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Qikiqtani Inuit Association

ᑎᑎᕆᑲᑦᑯᐃᖅ P.O. Box 1340
ᐃᖅᑲᓗᐃᑦ, ᓄᓇᕗᑦ Iqaluit, Nunavut
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Cape Dorset

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Resolute Bay

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Sanikiluaq

December 13, 2019

Christopher Murray
Environmental & Regulatory Compliance Manager
Baffinland Iron Mines Corporation
2275 Upper Middle Road East, Suite 300
Oakville, ON L6H 0C3

Nunavut Water Board
P.O. Box 119
Gjoa Haven, Nunavut
X0B 1J0

Re: Licence No. 2AM-MRY1325 Type "A"; Mary River Project, Baffinland Iron Mines Corporation, Annual Security Review Associated with 2020 Work Plan

Pursuant to Section 9 of the Qikiqtani Inuit Association (QIA) – Baffinland Iron Mines Corporation (Baffinland) Commercial Lease Q13C301[1] (the Lease) dated September 6, 2013, and at the request of the Nunavut Water Board (NWB), QIA completed a review of Baffinland's 2020 Work Plan[2] and 2020 Marginal Closure and Reclamation Financial Security Estimate Rev. 0[3].

In response, QIA now submits its 2020 Mary River Reclamation Security Update Report – Version 1 (attached). This reports details QIA's reasonable determination of the required amount of reclamation security to be held in relation to Licence No. 2AM-MRY1325 and the Lease.

QIA would like to thank the NWB for extending the submission date by 1 business day to accommodate parties affected by the power outages in Iqaluit on November 12, 2019.

Sincerely,

Chris Spencer
Regulatory Manager

[1] QIA and Baffinland (2013). Commercial Lease No. Q13C301. September 6, 2013.
[2] Baffinland (2019). 2020 Work Plan Rev. 0. November 1, 2019.
[3] Baffinland (2019). 2020 Marginal Closure and Reclamation Financial Security Estimate Rev. 0. November 1, 2019.

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Qikiqtani Inuit Association

ᑎᑎᖅᑲᕐᔪᐊᖅ P.O. Box 1340
ᐃᖅᑲᓗᐃᑦ, ᓄᓇᕗᑦ Iqaluit, Nunavut
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Sanikiluaq

Attachment: ARKTIS (2020). 2020 Mary River Reclamation Security Update Report. Version 1. December 10, 2019.

2020 MARY RIVER RECLAMATION SECURITY UPDATE REPORT

VERSION 1

December 13, 2019

Nick Jewitt
ARKTIS Solutions Inc.
jewitt@arktissolutions.com

Phone: 867.446.4129
Facsimile: 866.475.1147

www.arktissolutions.com

December 13, 2019

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

ATTENTION: Chris Spencer, Regulatory Manager

RE: 2020 MARY RIVER RECLAMATION SECURITY UPDATE REPORT

ARKTIS Solutions Inc. is providing the 2020 Mary River Reclamation Security Update Report that was completed on behalf of the Qikiqtani Inuit Association under the terms of the Commercial Lease No.: Q13C301 with Baffinland Iron Mines Corporation.

Sincerely,

ARKTIS Solutions Inc.

Signed electronically

Nick Jewitt, M.A.Sc.
Environmental Specialist

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LIST OF TABLES

1 INTRODUCTION

ARKTIS Solutions Inc. (ARKTIS) submits this 2020 Mary River Security Update Report (Report) to the Qikiqtani Inuit Association (QIA) that provides 2020 recommendations to the annual reclamation security for Baffinland Iron Mines Corporation's (Baffinland) Mary River Project (Project), as required per Section 9.2, Item (d), of the Lease[1] as well as by the Nunavut Water Board (NWB) for Baffinland's Type 'A' Water License No. 2AM-MRY1325.[2] In developing the quantities in the Report, ARKTIS has used Baffinland's 2020 Marginal Closure and Reclamation Financial Security Estimate Rev. 0[3] (Baffinland's Estimate) and the 2019 Environmental Audit[4] as the primary sources of new information.

The structure of this Report is as follows:

Section 2.0 outlines the methodology and assumptions used in the analysis.

Section 3.0 presents the Direct Costs to be reconciled from previous work plans.

Section 4.0 presents the Direct Costs in the reclamation security update.

Section 5.0 presents the Indirect Costs in the reclamation security update.

Section 6.0 provides a summary of recommendations.

Section 7.0 provides a disclaimer and a closure of the document.

Appendix A presents a summary table of the Direct Cost line items added.

Appendix B presents a summary table of the Indirect Cost line items added.

Appendix C presents the general terms and conditions.

