2022 MARY RIVER RECLAMATION SECURITY REPORT – VERSION 2

December 27, 2021

Phone: 867.446.4129
Facsimile: 866.475.1147

December 27, 2021

Qikiqtani Inuit Association
P.O. Box 1340
Iqaluit, NU, X0A 0H0

ATTENTION: Chris Spencer, Regulatory Manager

RE: 2022 MARY RIVER RECLAMATION SECURITY REPORT

ARKTIS Piusitippaa Inc. is providing Version 2 of the 2022 Mary River Reclamation Security Report that was completed on behalf of the Qikiqtani Inuit Association (QIA) under the terms of the Commercial Lease No.: Q13C301 with Baffinland Iron Mines Corporation (Baffinland).

Sincerely,

Nicholas Ottenhof
ARKTIS Piusitippaa Inc.

DOCUMENT REVISION HISTORY

Version	Issuing Company	Date Issued	Revision Notes
V1	ARKTIS Piusitippaa Inc.	December 17, 2021	Unsigned draft for review.
V2	ARKTIS Piusitippaa Inc.	December 27, 2021	Signed final for review.

TABLE OF CONTENTS

LIST OF TABLES

1 INTRODUCTION

ARKTIS Piusitippaa Inc. (ARKTIS) submits this 2022 Mary River Security Report (Report) to the Qikiqtani Inuit Association (QIA) that summarizes Baffinland's 2022 Marginal Closure and Reclamation Financial Security Estimate Rev. 0[1] including changes outlined in Baffinland's 2021 Work Plan Addendum (2021 Work Plan Addendum)[2] for the Mary River Project (Project), collectively referred to as the "Baffinland 2022 Estimate". Recommendations for QIA's reclamation security are also provided.

Adjustments to Baffinland's annual reclamation security are required as per Section 9.2, Item (d), of the Lease[3] as well as by the Nunavut Water Board (NWB) for Baffinland's Type 'A' Water Licence No. 2AM-MRY1325.[4]

The structure of this Report is as follows:

Section 2 outlines the methodology and assumptions used in the analysis.

Section 3 presents a summary of accepted changes due to the 2021 Work Plan Addendum.

Section 4 presents reconciliation from previous work plans.

Section 5 presents Direct Costs in the 2022 Baffinland Estimate.

Section 6 presents Indirect Costs in the 2022 Baffinland Estimate.

Section 7 provides a summary of recommendations.

Section 8 provides a disclaimer and a closure of the document.

Appendix A presents ARKTIS general terms and conditions.

Appendix B summarizes unit costs used given inflation.

Appendix C presents a summary table of the Direct Cost adjustments.

Appendix D presents a summary table of the Indirect Cost adjustments.

Appendix E includes summary of water treatment quantities.

Appendix F includes Report references.

2 METHODOLOGY

This Report incorporates information from previous ARKTIS reclamation security estimates (2015,[5] 2015 Addendum,[6] 2016,[7] 2016 Update,[8] 2017,[9] 2017 Addendum,[10] 2018,[11] 2018 Addendum,[12] 2019 Arbitration Update,[13] Affidavit of Jamie Van Gulck,[14] 2020[15], and 2021[16]), and an analysis of the changes to planned activities as listed in Baffinland's 2022 Estimate (including the 2021 Work Plan Addendum). ARKTIS has also relied on the Interim Closure and Reclamation Plan (ICRP)[17] to expand on noted uncertainties.

Consistent with the ARKTIS 2021 Security Report,[18] the reclamation security estimate continues to apply the guidance provided in the 2020 Arbitration Final Award (Final Award).[19]

As directed by QIA, Baffinland's quantities and costing for each reclamation line item were adopted by ARKTIS unless otherwise noted. The general basis is that methodologies and productivities are from the 2014 Complete Project Financial Security Assessment[20] (Baffinland 2014 Report) while unit rates and unit costs are from the 2019 Marginal Closure and Reclamation Financial Security Estimate[21] (Baffinland 2019 Report). ARKTIS has detailed uncertainties using Baffinland costing for each reclamation item in the subsections that follow.

All other reclamation security methodology outside of those identified as amended for the 2022 reclamation security estimate, if applicable, are unchanged and use the methodologies detailed in the ARKTIS 2019 Mary River Financial Security Report,[22] the QIA Abandonment and Reclamation Policy,[23] and generally apply the principles outlined by Indigenous and Northern Affairs Canada,[24] now named Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC).

The resultant change in the 2022 reclamation security estimate, inclusive of agreed to changes made in the 2021 Work Plan Addendum, is summarized in Section 7. For clarity, the 2021 Work Plan Addendum requests changes in two tranches. Tranche 1 contains changes to the 2021 Work Plan that, aside from changes attributed with land disturbance (i.e., grade and recontouring), can be applied with limited liability. Tranche 2 requires additional works to be completed such as the anticipated Equipment Inventory Audit and 2021 sealift backhaul manifests prior to consideration. Both Tranches and their security implications are discussed in Section 3.

ARKTIS has also incorporated in this Report the outcomes included in the ARKTIS 2021 Environmental Audit Report.[25] These are addressed under their respective components throughout the Report.

Security line items may have minor rounding inconsistencies due to the reclamation security model using additional digits to calculate reclamation security. ARKTIS has shown reclamation security to the nearest dollar for each line item. Totals for each section are rounded to the nearest thousand.

The reclamation security does not include activities on Crown Lands (e.g., Steensby Inlet, ore dock), nor does it address the Type 'B' Exploration Water Licence No. 2BE-MRY1421.[26] It is ARKTIS' understanding that QIA does not evaluate liability on behalf of other landowners, nor does QIA intend to take a position on whether the amount of security held by other parties is adequate to fulfill their interests.

2.1 GENERAL LIMITATIONS

QIA has directed ARKTIS to use Baffinland unit costs.[27,28] ARKTIS has used unit costs provided in the Baffinland 2019 Report. ARKTIS understands that the unit costs presented in the Baffinland 2019 Report use productivity and methods described in the Baffinland 2014 Report. ARKTIS has also relied on the Baffinland post-arbitration Estimate Breakdown Structure (EBS) that includes its unit cost development[29] to verify Baffinland unit costs and productivities. Given these assumptions, ARKTIS has identified the following limitations.

2.1.1 Unloading at Disposal Location

As noted in the ARKTIS 2021 Report, there does not appear to be reclamation security for the unloading of materials once it has arrived at the landfill. Reclamation activities typically include disassembly and decontamination, if applicable, and load and haul, but do not include a cost to unload.

2.1.2 Crew Specificity

This limitation was also previously presented in the ARKTIS 2021 Report. Given there is no specific crew or equipment provided in the Baffinland 2019 Report, productivities considered in 2014 may no longer apply. Baffinland has applied blended unit rates for labour and equipment from 2019 without updating productivities from 2014. Certain unit rates in the Baffinland 2014 Report were specific to a task that included additional detail given the lack of Site-specific data. ARKTIS is uncertain the unit rates Baffinland has applied in the Baffinland 2019 Report are consistent with productivity detailed in the Baffinland 2014 Report.

Crew size of reclamation activities appear low. Given the scale of the Project, there is a level of workers required to complete tasks to ensure a safe work environment. For example, the reclamation activity of loading heavy mechanical equipment has a crew of two for one day. Should the labour requirements be considered for such an activity, it may include a labour foreman, a crane operator, and a given number of labourers to complete the task of loading the heavy equipment onto a transport. This lack of crew appears consistent throughout the development of unit costs.

2.1.3 Shipping

ARKTIS notes that Baffinland calculates the demobilization of 3rd Party Equipment using the rate provided by ARKTIS in 2019. This methodology is highly dependent on shipping rates and could be updated to September 2021 dollars based on available rates, in lieu of using inflation per Section 2.1.5.

Further, at the direction of the QIA, ARKTIS has applied a 5% GST to all Indirect mobilization costs for which the shipping rate is applied.[30] This includes the demobilization of 3rd Party Equipment and Phase 2 modules, both of which use rates derived from shipping companies and do not include taxes. Other mobilization costs, such as hazardous materials and worker mobilization, use Baffinland Site estimates and as such are assumed to include applicable taxes.

2.1.4 Fuel

2.1.4.1 Backhaul and Supply for Reclamation

The Final Award confirmed the QIA calculation except for Baffinland's approach to unit rates for fuel. Therefore, ARKTIS has used the unit rate to mobilize fuel at $0.40/L and demobilize fuel at $0.10/L, updated based on inflation as detailed in Section 2.1.5. ARKTIS notes the basis for a fuel mobilization unit rate is reliant on Baffinland information, currently without reference, and could be updated should updated fuel costs, with enough justification (e.g., shipping contract and fee, date, etc.), be provided by Baffinland. Given the anticipated change is minor, rates have been maintained as the same as the Final Award value.

2.1.4.2 Fuel Price

Fuel price refers to the cost to purchase fuel for consumption to complete the reclamation activities by the reclamation mobile equipment. It does not account for the mobilization of fuel.

ARKTIS notes that in the Baffinland 2014 Report, both a fuel cost of $0.97/L and $1/L are referenced. Comparatively, the latest available 2020 Government of Nunavut fuel price[31] is $1.1829/L.

ARKTIS considers the price for fuel to require justification to maintain a value of $0.97/L or $1/L, such as verified Site costs to purchase fuel if different than the Government of Nunavut rates.

2.1.4.3 Fuel for Reclamation Equipment

Baffinland maintains that fuel for reclamation equipment can be assumed as 10% of the equipment cost, effectively creating a blended equipment rate of $137.50/hr inclusive of fuel ($125/hr for equipment plus $12.50/hr for fuel), in 2018 dollars.

Given the agreed equipment classification between QIA and Baffinland, summarized in **Table 2-1**, ARKTIS has found that this may underestimate the required fuel for reclamation. To compare rates, ARKTIS used the Caterpillar 2019 Performance Handbook[32] to quantify expected fuel use.

The light equipment fuel rate was chosen based on the high load of skid steers in the Caterpillar 2019 Performance Handbook. Fuel consumption rates ranged from 9.3-17.3 L/hr.

The medium equipment fuel rate was chosen based on the high load of D6 dozers in the Caterpillar 2019 Performance Handbook. Fuel consumption ranged from 24.6-35.6 L/hr.

The heavy equipment fuel rate was selected based on the high load of CAT 988 loaders in the Caterpillar 2019 Performance Handbook. Fuel consumption ranged from 44.7-55.3 L/hr.

These pieces of equipment were selected based on their frequency of use in the 2014 Baffinland Report.

Therefore, using a fuel price of $1/L, noting the uncertainty of fuel price detailed in Section 2.1.4.2, a fuel rate of $12.50/hr does not appear to correspond with equipment consumption expected to be required to reclaim the Site.

ARKTIS notes the fuel for reclamation equipment is a topic of high uncertainty and recommends adjusting the fuel required to be more specific to the expected equipment required for reclamation of the Project.

Table 2-1 QIA and Baffinland agreed mobile equipment classifications.

Equipment Classification	Equipment Example
Light Mobile Equipment	Forklifts, picks up, vehicles around five tonnes and under, scissor lift, man lifts, and small bin trucks. NOTE: Weight thresholds are not always a determining factor. Examples of Light Mobile Equipment include: Skid Steer P10000, Ford F-350 Pick-Up Truck.
Medium Mobile Equipment	Vehicles around 10 tonnes, trailers, buses, tow trucks, large garbage bins and water trucks. NOTE: Weight thresholds are not always a determining factor. Examples of Medium Mobile Equipment include: D6 Dozer, Kenworth T800 Fuel/Lube Truck, CAT P20000, Passenger Buses, Secondary Drills, Rock Drills, D6 Wheel Dozer, Dump Trailers.
Heavy Mobile Equipment	Vehicles over 10 tonnes, boom trucks, large front-end loaders, dump trucks, graders, and cranes. NOTE: Weight thresholds are not always a determining factor. Examples of Heavy Mobile Equipment include: D9 Dozer, CAT 740 EFLT Fuel/Lube Truck, CAT 824H Wheel Dozer, Production Drills.

2.1.5 Inflation

The Final Award confirms the QIA methodology for indexing unit rates to inflation using the Bank of Canada inflation calculator based on the consumer price index (CPI) for future years in which rates are not updated. All unit costs used to create the global security estimate have been updated to September 2021 values (see below for justification). Values provided in Section 3, 4, 5 and 6 as well as the global security estimate in Section 7 are shown in September 2021 dollars.

ARKTIS notes that Baffinland's process for applying inflation is flawed, as it only updates the marginal increase as well as assumes an equivalent base-year for all values. This does not provide the entirety of the estimate in September 2021 dollars and does not account for when certain unit costs were agreed upon. In its response to the QIA Information Request,[33] Baffinland confirmed it only applied inflation to "the sum of the direct and indirect costs to the 2022 Marginal Security Estimate, including items labelled 2022 and

2022-R". Disagreement with Baffinland's methodology, which was the same methodology it applied in the Baffinland 2021 Estimate, was stated in the ARKTIS 2021 Report.

To update unit rates from one year to another, an inflation adjustment multiplier is used.

$$Inflation\ adjustment\ multiplier = 1 + \frac{CPI_2 - CPI_1}{CPI_1}$$

where:

CPI_1 – is the CPI in the initial period.

CPI_2 – is the CPI in the second period.

To fulfill the inflation adjustment multiplier equation, the CPI is required for Iqaluit (not seasonally adjusted) for the month of September. The month of September is appropriate given it is the latest month available following the Baffinland Annual Security Report that is due November 1 each year per the Lease. Key CPI readings, to inform the inflation adjustment multiplier, are provided in **Table 2-2**.

Table 2-2 Select CPI readings.[34]

Description	CPI Reading (September)
2002 CPI Reading (Base Year, September)	100
Original year unit rates were developed (2014, September)	118.8
Year the Consumables unit cost was developed (2016, September)	124.5
First unit rate update (2018, September)	129.5
Baffinland 2022 Estimate (2021, September)	133.7

As such, the following inflation adjustment multipliers were used, indicated to three decimals. Decimals, however, are not rounded in ARKTIS' global security estimate, and may result in minor cost discrepancies due to rounding differences.

1. Unit rates developed in 2014 and updated to September 2021 had an inflation adjustment multiplier of 1.125.
2. Unit rates developed in 2016 and updated to September 2021 had an inflation adjustment multiplier of 1.074.
3. Unit rates developed in 2018 and updated to September 2021 values had an inflation adjustment multiplier of 1.032.

