0	0	0	0	0

APPENDIX B1: WILDLIFE CAMERA LOCATIONS AND CAMERA EFFORT BY MONTH, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera_ID	Zone	Easting	Northing	CamBearing	CamDegrees	Boundary	Specific Monitoring Objective	May	June	July	August	Total	Average	Standard Deviation	
1	13 W	432949	7558756	SE	150	Treatment	-	0	21	31	31	**7991981**	499498.8	1825689.1	1825689.1
2	13 W	432387	7553947	N	0	Treatment	Road Crossing Ramp	0	21	31	31	**7986423**	499151.4	1824531.4	1824531.4
3	13 W	444031	7566975	NW	310	Control	-	6	23	31	30	**8011576**	500723.5	1827646.9	1827646.9
4	13 W	444861	7564091	W	270	Control	-	0	0	0	0	**8009242**	500577.6	1826953.2	1826953.2
5	13 W	450151	7565854	E	82	Control	-	0	22	0	0	**8016156**	501009.8	1827371.9	1827371.9
6	13 W	448290	7567418	E	78	Control	-	0	23	31	18	**8015880**	500992.5	1827752.8	1827752.8
7	13 W	446995	7560826	N	12	Control	-	7	23	31	30	**8008067**	500504.2	1826161.0	1826161.0
8	13 W	446453	7567249	W	276	Control	-	20	0	0	0	**8014077**	500879.8	1827711.8	1827711.8
9	13 W	421674	7551536	S	180	Control	-	0	0	0	0	**7973416**	498338.5	1823973.1	1823973.1
10	13 W	429000	7563795	SW	210	ZOI	-	0	22	31	31	**7993144**	499571.5	1826914.9	1826914.9
11	13 W	434312	7561671	SE	135	Treatment	-	0	22	31	6	**7996231**	499764.4	1826391.0	1826391.0
12	13 W	428170	7550169	S	164	ZOI	-	0	0	0	1	**7978560**	498660.0	1823626.1	1823626.1
13	13 W	431162	7549789	S	160	Treatment	-	0	22	31	30	**7981250**	498828.1	1823525.8	1823525.8
14	13 W	441096	7559506	W	270	ZOI	-	31	30	31	30	**8001182**	500073.9	1825847.7	1825847.7
15	13 W	434048	7559949	S	188	Treatment	-	31	30	31	31	**7994561**	499660.1	1825970.0	1825970.0
16	13 W	445286	7563652	NW	314	Control	-	31	8	0	0	**8009528**	500595.5	1826841.2	1826841.2
17	13 W	432414	7563015	NW	298	Treatment	-	0	20	31	31	**7995839**	499739.9	1826717.3	1826717.3
18	13 W	432884	7563146	E	76	Treatment	Waste Management Facility	0	21	31	31	**7996217**	499763.6	1826751.7	1826751.7
19	13 W	433432	7562946	W	288	Treatment	-	0	21	31	31	**7996774**	499798.4	1826698.5	1826698.5
20	13 W	-	-	-	-	-	Culvert Crossing	0	21	13	0	**188**	14.5	10.1	10.1
21	13 W	432902	7563215	S	190	Treatment	Waste Management Facility	15	0	0	8	**7996358**	499772.4	1826767.4	1826767.4
22	13 W	435190	7562859	SE	152	Treatment	ERM Fish Fence	18	22	7	0	**7998481**	499905.1	1826673.0	1826673.0
23	13 W	440934	7562091	E	76	ZOI	-	0	23	31	5	**8003220**	500201.3	1826479.2	1826479.2
24	13 W	432915	7546879	SE	140	ZOI/Ladder	-	31	21	0	0	**7980177**	498761.1	1822817.1	1822817.1
25	13 W	439189	7561613	SW	220	ZOI	-	0	23	31	1	**8001107**	500069.2	1826365.4	1826365.4
26	13 W	439511	7559524	E	108	ZOI	-	0	23	31	1	**7999249**	499953.1	1825861.5	1825861.5
27	13 W	-	-	-	-	-	Culvert Crossing	31	30	31	31	**324**	24.9	8.9	8.9
28	13 W	437525	7555177	SE	132	Treatment	-	0	23	31	31	**7993151**	499571.9	1824811.2	1824811.2
29	13 W	447664	7555608	E	110	Control	-	0	0	0	0	**8003455**	500215.9	1824900.0	1824900.0
30	13 W	436434	7551376	NE	40	ZOI	-	0	23	31	2	**7987940**	499246.3	1823900.4	1823900.4
31	13 W	447294	7558194	SE	142	Control	-	0	23	31	30	**8005749**	500359.3	1825524.2	1825524.2
32	13 W	431386	7554959	E	82	Treatment	-	0	22	31	25	**7986652**	499165.8	1824774.6	1824774.6
33	13 W	446370	7566101	S	162	Control	-	0	0	0	0	**8012728**	500795.5	1827436.6	1827436.6
34	13 W	435945	7545070	NE	50	ZOI/Ladder	-	18	23	31	30	**7981409**	498838.1	1822373.1	1822373.1
35	13 W	-	-	-	-	-	Road Crossing Ramp	0	21	31	31	**119**	9.2	13.9	13.9
36	13 W	432743	7556706	E	88	Treatment	-	0	0	0	0	**7989579**	499348.7	1825196.7	1825196.7
37	13 W	447689	7563809	N	350	Control	-	0	23	23	0	**8011931**	500745.7	1826877.3	1826877.3
38	13 W	447868	7573293	NE	62	Control	-	0	23	31	13	**8021332**	501333.3	1829173.2	1829173.2
39	13 W	439855	7553886	NE	62	ZOI	-	0	23	31	31	**7993937**	499621.1	1824498.7	1824498.7
40	13 W	449306	7559369	NW	328	Control	-	27	30	31	30	**8009257**	500578.6	1825799.0	1825799.0
41	13 W	436856	7564792	SE	114	ZOI	-	0	21	0	0	**8001855**	500115.9	1827140.3	1827140.3
42	13 W	432858	7561589	S	192	Treatment	-	0	0	0	0	**7994686**	499667.9	1826374.6	1826374.6
43	13 W	447488	7561980	W	258	Control	-	0	23	31	30	**8009857**	500616.1	1826436.5	1826436.5
44	13 W	441011	7563691	S	198	ZOI	-	0	23	31	30	**8005032**	500314.5	1826863.4	1826863.4

APPENDIX B1: WILDLIFE CAMERA LOCATIONS AND CAMERA EFFORT BY MONTH, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera_ID	Zone	Easting	Northing	CamBearing	CamDegrees	Boundary	Specific Monitoring Objective	September	October	November	December	January	Febuary	March	April
45	13 W	443663	7571970	N	2	Control	-	10	6	0	0	0	0	0	0
46	13 W	442904	7560551	N	8	ZOI	-	6	0	0	0	0	0	0	0
47	13 W	442470	7550873	E	100	ZOI	-	7	0	0	0	0	0	0	0
48	13 W	443980	7554761	NW	308	ZOI	-	7	0	0	0	0	0	0	0
49	13 W	445024	7565168	S	180	Control	-	30	13	0	0	0	0	0	0
50	13 W	434645	7553626	NE	40	Treatment	-	31	31	16	12	7	19	22	0
51	13 W	435488	7555990	E	81	Treatment	-	30	19	4	0	0	10	8	26
52	13 W	434501	7559084	NW	308	Treatment	-	30	13	0	0	0	0	0	0
53	13 W	431215	7559161	W	258	Treatment	-	32	13	0	0	0	0	0	0
54	13 W	430564	7558687	SE	120	Treatment	-	32	31	22	22	31	27	29	30
55	13 W	428287	7554559	N	8	ZOI	-	28	7	0	0	0	0	0	0
56	13 W	419347	7547495	N	345	Control	-	30	28	11	20	24	27	31	30
57	13 W	427342	7552318	SW	204	ZOI	-	9	0	0	0	0	0	0	0
58	13 W	421708	7545207	N	20	Control	-	15	0	0	0	0	0	0	0
59	13 W	431411	7564176	E	100	Treatment	-	9	18	28	17	0	23	24	0
60	13 W	433982	7564662	S	160	Treatment	-	30	14	27	5	0	0	0	0
Total								**7973416.0**	**15946815.0**	**16445153.5**	**18269126.6**	**20093099.7**	**20093099.7**	**20093099.7**	**20093099.7**
Average								**19.2**	**12.1**	**5.9**	**4.3**	**5.2**	**6.2**	**7.0**	**6.6**
Standard Deviation								**11.8**	**11.8**	**10.2**	**8.5**	**9.9**	**10.1**	**11.5**	**11.6**

APPENDIX B1: WILDLIFE CAMERA LOCATIONS AND CAMERA EFFORT BY MONTH, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera_ID	Zone	Easting	Northing	CamBearing	CamDegrees	Boundary	Specific Monitoring Objective	May	June	July	August	Total	Average	Standard Deviation	
45	13 W	443663	7571970	N	2	Control	-	0	22	22	0	**8015740**	500983.8	1828862.5	1828862.5
46	13 W	442904	7560551	N	8	ZOI	-	0	23	31	30	**8003599**	500224.9	1826104.0	1826104.0
47	13 W	442470	7550873	E	100	ZOI	-	0	23	31	31	**7993582**	499598.9	1823764.6	1823764.6
48	13 W	443980	7554761	NW	308	ZOI	-	0	23	31	31	**7999189**	499949.3	1824697.6	1824697.6
49	13 W	445024	7565168	S	180	Control	-	0	23	31	6	**8010524**	500657.8	1827212.4	1827212.4
50	13 W	434645	7553626	NE	40	Treatment	-	7	30	31	31	**7988598**	499287.4	1824444.7	1824444.7
51	13 W	435488	7555990	E	81	Treatment	-	31	30	31	31	**7991830**	499489.4	1825013.7	1825013.7
52	13 W	434501	7559084	NW	308	Treatment	-	0	24	31	31	**7994074**	499629.6	1825761.2	1825761.2
53	13 W	431215	7559161	W	258	Treatment	-	0	22	31	31	**7990816**	499426.0	1825788.2	1825788.2
54	13 W	430564	7558687	SE	120	Treatment	-	18	22	31	31	**7989751**	499359.4	1825674.1	1825674.1
55	13 W	428287	7554559	N	8	ZOI	-	0	22	31	30	**7983027**	498939.2	1824687.4	1824687.4
56	13 W	419347	7547495	N	345	Control	-	16	29	31	13	**7967533**	497970.8	1822994.3	1822994.3
57	13 W	427342	7552318	SW	204	ZOI	-	0	22	31	30	**7980013**	498750.8	1824145.2	1824145.2
58	13 W	421708	7545207	N	20	Control	-	0	22	31	13	**7967074**	497942.1	1822444.2	1822444.2
59	13 W	431411	7564176	E	100	Treatment	-	0	0	0	0	**7995865**	499741.6	1827002.5	1827002.5
60	13 W	433982	7564662	S	160	Treatment	-	0	22	31	11	**7999004**	499937.8	1827112.6	1827112.6
Total								**12119700.7**	**12119700.7**	**12119700.7**	**12119700.7**	-	-	-	-
Average								**5.6**	**19.2**	**22.8**	**17.4**	-	-	-	-
Standard Deviation								**10.5**	**9.2**	**13.2**	**14.0**	-	-	-	-

APPENDIX B2: WILDLIFE CAMERA LOCATIONS AND CAMERA EFFORT BY MONTH, BOSTON AREA, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera_ID	Zone	Easting	Northing	Region	September	October	November	December	January	Febuary	March	April	May	June	July	August	Total	Average	Standard Deviation
61	13 W	440082	7501581	Boston	7	0	0	0	0	0	0	0	0	0	0	0	**7**	**0.5833333**	**2.628736657**
62	13 W	442288	7503273	Boston	28	31	30	31	31	29	31	7	0	0	0	0	**218**	**18.166667**	**57.24161567**
63	13 W	444896	7505844	Boston	29	13	0	0	0	0	0	0	0	0	0	0	**42**	**3.5**	**13.63583138**
64	13 W	439604	7505408	Boston	28	14	8	22	31	29	31	28	14	0	0	0	**205**	**17.083333**	**53.51419653**
65	13 W	443058	7505120	Boston	23	13	0	0	0	0	0	0	0	0	0	0	**36**	**3**	**11.52978306**
66	13 W	434245	7504326	Boston	28	24	14	25	31	29	31	30	9	0	0	0	**221**	**18.416667**	**57.54563407**
67	13 W	453089	7505921	Boston	17	28	28	0	0	0	0	0	0	0	0	0	**73**	**6.0833333**	**21.49865828**
69	13 W	450853	7500107	Boston	28	20	0	22	31	26	22	0	0	0	0	0	**149**	**12.416667**	**39.95718863**
70	13 W	450122	7506525	Boston	29	22	0	8	9	0	6	24	29	22	0	0	**149**	**12.416667**	**39.55683999**
71	13 W	461376	7500648	Boston	26	18	1	0	20	29	25	4	0	0	0	0	**123**	**10.25**	**33.36280748**
72	13 W	456525	7501877	Boston	26	19	2	1	0	0	0	0	0	0	0	0	**48**	**4**	**14.82418329**
73	13 W	455746	7502601	Boston	1	0	0	0	0	0	0	0	0	0	0	0	**1**	**0.0833333**	**0.375533808**
74	13 W	426795	7509860	Boston	17	13	0	0	0	0	0	0	0	0	0	0	**30**	**2.5**	**9.491561704**
75	13 W	453401	7498310	Boston	1	0	0	0	0	0	0	0	0	0	0	0	**1**	**0.0833333**	**0.375533808**
76	13 W	438162	7519971	Boston	5	0	0	0	0	0	0	0	0	0	0	0	**5**	**0.4166667**	**1.87766904**
77	13 W	436435	7528746	Boston	29	29	18	10	18	17	31	30	31	30	31	27	**301**	**25.083333**	**76.84116151**
78	13 W	435081	7538568	Boston	19	0	0	0	0	0	0	0	0	0	0	0	**19**	**1.5833333**	**7.135142354**
79	13 W	435283	7541099	Boston	21	31	24	17	26	29	31	30	22	0	0	0	**231**	**19.25**	**59.91051019**
80	13 W	434607	7542626	Boston	29	31	22	10	21	26	31	30	26	8	2	20	**256**	**21.333333**	**65.75147459**
81	13 W	443808	7507764	Boston	29	23	13	0	0	0	6	20	0	0	0	0	**91**	**7.5833333**	**25.34429587**
82	13 W	435010	7531115	Boston	29	20	23	15	29	29	25	26	17	0	0	0	**213**	**17.75**	**55.28434656**
83	13 W	433178	7547175	Boston	6	0	0	0	0	0	0	0	0	0	0	0	**6**	**0.5**	**2.253202849**
84	13 W	435180	7540149	Boston	29	23	5	20	30	26	25	28	17	0	0	0	**203**	**16.916667**	**52.91369364**
85	13 W	434845	7534523	Boston	24	9	0	0	0	0	0	0	0	0	0	0	**33**	**2.75**	**10.84328931**
86	13 W	435055	7531953	Boston	19	13	0	0	0	0	0	0	0	0	0	0	**32**	**2.6666667**	**10.16088528**
87	13 W	438178	7523516	Boston	5	0	0	0	0	0	0	0	0	0	0	0	**5**	**0.4166667**	**1.87766904**
88	13 W	440228	7514033	Boston	11	7	17	17	16	1	0	0	0	0	0	0	**69**	**5.75**	**18.93206478**
89	13 W	443246	7510847	Boston	4	1	0	0	0	0	0	0	0	0	0	0	**5**	**0.4166667**	**1.690850188**
Total					**547**	**402**	**205**	**198**	**293**	**270**	**295**	**257**	**165**	**60**	**33**	**47**	**-**	**-**	**-**
Average					**19.5357143**	**14.3571429**	**7.32142857**	**7.07142857**	**10.4642857**	**9.64285714**	**10.5357143**	**9.17857143**	**5.89285714**	**2.14285714**	**1.17857143**	**1.67857143**	**-**	**-**	**-**
Standard Deviation					**96.7459868**	**71.5415946**	**37.404337**	**36.1121585**	**53.1006717**	**49.203598**	**53.5686964**	**46.9129028**	**30.6745023**	**12.5278287**	**8.10234769**	**10.227263**	**-**	**-**	**-**

APPENDIX C CAMERA SUMMARY OF WILDLIFE EVENTS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

APPENDIX C: CAMERA SUMMARY OF WILDLIFE EVENTS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Caribou	Grizzly Bear	Wolverine	Muskox	Other Wildlife
1	13	0	0	0	19
2	3	0	0	0	0
3	9	0	0	0	0
4	0	0	0	0	1
5	3	0	0	0	1
6	0	0	0	0	0
7	1	1	0	0	1
8	0	0	0	0	0
9	0	1	0	0	2
10	10	1	0	0	1
11	10	0	0	0	0
12	0	0	0	0	1
13	2	2	0	0	0
14	4	0	0	0	16
15	6	0	0	0	7
16	4	0	0	0	3
17	0	0	0	0	5
18	15	1	0	0	0
19	7	0	0	0	0
21	0	0	0	0	1
22	10	2	0	0	9
23	3	0	0	0	3
24	0	0	0	0	9
25	8	1	0	0	1
26	8	2	0	0	2
28	6	0	0	0	6
29	1	0	0	0	0
30	9	1	0	0	2
31	0	1	0	0	0
32	14	0	0	0	11
33	2	1	0	0	0
34	4	0	0	0	2
35	0	0	0	0	4
36	1	1	0	0	0
37	0	0	0	2	0
39	4	0	0	0	0
40	4	4	0	3	0
41	1	0	0	0	1
42	1	2	0	0	0
43	1	0	0	0	7
44	0	1	0	0	0
45	4	0	2	0	0
46	1	0	0	0	3

APPENDIX C: CAMERA SUMMARY OF WILDLIFE EVENTS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Caribou	Grizzly Bear	Wolverine	Muskox	Other Wildlife
47	4	0	0	0	0
48	2	0	0	0	6
49	7	2	0	0	1
50	11	1	0	0	0
51	13	0	0	0	3
52	0	2	0	0	3
53	1	0	0	0	4
54	8	2	0	4	1
55	7	0	0	0	2
56	3	0	0	0	0
57	2	1	0	0	0
58	2	0	0	0	0
59	0	3	0	0	0
60	5	0	0	0	2

APPENDIX D WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

APPENDIX D: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Date	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
5	Control	9/11/2023	Caribou	1	0	Inspecting camera	Tundra	-
5	Control	9/12/2023	Caribou	1	0	Walking	Tundra	-
5	Control	9/26/2023	Caribou	1	0	Inspecting camera	Tripod	-
5	Control	10/5/2023	Unknown	0	0	Inspecting camera	Tripod	This could be an animal. But it is difficult to tell which. It is only partially in frame and up close.
7	Control	4/26/2024	Caribou	1	0	Inspecting camera	Tundra	-
7	Control	4/28/2024	Arctic fox	1	0	Inspecting camera	Tripod	-
8	Control	9/1/2023	Grizzly bear	1	0	Inspecting camera	Tripod	-
9	Control	9/7/2023	Bird	2	0	Flying	Tundra	-
9	Control	9/23/2023	Unknown	1	0	Inspecting camera	Tripod	-
11	Treatment	10/7/2023	Grizzly bear	1	0	Inspecting camera	Tripod	-
13	Treatment	9/15/2023	Caribou	1	0	Walking	Tundra	-
14	ZOI	9/8/2023	Unknown	1	0	Inspecting camera	Tripod	-
14	ZOI	10/10/2023	Small mammal	1	0	Resting	Tundra	-
14	ZOI	5/12/2024	Arctic fox	1	0	Inspecting camera	Tripod	-
14	ZOI	5/17/2024	Grizzly bear	1	0	Inspecting camera	Tripod	-
14	ZOI	5/20/2024	Bird	0	0	Resting	Tripod	-
14	ZOI	5/22/2024	Grizzly bear	1	0	Walking	Tundra	-
14	ZOI	5/23/2024	Bird	1	0	Resting	Tundra	-
14	ZOI	5/24/2024	Bird	1	0	Resting	Tundra	-
14	ZOI	5/25/2024	Bird	1	0	Resting	Tundra	-
14	ZOI	5/26/2024	Bird	1	0	Resting	Tundra	-
14	ZOI	5/26/2024	Bird	1	0	Resting	Tundra	-
14	ZOI	5/27/2024	Small mammal	1	0	Running	Tundra	-
14	ZOI	6/1/2024	Bird	1	0	Resting	Tundra	-
14	ZOI	6/2/2024	Bird	1	0	Resting	Tundra	-
14	ZOI	6/3/2024	Bird	1	0	Resting	Tundra	-

APPENDIX D: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Date	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
14	ZOI	6/4/2024	Caribou	1	0	Walking	Tundra	-
14	ZOI	6/5/2024	Bird	1	0	Resting	Tundra	-
14	ZOI	6/7/2024	Bird	1	0	Resting	Tundra	-
15	Treatment	5/30/2024	Bird	1	0	Flying	Tundra	-
15	Treatment	6/9/2024	Unknown	1	0	Inspecting camera	Tripod	-
16	Control	9/4/2023	Caribou	0	1	Walking	Tundra	-
16	Control	9/18/2023	Caribou	3	0	Feeding	Tundra	-
16	Control	10/3/2023	Caribou	1	0	Walking	Tundra	-
16	Control	4/5/2024	Arctic fox	1	0	Walking	Tundra	-
16	Control	4/10/2024	Arctic fox	1	0	Walking	Tundra	-
16	Control	5/6/2024	Caribou	1	0	Walking	Tundra	-
16	Control	6/7/2024	Bird	1	0	Flying	Tundra	-
21	Treatment	5/6/2024	Arctic hare	1	0	Resting	Tripod	-
22	Treatment	9/3/2023	Grizzly bear	3	0	Inspecting camera	Tundra	-
22	Treatment	9/16/2023	Small mammal	1	0	Inspecting camera	Tripod	-
22	Treatment	9/17/2023	Small mammal	1	0	Walking	Tripod	-
22	Treatment	9/22/2023	Small mammal	1	0	Walking	Tripod	-
22	Treatment	9/22/2023	Small mammal	1	0	Walking	Tripod	-
22	Treatment	9/22/2023	Small mammal	1	0	Walking	Tripod	-
22	Treatment	9/23/2023	Small mammal	1	0	Walking	Tripod	-
22	Treatment	9/26/2023	Small mammal	1	0	Walking	Tripod	-
22	Treatment	10/12/2023	Small mammal	1	0	Walking	Tripod	-
22	Treatment	5/23/2024	Small mammal	1	0	Inspecting camera	Tripod	-
23	ZOI	10/17/2023	Small mammal	1	0	Walking	Tundra	-
26	ZOI	9/9/2023	Grizzly bear	2	0	Inspecting camera	Tundra	-
26	ZOI	10/18/2023	Small mammal	1	0	Inspecting camera	Tripod	-
28	Treatment	9/7/2023	Caribou	1	0	Feeding	Tundra	-
28	Treatment	9/13/2023	Caribou	1	0	Inspecting camera	Tundra	-
28	Treatment	10/17/2023	Caribou	1	0	Inspecting camera	Tripod	-

APPENDIX D: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Date	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
32	Treatment	9/25/2023	Grizzly bear	1	0	Inspecting camera	Tripod	-
34	ZOI	9/13/2023	Bird	32	0	Feeding	Tundra	Geese
34	ZOI	9/16/2023	Caribou	1	0	Walking	Tundra	-
34	ZOI	10/14/2023	Caribou	1	0	Inspecting camera	Tripod	-
36	Control	9/2/2023	Caribou	2	0	Inspecting camera	Tundra	-
40	Control	10/5/2023	Caribou	2	0	Feeding	Tundra	-
40	Control	4/13/2024	Caribou	1	0	Feeding	Tundra	-
40	Control	5/13/2024	Caribou	2	0	Inspecting camera	Tundra	-
41	ZOI	9/1/2023	Grizzly bear	1	0	Inspecting camera	Tripod	-
41	ZOI	9/13/2023	Grizzly bear	1	0	Inspecting camera	Tripod	-
41	ZOI	9/27/2023	Grizzly bear	2	0	Inspecting camera	Tripod	-
41	ZOI	10/6/2023	Grizzly bear	1	0	Inspecting camera	Tripod	-
41	ZOI	6/1/2024	Bird	1	0	Flying	Unknown	-
41	ZOI	6/4/2024	Caribou	1	0	Inspecting camera	Unknown	-
42	Treatment	9/5/2023	Caribou	1	0	Walking	Tundra	-
45	Control	10/1/2023	Wolverine	1	0	Inspecting camera	Tripod	-
45	Control	10/1/2023	Wolverine	1	0	Inspecting camera	Tripod	-
46	ZOI	9/7/2023	Caribou	3	0	Inspecting camera	Tripod	-
49	Control	10/12/2023	Caribou	1	0	Walking	Tundra	-
50	Treatment	9/12/2023	Grizzly bear	1	0	Inspecting camera	Tripod	-
50	Treatment	9/23/2023	Grizzly bear	1	0	Walking	Tundra	-
50	Treatment	6/4/2024	Caribou	7	0	Resting	Tundra	-
50	Treatment	6/7/2024	Caribou	2	0	Feeding	Tundra	-
51	Treatment	11/15/2023	Grizzly bear	1	0	Inspecting camera	Tripod	-
51	Treatment	5/1/2024	Arctic fox	1	0	Walking	Tundra	-
51	Treatment	5/11/2024	Arctic fox	1	0	Walking	Tundra	-
51	Treatment	5/28/2024	Bird	2	0	Walking	Esker	-
53	Treatment	10/1/2023	Grizzly bear	1	0	Walking	Tundra	-
54	Treatment	10/18/2023	Muskox	2	0	Inspecting camera	Tundra	-

APPENDIX D: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Date	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
54	Treatment	10/18/2023	Muskox	2	0	Inspecting camera	Tundra	-
54	Treatment	11/29/2023	Muskox	1	0	Inspecting camera	Tripod	-
54	Treatment	12/13/2023	Muskox	1	0	Inspecting camera	Tripod	-
55	ZOI	9/24/2023	Grizzly bear	1	0	Inspecting camera	Tripod	-
56	Control	9/5/2023	Caribou	2	0	Walking	Lake	-
56	Control	5/31/2024	Bird	1	0	Resting	Tundra	-
56	Control	6/2/2024	Bird	1	0	Resting	Tundra	-
57	ZOI	9/3/2023	Caribou	1	0	Walking	Tundra	-
57	ZOI	9/4/2023	Caribou	1	0	Inspecting camera	Tundra	-
58	Control	9/6/2023	Caribou	1	0	Walking	Tundra	-
58	Control	9/10/2023	Grizzly bear	1	0	Inspecting camera	Tripod	-
60	Treatment	9/3/2023	Grizzly bear	2	0	Inspecting camera	Tundra	-
60	Treatment	9/28/2023	Grizzly bear	1	0	Inspecting camera	Tripod	-
1	Treatment	6/13/2024	Arctic hare	1	0	-	-	-
1	Treatment	6/13/2024	Arctic hare	1	0	-	-	-
1	Treatment	6/13/2024	Arctic hare	1	0	-	-	-
1	Treatment	6/14/2024	Bird	2	0	-	-	-
1	Treatment	6/14/2024	Arctic hare	1	0	-	-	-
1	Treatment	6/14/2024	Arctic hare	1	0	-	-	-
1	Treatment	6/14/2024	Arctic hare	1	0	-	-	-
1	Treatment	6/15/2024	Bird	2	0	-	-	-
1	Treatment	6/19/2024	Arctic hare	1	0	-	-	-
1	Treatment	6/19/2024	Arctic hare	1	0	-	-	-
1	Treatment	6/21/2024	Arctic hare	1	0	-	-	-
1	Treatment	6/21/2024	Arctic hare	1	0	-	-	-
1	Treatment	6/21/2024	Arctic hare	1	0	-	-	-
1	Treatment	6/21/2024	Arctic hare	1	0	-	-	-
1	Treatment	6/21/2024	Arctic hare	1	0	-	-	-
1	Treatment	7/8/2024	Arctic hare	1	0	-	-	-

