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Building *Nunavut* Together
Nunavut liuqatigiingniq
Bâtir le *Nunavut* ensemble

June 8, 2023

Guillaume Daoust
Technical Advisor II
Nunavut Impact Review Board
P.O. Box 1360
Cambridge Bay, NU X0B 0C0

Sent VIA Email: info@nirb.ca

RE: NIRB File No: 12MN036 Comment request for Sabina Gold and Silver Corp's Back River Project 2022 Annual Report

Dear Guillaume Daoust,

The Government of Nunavut (GN) would like to thank the Nunavut Impact Review Board (NIRB) for the opportunity to review and comment on the 2022 Annual Report for B2Gold Corporation's Back River Project (formerly owned by Sabina Gold and Silver Corp.).

The GN has reviewed the Back River Project 2022 Annual Report and provides comments below (see Appendix A). Should you have any questions, please do not hesitate to contact Dianne Lapierre by email at dlapierre1@gov.nu.ca.

Qujannamiik,

Dianne Lapierre
Avatiliriniq Coordinator

On behalf of
David Kunuk, Deputy Minister
Economic Development and Transportation
Government of Nunavut

Appendix A:

Government of Nunavut Comments on the Back River 2022 Annual Report

| GN AR # 01 | |
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| Department | Environment |
| Organization | Government of Nunavut |
| Subject/Topic | Project Outside of Calving Area |
| Terms and Conditions | Project Certificate T&Cs #38, 41, 42, 52 |
| References | <ul style="list-style-type: none"> Sabina 2022 Annual Report Appendix G. 2022 Pre-Construction Wildlife Mitigation and Monitoring Program Report NIRB Project Certificate No. 007 |
| IDENTIFICATION OF ISSUE | |
| <p>The use of incidental observations and selected seasonal data on caribou numbers near the project site to confirm that the Project does not overlap with caribou calving areas is inappropriate.</p> | |
| IMPORTANCE TO REVIEW AND SUPPORTING RATIONALE | |
| <p>The summary of incidental observations of caribou included in the Wildlife Mitigation and Monitoring Program (WMMP) Report Table 5.7-3 does not confirm that the project is outside calving areas, as stated in the report, "The sightings of caribou in 2019 were of large groups (greater than 100 or greater than 1,000) travelling past the area (presumably migrating to the calving area), confirming that the Project does not overlap with the calving grounds." (WMMP Report, S.5.7.1).</p> <p>Rather, these observations support the observations included in S.2.4 of the WMMP Report provided by Inuit Qaujimajatuqangit (IQ) holders that the patterns of seasonal utilization for the herd's ranges are variable. Furthermore, there are requirements for the Proponent (e.g., Project Certificate Terms and Conditions 42, 52) to consider such seasonal variability and potential for range shifts, meaning that high variability in caribou presence within the Project Development Area (PDA) is expected, and is not demonstrative of fidelity to calving grounds outside the PDA.</p> | |

The site-observation data from 2018-2022 show substantial fluctuations from year to year and within each season, which suggests that the project is within important portions of the herd's range and that minimizing disturbance through the implementation of the Proponent's Caribou Management System (CMS) is needed for maximizing the herd's available range.

Lastly, incidental, site-based observations do have value, but they are inherently opportunistic and limited, and are not part of a complete range use study. Without the addition of deliberate, consistent data collection (e.g., aerial surveys, dedicated monitoring, long-term collar programs), these site-based observations alone cannot be used to confirm whether the project area overlaps, or not, with calving grounds.

RECOMMENDATION(S)

The Government of Nunavut recommends:

1. The Proponent refrain from drawing conclusions about caribou range use without sufficient data to support them. Following the positive construction decision, monitoring programs will increase in scale and scope, providing additional data about caribou range use, and the GN looks forward to working with the Proponent to evaluate caribou range use within the PDA and the surrounding area.