An example calculation for updating the cost for Grade and Recontour (a 2018 value) to September 2021 dollars is as follows:

$$\frac{\$1.49}{m^2}\ 2018\ dollars\ x\ 1.032 = \frac{\$1.54}{m^2}\ September\ 2021\ dollars$$

Appendix B summarizes the September 2021 unit costs used within ARKTIS' estimate, including the original unit cost, year it was developed, and the CPI readings used to update to the unit costs.

2.2 DIRECT COST METHODS

2.2.1 Fill Application

ARKTIS notes the fill application unit cost includes drilling and blasting. ARKTIS is aware that general Site practice is to apply sand and gravel excavated from the KM97 borrow source which is unlikely to require blasting during the summer months when the surface layer is not frozen. However, the KM97 Borrow Source Management Plan[35] indicates that there is the potential for winter blasting, crushing, and sorting of frozen gravel, although winter extraction is not expected. This remains an uncertainty.

ARKTIS reiterates fill application as a topic of high uncertainty. Currently, there is only one landfill located at the Mine Site, with no landfill at Milne Port. It is uncertain if there is sufficient capacity at the Mine Site Landfill to contain all materials that require landfilling, as outlined in ARKTIS' 2021 Environmental Audit Report. Furthermore, it is uncertain how lifts of fill have been applied to ensure sufficient fill is captured to cover landfilled material. Mirroring ARKTIS' uncertainty in 2014, emphasis should be placed on having Baffinland determine the final disposal location so that area, lifts, and suitability to QIA can be assessed.

2.2.2 Grade and Recontour

Grade and recontour of all disturbed areas at Site, to reinstate to near original grades, includes all infrastructure pads (e.g., accommodations pads), laydown areas, ore stockpiles, roads, quarries, and borrow sources. Within the Baffinland 2014 Report, grade and recontour was broken down into four different components:

1. Grade and recontour.
2. Grade and recontour/grade and recontour of building footprints.
3. Grade and recontour with liner.
4. Grade and recontour significantly disturbed areas.

ARKTIS notes that the reclamation activities for grade and recontour, using a dozer to move material at an average 0.5 m depth, may no longer be best applied to quarries or borrow areas to reflect closure activities described in the ICRP (e.g., filling, slope stabilization). Further, the ICRP relies on a Final Grading Plan which is not yet developed. Until such time a Final Grading Plan is developed, uncertainties in the amount of grade and recontour at closure will exist. QIA may consider development of fill considerations that exceed the 0.5 m depth that would be more appropriate for filling, slope stabilization, etc.

ARKTIS notes the method used by Baffinland for the removal of liners has a high level of uncertainty given the productivity was developed without consideration for crew size, the cost for the removal of a liner has minimal details, and the lack of Site data that should be available given the need of replacement of liners (e.g., the Waste Rock Facility liner does not appear to have these elements considered). Baffinland does indicate in its post-arbitration EBS that this cost is based on 100% of installation hours; however, ARKTIS has not seen the basis for this unit cost development.

2.2.3 Pit Stabilization

ARKTIS understands a pit stabilization unit cost was in development in the Baffinland 2014 Report but has yet to be used. The Baffinland 2014 Report indicates that the pit stabilization unit cost was similar to the unit cost for fill application, involving hauling fill to stabilize the open pit. In the ARKTIS 2021 Report, the unit cost for grade and recontour of significantly disturbed area was applied to capture pit stabilization liability in the interim; however, this is not an adequate long-term solution.

2.2.4 Culvert Removal

ARKTIS understands the unit cost developed for culvert removal is based on typical sizing of culverts. This will require updating, or development of additional size culvert unit costs, should larger culverts be required given larger ore transportation equipment require water crossings to be developed.

2.2.5 Bridge Removal

Baffinland has indicated that the unit cost for bridge removal is one third of the installation hours. ARKTIS considers this unit rate highly uncertain as it does not appear to consider loading, hauling, and unloading at a landfill, nor the specific labour or equipment requirements that would have been necessary to construct the bridge. As stated in the ARKTIS 2021 Report, this uncertainty may yield an inaccurate unit cost and should be amended to account for labor and equipment efforts.

2.2.6 Timber Cribbing

ARKTIS has no concerns with timber cribbing aside from those concerns included in Section 2.1.

2.2.7 Precast Foundations

Baffinland factors in 0.5 hr per precast concrete foundation block to load but does not appear to account for the volume of the foundation block in the Baffinland 2022 Estimate. For example, the Baffinland 2014 Report indicates precast foundation volume of 0.26 m^3 per 1 m^2 of building as well as 25% of the foundation area being precast foundations. These factors do not appear to be used to develop the appropriate reclamation activity units. ARKTIS is uncertain if there is an error in the unit rate estimate calculation.

2.2.8 Slab on Grade

ARKTIS is uncertain the currently proposed grade and recontour applied to the applicable areas will be sufficient to adhere to closure criteria and may require a fill, haul and dump component should locally available materials not be sufficient to cover the slab. This uncertainty also applies to precast concrete foundations. This unit rate may be refined once better understanding of closure requirements is developed.

2.2.9 Mechanical and Mobile Equipment

As noted with the general limitations described in Section 2.1, there is uncertainty regarding required costing for unloading of equipment at the landfill, which may have high-cost implications given the number of mechanical and mobile equipment that will require unloading. ARKTIS also believes the reclamation activity to disassemble, decontaminate, and load, haul, and unload at a landfill may have Site-specific occurrences that can be used to draw information to refine the unit cost, considering the extent to which equipment may have already been reclaimed.

Baffinland has completed an Equipment Inventory Audit to mitigate uncertainties with respect to the quantity of equipment on Site. Results of this exercise will be included once received and assessed.

2.2.10 Buildings

Previously stated concerns over discrepancies of building footprints between QIA's and Baffinland's estimate remain applicable, as defined in the ARKTIS 2021 Report.

The reclamation of buildings assumes a 3 m tall building. Given observations during QIA Environmental Audits, it was noted that many of the proposed buildings, and likely many historical buildings exceed the 3 m assumption. Consistent with the ARKTIS 2021 Report, ARKTIS has applied an adjustment factor should a building height be greater than 3 m; the factor being the height of the building divided by 3 m, multiplied by the area to determine the reclamation cost. ARKTIS considers this a typical approach used in other project cost estimates to factor in building height and has applied this methodology to the buildings for 2022. This methodology has not been applied to those buildings outside the 2021 or 2022 estimates, due to availability of building heights. ARKTIS considers a future Environmental Audit the appropriate method to factor in the height of each building. This was not completed during the 2021 Environmental Audit due to time constraints.

This change in assumed height data may impact the fill calculation required to cover these buildings at the landfill.

2.2.11 ISO Shipping Container and Sea Containers

ARKTIS notes these two items are now the same unit cost given the Final Award that indicates Sea Containers may be landfilled, similar to ISO-Containers. There was no count of ISO-Containers during the 2021 Audit, therefore quantities are based off the ARKTIS 2021 Report.

2.2.12 Piping and Cabling

ARKTIS notes that the unit cost used is a generic rate independent of the diameter or heat tracing of the pipe. ARKTIS has observed multiple size pipes during Environmental Audits; however, the cost used does not provide confidence that the unit cost factors in different sizes. Furthermore, it is uncertain the exact quantity of diameter-specific pipes currently at Site.

Both cabling and piping combines the reclamation activities of disassemble, load, haul and dispose into one activity. ARKTIS considers this highly uncertain and suggests the activity be further separated into specific reclamation activities to inform the required labour and equipment.

2.2.13 Incinerator, Potable Water, and Sewage Treatment Plant (Vendor Package)

ARKTIS has no concerns with Incinerator, Potable Water, and Sewage Treatment Plant (identified by Baffinland as a “Vendor Package”) aside from those concerns included in Section 2.1.

2.2.14 Non-Fuel Storage Tanks

Baffinland includes a cost to empty non-fuel storage tanks. However, the cost to dispose of this material is not detailed. Should greater certainty and location of non-fuel storage tank contents be known, greater certainty of removal and disposal costs can be estimated.

2.2.15 Fuel Storage Tanks

Baffinland includes the cost to empty and remove fuel storage tanks. However, the cost to transport the drained fuel that requires demobilization from Site has not been considered. This may have minimal impact for fuel stored at Milne Port but will require transport costs for all fuel requiring demobilization from the Mine Site to Milne Port.

2.2.16 Miscellaneous Items

ARKTIS has no concerns with miscellaneous items aside from those concerns included in included in Section 2.1.

2.2.17 Reclaim Conveyor

ARKTIS has no concerns with reclaim conveyor aside from those concerns included in Section 2.1.

2.2.18 Contaminated Soil Removal

Baffinland does not have a contaminated soil removal cost. ARKTIS has developed a unit cost, described in Section 3.9 of the ARKTIS 2021 Report, given the Final Award.

2.2.19 Airstrip Lighting

ARKTIS has no concerns with airstrip lighting aside from those concerns included in Section 2.1.

2.2.20 Shiploaders

In the Baffinland 2014 Report, Baffinland assumes 12 people for four months, or 14,448 hours, with equivalent equipment hours being required. However, Baffinland’s post-arbitration EBS indicates a crew of 20 for four months, also being 14,448 hours with equivalent equipment hours. It is uncertain if the hours indicated need adjustment based on the crew size.

2.2.21 Camp Mats

Baffinland does not have a unit cost to reclaim camp mats. ARKTIS has developed a unit cost in Section 3.9 of the ARKTIS 2021 Report using Baffinland methodologies.

2.3 INDIRECT COST METHODS

2.3.1 Hazardous Materials/Waste and Ammonium Nitrate Backhaul

As included in the ARKTIS 2014 Report, shipping and disposal costs for hazardous materials were obtained from actual Site-related unit costs supplied by Baffinland and based on Baffinland experience in shipping and disposing of these materials as part of its regular operations on-Site. The Baffinland 2014 Report identified the unit rate of $358/m^3 to be an item of high uncertainty. Given this unit rate does not have a source that is currently available, this unit rate may be updated should Site-specific data be provided.

ARKTIS has considered this unit cost to be developed in 2014 and will require inflation to update the cost to September 2021 dollars. Using an inflation multiplier of 1.125, the resulting unit cost is $403/m^3.

2.3.2 Explosives

ARKTIS maintains that reclamation security should be held for the maximum explosives that Baffinland may store at Site in any given year. There have been no recommendations to increase quantity of explosives since the ARKTIS 2021 Report.

ARKTIS considers this unit cost for explosives removal to have been developed in 2014 and will require inflation to update the cost to September 2021 dollars. Using an inflation multiplier of 1.125, the resulting unit cost is $2.67/kg.

2.3.3 Contaminated Soil Treatment

Baffinland has never updated the unit cost for contaminated soil treatment. Therefore, ARKTIS has used Baffinland's unit cost from the Baffinland 2014 Report of $14.73/m^3. ARKTIS considers this unit cost to have been developed in 2014 and will require inflation to update the cost to September 2021 dollars.

Using an inflation multiplier of 1.125, the resulting unit cost is $16.63/m^3.

Considering the ongoing nature of contaminated soil treatment at Site, ARKTIS believes this unit cost, based on equipment productivity estimations could be updated should Site-specific data be available.

2.3.4 3rd Party Mobile Equipment

Baffinland has adopted QIA's 2018 unit cost for the demobilization of 3rd Party Mobile Equipment. ARKTIS notes that this rate is dependent on shipping rates that have not been updated to September 2021 values. ARKTIS has considered the 3rd Party Mobile Equipment costs to be in 2018 dollars. As such, inflation is applied to update these costs to September 2021 dollars as detailed in Section 2.1.5. Further, per Section 2.1.3, a GST of 5% has been applied to the unit cost for all 3rd Party Equipment. Therefore, the 2018 unit costs of $2,786/3rd Party Light Mobile Equipment, $8,203/3rd Party Medium Mobile Equipment, and $15,965/3rd Party Heavy Mobile Equipment, using an inflation factor of 1.032, results in September 2021 unit costs of $3,020/3rd Party Light Mobile Equipment, $8,892/3rd Party Medium Mobile Equipment, and $17,306/3rd Party Heavy Mobile Equipment.

2.3.5 Mobilization of Workers Required for Reclamation

The total person-days for the reclamation of all Site components was previously determined, for which 30% were to be assumed person-days for Nunavut residents and 70% person-days for southern crews. The 30%/70% division of crews applies in particular to crew transportation costs. Per the Final Award, ARKTIS has assumed the Baffinland supplied unit cost of $1,532/passenger ($118,000/77 passengers) for return charter flights between the Mine Site and southern Canada and $1,500/passenger ($36,000/24 passengers) for flights between northern communities and the Mine Site. The number of return flights over

the course of complete Site reclamation was determined assuming crew shifts of three weeks on and three weeks off.

ARKTIS has considered the mobilization of workers required for reclamation costs to be in 2014 dollars. As such, inflation is applied to update these costs to September 2021 dollars as detailed in Section 2.1.5. Using an inflation factor of 1.125 to convert the 2014 unit cost for mobilization of workers of $75/northern person-day and $85.45/southern person-day to 2021 dollars, the resulting unit costs are $84.41/northern person-day and $96.17/southern person-day.

2.3.6 Worker Accommodation and Camp Operations

ARKTIS has assumed Baffinland's unit cost for worker accommodation and camp operation required for reclamation as Baffinland's rates were accepted in the Final Award. However, ARKTIS has updated camp costs for inflation per Section 2.1.5. The following are select assumptions that result in a unit cost of $253.78/person-day for worker accommodation and camp operations:

1. The Baffinland 2014 Report indicates camp maintenance, catering and housekeeping by a 3rd Party Operator is assumed to be $110/person-day for an 80-person camp.
2. The Baffinland 2014 Report includes fuel for camp operation based on the Mary River Fuel Balance that allocates 1,732,500 L of fuel per month for power and heat generation based on an average monthly camp load of 500 people (assume 30 days per month).

2.3.7 Mobilization and Demobilization of Reclamation Equipment

The Baffinland 2014 Report states:

> *Mobilization and demobilization costs are inclusive of equipment, materials and consumables required for reclamation and demobilization of reclamation equipment, 3rd Party Equipment, and misc-equipment, materials, waste, and consumables that have yet to be identified at the time of this estimate.*

Baffinland assumes a mobilization and demobilization cost estimated as 10% of total Direct Costs.

As the Final Award accepted that 3rd Party Equipment will follow QIA's methodology requiring demobilization, ARKTIS has interpreted that the 10% included for mobilization and demobilization does not include 3rd Party Equipment already at Site.