APPENDIX D: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Date	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
1	Treatment	7/8/2024	Arctic hare	1	0	-	-	-
1	Treatment	7/8/2024	Arctic hare	1	0	-	-	-
1	Treatment	7/8/2024	Arctic hare	1	0	-	-	-
1	Treatment	7/9/2024	Caribou	6	0	-	-	-
1	Treatment	7/13/2024	Caribou	1	0	-	-	-
1	Treatment	7/14/2024	Caribou	1	0	-	-	-
1	Treatment	7/15/2024	Caribou	1	0	-	-	-
1	Treatment	7/15/2024	Caribou	2	0	-	-	-
1	Treatment	7/15/2024	Caribou	1	0	-	-	-
1	Treatment	7/20/2024	Caribou	1	0	-	-	-
1	Treatment	7/22/2024	Caribou	1	0	Walking	Tundra	-
1	Treatment	7/25/2024	Caribou	1	0	-	-	-
1	Treatment	7/27/2024	Caribou	1	0	-	-	-
1	Treatment	7/27/2024	Caribou	1	0	-	-	-
1	Treatment	7/27/2024	Caribou	2	0	-	-	-
1	Treatment	7/27/2024	Caribou	1	0	-	-	-
2	Treatment	7/9/2024	Caribou	1	0	-	-	-
2	Treatment	7/21/2024	Caribou	1	0	-	-	-
2	Treatment	7/27/2024	Caribou	1	0	-	-	-
4	Control	9/13/2023	Bird	3	0	-	-	Geese
10	ZOI	6/16/2024	Caribou	1	0	-	-	-
10	ZOI	6/17/2024	Caribou	1	0	-	-	-
10	ZOI	6/25/2024	Caribou	1	0	-	-	-
10	ZOI	6/30/2024	Caribou	1	0	-	-	-
10	ZOI	7/3/2024	Caribou	1	0	-	-	-
10	ZOI	7/4/2024	Caribou	2	0	-	-	-
10	ZOI	7/4/2024	Caribou	1	0	-	-	-
10	ZOI	7/21/2024	Small mammal	1	0	-	-	-
10	ZOI	7/21/2024	Caribou	2	0	-	-	-

APPENDIX D: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Date	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
10	ZOI	7/31/2024	Grizzly bear	1	0	-	-	-
10	ZOI	8/1/2024	Caribou	2	0	-	-	-
10	ZOI	8/1/2024	Caribou	1	0	-	-	-
11	Treatment	6/18/2024	Caribou	3	0	-	-	-
11	Treatment	6/18/2024	Caribou	3	0	-	-	-
11	Treatment	7/2/2024	Caribou	1	0	-	-	-
11	Treatment	7/2/2024	Caribou	1	0	-	-	-
11	Treatment	7/3/2024	Caribou	2	0	-	-	-
11	Treatment	7/6/2024	Caribou	1	0	-	-	-
11	Treatment	7/6/2024	Caribou	1	0	-	-	-
11	Treatment	7/7/2024	Caribou	3	0	-	-	-
11	Treatment	7/7/2024	Caribou	4	0	-	-	-
11	Treatment	7/7/2024	Caribou	3	0	-	-	-
12	ZOI	9/16/2023	Arctic hare	1	0	-	-	-
13	Treatment	7/2/2024	Caribou	1	0	-	-	-
14	ZOI	6/12/2024	Bird	1	0	-	-	-
14	ZOI	6/25/2024	Caribou	2	1	-	-	-
14	ZOI	6/25/2024	Caribou	8	0	-	-	-
14	ZOI	6/29/2024	Caribou	1	0	-	-	-
15	Treatment	6/20/2024	Caribou	3	0	-	-	-
15	Treatment	6/20/2024	Caribou	1	0	-	-	-
15	Treatment	6/20/2024	Caribou	3	0	-	-	-
15	Treatment	7/4/2024	Bird	1	0	-	-	-
15	Treatment	7/6/2024	Caribou	1	0	-	-	-
15	Treatment	7/9/2024	Caribou	3	0	-	-	-
15	Treatment	7/9/2024	Caribou	1	0	-	-	-
15	Treatment	7/15/2024	Unknown	1	0	-	-	-
15	Treatment	7/18/2024	Unknown	1	0	-	-	-
15	Treatment	7/23/2024	Unknown	1	0	-	-	-

APPENDIX D: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Date	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
15	Treatment	7/29/2024	Bird	1	0	-	-	-
17	Treatment	6/29/2024	Bird	1	0	-	-	-
17	Treatment	7/13/2024	Bird	2	0	-	-	-
17	Treatment	7/16/2024	Unknown	1	0	-	-	-
17	Treatment	7/21/2024	Unknown	1	0	-	-	-
17	Treatment	7/27/2024	Unknown	1	0	-	-	-
18	Treatment	7/7/2024	Caribou	2	0	-	-	-
18	Treatment	7/13/2024	Caribou	2	0	-	-	-
18	Treatment	7/13/2024	Caribou	1	0	-	-	-
18	Treatment	7/17/2024	Caribou	1	0	-	-	-
18	Treatment	7/17/2024	Caribou	1	0	-	-	-
18	Treatment	7/20/2024	Caribou	2	0	-	-	-
18	Treatment	7/23/2024	Caribou	1	0	-	-	-
18	Treatment	7/23/2024	Caribou	1	0	-	-	-
18	Treatment	7/23/2024	Caribou	2	0	-	-	-
18	Treatment	7/23/2024	Caribou	3	0	-	-	-
18	Treatment	7/24/2024	Caribou	2	0	-	-	-
18	Treatment	7/24/2024	Caribou	1	0	-	-	-
18	Treatment	7/25/2024	Caribou	3	0	-	-	-
18	Treatment	7/26/2024	Caribou	1	0	-	-	-
18	Treatment	7/27/2024	Caribou	4	0	-	-	-
19	Treatment	7/6/2024	Caribou	3	0	-	-	-
19	Treatment	7/11/2024	Caribou	1	0	-	-	-
19	Treatment	7/22/2024	Caribou	1	0	-	-	-
19	Treatment	7/25/2024	Caribou	1	0	-	-	-
19	Treatment	7/25/2024	Caribou	1	0	-	-	-
19	Treatment	7/25/2024	Caribou	1	0	-	-	-
19	Treatment	7/27/2024	Caribou	2	0	-	-	-
20	Culvert	6/12/2024	Caribou	1	0	-	-	-

APPENDIX D: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Date	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
20	Culvert	6/26/2024	Caribou	1	0	-	-	-
20	Culvert	6/26/2024	Unknown	1	0	-	-	-
20	Culvert	6/27/2024	Unknown	1	0	-	-	-
20	Culvert	6/27/2024	Unknown	1	0	-	-	-
22	Treatment	6/10/2024	Caribou	2	0	-	-	-
22	Treatment	6/13/2024	Caribou	2	0	-	-	-
22	Treatment	6/13/2024	Caribou	3	0	-	-	-
22	Treatment	6/21/2024	Caribou	2	0	-	-	-
22	Treatment	6/21/2024	Caribou	3	0	-	-	-
22	Treatment	6/22/2024	Caribou	2	0	-	-	-
22	Treatment	6/22/2024	Caribou	3	0	-	-	-
22	Treatment	6/28/2024	Caribou	1	0	-	-	-
22	Treatment	6/30/2024	Caribou	2	0	-	-	-
22	Treatment	6/30/2024	Caribou	3	0	-	-	-
23	ZOI	6/14/2024	Caribou	1	0	-	-	-
23	ZOI	6/23/2024	Caribou	1	0	-	-	-
23	ZOI	6/23/2024	Caribou	1	0	-	-	-
23	ZOI	6/24/2024	Arctic fox	0	0	-	-	-
23	ZOI	7/7/2024	Arctic fox	1	0	-	-	-
23	ZOI	7/9/2024	Grizzly bear	1	0	-	-	-
23	ZOI	7/9/2024	Grizzly bear	3	0	-	-	-
24	ZOI	4/20/2024	Arctic fox	1	0	-	-	-
24	ZOI	6/9/2024	Bird	2	0	-	-	Geese
24	ZOI	6/9/2024	Bird	2	0	-	-	Geese
24	ZOI	6/10/2024	Bird	2	0	-	-	Geese
24	ZOI	6/12/2024	Bird	1	0	-	-	Goose
24	ZOI	6/14/2024	Bird	1	0	-	-	Goose
24	ZOI	6/15/2024	Bird	1	0	-	-	Goose
24	ZOI	6/17/2024	Bird	1	0	-	-	Goose

APPENDIX D: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Date	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
24	ZOI	6/20/2024	Bird	1	0	-	-	Goose
25	ZOI	6/17/2024	Caribou	1	0	-	-	-
25	ZOI	6/20/2024	Caribou	3	0	-	-	-
25	ZOI	6/20/2024	Caribou	4	0	-	-	-
25	ZOI	6/22/2024	Caribou	3	0	-	-	-
25	ZOI	6/22/2024	Caribou	1	0	-	-	-
25	ZOI	6/22/2024	Caribou	1	0	-	-	-
25	ZOI	6/22/2024	Caribou	2	0	-	-	-
25	ZOI	6/23/2024	Moose	1	0	-	-	-
25	ZOI	7/30/2024	Caribou	1	0	-	-	-
26	ZOI	7/1/2024	Caribou	1	0	-	-	-
26	ZOI	7/1/2024	Caribou	1	1	-	-	-
26	ZOI	7/3/2024	Caribou	1	0	-	-	-
26	ZOI	7/3/2024	Caribou	2	0	-	-	-
26	ZOI	7/4/2024	Caribou	1	0	-	-	-
26	ZOI	7/4/2024	Caribou	2	0	-	-	-
26	ZOI	7/11/2024	Unknown	1	0	-	-	-
26	ZOI	7/20/2024	Caribou	2	0	-	-	-
26	ZOI	7/26/2024	Caribou	1	0	-	-	-
27	Culvert	6/27/2024	Bird	1	0	-	-	-
27	Culvert	6/30/2024	Bird	1	0	-	-	-
27	Culvert	7/17/2024	Caribou	1	0	-	-	-
27	Culvert	7/17/2024	Caribou	2	1	-	-	-
27	Culvert	7/18/2024	Caribou	1	0	-	-	-
28	Treatment	6/16/2024	Caribou	1	0	-	-	-
28	Treatment	7/4/2024	Caribou	1	0	-	-	-
28	Treatment	7/12/2024	Caribou	1	0	-	-	-
28	Treatment	7/14/2024	Bird	1	0	-	-	-
28	Treatment	7/17/2024	Bird	1	0	-	-	-

APPENDIX D: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Date	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
28	Treatment	7/24/2024	Grizzly bear	1	0	-	-	-
28	Treatment	7/24/2024	Grizzly bear	1	0	-	-	-
28	Treatment	7/24/2024	Bird	1	0	-	-	-
28	Treatment	7/24/2024	Bird	1	0	-	-	-
28	Treatment	7/25/2024	Small mammal	1	0	-	-	-
28	Treatment	7/25/2024	Small mammal	1	0	-	-	-
29	Control	9/22/2023	Caribou	1	0	-	-	-
30	ZOI	7/2/2024	Caribou	1	0	-	-	-
30	ZOI	7/2/2024	Caribou	1	0	-	-	-
30	ZOI	7/4/2024	Caribou	1	0	-	-	-
30	ZOI	7/4/2024	Caribou	1	0	-	-	-
30	ZOI	7/5/2024	Caribou	1	0	-	-	-
30	ZOI	7/6/2024	Arctic fox	1	0	-	-	-
30	ZOI	7/8/2024	Bird	1	0	-	-	-
30	ZOI	7/9/2024	Caribou	1	0	-	-	-
30	ZOI	7/23/2024	Caribou	1	0	-	-	-
30	ZOI	7/25/2024	Caribou	1	0	-	-	-
30	ZOI	7/30/2024	Caribou	1	0	-	-	-
31	Control	7/29/2024	Grizzly bear	1	0	-	-	-
32	Treatment	6/25/2024	Caribou	2	0	-	-	-
32	Treatment	6/25/2024	Caribou	2	0	-	-	-
32	Treatment	6/26/2024	Bird	1	0	-	-	Goose
32	Treatment	6/28/2024	Caribou	1	1	-	-	-
32	Treatment	7/2/2024	Bird	1	0	-	-	Goose
32	Treatment	7/2/2024	Bird	1	0	-	-	Goose
32	Treatment	7/3/2024	Bird	1	0	-	-	Goose
32	Treatment	7/7/2024	Bird	1	0	-	-	Goose
32	Treatment	7/8/2024	Caribou	1	0	-	-	-
32	Treatment	7/8/2024	Caribou	2	0	-	-	-

APPENDIX D: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Date	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
32	Treatment	7/9/2024	Bird	9	0	-	-	-
32	Treatment	7/9/2024	Caribou	1	0	-	-	-
32	Treatment	7/9/2024	Caribou	1	0	-	-	-
32	Treatment	7/10/2024	Bird	1	0	-	-	Goose
32	Treatment	7/10/2024	Bird	1	0	-	-	Goose
32	Treatment	7/12/2024	Bird	1	0	-	-	Goose
32	Treatment	7/13/2024	Bird	1	0	-	-	-
32	Treatment	7/14/2024	Bird	3	0	-	-	Goose
32	Treatment	7/14/2024	Caribou	1	0	-	-	-
32	Treatment	7/17/2024	Caribou	1	0	-	-	-
32	Treatment	7/18/2024	Caribou	1	0	-	-	-
32	Treatment	7/19/2024	Caribou	1	0	-	-	-
32	Treatment	7/19/2024	Caribou	1	0	-	-	-
32	Treatment	7/19/2024	Caribou	2	0	-	-	-
32	Treatment	7/20/2024	Caribou	1	0	-	-	-
33	Control	9/8/2023	Caribou	1	0	-	-	-
33	Control	10/8/2023	Caribou	1	0	-	-	-
34	ZOI	6/18/2024	Arctic fox	1	0	-	-	-
34	ZOI	6/30/2024	Caribou	1	0	-	-	-
34	ZOI	7/15/2024	Caribou	1	0	-	-	-
34	ZOI	7/19/2024	Grizzly bear	1	0	-	-	-
35	Treatment	6/21/2024	Bird	1	0	-	-	-
35	Treatment	6/21/2024	Bird	1	0	-	-	-
35	Treatment	6/21/2024	Bird	1	0	-	-	-
35	Treatment	7/12/2024	Bird	2	0	-	-	-
37	Control	6/12/2024	Grizzly bear	1	0	-	-	-
37	Control	6/23/2024	Muskox	1	0	-	-	-
37	Control	6/23/2024	Muskox	1	0	-	-	-
39	ZOI	6/20/2024	Caribou	1	0	-	-	-

APPENDIX D: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Date	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
39	ZOI	6/26/2024	Caribou	1	0	-	-	-
39	ZOI	7/22/2024	Caribou	1	0	-	-	-
39	ZOI	7/22/2024	Caribou	1	0	-	-	-
3	Control	6/30/2024	Caribou	1	0	Feeding	Tundra	-
3	Control	6/30/2024	Caribou	1	0	Walking	Tundra	-
3	Control	7/8/2024	Caribou	1	0	Walking	Tundra	-
3	Control	7/13/2024	Caribou	2	0	Walking	Tundra	-
3	Control	7/13/2024	Caribou	1	0	Feeding	Tundra	-
3	Control	7/14/2024	Caribou	1	0	Walking	Tundra	-
3	Control	7/14/2024	Caribou	1	0	Walking	Tundra	-
3	Control	7/20/2024	Caribou	2	0	Walking	Tundra	-
3	Control	7/26/2024	Caribou	1	0	Walking	-	-
40	Control	6/11/2024	Caribou	2	0	Walking	Tundra	-
40	Control	6/24/2024	Muskox	2	0	Feeding	Tundra	-
40	Control	6/25/2024	Muskox	3	0	Feeding	Tundra	-
40	Control	6/25/2024	Muskox	1	0	Walking	Tundra	-
43	Control	6/8/2024	Human	1	0	-	-	-
43	Control	7/1/2024	Bird	1	0	-	-	Male LALO
43	Control	7/4/2024	Bird	1	0	-	-	SAVS
43	Control	7/4/2024	Caribou	1	0	-	-	-
43	Control	7/8/2024	Bird	2	0	-	-	HOLA
43	Control	7/12/2024	Bird	1	0	-	-	LALO
43	Control	7/18/2024	Small mammal	1	0	-	-	-
43	Control	7/21/2024	Grizzly bear	1	0	-	-	-
43	Control	7/23/2024	Grizzly bear	1	0	-	-	-
43	Control	8/1/2024	Bird	1	0	-	-	UNBI
45	Control	6/30/2024	Caribou	1	0	-	-	-
45	Control	7/9/2024	Caribou	1	0	-	-	-
45	Control	7/12/2024	Caribou	1	0	-	-	-

APPENDIX D: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Date	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
45	Control	7/13/2024	Caribou	1	0	-	-	-
45	Control	7/23/2024	Grizzly bear	1	0	-	-	-
46	ZOI	9/2/2023	Human	1	0	-	-	-
46	ZOI	6/18/2024	Unknown	0	0	-	-	-
46	ZOI	7/17/2024	Bird	1	0	-	-	UNBI
47	ZOI	6/13/2024	Caribou	3	0	-	-	-
47	ZOI	7/4/2024	Caribou	1	1	-	-	-
47	ZOI	7/10/2024	Caribou	1	0	-	-	-
47	ZOI	7/17/2024	Caribou	1	0	-	-	-
48	ZOI	9/1/2023	Human	1	0	-	-	-
48	ZOI	6/26/2024	Bird	1	0	-	-	Large UNBI
48	ZOI	6/29/2024	Unknown	0	0	-	-	-
48	ZOI	6/29/2024	Bird	1	0	-	-	UNBI
48	ZOI	7/6/2024	Caribou	1	0	-	-	-
48	ZOI	7/7/2024	Unknown	0	0	-	-	-
48	ZOI	7/13/2024	Caribou	1	0	-	-	-
48	ZOI	7/24/2024	Bird	1	0	-	-	UNJA
49	Control	6/8/2024	Human	1	0	-	-	-
49	Control	7/4/2024	Caribou	2	0	-	-	-
49	Control	7/8/2024	Caribou	1	0	-	-	-
49	Control	7/14/2024	Caribou	2	0	-	-	-
49	Control	7/21/2024	Caribou	1	0	-	-	-
49	Control	7/25/2024	Caribou	1	0	-	-	-
49	Control	7/27/2024	Caribou	1	0	-	-	-
50	Treatment	6/16/2024	Caribou	1	0	-	-	-
50	Treatment	6/22/2024	Caribou	1	0	-	-	-
50	Treatment	6/23/2024	Caribou	3	0	-	-	-
50	Treatment	6/25/2024	Caribou	2	0	-	-	-
50	Treatment	6/27/2024	Caribou	1	0	-	-	-

APPENDIX D: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Date	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
50	Treatment	7/4/2024	Caribou	2	0	-	-	-
50	Treatment	7/4/2024	Caribou	1	0	-	-	-
50	Treatment	7/4/2024	Caribou	3	0	-	-	-
50	Treatment	7/4/2024	Caribou	2	0	-	-	-
51	Treatment	6/25/2024	Caribou	1	0	-	-	-
51	Treatment	7/5/2024	Caribou	1	0	-	-	-
51	Treatment	7/5/2024	Caribou	1	0	-	-	-
51	Treatment	7/15/2024	Caribou	1	0	-	-	-
51	Treatment	7/18/2024	Caribou	1	0	-	-	-
51	Treatment	7/18/2024	Caribou	1	0	-	-	-
51	Treatment	7/20/2024	Caribou	1	0	-	-	-
51	Treatment	7/23/2024	Caribou	1	0	-	-	-
51	Treatment	7/23/2024	Caribou	1	0	-	-	-
51	Treatment	7/24/2024	Caribou	2	0	-	-	-
51	Treatment	7/26/2024	Caribou	1	0	-	-	-
51	Treatment	7/26/2024	Caribou	1	0	-	-	-
51	Treatment	7/27/2024	Caribou	1	0	-	-	-
52	Treatment	6/7/2024	Human	1	0	-	-	-
52	Treatment	6/29/2024	Bird	13	0	-	-	Unknown waterbird
52	Treatment	6/29/2024	Bird	14	0	-	-	Unknown waterbird
53	Treatment	6/10/2024	Bird	1	0	-	-	WIPT
53	Treatment	6/19/2024	Bird	1	0	-	-	Unknown songbird
53	Treatment	6/22/2024	Grizzly bear	1	0	Walking	-	-
53	Treatment	6/26/2024	Bird	1	0	Flying	-	UNBI
53	Treatment	7/1/2024	Bird	1	0	Flying	-	UNBI
53	Treatment	7/2/2024	Caribou	1	1	Walking	-	-
54	Treatment	6/10/2024	Caribou	3	0	Running	-	-
54	Treatment	6/10/2024	Caribou	1	0	Walking	-	-
54	Treatment	6/16/2024	Caribou	1	0	Feeding	-	-

APPENDIX D: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, DORIS AND MADRID AREAS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Date	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
54	Treatment	6/16/2024	Caribou	1	0	Feeding	-	-
54	Treatment	6/17/2024	Caribou	2	0	Feeding	-	-
54	Treatment	6/26/2024	Caribou	3	0	Feeding	-	-
54	Treatment	6/30/2024	Caribou	1	0	Walking	-	-
54	Treatment	7/4/2024	Caribou	1	0	Feeding	-	-
55	ZOI	6/15/2024	Caribou	2	0	Resting	Tundra	-
55	ZOI	6/18/2024	Caribou	2	0	Feeding	Tundra	-
55	ZOI	6/23/2024	Caribou	2	0	Feeding	Tundra	-
55	ZOI	6/23/2024	Bird	1	0	Inspecting camera	Tripod	Unknown
55	ZOI	7/5/2024	Grizzly bear	1	0	Inspecting camera	Tundra	-
55	ZOI	7/5/2024	Caribou	2	0	Walking	Tundra	-
55	ZOI	7/8/2024	Caribou	1	0	Walking	Tundra	-
55	ZOI	7/9/2024	Caribou	1	0	Walking	Tundra	-
55	ZOI	7/31/2024	Caribou	1	0	Walking	Tundra	-
56	Control	6/20/2024	Caribou	1	1	Walking	Tundra	-
56	Control	7/10/2024	Caribou	1	0	Inspecting camera	Tundra	-
58	Control	7/4/2024	Caribou	1	0	Resting	Tundra	-
60	Treatment	6/17/2024	Caribou	1	0	Running	Tundra	-
60	Treatment	6/18/2024	Arctic fox	1	0	Walking	Tundra	Red fox
60	Treatment	7/3/2024	Grizzly bear	1	2	Running	Tundra	-
60	Treatment	7/5/2024	Bird	2	0	Flying	Tripod	Unknown
60	Treatment	7/6/2024	Caribou	1	0	Inspecting camera	Tundra	-
60	Treatment	7/8/2024	Caribou	1	0	Running	Tundra	-
60	Treatment	7/20/2024	Caribou	1	0	Walking	Tundra	-
60	Treatment	7/26/2024	Caribou	2	0	Walking	Tundra	-

APPENDIX E WILDLIFE INTERACTIONS, INCIDENTS, AND MORTALITIES RECORDED AT THE MINE, 2024

APPENDIX E: WILDLIFE INTERACTIONS, INCIDENTS, AND MORTALITIES RECORDED AT THE MINE, 2024

Incident Date	Incident Type	Species	Event Description	Immediate Response Actions	Corrective/Preventative Actions Generated	External Regulatory Bodies Notified
July 21, 2024	Wildlife interaction	Caribou	Two caribou were identified within the quarry "D" blast area (one in the quarry) on the evening of July 20, 2024, during a pre-blast survey. The blast was scheduled for 17:00 and was postponed until 19:00, as the caribou were in the control zone. At 19:00, the blast was canceled until July 21, 2024. On July 21, 2024, the caribou was still in the quarry. Due to safety concerns for the animal and people, it was decided to deter the caribou out of the area so that it would safe to blast. As per the WMMP, a human line was used to safely guide the caribou out of the pit. From there, a drone and Kubota were used to guide the caribou out of the blasting area.	Deterred; successful	N/A	N/A
October 11, 2024	Wildlife interaction	Grizzly	Two bears made their way to the Hope Bay camp/core shack. As they approached, a bear banger and drone were used to deter the bears away from the site. The bears remained in the area and were monitored by Kailey and Brett before they started to move towards the camp a second time. As it was getting dark, and the drone could not fly in the dark, three additional bear bangers were user to deter the bears again. They moved out of sight, but remained in the area.	Deterred; successful	N/A	N/A
August 2, 2024	Wildlife mortality	Sik sik (Arctic ground squirrel)	Observers came upon the animal, already dead, on the Windy Road. The animal was run over by an unidentified vehicle.	No action required	Yes; Environmental staff will remind all workers onsite that wildlife has the right of way, and all vehicles are to drive slowly.	N/A
June 4, 2024	Wildlife interaction	Grizzly	A bear near drill 4 required action to deter the animal from the drill. The bear was moving toward the drill and required a helicopter to redirect the bear to a safe location for the animal and workers.	Deterred; successful	N/A	NA
July 5, 2024	Wildlife interaction	Grizzly	Observation at the Vent. Raise from about 08h30 to 14h. Mainly observing the bear grazing, sleeping, and playing. Toward the end of the observation, the drone was flown. The bear got startled and moved away; impact on the bear was less than 30 seconds and the bear moved away less than 20 metres. More of a nudge than deterrence.	Monitored the area	N/A	N/A
June 7, 2024	Wildlife interaction	Grizzly	Workers in tundra at Robert's Bay changing wildlife camera card was unable to return to their truck when a bear was making its way towards them. Mike Thompson was in a rock truck so was able to prevent the bear from crossing the road. The bear remained on the west side and the worker on the east about 500 m away. The bear stayed there until a helicopter was able to safely push the bear to the west and the worker was moved to safety.	Deterred; successful	Yes; Stopped the task and will complete with the use of helicopters going forward.	N/A
August 8, 2024	Wildlife mortality	Sik sik (Arctic ground squirrel)	Dead sik sik observed on Windy Road at KM5.7. It appeared to have been run over by a vehicle.	No action required	Yes; Environmental staff will remind all workers onsite that wildlife has the right of way, and all vehicles are to drive slowly.	N/A