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| GN AR # 02 | |
| Department | Environment |
| Organization | Government of Nunavut |
| Subject/Topic | Carnivore Interactions |
| Terms and Conditions | Project Certificate T&C #48 |
| References | <ul style="list-style-type: none"> • Draft Sabina SOP ENVIRO-06 V.B.1, 2020. Included as Appendix A to Response to Comments on 2021 Annual Report (220808-12MN036-Sabina Responses to 2021 Annual Report Comments-IA2E.pdf) • Sabina 2022 Annual Report Appendix G. 2022 Pre-Construction Wildlife Mitigation and Monitoring Program Report • NIRB Project Certificate No. 007 |
| IDENTIFICATION OF ISSUE | |
| <p>There is an issue of recurring carnivore interactions at project site. The Proponent is required to develop and implement mitigation measures and monitoring programs to limit the attraction of predators and scavengers to Project facilities, and to limit impacts from specific project activities.</p> <p>Monitoring whether bears and wolverines are attracted to the Project's camps was identified as a community concern during the review phase of the Project and is built into the Wildlife Mitigation and Monitoring Program (WMMP) (WMMP Report, S.2.4, pg. 2-5).</p> | |
| IMPORTANCE TO REVIEW AND SUPPORTING RATIONALE | |
| <p>The Proponent has consistently made efforts to limit carnivore interactions with project infrastructure and has similarly acted promptly to remedy deficiencies. Despite these efforts, attractants have still proven to be an issue, as evidenced by consistent observations of carnivores interacting with the site, one of which resulted in the injury of a staff member inside a generator shack.</p> | |

In the generator shack incident, the Proponent quickly took efforts to ensure the safety of staff and to install wire mesh to prevent wildlife entry through the ventilation louvres of the shack. The Proponent clearly describes the steps taken to mitigate the issue in the 2022 Annual Report.

In a similar instance on November 21, 2022, a wolverine was found within the incinerator building, which was deterred using the Standard Operating Procedure (SOP) for wildlife deterrence (SOP-ENVIRO-06-Version B.1, 2020). It appears that appropriate steps were taken to review waste management practices and inspecting infrastructure for ways to prevent wildlife access, per the terms of the SOP. However, the description of any subsequent action is only given in general, non-specific terms.

RECOMMENDATION(S)

The Government of Nunavut recommends the following:

1. The Proponent provide the same level of detail used to describe the mitigations resulting from the generator shack incident also be provided for the incinerator building incident and subsequent actions taken to prevent recurrence.

This could include whether changes to waste management practices were made (and which changes) or if stricter enforcement was applied (and to which practices), as well as whether any structural changes to the building were made and an accompanying description.

This information is valuable to both demonstrate that concrete actions were taken and to help the Proponent and other operators apply effective mitigation actions for wildlife deterrence.

| GN AR # 03 | |
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| Department | Environment |
| Organization | Government of Nunavut |
| Subject/Topic | Vegetation Monitoring |
| Terms and Conditions | Project Certificate T&C # 34 |
| References | <ul style="list-style-type: none"> • Sabina 2022 Annual Report Appendix E 2022 Vegetation Monitoring Field Program Results - Winter Road Realignment • Sabina 2019 Annual Report Appendix C 2019 Vegetation Monitoring Program • NIRB Project Certificate No. 007 |
| IDENTIFICATION OF ISSUE | |
| <p>A stated objective of the Vegetation Monitoring Program (VMP), (S.3.0, pg. 3) is to “Measure direct loss and indirect effects to plant communities as a result of the construction and operations of the WIR (Winter Ice Road).” The report also states (S.6.0, pg. 12) that “Annual photographic monitoring of the WIR is a requirement of the VMP and is to be conducted each summer following construction of the WIR.”</p> <p>Despite this, the Vegetation Monitoring Report doesn’t include monitoring for existing vegetations sites along the WIR; only information about new sites identified along the new WIR alignment is provided. The Proponent does not indicate why annual photos or other monitoring did not take place for existing plots.</p> | |
| IMPORTANCE TO REVIEW AND SUPPORTING RATIONALE | |
| <p>The Vegetation Monitoring Field Program (VMP) Results are limited in scope to introducing 10 new plots to address realignment of the Winter Ice Road (WIR). It’s not clear why the field effort did not include photographic monitoring and plot assessment for pre-existing sites or even any reference or comparison to the sites developed as part of the VMP in 2018 and 2019. The 2019 VMP included 56 total locations, 15 of which were adjusted, similar to the current report, and the creation of 24 new plots.</p> | |

