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March 31, 2023

Environmental Permitting Manager Sabina Gold & Silver Corp. # 1800 – 555 Burrard Street Box 220 Vancouver, BC, Canada, V7X 1M9

Attention Merle Keefe, Environmental Permitting Manager &

Vincy Benjamin, Director of Engineering, for Sabina Gold and Silver

Subject Goose & MLA Project Sites – 2022 Annual Geotechnical Inspection

Project CAPR002290

Dear Merle and Vincy

SRK Consulting (Canada) Inc. was retained by Sabina Gold & Silver Corp. to conduct a geotechnical site inspection for the active development areas at the Back River Project (Project). The Project is a proposed gold mine located in the territory of Nunavut, roughly 525 km northeast of Yellowknife. The current areas of active development are the Goose project site (Goose), located approximately 160 km south of Bathurst inlet (Figure 1), and the Marine Laydown Area (MLA or port area), located on the southern portion of Bathurst Inlet (Figure 2).

Background

This annual geotechnical inspection (AGI) is an annual requirement in response to Part 1, Item 10 of Sabina's Water Licence 2AM-BRP1831 – Amendment No. 1, issued by the Nunavut Water Board (NWB) on October 15, 2021. The objective of the geotechnical inspection is to ensure that the project's surface infrastructure is performing as intended from a geotechnical perspective and in the context of the project site use. The emphasis is to a large extent, based on the project's location in a cold climate continuous permafrost area, is ensuring permafrost integrity is upheld, reviewing water management, and looking at more classical geotechnical and civil earthworks development (many of which are in an interim or active in progress construction stage).

The 2022 AGI for the Goose, and the Marine Laydown Area (MLA) sites are the subject of this memorandum

2022 Annual Geotechnical Inspection

Overview

A site visit was carried out to comprise the 2022 annual geotechnical inspection (AGI). The site visit was carried out by John Kurylo, MSc, PEng, from SRK Consulting, between September 12th and September 15th, 2022. John first went to the MLA on September 12th and then on September 13th, partly through the day, flew to the Goose site. SRK was then on the Goose site from September 13th to 15th. Access to the site for all inspections was fly-in / fly-out based on the remote location. Weather conditions during the inspection were cool with periods of light winds and precipitation. A photo log showing an overview of the September 2022 inspection is provided in Attachment 3 for Goose, and in Attachment 4 for the MLA site.

At the Goose site the inspections were focused on the water management infrastructure and, at the time, the portions of the camp pad and partially completed tank farm (one of the four planned tanks erected). The portal and decline areas were outside the scope of this inspection and were not looked at or included as part of this AGI. Only surface infrastructure was inspected. The inspection of the airstrip, culverts, bridges, access roads, tank farm foundations and the future Camp Contact Water Pond footprint were carried out by pickup truck. Frequent stops were made for physical (on foot) inspections. No drone photography or helicopter access was available at the time of these inspection (helicopters were not operating around the Goose site when the AGI was completed).

At the MLA site the inspections were focused on the roads, pads, airstrip and the partially completed tank farm (again one of the four planed tanks were erected). All inspections at the MLA were completed on foot (entire site walked over).

Following the site visit Sabina was able to provide some drone photography (for both the MLA and Goose sites) which was also reviewed as part of this AGI.

Design and Operating Considerations

In addition to the specific observations and recommendations, as overviewed in Attachments 1 and 2, SRK would like to reiterate a few overarching design and operating principles as it relates to geotechnical stability, design and performance, while specifically focusing on the permafrost integrity at the project site:

Underbuilt (lower fill thickness) Pads and Roads

Design and construction of all pads and roads at Back River are intended to minimize permafrost damage and are designed based on specific thermal criteria. Underbuilding of roads and pads will result in permafrost damage because of thermal erosion, which will require ongoing maintenance and notable remediation costs at closure. SRK currently is not involved in scopes of work beyond the water management infrastructure at the Goose site, and the MLA Tank Farm, and therefore are unable to further comment on all of the current pad, airstrip and road designs. SRK are only able to comment on what has been communicate and what is visible on site. Sabina is reminded to consult the appropriate site-specific reference materials

- when designing and constructing new pads and roads. Specific areas of interest are noted in the 2022 AGI, and often key observations are near areas where surface water was noted to be flowing into or below infrastructure, along the toes and outside crest of the roads, or at the outside edges of the airstrip and pads. See Attachment 1 and 2.
- In general, the roads and pads are still in a partially built state. In some areas (when compared to 2021) the road withs have been expanded (typically more in the 8 to 16m width range) and in some areas the roads have been built up and are approaching the expected design thickness. However, the vast majority of the roads are typically only in the fill thickness range of 1m thick, with some areas thicker and some areas thinner (typically fills always at least 0.5m thick). Many of these roads continue to be in process of being expanded (widened) and /or being built up as more material became available from the developments around the: MLA tank farm (former quarry location), Echo Pit (at Goose area), and Goose Camp pad areas. Required fill thickness will ultimately be related to the underlying foundation conditions (i.e. thicker fill thickness required over areas with more ice rich overburden permafrost) however at the current thicknesses ongoing maintenance should be expected. Sabina is in the process of developing a site-specific thermal monitoring plan. This is a positive and proactive step and will assist to provide more concrete recommendations (linked to the roads and pads) for future AGIs.

Consideration of Heated Building on Rockfill Pads

- Care needs to be taken when constructing permanently heated buildings on the rockfill pads. Prolonged heat generated from these buildings will result in the active layer below the pad deepening (specifically important for any areas where portions of the buildings are built over overburden permafrost). Heated building directly on rockfill pads could in turn could lead to degradation of the underlying permafrost, and manifestation of undue settlement.
- No specific new observations related to new heated structures (outside of the historic exploration camp area) were noted as part of the 2022 AGI. However, building to ground heat transfer, should be closely considered as the areas around the permanent camp pad and plant site area (areas expected to be advanced in 2023).
 - Where possible it should be considered if structures can be situated on bedrock, elevated to allow air flow below the buildings, or if this is not possible if additional insulation material, or in extreme case thermosyphons may be required (specifically in the foundation areas built on overburden permafrost that has been identified as having massive ice).
 - The impact of heat transfer to the foundation will be directly linked to the design tolerance of the buildings and structures and can be considered accordingly. For example foundation below tanks would have very low tolerance, whereas general roads and pads below items like trailer buildings or seacans would have higher tolerances and would be able to accommodate more foundation movements.
 - Most of the Goose Camp site, or at least the critical mechanical or fuel storage components, appear to have been so far built on fill pads that were primary constructed over blasted areas (inferred to be bedrock below the majority of the fill pads around the plant site for example). Towards the outside of the current pads there appears to be more overburden and may require additional considerations.