APPENDIX F HOPE BAY WILDLIFE SIGHTINGS LOG, 2024

APPENDIX F: HOPE BAY WILDLIFE SIGHTINGS LOG, 2024

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
January 9, 2024	Red fox	2	2					Playing on road	Windy
January 11, 2024	Fox	1					1	Fox tracks observed	Roberts Bay
January 11, 2024	Muskox	21					21	Resting/Feeding	Windy
January 11, 2024	Ptarmigan	7					7	Flying	Roberts Bay
January 11, 2024	Raven	1					1	Flying	Roberts Bay
January 13, 2024	Red fox	1	1					Running	Doris
January 17, 2024	Arctic hare	1	1					Running	Doris
January 17, 2024	Red fox	1	1					Running/Foraging	Doris
January 17, 2024	Red fox	2					2	Running	Windy
January 19, 2024	Red fox	1					1	Running	Windy
January 25, 2024	Red fox	1					1	Running	Doris
January 29, 2024	Muskox	5					5	Resting/Feeding	Windy
January 29, 2024	Red fox	1					1	Running	Windy
January 29, 2024	Wolverine	1					1	Running	Windy
February 1, 2024	Caribou	7					7	Walking	Windy
February 2, 2024	Muskox	25					25	Resting/Feeding	Windy
February 3, 2024	Muskox	25					25	Resting/Feeding	Windy
February 3, 2024	Ptarmigan	8	8					Resting	Doris
February 6, 2024	Muskox	25					25	Resting/Feeding	Windy
February 7, 2024	Muskox	25					25	Resting/Feeding	Windy
February 8, 2024	Muskox	25					25	Resting/Feeding	Windy
February 9, 2024	Muskox	25					25	Resting/Feeding	Windy
February 9, 2024	Ptarmigan	7					7	Flying	Windy
February 10, 2024	Muskox	25					25	Resting/Feeding	Windy
February 11, 2024	Arctic hare	1	1				1	Resting	Doris
February 13, 2024	Red fox	1	1				1	Running	Doris
February 15, 2024	Muskox	25					25	Resting	Windy
February 16, 2024	Fox	1					1	Walking	Doris
February 16, 2024	Fox	1					1	Walking	Doris
February 16, 2024	Red fox	1	1				1	Walking	Windy
February 22, 2024	Ptarmigan	2	2					Walking	Doris

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
February 22, 2024	Ptarmigan	17	17					Walking	Doris
February 22, 2024	Ptarmigan	11					1	Resting/Flying	Doris
February 22, 2024	Red fox	1					1	Walking	Doris
February 28, 2024	Ptarmigan	9	9					Resting	Doris
February 29, 2024	Arctic hare	1	1					Running	Doris
February 29, 2024	Ptarmigan	3	3					Flying	TIA
March 1, 2024	Ptarmigan	11					1	Roosting	Doris
March 2, 2024	Caribou	Unknown						Feeding/Bedding evidence	Windy
March 6, 2024	Muskox	21					21	Walking	Windy
March 7, 2024	Muskox	3					3	Walking	Windy
March 7, 2024	Red fox	1	1					Running	Windy
March 7, 2024	Wolverine	1					1	Running	Doris
March 8, 2024	Muskox	20					20	Walking	Windy
March 8, 2024	Ptarmigan	2	2					Resting/Feeding	Doris
March 10, 2024	Fox	1					1	Walking	Doris
March 10, 2024	Fox	1					1	Walking	Doris
March 12, 2024	Arctic hare	1					1	Running	Doris
March 12, 2024	Ptarmigan	6					6	Walking	Doris
March 13, 2024	Red fox	3					3	Walking	Doris
March 14, 2024	Arctic hare	1	1				1	Sitting	Roberts Bay
March 17, 2024	Arctic hare	1	1				1	Running	Doris
March 18, 2024	Ptarmigan	4	4				4	Sitting	Doris
March 19, 2024	Fox	1					1	Trotting	Doris
March 22, 2024	Duck	2	2				2	Flying	Doris
March 22, 2024	Ptarmigan	7					7	Walking	Doris
March 23, 2024	Arctic hare	1	1				1	Sitting	Doris
March 23, 2024	Ptarmigan	10					10	Sitting	Doris
March 23, 2024	Red fox	1	1				1	Walking	Doris
March 24, 2024	Peregrine falcon	1	1				1	Flying	Windy
March 24, 2024	Red fox	1	1				1	Walking	Doris
March 24, 2024	Red fox	1					1	Walking	Doris
March 25, 2024	Ptarmigan	7					7	Standing	Doris
March 25, 2024	Red fox	1	1				1	Walking	Doris

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
March 28, 2024	Arctic hare	1	1				1	Sitting	Doris
March 28, 2024	Ptarmigan	30					30	Standing	Windy
March 30, 2024	Arctic hare	1	1				1	Sitting	Doris
April 2, 2024	Arctic hare	1	1					Sitting	Doris
April 6, 2024	Arctic hare	1	1					Sitting and bounding	Doris
April 6, 2024	Ptarmigan	6					6	Roosting	Doris
April 7, 2024	Eagle	2					2	Soaring	Doris
April 7, 2024	Ptarmigan	~50					~50	Feeding, walking, and flying	Windy
April 11, 2024	Golden eagle	2					2	Soaring	Doris
April 14, 2024	Arctic hare	1	1					Sitting	Doris
April 15, 2024	Arctic hare	1	1					Sitting	Doris
April 15, 2024	Peregrine falcon	1					1	Flying	Windy
April 18, 2024	Ptarmigan	15					15	Flying	Doris
April 18, 2024	Ptarmigan	12					12	Flying	Windy
April 18, 2024	Raven	2					2	Flying	Doris
April 18, 2024	Raven	2					2	Perched	Windy
April 19, 2024	Arctic hare	1					1	Resting	Doris
April 21, 2024	Arctic hare	2					2	Resting	Doris
April 22, 2024	Grizzly	1					1	Walking	Windy
April 24, 2024	Arctic hare	1	1				1	Sitting	Doris
April 24, 2024	Ptarmigan	5					5	Walking	Windy
April 25, 2024	Arctic hare	1					1	Hanging out	Doris
April 25, 2024	Caribou	2					2	Walking	Windy
April 25, 2024	Ptarmigan	1					1	Standing	Doris
April 27, 2024	Arctic hare	2					2	Hanging out	Doris
April 27, 2024	Fox	1					1	Walking	Windy
May 1, 2024	Fox	1					1	Walking	Doris
May 2, 2024	Fox	1					1	Walking	Doris
May 3, 2024	Arctic hare	2					2	Standing	Doris
May 3, 2024	Caribou	5					5	Walking	Windy
May 4, 2024	Arctic hare	1					1	Sitting	TIA
May 4, 2024	Arctic hare	1					1	Walking	Doris
May 4, 2024	Caribou	5					5	Grazing	TIA

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
May 4, 2024	Caribou	3					3	Grazing	TIA
May 4, 2024	Rough-legged hawk	2					2	Flying	Windy
May 5, 2024	Gyrfalcon	1					1	Flying	Doris
May 5, 2024	Gyrfalcon	2					2	Flying	Doris
May 5, 2024	Rough-legged hawk	1					1	Flying	TIA
May 6, 2024	Canada goose	4					4	Flying	Doris
May 6, 2024	Canada goose	20					20	Flying	Doris
May 6, 2024	Fox	1					1	Walking	Windy
May 6, 2024	Gyrfalcon	4					4	Flying/Diving	Doris
May 7, 2024	Greater white-fronted goose	2					2	Flying	TIA
May 7, 2024	Ptarmigan	1					1	Flying	Doris
May 7, 2024	Seal	1					1	Resting	Roberts Bay
May 8, 2024	Fox	1					1	Walking	Windy
May 9, 2024	Arctic hare	1					1	Walking	Roberts Bay
May 9, 2024	Arctic hare	1					1	Resting	Doris
May 9, 2024	Seal	2					2	Resting	Roberts Bay
May 11, 2024	Canada goose	2					2	Walking	Windy
May 11, 2024	Greater white-fronted goose	2					2	Flying	Windy
May 11, 2024	Rough-legged hawk	1					1	Flying	Windy
May 11, 2024	Sandhill crane	6					6	Walking	Windy
May 12, 2024	Greater white-fronted goose	8					8	Walking	TIA
May 12, 2024	Hoary redpoll	4					4	Flying/Resting	TIA
May 12, 2024	Rough-legged hawk	2					2	Flying	Windy
May 13, 2024	Caribou	8					8	Walking/Grazing	TIA
May 14, 2024	Grizzly bear	2					2	Walking	Windy
May 14, 2024	Grizzly bear	1					1	Walking	Roberts Bay
May 14, 2024	Grizzly bear	2					2	Walking	Windy
May 14, 2024	Grizzly bear	2			1	1		Eating/Walking	Windy
May 16, 2024	Cross fox	1					1	Walking/Hunting	Doris
May 16, 2024	Fox	1					1	Walking	TIA
May 16, 2024	Sandhill crane	2					2	Walking/Foraging	Doris
May 17, 2024	Goose / Mixed flocks	100					100	Landing/Flushing	Windy
May 17, 2024	Sandhill crane	10					10	Flying/Walking	Windy

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
May 18, 2024	American pipit	1					1	Resting	Windy
May 18, 2024	Arctic hare	1					1	Walking	Windy
May 18, 2024	Arctic hare	1					1	Eating	Doris
May 18, 2024	Caribou	1					1	Walking	Windy
May 18, 2024	Common redpoll	2					2	Flying	Windy
May 18, 2024	Goose	2					2	Eating	Doris
May 18, 2024	Rough-legged hawk	4					4	Flying	Windy
May 19, 2024	Arctic hare	1					1	Walking	Doris
May 19, 2024	Caribou	1					1	Walking	Windy
May 19, 2024	Goose	30					30	Resting	TIA
May 19, 2024	Gull sp.	5					5	Flying/Resting	TIA
May 19, 2024	Red fox	1					1	Walking	Doris
May 19, 2024	Rough-legged hawk	1					1	Hovering	TIA
May 19, 2024	Sandhill crane	4					4	Standing	Windy
May 20, 2024	Semipalmated plover	1					1	Walking/Flying	Windy
May 20, 2024	Tundra swan	4					4	Flying	Windy
May 21, 2024	Grizzly bear	2					2	Walking	Windy
May 21, 2024	Say’s pheobe	1					1	Flying	Doris
May 23, 2024	Arctic ground squirrel	2					2	Standing	TIA
May 23, 2024	Arctic hare	1					1	Sitting	Doris
May 23, 2024	Caribou	6					6	Eating/Walking	Windy
May 23, 2024	Peregrine falcon	1					1	Flying/Perched	Windy
May 23, 2024	Tundra swan	2					2	Flying	Roberts Bay
May 24, 2024	American robin	2					2	Singing	Roberts Bay
May 24, 2024	Arctic hare	1					1	Walking and eating	Windy
May 24, 2024	Grizzly bear	3	1			2		Walking	Windy
May 25, 2024	Goose	10					10	Walking	Windy
May 26, 2024	Arctic hare	2					2	Eating	Windy
May 26, 2024	Grizzly bear	2	1			1		Walking	Windy
May 27, 2024	Arctic hare	1					1	Running	Doris
May 27, 2024	Cackling goose	1					1	Flying	Windy
May 27, 2024	Grizzly bear	2					2	Walking	Windy
May 27, 2024	Least sandpiper	2				2		Feeding/Walking	Windy

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
May 28, 2024	American robin	1					1	Flying	TIA
May 28, 2024	Ptarmigan	1					1	Walking	TIA
May 29, 2024	Grizzly bear	2	1			1		Walking and eating	Windy
May 29, 2024	Sandhill crane	5					5	Standing and walking	Windy
May 30, 2024	Grizzly bear	2			1	1		Walking	Windy
May 30, 2024	Hawk						1	Flying	Windy
May 30, 2024	Sandhill crane	3					3	Flying	Windy
May 30, 2024	Seal	1					1	Sitting	Roberts Bay
May 30, 2024	Snow goose	2		1	1			Eating/Swimming	Windy
May 31, 2024	Eider duck	1					1	Flying	Windy
May 31, 2024	Grizzly bear	2					2	Walking	Windy
May 31, 2024	Rough-legged hawk	1					1	Sitting	Windy
May 31, 2024	Sandhill crane	1					1	Standing and walking	Windy
May 31, 2024	Greater white-fronted goose	2		1	1			Sitting, walking, and eating	Windy
June 1, 2024	American robin	2					2	Flying and standing	Doris
June 1, 2024	Arctic hare	1					1	Resting	Doris
June 1, 2024	Caribou	8					8	Feeding and walking	Windy
June 1, 2024	Common redpoll	2					2	Flying	Roberts Bay
June 1, 2024	Fox	1					1	Walking/Eating	Windy
June 1, 2024	Muskox	Unknown						Walking	TIA
June 1, 2024	Ptarmigan	2					2	Feeding and resting	Doris
June 1, 2024	Ptarmigan	1					1	Calling	Doris
June 1, 2024	Sandhill crane	3					3	Flying	Roberts Bay
June 2, 2024	American robin	1					1	Flying/Singing	TIA
June 2, 2024	Caribou	8					8	Feeding and walking	Doris
June 2, 2024	Common redpoll	2					2	Singing	TIA
June 2, 2024	Horned lark	1					1	Singing	TIA
June 2, 2024	Ptarmigan	1					1	Resting	TIA
June 3, 2024	Canada goose	1					1	Walking	Windy
June 3, 2024	Caribou	1		1				Eating/Grazing	Windy
June 3, 2024	Caribou	4					4	Walking	Windy
June 3, 2024	Caribou	6					6	Eating/Walking	Windy
June 3, 2024	Grizzly bear	2	1			1		Walking	Windy

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
June 3, 2024	Peregrine falcon	2		1	1			Defending nest	Windy
June 3, 2024	Red fox	1					1	Walking	Windy
June 4, 2024	Northern pintail duck	1					1	Flying	Doris
June 5, 2024	Arctic hare	3					3	Walking	Roberts Bay
June 5, 2024	Caribou	4					4	Walking	TIA
June 5, 2024	Fox	1					1	Walking	Doris
June 6, 2024	Grizzly bear	1	1				1	Walking	Windy
June 6, 2024	Grizzly bear	1	1				1	Walking	Roberts Bay
June 7, 2024	Golden eagle	2					2	Flying	Windy
June 8, 2024	Arctic hare	1					1	Eating	Doris
June 8, 2024	Caribou	1					1	Walking	Windy
June 9, 2024	Red fox	1					1	Walking	Windy
June 10, 2024	Caribou	4					4	Eating/Walking/Running	Windy
June 10, 2024	Grizzly	1					1	Walking	Windy
June 11, 2024	Caribou	5					5	Eating	Windy
June 11, 2024	Grizzly	1					1	Walking	Roberts Bay
June 11, 2024	Ptarmigan	1					1	Walking	Doris
June 12, 2024	Caribou	4					4	Walking	Windy
June 12, 2024	Caribou	1					1	Walking	Windy
June 12, 2024	Red fox	1					1	Walking	Doris
June 12, 2024	Red fox	1					1	Walking	Windy
June 13, 2024	Muskox	20					20	Eating	Windy
June 14, 2024	Caribou	4					4	Grazing	Windy
June 14, 2024	Caribou	4					4	Grazing/Resting	Doris
June 14, 2024	Fox	1					1	Walking	Doris
June 14, 2024	Grizzly	1					1	Walking	Roberts Bay
June 15, 2024	Caribou	4					4	Running	Windy
June 15, 2024	Caribou	2					2	Walking	Windy
June 15, 2024	Fox	1					1	Walking	TIA
June 16, 2024	Caribou	6					6	Grazing/Resting	Doris
June 16, 2024	Caribou	1		1				Walking	Doris
June 17, 2024	Caribou	4					4	Grazing	Windy
June 17, 2024	Fox	1					1	Walking	Windy

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
June 17, 2024	Fox	1	1					Walking	Doris
June 17, 2024	Fox	1					1	Walking	Doris
June 17, 2024	Muskox	7					7	Eating/Walking	Doris
June 19, 2024	Caribou	6					6	Walking	Roberts Bay
June 20, 2024	Caribou	5					4	Grazing	Roberts Bay
June 20, 2024	Caribou	16					16	Grazing/Walking	Doris
June 20, 2024	Caribou	3					3	Grazing	TIA
June 20, 2024	Caribou	4					4	Walking, running, playing, and swimming	Windy
June 20, 2024	Crane	1					1	Standing	Windy
June 20, 2024	Fox	1					1	Walking	Doris
June 20, 2024	Muskox	4					4	Eating, walking, running, and playing	Windy
June 21, 2024	Caribou	6					5	Grazing/Walking	Windy
June 21, 2024	Caribou	15+					15+	Grazing/Walking	Doris
June 21, 2024	Caribou	6					6	Eating, walking, and sleeping	Windy
June 21, 2024	Caribou	1					1	Eating	Windy
June 21, 2024	Caribou	3					3	Walking and playing	Doris
June 21, 2024	Muskox	4					4	Grazing	Doris
June 21, 2024	Muskox	21					21	Walking	Doris
June 22, 2024	Caribou	1					1	Walking/Resting	Doris
June 23, 2024	Arctic hare	1					1	Resting/Walking	TIA
June 23, 2024	Caribou	3					3	Walking	Doris
June 24, 2024	Caribou	1					1	Resting	Doris
June 24, 2024	Caribou	15					15	Eating, walking, and running	Doris
June 24, 2024	Grizzly	1					1	Walking and chasing	Windy
June 25, 2024	Caribou	1					1	Walking and running	Doris
June 25, 2024	Grizzly	1					1	Walking, running, and playing	Windy
June 25, 2024	Grizzly	1					1	Walking and resting	Doris
June 26, 2024	Caribou	1	1					Feeding/Walking	Windy
June 26, 2024	Cranes	4					4	Standing	Windy
June 27, 2024	Caribou	4	2			2		Walking	Windy
June 27, 2024	Caribou	1		1				Laying down	Windy
June 27, 2024	Caribou	7					7	Walking	Doris
June 27, 2024	Caribou	6					6	Walking	Doris

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
June 27, 2024	Caribou	1		1				Grazing	Windy
June 27, 2024	Caribou	3		3				Walking/Grazing	TIA
June 27, 2024	Fox	1					1	Lurking	Doris
June 27, 2024	Fox	1					1	Walking	Windy
June 28, 2024	Caribou	4					4	Walking	Windy
June 28, 2024	Caribou	7					7	Eating	TIA
June 28, 2024	Caribou	1					1	Eating	Doris
June 29, 2024	Caribou	4					4	Sleeping	Doris
June 29, 2024	Caribou	3					3	Grazing	Windy
June 29, 2024	Caribou	5					5	Walking	Doris
June 29, 2024	Muskox	2					2	Grazing	Windy
June 30, 2024	Arctic hare	1					1	Hopping	Doris
June 30, 2024	Caribou	2					2	Ground	Doris
June 30, 2024	Caribou	1					1	Walking	Doris
June 30, 2024	Caribou	3					3	Walking	Doris
June 30, 2024	Caribou	1					1	Eating	TIA
June 30, 2024	Caribou	5	2			3		Eating	Windy
June 30, 2024	Grizzly	1					1	Walking	Roberts Bay
July 1, 2024	Caribou	1					1	Drinking	Roberts Bay
July 2, 2024	Grizzly	2	1			1		Walking	Roberts Bay
July 5, 2024	Grizzly bear	1					1	Resting/Walking	Doris
July 6, 2024	Canada goose	2	2					Nesting	Doris
July 6, 2024	Caribou	1					1	Walking	Windy
July 6, 2024	Caribou	1		1				Grazing	Windy
July 6, 2024	Caribou	6					6		Unspecified
July 6, 2024	Pacific loon	2	2			2		Swimming	Doris
July 6, 2024	Red fox	1					1	Walking	Doris
July 6, 2024	Red-throated loon	1					1	Nesting	Windy
July 6, 2024	Caribou	1		1				Eating/Walking	TIA
July 7, 2024	American robin	2					2	Flying	TIA
July 7, 2024	Arctic hare	1	1					Resting	Doris
July 7, 2024	Caribou	1	1					Walking/Feeding	Windy
July 7, 2024	Peregrine falcon	1					1	Flying	Doris

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
July 7, 2024	Red fox	1					1	Walking	Windy
July 7, 2024	Rough-legged hawk	2					2	Soaring	Windy
July 8, 2024	Arctic hare	1					1	Eating	Doris
July 8, 2024	Caribou	3					3	Laying down	Doris
July 8, 2024	Caribou	4		1			3	Eating	Doris
July 9, 2024	Caribou	5					5	Walking	Doris
July 9, 2024	Caribou	1	1				1	Walking	Doris
July 9, 2024	Caribou	3	1			1		Walking	Doris
July 9, 2024	Caribou	3					3	Walking	Roberts Bay
July 9, 2024	Caribou	1		1				Running/Eating	Doris
July 9, 2024	Caribou	2		1	1			Walking	TIA
July 9, 2024	Fox	1				1		Walking	Doris
July 9, 2024	Peregrine falcon	1					1	Flying	Doris
July 9, 2024	Sik sik	1	1					Standing	Roberts Bay
July 10, 2024	Arctic hare	1				1		Bounding	Doris
July 11, 2024	Caribou	7					7	Walking/Feeding	Windy
July 11, 2024	Caribou	2					2	Sleeping	Windy
July 11, 2024	Eagle	1					1	Flying and evading attack from falcon	TIA
July 11, 2024	Peregrine falcon	1					1	Dive bombing / Flying	TIA
July 12, 2024	Caribou	1					1	Walking	Windy
July 12, 2024	Caribou	3					3	Walking, feeding, and resting	Windy
July 12, 2024	Eagle	1					1	Flying/Walking	Windy
July 12, 2024	Red fox	3			1	2		Running	Doris
July 12, 2024	Sandhill crane	3		1	1	1		Walking	Windy
July 13, 2024	Arctic hare	1					1	Walking	Windy
July 13, 2024	Arctic hare	1					1	Walking	Doris
July 13, 2024	Caribou	1					1	Walking and feeding	Doris
July 13, 2024	Caribou	2		1	1			Walking/Eating/Sleeping	Windy
July 13, 2024	Caribou	1					1	Running/Eating	Roberts Bay
July 13, 2024	Caribou	2			1	1		Walking	Windy
July 13, 2024	Caribou	1		1				Walking	Doris
July 13, 2024	Caribou	2		2				Eating	TIA
July 13, 2024	Fox	1					1	Walking/Sleeping	Roberts Bay

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
July 13, 2024	Ptarmigan	3			1	2		Walking	Roberts Bay
July 13, 2024	Caribou	1		1				Eating	Windy
July 13, 2024	Muskox	20					20	Eating	Windy
July 14, 2024	Caribou	1					1	Walking	Doris
July 14, 2024	Caribou	1					1	Eating/Walking	Doris
July 14, 2024	Grizzly bear	1	1					Feeding	TIA
July 14, 2024	Ptarmigan	7	2			6		Walking/Resting	TIA
July 14, 2024	Tundra swan	2					2	Swimming	TIA
July 14, 2024	Red fox	1					1	Eating/Walking	Doris
July 15, 2024	Arctic hare	1					1	Walking	Doris
July 15, 2024	Caribou	1					1	Laying down / Feeding	Windy
July 15, 2024	Caribou	2					2	Running	Doris
July 15, 2024	Caribou	2			1	1		Walking	Windy
July 15, 2024	Golden eagle	1					1	Flying	Windy
July 15, 2024	Tundra swan	3					3	Swimming	Windy
July 15, 2024	Caribou	1					1	Walking/Running/Sleeping/Eating	Unspecified
July 16, 2024	Arctic hare	1				1		Walking	Doris
July 16, 2024	Grizzly bear	1					1	Walking/Eating	Doris
July 16, 2024	Grizzly bear	1					1	Walking	Roberts Bay
July 16, 2024	Sandhill crane	2					2	Flying and calling	Doris
July 16, 2024	Caribou	2					2	Lying down and walking	TIA
July 16, 2024	Muskox	3					3	Eating and running	Windy
July 16, 2024	Loon	3					3	Swimming	Windy
July 16, 2024	Caribou	1					1	Eating/Walking/Running	Unspecified
July 17, 2024	Caribou	1	1				1	Walking	TIA
July 17, 2024	Grizzly bear	1	1				1	Walking	TIA
July 17, 2024	Caribou	1	1				1	Resting	Windy
July 17, 2024	Fox	2			1	1		Walking	Doris
July 17, 2024	Grizzly bear	1					1	Eating / Laying down	Doris
July 17, 2024	Grizzly bear	1					1	Walking	Doris
July 18, 2024	Caribou	1					1	Walking	Doris
July 18, 2024	Caribou	1					1	Resting	Windy
July 18, 2024	Caribou	1		1				Walking	Doris

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
July 18, 2024	Caribou	2					2	Walking	Doris
July 18, 2024	Caribou	1					1	Eating/Walking	Doris
July 18, 2024	Caribou	1		1				Walking	Doris
July 18, 2024	Caribou	1					1	Eating, walking, and running	Unspecified
July 19, 2024	Caribou	1	1					Walking	TIA
July 19, 2024	Caribou	1	1					Walking	Roberts Bay
July 19, 2024	Caribou	1	1					Standing	Windy
July 19, 2024	Fox	4	1		1	3		Resting	Doris
July 19, 2024	Sandhill crane	5					5	Walking	Windy
July 19, 2024	Sandhill crane	5					5	Walking	Windy
July 19, 2024	Muskox	2					2	Grazing	Unspecified
July 20, 2024	Fox	1					1	Running	Doris
July 20, 2024	Caribou	2					2	Resting/Standing	Doris
July 20, 2024	Caribou	8					8	Walking	Doris
July 20, 2024	Caribou	1					1	Walking	Doris
July 21, 2024	Caribou	2		2				Walking/Eating/Running	Windy
July 21, 2024	Fox	2			1	1		Sitting	Windy
July 21, 2024	Hawk	2					2	Flying	Windy
July 21, 2024	Caribou	4	3			1		Resting	Doris
July 21, 2024	Caribou	1					1	Walking	Doris
July 21, 2024	Sandhill crane	1	1				1	Standing	Windy
July 21, 2024	Caribou	3					3	Standing	Doris
July 21, 2024	Caribou	1		1				Walking	Doris
July 21, 2024	Arctic hare	1					1	Resting	Doris
July 21, 2024	Caribou	1					1	Swimming	Windy
July 22, 2024	Caribou	1					1	Walking	Doris
July 22, 2024	Caribou	1					1	Walking	Windy
July 22, 2024	Caribou	1					1	Walking	Windy
July 22, 2024	Muskox	2	1		1	1		Grazing	Windy
July 22, 2024	Caribou	1					1	Walking	Windy
July 23, 2024	Caribou	2	2					Walking	Doris
July 23, 2024	Caribou	5					5	Standing	Doris
July 23, 2024	Caribou	2	2					Grazing	TIA