Given the intent to monitor the potential impact of WIR construction and operations on vegetation, the eventual goal of assessing vegetation recovery, and the fact that field staff were on site in 2022, there is an expectation that all vegetation plots would be visited as part of the monitoring effort.

RECOMMENDATION(S)

The Government of Nunavut recommends the following:

1. The Proponent provide an explanation of why sites established in 2018/2019 were not evaluated during the 2022 field season, and why only creation of new/relocated plots to address WIR realignment were considered in the VMP fieldwork.
2. The Proponent ensure that all plots receive photographic monitoring, which is a requirement of the VMP, in order to support “evaluating trends and determining if there are statistical differences in plant species composition and abundance between impacted experimental WIR plots and reference plots.” (VMP S.6.0, pg. 12)

| GN AR # 04 | |
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| Department | Environment |
| Organization | Government of Nunavut |
| Subject/Topic | Unauthorized discharges |
| Terms and Conditions | Pollution Prevention |
| References | <ul style="list-style-type: none"> Sabina 2022 Annual Report Response to Comments on 2021 Annual Report (220808-12MN036-Sabina Responses to 2021 Annual Report Comments-IA2E.pdf) |
| IDENTIFICATION OF ISSUE | |
| <p>Reporting spills and including spill data within the Annual Report has been inconsistent over the reporting period. While the 2022 report is an improvement, the Proponent maintains records of all spills and the GN believes that these should be included in the appropriate section of the Annual Report, along with those that meet the reporting requirement.</p> | |
| IMPORTANCE TO REVIEW AND SUPPORTING RATIONALE | |
| <p>The Proponent has stated that it “maintains a complete record of all spills, regardless of size, and ensures spills are cleaned up promptly and fully in accordance with the Spill Contingency Plan to ensure they are not lingering in the environment” and that the Proponent “reports all spills triggering NT/NU reporting thresholds to the NT/NU Spills Line and includes such spills in the Annual Report to both the NIRB and the NWB.” (Response to 2021 AR Comments, pg. 102)</p> | |
| RECOMMENDATION(S) | |
| <p>The Government of Nunavut (GN) would like to clarify that the reporting threshold is where there is a legal requirement to report. Below that threshold, there remains a GN recommendation to report. Spill data is kept by the Proponent for all spills and is shared</p> | |

with the Kitikmeot Inuit Association (KIA) per the terms of the new Framework Agreement. The GN would encourage the Proponent to report all spills, regardless of volume, and include data for all spills in future Annual Reports.

The GN also commends the Proponent for switching to propylene glycol within equipment to eliminate the risks to wildlife associated with ethylene glycol.

| GN AR # 05 | |
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| Department | Environment |
| Organization | Government of Nunavut |
| Subject/Topic | Dust Suppression |
| Terms and Conditions | Project Certificate T&C #03 |
| References | <ul style="list-style-type: none"> Sabina 2022 Annual Report Response to Comments on 2021 Annual Report (220808-12MN036-Sabina Responses to 2021 Annual Report Comments-IA2E.pdf) |
| IDENTIFICATION OF ISSUE | |
| Review of Air Quality Mitigation and Monitoring Program updates and dust suppression practices were not addressed in the 2022 Annual Report. | |
| IMPORTANCE TO REVIEW AND SUPPORTING RATIONALE | |
| <p>The Proponent responded to the Government of Nunavut's (GN)'s past comment about the need for dust suppression as follows, "Sabina has commissioned a review of the Air Quality Mitigation and Monitoring Program (AQMMP) to occur in 2022. The review will include specific recommendations regarding tangible triggers for the initiation of dust mitigation measures to be employed in future summer seasons."</p> <p>Per the Proponent's description of next steps for the implementation of Term and Condition #03, "proposed updates to the Fugitive Dust Reduction Plan (FDRP) and AQMMP are planned for May of 2023 to align with advances to monitoring technologies and to reflect the current understanding of the project." and that, "updates will address issues that have been noted with current air quality monitoring program."</p> | |
| RECOMMENDATION(S) | |