As directed by QIA to adopt Baffinland unit costs, ARKTIS has adopted the 10% of Direct Costs to account for mobilization and demobilization of reclamation equipment costs.

Given this unit cost was developed based on the scale of Project reclamation in 2014, this approach could be further verified as appropriate compared to an alternative methodology. This could include utilizing estimated equipment, material, and consumable requirements for reclamation with shipping rates or other equipment/material mobilization and demobilization rates to estimate costs.

2.3.8 Closure and Post-Closure Monitoring

ARKTIS has maintained the closure and post-closure monitoring costs as accepted in the Final Award and detailed in Sections 3.1, 3.2 and 3.3 of the ARKTIS 2021 Report except as detailed in Section 4.5 of this Report regarding water treatment.

ARKTIS has considered the closure and post-closure monitoring costs to be in 2018 dollars. As such, inflation is applied to update these costs to September 2021 dollars as detailed in Section 2.1.5.

As further information becomes available for closure and post-closure monitoring, these costs can be further refined to be more Site-specific.

ARKTIS notes that costs associated with Site water treatment are included with the closure and post-closure monitoring costs, and thus are treated as an Indirect Cost that is subject to administration and project management fees and contingency. As described in the Baffinland 2014 Report, Indirect Costs are

costs incurred as a result of conducting the closure activities but cannot be directly related to a specific cost associated with a specific project component's closure activity (e.g., demolition and reclamation of a structure). Water treatment is required to occur independent of other closure activities, thus there is a case for including water treatment as a separate Direct Cost where it would be subject to additional engineering fees. However, given a water treatment system is already established at the Waste Rock Facility and operating post-closure should occur, there is likely to be limited additional engineering required. Thus, ARKTIS believes including water treatment as an indirect fee as reasonable.

2.3.9 Engineering Fees

Baffinland continues to use a value of 3.9% for engineering fees applied to Direct Costs.

The following organizations have documentation that relate to engineering and professional fees:

1. Association of Consulting Engineering Companies Ontario[36] (ACECO).
2. Ontario Society of Professional Engineers[37] (OSPE).
3. Association of Consulting Engineering Companies Saskatchewan[38] (ACEC-SK).
4. Consulting Engineers of British Columbia[39] (CEBC).

The ACECO provides guidance on the selection of engineering fees as a percentage of "construction costs", which is defined at the contract price(s) of all elements of the project designed by, or on behalf of, the professional engineer, including the general contractor's overhead and profit and all applicable taxes, except the harmonized sales tax (HST).

The ACECO recommended fees are based on historical data reported by the Professional Engineers Ontario and on survey data received from professional engineers and clients. The ACECO recommended fees apply to undeveloped areas where complexity is not introduced by existing structures and suggests that an additional fee should be negotiated for services related to demolition work.

In its 2020 fee guideline, the ACECO states an engineering design services fee of 6.75-7.25% should provide fair and equitable compensation for projects of average complexity with construction costs in excess of $10M. By way of comparison, the OSPE 2015 guideline recommends a 4.6% engineering design services fee for construction projects over $10M. ACEC-SK 2019 guideline recommends a fixed amount of $1.51M on the first $30M with a 4.5% fee on remaining costs for projects over $30M. Using the methodology recommended by the ACEC-SK, a $75M and $100M project would have a 4.71% and 4.66% engineering fee, respectively.

Used in the ARKTIS 2014 Report, the CEBC guidelines have not been updated since 2009 and remain at 3.9% for infrastructure engineering projects of average complexity with a construction cost of $20M. Further, the ARKTIS 2020 Report updated the engineering fees to 5%.

Based on the notion that the current reclamation activities are of average complexity, the Project is much larger than $20M as included in the ARKTIS 2014 Report, and as the CEBC guideline appears to be out of date, ARKTIS has used an engineering fee of 5% applied to total Direct Costs; this approach is consistent with the ARKTIS 2020 and 2021 Reports.

2.3.10 Contract Administration and Project Management

Contract administration and project management has been applied as a percentage to Direct Costs, post-closure monitoring and maintenance, and contaminated soil treatment.

Consistent with the most recent available guidelines for contract administration and project management fees provided by OSPE, ARKTIS has maintained the administration and project management fee at 9.4%.

2.3.11 Contingency

Per QIA legal direction, ARKTIS' contingency fee calculation of 20% was applied to Direct Costs, contaminated soil treatment, and closure monitoring/reporting costs. Given the availability of engineering

detail and levels of certainty used to develop the report, this level of contingency is still considered appropriate.

Application of contingency to other Indirect Costs, including mobilization and demobilization of equipment and materials, worker accommodation and camp operation, and mobilization of workers, was excluded based on direction from QIA. QIA understands excluding contingency from these items may leave potential uncertainty in the respective costing estimates not fully addressed but considers the risk low due to the inherent conservativeness in activities and unit rates applied, and the provision of contingency for all Direct Costs.

3 2021 WORK PLAN ADDENDUM

This Section reconciles changes requested by Baffinland in the 2021 Work Plan Addendum. No security changes have been made based on the 2021 Work Plan Addendum prior to this Report. The 2021 Work Plan Addendum was submitted to revise plans for 2021 works due to the delay in the Phase 2 regulatory process.

In the submission, Baffinland delineated revisions into Tranche 1 and Tranche 2 requests. Tranche 1 mainly being removal of planned works and mobilization of equipment from the 2021 Work Plan. In contrast, Tranche 2 was requested to reduce reclamation security for Baffinland and 3rd Party Equipment following an Equipment Inventory Audit. At the time of the 2022 Work Plan submission, the results of the Equipment Inventory Audit were still pending and as such, ARKTIS does not have the information available to comment on any reductions in reclamation security related to Tranche 2. Due to this, only Tranche 1 reductions were considered until results of the Equipment Inventory Audit are received.

3.1 TRANCHE 1- DIRECT COSTS

3.1.1 Tranche 1- Mechanical and Mobile Equipment

Baffinland removed a total of 26 pieces of light, medium and heavy mobile and mechanical equipment from the 2021 Work Plan. Consistent with previous methodology, ARKTIS accepts removal of mobile and mechanical equipment that has not been mobilized to Site. **Table 3-1** summarizes the assumed reductions and total inflation adjusted cost, per Section 2.2.9.

Table 3-1 Summary of mechanical and mobile equipment changes due to the 2021 Work Plan Addendum.

Description	Unit Rate Type	Quantity (pcs)	Unit Cost (w/ inflation)	Cost
Dual Engine Marine Response Boat	Remove Light Mobile Equipment	(1)	$752.82	($753)
4x4 15 passenger crew van	Remove Medium Mobile Equipment	(1)	$1,200.20	($1,200)
Service Truck	Remove Medium Mobile Equipment	(1)	$1,200.20	($1,200)
Steam Truck	Remove Medium Mobile Equipment	(1)	$1,200.20	($1,200)
SKID STEER	Remove Light Mobile Equipment	(2)	$752.82	($1,506)
Water Jet – Ceramic Cutting	REMOVE LIGHT EQUIPMENT	(1)	$1,635.11	($1,635)
349 Cat Excavator	Remove Heavy Mobile Equipment	(1)	$2,142.30	($2,142)
320 Track Cat Excavator	Remove Heavy Mobile Equipment	(1)	$2,142.30	($2,142)

Description	Unit Rate Type	Quantity (pcs)	Unit Cost (w/ inflation)	Cost
374 Excavator	Remove Heavy Mobile Equipment	(1)	$2,142.30	($2,142)
390 Excavator	Remove Heavy Mobile Equipment	(1)	$2,142.30	($2,142)
Fuel Tanker	Remove Heavy Mobile Equipment	(1)	$2,142.30	($2,142)
Spare 793 Box	Remove Heavy Mobile Equipment	(1)	$2,142.30	($2,142)
740 Water Truck	Remove Heavy Mobile Equipment	(1)	$2,142.30	($2,142)
14M Grader	Remove Heavy Mobile Equipment	(1)	$2,142.30	($2,142)
Ford F350 Pickup	Remove Light Mobile Equipment	(3)	$752.82	($2,258)
4x4 hotseating bus	Remove Medium Mobile Equipment	(2)	$1,200.20	($2,400)
48 Person School Bus	Remove Medium Mobile Equipment	(2)	$1,200.20	($2,400)
D10 Dozer	Remove Heavy Mobile Equipment	(2)	$2,142.30	($4,285)
908 CATERPILLAR LOADER	Remove Heavy Mobile Equipment	(2)	$2,142.30	($4,285)
TOTAL		**(26)**		**($40,000)**

3.1.2 Tranche 1- Site Works

A summary of Site work changes due to the 2021 Work Plan Addendum is provided in **Table 3-2**.

The 2021 Work Plan Addendum removed a total of 4 new quarries and 4 new laydowns, as well as removed a planned expansion of the Q1 Quarry beyond the current Project Development Area (PDA) boundary. ARKTIS was unable to verify these new works during the 2021 Audit due to on-site time, agreement that no formal measurement tools would be used, and due to Site weather conditions; Auditors, however, received verbal confirmation by Baffinland staff that works have not occurred for these items. In good faith, ARKTIS has included the reduction of these items less the Quarry Q1 expansion and Quarry Q5. The other 3 of 4 new quarries are included (i.e., Quarry PQ2a, Quarry PQ4a and Quarry PQ12a). As drilling and blasting was indicated to be occurring at Quarry Q1 during 2021, and Auditors were unable to confirm the boundaries of the Q1 Quarry during the 2021 Audit, ARKTIS has not removed the 651,406 m^2 associated with Quarry Q1 and recommends further confirmation of the footprint (i.e., comparison of the disturbed area observed at Quarry Q1 to the approved footprint according to the initial Quarry Management Plan) and an amended Quarry Management Plan prior to any reduction. A reduction for Quarry Q5 was not accepted as it remains a proposed quarry, according to Table 4.3 of the 2022 Work Plan.

Table 3-2 Summary of Site work changes due to the 2021 Work Plan Addendum.

Description	Unit Rate Type	Quantity (m^2)	Unit Cost (w/ inflation)	Cost
Reduction of Quarry Q1 footprint to existing PDA boundary	Grade and Recontour	(651,406) Not Accepted	$1.54	Not Accepted

Description	Unit Rate Type	Quantity (m^2)	Unit Cost (w/ inflation)	Cost
Deferral of Quarry Q5	Grade and Recontour	(1,240,587) Not Accepted	$1.54	Not Accepted
Deferral of Quarry PQ2a	Grade and Recontour	(345,000)	$1.54	($530,722)
Deferral of Quarry PQ4a	Grade and Recontour	(105,000)	$1.54	($161,524)
Deferral of Quarry PQ12a	Grade and Recontour	(232,200)	$1.54	($357,199)
Deferral of Laydown 4	Grade and Recontour	(66,300)	$1.54	($101,991)
Deferral of Laydown 7	Grade and Recontour	(28,900)	$1.54	($44,458)
Deferral of Laydown 10	Grade and Recontour	(34,500)	$1.54	($53,072)
Deferral of Laydown 13	Grade and Recontour	(7,000)	$1.54	($10,768)
TOTAL REQUESTED BY BAFFINLAND		(2,710,893)		($4,173,400)
TOTAL ACCEPTED		**(818,900)**		**($1,261,000)**

3.1.3 Tranche 1- Fill Application

Fill Application for the reduction in mobile and mechanical equipment required to be landfilled listed above has been included. This is a total of 224 m^2, or a total reduction with inflation of $8,980.

3.2 TRANCHE 1- INDIRECT COSTS

3.2.1 Tranche 1- Phase 2 Shiploader Module

The 2021 Work Plan Addendum requests removal of the Shiploader Module, a Phase 2 package module that was initially planned for mobilization in 2020 but was deferred. During the 2021 Audit, Baffinland confirmed verbally that the Phase 2 Shiploader Module was not on Site. As such, in good faith, ARKTIS believes this reduction to be reasonable. The total reduction is 81,400 m^3, or $9,909,636 at an inflated Unit Rate, with 5% GST, of $121.74/$m^3$.

3.2.2 Worker Mobilization and Accommodations

The reduction in person days for Worker Mobilization and Worker Accommodations was calculated based on the reduction in reclamation activities noted above, and as itemized in Baffinland's EBS. Per Section 2.3.5, it is assumed that 70% of the workforce will consist of southern workers, and 30% northern workers. A summary of person-day calculations is provided in **Table 3-3**. The total cost for southern worker mobilization, northern worker mobilization and worker accommodation is $96.17, $84.41, and $253.78/ person day, respectively when applying the inflated unit rates.

Table 3-3 Summary of worker mobilization and accommodation changes due to the 2021 Work Plan Addendum.

Description	Person Days
Fill Application	(5.6)
Heavy Mobile Equipment	(15.6)

Description	Person Days
Medium Mobile Equipment	(7.0)
Light Mobile Equipment	(0.7)
Light Equipment	(4.9)
Deferral of Quarry PQ2a	(438.6)
Deferral of Quarry PQ4a	(133.3)
Deferral of Quarry PQ12a	(294.8)
Deferral of Laydown 4	(84.2)
Deferral of Laydown 7	(36.7)
Deferral of Laydown 10	(43.8)
Deferral of Laydown 13	(8.9)
Total Person Days (10-hour shift)	**(1,074)**
Southern Worker Mobilization (Person Days)	**(752)**
Southern Worker Mobilization Cost (Unit Rate = $96.17/ person-day)	**($72,000)**
Northern Worker Mobilization (Person Days)	**(322)**
Northern Worker Mobilization Cost (Unit Rate = $84.41/ person-day)	**($27,000)**
Worker Accommodation (Person Days)	**(1,074)**
Worker Accommodation Cost (Unit Rate = $253.78/ person-day)	**($273,000)**
TOTAL COST	**($372,000)**

3.2.3 Fuel Mobilization

The 2021 Work Plan Addendum does not contain any changes to fuel capacity on Site. However, a reduction to fuel mobilization is needed based on the reduction in closure activities noted above. ARKTIS has calculated the required reductions in fuel mobilization based on Baffinland's EBS, as provided in **Table 3-4**.

In addition to fuel required for reclamation, ARKTIS has removed the associated fuel required for camp heating and operations, which is based on the person day reduction provided in Section 3.2.2. Camp heating and operations are assumed to be 116 L per person day, per Baffinland methodology.

Table 3-4 Summary of fuel mobilization changes due to the 2021 Work Plan Addendum.