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
July 23, 2024	Fox	3				3		Playing on road	Windy
July 24, 2024	Caribou	5					5	Standing	Doris
July 25, 2024	Caribou	3					3	Grazing	Doris
July 25, 2024	Caribou	3					3	Grazing/Resting	Doris
July 25, 2024	Caribou	1		1				Walking/Grazing	Windy
July 25, 2024	Arctic hare	1		1				Walking	Doris
July 25, 2024	Caribou	5					5	Standing	Doris
July 25, 2024	Fox	1					1	Unknown	Doris
July 26, 2024	Caribou	5					5	Walking	Doris
July 26, 2024	Caribou	2					2	Walking	Doris
July 26, 2024	Caribou	2					2	Walking	Roberts Bay
July 26, 2024	Caribou	1		1				Walking	Doris
July 29, 2024	Arctic hare	1					1	Resting	Doris
July 29, 2024	Fox	3	3		1		2	Hunting, walking, and playing	Windy
July 30, 2024	Arctic hare	1					1	Resting	Doris
July 30, 2024	Fox	1				1		Playing and curious	TIA
July 30, 2024	Fox	1	1					Hunting (sore foot)	Doris
July 31, 2024	Grizzly	3	1		1	1		Walking/Running	Roberts Bay
July 31, 2024	Arctic hare	1					1	Resting	Doris
July 31, 2024	Fox	1					1	Walking	Doris
August 2, 2024	Caribou	5					5	Resting/Grazing	TIA
August 2, 2024	Caribou	1					1	Resting	Windy
August 2, 2024	Fox	3					3	Walking	Doris
August 2, 2024	Arctic hare	1					1	Resting and walking	Doris
August 2, 2024	Peregrine falcon	1					1	Sitting on nest / Flying	Windy
August 2, 2024	Caribou	1					1	Walking and grazing	Windy
August 2, 2024	Caribou	1					1	Walking and grazing	Windy
August 2, 2024	Caribou	1					1	Walking and grazing	Windy
August 2, 2024	Caribou	2					2	Walking and grazing	Doris
August 3, 2024	Grizzly bear	2			1	1		Walking and running	Roberts Bay
August 3, 2024	Caribou	1		1				Walking and grazing	Doris
August 3, 2024	Caribou	3					3	Walking and grazing	Windy
August 4, 2024	Caribou	2					2	Walking	Windy

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
August 4, 2024	Fox	1					1	Walking	Doris
August 4, 2024	Caribou	1					1	Walking	Windy
August 4, 2024	Caribou	2					2	Laying down	Windy
August 4, 2024	Fox	1				1		Walking and running	TIA
August 4, 2024	Fox	1					1	Walking	Windy
August 4, 2024	Grizzly bear	2	1		1	1		Walking, playing, and foraging	TIA
August 4, 2024	Bald eagle	1					1	Soaring	Windy
August 4, 2024	Arctic hare	1					1	Resting	Doris
August 5, 2024	Caribou	1	1					Walking and grazing	Windy
August 5, 2024	Caribou	1	1					Resting	Windy
August 6, 2024	Caribou	4	3			1		Walking	Doris
August 6, 2024	Caribou	6					6	Walking	Doris
August 6, 2024	Caribou	1	1					Walking	Windy
August 6, 2024	Caribou	6					6	Walking	Doris
August 6, 2024	Caribou	1	1					Walking	Doris
August 6, 2024	Caribou	1					1	Walking	Windy
August 6, 2024	Caribou	3					3	Walking	Doris
August 7, 2024	Grizzly bear	1	1					Walking	Windy
August 7, 2024	Grizzly bear	2			1	1		Walking	Roberts Bay
August 7, 2024	Caribou	1	1					Standing	Doris
August 7, 2024	Caribou	3	3					Walking and grazing	Doris
August 7, 2024	Caribou	1	1					Grazing	Doris
August 7, 2024	Caribou	1					1	Hanging out	Windy
August 8, 2024	Grizzly bear	1	1					Walking and grazing	Doris
August 8, 2024	Caribou	1	1					Walking	Doris
August 8, 2024	Caribou	1	1					Standing	Doris
August 8, 2024	Caribou	3	3					Walking and grazing	Doris
August 8, 2024	Caribou	1						Walking and resting	Roberts Bay
August 8, 2024	Caribou	1						Walking and grazing	Doris
August 8, 2024	Caribou	1						Resting and grazing	Windy
August 8, 2024	Caribou	1						Standing, grazing, and walking	Doris
August 8, 2024	Caribou	1						Grazing	Doris
August 8, 2024	Grizzly bear	1						Snacking, playing, and digging	TIA

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
August 8, 2024	Caribou	1					1	Hanging out	Windy
August 9, 2024	Caribou	2					2	Walking	Doris
August 9, 2024	Caribou	1					1	Walking	Doris
August 9, 2024	Arctic hare	1					1	Walking	Doris
August 9, 2024	Caribou	1					1	Walking and grazing	Windy
August 9, 2024	Caribou	1					1	Walking and grazing	Windy
August 9, 2024	Caribou	1					1	Walking	Windy
August 9, 2024	Caribou	1					1	Resting	Doris
August 9, 2024	Arctic hare	1					1	Resting	Doris
August 9, 2024	Tundra swan	2					2	Swimming	Windy
August 9, 2024	Caribou	1	1	1				Walking	Windy
August 9, 2024	Caribou	1					1	Walking	Windy
August 9, 2024	Caribou	1					1	Hanging out	Windy
August 10, 2024	Sandhill crane	5					5	Resting	Windy
August 10, 2024	Sandhill crane	4					4	Resting	Windy
August 10, 2024	Caribou	2					2	Walking and grazing	TIA
August 10, 2024	Arctic tern	2					2	Flushed from resting; flying	TIA
August 10, 2024	Unidentified hawk	1					1	Flushed from resting	TIA
August 10, 2024	Canada goose	>10					>10	Standing	TIA
August 10, 2024	Tundra swan	2					2	Swimming	TIA
August 11, 2024	Caribou	1					1	Walking and grazing	Roberts Bay
August 11, 2024	Caribou	1					1	Walking and grazing	Windy
August 11, 2024	Red fox	1					1	Walking	Windy
August 11, 2024	Red fox	1					1	Walking and hunting	Doris
August 11, 2024	Arctic hare	1					1	Walking	TIA
August 11, 2024	Greater white-fronted goose	12					12	Swimming	Windy
August 11, 2024	Caribou	1					1	Walking	Doris
August 12, 2024	Caribou	2		1			1	Walking and eating	Doris
August 13, 2024	Caribou	2					2	Walking	Doris
August 13, 2024	Seal	1					1	Swimming	Windy
August 13, 2024	Red fox	1					1	Walking	Windy
August 14, 2024	Sandhill crane	5					5	Walking	Windy
August 14, 2024	Caribou	1	1					Standing	Doris

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
August 14, 2024	Grizzly bear	1	1					Walking	Roberts Bay
August 14, 2024	Caribou	3					3	Standing/Walking	Doris
August 14, 2024	Red fox	1					1	Walking/Trotting	Doris
August 14, 2024	Caribou	1		1				Walking	Doris
August 15, 2024	Caribou	1	1					Resting	Windy
August 15, 2024	Caribou	4	4					Walking	Doris
August 15, 2024	Caribou	1	1					Resting	Windy
August 15, 2024	Caribou	1	1					Resting	Windy
August 15, 2024	Caribou	1					1	Walking/Running	Doris
August 16, 2024	Grizzly bear	1	1					Foraging	Windy
August 16, 2024	Caribou	1					1	Walking	Windy
August 16, 2024	Fox	1					1	Walking	Windy
August 16, 2024	Grizzly bear	1					1	Walking	Doris
August 16, 2024	Caribou	1					1	Walking	Doris
August 17, 2024	Caribou	2	2					Walking	Doris
August 17, 2024	Caribou	2	2					Walking	Windy
August 17, 2024	Caribou	1	1					Walking	Windy
August 17, 2024	Caribou	1	1					Walking	Windy
August 17, 2024	Caribou	1	1	1				Standing	Doris
August 17, 2024	Caribou	1	1	1				Standing	Windy
August 17, 2024	Caribou	3	3	3				Walking	Roberts Bay
August 17, 2024	Fox	1					1	Walking	Windy
August 17, 2024	Canada goose	15					15	Flying	Roberts Bay
August 17, 2024	Peregrine falcon	1					1	Flying/Perched/Calling	Roberts Bay
August 17, 2024	Caribou	1		1				Eating/Walking	Doris
August 17, 2024	Caribou	1					1	Walking	Windy
August 17, 2024	Caribou	1					1	Eating/Walking	Windy
August 17, 2024	Caribou	1					1	Eating/Walking	Windy
August 17, 2024	Caribou	1					1	Eating/Walking	Windy
August 18, 2024	Grizzly bear	2	1			1		Walking and foraging	Windy
August 18, 2024	Gyrfalcon	2	2					Flying	Windy
August 18, 2024	Caribou	2	2					Standing	Doris
August 18, 2024	Caribou	1						Grazing	Doris

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
August 18, 2024	Caribou	1						Standing	Windy
August 18, 2024	Arctic hare	2					2	Hanging out	Doris
August 18, 2024	Caribou	1					1	Walking and hanging out	Windy
August 18, 2024	Arctic fox	3	1			2		Walking	Windy
August 18, 2024	Caribou	1					1	Eating	Windy
August 18, 2024	Grizzly	2	1		1		1	Walking	Windy
August 19, 2024	Caribou	1	1	1				Standing	Windy
August 19, 2024	Caribou	1	1	1				Walking	Windy
August 19, 2024	Greater white-fronted goose	Flock					Flock	Standing	Doris
August 20, 2024	Caribou	1						Walking	Doris
August 20, 2024	Caribou	1	1	1				Walking	Windy
August 20, 2024	Caribou	1	1	1				Walking	Windy
August 20, 2024	Sandhill crane	15					15	Eating	Windy
August 20, 2024	Sandhill crane	2					2	Flying	Doris
August 20, 2024	Gyrfalcon	1					1	Flying/Sitting	Windy
August 20, 2024	Caribou	1					1	Eating	Windy
August 21, 2024	Golden eagle	1					1	Flying	Unspecified
August 22, 2024	Grizzly bear	2					2	Walking/Feeding	Windy
August 22, 2024	Canada goose	16					16	Sleeping/Swimming	Windy
August 22, 2024	Sandhill crane	3		1	1	1		Eating/Walking	Windy
August 22, 2024	Red fox	1					1	Walking	Windy
August 22, 2024	Sandhill crane	7					7	Walking	Windy
August 23, 2024	Caribou	1					1	Eating	Windy
August 23, 2024	Golden eagle	1					1	Flying	Windy
August 23, 2024	Caribou	1		1				Eating	Windy
August 24, 2024	Sandhill crane	4					4	Walking	Windy
August 25, 2024	Caribou	1					1	Walking	Windy
August 25, 2024	Seal	1					1	Swimming	Roberts Bay
August 25, 2024	Golden eagle	2					2	Flying	Windy
August 28, 2024	Caribou	3					3	Grazing	Windy
August 28, 2024	Geese	>50					>50	Resting	Windy
August 29, 2024	Grizzly bear	1	1					Grazing	Windy
August 29, 2024	Sandhill crane	7					7	Flying	Unspecified

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
August 29, 2024	Snow goose	>50					>50	Grazing	Windy
August 30, 2024	Grizzly bear	4	1		1	3		Running	Doris
August 30, 2024	Grizzly bear	2					2	Resting	Windy
September 5, 2024	Arctic hare	1					1	Resting and walking	Doris
September 5, 2024	Arctic hare	1					1	Resting and walking	Doris
September 6, 2024	Caribou	3					3	Walking and grazing	Windy
September 7, 2024	Grizzly bear	1					1	Walking, playing, and foraging	Roberts Bay
September 11, 2024	Arctic hare	1					1	Resting	Doris
September 12, 2024	Red fox	2				2		Playing	Doris
September 12, 2024	Red fox	1					1	Walking	Doris
September 14, 2024	Red fox	1					1	Hunting	Doris
September 15, 2024	Ptarmigan	6	6					Walking/Foraging	Windy
September 15, 2024	Arctic hare	1	1					Resting	Windy
September 15, 2024	Grizzly bear	1					1	Walking	Doris
September 16, 2024	Grizzly bear	1	1					Resting and walking	Windy
September 17, 2024	Grizzly bear	1	1					Resting and walking	Windy
September 18, 2024	Grizzly bear	2			1	1		Walking/Foraging	Doris
September 18, 2024	Caribou	2	2					Running	Windy
September 21, 2024	Ptarmigan	12					12	Flying/Walking	Unspecified
September 21, 2024	Snow bunting	12					12	Flying	Windy
September 21, 2024	Arctic hare	1					1	Resting	Windy
September 21, 2024	Greater scaup	20					20	Swimming/Diving	TIA
September 26, 2024	Ptarmigan	8	8					Resting	Doris
September 26, 2024	Seal	1					1	Swimming	Roberts Bay
October 3, 2024	Arctic hare	2					2	Feeding	Doris
October 3, 2024	Ptarmigan	3					3	Resting	Doris
October 5, 2024	Raven	1					1	Flying	Doris
October 5, 2024	Sik sik	2					2	Feeding	TIA
October 6, 2024	Ptarmigan	3					3	Flying	Roberts Bay
October 6, 2024	Grizzly bear	2					2	Feeding/Walking/Digging	Roberts Bay
October 7, 2024	Ptarmigan	4					4	Flying	Doris
October 7, 2024	Raven	2					2	Feeding on garbage	Doris
October 9, 2024	Arctic hare	1	1					Sitting	Roberts Bay

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
October 10, 2024	Arctic hare	1	1					Running	Roberts Bay
October 10, 2024	Grizzly bear	2	2					Foraging/Walking	Doris
October 10, 2024	Ptarmigan	20					20	Flying	Doris
October 10, 2024	Ptarmigan	25					25	Flying	Roberts Bay
October 11, 2024	Caribou	1					1	Walking	Doris
October 11, 2024	Caribou	1					1	Walking	Windy
October 15, 2024	Fox	1					1	Walking	Windy
October 23, 2024	Fox	1					1	Running	Doris
October 24, 2024	Ringed seal	3					3	Resting/Swimming	Roberts Bay
October 25, 2024	Ringed seal	3					3	Resting/Swimming	Roberts Bay
October 25, 2024	Fox	1					1	Walking	Windy
October 25, 2024	Fox	1					1	Walking	Doris
October 27, 2024	Fox	1					1	Walking	Roberts Bay
October 27, 2024	Fox	1					1	Walking	Doris
October 31, 2024	Wolverine	1					1	Walking	Windy
October 31, 2024	Fox	4					4	Walking	Windy
November 2, 2024	Fox	1					1	Hunting/Walking	Doris
November 2, 2024	Ptarmigan	10					10	Roosting and standing/walking	Doris
November 4, 2024	Arctic fox	1					1	Walking	Doris
November 6, 2024	Red fox	1					1	Sitting/Resting	Windy
November 7, 2024	Ptarmigan	40					40	Resting and feeding/flying	TIA
November 8, 2024	Ptarmigan	2					2	Flying	Windy
November 9, 2024	Ptarmigan	2					2	Flying	Windy
November 9, 2024	Red fox	1					1	Walking/Hunting	Windy
November 9, 2024	Red fox	1					1	Walking and resting	Windy
November 10, 2024	Cross fox	1					1	Walking	Doris
November 11, 2024	Red fox	1					1	Running	Doris
November 24, 2024	Red fox	1					1	Walking	Doris
November 25, 2024	Red fox	1					1	Running	Windy
November 28, 2024	Fox	1					1	Running	Doris
November 29, 2024	Fox	1					1	Walking	Windy
December 2, 2024	Arctic hare	1					1	Sitting	Doris
December 2, 2024	Red fox	1					1	Walking	Windy

Date	Species Name	Total #	# A	# M	# F	# Y	# U	Activity	General Location
December 5, 2024	Ptarmigan	5					5	Flying	Roberts Bay
December 5, 2024	Ptarmigan	1					1	Flying	Doris
December 7, 2024	Red fox	2					2	Playing	Doris
December 13, 2024	Wolf	1					1	Walking	Doris
December 15, 2024	Red fox	1					1	Walking	TIA
December 15, 2024	Red fox	1					1	Walking	Doris
December 15, 2024	Red fox	1					1	Walking	Windy
December 20, 2024	Red fox	1					1	Walking	Doris
December 20, 2024	Raven	1					1	Flying	Doris
December 19, 2024	Raven	1					1	Flying	Doris
December 23, 2024	Cross fox	1					1	Walking	Doris
December 23, 2024	Ptarmigan	10					10	Flying	Windy
December 23, 2024	Arctic hare	1					1	Running	Doris
December 24, 2024	Snowy owl	1					1	Flying	Roberts Bay
December 27, 2024	Cross fox	1					1	Walking	Doris
December 28, 2024	Red fox	1					1	Walking	TIA
December 30, 2024	Red fox	1					1	Walking	Doris

Notes: A=Adult, M=Male, F=Female, Y=Young, and U=Unknown

APPENDIX G SUMMARY OF WILDLIFE RECORDED INCIDENTALLY BY BIOLOGISTS, 2024

APPENDIX G: SUMMARY OF WILDLIFE RECORDED INCIDENTALLY BY BIOLOGISTS, 2024

Species Group	Common Name	Scientific Name	Total Number of Observations
Upland Birds	American golden-plover*	*Pluvialis dominica*	10
	American pipit	*Anthus rubescens*	9
	American robin	*Turdus migratorius*	5
	American tree sparrow	*Spizelloides arborea*	26
	Common redpoll	*Acanthis flammea*	154
	Horned lark	*Eremophila alpestris*	12
	Lapland longspur	*Calcarius lapponicus*	29
	Least sandpiper	*Calidris minutilla*	18
	Pectoral sandpiper	*Calidris melanotos*	1
	Red-necked phalarope*	*Phalaropus lobatus*	5
	Rock ptarmigan	*Lagopus muta*	1
	Savannah sparrow	*Passerculus sandwichensis*	83
	Semipalmated plover	*Charadrius semipalmatus*	7
	White-crowned sparrow	*Zonotrichia leucophrys*	69
	Willow ptarmigan	*Lagopus lagopus*	7
	Wilson’s snipe	*Gallinago delicata*	4
Waterbirds	Arctic tern	*Sterna paradisaea*	12
	Blue-winged teal	*Spatula discors*	1
	Cackling goose	*Branta hutchinsii*	19
	Canada goose	*Branta canadensis*	187
	Common eider*	*Somateria mollissima*	1
	Common merganser	*Mergus merganser*	19
	Glaucous gull	*Larus hyperboreus*	1
	Greater scaup	*Aythya marila*	60
	Greater white-fronted goose	*Anser albifrons*	106
	Green-winged teal	*Anas carolinensis*	13
	Herring gull	*Larus smithsonianus*	20
	King eider*	*Somateria spectabilis*	1

Species Group	Common Name	Scientific Name	Total Number of Observations
Waterbirds *(cont'd)*	Long-tailed duck	*Clangula hyemalis*	55
	Northern pintail	*Anas acuta*	15
	Northern shoveler	*Spatula clypeata*	14
	Pacific loon	*Gavia pacifica*	40
	Red-breasted merganser	*Mergus serrator*	22
	Red-throated loon	*Gavia stellata*	18
	Sandhill crane	*Grus canadensis*	11
	Surf scoter	*Melanitta perspicillata*	5
	Tundra swan	*Cygnus columbianus*	21
	Unidentified duck	-	2
	Yellow-billed loon	*Gavia adamsii*	4
Raptors	Common raven	*Corvus corax*	14
	Golden eagle*	*Aquila chrysaetos*	7
	Gyrfalcon	*Falco rusticolus*	1
	Peregrine falcon	*Falco peregrinus*	2
	Rough-legged hawk	*Buteo lagopus*	2
	Short-eared owl*	*Asio flammeus*	1
Mammals	Arctic ground squirrel (sik sik)	*Urocitellus parryii*	1
	Arctic hare	*Lepus arcticus*	1
	Caribou*	*Rangifer tarandus*	22
	Red fox	*Vulpes vulpes*	1
	Short-tailed weasel	*Mustela erminea*	1

Note:
* Indicates a species of conservation concern.

APPENDIX H MONTHLY AVERAGE OF PERSONNEL ONSITE, 2009 TO 2024

APPENDIX H: MONTHLY AVERAGE OF PERSONNEL ONSITE, 2009 TO 2024

The following table provides daily average of personnel onsite per month.

Month	Year															
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
January	69	83	214	183	0	7	13	60	172	202	265	316	140	123	148	83
February	84	106	250	193	0	7	16	73	168	239	279	332	143	178	168	104
March	94	131	265	180	3	8	30	78	176	261	286	282	147	160	165	108
April	102	172	278	127	13	14	28	93	173	264	291	133	169	134	163	113
May	102	182	274	90	20	63	32	110	188	261	287	130	176	135	158	133
June	103	200	280	103	44	71	41	123	189	266	304	139	189	162	150	161
July	113	220	284	90	61	77	46	123	185	265	304	137	193	164	146	147
August	109	205	277	93	59	79	84	129	178	271	285	136	230	172	133	161
September	98	484	277	0	54	73	105	144	179	272	293	128	240	174	126	167
October	66	332	270	0	49	79	114	158	179	273	306	133	89	181	109	157
November	16	147	252	0	19	44	93	172	184	270	324	149	171	189	64	168
December	14	108	0	0	8	7	89	173	179	246	300	143	185	114	45	110
Annual Average	**81**	**197**	**243**	**88**	**27**	**44**	**58**	**120**	**179**	**258**	**294**	**180**	**173**	**157**	**131**	**134**

APPENDIX I WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, BOSTON PROJECT, SEPTEMBER 2023 TO SEPTEMBER 2024

APPENDIX I: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, BOSTON PROJECT, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Date and Time	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
61	9/4/2023 11:00	Bird (comment)	1	0	Flying	Tundra	Too far away to ID species
61	9/5/2023 2:30	Bird (comment)	1	0	Resting	Tundra	Unknown duck
61	9/5/2023 3:00	Small mammal	1	0	Resting	Tundra	Unknown ptarmigan
61	9/5/2023 3:30	Small mammal	0	0	Resting	Tundra	Unknown ptarmigan
61	9/5/2023 4:00	Bird (comment)	1	0	Standing	Tundra	Unknown ptarmigan
61	9/5/2023 4:30	Bird (comment)	2	0	Standing	Tundra	Unknown ptarmigan
61	9/6/2023 8:00	Bird (comment)	2	0	Standing	Tundra	Unknown ptarmigan
61	9/7/2023 6:30	Bird (comment)	1	0	Standing	Tripod	Unknown raptor perched on camera
61	9/8/2023 8:00	Bird (comment)	1	0	Flying	Tundra	Unknown raptor - cannot ID from behind
63	9/5/2023 6:00	Bird (comment)	7	0	Feeding	Tundra	GWFG
63	9/7/2023 7:30	Bird (comment)	8	0	Feeding	Tundra	Unknown geese
63	9/16/2023 10:30	Bird (comment)	8	0	Feeding	Tundra	CCGO
63	9/18/2023 17:00	Bird (comment)	3	0	Feeding	Tundra	CCGO
63	9/26/2023 6:47	Caribou	1	0	Inspecting camera	Tundra	-
64	9/12/2023 16:57	Caribou	3	0	Running	Tundra	-
64	10/11/2023 10:16	Grizzly bear	1	0	Inspecting camera	Tundra	-
66	9/9/2023 7:30	Bird (comment)	2	0	Feeding	Lake	TUSW
66	9/10/2023 13:30	Bird (comment)	3	0	Feeding	Tundra	Unknown ptarmigan
66	9/12/2023 10:12	Bird (comment)	1	0	Flying	Tundra	Unknown raptor
66	9/12/2023 23:10	Bird (comment)	1	0	Flying	Tundra	Unknown owl
66	9/14/2023 17:00	Bird (comment)	3	0	Standing	Lake	Rafting on lake, COME
66	9/14/2023 19:13	Caribou	1	0	Inspecting camera	Tundra	-
66	9/16/2023 18:30	Bird (comment)	1	0	Walking	Tundra	Unknown ptarmigan
66	9/18/2023 11:30	Bird (comment)	9	0	Feeding	Lake	Unknown ducks
66	9/21/2023 9:30	Bird (comment)	4	0	Feeding	Lake	TUSW
66	9/21/2023 10:30	Bird (comment)	4	0	Standing	Lake	TUSW
66	9/21/2023 11:00	Bird (comment)	2	0	Resting	Lake	TUSW
66	9/21/2023 11:30	Bird (comment)	5	0	Feeding	Lake	TUSW
66	9/21/2023 12:00	Bird (comment)	3	0	Feeding	Lake	TUSW
66	9/21/2023 13:00	Bird (comment)	1	0	Feeding	Lake	TUSW
66	9/21/2023 13:30	Bird (comment)	1	0	Walking	Lake	TUSW

APPENDIX I: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, BOSTON PROJECT, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Date and Time	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
66	5/9/2024 18:19	Bird (comment)	1	0	Inspecting camera	Tripod	CORA
67	9/5/2023 23:45	Bird (comment)	1	0	Flying	Tundra	Unknown owl
67	9/6/2023 22:06	Bird (comment)	1	0	Flying	Tundra	Unknown owl
67	9/8/2023 14:02	Grizzly bear	1	0	Inspecting camera	Tundra	Grizzly bear knocked over camera
67	9/30/2023 12:45	Muskox	1	0	Inspecting camera	Tundra	Looks like muscox from fur and potential hoof
69	9/6/2023 16:49	Caribou	2	0	Walking	Tundra	-
70	10/13/2023 8:57	Arctic fox	1	0	Walking	Tundra	-
70	4/2/2024 18:30	Grey wolf	1	0	Walking	Tundra	-
70	4/2/2024 18:30	Caribou	1	0	Inspecting camera	Tundra	-
70	5/3/2024 11:42	Bird (comment)	1	0	Flying	Tundra	WIPT
70	5/3/2024 11:42	Bird (comment)	1	0	Flying	Tundra	GYRF
70	5/3/2024 11:48	Bird (comment)	1	0	Standing	Tundra	SNOW
70	5/8/2024 3:07	Bird (comment)	1	0	Walking	Tundra	WIPT
70	5/14/2024 5:21	Bird (comment)	1	0	Walking	Tundra	WIPT
70	5/14/2024 18:00	Bird (comment)	1	0	Walking	Tundra	WIPT
70	5/14/2024 18:17	Bird (comment)	1	0	Walking	Tundra	WIPT
70	5/16/2024 0:30	Arctic fox	1	0	Walking	Tundra	-
70	5/16/2024 0:56	Arctic fox	1	0	Walking	Tundra	-
70	5/18/2024 6:00	Bird (comment)	2	0	Walking	Tundra	WIPT
70	5/24/2024 5:00	Bird (comment)	1	0	Walking	Tundra	Unknown ptarmigan
70	6/6/2024 7:00	Bird (comment)	1	0	Walking	Tundra	Unknown ptarmigan
70	6/12/2024 0:30	Bird (comment)	1	0	Walking	Tundra	WIPT
70	6/16/2024 11:00	Small mammal	1	0	Standing	Tundra	-
71	9/8/2023 7:55	Muskox	1	0	Running	Tundra	-
71	9/8/2023 8:00	Muskox	1	0	Walking	Tundra	-
71	9/8/2023 15:30	Bird (comment)	1	0	Walking	Tundra	CCGO
74	10/8/2023 8:33	Bird (comment)	1	0	Inspecting camera	Tripod	Unknown large bird, knocked over camera
74	10/9/2023 4:54	Unknown	1	0	Walking	-	Something walks in front of camera, unsure what species
75	9/3/2023 19:38	Bird (comment)	17	0	Flying	Tundra	SNGO
75	9/3/2023 20:18	Bird (comment)	5	0	Flying	Tundra	SNGO