Recognizing that modifications to fugitive dust management will not likely be reported until the 2023 Annual Report, the Government of Nunavut recommends the following:

1. The Proponent clarify its dust suppression activities in 2022 and the approach that will be applied this year, before the FDRP and AQMMP are updated. In its response to the GN, the Proponent stated, “Currently, as soon as the wet season ends (freshet) and dust begins to generate from vehicular or aircraft traffic, Sabina commences dust suppression.”
2. The Proponent provide additional detail on dust suppression methods, frequency, and any thresholds used to initiate dust suppression efforts. This information is valuable to assess the extent to which dust suppression is taking place at the site, and how it is being applied to newly constructed areas of the Project Development Area, noting the expansion of the airstrip and the 20km of all-weather roads now at the site.

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| GN AR # 06 | |
| Department | Environment |
| Organization | Government of Nunavut |
| Subject/Topic | Caribou Observations and Blasting Activity |
| Terms and Conditions | Project Certificate T&Cs # 39, 40, 41, 44 |
| References | <ul style="list-style-type: none"> • Sabina 2022 Annual Report • Sabina 2022 Annual Report Appendix G. 2022 Pre-Construction Wildlife Mitigation and Monitoring Program Report |
| IDENTIFICATION OF ISSUE | |
| <p>The Government of Nunavut (GN) appreciates the improved reporting relative to monthly blasting activity and location as reported in this year's annual report. While this is a noted improvement, there is still a lack of transparency in how blasting activity, Caribou Management System (CMS) level changes, and incidental caribou observations by site staff are reported.</p> <p>Caribou observations are reported in terms of number of animals observed and the date of observations. Blasting is reported as a simple count by month. This prevents any cross-referencing of blasting events with the presence of caribou at the site as noted by staff observations. It also prevents comparison of pre-blast surveys and incidental observations.</p> <p>Improved reporting and transparency are desired relative to the CMS, blasting activity, and caribou observations.</p> | |
| IMPORTANCE TO REVIEW AND SUPPORTING RATIONALE | |
| <p>There were 3,630 caribou observed in 38 separate reports on 34 different days from February 2022 to October 2022 (note that the observation of 40 caribou on 9/10/2021 was removed from these totals). There were 39 blasting events during this same period, but the Proponent states that no caribou were observed during pre-blasting surveys.</p> | |

While it is possible that caribou presence in the Project area did not overlap with blasting activity, the way this information is presented in the Annual Report (i.e., daily observations vs. monthly blasting counts) does not enable reviewers to agree, or not, with Sabina's statement.

A CMS Level 2 Notification was issued from June 5-July 31, and a Level 3-Alert was "triggered on multiple times when caribou were sighted in the Project area..." While it is encouraging to see the CMS actively implemented, additional detail on when CMS levels were triggered is beneficial to correlate them with site-based incidental observations.

RECOMMENDATION(S)

The Government of Nunavut recommends the following:

1. The Proponent provide blasting activity specific dates; continuing to report monthly totals are still useful for reviewers.
2. The Proponent also report the dates that CMS Levels were triggered. This has only been partially done in the Report.

As additional monitoring activities are implemented, reporting that helps draw the connection between site staff observing caribou and other wildlife and actions taken to prevent disturbance and impacts to caribou would be beneficial.