Description	Fuel Consumption (L)
Fill Application	(454)
Heavy Mobile Equipment	(1,200)
Medium Mobile Equipment	(263)
Light Mobile Equipment	(21)
Light Equipment	(533)
Deferral of Quarry PQ2a	(50,529)
Deferral of Quarry PQ4a	(15,356)
Deferral of Quarry PQ12a	(33,959)
Deferral of Laydown 4	(9,696)

Description	Fuel Consumption (L)
Deferral of Laydown 7	(4,227)
Deferral of Laydown 10	(5,046)
Deferral of Laydown 13	(1,024)
Total Fuel for Reclamation Activities (L)	(122,308)
Fuel Mobilization for Heating (L)	(124,592)
Total Fuel Mobilization (L)	(246,900)
Total Cost (Unit Rate = $0.45/L)	**($111,000)**

3.2.4 Fees and Other Costs

The reductions in costs associated with the 2021 Work Plan Addendum impact the estimate for Mobilization and Demobilization of Equipment and Materials, Contingency, Project Management Fees, and Engineering Fees. Since these changes are calculated on a percentage basis, they are included in the marginal change in Section 7.

4 2021 RECONCILIATION

Baffinland reconciles changes to its 2021 Estimate within the Baffinland 2022 Estimate. Reconciled changes are those that Baffinland is changing given alternate occurrences from those estimated in the given security estimate. ARKTIS has included those items that Baffinland is proposing to reconcile as well as included items from the 2020 Environmental Audit for which the QIA agreed. Baffinland included reconciled items against 2021 inbound shipping manifests under the label “2022-R” in the EBS.

Changes to Worker Mobilization, Camp Accommodation, Fuel Mobilization, Engineering Fees, Project Management Fees and Contingency from reconciled items are captured in Section 6. All other quantities of reclamation activities listed in the ARKTIS 2021 Report remain unchanged. Unit costs for these reclamation activities have been updated to September 2021 dollars for inflation per Section 2.1.5.

4.1 GRADE AND RECONTOUR

QIA provided its disturbed area analysis to ARKTIS on November 25, 2021 and asked ARKTIS to consider the quantity of grade and recontour in the reclamation security estimate in this Report.[40] Upon review of the submissions there remains uncertainties that prevent ARKTIS from confidently updating the security estimate. Specifically, ARKTIS requires more clarity on:

1. Anticipated 2022 works to determine whether there is overlap with QIA’s disturbed area analysis.
2. If areas identified as potentially disturbed during the 2021 Audit have been captured in the disturbed area analysis.
3. Agreement between Parties on the relative tightness of the delineated area to the disturbed area and whether there requires a buffer area during the analysis. Further, and as examples, whether ponds and waste piles are included requires confirmation.

It is possible that Baffinland’s disturbed area analysis helps to address some of these uncertainties, particularly Item 1; however, submission of Baffinland’s assessment has been postponed to January 1, 2022. [41] As such, ARKTIS will seek to work with the QIA following Baffinland’s submission to mitigate the mentioned uncertainties and develop a method for grade and recontour reconciliation that can be applied in a revised and future reports.

Separate from the disturbed area analysis, Baffinland has reconciled values for specific line items. These changes are provided in **Table 4-1**.

Table 4-1 Summary of grade and recontour 2021 Work Plan reconciliation.

Description	Unit Rate Type	Quantity (m^2)	Unit Cost (w/ inflation)	Cost
Construction of berm and linear steel support structure on laydown LP3	Grade and Recontour	6,000	$1.54	$8,940
KM107 Sedimentation Pond	Grade and Recontour	10,600	$1.54	$15,794
KM107 Stockpile and access Road	Grade and Recontour	(56,800)	$1.54	($84,632)
KM110.5 Laydown for Mine Operations	Grade and Recontour	(58,689)	$1.54	($87,447)
TOTAL		**(9,889)**		**($147,000)**

4.2 MECHANICAL AND MOBILE EQUIPMENT

For clarity, this Section describes mechanical and mobile equipment related to 2021 security reconciliation and not the 2021 Work Plan Addendum. As noted, Baffinland has defined reconciled items as “2022-R” in the EBS. At the time of this Report, results from the Equipment Inventory Audit had not yet been received and are not included in this reconciliation. Costs have been provided with inflation, per Section 2.1.5.

Baffinland has reconciled mechanical and mobile equipment for one of three reasons:

1. Equipment was brought to Site but not previously allocated.
2. Equipment was not brought to Site, and Baffinland is no longer planning to bring it to Site, so a reduction in security is requested.
3. Equipment has been demobilized from Site.

Table 4-2 lists the items Baffinland proposes to be reconciled from Baffinland’s 2021 Work Plan.

Consistent with the ARKTIS 2020 and 2021 Reports:

1. ARKTIS has included equipment Baffinland has brought to Site but not previously estimated to ensure security is in place should additional equipment be mobilized.
2. ARKTIS will not decrease reclamation security for items that have been demobilized from Site given the ongoing uncertainty in Baffinland’s inventory tracking system.

For item 2, no such items were recorded as indicated in Table 3 of Baffinland’s Response to QIA’s Information Request. The reductions, that is those negative items under the label “2022-R”, refer to items that are no longer planned to be mobilized to Site, and thus are accepted as a reduction.

A confirmation of equipment mobilization and demobilization was not included in the 2021 Audit, as it was understood work is being conducted to complete an Equipment Inventory Audit. At the time of this Report, results are still pending. ARKTIS will review the results once received and make any necessary changes to the security estimate should the methodology be accepted.

According to the Final Award, 3rd Party Mobile Equipment at the Project cannot be landfilled in a reclamation scenario as it is not the property of Baffinland. Any 3rd Party Equipment has been included in Section 6.3 as an Indirect Cost.

ARKTIS has used Baffinland’s unit costs. Given ARKTIS has used Baffinland’s unit costs, the main difference to Baffinland’s unit cost is based on the quantity of equipment accepted for reconciliation.

Table 4-2 Summary of mechanical and mobile equipment reconciliation.

Description	Unit Rate Type	Quantity (pcs)	Unit Rate ($/pc)	Direct Cost
374 CAT Excavator	Remove Heavy Mobile Equipment	(1)	$2,142.30	($2,142)
D10 Dozer	Remove Heavy Mobile Equipment	2	$2,142.30	$4,285
Bean model 435 Water Pumps	Remove Light Equipment	10	$1,635.11	$16,351
Zinex A5 Diamond Drills	Remove Light Equipment	5	$1,635.11	$8,176
Boat Trailer	Remove Light Mobile Equipment	1	$752.82	$753
Case TV-380 Skidsteer	Remove Light Mobile Equipment	1	$752.82	$753
F250 Light Vehicle	Remove Light Mobile Equipment	(1)	$752.82	($753)
F-350 Pickup	Remove Light Mobile Equipment	4	$752.82	$3,011
Frost Fighter Heater	Remove Light Mobile Equipment	9	$752.82	$6,775
Genie S125	Remove Light Mobile Equipment	1	$752.82	$753
Genie S85	Remove Light Mobile Equipment	1	$752.82	$753
Genie Skylift Z-135	Remove Light Mobile Equipment	1	$752.82	$753
Trailer	Remove Light Mobile Equipment	1	$752.82	$753
Yukon 14ft Boat	Remove Light Mobile Equipment	1	$752.82	$753
Pressure Washing Truck	Remove Medium Mobile Equipment	1	$1,200.20	$1,200
TOTAL		**36**		**$42,000**

4.3 BUILDINGS AND FOUNDATIONS

Similar to Mechanical and Mobile Equipment, Baffinland has included an additional 925 m^2 of buildings under the “2022-R” reconciliation category (i.e., a correction based on 2021 sealift manifests). This addition is included in **Table 4-3**. This addition is captured in Baffinland’s EBS; however, the addition was not provided in the Baffinland 2022 Estimate.

The difference between the Baffinland 2022 Estimate and the ARKTS quantity shown in **Table 4-3** is 1,850 m^2.

Table 4-3 Summary of buildings and foundations reconciliation.

Description	Unit Rate Type	Height (m)	Baffinland Quantity (m^2)	Updated Quantity (m^2)	Unit Rate ($/pc)	Direct Cost
Addition of offices/trailers/buildings at the 800p Camp, including a new fire hall and emergency response building.	Special Modular Building Teardown- Not Contaminated	9	925	2,775	$49.19	$136,502

Description	Unit Rate Type	Height (m)	Baffinland Quantity (m^2)	Updated Quantity (m^2)	Unit Rate ($/pc)	Direct Cost
TOTAL			**925**	**2,775**		**$136,000**

4.4 FILL APPLICATION

Table 4-4 summarizes ARKTIS' fill application security estimate. ARKTIS has adopted Baffinland's unit cost. ARKTIS has included the additional 1,850 m^2 (the difference between the Baffinland 2022 Estimate and the ARKTIS estimate of building foundation footprint due to the height adjustment) from Section 4.3 in the estimate. It is assumed that modular buildings will be compacted where 1 m^2 = 1 m^3 with 6 m of refuse placed on top (as described in Section 5.6).

ARKTIS reiterates the uncertainty of understanding building height as it relates to the required fill to cover all buildings at Site. In addition, this uncertainty impacts calculations of landfill capacity that may have security implications as discussed in the 2021 Audit Report.

Table 4-4 Fill application security estimate comparison.

Item	Location	Quantity (m^2)	Unit Cost ($/$m^2$)	Direct Cost
Fill Application for 2022 Reconciliation, as provided by Baffinland	Mine Site	199	40.09	$7,978
Building height adjustment - 2022 Reconciliation	Mine Site	308	40.09	$12,348
TOTAL		**507**		**$20,000**

4.5 WATER TREATMENT

Consistent with the 2021 Work Plan and Final Award, ARKTIS uses a 3-year average to estimate the volume of water requiring treatment, to reflect the constantly changing operations and capacity of the Project while remaining robust to accommodate extreme fluctuations of Project activities. The quantity of treated water, as provided by Baffinland, includes the treated discharge at the Waste Rock Facility (MS-08) as well as stormwater discharge and other water retention structures (e.g., hazardous waste berms, bulk fuel storage facility, contaminated snow containment facility) that require treatment. MS-08 represents the largest consistent singular source of water treatment and is included as its own line item. For both values, a three-year average of the water treated is used for the annual estimate of water required for treatment during closure. This is then multiplied by three to determine the total water treatment required during closure and is applied to the Unit Rate for calculation of reclamation security.

The three-year average for MS-08 was calculated to be 81,883 m^3, based on years 2019, 2020, and 2021[i]. This is an increase to the calculated three-year average in the 2021 Work Plan of 13,606 m^3 per year. The marginal increase to reclamation security is thus 40,818 m^3.

For other sources of treated effluent, the most recent available information was used to calculate the 3-year average. As treated stormwater discharge only occurs during the summer months and was reported by Baffinland in the 2022 Work Plan, years 2019 to 2021 were used for MP-03, MP-04, MP-04A and MS-HWB-

[i] Baffinland provided water treatment quantities for 2021 in Table 4.6 and Table 4.7 of the 2022 Work Plan for MS-08, MP-03, MP-04, MP-04a, and MS-HWB-07. For these locations, the three-year average was calculated based on 2019, 2020 and 2021. For the remaining locations, complete information for 2021 is not yet available and as such the quantities in 2018, 2019 and 2020 were used, as provided in the respective Annual Report for Operations.

07. The 2021 values of treated sewage continue to be recorded for the remainder of 2021, therefore years 2018 to 2020 were used for calculation as the most recent available information. This applies to MS-01, MP-01, MS-MRY-4b, MS-01B, MP-01A and MP-01B. The resulting three-year average for additional water treatment is 71,695 m^3 per year. This is a marginal increase of 8,946 m^3 per year, or 26,838 m^3 total three-year increase from the ARKTIS 2021 Report. A summary of water treatment is provided in Appendix E.

The total marginal increase for 2022 inclusive of MS-08 and remaining water treatment sources is 67,656 m^3, or $69,850 at an inflated cost of $1.032/$m^3$ and is summarized in **Table 4-5**.

ARKTIS notes the uncertainty with the unit cost of $1/$m^3$, or $1.032 in 2021 dollars, to treat water. ARKTIS acknowledges this unit rate was proposed by ARKTIS given industry experience; however, it is noted that this unit cost was general and not Site-specific. Furthermore, this unit cost would not consider pumping water for approximately two kilometers like what is currently occurring at Deposit 1, where water is pumped to the Waste Rock Facility. ARKTIS suggests that Site specific costs for treatment of water be considered and used to update the rate for water treatment.

Table 4-5 2021 water treatment reconciliation.

Description	Unit Rate Type	Quantity (m^3)	Unit Rate ($/$m^3$)	Indirect Cost
Waste Rock Facility Water Treatment - 2022 Marginal adjustment	Water Treatment	40,818	1.032	$42,142
Water Retention Structure Water Treatment - 2022 Marginal adjustment	Water Treatment	26,838	1.032	$27,708
TOTAL		**67,656**		**$70,000**

4.6 OUTSTANDING 2021 AUDIT RECOMMENDATIONS

There are a number of items from the 2021 Audit that may impact reclamation security in the future. For reader reference, QIA delivered a substantial information request along with its submission of the 2021 Audit Report to Baffinland on December 15, 2021[42] to support security accuracy. However, due to the timing of the Audit, the submission of the 2021 Audit Report to Baffinland, and given response timelines identified in the QIA submission (e.g., a majority of QIA's requests included a January 31, 2022 deadline), information request responses from Baffinland will be considered for future security process. That said, ARKTIS has provided those 2021 Audit item information requests that may have a greater impact on future security processes in **Table 4-6**. Also included in the table are further considerations in anticipation of Baffinland response to QIA's 2021 Audit Report information requests and works required for ARKTIS to make appropriate future security allocations or changes.

QIA has requested a substantial amount of information from Baffinland in its 2021 Audit Report information request. It is recommended that the Parties establish a work plan and address these outstanding items by August 1, 2022, well-prior to the 2023 Annual Security Review.

Table 4-6 Summary of 2021 Audit recommendations that may have a future impact to reclamation security.

Audit Rec. ID	2021 Audit Recommendations	Additional Context for Future Analysis
4	ARKTIS recommends the Parties agree to a tiered closure scenario of an increasingly large pit in Deposit 1, defined by water retention susceptibility.	An additional $210,000 (in 2018 dollars) was allocated in the ARKTIS 2021 Report to address uncertainties with closure of the open pit. However, this allocation was made as an interim measure while a more specific Unit Rate was to be developed.