Consideration of Seasonal Active Layer Fluctuations

Sabina is reminded that the maximum active layer thickness occurs around August at the end of the summer season. All road and pad shoulders are at their most vulnerable during this period as the thermal protection at these shoulders are less than the minimum required (by standard geometry), resulting in localized deepening of the active layer. As a result, tension cracks and general softening are most prevalent at the shoulders (outer sides). Sabina should take special precautions to limit vehicle traffic (specifically loaded haul trucks or vehicles carrying larger loads) within 1 to 3 m from all shoulders.

Consideration of the Impacts of Surface Water Flow Paths

- As outlined in Attachment 1, tension cracking along the western side of the airstrip and portions of the roads and pads, continues to be noted. This cracking is especially prevalent where any of the pre-existing surface water flow paths have been intercepted by earthworks activities. These cracks in the fill material are not atypical but should be monitored.
 - Specifically, the airstrip(s) shoulders (both and Goose and the MLA) should continue to be closely monitored to ensure that any additional maintenance is able to be conducted as required. Routine airstrip inspections should occur year-round by site staff but would be suggested to be increased in frequency over the spring to fall months (around June to November). In addition to any observations at the airstrip shoulder any areas of larger undulations or settlements that require ongoing maintenance should be noted and records kept to assist with long term performance monitoring.
 - Sabina should take extra care to consider the location of existing surface water flow paths in the infrastructure plans and earthwork constructions. One example of this would again be at both airstrip locations (for the Goose and MLA sites). Due to the long linear nature of the airstrip they will inevitably cross some ephemeral surface flow paths.
 - It is understood that the Goose airstrip will be expanded to the South. As this airstrip extends to the south it will intersect some more notable surface water flow pathways / ephemeral streams. Ideally the Rascal Diversion would be constructed before the airstrip expansion work is completed through this area. If this construction is done in the winter months then the need for the Rascal Diversion may be deferred but the Rascal Diversion would still be suggested to be constructed before freshet.
 - At the MLA there is ponding water again the southern-to-southern western edges of the airstrip. Sabina should monitor these areas (specifically as temperatures annually warm on site from winter to spring to summer conditions). Some consideration should be given to redirecting or trying to push any ponding water further away from the toes of the existing MLA airstrip. Pumping down / removal of any ponded water at the toes of the airstrip in the fall (before winter freeze up) would increase the cold ambient air and ground heat transfer to help slow down permafrost degradation (reduce thawing rates and slow deepening of the active layer). This increased water management may help to reduce overall short and long-term maintenance activities.

Observations and Recommendations

The most critical and / or time sensitive observations were communicated to Sabina in late September 2022, shortly after the AGI site visit. The observations and the progress on these items are outlined in the list below.

- 1. **Goose Tank Farm** Fix (add more fill / buttress and slope) the side slopes of the pedestal for the Goose fuel tank before it is filled.
 - Status COMPLETE. Site communicated that additional material was placed at this buttress and the pedestal slopes were reduced. Based on this, this recommendation should now have been addressed.
 - Original observation The pedestals below the one erected tank in the Goose Tank farm was noted to have been over steepened and / or eroded in areas. This led to the edges of the tank being on or very near to steep fill slopes. The tank was empty at the time of the AGI but if the tank was filled (weight in tank and force on the pedestals notably increased), and the pedestals were lefts in an over steepened state, this could potentially have led to a bearing failure through the pedestal fill. As outlined above Sabina has now completed additional work on this pedestal.
- 2. **Abutment of the West Temporary Gander Bridge** Either remove the temporary bridges and / or implement measures to strengthen the northeast abutment of the second temporary Gander bridge (most west or furthest from the existing exploration camp).
 - Status IN PROGRESS. Sabina has communicated that the permanent Gander culverts are planned to be installed at these locations before freshet 2023. If the culverts are not installed before freshet 2023 then monitoring should be put in place to check for any ongoing movements at the Gander temporary bridge abutments and if / as required repairs should be completed at the current bridge abutments. If the culverts are not installed to replace the bridges, then it is expected that a risk of additional settlement or displacement at the bridges will increase as the active layer increases to its maximum depth (annual maximum active layer depth projected to be reached around August).
 - Comments If the planned (long term) culverts are installed on site then priority should be given to replacing the bridge with a culvert at this location (most west bridge). Installation of the planned and designed long term culverts at the Gander stream crossing area would address and should remove any remaining abutment concerns (as there will no longer be a bridge an instead would be a culverts surrounded by backfill).
- 3. Camp Pad Pond Survey the top of the liner at the Camp Pad Pond area.
 - Status COMPLETE. Site staff have communicated that this has been done. SRK is not the
 design engineer for this pond and thus has not reviewed this survey data in detail. SRK have
 seen evidence that this survey was completed.
 - Original observations It was not apparent in the field (based on visual checks) that the top liner-tie in / design elevation had been achieved in the field. SRK had suggested that this survey be complete to confirm that the overall containment volumes were met and not being impacted by low elevations (i.e. get the info so others can confirm that the top liner elevations

are at or above design). The Camp Pad Pond was in a partially completed state when the AGI was complete. The construction of the pond is ongoing and projected to be completed later in 2023. This pond was therefore not yet operational in 2022.

- 4. **Material Stockpile Samples** Collect samples and submit for laboratory testing. Gather samples, specifically for the crush and screened materials, to get particle size distribution (PSD) curves / data to confirm the quality of various fill materials being produced on site.
 - Status COMPLETE. Sabina has collected samples from the various stockpile around site and completed laboratory PSD testing (testing done through the Tetra Tech Yellowknife laboratory).
 - Comments The purpose of these samples was to allow for checks to be completed for the existing site produced materials against the current earthwork technical specifications, and / or to potentially used that information to update those technical specifications. This information has now been gathered and will be used to help support the 2023 construction activities.

Many additional, typically secondary, observations and recommendation were made as part of the AGI. These observations and recommendations are summarized in Attachment 1 and 2.

Final Remarks

Notwithstanding the observations and recommendations provided in this AGI (see Attachment 1 and 2), the Back River site is performing in reasonable accordance with predicted geotechnical expectations. The main observation from the 2022 AGI were fairly similar to the 2021 AGI (with the exception of the four observations outlined in the previous section of this letter). The site continues to be in a transition, and more pre-mining development, stage. This means that many of the pads, roads, and water conveyance (culvert) structures were at an interim state and / or not yet fully completed at the time of the 2022 AGI. Observations of the interim state of the construction have been made in attempt to allow them to improve the final configuration of the earthworks and water management infrastructure.