The GN recognizes the efforts of the proponent to mitigate the impacts of Project activity on caribou, muskox, and other wildlife in the Project area and recommends these changes to better demonstrate that effort.

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| GN AR # 07 | |
| Department | Environment |
| Organization | Government of Nunavut |
| Subject/Topic | Traffic Data Collection on the Winter Ice Road |
| Terms and Conditions | Project Certificate T&C # 45 |
| References | <ul style="list-style-type: none"> • Sabina 2022 Annual Report • Sabina Wildlife Mitigation and Monitoring Program • Sabina 2022 Annual Report Appendix G. 2022 Pre-Construction Wildlife Mitigation and Monitoring Program Report |
| IDENTIFICATION OF ISSUE | |
| <p>As the Project expands and vehicle traffic on the Winter Ice Road (WIR) increases, the GN sees a need to collect traffic count data on the WIR to better understand the potential impact of this vehicle traffic on caribou movements in proximity to the WIR. This traffic data would support the Proponent in evaluating the extent of caribou-road interactions. Movement of caribou across the WIR is an important consideration within the Project Wildlife Mitigation and Monitoring Program.</p> | |
| IMPORTANCE TO REVIEW AND SUPPORTING RATIONALE | |
| <p>The Proponent describes in the next steps portion for Project Certificate Condition 45, "An analysis was conducted comparing collar data from caribou in 2019 (WIR active) to 2017 and 2018 (no WIR), which reported [no] change or delay in caribou movement during 2019 when the WIR was active. This analysis was appended to the 2019 WMMP Report."</p> <p>Increased traffic levels, particularly those associated with the transportation of supplies from the Marine Laydown Area, may have an impact on the behaviour of caribou crossing the WIR. Access to traffic data would provide additional insight into any observations of avoidance or delay in caribou crossing the road. Collecting traffic data is a common practice for sites with large connecting roads (e.g., BIMC Mary River Project, AEM</p> | |

Meadowbank Mine), and given the length and location of the WIR within caribou habitat, the GN believes collection of vehicle traffic data (vehicle type, frequency) on the WIR is appropriate.

RECOMMENDATION(S)

The Government of Nunavut recommends:

1. The Proponent collect basic traffic data during the construction and operation of the WIR. This includes vehicle frequency and type. Example types could be light vehicles (e.g., 3/4 ton pickup trucks), transport (e.g., semi-tractor trailers hauling fuel or other supplies) and heavy equipment (e.g., loaders, graders, etc.)

The GN is interested in discussing this topic at the next CTAG meeting.

| GN AR # 08 | |
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| Department | Environment |
| Organization | Government of Nunavut |
| Subject/Topic | Helicopter Flight Heights and Pilot Observations |
| Terms and Conditions | Project Certificate T&Cs #60, 61 |
| References | <ul style="list-style-type: none"> • GN Technical Review Comments on 12MN001 TMAC Resources' DEIS for Phase 2 of the Hope Bay Belt Project, 2017 (170523-12MN001-GN Technical Review Comments-IMTE.pdf). • GN Technical Review Comments on 08MN053 BIMC Phase 2 Development of the Mary River Project, 2019 (08MN053 - BIMC Phase 2 TRCs – FINAL.pdf). • GN Technical Review Comments on 16MN036 AEM EIS for the Whale Tail Pit Project, 2017 (170328-16MN056-GN Technical Comment Submission.pdf). • Maier, J. A. K., 1996. Ecological and Physiological Aspects of Caribou Activity and Responses to Aircraft Overflights. University of Alaska, Fairbanks. • NIRB Project Certificate No. 007 • Sabina 2022 Annual Report Appendix G. 2022 Pre-Construction Wildlife Mitigation and Monitoring Program Report • Wolfe, S. A., Griffith B., and Wolfe, C. A. G., 2000. Response of reindeer and caribou to human activities, Polar Research (19(1), 63-73. |
| IDENTIFICATION OF ISSUE | |
| <p>The Government of Nunavut (GN) continues to flag the issue of helicopter flights below the recommended altitude of 610 m above ground level (AGL), the reporting format for helicopter flights, pilot observations, and the Proponent's response to the GN's past comments on this issue.</p> | |