Audit Rec. ID	2021 Audit Recommendations	Additional Context for Future Analysis
7	ARKTIS recommends confirming security is held in the 2022 Security Estimate for the KM 104.5 dam construction, adjacent sedimentation pond water management, and pond reclamation.	Per Baffinland's response to the QIA Information Request to the 2022 Work Plan, security held for KM104.5 berm is 19,238 m^2 and 6,687 m^2 of grade and re-contour and grade and re-contour with liner, respectively. However, no security is currently held for treatment of the pond. Should it be confirmed that the pond exceeds discharge criteria and requires treatment, ARKTIS recommends the quantity of treated water be added to the quantity of water requiring treatment at closure, as described in Section 4.5. Further, closure management of pond sediments requires further understanding to understand if the current grade and recontour cost is sufficient.
8	ARKTIS recommends considering the unit rate for reclamation of a dam on Site (e.g., KM 104.5 dam and associated sedimentation pond reclamation).	As noted in Audit Rec. ID 7 above, security is held for KM104.5 berm for grade and re-contour and grade and re-contour with liner, respectively. Should QIA deem the berm exceeds the aesthetics (or safety) standards for closure, given its perceived size, additional reclamation security may be required. The current unit rate of grade and re-contour is not considered sufficient for estimating the removal of high volumes of material to reclaim the berm. In the interim, ARKTIS has included significant grade and recontour cost for reclamation of the berm area in the estimate. Further, ARKTIS recommends QIA enter discussions with Baffinland on development of a Unit Rate that could more appropriately be applied to removal of the KM104.5 berm.
25	ARKTIS recommends confirming with Baffinland the purpose of the large pile of aggregate present southeast of the MP-05 East Sedimentation Pond and north of the Milne Port Tire Shop. Should it be confirmed for Phase 2, additional security may need to be allocated in the event Phase 2 is not approved.	See also Audit Rec. ID 8. Like the KM104.5 berm, the current unit rate of grade and re-contour is not considered sufficient for estimating the removal of high volumes of material. As such, in addition to Baffinland confirming what this aggregate pile is for, ARKTIS recommends QIA enter discussions with Baffinland on development of a Unit Rate that could more appropriately be applied to removal of large piles of aggregate.
16	ARKTIS recommends investigating whether QIA holds security for the flow path resultant from the western-most effluent discharge line. QIA may be able to confirm this recommendation through the disturbed area analysis.	QIA has requested this item be investigated during the next geotechnical inspection in its delivery of the 2021 Audit Report to Baffinland. Should this request be actioned by Baffinland, it is assumed any remedial actions necessary will be recommended by the inspector and addressed by Baffinland. However, the disturbed area analysis should be assessed to ensure the flow path caused by the western-most effluent discharge line is captured. If not, an adjustment to security is recommended based on the QIA analysis.
19	ARKTIS recommends confirming with Baffinland when the laydown pad southwest of the Emulsion Plant was constructed and confirm a related Annual Work Plan ID, if one is available.	Confirmation of the Work Plan ID for the laydown southwest of the Emulsion Plant is needed before any reclamation security amendments, if any, can be made. ARKTIS notes this may also be captured within the disturbed area analysis.

Audit Rec. ID	2021 Audit Recommendations	Additional Context for Future Analysis
23	ARKTIS recommends confirming with Baffinland the use of the 50-70 various large concrete slabs in Laydown LP7 and the various large concrete slabs observed in Laydown LP3, the associated Annual Work Plan ID for these slabs, and the extent of security held for the removal of the slabs. Should no security be held, ARKTIS recommends assuming security for these items.	For LP3, clarity is needed from Baffinland on how the various large concrete slabs observed in Laydown LP3 are associated with Work Plan ID 2019-7: *Construction of berm and linear steel support structure on laydown LP3 for receipt and storage of stacker/reclaimer equipment. Berm dimensions are 200 m x 30m x 2m, constructed on existing disturbed area.* ARKTIS does not understand how the concrete slabs are captured in this description. As such, reclamation security for this item is recommended. Currently, ARKTIS does not have sufficient knowledge of the item to make a reclamation security adjustment on its own. For LP7, Baffinland indicated that it must await until no snow cover is present to confirm the dimensions of the concrete slabs observed. ARKTIS is unsure why Baffinland does not have available the size of the slabs. However, though reclamation security is recommended, information regarding the quantity and dimensions of the slabs is needed prior to allocating reclamation security.
28	ARKTIS recommends confirming security is held for the 3 generators and surrounding steel structure south of the Fuel Tank Farm and north of the main generators at Milne Port, and whether the facility is lined or not.	In its response to the QIA Information Request to the 2022 Work Plan, Baffinland indicated these generators are captured in the QIA 2018 Estimate. ARKTIS confirmed the QIA 2018 Estimate contains security for 4 generators. In the same response, Baffinland indicated these generators will be captured in the Equipment Inventory Audit. ARKTIS recommends further confirming this upon receipt of the Equipment Inventory Audit.
53	ARKTIS recommends obtaining compliant As-Built documentation from Baffinland for the Milne Port Fuel Module, confirming the year for which the Milne Port Fuel Module was built, obtaining Site map indicating location of module, and adjust security accordingly.	Compliant As-Built documentation is needed to ensure the Milne Port Fuel Module is adequately secured.
54	ARKTIS recommends security for the KM 106 stockpile pond liner be reconciled to its actual extent, upon confirmation by Baffinland of the area of the pond liner.	Confirmation of the KM106 stockpile pond liner extent is needed prior to making any updates to reclamation security. This could be done via aerial assessment or measured manually by Baffinland or QIA environmental monitors.
58	ARKTIS recommends considering appropriate security for dust management that is consistent with reclamation and closure objectives.	Direction on how and if there is to be any reclamation security amendments related to dust deposition and control is needed prior to allocating security. For example, how QIA may wish to include security for Baffinland's dust mitigation material like DusTreat and DustStop, if at all.

Audit Rec. ID	2021 Audit Recommendations	Additional Context for Future Analysis
62	ARKTIS recommends QIA request from Baffinland a description of work to convert the Q1 Quarry into a landfill, including construction designs and water management planning. Include in security the costs to convert the Q1 Quarry into a landfill until such time that Quarry Q1 is operational as a landfill.	A description of work to convert the Q1 Quarry into a landfill and associated discussion is required prior to any reclamation security allocations. It is recommended these discussions be had following the receipt and understanding of the Equipment Inventory Audit. QIA may consider alternative approaches to reduce capacity required in the landfill; however, this may require additional work outside of the Annual Security Review such as amendment to the ICRP.
63	ARKTIS recommends evaluating the haul distance in security for transport of waste to two distinct landfill locations.	ARKTIS currently applies Baffinland Unit Rates to reclamation security, where available. Haul distances are an integrated assumption to develop Unit Rates. Should the "primary" landfill at the Mine Site landfill be at capacity or near capacity at closure, most material would need to be hauled to the Q1 Quarry and as such new Unit Rates would be needed. Input on whether hauling to two different landfills be included in security is needed.

5 DIRECT COSTS ANALYSIS

The following subsections describe in detail, by reclamation activity, changes to Direct Costs resulting from Baffinland's 2022 Estimate. A summary of all Direct Costs by line item in 2018 dollars is presented in Appendix C.

All unit costs in Section 5 are in September 2021 dollars. A reference table of unit cost conversion from 2018 to September 2021 dollars is provided in Appendix B.

5.1 BUILDINGS AND FOUNDATIONS

Table 5-1 shows a summary of Baffinland's 2022 Estimate for buildings and foundations.

ARKTIS used Baffinland's unit costs with the appropriate update for inflation. However, ARKTIS has changed the "Washcar (bathroom)" line item, included in the text of Baffinland's 2022 Estimate but not within the 2022 Work Plan, to be a contaminated modular building, as opposed to not contaminated. This is consistent with previous estimates where washrooms are assumed to include a contaminated site. The applicable contaminated soil removal and treatment is captured in Sections 5.7 and 6.1, respectively.

As detailed in Section 2.2.10, ARKTIS has applied a height factor for buildings greater than 3 m tall. Updated quantities based on heights are included in **Table 5-1**. The updated quantity is used for the calculation of reclamation security for buildings and fill application as detailed in Section 5.6. The height of the buildings does not impact contaminated soil removal or treatment. Note that given ISO-containers are a standard height, height adjustments for ISO-container buildings are not needed.

Table 5-1 Summary of buildings and foundations for 2022.

Item	Location	Height (m)	Baffinland Quantity (m^2)	Updated Quantity (m^2)	Unit Cost ($/$m^2$)	Direct Cost
Modular Building- Contaminated						
Washcar (bathroom)	Mine Site	4	36	48	$118.61	$5,693
20' ISO-Container Building						

Item	Location	Height (m)	Baffinland Quantity (m^2)	Updated Quantity (m^2)	Unit Cost ($/$m^2$)	Direct Cost
Enhancement of training grounds for the Emergency Response Team with fire retardant infrastructure and secondary spill containment	Milne Port	N/A	59	59	$24.59	$1,451
Addition of offices/trailers at the Environment Department work areas	Milne Port	N/A	56	56	$24.59	$1,377
Enhancement of training grounds for the Emergency Response Team with fire retardant infrastructure and secondary spill containment	Mine Site	N/A	59	59	$24.59	$1,451
Construction of a new COVID-19 PCR testing lab building at the Mine Site	Mine Site	N/A	54	54	$24.59	$1,328
Bit shack (container building)	Mine Site	N/A	30	30	$24.59	$738
Addition of offices/trailers at the Environment Department work areas	Mine Site	N/A	56	56	$24.59	$1,377
Replacement of inflatable building with rigid building	Mine Site	N/A	208	208	$24.59	$5,115
Lube/Def Container	Mine Site	N/A	30	30	$24.59	$738
Fold-Away Building Teardown-Not Contaminated						
New building and expansion of Mary River HD Maintenance Shop	Mine Site	24	878	7,024	$34.42	$241,766
TOTAL			**1,466**	**7,624**		**$261,000**

5.2 MECHANICAL AND MOBILE EQUIPMENT

ARKTIS' estimate for mechanical and mobile equipment reclamation security is summarized in **Table 5-2**. ARKTIS has used Baffinland's unit costs and quantities for this estimate, thus there are no differences between ARKTIS and Baffinland's 2022 Estimate outside of minor rounding differences when represented in equivalent dollars (i.e., comparing under equivalent inflationary adjustments).

The development of an inventory or tracking system for mobile and mechanical equipment has been an item of high uncertainty between QIA and Baffinland since 2016 and was a topic presented before the Arbitrator in 2020. In an attempt to reduce the uncertainty surrounding equipment, Baffinland has initiated an Equipment Inventory Audit in the fall of 2021. The results of this audit remain outstanding and are not contained herein.

ARKTIS emphasizes that the Equipment Inventory Audit must be followed up with an effective equipment inventory tracking management system to maintain certainty in future estimates.

Table 5-2 Summary of mechanical and mobile equipment for 2022.

Description	Unit Rate Type	Quantity (pcs)	Unit Rate ($/pcs)	Direct Cost
Jet A truck	Heavy Mobile Equipment	1	$2,142.30	$2,142
Fuel tanker	Heavy Mobile Equipment	1	$2,142.30	$2,142
18M Graders	Heavy Mobile Equipment	3	$2,142.30	$6,427
Production Drill	Heavy Mobile Equipment	1	$2,142.30	$2,142
374 Excavator	Heavy Mobile Equipment	2	$2,142.30	$4,285
D10 Dozer	Heavy Mobile Equipment	1	$2,142.30	$2,142
777 Fuel & Lube body	Heavy Mobile Equipment	1	$2,142.30	$2,142
Vac Truck	Heavy Mobile Equipment	2	$2,142.30	$4,285
Type 1 E-House	Medium Equipment	1	$3,392.50	$3,393
Type 3 E-House	Medium Equipment	1	$3,392.50	$3,393
Cube truck	Medium Mobile Equipment	2	$1,200.20	$2,400
Bus	Medium Mobile Equipment	2	$1,200.20	$2,400
992 Loader	Medium Mobile Equipment	1	$1,200.20	$1,200
Steam Truck	Medium Mobile Equipment	1	$1,200.20	$1,200
Lowboy Float	Medium Mobile Equipment	1	$1,200.20	$1,200
Service Truck	Medium Mobile Equipment	4	$1,200.20	$4,801
Communication tower KM108	Light Equipment	1	$1,635.11	$1,635
Dewatering Pump	Light Equipment	3	$1,635.11	$4,905
Large Water Pump	Light Equipment	2	$1,635.11	$3,270
Light Vehicles (F-250 of similar)	Light Mobile Equipment	9	$752.82	$6,775
Hydraulic Ripper	Light Mobile Equipment	1	$752.82	$753
Ford 15 Passenger Vans (or similar)	Light Mobile Equipment	2	$752.82	$1,506
All Terrain Vehicle (Prinroth or similar)	Light Mobile Equipment	1	$752.82	$753
Skid Steer (for drilling support)	Light Mobile Equipment	1	$752.82	$753
Commissioning of small mobile gensets ranging in size from 20kW - 60kW	Light Mobile Equipment	10	$752.82	$7,528
Hydraulic Hammer (7 tonnes)	Light Mobile Equipment	1	$752.82	$753
Snowmobile	Light Mobile Equipment	2	$752.82	$1,506
F250 Light Vehicle	Light Mobile Equipment	1	$752.82	$753
Snowmobile	Light Mobile Equipment	2	$752.82	$1,506
Side by Side	Light Mobile Equipment	1	$752.82	$753
TOTAL		**62**		**$76,000**

5.3 STORAGE TANKS

Table 5-3 summarizes the addition of two mobile fuel tanks. As these are mobile fuel tanks, they are not considered in the capacity estimate of fuel stored on Site, and do not increase the allotment of fuel backhaul. Costs are provided in September 2021 dollars.

Table 5-3 Summary of storage tanks for 2022.

Description	Unit Rate Type	Quantity (pcs)	Unit Rate ($/pcs)	Direct Cost
250,000 liter fuel tank	Remove Medium Mobile Fuel Tanks (3,000 L to 500kL)	1	$8,653.07	$8,653
15,000 liter fuel tank	Remove Medium Mobile Fuel Tanks (3,000 L to 500kL)	1	$8,653.07	$8,653
TOTAL		**2**		**$17,000**

5.4 SITE WORKS

Baffinland's planned area disturbances is provided in **Table 5-4**.

ARKTIS used Baffinland's quantity estimates as well as its unit rates; however, ARKTIS has made the adjustment to include the "Expansion to the sedimentation pond at KM105 to manage surface water runoff" as a significantly disturbed area, per Section 4.6. ARKTIS does not consider the unit rate of grade and recontour sufficient for the reclamation of a berm of significant size.