Figure 1 shows recent earthwork progress at the Goose site, and Figure 2 and 3 shows the information for the MLA site. These figures show a high-level overview and comparison to the more final design footprints or working areas. These figures also highlight some of the current in progress areas that Sabina is working on as Goose moves from exploration towards a development and operational stage, and as the MLA continues to evolve as a port location that can be utilized to bring in supporting equipment, supplies and buildings.

For completeness, additional comments and observations are provided in Attachments 1 to 4.

Regards,

SRK Consulting (Canada) Inc.

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John Kurylo, MSc, PEng

Principal Consultant (Geotechnical)

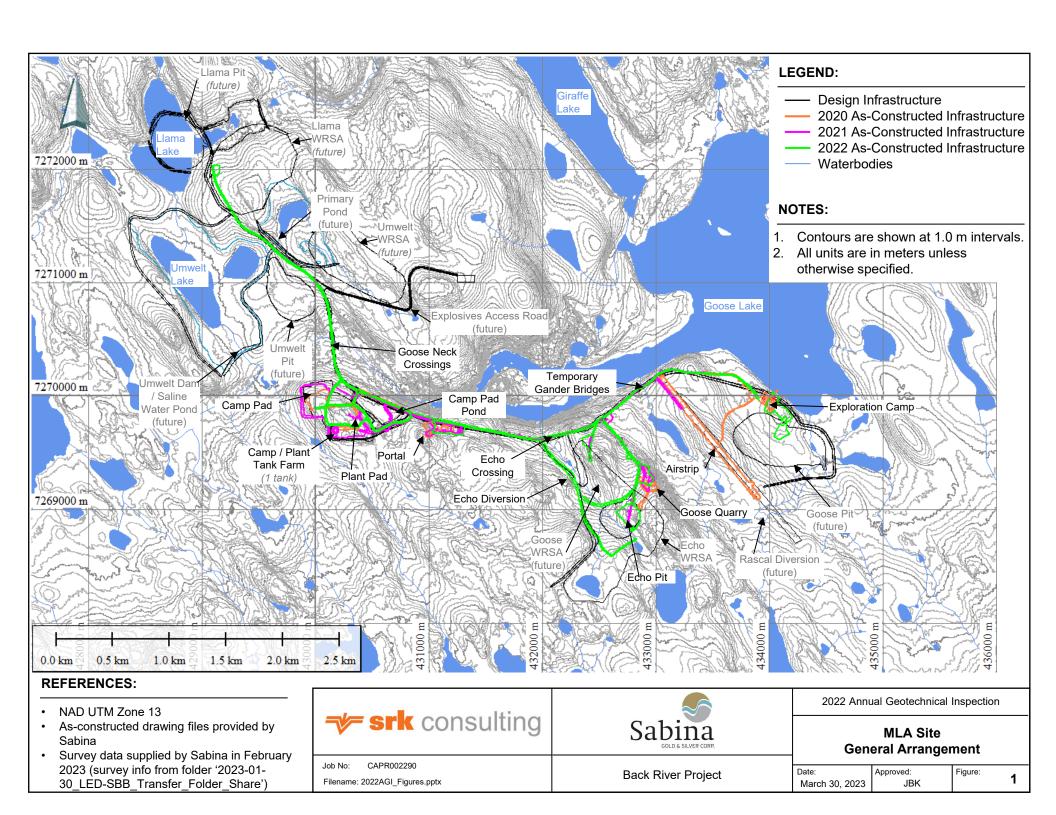
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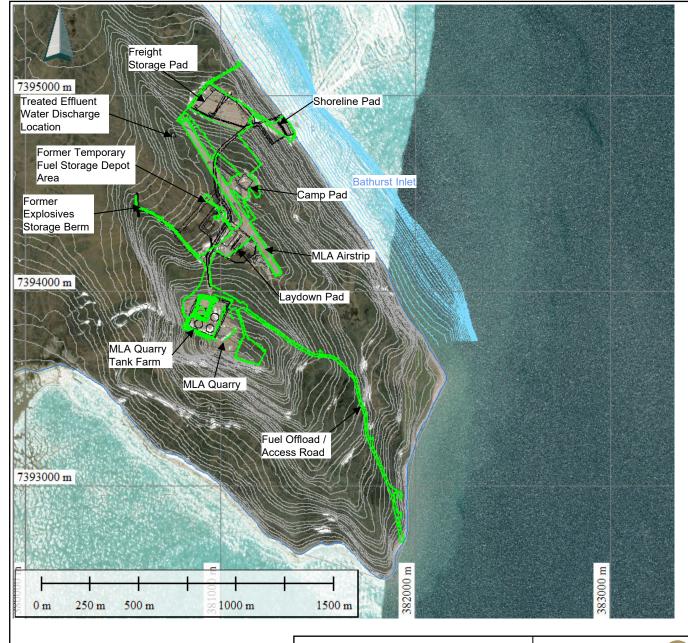
Figures

Attachment 1 Summary of Observation and Recommendations – Goose Attachment 2 Summary of Observation and Recommendations – MLA

Attachment 3 Photolog from 2022 Site Visit - Goose Attachment 4 Photolog from 2022 Site Visit - MLA







LEGEND:

- Design Infrastructure
- As-Constructed Infrastructure
- Waterbodies

NOTES:

- 1. Contours are shown at 1.0 m intervals.
- 2. All units are in meters unless otherwise specified.

REFERENCES:

- NAD UTM Zone 13
- As-constructed drawing / survey files provided by Sabina in March 2023. Files from folder 'SBR7OUTC-00-C-SU-0002 MLA BASE MAP'
- Plan view imagery extracted from World Imagery (approx. 2020-2021 time range). Reference: source: "Esri, USGS | Northwest Territories, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, US Census Bureau, USDA, NRCan, Parks Canada"