APPENDIX I: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, BOSTON PROJECT, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Date and Time	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
77	5/7/2024 5:00	Bird (comment)	1	0	Walking	Tundra	Unknown ptarmigan
77	5/7/2024 6:00	Bird (comment)	2	0	Walking	Tundra	unknown ptarmigan
77	5/14/2024 21:00	Bird (comment)	1	0	Walking	Tundra	Unknown ptarmigan
77	5/21/2024 19:00	Bird (comment)	1	0	Flying	Tundra	Unknown gull
77	5/28/2024 0:00	Bird (comment)	1	0	Standing	Tundra	Unknown ptarmigan
77	5/29/2024 18:30	Bird (comment)	1	0	Standing	Tundra	Unknown ptarmigan
77	6/3/2024 7:00	Bird (comment)	1	0	-	Tundra	WIPT
77	6/7/2024 19:30	Bird (comment)	0	0	Standing	Tundra	LALO
77	6/15/2024 22:32	Caribou	1	0	Walking	Tundra	-
78	9/17/2023 18:00	Bird (comment)	1	0	Standing	Tripod	Unknown raptor on top of camera
79	9/17/2023 12:25	Bird (comment)	1	0	Standing	Tripod	Unknown large bird on camera
79	9/27/2023 11:30	Unknown	2	0	Standing	Tundra	Likely a bird or small mammal
79	9/27/2023 14:00	Unknown	1	0	Standing	Tundra	Likely a bird or small mammal
79	5/22/2024 20:30	Bird (comment)	1	0	Standing	Tundra	GWFG
79	5/22/2024 23:30	Bird (comment)	1	0	Standing	Tundra	GWFG
79	5/23/2024 0:00	Bird (comment)	2	0	Resting	Tundra	CCGO
79	5/23/2024 0:30	Bird (comment)	2	0	Resting	Tundra	CCGO
79	5/23/2024 1:00	Bird (comment)	1	0	Standing	Tundra	GWFG
79	5/25/2024 21:00	Bird (comment)	2	0	Standing	Tundra	GWFG
79	5/27/2024 21:55	Bird (comment)	1	0	Standing	Tundra	GWFG
79	5/27/2024 22:00	Bird (comment)	1	0	Walking	Tundra	CCGO
79	5/28/2024 1:00	Bird (comment)	2	0	Standing	Tundra	CCGO
80	9/14/2023 12:00	Bird (comment)	2	0	Feeding	Tundra	CCGO
80	9/14/2023 19:46	Bird (comment)	5	0	Standing	Tundra	CCGO
80	9/15/2023 7:30	Bird (comment)	6	0	Feeding	Tundra	CCGO
80	9/15/2023 10:30	Bird (comment)	1	0	Feeding	Tundra	CCGO
80	9/17/2023 10:30	Bird (comment)	12	0	Flying	Tundra	CCGO
80	9/21/2023 10:30	Bird (comment)	4	0	Walking	Tundra	Unknown goose
80	4/5/2024 13:30	Arctic fox	1	0	Walking	Tundra	-
81	10/17/2023 17:00	Bird (comment)	3	0	Standing	Tundra	SNGO
82	9/8/2023 10:30	Bird (comment)	1	0	Standing	Tundra	WIPT

APPENDIX I: WILDLIFE EVENTS RECORDED BY WILDLIFE CAMERAS, BOSTON PROJECT, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Date and Time	Species	No. of Adults	No. of Juvenile	Behaviour	Location of Wildlife	Comment
82	9/8/2023 11:00	Bird (comment)	0	0	Standing	Tundra	WIPT
82	9/15/2023 10:30	Bird (comment)	2	0	Standing	Tundra	Too far away to ID
82	9/18/2023 11:00	Bird (comment)	1	0	Standing	Tundra	Unknown ptarmigan
82	9/21/2023 11:30	Bird (comment)	1	0	Standing	Tundra	Unknown ptarmigan
82	9/24/2023 7:30	Bird (comment)	1	0	Walking	Tundra	Unknown ptarmigan
82	9/30/2023 17:00	Bird (comment)	3	0	Standing	Tundra	Unknown ptarmigan
82	10/1/2023 7:00	Bird (comment)	1	0	Standing	Tundra	unknown ptarmigan
82	10/3/2023 17:00	Bird (comment)	1	0	Standing	Tundra	unknown ptarmigan
82	10/3/2023 17:30	Bird (comment)	16	0	Feeding	Tundra	SNGO
82	10/6/2023 11:00	Caribou	1	0	Walking	Tundra	-
82	10/19/2023 10:00	Bird (comment)	13	0	Standing	Tundra	SNGO
82	5/4/2024 13:00	Bird (comment)	2	0	Standing	Tundra	Unknown ptarmigan
82	5/12/2024 9:18	Bird (comment)	1	0	Walking	Tundra	WIPT
82	5/19/2024 10:00	Bird (comment)	1	0	Standing	Tundra	Unknown ptarmigan
82	5/21/2024 7:00	Bird (comment)	1	0	Walking	Tundra	GWFG
82	5/25/2024 11:04	Bird (comment)	2	0	Flying	Tundra	GWFG
84	9/12/2023 10:00	Bird (comment)	30	0	Flying	Tundra	Unknown flock of geese - too backlit to ID
84	10/14/2023 17:39	Caribou	1	0	Feeding	Tundra	-
85	9/3/2023 19:36	Moose	1	0	Inspecting camera	Tundra	-
85	9/5/2023 6:00	Moose	1	0	Walking	Tundra	-
85	9/5/2023 15:47	Caribou	1	0	Walking	Tundra	-
88	10/18/2023 12:47	Grizzly bear	1	0	Walking	Tundra	-

APPENDIX J SUMMARY OF CARIBOU CAMERA EVENTS, SEPTEMBER 2023 TO SEPTEMBER 2024

APPENDIX J: SUMMARY OF CARIBOU CAMERA EVENTS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Species Specific Monitoring Objective	2023				2024									Total 2023–2024	Total by Camera
			September	October	November	December	January	February	March	April	May	June	July	August	September		
1	Treatment	-	-	-	-	-	-	-	-	-	-	-	13	-	-	57	70
2	Treatment	Road Crossing Ramp	-	-	-	-	-	-	-	-	-	-	3	-	-	0	3
3	Control	-	-	-	-	-	-	-	-	-	-	2	7	-	-	87	96
4	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	18
5	Control	-	3	-	-	-	-	-	-	-	-	-	-	-	-	21	24
6	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8
7	Control	-	-	-	-	-	-	-	-	1	-	-	-	-	-	17	18
8	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	14
9	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	18
10	ZOI	-	-	-	-	-	-	-	-	-	-	4	4	2	-	30	40
11	Treatment	-	-	-	-	-	-	-	-	-	-	2	8	-	-	6	16
12	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	18
13	Treatment	-	1	-	-	-	-	-	-	-	-	-	1	-	-	13	15
14	ZOI	-	-	-	-	-	-	-	-	-	-	4	-	-	-	12	16
15	Treatment	-	-	-	-	-	-	-	-	-	-	3	3	-	-	13	19
16	Control	-	2	1	-	-	-	-	-	-	1	-	-	-	-	23	27
17	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	11
18	Treatment	Waste Management Facility	-	-	-	-	-	-	-	-	-	-	15	-	-	30	45
19	Treatment	-	-	-	-	-	-	-	-	-	-	-	7	-	-	20	27
21	Treatment	Waste Management Facility	-	-	-	-	-	-	-	-	-	-	-	-	-	64	64
22	Treatment	ERM Fish Fence	-	-	-	-	-	-	-	-	-	10	-	-	-	10	20
23	ZOI	-	-	-	-	-	-	-	-	-	-	3	-	-	-	22	25
24	ZOI/Ladder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	101	101
25	ZOI	-	-	-	-	-	-	-	-	-	-	7	1	-	-	3	11
26	ZOI	-	-	-	-	-	-	-	-	-	-	-	8	-	-	43	51
28	Treatment	-	2	1	-	-	-	-	-	-	-	1	2	-	-	18	24
29	Control	-	1	-	-	-	-	-	-	-	-	-	-	-	-	19	20
30	ZOI	-	-	-	-	-	-	-	-	-	-	-	9	-	-	16	25
31	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
32	Treatment	-	-	-	-	-	-	-	-	-	-	3	11	-	-	55	69
33	Control	-	1	1	-	-	-	-	-	-	-	-	-	-	-	89	91
34	ZOI/Ladder	-	1	1	-	-	-	-	-	-	-	1	1	-	-	13	17
35	Treatment	Road Crossing Ramp	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
36	Control	-	1	-	-	-	-	-	-	-	-	-	-	-	-	5	6
37	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	16
39	ZOI	-	-	-	-	-	-	-	-	-	-	2	2	-	-	1	5
40	Control	-	-	1	-	-	-	-	-	1	1	1	-	-	-	10	14
41	ZOI	-	-	-	-	-	-	-	-	-	-	1	-	-	-	6	7
42	Treatment	-	1	-	-	-	-	-	-	-	-	-	-	-	-	57	58
43	Control	-	-	-	-	-	-	-	-	-	-	-	1	-	-	23	24
44	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	6
45	Control	-	-	-	-	-	-	-	-	-	-	1	3	-	-	0	4

APPENDIX J: SUMMARY OF CARIBOU CAMERA EVENTS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Species Specific Monitoring Objective	2023				2024									Total 2023–2024	Total by Camera
			September	October	November	December	January	February	March	April	May	June	July	August	September		
46	ZOI	-	1	-	-	-	-	-	-	-	-	-	-	-	-	14	15
47	ZOI	-	-	-	-	-	-	-	-	-	-	1	3	-	-	14	18
48	ZOI	-	-	-	-	-	-	-	-	-	-	-	2	-	-	45	47
49	Control	-	-	1	-	-	-	-	-	-	-	-	6	-	-	3	10
50	Treatment	-	-	-	-	-	-	-	-	-	-	7	4	-	-	6	17
51	Treatment	TIA	-	-	-	-	-	-	-	-	-	1	12	-	-	58	71
52	Treatment	TIA	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
53	Treatment	-	-	-	-	-	-	-	-	-	-	-	1	-	-	9	10
54	Treatment	-	-	-	-	-	-	-	-	-	-	7	1	-	-	14	22
55	ZOI	-	-	-	-	-	-	-	-	-	-	3	4	-	-	18	25
56	Control	-	1	-	-	-	-	-	-	-	-	1	1	-	-	16	19
57	ZOI	-	2	-	-	-	-	-	-	-	-	-	-	-	-	4	6
58	Control	-	1	-	-	-	-	-	-	-	-	-	1	-	-	28	30
59	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4
60	Treatment	-	-	-	-	-	-	-	-	-	-	1	4	-	-	17	22

APPENDIX K CARIBOU OBSERVATIONS FROM THE WILDLIFE SIGHTINGS LOG CORRECTED FOR PERSONNEL, 2009 TO 2024

APPENDIX K: CARIBOU OBSERVATIONS FROM THE WILDLIFE SIGHTINGS LOG CORRECTED FOR PERSONNEL, 2009 TO 2024

Year	Month	Number of Observations from Raw Data		Monthly Average of Personnel Onsite	Number of Observations per Personnel	
		No. Individuals[a]	No. Records		No. Individuals	No. Records
2009	April	141	3	102	1.38	0.03
	May	114	7	102	1.12	0.07
	June	10	2	103	0.1	0.02
	July	21	6	113	0.19	0.05
	September	14	1	98	0.14	0.01
2010	March	1	1	131	0.01	0.01
	April	16	1	172	0.09	0.01
	May	148	16	182	0.81	0.09
	June	1	1	200	0.01	0.01
	July	9	4	220	0.04	0.02
	August	2	2	205	0.01	0.01
2011	April	24	4	278	0.09	0.01
	May	43	5	274	0.16	0.02
	June	9	2	280	0.03	0.01
	July	4	2	284	0.01	0.01
2012	April	7	1	127	0.06	0.01
	May	28	6	90	0.31	0.07
	July	2	2	90	0.02	0.02
	August	1	1	93	0.01	0.01

Year	Month	Number of Observations from Raw Data		Monthly Average of Personnel Onsite	Number of Observations per Personnel	
		No. Individuals[a]	No. Records		No. Individuals	No. Records
2013	May	6	2	20	0.3	0.1
	June	4	4	44	0.09	0.09
	July	5	4	61	0.08	0.07
	August	5	4	59	0.08	0.07
2014	April	10	1	14	0.71	0.07
	May	3	1	63	0.05	0.02
	June	11	5	71	0.15	0.07
	July	23	13	77	0.3	0.17
	December	10	1	7	1.43	0.14
2015	February	6	1	16	0.38	0.06
	May	34	3	32	1.06	0.09
	June	9	3	41	0.22	0.07
	July	2	2	46	0.04	0.04
	August	10	7	84	0.12	0.08
	November	44	5	93	0.47	0.05
	December	66	4	89	0.74	0.04
2016	January	29	5	60	0.48	0.08
	February	27	3	73	0.37	0.04
	March	152	9	78	1.95	0.12
	April	51	5	93	0.55	0.05
	May	79	14	110	0.72	0.13
	July	10	9	123	0.08	0.07

Year	Month	Number of Observations from Raw Data		Monthly Average of Personnel Onsite	Number of Observations per Personnel	
		No. Individuals[a]	No. Records		No. Individuals	No. Records
2016 *(cont'd)*	August	1	1	129	0.01	0.01
	November	11	2	172	0.06	0.01
	December	51	6	173	0.29	0.03
2017	March	84	4	176	0.48	0.02
	June	4	4	189	0.02	0.02
	July	12	12	185	0.06	0.06
	August	2	2	178	0.01	0.01
2018	March	80	1	261	0.307	0.004
	May	12	6	261	0.046	0.023
	June	7	2	266	0.026	0.008
	July	14	12	265	0.053	0.045
	August	5	3	271	0.018	0.011
2019	March	2	1	286	0.01	0
	April	12	5	291	0.04	0.02
	May	21	10	287	0.07	0.03
	June	3	2	304	0.01	0.01
	July	2	1	304	0.01	0
	August	6	5	285	0.02	0.02
	December	Unknown	1	300	-	-
2020	January	17	2	316	0.05	0.006
	March	7	1	282	0.03	0.004
	June	17	3	139	0.12	0.02

Year	Month	Number of Observations from Raw Data		Monthly Average of Personnel Onsite	Number of Observations per Personnel	
		No. Individuals[a]	No. Records		No. Individuals	No. Records
2020 *(cont'd)*	July	57	34	137	0.42	0.25
	August	5	5	136	0.04	0.04
2021	February	14	3	143	0.1	0.02
	March	5	1	147	0.03	0.01
	April	5	1	169	0.03	0.01
	May	10	2	176	0.06	0.01
	June	4	1	189	0.02	0.01
	July	83	26	193	0.43	0.13
	August	40	29	230	0.17	0.13
	September	5	3	240	0.02	0.01
2022	April	20	5	134	0.15	0.04
	May	3	1	135	0.02	0.01
	June	35	9	162	0.22	0.06
	July	106	37	164	0.65	0.23
	August	14	13	172	0.08	0.08
	September	10	2	174	0.06	0.01
	October	19	2	181	0.10	0.01
	November	0	0	189	0.00	0.00
	December	26	2	114	0.23	0.02
2023	January	9	1	148	0.06	0.01
	February	7	1	168	0.04	0.01
	April	7	1	163	0.04	0.01

Year	Month	Number of Observations from Raw Data		Monthly Average of Personnel Onsite	Number of Observations per Personnel	
		No. Individuals[a]	No. Records		No. Individuals	No. Records
2023 *(cont'd)*	June	111	33	150	0.74	0.22
	July	142	103	146	0.97	0.71
	August	31	18	133	0.23	0.14
	September	38	13	126	0.30	0.10
	October	2	2	109	0.02	0.02
	December	15	1	45	0.33	0.02
2024	February	7	1	104	0.07	0.01
	March	Unknown	1	108	-	0.01
	April	2	1	113	0.02	0.01
	May	29	7	133	0.22	0.05
	June	201	51	161	1.25	0.32
	July	143	70	147	0.97	0.48
	August	129	85	161	0.80	0.53
	September	5	2	167	0.03	0.01
	October	2	2	157	0.01	0.01

[a] The total number of individuals provided may not always be representative of the true number of individuals recorded, as certain wildlife sightings may include double counting of the same individual(s).

APPENDIX L SUMMARY OF MUSKOX CAMERA EVENTS, SEPTEMBER 2023 TO SEPTEMBER 2024

APPENDIX L: SUMMARY OF MUSKOX CAMERA EVENTS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Species Specific Monitoring Objective	2023				2024									Total 2023–2024	Total by Camera
			September	October	November	December	January	February	March	April	May	June	July	August	September		
1	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
2	Treatment	Road Crossing Ramp	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
3	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
4	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
5	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
6	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
7	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
8	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
9	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
10	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
11	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
12	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
13	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
14	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
15	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
16	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
17	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
18	Treatment	Waste Management Facility	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
19	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
21	Treatment	Waste Management Facility	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
22	Treatment	ERM Fish Fence	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
23	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
24	ZOI/Ladder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
25	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
26	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
28	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
29	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
30	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
31	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
32	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
33	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
34	ZOI/Ladder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
35	Treatment	Road Crossing Ramp	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
36	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
37	Control	-	-	-	-	-	-	-	-	-	-	2	-	-	-	0	2
39	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
40	Control	-	-	-	-	-	-	-	-	-	-	3	-	-	-	0	3
41	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
42	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
43	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
44	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
45	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0

APPENDIX L: SUMMARY OF MUSKOX CAMERA EVENTS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Species Specific Monitoring Objective	2023				2024									Total 2023–2024	Total by Camera
			September	October	November	December	January	February	March	April	May	June	July	August	September		
46	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
47	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
48	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
49	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
50	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
51	Treatment	TIA	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
52	Treatment	TIA	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
53	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5
54	Treatment	-	2	1	1	-	-	-	-	-	-	-	-	-	-	17	21
55	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
56	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
57	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
58	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
59	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
60	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0

APPENDIX M MUSKOX OBSERVATIONS FROM THE WILDLIFE SIGHTINGS LOG CORRECTED FOR PERSONNEL, 2009 TO 2024

APPENDIX M: MUSKOX OBSERVATIONS FROM THE WILDLIFE SIGHTINGS LOG CORRECTED FOR PERSONNEL, 2009 TO 2024

Year	Month	Number of Observations from Raw Data		Monthly Average of Personnel Onsite	Number of Observations per Personnel	
		No. Individuals[a]	No. Records		No. Individuals	No. Records
2009	July	-	-	113	0.21	-
2010	April	-	-	172	0.23	-
	May	-	-	182	0.33	-
	June	-	-	200	0.08	-
	July	-	-	220	0.04	-
	August	-	-	205	0.37	-
2011	February	-	-	250	0.008	-
	March	-	-	265	0.09	-
	April	-	-	278	0.01	-
	May	-	-	274	0.10	-
	June	-	-	280	0.05	-
	July	-	-	284	0.07	-
	August	-	-	277	0.19	-
2012	January	-	-	183	0.01	-
	February	-	-	193	0.01	-
	May	-	-	90	0.03	-
	June	-	-	103	0.07	-
	August	-	-	93	0.80	-

Year	Month	Number of Observations from Raw Data		Monthly Average of Personnel Onsite	Number of Observations per Personnel	
		No. Individuals[a]	No. Records		No. Individuals	No. Records
2013	April	-	-	13	2.08	-
	June	-	-	44	0.07	-
	July	-	-	61	0.33	-
2014	June	-	-	71	1.06	-
2015	January	-	-	13	0.15	-
	February	-	-	16	0.13	-
2016	January	-	-	60	1.42	-
	September	-	-	144	0.42	-
	October	-	-	158	0.19	-
	November	-	-	172	0.58	-
	December	-	-	173	0.61	-
2017	January	-	-	172	0.93	-
	February	-	-	168	0.39	-
	March	-	-	176	0.89	-
	April	-	-	173	0.52	-
	July	-	-	185	0.57	-
	November	-	-	184	0.81	-
	December	-	-	179	0.22	-
2018	January	-	-	202	0.24	-
	March	-	-	261	0.08	-
	June	-	-	266	0.02	-

Year	Month	Number of Observations from Raw Data		Monthly Average of Personnel Onsite	Number of Observations per Personnel	
		No. Individuals[a]	No. Records		No. Individuals	No. Records
2018 *(cont'd)*	July	-	-	265	0.01	-
	September	-	-	272	0.03	-
2019	*No sightings of muskox in 2019*					
2020	November	-	-	149	0.27	-
2021	October	-	-	89	0.67	-
	November	-	-	171	0.04	-
2022	January	-	-	123	0.16	-
	February	-	-	178	0.18	-
	March	-	-	160	0.10	-
	May	-	-	135	0.24	-
	June	-	-	162	0.12	-
	October	-	-	181	0.33	-
	November	-	-	189	0.47	-
2023	January	25	-	148	0.17	-
	May	6	-	158	0.04	-
	June	18	-	150	0.12	-
	July	47	-	146	0.32	-
	August	2	-	133	0.02	-
	September	139	-	126	1.10	-
	October	124	-	109	1.14	-
	November	40	-	64	0.63	-

Year	Month	Number of Observations from Raw Data		Monthly Average of Personnel Onsite	Number of Observations per Personnel	
		No. Individuals[a]	No. Records		No. Individuals	No. Records
2024	January	26	2	83	0.31	0.02
	February	200	8	104	1.92	0.08
	March	44	3	108	0.41	0.03
	June	58	7	161	0.36	0.04
	July	27	4	147	0.18	0.03

Notes:
- Represent missing values from previous WMMP reports, as this appendix was not completed in previous years. The number of individuals corrected by personnel and the months of sightings were the values presented in the muskox sections of previous WMMP reports.
[a] The total number of individuals provided may not always be representative of the true number of individuals recorded, as certain wildlife sightings may include double counting of the same individual(s).

APPENDIX N SUMMARY OF GRIZZLY BEAR CAMERA EVENTS, SEPTEMBER 2023 TO SEPTEMBER 2024

APPENDIX N: SUMMARY OF GRIZZLY BEAR CAMERA EVENTS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Species Specific Monitoring Objective	2023				2024									Total 2023–2024	Total by Camera
			September	October	November	December	January	February	March	April	May	June	July	August	September		
1	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
2	Treatment	Road Crossing Ramp	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
3	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	24
4	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27	27
5	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	21
6	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	14
7	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5
8	Control	-	1	-	-	-	-	-	-	-	-	-	-	-	-	14	15
9	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	28
10	ZOI	-	-	-	-	-	-	-	-	-	-	-	1	-	-	23	24
11	Treatment	-	-	1	-	-	-	-	-	-	-	-	-	-	-	17	18
12	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32	32
13	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	12
14	ZOI	-	-	-	-	-	-	-	-	-	2	-	-	-	-	7	9
15	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34	34
16	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10
17	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	19
18	Treatment	Waste Management Facility	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
19	Treatment	-	1	-	-	-	-	-	-	-	-	-	-	-	-	5	6
21	Treatment	Waste Management Facility	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
22	Treatment	ERM Fish Fence	-	-	-	-	-	-	-	-	-	-	-	-	-	7	7
23	ZOI	-	-	-	-	-	-	-	-	-	-	-	2	-	-	57	59
24	ZOI/Ladder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8
25	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	19
26	ZOI	-	1	-	-	-	-	-	-	-	-	-	-	-	-	11	12
28	Treatment	-	-	-	-	-	-	-	-	-	-	-	2	-	-	32	34
29	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8
30	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	21
31	Control	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2	3
32	Treatment	-	1	-	-	-	-	-	-	-	-	-	-	-	-	25	26
33	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	40
34	ZOI/Ladder	-	-	-	-	-	-	-	-	-	-	-	1	-	-	8	9
35	Treatment	Road Crossing Ramp	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
36	Control	-	-	-	-	-	-	-	-	-	-		-	-	-	28	28
37	Control	-	-	-	-	-	-	-	-	-	-	1	-	-	-	14	15
39	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
40	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5
41	ZOI	-	3	1	-	-	-	-	-	-	-	-	-	-	-	18	22
42	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
43	Control	-	-	-	-	-	-	-	-	-	-	-	2	-	-	19	21

APPENDIX N: SUMMARY OF GRIZZLY BEAR CAMERA EVENTS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Species Specific Monitoring Objective	2023				2024									Total 2023–2024	Total by Camera
			September	October	November	December	January	February	March	April	May	June	July	August	September		
44	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	15
45	Control	-	-	-	-	-	-	-	-	-	-	-	1	-	-	17	18
46	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	16
47	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
48	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	7
49	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	6
50	Treatment	-	2	-	-	-	-	-	-	-	-	-	-	-	-	5	7
51	Treatment	TIA	-	1	-	-	-	-	-	-	-	-	-	-	-	4	5
52	Treatment	TIA	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
53	Treatment	-	-	1	-	-	-	-	-	-	-	1	-	-	-	22	24
54	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	22
55	ZOI	-	1	-	-	-	-	-	-	-	-	-	1	-	-	65	67
56	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5
57	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10
58	Control	-	1	-	-	-	-	-	-	-	-	-	-	-	-	3	4
59	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	79	79
60	Treatment	-	2	-	-	-	-	-	-	-	-	-	1	-	-	24	27

APPENDIX O GRIZZLY BEAR OBSERVATIONS FROM THE WILDLIFE SIGHTINGS LOG CORRECTED FOR PERSONNEL, 2009 TO 2024

APPENDIX O: GRIZZLY BEAR OBSERVATIONS FROM THE WILDLIFE SIGHTINGS LOG CORRECTED FOR PERSONNEL, 2009 TO 2024

Year	Month	Number of Observations from Raw Data		Monthly Average of Personnel Onsite	Number of Observations per Personnel	
		No. Individuals[a]	No. Records		No. Individuals	No. Records
2009	May	11	5	102	0.11	0.05
	June	4	4	103	0.04	0.04
	July	18	10	113	0.16	0.09
	August	18	17	109	0.17	0.16
	September	6	6	98	0.06	0.06
2010	May	6	6	182	0.03	0.03
	June	2	1	200	0.01	0.01
	July	7	7	220	0.03	0.03
	August	4	4	205	0.02	0.02
	September	7	5	484	0.01	0.01
2011	May	3	3	274	0.01	0.01
	July	3	1	284	0.01	0
	August	10	5	277	0.04	0.02
	September	3	1	277	0.01	0
	October	3	1	270	0.01	0
2012	April	1	1	127	0.01	0.01
	May	2	2	90	0.02	0.02
	June	1	1	103	0.01	0.01
	July	3	1	90	0.03	0.01
	August	6	2	93	0.06	0.02

Year	Month	Number of Observations from Raw Data		Monthly Average of Personnel Onsite	Number of Observations per Personnel	
		No. Individuals[a]	No. Records		No. Individuals	No. Records
2013	July	9	3	61	0.15	0.05
	August	8	3	59	0.14	0.05
	September	3	1	54	0.06	0.02
	October	1	1	49	0.02	0.02
2014	June	2	2	71	0.03	0.03
	July	2	2	77	0.03	0.03
	August	1	1	79	0.01	0.01
	October	1	1	79	0.01	0.01
2015	May	1	1	32	0.03	0.03
	June	3	3	41	0.07	0.07
	July	1	1	46	0.02	0.02
	August	17	11	84	0.2	0.13
	September	2	2	105	0.02	0.02
2016	July	14	5	123	0.11	0.04
	August	10	4	129	0.08	0.03
	October	3	3	158	0.02	0.02
2017	May	8	3	188	0.02	0.02
	June	26	9	189	0.05	0.05
	July	6	2	185	0.01	0.01
	August	13	5	178	0.03	0.03
	September	11	4	179	0.02	0.02
	October	13	5	179	0.03	0.03

Year	Month	Number of Observations from Raw Data		Monthly Average of Personnel Onsite	Number of Observations per Personnel	
		No. Individuals[a]	No. Records		No. Individuals	No. Records
2018	May	9	3	261	0.01	0.01
	June	7	3	266	0.01	0.01
	July	17	8	265	0.03	0.03
	August	12	6	271	0.02	0.02
	September	25	8	272	0.03	0.03
	October	13	5	273	0.02	0.02
	November	3	3	270	0.01	0.01
2019	May	4	1	287	0	0
	June	14	6	304	0.02	0.02
	August	23	13	285	0.05	0.05
	September	33	11	293	0.04	0.04
	October	4	4	306	0.01	0.01
2020	June	5	2	139	0.04	0.01
	July	3	3	137	0.02	0.02
	August	4	4	136	0.03	0.03
	September	7	5	128	0.06	0.04
2021	May	5	5	176	0.03	0.03
	June	12	12	189	0.06	0.06
	July	14	11	193	0.07	0.06
	August	5	5	230	0.02	0.02
	September	4	4	240	0.02	0.02
	October	1	1	89	0.01	0.01

Year	Month	Number of Observations from Raw Data		Monthly Average of Personnel Onsite	Number of Observations per Personnel	
		No. Individuals[a]	No. Records		No. Individuals	No. Records
2022	May	10	5	135	0.07	0.04
	June	11	4	162	0.07	0.02
	July	17	10	164	0.10	0.06
	August	3	2	172	0.02	0.01
	September	18	11	174	0.10	0.06
	October	2	2	181	0.01	0.01
2023	May	6	4	158	0.04	0.02
	June	13	11	150	0.09	0.09
	July	13	6	146	0.09	0.09
	August	6	5	133	0.05	0.03
	September	39	11	126	0.31	0.08
2024	April	1	1	113	0.01	0.01
	May	22	11	133	0.17	0.08
	June	11	10	161	0.07	0.06
	July	12	9	147	0.08	0.06
	August	25	15	161	0.16	0.09
	September	6	5	167	0.04	0.03
	October	4	2	157	0.03	0.01

[a] The total number of individuals provided may not always be representative of the true number of individuals recorded, as certain wildlife sightings may include double counting of the same individual(s).