Table 5-4 does not consider Baffinland or QIA's proposed disturbed areas to be reconciled, as detailed in Section 4.1 of this Report.

Table 5-4 Summary of planned area disturbance for 2022.

Description	Location	Quantity (m^2)	Unit Rate ($/$m^2$)	Direct Cost
Grade and Recontour				
Ore stockpiling area at KM105.5	Mine Site	11,4847	$1.54	$176,672
Expansion to KM105 Equipment Laydown east	Mine Site	27,509	$1.54	$42,318
Expansion to KM105 Equipment Laydown west	Mine Site	36,332	$1.54	$55,890
Mobile equipment laydown and tire facility	Mine Site	14,108	$1.54	$21,703
Construction of a West perimeter road to bypass pit	Mine Site	74,577	$1.54	$114,724
510 Hillside Road	Mine Site	11,423	$1.54	$17,572
470 Hillside Road	Mine Site	2,429	$1.54	$3,737
Bypass road from cross-cut road towards waste dump	Mine Site	24,534	$1.54	$37,741
Construction of new Sedimentation Pond SDLT-1	Mine Site	58,324	$1.54	$89,721
Grade and Recontour Significant Disturbed Area				
Expansion to the sedimentation pond at KM105 to manage surface water runoff	Mine Site	19,238	$2.31	$44,440
Grade and Recontour with Liner				
Expansion to the sedimentation pond at KM105 to manage surface water runoff	Mine Site	6,687	$4.25	$28,444
Construction of new Sedimentation Pond SDLT-1	Mine Site	20,678	$4.25	$87,956
Construction of new Sedimentation Pond Camp Lake	Mine Site	10,000	$4.25	$42,536
Expansion of Landfarm Cell 3	Mine Site	1,288	$4.25	$5,479
Construction of Landfarm Cell 4	Mine Site	4,611	$4.25	$19,613
Expansion to the Water Treatment Plant Pad	Mine Site	10,500	$4.25	$44,663
TOTAL		**437,085**		**$833,000**

5.5 CABLING REMOVAL

ARKTIS' cabling removal reclamation security estimate is included in **Table 5-5**. ARKTIS used Baffinland's quantity estimates and unit cost. Therefore, there is no difference between Baffinland and ARKTIS' cabling cost under equivalent inflationary adjustments.

Table 5-5 Summary of cabling removal for 2022.

Item	Location	Quantity (m)	Unit Cost ($/m)	Direct Cost
Power distribution cabling from the new KM110 building to the Mine water treatment facility	Mine Site	500	$21.99	$10,995
Power distribution cabling and distribution equipment for a new service from the Port Power house area to CV-001 on the shiploader	Milne Port	800	$21.99	$17,593
Power distribution cabling from the Powerhouse to Dyno Nobel explosives facility	Mine Site	500	$21.99	$10,995
Power distribution cabling from E-house 3 to KM104 Laydown	Mine Site	300	$21.99	$6,597
TOTAL		**2,100**		**$46,000**

5.6 FILL APPLICATION

A summary of ARKTIS' fill application security estimate is included in **Table 5-6**. ARKTIS has adopted Baffinland's unit cost.

ARKTIS has added fill per the changes to building heights described in Section 5.1. As the change to heights was only to modular buildings and foldaway buildings, the following assumptions from the Baffinland 2014 Report were used to develop the addition of 1,026 m^2 of fill:

1. Modular and foldaway buildings are compacted to a volume of 1 m^3 per m^2 of area.
2. For example, a modular building of 300 m^2 will be compressed into 300 m^3 in the landfill.
3. 6 m of refuse will be placed before fill is placed on top.
4. Therefore, the total volume of refuse from the modular buildings in m^3 is divided by 6 m to represent how much fill would be placed on top.

ARKTIS reiterates the uncertainty with the required fill to cover all buildings at Site given the uncertainty in building heights. In addition, capacity at the current landfill or if alternative disposal locations are to be considered and their relevant impacts on hauling distance to unit costs remains not well understood.

Table 5-6 Summary of fill application for 2022.

Item	Location	Quantity (m^2)	Unit Cost ($/$m^2$)	Direct Cost
Fill Application for 2022 Estimate, as provided by Baffinland	Mine Site	527	$40.09	$21,127
Building height adjustment	Mine Site	1,026	$40.09	$41,132
TOTAL		**1,553**		**$62,000**

5.7 CONTAMINATED SOIL REMOVAL

ARKTIS' contaminated soil removal estimate is included in **Table 5-7**. Consistent with the ARKTIS 2014 Report, ARKTIS has assumed that any contaminated buildings will result in contaminated soil. As such, any items in **Table 5-1** that are categorized as contaminated will require contaminated soil removal.

For these items, 50% of the soil was assumed contaminated at a depth of 0.5 m, concurrent with the ARKTIS 2014 Report. The Indirect Costs for the contaminated soil treatment are included in Section 6.

Baffinland did not include a contaminated soil removal cost. ARKTIS has used the unit rate of $17.39/m^3 for contaminated soil removal as detailed in Section 2.2.18 of this Report.

Table 5-7 Contaminated soil removal reclamation security estimate.

Item	Quantity (m^2)	Quantity (m^3)	Unit Rate ($/$m^3$)	Indirect Cost
Washcar (bathroom)	36	18	$17.39	$313

6 INDIRECT COSTS ANALYSIS

The following subsections describe in detail, by reclamation activity, changes to Indirect Costs resulting from Baffinland's 2022 Estimate. A summary of all Indirect Costs by line item is presented in Appendix D.

All unit costs in Section 6 are in September 2021 dollars.

6.1 CONTAMINATED SOIL TREATMENT

Table 6-1 summarizes the costs for contaminated soil treatment. This is included as an Indirect Cost consistent with the ARKTIS 2014 Report given it does not require engineering fees.

ARKTIS has included quantities of contaminated soil based on Section 5.7 and as summarized in **Table 5-7** of this Report. The unit cost applied is detailed in Section 2.3.3.

Table 6-1 Security update for contaminated soil treatment.

Item	Quantity (m^3)	Unit Cost ($/$m^3$)	Indirect Cost
Washcar (bathroom)	18	16.63	$299

6.2 EXPLOSIVES

The Baffinland 2022 Estimate did not include an update to explosives.

ARKTIS notes here, as detailed in Section 2.3.2, that the unit cost for explosives has been updated to September 2021 costs.

6.3 3RD PARTY OWNED EQUIPMENT

No changes to quantities of 3rd Party Equipment were requested by Baffinland in the 2022 Work Plan, including for reconciliation purposes. The estimate of 3rd Party Equipment will be reconciled following the Equipment Inventory Audit. Unit Costs have been updated to September 2021 rates, per Section 2.3.4 and 5% GST has been included.

6.4 WORKER MOBILIZATION AND CAMP ACCOMMODATIONS

Table 6-2 summarizes ARKTIS' reclamation security estimate for worker mobilization and accommodations.

ARKTIS has increased Worker Mobilization and Camp Accommodations, in addition to Baffinland's 2022 Estimate, for the following reasons associated with reconciliation items.

First, an adjustment was made given the amendment of 36 m^2 of modular building to contaminated modular building detailed in Section 5.1. Person-days were calculated using Baffinland 2022 Work Plan EBS productivity of 0.56 person-hours/m^2 of modular building contaminated and 0.224 person-hours/m^2 of

modular building not contaminated. Using Baffinland's assumption of 10-hour workdays, this resulted in a 0.12 person-day increase, or 0.084 southern person-days and 0.036 northern person-days.

Second, changes were included to account for the adjustments made for the building height adjustment and associated fill application noted in Section 5.1 and Section 5.6. Person-days were calculated using Baffinland's post-arbitration EBS productivity of 0.252 person-hours/m^2 of fill application.

Lastly, ARKTIS has applied a 50% increase to the Worker Mobilization and Camp Accommodations related to the "Expansion to the sedimentation pond at KM105 to manage surface water runoff" (i.e., Work Plan ID 2022-7) to account for it being considered a significant disturbed area, per Section 5.4. The associated worker productivity was 0.19 person-days per m^2.

ARKTIS notes this does not include the person-days required for the additional contaminated soil removal and treatment, as Baffinland does not have a specific productivity for either unit cost. Therefore, the person hours included in this estimate may be lower than required.

ARKTIS maintains Baffinland's assumption of the 70/30 split between southern and northern workers and has applied September 2021 unit costs as detailed in Section 2.3.5. Costs for northern and southern Worker Mobilization are $84.41 and $96.17 per person-day, respectively.

Per Section 2.3.6, ARKTIS has used the Worker Accommodation cost of $253.78/person-day.

Table 6-2 Worker mobilization and camp accommodations security estimate.

Item	Quantity (person-days)	Unit Cost ($/person-days)	Indirect Cost
Worker Mobilization - Northern Hires (2022 Work Plan)	379.07	$84.41	$31,997
Worker Mobilization - Northern Hires (2021 Work Plan Reconciliation)	26.85	$84.41	$2,266
Worker Mobilization - Southern Hires (2022 Work Plan)	884.50	$96.17	$85,062
Worker Mobilization - Southern Hires (2021 Work Plan Reconciliation)	62.65	$96.17	$6,025
Worker Accommodations and Camp Operations (2022 Work Plan)	1,263.57	$253.78	$320,669
Worker Accommodations and Camp Operations (2021 Work Reconciliation)	89.50	$253.78	$22,713
TOTAL			**$469,000**

6.5 FUEL

Table 6-3 summarizes ARKTIS' reclamation security estimate for the Indirect Cost for fuel. ARKTIS' methodology was accepted in the Final Award for fuel mobilization and demobilization and is applied to Baffinland's quantities in this Section. However, the quantity of fuel required was based on the equipment being used. Given the direction to use Baffinland unit costs, ARKTIS has adopted Baffinland's quantity of fuel required, and has made adjustments based on Baffinland's Unit Fuel Consumption rates, with the exception of Grade and Recontour Significant Disturbed Area where a Baffinland value is not available.

For the item of "Expansion to the sedimentation pond at KM105 to manage surface water runoff", an additional 50% of fuel was added compared to Grade and Recontour.

For clarity, adjustments include:

1. Converting 36 m^2 of modular building to contaminated modular building as detailed in Section 5.1.
2. Building height adjustments made.
3. Increase to account for the increase in Fill Application for the above change.
4. "Expansion to the sedimentation pond at KM105 to manage surface water runoff" being considered Grade and Recontour Significant Disturbed Area.

ARKTIS details uncertainties with the fuel rate in Section 2.1.4.

Table 6-3 Fuel security estimate for 2022 and 2021 Work Plan Reconciliation Items.

Description	Fuel Consumption (L)		
	2022 Work Plan	2021 Work Plan Reconciliation	Total
Fill Application	3,148	1,028	4,176
Heavy Mobile Equipment	1,200	100	1,300
Medium Mobile Equipment	413	38	451
Medium Equipment	355	N/A	355
Light Mobile Equipment	646	396	1,042
Light Equipment	533	1,331	1,864
20' ISO-Container	773	N/A	773
Modular Building Teardown- Contaminated	134	N/A	134
Fold-Away Building- Contaminated	13,777	N/A	13,777
Cabling Removal	2,625	N/A	2,625
Grade and Re-contour	53,247	(1,446)	54,693
Grade and Re-contour Significant Disturbed Area	4,220	N/A	4,220
Grade and Re-contour with Liner	9,145	N/A	9,145
Medium Mobile Fuel Tanks	941	N/A	941
Special Modular Building Teardown- Not Contaminated	N/A	7,776	7,776
Total Fuel for Reclamation Activities (L)	**91,158**	**9,223**	**100,381**
Fuel Mobilization for Heating (L)	**146,574**	**10,382**	**156,956**
Total Fuel Mobilization (L)	**237,732**	**19,605**	**257,337**
TOTAL COST (Unit Rate = $0.45/L)	**$107,000**	**$9,000**	**$116,000**

6.6 CLOSURE AND POST-CLOSURE MONITORING

Given the update to water treatment costs, detailed in Section 4.5 of this Report, the global cost for closure and post-closure monitoring increased to $7,967,006 in September 2021 dollars.

6.7 MOBILIZATION AND DEMOBILIZATION OF RECLAMATION EQUIPMENT

ARKTIS has adopted Baffinland's methodology of adding 10% of total Direct Costs as an approximate cost for the mobilization and demobilization of equipment required for reclamation. This results in a slight decrease to $4,495,826.

6.8 CONTINGENCY

ARKTIS has maintained contingency as 20%. As per QIA legal direction, contingency has been applied to Direct Costs, contaminated soil treatment, and closure monitoring/reporting for a total of $10,689,256. This results in a slight decrease compared to 2021. Application of contingency to other Indirect Costs, including

mobilization and demobilization of equipment and materials, worker accommodation and camp operation, and mobilization of workers, was excluded based on direction from QIA. QIA understands excluding contingency from these items may leave potential uncertainty in the respective costing estimates not fully addressed but considers the risk low due to the inherent conservativeness in activities and unit rates applied, and the provision of contingency for all Direct Costs.

6.9 SUPERVISION, PROJECT MANAGEMENT AND CONTRACT ADMINISTRATION

Supervision, project management and contract administration are calculated as 9.4% of the total Direct Costs, contaminated soil treatment costs, closure and post-closure monitoring costs.

The total reclamation security estimate for project supervision, management and contract administration Indirect Cost is $5,023,950.

6.10 ENGINEERING FEES

The total reclamation security estimate for engineering fees is $2,247,913 or 5% of the total Direct Costs per Section 2.3.9.

7 RECOMMENDATIONS

Table 7-1 summarizes the global reclamation security updated based on details provided within this Report. Estimates have been rounded to the nearest thousand.

Table 7-1 Global security estimate.