2022 Annual Geotechnical Inspection

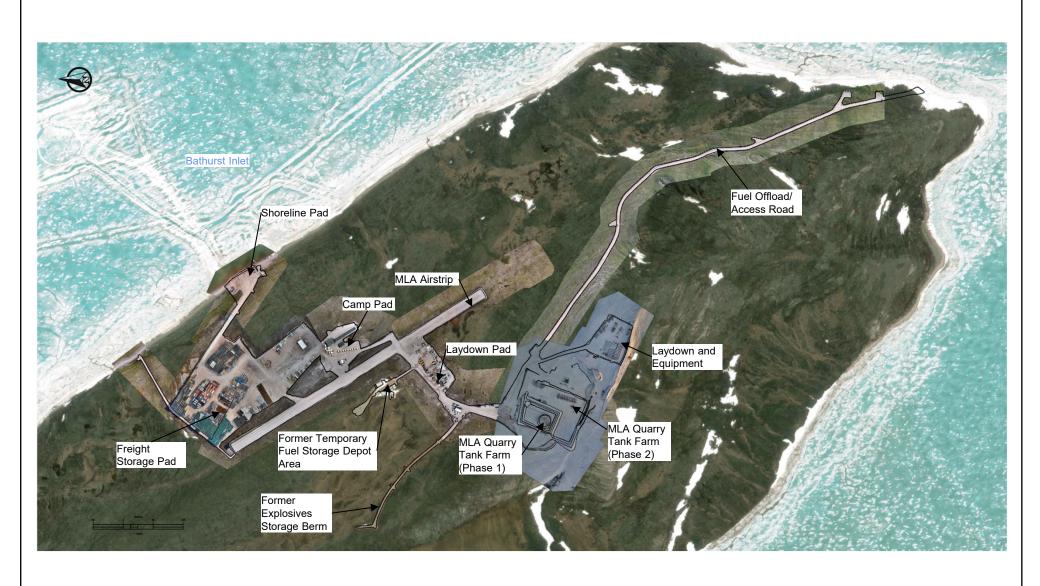
MLA Site General Arrangement

Job No: CAPR002290
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Back River Project

Date: Approved: Approved: JB

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LEGEND:

— As-Constructed Infrastructure

REFERENCES:

- NAD UTM Zone 13
- As-constructed survey and UAV files provided by Sabina in March 2023. Files from folder 'SBR7OUTC-00-C-SU-0002 MLA BASE MAP'



Job No: CAPR002290

Filename: 2022AGI_Figures.pptx



Back River Project

2022 Annual Geotechnical Inspection

MLA Site General Arrangement (with UAV Imagery)

Date: Appro March 30, 2023

Figure:

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Attachment 1 Summary of Observation and Recommendations – Goose

Inspection Item		2022 Observations and Recommendations
General Comment / Overview	-	The main observation as part of the 2021 and again in the 2022 Annual Geotechnical Inspection (AGI) for the Goose area was that, as the site is currently in a transition stage and that many of the pads and roads and water conveyance (culvert) structures were at an interim state. Site is currently in a transition from exploration towards an operating site (development stage). So many of the comments in the Annual Geotechnical Inspection are linked to items that should continue to be monitored or considerations for some of the key water management areas that should be considered as the site infrastructure construction advances. Site still in a transition stage. Continued monitoring is still recommended.
Goose Airstrip	•	SRK's review of the airstrip focused on identifying distress of the airstrip embankment and changes in the natural terrain, based on the available imagery data and visual inspections. Distress of the airstrip embankment, mainly near the immediate edges / shoulders, was identified as small linear tension cracks or depressions, inferred to be caused by permafrost degradation in the underlying foundation. In areas this is enhanced by ponding water against the side of the airstrip (some from natural flow paths).
	•	Prior to landing any aircraft on the runway, the aircraft operators should conduct their own assessment of the runway conditions (in terms of functionality) and make recommendations for maintenance. Ultimately it will be at the discretion of the aircraft operators if the airstrip surface is acceptable for their aircraft.
	-	Water is ponding against the southwest-south (SWS) end of the airstrip. Some softer shoulders were noted when walking around the perimeter of the airstrip. Additional and ongoing settlement is expected at the airstrip (specifically at the southern end). Before the expansion of the airstrip is completed Sabina should consider the construction of the Rascal Diversion. The Rascal Diversion should be installed at the time of, or before, the airstrip expansion is completed to ensure that the water flow in this area does not impact the airstrip. If the airstrip expansion is carried out in the winter months, then the Rascal Diversion may not be required immediately but should be constructed before the following freshet.
	•	Temporary access area / roadway to the airstrip to be expanded (thicker). Current access thickness is thin (in areas less than 1m and less than 0.5m in areas).
	•	Continue visual and drone image monitoring. Due to the critical and higher risk nature of the Goose airstrip, drone photographs and photos taken from ground level should be taken again in the summer of 2023 and compared to the information collected in 2022. Done images were taken in 2022 however they were at isometric views, and / or orthorectified images were taken when the ground was covered with snow. Additional orthorectified drone imagery is suggested to be collected in the summer of 2023 for use as part of the 2023 AGI and to help improve the ongoing monitoring, tracking, and review.

Inspection Item		2022 Observations and Recommendations
Culverts and Surface Water Flow Management		The temporary Gander bridge abutment are starting to show signs of movement – new larger diameter culverts are planned to be installed at these locations in 2023 to replace these temporary bridges. If the culverts are not installed before freshet 2023 then a careful inspection of the bridge abutments should be completed, and any required maintenance or upgrades to be completed at the bridge abutments before the bridges area continued to be used. If the culverts are not installed at this location and the bridges continue to be used then the allowable bridge loadings (loaded truck weight limits etc) should be revisited. This is a main area to watch from a health and safety point of view as displacement of the bridge abutments could lead to vehicle damage of equipment going off the road.
	-	Continue inspections at the outlet of the culverts. Suggest survey points at inlet and outlet of the culverts to assist with this.
	•	Cover over some of the culverts is low (thin) in areas. Larger equipment would need a larger cover (thickness) over the culverts to avoid damage or compression of the underlying culverts.
		o Sabina has outlined that since the summer 2022 inspection additional material has been placed over these are and this comment has been addressed. Sabina has also outlined that tin many areas the culverts have now been built out / extended to the full road widths required for 775 CAT haul trucks. Sabina also indicated that they would revisit the Goose Neck crossing area to see if additional culvert or drainage measures will be required or suggested to avoid any excessive ponding and / or to reduce the likelihood of the road washing out in a larger storm event.