APPENDIX P SUMMARY OF WOLVERINE CAMERA EVENTS, SEPTEMBER 2023 TO SEPTEMBER 2024

APPENDIX P: SUMMARY OF WOLVERINE CAMERA EVENTS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Species Specific Monitoring Objective	2023				2024									Total 2023–2024	Total by Camera
			September	October	November	December	January	February	March	April	May	June	July	August	September		
1	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
2	Treatment	Road Crossing Ramp	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
3	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5
4	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
5	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
6	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
7	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
8	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
9	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
10	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
11	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
12	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
13	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4
14	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
15	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
16	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
17	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
18	Treatment	Waste Management Facility	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
19	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
21	Treatment	Waste Management Facility	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
22	Treatment	ERM Fish Fence	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
23	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	17
24	ZOI/Ladder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
25	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4
26	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4
28	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
29	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
30	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8
31	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
32	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
33	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	6
34	ZOI/Ladder	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
35	Treatment	Road Crossing Ramp	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
36	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5
37	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
39	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
40	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
41	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
42	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
43	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5

APPENDIX P: SUMMARY OF WOLVERINE CAMERA EVENTS, SEPTEMBER 2023 TO SEPTEMBER 2024

Camera No.	Camera Type	Species Specific Monitoring Objective	2023				2024									Total 2023–2024	Total by Camera
			September	October	November	December	January	February	March	April	May	June	July	August	September		
44	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
45	Control	-	-	2	-	-	-	-	-	-	-	-	-	-	-	0	2
46	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
47	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3
48	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
49	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
50	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
51	Treatment	TIA	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
52	Treatment	TIA	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
53	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
54	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
55	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
56	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
57	ZOI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
58	Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	19
59	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
60	Treatment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0

APPENDIX Q WOLVERINE OBSERVATIONS FROM THE WILDLIFE SIGHTINGS LOG CORRECTED FOR PERSONNEL, 2009 TO 2024

APPENDIX Q: WOLVERINE OBSERVATIONS FROM THE WILDLIFE SIGHTINGS LOG CORRECTED FOR PERSONNEL, 2009 TO 2024

Year	Month	Number of Observations from Raw Data		Monthly Average of Personnel Onsite	Number of Observations per Personnel	
		No. Individuals[a]	No. Records		No. Individuals	No. Records
2009	February	1	1	84	0.012	0.012
	May	1	1	102	0.010	0.010
	August	1	1	109	0.009	0.009
2010	March	1	1	131	0.008	0.008
	April	1	1	172	0.006	0.006
2011	January	1	1	214	0.005	0.005
	February	2	2	250	0.008	0.008
	April	2	2	278	0.007	0.007
	May	3	3	274	0.011	0.011
	June	1	1	280	0.004	0.004
	August	2	2	277	0.007	0.007
	November	1	1	252	0.004	0.004
	December	1	1	Unknown	-	-
2012	February	2	2	193	0.01	0.01
	March	1	1	180	0.006	0.006
	April	2	2	127	0.016	0.016
	May	3	3	90	0.033	0.033
2013	May	2	2	20	0.099	0.099
	November	2	2	19	0.105	0.105

Year	Month	Number of Observations from Raw Data		Monthly Average of Personnel Onsite	Number of Observations per Personnel	
		No. Individuals[a]	No. Records		No. Individuals	No. Records
2014	February	1	1	7	0.143	0.143
	May	1	1	63	0.016	0.016
2015	January	1	1	13	0.075	0.075
	February	1	1	16	0.062	0.062
	March	1	1	30	0.033	0.033
	May	2	2	32	0.063	0.063
	July	1	1	46	0.022	0.022
	August	1	1	84	0.012	0.012
	October	2	1	114	0.018	0.009
	December	1	1	89	0.011	0.011
2016	February	1	1	73	0.010	0.010
	March	2	2	78	0.030	0.030
	November	1	1	172	0.010	0.010
2017	March	1	1	176	0.006	0.006
	April	1	1	173	0.006	0.006
	September	1	1	179	0.006	0.006
	December	2	2	179	0.011	0.011
2018	January	1	1	202	0.005	0.005
	February	1	1	261	0.004	0.004
	October	1	1	266	0.004	0.004
	December	1	1	272	0.004	0.004

Year	Month	Number of Observations from Raw Data		Monthly Average of Personnel Onsite	Number of Observations per Personnel	
		No. Individuals[a]	No. Records		No. Individuals	No. Records
2019	April	1	1	291	0.001	0.001
	July	6	4	304	0.020	0.010
	September	1	1	293	0.001	0.001
	October	1	1	306	0.001	0.001
2020	-	0	0	-	0.001	0.001
2021	May	1	1	176	0.010	0.010
	August	1	1	230	0.002	0.001
	September	1	1	240	0.002	0.001
	October	1	1	89	0.010	0.010
2022	*No sightings of wolverine in 2022*					
2023	March	1	1	165	0.006	0.006
	May	1	1	158	0.006	0.006
2024	January	1	1	83	0.010	0.010
	March	1	1	108	0.009	0.009
	October	1	1	157	0.006	0.006

[a] The total number of individuals provided may not always be representative of the true number of individuals recorded, as certain wildlife sightings may include double counting of the same individual(s).

APPENDIX R REGIONAL PRISM SURVEY LOCATIONS AND HABITAT DATA, 2024

APPENDIX R: REGIONAL PRISM SURVEY LOCATIONS AND HABITAT DATA, 2024

Plot ID	Survey Date	Zone	Easting	Northing	Cloud Cover	Temperature (°C)	Light	Precipitation	Wind (Beaufort)	Noise	Time Start	Time End
HOB-031	June 21, 2024	13 W	434842	7540119	Cloudy	4	Flat	None	4	None	11:20	12:28
HOB-030	June 21, 2024	13 W	426416	7539380	Cloudy	3	Flat	None	2	None	9:00	10:29
HOB-028	June 21, 2024	13 W	436773	7541600	Cloudy	3	Flat	None	5	None	13:47	14:52
HOB-083	June 22, 2024	13 W	441826	7526856	Mostly Cloudy	3	Flat	None	3	None	8:41	10:15
HOB-005	June 22, 2024	13 W	418744	7520653	Cloudy	4	Flat	None	4	None	11:04	12:38
HOB-035	June 22, 2024	13 W	437913	7533228	Mostly Cloudy	4	Flat	None	3	None	13:55	15:38
HOB-015	June 23, 2024	13 W	444423	7563702	Mainly Clear	8	Bright	None	2	None	13:15	15:00
HOB-007	June 25, 2024	13 W	424744	7492653	Cloudy	4	Flat	None	3	None	8:40	10:10
HOB-009	June 25, 2024	13 W	440944	7504253	Cloudy	4	Flat	None	4	None	13:22	15:37
HOB-008	June 25, 2024	13 W	444844	7497054	Cloudy	4	Flat	None	4	None	10:49	12:10
HOB-104	June 26, 2024	13 W	432250	7562800	Clear	6	Bright	None	4	None	14:30	15:57
HOB-102	June 27, 2024	13 W	433050	7558450	Cloudy	5	Flat	None	3	Moderate	7:53	8:51
HOB-017	June 28, 2024	13 W	445445	7521854	Mainly Clear	6	Bright	None	2	None	8:32	9:50
HOB-033	June 28, 2024	13 W	431742	7536043	Mainly Clear	7	Bright	None	2	None	10:38	11:50
HOB-095	June 30, 2024	13 W	428250	7554550	Mainly Clear	12	Bright	None	5	None	12:55	15:02
HOB-096	July 1, 2024	13 W	436050	7541250	Mostly Cloudy	8	Flat	None	3	None	13:28	14:50
HOB-027	July 1, 2024	13 W	431718	7542943	Mainly Clear	10	Flat	None	4	None	8:20	9:21
HOB-107	July 1, 2024	13 W	434825	7538000	Mainly Clear	9	Flat	None	4	None	10:26	12:01
HOB-101	July 2, 2024	13 W	432450	7554100	Cloudy	6	Flat	None	4	None	7:22	8:25

Plot ID	Total Plot Upland (%)	Total Plot Lowland (%)	Total Plot Water (%)	Pond (%)	Lake (%)	River (%)	Ocean (%)	Upland Standing Water (%)	Upland Barren (%)	Upland Moss/Lichen (%)	Upland Graminoid (%)
HOB-031	0	100	0	0	0	0	0	0	0	0	0
HOB-030	12	80	8	100	0	0	0	0	15	55	10
HOB-028	0	100	0	0	0	0	0	0	0	0	0
HOB-083	0	30	70	100	0	0	0	0	0	0	0
HOB-005	85	10	5	0	100	0	0	0	5	30	35
HOB-035	0	90	10	0	100	0	0	0	0	0	0
HOB-015	100	0	0	0	0	0	0	0	15	20	35
HOB-007	50	0	50	0	100	0	0	0	5	30	5
HOB-009	95	5	0	0	0	0	0	0	0	10	40
HOB-008	5	65	30	0	100	0	0	0	0	20	20
HOB-104	90	9	1	0	0	0	100	0	0	10	10
HOB-102	50	50	0	0	0	0	0	0	0	20	30
HOB-017	15	85	0	0	0	0	0	0	0	5	60
HOB-033	95	4	1	0	0	100	0	0	10	20	20
HOB-095	10	80	10	100	0	0	0	0	0	5	10
HOB-096	15	60	25	100	0	0	0	0	1	1	30
HOB-027	90	8	2	100	0	0	0	0	10	10	30
HOB-107	30	55	15	100	0	0	0	0	3	17	30
HOB-101	90	9	1	100	0	0	0	0	0	10	50

Plot ID	Upland Herbs (%)	Upland Dwarf Shrub/Heath (%)	Upland Other Shrub (%)	Lowland Standing Water (%)	Lowland Barren (%)	Lowland Moss/Lichen (%)	Lowland Graminoid (%)	Lowland Herbs (%)	Lowland Dwarf Shrub/Heath (%)	Lowland Other Shrub (%)	Upland Ground Moisture
HOB-031	0	0	0	1	0	4	80	0	0	15	N/A
HOB-030	10	0	10	15	0	10	30	10	0	35	Dry
HOB-028	0	0	0	0	0	0	70	0	5	25	N/A
HOB-083	0	0	0	50	0	5	40	0	0	5	N/A
HOB-005	20	5	5	0	0	10	80	10	0	0	Dry
HOB-035	0	0	0	5	0	10	40	10	0	35	N/A
HOB-015	10	10	10	0	0	0	0	0	0	0	Dry
HOB-007	30	30	0	0	0	0	0	0	0	0	Dry
HOB-009	20	20	10	5	0	5	50	40	0	0	Dry
HOB-008	40	20	0	0	0	0	40	30	10	20	Dry
HOB-104	50	30	10	0	0	10	70	10	10	0	Dry
HOB-102	30	10	10	5	0	10	60	15	10	0	Moist
HOB-017	15	10	10	0	0	25	65	5	5	0	Moist
HOB-033	20	10	20	0	0	10	20	0	0	70	Dry
HOB-095	55	25	5	10	0	5	60	25	0	0	Moist
HOB-096	40	20	8	40	0	0	50	10	0	0	Dry
HOB-027	30	10	10	10	0	10	60	10	10	0	Dry
HOB-107	30	10	10	10	0	20	40	20	10	0	Moist
HOB-101	20	5	15	5	0	10	40	30	10	5	Dry

Plot ID	Upland Topography	Upland Roughness	Upland Habitat Quality	Lowland Ground Moisture	Lowland Topography	Lowland Roughness	Lowland Habitat Quality	Comments
HOB-031	N/A	N/A	N/A	Wet	Flat	Medium	Good	Homogenous relatively flat grassy / small shrub plot.
HOB-030	Rolling	Medium	Poor	Wet	Flat	High	Good	
HOB-028	N/A	N/A	N/A	Moist	Flat	Medium	Medium	Lake east and south have some more activity. Plot itself is quite grassy/shrubby, and flat and homogenous; not much water.
HOB-083	N/A	N/A	N/A	Flooded	Flat	Low	Good	Large ponds with many islands; shallow wetland habitat entire plot.
HOB-005	Rolling	Medium	Poor	Moist	Flat	Medium	Medium	
HOB-035	N/A	N/A	N/A	Wet	Flat	Low	Good	
HOB-015	Hilly	Medium	Poor	N/A	N/A	N/A	N/A	Entire plot on bouldery dry hill along coast.
HOB-007	Undulating	Low	Poor	N/A	N/A	N/A	N/A	
HOB-009	Undulating	Medium	Poor	Wet	Flat	High	Good	
HOB-008	Flat	Low	Poor	Wet	Flat	Medium	Good	
HOB-104	Undulating	Low	Poor	Wet	Flat	Medium	Medium	Road of port facility crosses N end of plot. Robert’s Bay N of plot.
HOB-102	Flat	Medium	Poor	Wet	Flat	High	Medium	Quite high noise; plot next to Doris Camp and heli pad; plot quite dusty due to vehicles around camp and helicopters.
HOB-017	Flat	High	Poor	Wet	Flat	Medium	Medium	
HOB-033	Hilly	Medium	Poor	Moist	Rolling	Medium	Medium	
HOB-095	Flat	Low	Poor	Wet	Flat	Low	Good	Plot just south of ocean beach on Hope Bay.
HOB-096	Flat	Medium	Poor	Flooded	Flat	Medium	Good	Peregrine Falcon hunting ground. Lots of Northern Pintail carcasses. Very quiet in area. PEFA seems to have eaten or scared birds from the plot. Seemed quite suitable with good amount of wet lowland habitat, but very quiet. PEFA flyby observed.
HOB-027	Rolling	High	Poor	Wet	Flat	Medium	Medium	
HOB-107	Flat	Medium	Medium	Flooded	Flat	Medium	Good	
HOB-101	Flat	High	Poor	Wet	Flat	Medium	Medium	

APPENDIX S REGIONAL PRISM SURVEY BIRD OBSERVATION DATA, 2024

APPENDIX S: REGIONAL PRISM SURVEY BIRD OBSERVATION DATA, 2024

Plot ID	Species	Number Male	Number Female	Number Pairs	Number Unknown	Number Young	Nest ID	Flush Distance (m)	Egg Number	Nestling Number	Nest Substrate	Nest Cover (%)
HOB-031	Savannah Sparrow	4	0	1	2	0						
HOB-031	American Tree Sparrow	1	0	0	0	0						
HOB-030	Savannah Sparrow	4	0	1	2	0						
HOB-030	Lapland Longspur	2	1	1	0	0						
HOB-030	Horned Lark	0	0	1	1	0						
HOB-030	Red-necked Phalarope*	0	0	1	0	0						
HOB-030	Common Redpoll	0	0	2	1	0						
HOB-030	American Tree Sparrow	1	0	1	0	0	Hob030-nest1	1	4	0	Tussock base	70
HOB-030	White-crowned Sparrow	0	0	0	1	0						
HOB-028	Savannah Sparrow	0	0	1	4	0	Hob028-nest1	1	5	0	Tussock base	80
HOB-028	American Tree Sparrow	1	0	0	0	0						
HOB-083	Stilt Sandpiper	0	0	0	1	0						
HOB-083	Red-necked Phalarope*	0	3	3	0	0						
HOB-083	Least Sandpiper	0	0	1	3	0						
HOB-083	Dunlin	0	0	0	2	0						
HOB-083	Lapland Longspur	0	1	0	0	0						
HOB-083	American Tree Sparrow	1	0	0	0	0						
HOB-083	Semipalmated Plover	0	0	0	1	0						
HOB-083	American Golden-Plover*	0	0	0	4	0						
HOB-005	White-crowned Sparrow	1	0	0	1	0						
HOB-005	Savannah Sparrow	1	0	0	1	0						
HOB-005	Rock Ptarmigan	0	0	1	0	0						
HOB-005	Lapland Longspur	7	0	1	0	0	Hob005-nest1	1	4	0	Tussock base	70
HOB-005	Red-necked Phalarope*	1	1	0	0	0						
HOB-005	Horned Lark	0	0	2	0	0						
HOB-005	Common Redpoll	0	0	1	1	0						
HOB-005	Red-necked Phalarope*	1	2	0	0	0						
HOB-035	Savannah Sparrow	1	0	4	1	0	Hob035-nest2	2	5	0	Tussock base	75
HOB-035	Common Redpoll	0	0	1	0	0						
HOB-035	Red-necked Phalarope*	1	2	0	0	0						
HOB-035	American Tree Sparrow	0	0	1	0	0						

Plot ID	Species	Number Male	Number Female	Number Pairs	Number Unknown	Number Young	Nest ID	Flush Distance (m)	Egg Number	Nestling Number	Nest Substrate	Nest Cover (%)
HOB-035	Lapland Longspur	2	0	0	0	0						
HOB-035	Baird’s Sandpiper	0	0	0	1	0						
HOB-035	Wilson’s Snipe	0	0	0	1	0						
HOB-015	Common Redpoll	0	1	3	1	0						
HOB-015	Lapland Longspur	1	1	1	0	0	Hob015-nest1	2	5	0	Vegetated base	30
HOB-015	White-crowned Sparrow	0	0	2	0	0						
HOB-015	Rock Ptarmigan	0	0	1	0	0						
HOB-015	Horned Lark	0	0	0	1	0						
HOB-015	American Tree Sparrow	1	0	0	0	0						
HOB-015	Savannah Sparrow	1	0	0	0	0						
HOB-015	American Pipit	0	0	1	0	0	Hob015-nest2	5	6	0	Vegetated base	80
HOB-007	Horned Lark	0	1	0	0	0						
HOB-007	Lapland Longspur	0	0	2	0	0						
HOB-007	White-crowned Sparrow	1	0	0	0	0						
HOB-009	Savannah Sparrow	2	0	0	1	0						
HOB-009	Lapland Longspur	4	1	2	0	0	Hob009-nest1		0	4	Tussock base	55
HOB-009	Lapland Longspur	0	0	1	0	0	Hob009-nest2	4	0	5	Tussock base	60
HOB-009	Common Redpoll	1	1	0	0	4						
HOB-009	Horned Lark	1	2	0	0	0						
HOB-009	Semipalmated Plover	0	0	0	1	0						
HOB-009	White-crowned Sparrow	0	0	0	1	0						
HOB-009	Semipalmated Sandpiper*	0	0	1	0	0						
HOB-008	Red-necked Phalarope*	1	0	1	0	0						
HOB-008	Lapland Longspur	4	1	1	0	0						
HOB-008	Savannah Sparrow	0	0	1	2	0						
HOB-008	Common Redpoll	0	1	1	0	0	Hob008-nest1	2	5	0	Base of shrub	25
HOB-104	Savannah Sparrow	3	0	1	0	0						
HOB-104	Common Redpoll	3	1	3	2	0	Hob104-nest2	2	2	0	Base of shrub	10
HOB-104	Horned Lark	1	1	0	0	0						
HOB-104	White-crowned Sparrow	1	0	0	2	0						
HOB-104	Lapland Longspur	1	0	0	0	0						
HOB-104	American Tree Sparrow	0	0	0	1	0						

Plot ID	Species	Number Male	Number Female	Number Pairs	Number Unknown	Number Young	Nest ID	Flush Distance (m)	Egg Number	Nestling Number	Nest Substrate	Nest Cover (%)
HOB-104	Baird’s Sandpiper	0	0	1	0	0	Hob104-nest1	5	4	0	Vegetated base	0
HOB-104	Least Sandpiper	0	0	2	1	0						
HOB-104	American Pipit	0	0	2	0	0						
HOB-104	Semipalmated Plover	0	0	1	0	1						
HOB-102	Savannah Sparrow	4	0	0	3	0						
HOB-102	Lapland Longspur	2	0	0	0	0						
HOB-102	Least Sandpiper	0	0	2	2	0						
HOB-017	Stilt Sandpiper	0	0	1	2	0						
HOB-017	Lapland Longspur	2	0	3	0	0	Hob017-nest1		0	4	Vegetated base	60
HOB-017	Savannah Sparrow	3	0	2	2	0						
HOB-017	Pectoral Sandpiper	0	0	1	1	0						
HOB-017	Wilson’s Snipe	0	0	0	1	0						
HOB-017	Red-necked Phalarope*	0	1	0	0	0						
HOB-017	Willow Ptarmigan	1	0	0	0	0						
HOB-033	Savannah Sparrow	0	0	1	1	0						
HOB-033	Lapland Longspur	1	0	2	0	0						
HOB-033	Horned Lark	0	0	1	0	0						
HOB-033	White-crowned Sparrow	0	0	0	5	0						
HOB-033	Willow Ptarmigan	1	0	0	0	0						
HOB-033	Common Redpoll	0	0	3	0	0	Hob033-nest1		2	0	Vegetated base	30
HOB-033	American Tree Sparrow	0	0	0	1	0						
HOB-095	Savannah Sparrow	1	0	3	5	0						
HOB-095	Lapland Longspur	1	0	5	0	0						
HOB-095	Wilson’s Snipe	0	0	0	1	0						
HOB-095	Semipalmated Plover	0	0	3	0	1						
HOB-095	Least Sandpiper	0	0	5	4	0						
HOB-095	Red-necked Phalarope*	0	0	1	0	0	Hob095-nest1	2	4	0	Vegetated base	40
HOB-096	Savannah Sparrow	1	0	0	1	0						
HOB-096	American Tree Sparrow	0	0	0	1	0						
HOB-027	Savannah Sparrow	0	0	1	1	2						
HOB-027	Horned Lark	0	0	1	0	0						
HOB-027	Lapland Longspur	2	1	0	0	0						

Plot ID	Species	Number Male	Number Female	Number Pairs	Number Unknown	Number Young	Nest ID	Flush Distance (m)	Egg Number	Nestling Number	Nest Substrate	Nest Cover (%)
HOB-027	White-crowned Sparrow	0	0	0	1	0						
HOB-107	Northern Pintail	0	0	1	0	0	Hob107-nest2	8	0	3	Grasses	0
HOB-107	Savannah Sparrow	0	0	0	4	0						
HOB-107	Least Sandpiper	0	0	1	2	0						
HOB-107	Lapland Longspur	2	0	0	0	0						
HOB-107	Pectoral Sandpiper	0	0	1	0	0						
HOB-101	Savannah Sparrow	0	0	0	1	0						
HOB-101	Least Sandpiper	0	0	0	1	0						
HOB-101	Common Redpoll	2	0	0	4	2						
HOB-101	Hoary Redpoll*	0	0	2	0	3						

Note:

* Indicates a species of conservation concern either federally or in Nunavut.