Description	Current Estimate ($)
Total Security	**$128,312,000**
Direct Costs	**$44,958,000**
Indirect Costs	**$83,354,000**
Mob and Demob of Reclamation Equipment	$4,496,000
Fuel for Reclamation Mobilization (m^3)	$3,262,000
Southern Worker Mobilization Cost	$1,654,000
Northern Worker Mobilization Cost	$622,000
Worker Accommodation	$6,235,000
Contaminated Soil Treatment	$521,000
Explosives	$1,911,000
Ammonium Nitrate	$5,794,000
Fuel Backhaul	$5,458,000
Phase 2 Expansion Modules	$18,004,000
Closure and Post-Closure Monitoring	$7,967,000
Hazardous Materials	$2,216,000
3rd Party Light Mobile Equipment	$788,000
3rd Party Medium Mobile Equipment	$1,983,000
3rd Party Heavy Mobile Equipment	$4,482,000
Engineering Fees (5% Directs)	$2,248,000

Description	Current Estimate ($)
PM Fees	$5,024,000
Contingency	$10,689,000

ARKTIS maintains many of the same uncertainties as noted in the ARKTIS 2021 Report that may impact reclamation security. Provided below is a list of recommendations that may help to address uncertainties and further refine reclamation security:

1. ARKTIS recommends the inclusion of the reclamation activity of unloading items at a destination. Examples would include unloading equipment at a landfill, or unloading fuel being transported from Mary River to Milne Port. Currently, unloading may represent more than $1,000,000 in security.
2. ARKTIS recommends the inclusion of verifiable Site-based unit rates and productivities. There are numerous unit costs that are based on Site-based unit rates but not on estimated productivity. Given Baffinland operations for the past six years, numerous productivities, such as liner removal and equipment disposal, may be available.
3. ARKTIS recommends unit costs that were not updated in the 2018 unit rate update, which were developed in 2014, be updated to current costs using Site-specific values. This includes contaminated soil treatment, reclamation fuel, waste and materials, ammonium nitrate, explosives, crew accommodations, and consumables.
4. ARKTIS recommends the fuel rate for equipment is verified given fuel rates in the most current Caterpillar Performance Handbook, or similar, for current mobile equipment fuel consumption rates.
5. ARKTIS recommends Site-specific fuel costs are used, should they be available. Particularly, to justify not using Government of Nunavut fuel costs which are greater than Baffinland's 2014 fuel costs.
6. ARKTIS recommends the Parties agree to a tiered closure scenario of an increasingly large pit in Deposit 1. This would lead to the development of a unit cost to reclaim the pit. It is pertinent to include a unit cost that factors in the closure criteria for a pit that needs to be stable, including holding water.
7. ARKTIS recommends verifying the reclamation activities, including productivities, to remove bridges.
8. ARKTIS recommends a building height inspection be included during the next QIA Environmental Audit.
9. ARKTIS recommends the reclamation activity of hauling fuel from fuel storage tanks be considered, as significant fuel is contained at the Mine Site that is assumed to require hauling to Milne Port for demobilization.
10. ARKTIS recommends the crew and productivity to reclaim the Shiploader is verified should it be re-mobilized in future work plans.
11. ARKTIS recommends the 10% of Direct Cost methodology used to estimate the cost for mobilization and demobilization of equipment required for reclamation is compared to alternative methods to ensure it is still applicable.
12. ARKTIS recommends the Parties develop a methodology that can verify the equipment, the reclamation cost for that piece of equipment, the location of that equipment, and when it had arrived at Site to inform and verify reclamation security in a given year.
13. ARKTIS recommends Site costs for treatment of water are considered and used to update the rate for water treatment.
14. ARKTIS recommends confirming that inflation is to be applied to the global estimate to unit rates not developed in the current year of reclamation security estimation.
15. ARKTIS recommends that the Parties establish a work plan to address QIA's 2021 Audit Report information request items by August 1, 2022, prior to the 2022 Annual Security Review process.
16. ARKTIS recommends the Annual Security Review process is pushed to later in the year to ensure outcomes of Environmental Audits and works such as the disturbed area analysis are captured in version 1 submissions.

These recommendations are in addition to recommendations made in the ARKTIS 2021 Audit Report, with attention to those 2021 Audit recommendations referenced in Section 4.6 of this Report.

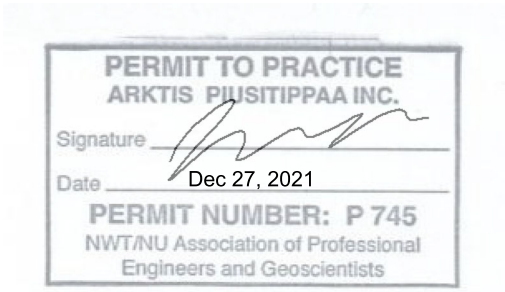
8 CLOSURE

This report has been prepared exclusively for the use of the QIA for the specific application described within this report. The details provided in this report are for general information purposes only. The information and recommendations contained in this report should not be used for any other purpose, at another location, or by any other parties. Any use of, or reliance on this report by any third party is at that party's sole risk. ARKTIS assumes no responsibility for inappropriate use of the contents of this report, and disclaims all liability arising from negligence or otherwise. General terms and conditions are provided in Appendix A.

ARKTIS PIUSITIPPAA INC.

Nicholas Ottenhof
ARKTIS Piusitippaa Inc.

Drew Stavinga, M.Sc., P.Geo. (ON, NWT/NU)
ARKTIS Piusitippaa Inc.



APPENDIX A – GENERAL TERMS AND CONDITIONS

USE OF REPORT

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of ARKTIS Piusitippaa Inc.'s (ARKTIS) client. ARKTIS does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than ARKTIS' client unless otherwise authorized in writing by ARKTIS. Any unauthorized use of the report is at the sole risk of the user.

LIMITATIONS OF REPORT

This report is based solely on the conditions which existed on site at the time of ARKTIS' investigation. The client, and any other parties using this report with the express written consent of the clients and ARKTIS, acknowledge that conditions affecting the environmental assessment of the site can vary with time and that the conclusions and recommendations set out in this report are time sensitive.

The client, and any other party using this report with the express written consent of the client and ARKTIS, also acknowledge that the conclusions and recommendations set out in this report are based on limited observations and testing on the subject site and that conditions may vary across the site which, in turn, could affect the conclusions and recommendations made.

The client acknowledges that ARKTIS is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the client.

During the performance of the work and the preparation of this report, ARKTIS may have relied on the information provided by persons other than the client. While ARKTIS endeavors to verify the accuracy of such information when instructed to do so by the client, ARKTIS accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

STANDARD OF CARE

Services performed by ARKTIS for this report have been conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and financial and physical constraints applicable to the services. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this report. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of this report.

ALTERNATE REPORT FORMAT

Where ARKTIS submits both electronic file and hard copy versions of reports, drawings and other project related documents and deliverables (collectively termed instruments of professional service), the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by ARKTIS shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancies, the hard copy versions shall govern over the electronic versions. Furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed version archived by ARKTIS shall be deemed to be the overall original for the Project.

The Client agrees that both electronic file and hard copy versions of instruments of professional services shall not, under any circumstances, no matter who owns or uses them, be altered by any party except ARKTIS. The Client warrants that instruments of professional services will be used only and exactly as submitted by ARKTIS.

APPENDIX B – SUMMARY OF UNIT COSTS WITH INFLATION[b]

Reclamation Activities	Unit Rate ($)	Unit	Unit Rate Year	CPI Base Value	CPI Current Value (2021)	Unit Rate Post Inflation ($)
CONTAMINATED SOIL TREATMENT	14.78	/m^3	2014	118.8	133.7	16.63
RECLAMATION FUEL	400.00	/m^3	2014	118.8	133.7	450.17
WASTE AND MATERIALS	358.00	/m^3	2014	118.8	133.7	402.90
AMMONIUM NITRATE	358.00	/m^3	2014	118.8	133.7	402.90
EXPLOSIVES	2.37	/kg	2014	118.8	133.7	2.67
REMOVE CULVERTS- Pre 2019	862.50	/EACH	2014	118.8	133.7	970.68
CREW ACCOMMODATIONS	225.50	/person day	2014	118.8	133.7	253.78
CONSUMABLES	700.80	/BED	2016	124.5	133.7	752.59
BRIDGE REMOVAL	161,904.76	EACH	2018	129.5	133.7	167,155.73
DOUBLE MODULAR BUILDING TEARDOWN - CONTAMINATED	114.89	/m^2	2018	129.5	133.7	118.62
DOUBLE MODULAR BUILDING TEARDOWN - NOT CONTAMINATED	47.64	/m^2	2018	129.5	133.7	49.19
DRILL SLAB	30.00	/m^2	2018	129.5	133.7	30.97
FILL APPLICATION	38.83	/m^2	2018	129.5	133.7	40.09
FOLD-AWAY BUILDING TEARDOWN - CONTAMINATED	114.04	/m^2	2018	129.5	133.7	117.74
FOLD-AWAY BUILDING TEARDOWN - NOT CONTAMINATED	33.34	/m^2	2018	129.5	133.7	34.42
GRADE AND RECONTOUR	1.49	/m^2	2018	129.5	133.7	1.54
GRADE AND RECONTOUR SIGNIFICANT DISTURBED AREAS	2.24	/m^2	2018	129.5	133.7	2.31
GRADE AND RECONTOUR WITH LINER	4.12	/m^2	2018	129.5	133.7	4.25
LINER REMOVAL	2.62	/m^2	2018	129.5	133.7	2.70
OTHER BUILDING	33.34	/m^2	2018	129.5	133.7	34.42
OTHER BUILDING - CONTAMINATED	114.04	/m^2	2018	129.5	133.7	117.74
RECLAIM CONVEYOR	1,066,410.00	EACH	2018	129.5	133.7	1,100,996.27
REMOVE 20' ISO-CONTAINER	23.82	/m^2	2018	129.5	133.7	24.59
REMOVE 20' ISO-CONTAINER (TEU)	354.07	/TEU	2018	129.5	133.7	365.56

[b] For applicable items, 5% GST has been represented in the Unit Rate for both with and without inflation.

Reclamation Activities	Unit Rate ($)	Unit	Unit Rate Year	CPI Base Value	CPI Current Value (2021)	Unit Rate Post Inflation ($)
REMOVE 20' ISO-CONTAINER (CONTAMINATED)	23.82	/m^2	2018	129.5	133.7	24.59
REMOVE 20' ISO-CONTAINER (CONTAMINATED) (TEU)	354.07	/TEU	2018	129.5	133.7	365.56
REMOVE 40' ISO-CONTAINER	23.82	/m^2	2018	129.5	133.7	24.59
REMOVE 40' ISO-CONTAINER (TEU)	354.07	/TEU	2018	129.5	133.7	365.56
REMOVE 40' ISO-CONTAINER (CONTAMINATED)	23.82	/m^2	2018	129.5	133.7	24.59
REMOVE 40' ISO-CONTAINER (CONTAMINATED) (TEU)	354.07	/TEU	2018	129.5	133.7	365.56
REMOVE AIRSTRIP LIGHTING	21.25	/m	2018	129.5	133.7	21.94
REMOVE CABLING	21.30	/m	2018	129.5	133.7	21.99
Remove Camp Mats- Size 1	237.60	EACH	2018	129.5	133.7	245.31
Remove Camp Mats- Size 2	330.00	EACH	2018	129.5	133.7	340.70
REMOVE CONTAINER CROSSING	N/A	EACH	2018	129.5	133.7	N/A
REMOVE CULVERTS	50.00	m	2018	129.5	133.7	51.62
REMOVE HEAVY EQUIPMENT	32,950.00	EACH	2018	129.5	133.7	34,018.65
REMOVE HEAVY EQUIPMENT (3rd Party)	20,491.47	EACH	2018	129.5	133.7	21,156.06
REMOVE HEAVY MOBILE EQUIPMENT	2,075.00	EACH	2018	129.5	133.7	2,142.30
REMOVE HEAVY MOBILE EQUIPMENT (3rd Party)	16,762.75	EACH	2018	129.5	133.7	17,306.41
REMOVE INCINERATORS	7,925.00	EACH	2018	129.5	133.7	8,182.03
REMOVE LARGE DIESEL TANKS (5ML)	85,157.50	EACH	2018	129.5	133.7	87,919.36
REMOVE LARGEST DIESEL TANKS (12ML)	137,277.50	EACH	2018	129.5	133.7	141,729.74
REMOVE LIGHT EQUIPMENT	1,583.75	EACH	2018	129.5	133.7	1,635.11
REMOVE LIGHT EQUIPMENT (3rd Party)	840.53	EACH	2018	129.5	133.7	867.79
REMOVE LIGHT MOBILE EQUIPMENT	729.17	EACH	2018	129.5	133.7	752.82
REMOVE LIGHT MOBILE EQUIPMENT (3rd Party)	2,925.29	EACH	2018	129.5	133.7	3,020.17
REMOVE MEDIUM DIESEL TANKS (500,000 L to 750,000 L)	12,928.50	EACH	2018	129.5	133.7	13,347.80
REMOVE MEDIUM EQUIPMENT	3,392.50	EACH	2018	129.5	133.7	3,502.53
REMOVE MEDIUM EQUIPMENT (3rd Party)	1,790.81	EACH	2018	129.5	133.7	1,848.89
REMOVE MEDIUM MOBILE EQUIPMENT	1,162.50	EACH	2018	129.5	133.7	1,200.20
REMOVE MEDIUM MOBILE EQUIPMENT (3rd Party)	8,612.80	EACH	2018	129.5	133.7	8,892.14

Reclamation Activities	Unit Rate ($)	Unit	Unit Rate Year	CPI Base Value	CPI Current Value (2021)	Unit Rate Post Inflation ($)
REMOVE MEDIUM MOBILE FUEL TANKS (3,000 L to 500kL)	8,381.25	EACH	2018	129.5	133.7	8,653.07
REMOVE MISCELLANEOUS	425.00	EACH	2018	129.5	133.7	438.78
REMOVE NON-FUEL MEDIUM STORAGE TANKS	5,900.00	EACH	2018	129.5	133.7	6,091.35
REMOVE NON-FUEL SMALL STORAGE TANKS	1,710.42	EACH	2018	129.5	133.7	1,765.89
REMOVE PIPING	53.13	/m	2018	129.5	133.7	54.85
REMOVE POTABLE WATER	7,925.00	EACH	2018	129.5	133.7	8,182.03
REMOVE PRECAST CONCRETE FOUNDATIONS	30.86	/m^3	2018	129.5	133.7	31.86
REMOVE SEWAGE TREATMENT PLANT	8,775.00	EACH	2018	129.5	133.7	9,059.59
REMOVE SMALL DIESEL TANKS (10,000 to 20,000 L)	2,950.00	EACH	2018	129.5	133.7	3,045.68
REMOVE SOFT WALLED BUILDING - CONTAMINATED	128.86	/m^2	2018	129.5	133.7	133.04
REMOVE SOFT WALLED BUILDING - NOT CONTAMINATED	38.11	/m^2	2018	129.5	133.7	39.35
REMOVE TIMBER CRIBBING	16.67	/m^2	2018	129.5	133.7	17.21
SINGLE MODULAR BUILDING TEARDOWN - CONTAMINATED	114.88	/m^2	2018	129.5	133.7	118.61
SINGLE MODULAR BUILDING TEARDOWN - NOT CONTAMINATED	47.64	/m^2	2018	129.5	133.7	49.19
SPECIAL MODULAR BUILDING TEARDOWN - CONTAMINATED	114.89	/m^2	2018	129.5	133.7	118.62
SPECIAL MODULAR BUILDING TEARDOWN - NOT CONTAMINATED	47.64	/m^2	2018	129.5	133.7	49.19
TEMPORARY WAREHOUSES AND CONSTRUCTION OFFICES	47.64	/m^2	2018	129.5	133.7	49.19
FUEL BACKHAUL	100.00	/m^3	2014	118.8	133.7	112.54
WASTE ROCK FACILITY WATER TREATMENT	61,750.00	EACH	2018	129.5	133.7	63,752.70
OPEN PIT STABILIZATION	5.49	/m^3	2018	129.5	133.7	5.67
CONTAMINATED SOIL REMOVAL	16.94	/m^3	2020	130.3	133.7	17.39

APPENDIX C – SUMMARY OF DIRECT COST ADJUSTMENTS

The following table summarizes changes included in Sections 3, 4 and 5 of this Report, that result in an update to Direct Costs, presented without inflation.