Inspection Item	2022 Observations and Recommendations
Road Thickness	An updated as-built pick-up of the road suggested (all roads) are suggested to be completed to compare the current road surface to the pre-development topography surface. This could be used to check the thicknesses and width of the existing roads to the original design criteria to highlight main area of interest (or areas to look at in more detail as part of the 2023 AGI).
	Sabina should watch the shoulders of the road and do inspections closer to freshet and throughout the summer. Specifically, 1 to 3m from the edge of each road. Care should be given for loaded equipment not to travelling too close to the edges of the roadways, and for loads or equipment not to be storage to close to the edges of the roadways and pads (specifically where any tension cracking has been observed). Also storage of freight or travel of equipment near the edges of oversteepened slopes [slope typically steeper than 2H:1V in thicker fill or steeper than 1.5H:1V in thinner fill areas (1.5 m or lower thickness)] should be avoid; as these areas are expected to relax (slopes to slough or shallow) over time.
	Overburden has been used in some of the roads. The ice content in these overburden soils is unknow. Typically, it looks like the overburden placed in the main haul roadways has been 'encapsulated' by coarser blast rock, run-of-mine (ROM) or run-of-quarry (ROQ) material. For areas where fills are less than 1.5 to 2m increased maintenance may be expected as the overburden materials thaw (if frozen) or consolidate and settle. An inspection should be done in the snow free months to mark / delineate any areas where overburden is visible on the outside toes of the roads (or pads if overburden has been used as part of the construction of any pads). Areas with exposed overburden should be monitored for stability and to ensure that there is not increased sedimentation resulting.
	It appears that some of the underground waste rock (from portal / decline development) may have been used to temporarily widen the road by the portal location. SRK is unaware of the Sabina quarry, run of mine, and underground rock geochemical sampling and monitoring plans. Therefore, SRK is unable to comment on the quality of this rockfill material or suitability for use as construction material. It is suggested that Sabina implement a program to track where any underground waste rock (or if / when PAG encountered in the pit pre-stripping and early development activities) is placed. Sabina has indicated to SRK that the do now have a tracking plan in place and that site geochemical sampling plans and programs (as have been submitted as part of license submissions) have been followed in 2022. A review of the geochemical sampling and tracking plan was not done as part of the 2022 AGI but is suggested to be completed in 2023.

Inspection Item		2022 Observations and Recommendations
Goose Camp and Plant Area	•	One tank has now been installed / erected at the Goose / camp tank farm. Erosion and steep slopes were noted at part of the inspection that required repair. Sabina has indicated that they have now added additional material and cleaned up / updated these tank pedestals. This comment has been addressed.
		 Additional context: the pedestals below the one erected tank in the Goose Tank farm was noted to have been over steepened and / or eroded in areas. This led to the edges of the tank being on or very near to steep fill slopes. The tank was empty at the time of the AGI but if the tank was filled (weight in tank and force on the pedestals notably increased), and the pedestals were lefts in an over steepened state, this could potentially have led to a bearing failure through the pedestal fill. As outlined above Sabina has now completed additional work on this pedestal.
	-	There is limited overline crush (or bedding material) that has been placed over the liner in the Goose Tank Farm. Overliner material appears to have been placed in select routes to allow for vehicle traffic into and out of the bunded area. This tank farm is in progress and was inspected in an interim state. This noted, Sabina is reminded that overliner fill thicknesses should be surveyed and checked (once completed) and typically fill thicknesses are required to be at least 0.6m in thickness in any area where equipment or vehicles will travel over the liner. Overline fill thicknesses should be checked as part of the final as-built review and compilation (once the tank farm completed) so that traffic route or 'no-go' areas can be delineated within the bunded area.
Quarry	•	As construction material for site is currently being sourced from the NPAG ROM material from the initial Echo Pit pre-stripping development, there has been no notable activity at the Goose quarry. As a result, the former Goose quarry is currently being used as a temporary landfill / storage site. Increase signage should be placed at entrance to this quarry to inform and limit vehicle traffic into this area. Sabina has outlined that this quarry is already a restricted access area on site. However, additional signage can be placed.
Camp Pad Pond	•	Camp pad pond liner installation was in progress at the time of the 2022 AGI inspection. It was suggested that the top elevation of the pond should be surveyed and compared to the design elevations to ensure the design capacity of the pond are being met, or at least Sabina is aware of what the as-built capacity will be expected to be. Sabina site staff have communicated that this has been done. SRK is not the design engineer for this pond and thus has not reviewed this survey data in detail. SRK have seen evidence that this survey was completed.

Inspection Item	2022 Observations and Recommendations
Ground Temperature Cables	Sabina is in the process of developing a site-specific thermal monitoring plan. This is a positive and proactive step and will assist to provide more concrete recommendations (linked to the roads and pads) for future AGIs. There is no specific recommendations for this 2022 AGI. More acknowledgement that this is in progress and past 2021 AGI recommendations are in the process of being addressed. Generally, the site wide thermal monitoring plan is expected to consist of:
	Site visit – collect data and check historic equipment, visit areas outside of development and infrastructure footprints
	Data Review and Analysis
	Update of ground thermal database
	QC data and provide analysis of permafrost attributes
	 Evaluation of sites and permafrost conditions in context of terrain conditions to support refinement of long-term monitoring sites
	Development and Documentation of Thermal Monitoring Plan.
Echo Pit (Initial Pre-stripping / development)	Temporary overburden stockpile was noted in the Echo Pit catchments. At the time of the inspection SRK was not aware of the downstream sediment management plans.
	Sabina has outlined that silt fence or rock berms have been in stalled downstream of overburden for sediment control. Overburden will not be kept in the current locations long term. Sabina has indicted that this is temporary stockpile and was only being used to allow for the overburden to be moved from the Echo Pit catchment area (more of stagging location). The overburden from this area will either be blended with the other rockfill being used for general road construction, used upstream of liner key trench tie-ins to help create a more watertight seal, or relocated to a more permanent storage location (such as near the center of the designated WRSAs). The silt fences and local sediment control should be checked before freshet 2023.

Attachment 2 Summary of Observation and Recommendations – MLA

Inspection Item	2022 Observations and Recommendations
General Comment / Overview	■ The main observation, as part of the 2022 Annual Geotechnical Inspection (AGI), was that the MLA area was in a functional but still in a transitional / developing state. The MLA is continuing to evolve as a port location that can be utilized to bring in supporting equipment, supplies and buildings to support the main life for the Back River project. Similar to the Goose area of site, many of the comments in the Annual Geotechnical Inspection are linked to items that should continue to be monitored or specific considerations for water ponding, improving thermal protection of the permafrost, as the MLA port construction and associated infrastructure advances.
Road and Pad Thickness	 The main areas and roadways inspected at the MLA included: Shoreline Pad (discussed further below) Freight Storage Pad Camp Pad MLA Airstrip / Runway (discussed further below) Laydown Pad (located south of the camp pad area)
	 Former Temporary Fuel Storage Depot Area (discussed further below) Former Explosives Storage Berm / Area MLA Quarry area. This includes: Existing Phase 1 Quarry Tank Farm (discussed further below) In-Progress Phase 2 Quarry Tank Farm Area (likely could add a dashed line around the whole area
	and outlined as 'MLA Quarry Area' - Fuel Offload / Access Road
	■ In general, the pads and roadways at the MLA are similar to what has been constructed at Goose. They are in a transitional state and most of the fill thicknesses are at the minimum ranges, or just below, to avoid or slow deepening of the active layer on site. The main difference is that all the roads and pads and the MLA were constructed from Run-Of-Quarry material that was sourced from the MLA Quarry Area (see figure 2). In general, this blasted material has a much greater sand content (much finer gradation when compared to the harder blast rock at the Goose area). The higher sand content appears to create a more tightly packed top road surface. This fine gradation material however may be subject to a bit more settlement through the mine line. Ongoing maintenance should be expected on the roads and pads.
	■ The general observation is that the road thickness are quite thin (in many areas 1 m or less) and settlement and ongoing maintenance should be expected. A compiled and updated as-built pick-up of the roads and infrastructure was completed at the MLA in early quarter one of 2023. As part of the 2023 AGI it suggested that that data be used to compare to the pre-development topography surface. This would be used as a more formal check of the thicknesses and width of the existing roads to highlight main area of interest for further monitoring or investigation in 2023. This check can be documented as part of the 2023 AGI.
	At the MLA Sabina should again watch the shoulders of the road and do inspections closer to freshet and throughout the summer. Specifically, 1 to 3m from the edge of each road. Care should be given for loaded equipment not to travelling too close to the edges of the roadways (specifically in the summer), and for loads or equipment not to be storage to close to the edges of the roadways and pads (specifically where any tension cracking has been observed or where there is ponding water against the pads). Also, storage of freight or travel of equipment near the edges of over steepened slopes [slope typically steeper than 2H:1V in thicker fill or