APPENDIX T TAILINGS IMPOUNDMENT AREA PRISM SURVEY LOCATIONS AND HABITAT DATA, 2024

APPENDIX T: TAILINGS IMPOUNDMENT AREA PRISM SURVEY LOCATIONS AND HABITAT DATA, 2024

Plot ID	Plot Type	Survey Date	Zone	Easting	Northing	Cloud Cover	Temperature (°C)	Light	Precipitation	Wind (Beaufort)	Noise	Time Start	Time End
PR-UB5	TIA	June 20, 2024	13 W	435325	7558350	Cloudy	4	Flat	None	3	None	8:35	10:02
PR-UB3	TIA	June 20, 2024	13 W	435550	7557400	Cloudy	4	Flat	None	3	None	12:38	13:56
PR-UB1	TIA	June 20, 2024	13 W	435050	7556100	Cloudy	5	Flat	None	2	None	15:42	16:55
PR-UBR1	Ogama	June 23, 2024	13 W	435550	7555350	Cloudy	4	Flat	None	2	None	9:46	10:58
PR-UBR2	Ogama	June 24, 2024	13 W	436100	7554650	Mainly Clear	4	Bright	None	3	None	9:10	10:25
PR-UB7	TIA	June 26, 2024	13 W	434075	7558650	Mainly Clear	4	Flat	None	3	Slight	12:40	13:39
PR-UB6	TIA	June 27, 2024	13 W	434350	7558250	Cloudy	5	Flat	None	4	None	9:55	10:58
PR-UBR4	Ogama	June 29, 2024	13 W	436550	7553400	Mainly Clear	10	Bright	None	2	None	8:10	9:15
PR-UBR7	Ogama	June 29, 2024	13 W	436575	7551150	Mainly Clear	20	Bright	None	2	None	10:05	11:05
PR-UB4	TIA	June 29, 2024	13 W	434700	7555500	Clear	20	Bright	None	1	None	14:22	15:20
PR-UBR3	Ogama	June 30, 2024	13 W	435200	7554150	Mainly Clear	15	Bright	None	1	None	8:20	9:27
PR-UBR5	Ogama	June 30, 2024	13 W	435800	7552700	Mainly Clear	20	Bright	None	2	None	10:02	11:33

Plot ID	Total Plot Upland (%)	Total Plot Lowland (%)	Total Plot Water (%)	Pond (%)	Lake (%)	River (%)	Ocean (%)	Upland Standing Water (%)	Upland Barren (%)	Upland Moss/Lichen (%)	Upland Graminoid %
PR-UB5	70	18	2	0	100	0	0	2	10	8	75
PR-UB3	94	5	1	100	0	0	0	0	20	30	30
PR-UB1	95	3	2	0	100	0	0	0	5	20	20
PR-UBR1	90	10	0	0	0	0	0	0	1	4	40
PR-UBR2	90	10	0	0	0	0	0	0	5	20	40
PR-UB7	85	0	15	0	100	0	0	0	2	20	18
PR-UB6	100	0	0	0	0	0	0	0	10	5	40
PR-UBR4	100	0	0	0	0	0	0	0	5	10	50
PR-UBR7	80	15	5	0	95	5	0	0	5	10	40
PR-UB4	95	0	5	0	40	60	0	0	5	10	35
PR-UBR3	80	10	10	5	95	0	0	0	10	20	30
PR-UBR5	100	0	0	0	0	0	0	0	10	10	30

Plot ID	Upland Herbs (%)	Upland Dwarf Shrub/Heath (%)	Upland Other Shrub (%)	Lowland Standing Water (%)	Lowland Barren (%)	Lowland Moss/Lichen (%)	Lowland Graminoid (%)	Lowland Herbs (%)	Lowland Dwarf Shrub/Heath (%)	Lowland Other Shrub (%)
PR-UB5	3	2	0	18	0	3	75	2	2	0
PR-UB3	10	10	0	0	0	10	70	0	20	0
PR-UB1	5	10	40	20	0	0	40	0	40	0
PR-UBR1	30	5	20	1	0	10	60	10	4	15
PR-UBR2	10	10	15	10	0	30	40	10	10	0
PR-UB7	40	10	10	0	0	0	0	0	0	0
PR-UB6	20	15	10	0	0	0	0	0	0	0
PR-UBR4	20	5	10	0	0	0	0	0	0	0
PR-UBR7	20	10	15	0	0	10	50	10	20	10
PR-UB4	20	20	10	0	0	0	0	0	0	0
PR-UBR3	20	10	10	10	0	10	40	20	10	10
PR-UBR5	30	10	10	0	0	0	0	0	0	0

Plot ID	Upland Ground Moisture	Upland Topography	Upland Roughness	Upland Habitat Quality	Lowland Ground Moisture	Lowland Topography	Lowland Roughness	Lowland Habitat Quality	Comments
PR-UB5	Moist	Undulating	High	Poor	Wet	Undulating	High	Medium	
PR-UB3	Dry	Hilly	Medium	Poor	Moist	Flat	High	Medium	
PR-UB1	Dry	Undulating	High	Poor	Wet	Flat	Medium	Medium	
PR-UBR1	Dry	Undulating	High	Poor	Moist	Flat	Medium	Medium	
PR-UBR2	Dry	Undulating	High	Poor	Moist	Flat	Medium	Medium	
PR-UB7	Dry	Rolling	Low	Poor	N/A	N/A	N/A	N/A	Background noise from camp and helicopters
PR-UB6	Dry	Undulating	High	Poor	N/A	N/A	N/A	N/A	2% of east side in flood zone of TIA
PR-UBR4	Dry	Rolling	High	Poor	N/A	N/A	N/A	N/A	
PR-UBR7	Dry	Undulating	High	Poor	Wet	Flat	Medium	Medium	
PR-UB4	Dry	Undulating	High	Poor	N/A	N/A	N/A	N/A	
PR-UBR3	Dry	Rolling	High	Poor	Wet	Flat	Medium	Medium	
PR-UBR5	Dry	Undulating	High	Poor	N/A	N/A	N/A	N/A	Quicker day, quite hot, slightly smoky

APPENDIX U TAILINGS IMPOUNDMENT AREA PRISM SURVEY BIRD OBSERVATION DATA, 2024

APPENDIX U: TAILINGS IMPOUNDMENT AREA PRISM SURVEY BIRD OBSERVATION DATA, 2024

Plot ID	Plot Type	Species	Number Male	Number Female	Number Pairs	Number Unknown	Number Young	Nest ID	Flush Distance (m)	Egg Number	Nestling Number	Nest Substrate	Nest Cover (%)
PR-UB5	TIA	Savannah Sparrow	8	0	0	5	0						
PR-UB5	TIA	White-crowned Sparrow	0	0	1	2	0	Prub5-nest01	N/A	5	0	Tussock base	80
PR-UB5	TIA	American Tree Sparrow	1	0	0	0	0						
PR-UB5	TIA	Lapland Longspur	4	2	1	0	0						
PR-UB5	TIA	Willow Ptarmigan	0	0	1	0	0						
PR-UB5	TIA	Common Redpoll	0	0	1	1	0						
PR-UB3	TIA	Savannah Sparrow	3	0	0	1	0						
PR-UB3	TIA	Lapland Longspur	1	0	1	0	0						
PR-UB3	TIA	Common Redpoll	0	0	2	1	0						
PR-UB3	TIA	American Tree Sparrow	1	0	1	1	0	Prub3-nest1	1	5	0	Tussock base	80
PR-UB3	TIA	Horned Lark	0	0	1	1	0						
PR-UB1	TIA	Common Redpoll	1	0	2	7	0	Prub1-nest1	3	3	0	Base of shrub	0
PR-UB1	TIA	White-crowned Sparrow	2	0	0	4	0						
PR-UB1	TIA	Savannah Sparrow	1	0	1	3	0						
PR-UB1	TIA	American Tree Sparrow	2	0	0	0	0						
PR-UB1	TIA	Lapland Longspur	4	1	0	0	0						
PR-UBR1	Ogama	White-crowned Sparrow	0	0	0	3	0						
PR-UBR1	Ogama	American Tree Sparrow	2	0	0	3	0						
PR-UBR1	Ogama	Savannah Sparrow	0	0	2	3	0						
PR-UBR1	Ogama	Common Redpoll	0	0	1	4	0						
PR-UBR1	Ogama	Lapland Longspur	0	1	0	0	0						
PR-UBR2	Ogama	Common Redpoll	0	1	2	0	0	Prubr2-nest1	2	5	0	Base of shrub	20
PR-UBR2	Ogama	American Tree Sparrow	2	0	1	0	0						
PR-UBR2	Ogama	Willow Ptarmigan	1	0	0	0	0						
PR-UBR2	Ogama	White-crowned Sparrow	1	0	0	3	0						
PR-UBR2	Ogama	Savannah Sparrow	2	0	1	0	0						
PR-UBR2	Ogama	Lapland Longspur	2	0	2	1	0						
PR-UB7	TIA	White-crowned Sparrow	1	0	4	2	0						
PR-UB7	TIA	Horned Lark	0	0	1	0	0						
PR-UB7	TIA	Common Redpoll	1	2	0	1	0						
PR-UB7	TIA	American Pipit	0	0	0	2	0						
PR-UB7	TIA	Savannah Sparrow	0	0	0	1	0						
PR-UB7	TIA	Lapland Longspur	1	0	0	0	0						

Plot ID	Plot Type	Species	Number Male	Number Female	Number Pairs	Number Unknown	Number Young	Nest ID	Flush Distance (m)	Egg Number	Nestling Number	Nest Substrate	Nest Cover (%)
PR-UB6	TIA	Savannah Sparrow	4	0	1	1	0	Prub6-nest1	1	4	0	Vegetated base	100
PR-UB6	TIA	Common Redpoll	0	0	2	0	1						
PR-UB6	TIA	Lapland Longspur	3	0	1	0	0						
PR-UB6	TIA	American Pipit	0	0	1	2	0						
PR-UB6	TIA	White-crowned Sparrow	1	0	0	1	0						
PR-UBR4	Ogama	Common Redpoll	0	2	1	0	0						
PR-UBR4	Ogama	Lapland Longspur	1	0	3	1	0						
PR-UBR4	Ogama	White-crowned Sparrow	0	0	1	5	0						
PR-UBR4	Ogama	American Tree Sparrow	1	0	0	3	0						
PR-UBR4	Ogama	Savannah Sparrow	1	0	1	1	0						
PR-UBR7	Ogama	American Pipit	0	0	0	1	0						
PR-UBR7	Ogama	Savannah Sparrow	0	0	2	2	0						
PR-UBR7	Ogama	White-crowned Sparrow	0	0	2	0	0						
PR-UBR7	Ogama	American Tree Sparrow	0	0	1	0	0						
PR-UBR7	Ogama	Common Redpoll	1	0	0	0	0						
PR-UB4	TIA	White-crowned Sparrow	1	0	2	1	0						
PR-UB4	TIA	Common Redpoll	0	0	1	0	0						
PR-UB4	TIA	Savannah Sparrow	0	0	1	0	0						
PR-UB4	TIA	Hoary Redpoll*	0	0	1	0	2						
PR-UB4	TIA	American Tree Sparrow	0	0	1	0	0						
PR-UBR3	Ogama	Common Redpoll	0	0	0	0	1						
PR-UBR3	Ogama	Savannah Sparrow	0	0	2	1	0						
PR-UBR3	Ogama	American Tree Sparrow	1	0	0	0	0						
PR-UBR3	Ogama	Lapland Longspur	2	0	1	0	0						
PR-UBR3	Ogama	White-crowned Sparrow	1	0	1	1	0						
PR-UBR5	Ogama	White-crowned Sparrow	0	0	1	1	0						
PR-UBR5	Ogama	Savannah Sparrow	0	0	0	1	0						
PR-UBR5	Ogama	Lapland Longspur	2	0	0	1	0						
PR-UBR5	Ogama	Common Redpoll	1	0	1	0	3						
PR-UBR5	Ogama	American Tree Sparrow	0	0	2	0	0						
PR-UBR5	Ogama	Horned Lark	0	0	1	0	0						

Note:

* Indicates a species of conservation concern either federally or in Nunavut.

APPENDIX V REGIONAL SHORELINE SURVEY LOCATIONS AND HABITAT DATA, 2024

APPENDIX V: REGIONAL SHORELINE SURVEY LOCATIONS AND HABITAT DATA, 2024

Site ID	Site Type	Survey Date	Zone	Easting	Northing	Time Start	Time End	Temperature (°C)	Cloud Cover (%)	Wind Speed (km/hr)	Wind Direction	Light
WB001	Control	June 28, 2024	13W	427472	7550766	13:32	13:52	10	5	15	SW	Bright
WB002	Control	June 28, 2024	13W	425851	7552217	14:00	14:20	8	5	15	SW	Bright
WB006	Control	June 23, 2024	13W	435775	7562278	15:53	16:06	6	40	18	NW	Variable
WB012	Control	June 28, 2024	13W	428566	7547782	13:00	13:20	8	5	10	SW	Bright
WB014	Control	June 28, 2024	13W	441481	7549951	15:35	15:55	10	5	15	SW	Bright
WB015	Control	June 24, 2024	13W	439174	7555791	15:55	16:15	6	5	20	W	Bright
WB003	Impact	June 26, 2024	13W	433590	7558611	9:35	10:00	4	70	20	N	Variable
WB004	Impact	June 26, 2024	13W	434123	7559479	10:10	10:30	4	70	20	N	Variable
WB005	Impact	June 26, 2024	13W	432528	7550596	8:00	8:20	4	100	15	N	Flat
WB007	Impact	June 29, 2024	13W	431112	7561308	13:35	13:55	18	5	10	SW	Hazy
WB008	Impact	June 29, 2024	13W	430234	7559543	13:05	13:25	17	5	15	NW	Bright
WB011	Impact	June 26, 2024	13W	432737	7553647	8:55	9:20	4	100	15	N	Flat
WB009	Ladder	June 28, 2024	13W	436249	7548962	15:05	15:25	10	5	15	SW	Bright
WB010	Ladder	June 24, 2024	13W	437137	7553258	15:10	15:30	6	5	20	W	Bright
WB013	Ladder	June 28, 2024	13W	434774	7545420	14:33	14:53	10	5	15	SW	Bright

Site ID	Precipitation	Noise	Waterbody Type	Waterbody Size	Riparian Shrub (%)	Upland Shrub (%)	Grasses (%)	Bare Ground (%)	Lichen/Moss (%)	Water (%)
WB001	Nil	None	Lake	Large	0	5	5	15	5	70
WB002	Nil	None	Lake	Large	5	10	10	5	5	65
WB006	Nil	None	Lake	Large	5	10	35	5	5	40
WB012	Nil	None	Lake	Large	0	15	5	15	10	55
WB014	Nil	None	Pond, Lake	Large	10	10	15	20	10	35
WB015	Nil	Slight	Lake	Large	0	20	10	10	20	40
WB003	Nil	Moderate	Lake	Large	5	5	5	15	5	65
WB004	Nil	Slight	Lake	Large	15	25	10	15	10	25
WB005	Nil	None	Lake	Large	0	10	20	20	10	40
WB007	Nil	Slight	Lake, Pond	Medium	5	20	20	15	10	30
WB008	Nil	None	Lake	Large	5	10	5	20	5	55
WB011	Nil	None	Wetland, Pond	Medium	10	10	55	5	5	15
WB009	Nil	Slight	Lake	Large	5	20	20	5	15	35
WB010	Nil	Slight	Wetland, Lake	Medium	0	20	20	10	10	40
WB013	Nil	None	Lake	Medium	5	0	15	5	5	70

APPENDIX W REGIONAL SHORELINE SURVEY BIRD OBSERVATION DATA, 2024

APPENDIX W: REGIONAL SHORELINE SURVEY BIRD OBSERVATION DATA, 2024

Site ID	Site Type	Species Name	Total Male	Total Female	Total Unknown	Total Young	Total Birds Observed	Comments
WB001	Control	Cackling Goose	0	0	1	0	1	
WB001	Control	Cackling Goose	1	1	0	0	2	
WB002	Control	Red-breasted Merganser	2	2	0	0	4	
WB002	Control	Northern Pintail	1	0	0	0	1	
WB002	Control	Greater Scaup	1	0	0	0	1	
WB012	Control	Herring Gull	0	0	1	0	1	
WB012	Control	Long-tailed Duck	1	4	0	0	5	
WB014	Control	Northern Pintail	3	1	0	0	4	
WB014	Control	Red-breasted Merganser	1	0	0	0	1	
WB014	Control	Pacific Loon	0	0	1	0	1	
WB014	Control	Greater Scaup	2	0	0	0	2	
WB003	Impact	Red-throated Loon	0	0	1	0	1	
WB005	Impact	Cackling Goose	1	1	22	4	28	
WB005	Impact	Greater White-fronted Goose	0	1	0	6	7	
WB005	Impact	Long-tailed Duck	1	1	0	0	2	
WB007	Impact	Tundra Swan	1	0	0	3	4	
WB007	Impact	Pacific Loon	0	0	2	0	2	
WB008	Impact	Canada Goose	0	0	2	1	3	Pair with young
WB011	Impact	Sandhill Crane	0	0	4	0	4	
WB009	Ladder	Pacific Loon	0	0	1	0	1	
WB010	Ladder	Pacific Loon	1	1	0	0	2	Pair
WB013	Ladder	Northern Pintail	0	4	0	7	11	
WB013	Ladder	Pacific Loon	0	0	2	0	2	

APPENDIX X TAILINGS IMPOUNDMENT AREA SHORELINE SURVEY LOCATIONS AND HABITAT DATA, 2024

APPENDIX X: TAILINGS IMPOUNDMENT AREA SHORELINE SURVEY LOCATIONS AND HABITAT DATA, 2024

Site ID	Site Type	Survey Date	Zone	Easting	Northing	Time Start	Time End	Temperature (°C)	Cloud Cover (%)	Wind Speed (km/hr)	Wind Direction	Light
O-6	Control	June 24, 2024	13W	436448	7551344	14:00	14:20	7	5	20	W	Bright
Wbr1	Control	June 24, 2024	13W	435599	7555327	11:25	11:45	6	10	15	NW	Bright
WBR2	Control	June 24, 2024	13W	436092	7554641	10:45	11:05	6	10	20	NW	Bright
Wbr3	Control	June 24, 2024	13W	435826	7554001	12:15	12:35	6	15	20	W	Bright
Wbr4	Control	June 29, 2024	13W	436516	7553397	9:25	9:45	10	5	10	NE	Bright
WBR5A	Control	June 24, 2024	13W	4536158	7552707	13:25	13:45	6	10	20	W	Bright
WB1	Impact	June 20, 2024	13W	435459	7556152	14:55	15:15	5	100	5	N	Variable
WB2	Impact	June 26, 2024	13W	435735	7556748	11:05	11:25	4	60	25	N	Variable
WB3	Impact	June 24, 2024	13W	435385	7557181	10:40	11:00	5	100	5	N	Flat
WB6	Impact	June 24, 2024	13W	434712	7558150	14:45	15:05	7	5	15	W	Bright
WB7	Impact	June 26, 2024	13W	434622	7558995	10:35	10:55	4	70	25	N	Variable
WINDEP	Impact	June 20, 2024	13W	435234	7557984	11:02	11:22	4	100	2	N	Flat

Site ID	Precipitation	Noise	Waterbody Type	Waterbody Size	Riparian Shrub (%)	Upland Shrub (%)	Grasses (%)	Bare Ground (%)	Lichen/Moss (%)	Wetland (%)
O-6	Nil	None	Lake	Large	5	10	20	10	20	35
Wbr1	Nil	Slight	Lake	Large	5	15	25	15	15	25
WBR2	Nil	Slight	Lake	Large	0	10	15	5	10	60
Wbr3	Nil	None	Lake	Large	1	9	10	15	10	55
Wbr4	Nil	Slight	Lake	Large	5	15	15	5	10	50
WBR5A	Nil	Slight	Lake	Large	5	15	10	5	15	50
WB1	Nil	Slight	Lake	Large	0	10	15	10	15	50
WB2	Nil	Moderate	Lake	Large	0	20	20	10	10	40
WB3	Nil	Slight	Lake	Large	5	5	20	5	15	50
WB6	Nil	Slight	Wetland	Large	5	20	15	5	15	40
WB7	Nil	Slight	Lake	Large	5	20	20	10	10	35
WINDEP	Nil	Slight	Lake	Large	1	1	13	5	20	60

APPENDIX Y TAILINGS IMPOUNDMENT AREA SHORELINE SURVEY BIRD OBSERVATION DATA, 2024

APPENDIX Y: TAILINGS IMPOUNDMENT AREA SHORELINE SURVEY BIRD OBSERVATION DATA, 2024

Site ID	Site Type	Species Name	Total Male	Total Female	Total Unknown	Total Young	Total Birds
O-6	Control	Northern Pintail	0	1	0	0	1
Wbr1	Control	Canada Goose	0	0	1	0	1
Wbr1	Control	Greater Scaup	1	1	0	0	2
Wbr3	Control	Pacific Loon	0	0	2	0	2
Wbr4	Control	Red-throated Loon	0	0	1	0	1
WBR5A	Control	Red-throated Loon	0	0	1	0	1
WB1	Impact	Long-tailed Duck	3	2	0	0	5
WB3	Impact	Northern Pintail	2	0	0	0	2
WB3	Impact	Canada Goose	0	0	11	0	11
WB3	Impact	Long-tailed Duck	1	0	0	0	1
WB6	Impact	Canada Goose	0	0	17	0	17
WB7	Impact	Red-breasted Merganser	1	1	0	0	2
WINDEP	Impact	Greater White-fronted Goose	0	0	5	0	5
WINDEP	Impact	Pacific Loon	0	0	3	0	3
WINDEP	Impact	Long-tailed Duck	1	2	0	0	3

APPENDIX Z WATER QUALITY RESULTS AT THE TAILINGS IMPOUNDMENT AREA WITH GUIDELINES RELEVANT TO WILDLIFE, 2024

APPENDIX Z: WATER QUALITY RESULTS AT THE TAILINGS IMPOUNDMENT AREA WITH GUIDELINES RELEVANT TO WILDLIFE, 2024

Parameter	Sample Point	Date	Data Point (mg/L)	CCME Water Quality Criteria—Livestock[1] (mg/L)
Arsenic (As), Total	TL1	January 2, 2024	0.0020600	0.025
Arsenic (As), Total	TL1	January 9, 2024	0.0020900	0.025
Arsenic (As), Total	TL1	January 16, 2024	0.0022000	0.025
Arsenic (As), Total	TL1	January 23, 2024	0.0024200	0.025
Arsenic (As), Total	TL1	January 23, 2024	0.0021800	0.025
Arsenic (As), Total	TL1	January 23, 2024	0.0001000	0.025
Arsenic (As), Total	TL1	January 30, 2024	0.0023700	0.025
Arsenic (As), Total	TL1	February 6, 2024	0.0020100	0.025
Arsenic (As), Total	TL1	February 13, 2024	0.0023200	0.025
Arsenic (As), Total	TL1	February 20, 2024	0.0021400	0.025
Arsenic (As), Total	TL1	March 5, 2024	0.0021100	0.025
Arsenic (As), Total	TL1	March 5, 2024	0.0022000	0.025
Arsenic (As), Total	TL1	March 19, 2024	0.0020600	0.025
Arsenic (As), Total	TL1	March 26, 2024	0.0022600	0.025
Arsenic (As), Total	TL1	April 2, 2024	0.0020100	0.025
Arsenic (As), Total	TL1	April 9, 2024	0.0021000	0.025
Arsenic (As), Total	TL1	April 16, 2024	0.0021100	0.025
Arsenic (As), Total	TL1	April 23, 2024	0.0022400	0.025
Arsenic (As), Total	TL1	April 30, 2024	0.0020300	0.025
Arsenic (As), Total	TL1	May 7, 2024	0.0021500	0.025
Arsenic (As), Total	TL1	May 14, 2024	0.0021500	0.025
Arsenic (As), Total	TL1	May 21, 2024	0.0021300	0.025
Arsenic (As), Total	TL1	May 28, 2024	0.0022300	0.025
Arsenic (As), Total	TL1	June 4, 2024	0.0023100	0.025
Arsenic (As), Total	TL1	June 11, 2024	0.0021700	0.025
Arsenic (As), Total	TL1	June 18, 2024	0.0020500	0.025
Arsenic (As), Total	TL1	June 25, 2024	0.0021600	0.025
Arsenic (As), Total	TL1	July 2, 2024	0.0022700	0.025

Parameter	Sample Point	Date	Data Point (mg/L)	CCME Water Quality Criteria—Livestock[1] (mg/L)
Arsenic (As), Total	TL1	July 9, 2024	0.0021200	0.025
Arsenic (As), Total	TL1	July 16, 2024	0.0021200	0.025
Arsenic (As), Total	TL1	July 23, 2024	0.0020400	0.025
Arsenic (As), Total	TL1	August 6, 2024	0.0023000	0.025
Arsenic (As), Total	TL1	August 13, 2024	0.0027500	0.025
Arsenic (As), Total	TL1	August 27, 2024	0.0023100	0.025
Arsenic (As), Total	TL1	September 3, 2024	0.0023200	0.025
Arsenic (As), Total	TL1	September 10, 2024	0.0024200	0.025
Arsenic (As), Total	TL1	September 17, 2024	0.0024100	0.025
Arsenic (As), Total	TL1	September 24, 2024	0.0026300	0.025
Arsenic (As), Total	TL1	October 1, 2024	0.0024600	0.025
Arsenic (As), Total	TL1	October 8, 2024	0.0028200	0.025
Arsenic (As), Total	TL1	October 15, 2024	0.0028200	0.025
Arsenic (As), Total	TL1	October 22, 2024	0.0023900	0.025
Arsenic (As), Total	TL1	October 22, 2024	0.0024100	0.025
Arsenic (As), Total	TL1	October 29, 2024	0.0023700	0.025
Arsenic (As), Total	TL1	November 26, 2024	0.0023800	0.025
Arsenic (As), Total	TL1	November 26, 2024	0.0023200	0.025
Arsenic (As), Total	TL1	December 3, 2024	0.0023000	0.025
Arsenic (As), Total	TL1	December 3, 2024	0.0020800	0.025
Arsenic (As), Total	TL1	December 10, 2024	0.0024000	0.025
Arsenic (As), Total	TL1	December 17, 2024	0.0022400	0.025
Cadmium (Cd), Total	TL1	January 2, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	January 9, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	January 16, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	January 23, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	January 23, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	January 23, 2024	0.0000050	0.08
Cadmium (Cd), Total	TL1	January 30, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	February 6, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	February 13, 2024	0.0000304	0.08
Cadmium (Cd), Total	TL1	February 20, 2024	0.0000250	0.08

Parameter	Sample Point	Date	Data Point (mg/L)	CCME Water Quality Criteria—Livestock[1] (mg/L)
Cadmium (Cd), Total	TL1	March 5, 2024	0.0000278	0.08
Cadmium (Cd), Total	TL1	March 12, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	March 19, 2024	0.0000318	0.08
Cadmium (Cd), Total	TL1	March 26, 2024	0.0000271	0.08
Cadmium (Cd), Total	TL1	April 2, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	April 9, 2024	0.0000336	0.08
Cadmium (Cd), Total	TL1	April 16, 2024	0.0000260	0.08
Cadmium (Cd), Total	TL1	April 23, 2024	0.0000318	0.08
Cadmium (Cd), Total	TL1	April 30, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	May 7, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	May 14, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	May 21, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	May 28, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	June 4, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	June 11, 2024	0.0000316	0.08
Cadmium (Cd), Total	TL1	June 18, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	June 25, 2024	0.0000266	0.08
Cadmium (Cd), Total	TL1	July 2, 2024	0.0000500	0.08
Cadmium (Cd), Total	TL1	July 9, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	July 16, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	July 23, 2024	0.0000338	0.08
Cadmium (Cd), Total	TL1	August 6, 2024	0.0000252	0.08
Cadmium (Cd), Total	TL1	August 13, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	August 27, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	September 3, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	September 10, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	September 17, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	September 24, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	October 1, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	October 8, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	October 15, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	October 22, 2024	0.0000250	0.08

Parameter	Sample Point	Date	Data Point (mg/L)	CCME Water Quality Criteria—Livestock[1] (mg/L)
Cadmium (Cd), Total	TL1	October 22, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	October 29, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	November 26, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	November 26, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	December 3, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	December 3, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	December 10, 2024	0.0000250	0.08
Cadmium (Cd), Total	TL1	December 17, 2024	0.0000250	0.08
Copper (Cu), Total	TL1	January 2, 2024	0.0138000	5[2]
Copper (Cu), Total	TL1	January 9, 2024	0.0137000	5[2]
Copper (Cu), Total	TL1	January 16, 2024	0.0139000	5[2]
Copper (Cu), Total	TL1	January 23, 2024	0.0153000	5[2]
Copper (Cu), Total	TL1	January 23, 2024	0.0139000	5[2]
Copper (Cu), Total	TL1	January 23, 2024	0.0005000	5[2]
Copper (Cu), Total	TL1	January 30, 2024	0.0168000	5[2]
Copper (Cu), Total	TL1	February 6, 2024	0.0160000	5[2]
Copper (Cu), Total	TL1	February 13, 2024	0.0151000	5[2]
Copper (Cu), Total	TL1	February 20, 2024	0.0162000	5[2]
Copper (Cu), Total	TL1	March 5, 2024	0.0182000	5[2]
Copper (Cu), Total	TL1	March 12, 2024	0.0149000	5[2]
Copper (Cu), Total	TL1	March 19, 2024	0.0145000	5[2]
Copper (Cu), Total	TL1	March 26, 2024	0.0158000	5[2]
Copper (Cu), Total	TL1	April 2, 2024	0.0311000	5[2]
Copper (Cu), Total	TL1	April 9, 2024	0.0151000	5[2]
Copper (Cu), Total	TL1	April 16, 2024	0.0151000	5[2]
Copper (Cu), Total	TL1	April 23, 2024	0.0153000	5[2]
Copper (Cu), Total	TL1	April 30, 2024	0.0162000	5[2]
Copper (Cu), Total	TL1	May 7, 2024	0.0324000	5[2]
Copper (Cu), Total	TL1	May 14, 2024	0.0202000	5[2]
Copper (Cu), Total	TL1	May 21, 2024	0.0163000	5[2]
Copper (Cu), Total	TL1	May 28, 2024	0.0168000	5[2]
Copper (Cu), Total	TL1	June 4, 2024	0.0176000	5[2]