Description	Direct Cost ($, w/o inflation)
2021 Work Plan Addendum Tranche 1	
Dual Engine Marine Response Boat	($729)
4x4 15 passenger crew van	($1,163)
Service Truck	($1,163)
Steam Truck	($1,163)
SKID STEER	($1,458)
Water Jet - Ceramic Cutting	($1,584)
349 Cat Excavator	($2,075)
320 Track Cat Excavator	($2,075)
374 Excavator	($2,075)
390 Excavator	($2,075)
Fuel Tanker	($2,075)
Spare 793 Box	($2,075)
740 Water Truck	($2,075)
14M Grader	($2,075)
Ford F350 Pickup	($2,188)
4x4 hotseating bus	($2,325)
48 Person School Bus	($2,325)
D10 Dozer	($4,150)
908 CATERPILLAR LOADER	($4,150)
Fill Application for 2021 Addendum	($8,698)
Deferral of Quarry PQ2a	($514,050)
Deferral of Quarry PQ4a	($156,450)
Deferral of Quarry PQ12a	($345,978)
Deferral of Laydown 4	($98,787)
Deferral of Laydown 7	($43,061)
Deferral of Laydown 10	($51,405)
Deferral of Laydown 13	($10,430)
2021 Reconciliation	
Construction of berm and linear steel support structure on laydown LP3	$8,940
KM107 Sedimentation Pond	$15,794
KM107 Stockpile and access Road	($84,632)
KM110.5 Laydown for Mine Ops	($87,447)
374 CAT Excavator	($2,142)
D10 Dozer	$4,150
Bean model 435 Water Pumps	$15,838

Description	Direct Cost ($, w/o inflation)
Zinex A5 Diamond Drills	$7,919
Boat Trailer	$729
Case TV-380 Skidsteer	$729
F250 Light Vehicle	($753)
F-350 Pickup	$2,917
Frost Fighter Heater	$6,563
Genie S125	$729
Genie S85	$729
Genie Skylift Z-135	$729
Trailer	$729
Yukon 14ft Boat	$729
Pressure Washing Truck	$1,163
Addition of offices/trailers/buildings at the 800p Camp, including a new fire hall and emergency response building	$132,201
Fill Application	$19,687
2022 Estimate	
Fill Application for 2022 estimate	$60,303
New building and expansion of Mary River HD Maintenance Shop	$234,180
Ore stockpiling area at KM105.5	$171,122
Expansion to KM105 Equipment Laydown east	$40,988
Expansion to KM105 Equipment Laydown west	$54,135
Mobile equipment laydown and tire facility	$21,021
Construction of a West perimeter road to bypass pit	$111,120
510 Hillside Road	$17,020
470 Hillside Road	$3,619
Bypass road from cross-cut road towards waste dump	$36,556
Expansion to the sedimentation pond at KM105 to manage surface water runoff	$43,093
Construction of new Sedimentation Pond SDLT-1	$86,903
Expansion to the sedimentation pond at KM105 to manage surface water runoff	$27,550
Construction of new Sedimentation Pond SDLT-1	$85,193
Construction of new Sedimentation Pond Camp Lake	$41,200
Expansion of Landfarm Cell 3	$5,307
Construction of Landfarm Cell 4	$18,997
Expansion to the Water Treatment Plant Pad	$43,260
Washcar (bathroom)	$5,514
Enhancement of training grounds for the Emergency Response Team with fire retardant infrastructure and secondary spill containment	$1,405
Addition of offices/trailers at the Environment Department work areas	$1,334
Enhancement of training grounds for the Emergency Response Team with fire retardant infrastructure and secondary spill containment	$1,405

Description	Direct Cost ($, w/o inflation)
Construction of a new COVID-19 PCR testing lab building at the Mine Site	$1,286
Bit shack (container building)	$715
Addition of offices/trailers at the Environment Department work areas	$1,334
Replacement of inflatable building with rigid building	$4,955
Lube/Def Container	$715
Power distribution cabling from the new KM110 building to the Mine water treatment facility	$10,650
Power distribution cabling and distribution equipment for a new service from the Port Power house area to CV-001 on the shiploader	$17,040
Power distribution cabling from the Powerhouse to Dyno Nobel explosives facility	$10,650
Power distribution cabling from E-house 3 to KM104 Laydown	$6,390
Jet A truck	$2,075
Fuel tanker	$2,075
18M Graders	$6,225
Production Drill	$2,075
374 Excavator	$4,150
D10 Dozer	$2,075
777 Fuel & Lube body	$2,075
Vac Truck	$4,150
Communication tower KM108	$1,584
Dewatering Pump	$4,751
Large Water Pump	$3,168
Light Vehicles (F-250 of similar)	$6,563
Hydraulic Ripper	$729
Ford 15 Passenger Vans (or similar)	$1,458
All Terrain Vehicle (Prinroth or similar)	$729
Skid Steer (for drilling support)	$729
Commissioning of small mobile gensets ranging in size from 20kW - 60kW	$7,292
Hydraulic Hammer (7 tonnes)	$729
Snowmobile	$1,458
F250 Light Vehicle	$729
Snowmobile	$1,458
Side by Side	$729
Type 1 E-House	$3,393
Type 3 E-House	$3,393
Cube truck	$2,325
Bus	$2,325
992 Loader	$1,163
Steam Truck	$1,163
Lowboy Float	$1,163
Service Truck	$4,650

Description	Direct Cost ($, w/o inflation)
250,000 liter fuel tank	$8,381
15,000 liter fuel tank	$8,381
Washcar (bathroom)- Contaminated Soil Removal	$305
TOTAL	**$36,000**

APPENDIX D – SUMMARY OF INDIRECT COST ADJUSTMENTS

The following table summarizes changes included in Sections 4 and 6 of this Report, that result in an update to Indirect Costs, presented without inflation. Note that the addition of 5% GST is included for select items, per Section 2.1.3.

Description	Indirect Cost ($)
Phase 2 Shiploader Module	($7,624,052)
Washcar (bathroom)- Contaminated Soil Treatment	$266
Worker Mobilization - Northern Hires (2022 Work Plan)	$28,430
Worker Mobilization - Northern Hires (2021 Work Plan Reconciliation)	$2,014
Worker Mobilization - Northern Hires (2021 Work Plan Addendum)	($24,167)
Worker Mobilization - Southern Hires (2022 Work Plan)	$75,581
Worker Mobilization - Southern Hires (2021 Work Plan Reconciliation)	$5,353
Worker Mobilization - Southern Hires (2021 Work Plan Addendum)	($64,246)
Worker Accommodations and Camp Operations (2022 Work Plan)	$284,303
Worker Accommodations and Camp Operations (2021 Work Reconciliation)	$20,137
Worker Accommodations and Camp Operations (2021 Work Addendum)	($241,661)
Fuel Mobilization (2021 Work Plan Addendum)	($98,760)
Fuel Mobilization (2021 Work Plan Addendum and 2022 Estimate)	$102,935
3rd Party Light Mobile Equipment	$36,357
3rd Party Medium Mobile Equipment	$91,460
3rd Party Heavy Mobile Equipment	$206,741
Closure and Post Closure Monitoring	$67,656
Mobilization and Demobilization of Reclamation Equipment	($719)
Contingency	$12,147
Supervision, Project Management and Contract Administration	$5,709
Engineering Fees	($359)
Total	**($7,115,000)**

APPENDIX E – SUMMARY OF WATER TREATMENT QUANTITIES

The following provides the quantities used to calculate water treatments quantities at Site, provided by the respective Annual Report for Operations or the Baffinland 2022 Work Plan. Shown is a 3-year average using the most recent available 3 years.

Water Treatment Quantities (m^3)	2018	2019	2020	2021	3-yr. Avg
MS-08	73,600	117,731	63,919	63,999	81,883
MS-01	34,964	18,961	12,825	Not Available	22,250
MP-01	17,077	20,741	15,399	Not Available	17,739
MS-MRY-4b	0	0	1,521	Not Available	507
MS-01B	8,798	36,491	31,674	Not Available	25,654
MP-01A	777	632	410	Not Available	606
MP-01B	0	3,894	5,616	Not Available	3,170
MP-03	0	1,551	1,767	983	1,434
MP-04	0	0	17	294	104
MP-04A	0	186	13	159	119
MS-HWB-07 (Formerly MS-MRY-06)	668	0	0	336	112
TOTAL					**153,578**

APPENDIX F – REFERENCES

[1] Baffinland (2021). 2022 Marginal Closure and Reclamation Financial Security Estimate Rev. 0. November 1, 2021.

[2] Baffinland (2021). 2021 Work Plan Addendum Rev. 0. June 7, 2021.

[3] QIA and Baffinland (2013). Commercial Lease No. Q13C301. September 6, 2013.

[4] NWB (2015). Type 'A' Water Licence No.: 2AM-MRY1325, Amendment No. 1. July 31, 2015.

[5] ARKTIS (2014). QIA 2014 Comprehensive Security Estimate. December 12, 2014.

[6] ARKTIS (2015). QIA Revised 2015 Comprehensive Security Estimate. January 13, 2015.

[7] ARKTIS (2015). QIA 2016 Comprehensive Security Estimate. December 2, 2015.

[8] ARKTIS (2016). 2016 Comprehensive Security Estimate Update. January 8, 2016.

[9] ARKTIS (2016). QIA 2017 Comprehensive Security Estimate. December 2, 2016.

[10] ARKTIS (2017). Baffinland Iron Mines Corporation, Mary River Project, QIA 2017 Addendum Reclamation Security Update Draft. July 19, 2017.

[11] ARKTIS (2018). QIA 2018 Mary River Reclamation Security Report. February 1, 2018.

[12] ARKTIS (2018). QIA 2018 Mary River Reclamation Security Report Addendum. July 18, 2018.

[13] ARKTIS (2020). QIA 2020 Arbitration Update to 2019 Security Report. September 21, 2020.

[14] Van Gulck, Jamie (2020). Affidavit of Jamie Van Gulck. March 3, 2020.

[15] ARKTIS (2020). QIA 2020 Mary River Reclamation Security Report. December 13, 2019.

[16] Baffinland (2021). 2021 Marginal Closure and Reclamation Financial Security Estimate Rev.1. January 28, 2021.

[17] Baffinland (2018). Interim Closure and Reclamation Plan BAF-PH1-830-P16-0012-Revised Draft-Rev. 5. October 19, 2018.

[18] ARKTIS (2021). 2021 Mary River Reclamation Security Report- Version 3. February 2, 2021.

[19] Smith, Murray L (2020). In the Matter of the Reclamation Security Arbitration (pursuant to the Commercial Lease for Inuit Owned Lands dated September 6, 2013 and the Nunavut Arbitration Act) FINAL AWARD. August 10, 2020.

[20] Baffinland (2014). 2014 Complete Project Financial Security Assessment. Rev. 1. October 31, 2014.

[21] Baffinland (2018). 2019 Marginal Closure and Reclamation Financial Security Estimate. December 20, 2018.

[22] ARKTIS (2019). QIA 2019 Mary River Reclamation Security Report. January 17, 2019.

[23] QIA (n.d.) Abandonment and Reclamation Policy for Inuit Owned Lands. V. 2.0. No date.

[24] Indigenous and Northern Affairs Canada (2002). Mine Site Reclamation Policy for Nunavut. No date.

[25] ARKTIS (2021). 2021 Environmental Audit Report, Mary River Project. December 3, 2021.

[26] NWB (2014). Type 'B' Water Licence No.: 2BE-MRY-1421. April 17, 2014.

[27] QIA (2020). 2021 Security Estimate Update. Email received December 14, 2020.

[28] QIA (2021). Annual Security Review process telephone call with ARKTIS, verbal direction to use Baffinland unit rates. December 14, 2021.

[29] Baffinland (2020). EBS Post Arbitration – For Discussion. October 8, 2020.

[30] QIA (2021). Telephone call with ARKTIS, direction to investigate application of taxes. December 14, 2021.

[31] Government of Nunavut (2020). Petroleum Products Division Retail Price List- Prices Effective Apr. 1, 2020. April 1, 2020.

[32] Caterpillar (2019). Caterpillar Performance Handbook Rev 49. No date.

[33] Baffinland (2021). Information Request - 2022 Annual Work Plan and Marginal Reclamation Security Estimate. December 3, 2021.

[34] Amended from: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000402

[35] Baffinland (2014). Borrow Source Management Plan – Kilometre 97 Rev 0. October 26, 2014.

[36] ACECO (2020). 2020 Fee Guideline. No Date. Accessed at: https://acecontario.ca/resource-item/acec-ontario-fee-guideline/

[37] OSPE (2015). OSPE Fee Guideline 2015. No date.

[38] ACEC-SK (2019). Schedule of Recommended Fees to be Charged for General Engineering and Geoscience Projects and Services. January 2019. Accessed at: https://www.acec-sk.ca/member_services/contracts_and_fees.html

[39] CEBC (2009). Budget Guidelines for Consulting Engineering Services. 2019. Accessed at: https://963.c37.myftpupload.com/wp-content/uploads/2020/11/Budget-Guidelines.pdf?time=1606402891

[40] QIA (2021). RE: Mary River Photosat 2021 Files. November 25, 2021.

[41] QIA (2021). RE: API 2022 Security Report. December 23, 2021.

[42] QIA (2021). QIA 2021 Environmental Audit Report for the Mary River Project. December 15, 2021.