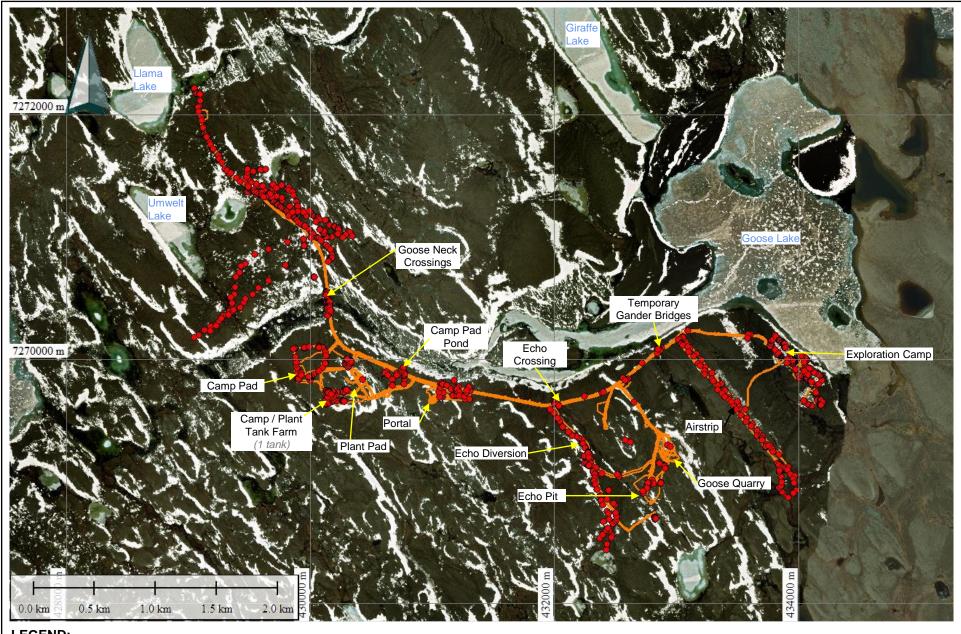
Inspection Item		2022 Observations and Recommendations
		steeper than 1.5H:1V in thinner fill areas (1.5m or lower thickness)] should be avoid; as these areas are expected to relax (shallow) over time.
MLA Airstrip	•	Similar to the Goose airstrip, SRK's review of the MLA airstrip focused on identifying distress of the airstrip embankment and changes in the natural terrain, based on the available imagery data and visual inspections. Distress of the airstrip embankment, mainly near the immediate edges / shoulders, was identified as small linear tension cracks or depressions, inferred to be caused by permafrost degradation in the underlying foundation. In areas this is enhanced by ponding water against the side of the airstrip (some from natural flow paths). This ponding is most prevalent near the south and southwestern portions (specifically near the edges) of the airstrip.
		Sabina should monitor these areas (specifically as temperatures annually warm on site from winter to spring to summer conditions). Some consideration should be given to redirecting or trying to push any ponding water further away from the toes of the existing MLA airstrip. Pumping down / removal of any ponded water at the toes of the airstrip in the fall (before winter freeze up) would increase the cold ambient air and ground heat transfer to help slow down permafrost degradation (reduce thawing rates and slow deepening of the active layer). This increased water management may help to reduce overall short and long-term maintenance activities.
	•	Prior to landing any aircraft on the runway, the aircraft operators should conduct their own assessment of the runway conditions (in terms of functionality) and make recommendations for maintenance. Ultimately it will be at the discretion of the aircraft operators if the airstrip surface is acceptable for their aircraft.
	•	Continued visual and drone image monitoring should be completed at this airstrip. This was done in 2022 and is suggested to be done again in 2023 for comparison. Additional orthorectified drone imagery is suggested to be collected in the summer of 2023 for use as part of the 2023 AGI and to help improve the ongoing monitoring, tracking, and review.
Shoreline Pad	-	The Shoreline Pad is a critical piece of infrastructure that is required to offload the barges at the MLA site. As the Shoreline Pad extends to and slightly into Bathurst Inlet it is more prone to wave erosion and settlement from ongoing use and fluctuating water levels. At the time of the geotechnical inspection there were barges anchored to the Shoreline Pad on site. It was therefore hard to fully inspect the upstream face of the Shoreline Pad however it appeared as if in some area some the outside rock and rip-rap material had settled. The Shoreline Pad is suggested to be inspected by site staff before the 2023 sealift and likely some additional maintenance activities performed, which likely would include adding some additional rip-rap / coarser rockfill off the upstream (in or near water) slope of this pad. This would be done to help minimize erosion to the pad.
	•	Currently this Shoreline Pad appears to be of a reasonable fill thickness (in the range of 2 to 4m). The outside / upstream (or in water) slope is quite steep (more in the 1.5HL1V range based on visual inspections). These steeper slopes appear to have been constructed to allow the barges to dock closer to the fill material. Care should be taken to ensure that any offloading ramps from the barges to the pad are offset at least a few meter inwards from the pad crest to avoid and offloading leading to some slope relaxation or sloughing. At this stage this is more of an operational consideration.
	•	The underlying foundation below the Shoreline Pad is typically comprised (based on available geotechnical drilling information) of sand to silty sand overburden. The top active layer likely now has consolidated (as most of this fill has been in place since 2018) and assisted to increase the foundation strength below this pad. This noted, the sandy foundation would be more prone to elevated pore pressure generation (thereby decreasing the effective stress of the foundation soil) if large loads are place over this pad. If loads larger than this pad has experience / seen to date from the barge offloading, and / or if additional fill material is placed to raise this pad