Parameter	Sample Point	Date	Data Point (mg/L)	CCME Water Quality Criteria—Livestock[1] (mg/L)
Copper (Cu), Total	TL1	June 11, 2024	0.0169000	5[2]
Copper (Cu), Total	TL1	June 18, 2024	0.0186000	5[2]
Copper (Cu), Total	TL1	June 25, 2024	0.0176000	5[2]
Copper (Cu), Total	TL1	July 2, 2024	0.0157000	5[2]
Copper (Cu), Total	TL1	July 9, 2024	0.0173000	5[2]
Copper (Cu), Total	TL1	July 16, 2024	0.0181000	5[2]
Copper (Cu), Total	TL1	July 23, 2024	0.0154000	5[2]
Copper (Cu), Total	TL1	August 6, 2024	0.0150000	5[2]
Copper (Cu), Total	TL1	August 13, 2024	0.0123000	5[2]
Copper (Cu), Total	TL1	August 27, 2024	0.0119000	5[2]
Copper (Cu), Total	TL1	September 3, 2024	0.0124000	5[2]
Copper (Cu), Total	TL1	September 10, 2024	0.0128000	5[2]
Copper (Cu), Total	TL1	September 17, 2024	0.0124000	5[2]
Copper (Cu), Total	TL1	September 24, 2024	0.0135000	5[2]
Copper (Cu), Total	TL1	October 1, 2024	0.0124000	5[2]
Copper (Cu), Total	TL1	October 8, 2024	0.0156000	5[2]
Copper (Cu), Total	TL1	October 15, 2024	0.0132000	5[2]
Copper (Cu), Total	TL1	October 22, 2024	0.0126000	5[2]
Copper (Cu), Total	TL1	October 22, 2024	0.0131000	5[2]
Copper (Cu), Total	TL1	October 29, 2024	0.0130000	5[2]
Copper (Cu), Total	TL1	November 26, 2024	0.0110000	5[2]
Copper (Cu), Total	TL1	November 26, 2024	0.0113000	5[2]
Copper (Cu), Total	TL1	December 3, 2024	0.0111000	5[2]
Copper (Cu), Total	TL1	December 3, 2024	0.0105000	5[2]
Copper (Cu), Total	TL1	December 10, 2024	0.0110000	5[2]
Copper (Cu), Total	TL1	December 17, 2024	0.0107000	5[2]
Lead (Pb), Total	TL1	January 2, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	January 9, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	January 16, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	January 23, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	January 23, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	January 23, 2024	0.0000500	0.1

Parameter	Sample Point	Date	Data Point (mg/L)	CCME Water Quality Criteria—Livestock[1] (mg/L)
Lead (Pb), Total	TL1	January 30, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	February 6, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	February 13, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	February 20, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	March 5, 2024	0.0003210	0.1
Lead (Pb), Total	TL1	March 12, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	March 19, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	March 26, 2024	0.0005370	0.1
Lead (Pb), Total	TL1	April 2, 2024	0.0005500	0.1
Lead (Pb), Total	TL1	April 9, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	April 16, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	April 23, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	April 30, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	May 7, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	May 14, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	May 21, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	May 28, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	June 4, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	June 11, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	June 18, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	June 25, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	July 2, 2024	0.0005000	0.1
Lead (Pb), Total	TL1	July 9, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	July 16, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	July 23, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	August 6, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	August 13, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	August 27, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	September 3, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	September 10, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	September 17, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	September 24, 2024	0.0002500	0.1

Parameter	Sample Point	Date	Data Point (mg/L)	CCME Water Quality Criteria—Livestock[1] (mg/L)
Lead (Pb), Total	TL1	October 1, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	October 8, 2024	0.0003310	0.1
Lead (Pb), Total	TL1	October 15, 2024	0.0002770	0.1
Lead (Pb), Total	TL1	October 22, 2024	0.0003030	0.1
Lead (Pb), Total	TL1	October 22, 2024	0.0003330	0.1
Lead (Pb), Total	TL1	October 29, 2024	0.0003910	0.1
Lead (Pb), Total	TL1	November 26, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	November 26, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	December 3, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	December 3, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	December 10, 2024	0.0002500	0.1
Lead (Pb), Total	TL1	December 17, 2024	0.0002500	0.1
Mercury (Hg), Total	TL1	January 2, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	January 9, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	January 16, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	January 23, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	January 23, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	January 23, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	January 30, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	February 6, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	February 13, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	February 20, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	March 5, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	March 12, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	March 19, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	March 26, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	April 2, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	April 9, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	April 16, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	April 23, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	April 30, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	May 7, 2024	0.0000050	0.003

Parameter	Sample Point	Date	Data Point (mg/L)	CCME Water Quality Criteria—Livestock[1] (mg/L)
Mercury (Hg), Total	TL1	May 14, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	May 21, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	May 28, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	June 4, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	June 11, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	June 18, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	June 25, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	July 2, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	July 9, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	July 16, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	July 23, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	August 6, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	August 13, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	August 27, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	September 3, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	September 10, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	September 17, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	September 24, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	October 1, 2024	0.0000061	0.003
Mercury (Hg), Total	TL1	October 8, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	October 15, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	October 22, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	October 22, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	October 29, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	November 26, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	November 26, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	December 3, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	December 3, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	December 10, 2024	0.0000050	0.003
Mercury (Hg), Total	TL1	December 17, 2024	0.0000050	0.003
Nickel (Ni), Total	TL1	January 2, 2024	0.0075400	1
Nickel (Ni), Total	TL1	January 9, 2024	0.0078700	1

Parameter	Sample Point	Date	Data Point (mg/L)	CCME Water Quality Criteria—Livestock[1] (mg/L)
Nickel (Ni), Total	TL1	January 16, 2024	0.0081100	1
Nickel (Ni), Total	TL1	January 23, 2024	0.0083000	1
Nickel (Ni), Total	TL1	January 23, 2024	0.0077000	1
Nickel (Ni), Total	TL1	January 23, 2024	0.0005000	1
Nickel (Ni), Total	TL1	January 30, 2024	0.0184000	1
Nickel (Ni), Total	TL1	February 6, 2024	0.0142000	1
Nickel (Ni), Total	TL1	February 13, 2024	0.0083900	1
Nickel (Ni), Total	TL1	February 20, 2024	0.0115000	1
Nickel (Ni), Total	TL1	March 5, 2024	0.0165000	1
Nickel (Ni), Total	TL1	March 12, 2024	0.0079400	1
Nickel (Ni), Total	TL1	March 19, 2024	0.0077100	1
Nickel (Ni), Total	TL1	March 26, 2024	0.0082600	1
Nickel (Ni), Total	TL1	April 2, 2024	0.0124000	1
Nickel (Ni), Total	TL1	April 9, 2024	0.0075900	1
Nickel (Ni), Total	TL1	April 16, 2024	0.0078600	1
Nickel (Ni), Total	TL1	April 23, 2024	0.0079300	1
Nickel (Ni), Total	TL1	April 30, 2024	0.0093400	1
Nickel (Ni), Total	TL1	May 7, 2024	0.0120000	1
Nickel (Ni), Total	TL1	May 14, 2024	0.0088800	1
Nickel (Ni), Total	TL1	May 21, 2024	0.0083700	1
Nickel (Ni), Total	TL1	May 28, 2024	0.0080500	1
Nickel (Ni), Total	TL1	June 4, 2024	0.0092600	1
Nickel (Ni), Total	TL1	June 11, 2024	0.0086800	1
Nickel (Ni), Total	TL1	June 18, 2024	0.0125000	1
Nickel (Ni), Total	TL1	June 25, 2024	0.0083800	1
Nickel (Ni), Total	TL1	July 2, 2024	0.0082400	1
Nickel (Ni), Total	TL1	July 9, 2024	0.0085600	1
Nickel (Ni), Total	TL1	July 16, 2024	0.0075700	1
Nickel (Ni), Total	TL1	July 23, 2024	0.0084700	1
Nickel (Ni), Total	TL1	August 6, 2024	0.0083900	1
Nickel (Ni), Total	TL1	August 13, 2024	0.0069000	1
Nickel (Ni), Total	TL1	August 27, 2024	0.0058600	1

Parameter	Sample Point	Date	Data Point (mg/L)	CCME Water Quality Criteria—Livestock[1] (mg/L)
Nickel (Ni), Total	TL1	September 3, 2024	0.0059000	1
Nickel (Ni), Total	TL1	September 10, 2024	0.0057700	1
Nickel (Ni), Total	TL1	September 17, 2024	0.0060600	1
Nickel (Ni), Total	TL1	September 24, 2024	0.0061300	1
Nickel (Ni), Total	TL1	October 1, 2024	0.0069600	1
Nickel (Ni), Total	TL1	October 8, 2024	0.0065600	1
Nickel (Ni), Total	TL1	October 15, 2024	0.0063300	1
Nickel (Ni), Total	TL1	October 22, 2024	0.0058600	1
Nickel (Ni), Total	TL1	October 22, 2024	0.0057000	1
Nickel (Ni), Total	TL1	October 29, 2024	0.0607000	1
Nickel (Ni), Total	TL1	November 26, 2024	0.0056600	1
Nickel (Ni), Total	TL1	November 26, 2024	0.0058500	1
Nickel (Ni), Total	TL1	December 3, 2024	0.0057100	1
Nickel (Ni), Total	TL1	December 3, 2024	0.0056200	1
Nickel (Ni), Total	TL1	December 10, 2024	0.0057000	1
Nickel (Ni), Total	TL1	December 17, 2024	0.0059400	1
Selenium (Se), Total	TL1	January 2, 2024	0.0002730	0.05
Selenium (Se), Total	TL1	January 9, 2024	0.0003550	0.05
Selenium (Se), Total	TL1	January 16, 2024	0.0002990	0.05
Selenium (Se), Total	TL1	January 23, 2024	0.0002500	0.05
Selenium (Se), Total	TL1	January 23, 2024	0.0002640	0.05
Selenium (Se), Total	TL1	January 23, 2024	0.0000500	0.05
Selenium (Se), Total	TL1	January 30, 2024	0.0002500	0.05
Selenium (Se), Total	TL1	February 6, 2024	0.0004740	0.05
Selenium (Se), Total	TL1	February 13, 2024	0.0003880	0.05
Selenium (Se), Total	TL1	February 20, 2024	0.0002940	0.05
Selenium (Se), Total	TL1	March 5, 2024	0.0003280	0.05
Selenium (Se), Total	TL1	March 12, 2024	0.0002830	0.05
Selenium (Se), Total	TL1	March 19, 2024	0.0002940	0.05
Selenium (Se), Total	TL1	March 26, 2024	0.0002500	0.05
Selenium (Se), Total	TL1	April 2, 2024	0.0003420	0.05
Selenium (Se), Total	TL1	April 9, 2024	0.0002720	0.05

Parameter	Sample Point	Date	Data Point (mg/L)	CCME Water Quality Criteria—Livestock[1] (mg/L)
Selenium (Se), Total	TL1	April 16, 2024	0.0002500	0.05
Selenium (Se), Total	TL1	April 23, 2024	0.0002580	0.05
Selenium (Se), Total	TL1	April 30, 2024	0.0002600	0.05
Selenium (Se), Total	TL1	May 7, 2024	0.0003820	0.05
Selenium (Se), Total	TL1	May 14, 2024	0.0003010	0.05
Selenium (Se), Total	TL1	May 21, 2024	0.0003510	0.05
Selenium (Se), Total	TL1	May 28, 2024	0.0003380	0.05
Selenium (Se), Total	TL1	June 4, 2024	0.0003720	0.05
Selenium (Se), Total	TL1	June 11, 2024	0.0003820	0.05
Selenium (Se), Total	TL1	June 18, 2024	0.0002720	0.05
Selenium (Se), Total	TL1	June 25, 2024	0.0003010	0.05
Selenium (Se), Total	TL1	July 2, 2024	0.0005000	0.05
Selenium (Se), Total	TL1	July 9, 2024	0.0003570	0.05
Selenium (Se), Total	TL1	July 16, 2024	0.0002500	0.05
Selenium (Se), Total	TL1	July 23, 2024	0.0003110	0.05
Selenium (Se), Total	TL1	August 6, 2024	0.0007680	0.05
Selenium (Se), Total	TL1	August 13, 2024	0.0002500	0.05
Selenium (Se), Total	TL1	August 27, 2024	0.0002500	0.05
Selenium (Se), Total	TL1	September 3, 2024	0.0002530	0.05
Selenium (Se), Total	TL1	September 10, 2024	0.0007140	0.05
Selenium (Se), Total	TL1	September 17, 2024	0.0002660	0.05
Selenium (Se), Total	TL1	September 24, 2024	0.0002500	0.05
Selenium (Se), Total	TL1	October 1, 2024	0.0002940	0.05
Selenium (Se), Total	TL1	October 8, 2024	0.0003300	0.05
Selenium (Se), Total	TL1	October 15, 2024	0.0002500	0.05
Selenium (Se), Total	TL1	October 22, 2024	0.0002830	0.05
Selenium (Se), Total	TL1	October 22, 2024	0.0002500	0.05
Selenium (Se), Total	TL1	October 29, 2024	0.0003310	0.05
Selenium (Se), Total	TL1	November 26, 2024	0.0002500	0.05
Selenium (Se), Total	TL1	November 26, 2024	0.0002860	0.05
Selenium (Se), Total	TL1	December 3, 2024	0.0002500	0.05
Selenium (Se), Total	TL1	December 3, 2024	0.0002500	0.05

Parameter	Sample Point	Date	Data Point (mg/L)	CCME Water Quality Criteria—Livestock[1] (mg/L)
Selenium (Se), Total	TL1	December 10, 2024	0.0002700	0.05
Selenium (Se), Total	TL1	December 17, 2024	0.0002500	0.05
Zinc (Zn), Total	TL1	January 2, 2024	0.0150000	50
Zinc (Zn), Total	TL1	January 9, 2024	0.0150000	50
Zinc (Zn), Total	TL1	January 16, 2024	0.0150000	50
Zinc (Zn), Total	TL1	January 23, 2024	0.0150000	50
Zinc (Zn), Total	TL1	January 23, 2024	0.0150000	50
Zinc (Zn), Total	TL1	January 23, 2024	0.0030000	50
Zinc (Zn), Total	TL1	January 30, 2024	0.0150000	50
Zinc (Zn), Total	TL1	February 6, 2024	0.0150000	50
Zinc (Zn), Total	TL1	February 13, 2024	0.0150000	50
Zinc (Zn), Total	TL1	February 20, 2024	0.0150000	50
Zinc (Zn), Total	TL1	March 5, 2024	0.0150000	50
Zinc (Zn), Total	TL1	March 12, 2024	0.0150000	50
Zinc (Zn), Total	TL1	March 19, 2024	0.0150000	50
Zinc (Zn), Total	TL1	March 26, 2024	0.0150000	50
Zinc (Zn), Total	TL1	April 2, 2024	0.0150000	50
Zinc (Zn), Total	TL1	April 9, 2024	0.0150000	50
Zinc (Zn), Total	TL1	April 16, 2024	0.0150000	50
Zinc (Zn), Total	TL1	April 23, 2024	0.0150000	50
Zinc (Zn), Total	TL1	April 30, 2024	0.0150000	50
Zinc (Zn), Total	TL1	May 7, 2024	0.0150000	50
Zinc (Zn), Total	TL1	May 14, 2024	0.0150000	50
Zinc (Zn), Total	TL1	May 21, 2024	0.0150000	50
Zinc (Zn), Total	TL1	May 28, 2024	0.0150000	50
Zinc (Zn), Total	TL1	June 4, 2024	0.0150000	50
Zinc (Zn), Total	TL1	June 11, 2024	0.0150000	50
Zinc (Zn), Total	TL1	June 18, 2024	0.0150000	50
Zinc (Zn), Total	TL1	June 25, 2024	0.0150000	50
Zinc (Zn), Total	TL1	July 2, 2024	0.0300000	50
Zinc (Zn), Total	TL1	July 9, 2024	0.0150000	50
Zinc (Zn), Total	TL1	July 16, 2024	0.0150000	50

Parameter	Sample Point	Date	Data Point (mg/L)	CCME Water Quality Criteria—Livestock[1] (mg/L)
Zinc (Zn), Total	TL1	July 23, 2024	0.0150000	50
Zinc (Zn), Total	TL1	August 6, 2024	0.0259000	50
Zinc (Zn), Total	TL1	August 13, 2024	0.0150000	50
Zinc (Zn), Total	TL1	August 27, 2024	0.0150000	50
Zinc (Zn), Total	TL1	September 3, 2024	0.0150000	50
Zinc (Zn), Total	TL1	September 10, 2024	0.0150000	50
Zinc (Zn), Total	TL1	September 17, 2024	0.0150000	50
Zinc (Zn), Total	TL1	September 24, 2024	0.0150000	50
Zinc (Zn), Total	TL1	October 1, 2024	0.0150000	50
Zinc (Zn), Total	TL1	October 8, 2024	0.0150000	50
Zinc (Zn), Total	TL1	October 15, 2024	0.0150000	50
Zinc (Zn), Total	TL1	October 22, 2024	0.0150000	50
Zinc (Zn), Total	TL1	October 22, 2024	0.0150000	50
Zinc (Zn), Total	TL1	October 29, 2024	0.0150000	50
Zinc (Zn), Total	TL1	November 26, 2024	0.0150000	50
Zinc (Zn), Total	TL1	November 26, 2024	0.0150000	50
Zinc (Zn), Total	TL1	December 3, 2024	0.0150000	50
Zinc (Zn), Total	TL1	December 3, 2024	0.0150000	50
Zinc (Zn), Total	TL1	December 10, 2024	0.0150000	50
Zinc (Zn), Total	TL1	December 17, 2024	0.0150000	50

Notes:

[1] Canadian Council of Ministers of the Environment (CCME) Water Quality Guidelines for the Protection of Agriculture—Livestock (CCME 2021).

[2] Guideline is variable and 5 mg/L for poultry was used from the CCREM's 1987 (updated in 2008) Canadian Water Quality Guidelines.

APPENDIX AA MARINE MAMMAL MONITORING IN ROBERTS BAY, 2024

APPENDIX AA: MARINE MAMMAL MONITORING IN ROBERTS BAY, 2024

Survey Date	Survey Location	Anchored Vessel	# of Moving Vessels	Time of Sighting	Species	Count	Age	Sex	Behaviour	Behaviour Changes?	Comments
September 1, 2024	730 Building	None	0	No observations							
September 2, 2024	730 Building	None	0	No observations							
September 3, 2024	730 Building	None	0	No observations							
September 4, 2024	730 Building	None	0	No observations							
September 5, 2024	730 Building	None	0	No observations							
September 6, 2024	730 Building	None	0	No observations							
September 7, 2024	Jetty	None	0	No observations							
September 8, 2024	730 Building	None	0	No observations							
September 9, 2024	730 Building	None	0	No observations							
September 10, 2024	730 Building	MW Qikiqtaaluk W, MW Mitiq	0	No observations							
September 11, 2024	730 Building	MW Qikiqtaaluk W, MW Mitiq	0	No observations							
September 12, 2024	730 Building	MW Qikiqtaaluk W, MW Mitiq	1	No observations							
September 13, 2024	730 Building	MW Qikiqtaaluk W, MW Mitiq	1	6:40	Ringed seal	1	Adult	UNK	Resting on rock	No	Changed position on rock; remains beyond survey time
September 14, 2024	730 Building	MW Qikiqtaaluk W, MW Mitiq	1	No observations							
September 15, 2024	730 Building	MW Qikiqtaaluk W, MW Mitiq	1	No observations							
September 16, 2024	730 Building	MW Qikiqtaaluk W, MW Mitiq	2	No observations							
September 17, 2024	730 Building	MW Qikiqtaaluk W, MW Mitiq	1	No observations							
September 18, 2024	730 Building	MW Qikiqtaaluk W, MW Mitiq	2	No observations							
September 19, 2024	730 Building	NSSI Cargo Vessel—MV Nordika	0	No observations							
September 20, 2024	730 Building	NSSI Cargo Vessel—MV Nordika	0	No observations							
September 21, 2024	730 Building	NSSI Cargo Vessel—MV Nordika	0	No observations							
September 22, 2024	730 Building	NSSI Cargo Vessel—MV Nordika	2	No observations							
September 23, 2024	730 Building	NSSI Cargo Vessel—MV Nordika	2	No observations							

Survey Date	Survey Location	Anchored Vessel	# of Moving Vessels	Time of Sighting	Species	Count	Age	Sex	Behaviour	Behaviour Changes?	Comments
September 24, 2024	730 Building	NSSI Cargo Vessel—MV Nordika	2	No observations							
September 25, 2024	730 Building	NSSI Cargo Vessel—MV Nordika	0	No observations							
September 26, 2024	730 Building	NSSI Cargo Vessel—MV Nordika	0	No observations							
September 27, 2024	Jetty	NSSI Cargo Vessel—MV Nordika	0	No observations							
September 28, 2024	Jetty	NSSI Cargo Vessel—MV Nordika	0	No observations							
September 29, 2024	Jetty	None	0	No observations							
September 30, 2024	Jetty	None	0	No observations							
September 30, 2024	Jetty	None	0	No observations							
October 1, 2024	Jetty	None	0	No observations							
October 2, 2024	Jetty	None	0	No observations							

APPENDIX AB SUMMARY OF THE AT SEA VESSEL WILDLIFE SIGHTINGS LOG AND INCIDENTAL SIGHTINGS, 2024

APPENDIX AB: SUMMARY OF THE AT SEA VESSEL WILDLIFE SIGHTINGS LOG AND INCIDENTAL SIGHTINGS, 2024

Vessel Name	Date	Time	Ship Speed (kt)	Species	Distance from Vessel (m)	Number of Individuals	Behaviour	Notes	Ship Strike?	Mitigation Action and Result
Mitiq	September 7, 2024	5:13	13.6	Northern fulmar	15	1	Flying	N/A	No	N/A
Mitiq	September 8, 2024	13:26	11.9	Bearded seal	300	15	Swimming	N/A	No	Altered course to starboard. Successful in providing >500 m buffer to species.
Mitiq	September 9, 2024	20:15	142	Glaucous gull	40	30	Resting on ocean surfaces	N/A		
Mitiq	September 10, 2024	9:20	At anchor	Iceland gull	75	2	Flying	N/A	No	N/A
Mitiq	September 11, 2024	9:45	At anchor	Unidentified bird	15	1	Flying	N/A	No	N/A
Mitiq	September 12, 2024	11:00	At anchor	Glaucous gull	20	1	Flying	N/A		
Mitiq	September 13, 2024	19:05	At anchor	Herring gull	25	1	Flying	N/A	No	N/A
Mitiq	September 14, 2024	17:00	At anchor	No observations						
Mitiq	September 15, 2024	20:00	At anchor	No observations						
Mitiq	September 16, 2024	20:00	At anchor	No observations						
Mitiq	September 17, 2024	20:00	At anchor	No observations						
Mitiq	September 18, 2024	20:00	At anchor	No observations						
Mitiq	September 19, 2024	14:30	11.6	Unidentified bird	600	3	Flying	N/A	No	N/A
Mitiq	September 20, 2024	7:30	150	Northern fulmar	15	1	Flying	N/A	No	N/A
Mitiq	September 21, 2024	20:00	At anchor	No observations						
Mitiq	September 22, 2024	16:30	13	Northern fulmar	20	1	Flying	N/A	No	N/A
Mitiq	September 23, 2024	20:00	At anchor	No observations						
Mitiq	September 24, 2024	20:00	At anchor	No observations						
Mitiq	September 25, 2024	20:00	At anchor	No observations						
Mitiq	September 26, 2024	17:50	15	Razorbill	20	3	Flying	N/A	No	N/A
Nordika Desgagnes	October 1, 2024	18:05	13.5	No observations						
Nordika Desgagnes	October 1, 2024	18:11	13.5	Unidentified gull		1	Rafting		No	N/A
Nordika Desgagnes	October 1, 2024	18:17	13.5	Northern fulmar		2	Flying	Brownish	No	N/A
Nordika Desgagnes	October 1, 2024	18:23	13.5	No observations						
Nordika Desgagnes	October 1, 2024	18:29	13.5	Northern fulmar		1	Flying	Brownish	No	N/A

Vessel Name	Date	Time	Ship Speed (kt)	Species	Distance from Vessel (m)	Number of Individuals	Behaviour	Notes	Ship Strike?	Mitigation Action and Result
Nordika Desgagnes	October 1, 2024	18:35	13.5				No observations			
Nordika Desgagnes	October 1, 2024	16:00	13.5				No observations			
Nordika Desgagnes	September 17, 2024	18:10	13				No observations			
Nordika Desgagnes	September 17, 2024	18:20	13	Unidentified bird	100	6	In water	N/A	No	N/A
Nordika Desgagnes	September 17, 2024	18:20	13	Northern fulmar		3	In water	Swimming	No	N/A
Nordika Desgagnes	September 17, 2024	18:30	13				No observations			
Nordika Desgagnes	September 17, 2024	18:40	13				No observations			
Nordika Desgagnes	September 17, 2024	18:50	13				No observations			
Nordika Desgagnes	September 17, 2024	19:00	13				No observations			
Nordika Desgagnes	September 17, 2024	12:10	13	Unidentified seal	100	1	Travel	Swimming; dove twice	No	N/A
Nordika Desgagnes	September 17, 2024	12:30	13	Narwhales	200	8	Travel	Swimming, breathing, and diving	No	N/A
Nordika Desgagnes	September 17, 2024	12:45	13	Unidentified seal	150	6	Travel	Swimming and diving	No	N/A
Nordika Desgagnes	September 30, 2024	16:00	14				No observations			
Qikiqtaaluk	September 1, 2024	12:00	9				No observations			
Qikiqtaaluk	September 7, 2024	12:00	12				No observations			
Qikiqtaaluk	August 8, 2024	15:25	16	Muskox	200	1	Feeding	N/A	N/A	N/A
Qikiqtaaluk	September 8, 2024	10:50	11.3				No observations			
Qikiqtaaluk	September 8, 2024	12:00	11.5				No observations			
Qikiqtaaluk	September 9, 2024	10:12	11				No observations			
Qikiqtaaluk	August 10, 2024	23:59	Unknown				No observations			
Qikiqtaaluk	August 20, 2024	14:00	10				No observations			
Qikiqtaaluk	August 21, 2024	12:00	12				No observations			
Qikiqtaaluk	August 22, 2024	12:00	11				No observations			

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