IMPORTANCE TO REVIEW AND SUPPORTING RATIONALE

Regarding helicopter use, caribou have been shown to exhibit increased movement and flight responses to aircraft overflights, which increase with the relative intensity of noise associated with that aircraft (Maier, 1996). Caribou reacted to helicopter overflights most strongly during the calving season, yet more than 80% of caribou had a strong reaction (running away) from small aircraft overflights in the winter (Wolf, et al., 2000). This emphasizes the broad reach that helicopter operations can have on caribou.

Caribou exhibit a more intense response to helicopters than fixed-wing aircraft at low altitudes (<400m), and flight response to both types of aircraft dissipates as overflight altitude increases. Similarly, cows with calves are more likely to respond to helicopter overflights than other demographic groups (Wolfe, et al., 2000).

Given the evidence for the impacts of low altitude helicopter overflights on caribou, most operating mines in Nunavut have adopted a flight height standard as a key mitigation measure. For example, the primary mitigation measure for minimizing disturbance of wildlife, in particular ungulates, by helicopters at the AEM Whale Tail Pit Project is to “maintain ferrying flight altitudes of 610 m when feasible”, except during take-offs and landings (Table 4, TEMP App 8-E.7) (GN 2017). Likewise, AEM (formerly TMAC) lists 610 m during the calving season for their Hope Bay belt, and Baffinland Iron Mines requires all project-related aircraft to fly at or above 650 m, subject to safety requirements, to reduce impacts to caribou.

The GN raises the issue of the absence of pilot observations of wildlife, as there were more than 3,600 caribou observations by site staff, and the Proponent committed to elevating its effort in communicating to pilots the requirement to report wildlife observations. The GN is seeking additional information to better understand why pilots did not observe wildlife.

These observations are particularly important in compliance with the Wildlife Mitigation and Monitoring Program (WMMP) approach to drill moves (WMMP S.5.1.2.2), “drill moves were only conducted when caribou were not within the disturbance buffers described above and in the WMMP Plan.” Given the nature of drill sites, pilots would have the best point of view to observe whether caribou were in the vicinity of drilling equipment prior to the move, but there is no indication that any survey, however brief, for caribou within the stated buffers was undertaken prior to initiating the move. The GN requests an explanation of how caribou are surveyed within the stated buffers prior to drill moves.

Lastly, regarding flight reporting format, the GN appreciates the improvements in clarifying the number of flights per colour spectra, however the bin categorization still does not provide clarity as to the number of flights in each area. The report text states

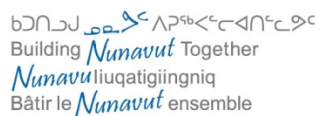
“dark green indicates one flight over the season” but the map legend indicates the same colour for anywhere between 1-25 flights.


RECOMMENDATION(S)

As indicated in previous comments, the GN fully recognizes the nature of helicopter operations and how they support the Back River Project. The GN does not expect the 610 m AGL flight level to be applied in poor weather conditions or low ceilings, or for hauling external loads (e.g., during drill relocation). Furthermore, the GN recognizes that the 610 m requirement on short trips (2-3 km) places additional and unnecessary strain on operations.

As such, the GN recommends the following:

1. Apply the 610 m AGL flight level in the following instances to reduce potential impact to caribou in the Project Development Area:
 - Ferrying, transits, non-external cargo moves, passenger flights, and similar flights longer than 10 km.
2. Adjust the map legend (Fig. 5.1-1 and 5.1-2) in the WMMP report to better describe the number of flights throughout the Project Development Area.
3. As above, the GN requests an explanation of how caribou are surveyed within the stated buffers prior to drill moves.



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