Inspection Item		2022 Observations and Recommendations
		in the future then the impacts on the foundation should be looked at in closer detail to ensure that a failure through the foundation does not occur. At this time this is not a critical concern but should be considered as this area evolves and develops. Sabina should consider including this area (Shoreline Pad) as part of their site wide thermal monitoring plan (which is currently in development).
MLA Quarry and Fuel Tank	•	The MLA quarry development slowed down in 2022. For the most part the quarry now is separated into three main areas (see Figure 2 for additional details):
Farm		 Phase 1 Tank Farm – this area has been constructed and one tank had been erected in the lined and bunded area (constructed within the footprint for the mined-out quarry). Phase 2 Tank Farm – this area is in progress and is the construction of additional containment area to accommodate the future construction of additional fuel tanks on site. East-southeast (ESE) quarry area – loose material (previously drilled and blasted) still exists in this area and this the one of the current sources for additional fill material for the MLA construction activities if / as needed. At the time of the AGI this area was also being used to temporarily park some of the equipment that was not in use. If there was additional quarry development at the MLA area, this development would be expected to be in this area and likely result further to the ESE.
	•	For the Phase 1 Tank Farm area overliner fill material have been placed over the base of the tank farm but not on the slopes. To finish the construction of this tank farm to design overliner material will also be required to be placed over thee slope.
	•	During the inspection there was water accumulated in the northwest (NW) corner of the bunded area (i.e. where the tank farm base was designed to grade to). Upon closer inspection of this area, evidence that pipes had gone over the slope into this area was apparent. In this portion of the slope (NW corner of Phase 1 bunded area) some of the coarser blasted fill material was noted to have been pushed form the top of the Phase 1 MLA berm onto the slope (speculatively from management and operation activities in the area). To avoid liner damage, it is suggested that priority be given to placing the overline fill in this NE corner of the Phase 1 Tank Farm.
		It is also suggested that in the summer of 2023, when all water is removed from the tank farm, that a visual inspection be done around the design sump area to check the liner integrity. This was unable to be inspected at the time of the AGI. This could be done by Sabina site staff and photographs taken to document the current tank farm base conditions in that area. This is suggested as areas where water pool and water level fluctuate are typically more prone to erosion of overliner material.
	•	At this time there are no additional recommendations for the Phase 2 Tank Farm area or ESE area of the quarry. Those areas were areas of active development and at an interim state. Sabina has been doing ongoing survey checks to compare against the design in these areas. These survey checks should continue as the construction of the Phase 2 Tank Farm progresses, as per the available Issued For Construction drawings for this area.
Former Temporary Fuel Storage Depot Area	•	Previously there were multiple EnviroTanks (fuel tanks) that had been placed in this area; placed within tertiary containment (see Figure 2). This area was used for temporary fuel storage during initial development of the MLA area. The majority of these fuel tanks have been removed / pulled out of this area. There is still one bermed section (and corresponding empty tanks) left at this location that is planned to be removed from this area in 2023. Sabina has outlined that there is no longer any traffic in or around this area. As the tanks in this area were placed on very thin fill, and or on the tundra, and as this low lying area appears to have had more

Attachment 2 – Summary of 2022 AGI Observations and Recommendations - MLA

Inspection Item	2022 Observations and Recommendations
	surface water accumulation and natural ground ice in the foundation soils, increased ponding and degradation of the permafrost was noted as part of the AGI. This area is in the process of being decommissioned.
	 Ongoing monitoring of this location should occur to track the permafrost degradation in this area, to assist with the development of long term remediation plans (for this former temporary fuel storage depot area). From discussions with site staff they noted that they had not observed any notable worsening / degradation of the this area since it stopped being used, and as Sabina actively works to decommission this area. At this time this area is being flagged as one of the primary areas at the MLA for more active data collection and monitoring.

Attachment 3 Photolog from 2022 Site Visit - Goose



LEGEND:

As-Constructed Infrastructure Points Along the 2022 Inspection Track

Plan view imagery extracted from World Imagery (approx. 2020-2021 time range). Reference: source: "Esri, USGS | Northwest Territories, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, US Census Bureau, USDA, NRCan, Parks Canada"



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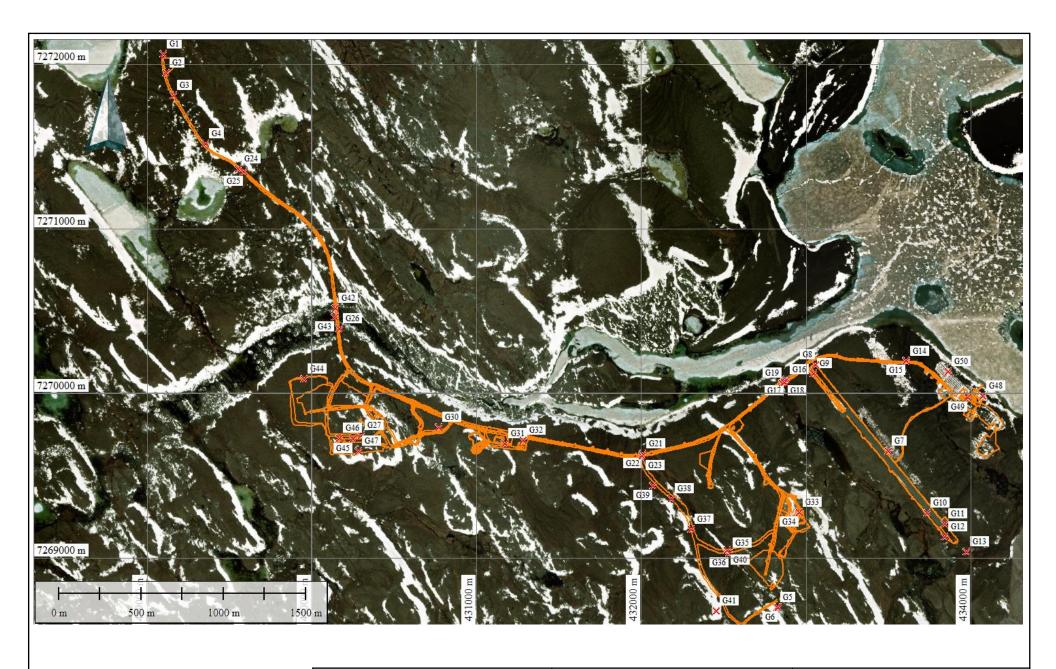
Goose **Inspection Areas and Photo Log**

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Figure: A3.1

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Photo G2



Photo **G3**



Photo **G4**





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Goose **Photo Log**

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A3.3





Photo **G6**





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Photo **G7**



Photo **G8**



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Figure:

A3.5



Photo **G9**



Photo **G10**





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Photo G11



Photo G12



Photo G13



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Photo G15



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Figure: A3

A3.8





Photo G17



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Figure:

A3.9





Photo G19



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Photo **G21**

Photo G20



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Photo G23



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Photo G24



Photo **G25**



Photo **G26**



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Goose **Photo Log**

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Figure: A3.13

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Photo G28





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Photo **G30**





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Photo G32





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Photo G33



Photo **G34**





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Photo G36



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Photo G37



Photo G38



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Photo G39





Photo **G41**



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Photo **G42** Photo **G43**



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Photo **G44** Photo **G45**



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Photo **G46** Photo **G47**





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Photo G48



Photo G49



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Goose **Photo Log**

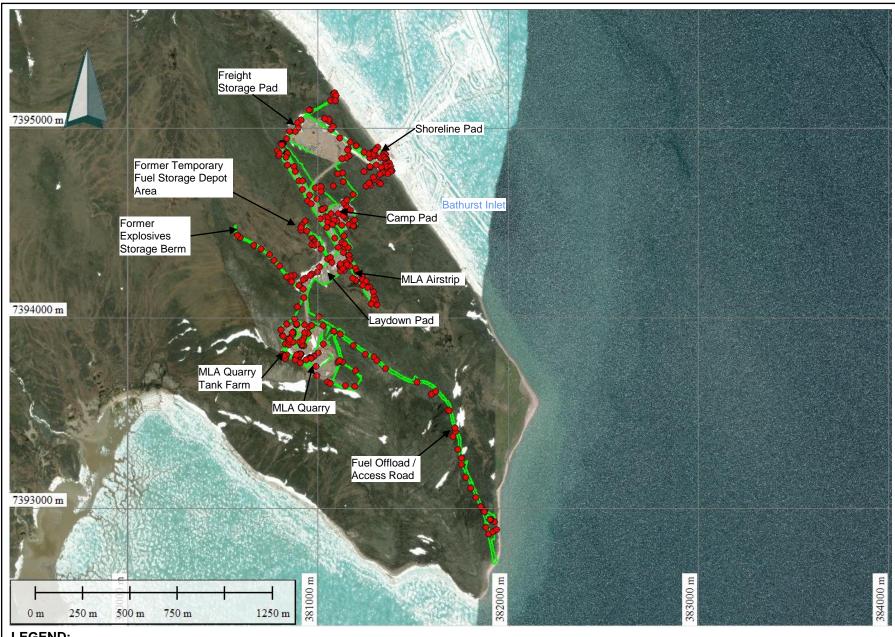
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Attachment 4 Photolog from 2022 Site Visit - MLA



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As-Constructed Infrastructure Points Along the 2022 Inspection Track

Plan view imagery extracted from World Imagery (approx. 2020-2021 time range). Reference: source: "Esri, USGS | Northwest Territories, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, US Census Bureau, USDA, NRCan, Parks Canada"



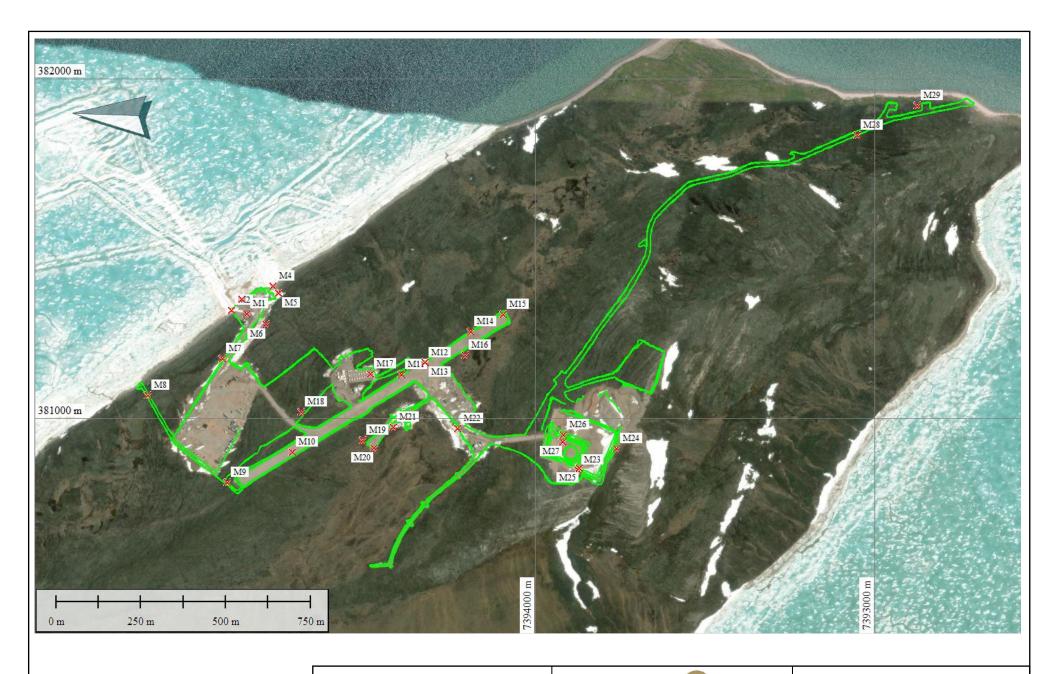
MLA **Inspection Areas and Photo Log**

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MLA **Photo Locations**

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Figure:

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A4.2



Photo M1



Photo M2



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MLA Photo Log

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Photo M3



Photo M4



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Photo M6



Photo M7

Photo M5





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MLA Photo Log

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Figure: A

A4.5

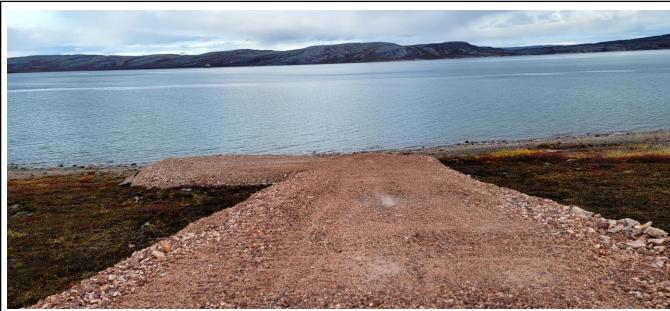


Photo M8



Photo M9





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MLA Photo Log

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Photo M11

Photo M10



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MLA Photo Log

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Photo M13





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MLA Photo Log

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Photo M15



Photo M16



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Photo M17



Photo M18





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Photo M19



Photo M20



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Photo M21



Photo M22



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Photo M23



Photo M25

Photo M24





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Photo M26



Photo M27





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Photo M28



Photo M29



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