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

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

[3] Baffinland (2019). 2020 Marginal Closure and Reclamation Financial Security Estimate Rev. 0. November 1, 2019.

[4] ARKTIS (2019). 2019 Environmental Audit Report. September 17, 2019.

2 METHODOLOGY

The evaluation of reclamation security for the Project continued to use the methodologies detailed in the QIA 2014 Comprehensive Security Estimate[5], the QIA Abandonment and Reclamation Policy[6], and generally applies the principles outlined by Indigenous and Northern Affairs Canada (INAC)[7]. The resultant change in reclamation security is summarized in Section 6. Note that 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 $1 to maintain consistency with Baffinland's Estimate.

The reclamation security estimate incorporates information from previous QIA reclamation security estimates (2014,[5] 2015,[8] 2015 Addendum[9], 2016[10], 2016 Update[11], 2017[12], 2017 Addendum[13], 2018[14], 2018 Addendum[15], and 2019[16]), and an analysis of the changes to planned activities as listed in Baffinland's Estimate.

For 2020 activities, Baffinland's additional quantities for each Direct Cost reclamation line, were adopted by ARKTIS as QIA is unable to complete an audit on future works. Quantity values may be reconciled in future security reports. As such, differences in Direct Costs between Baffinland and QIA are typically a result of differences in Unit Rates applied by each party or reasonable assumptions made regarding work activities. Different than previous security estimates, ARKTIS has not compared unit costs of each line item to those provided by Baffinland in the main text of the Report. ARKTIS did not want the comparison to be the focus of the work and has noted that inconsistencies in Baffinland's work in the past has led to questions ARKTIS is unable to answer. For QIA's benefit, ARKTIS has included a comparison in the Report's Appendices.

Where Baffinland has indicated a marginal increase in security costs associated with the 2020 Work Plan following the issuance of the Project Certificate for Phase 2, ARKTIS has included those costs as separate tables.

The reclamation security does not include activities on Crown Lands (e.g., Steensby Inlet or Ore dock), nor does it address the Type 'B' Exploration Water License No. 2BE-MRY1421.[17] It is ARKTIS' understanding

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

[6] QIA (n.d.) Abandonment and Reclamation Policy for Inuit Owned Lands. V. 2.0.

[7] INAC (2002) Mine Site Reclamation Policy for Nunavut.

[8] ARKTIS (2014). QIA 2015 Comprehensive Security Estimate. December 5, 2014.

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

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

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

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

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

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

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

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

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

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.

3 SECURITY RECONCILIATION

Section 3 updates the Project security estimate based on the 2019 Environmental Audit[4] and Baffinland's Estimate, which includes a list of items that are to be reconciled from their previous work plans. All costs presented in this Section are Direct Costs. The following sub-sections describe the items to be reconciled during the 2020 Annual Security Review Process.

The Indirect Costs based on security reconciliation have been included in the calculated Indirect Costs presented in Section 5.

3.1 BUILDINGS AND FOUNDATIONS

Table 3-1 shows a summary of QIA's estimate for reclamation security for buildings and foundations. The Carpenter Workshop was identified by ARKTIS during the 2019 Environmental Audit and included in Baffinland's Estimate. It is believed that these buildings were those originally planned to be mobilized from the Weatherhaven Camp (2019 Audit Position ID 3).

Table 3-1 Summary of buildings and foundation reconciliation

Item	Unit Rate Type	Quantity (m^2)	Unit Rate	Direct Cost
Aecon Workshops	Soft Walled Building Not Contaminated	1,650	$35.47	$58,526
Sana Workshop	Modular Building Not Contaminated	500	$60.52	$30,260
Carpenter Workshop	Fold Away Building Not Contaminated	100	$35.47	$3,547
TOTAL		**2,250.00**		**$92,333**

3.2 MECHANICAL AND MOBILE EQUIPMENT

The Baffinland Estimate includes a list of mechanical equipment brought to Site not previously allocated (representing an additional cost) or that was not brought to Site (representing a reduction in the Baffinland Estimate).

The development of an inventory or tracking system has been an item of high uncertainty between QIA and Baffinland since 2016. Without this system, QIA is lacking confidence in Baffinland's ability to provide reasonable quantities of mechanical and mobile equipment. The 2019 Environmental Audit continued to identify discrepancies between the draft inventory of mechanical equipment provided by Baffinland and the number of the same equipment estimated for reclamation security. ARKTIS understands QIA is of the position that reclamation security should be held for the highest determined value of mechanical and mobile equipment on site[18] until Baffinland can provide reasonable evidence to the contrary. As such, ARKTIS has not reduced security in this reconciliation.

Additionally, it is ARKTIS' opinion that 3rd Party Equipment at the Project cannot be landfilled in a reclamation scenario as it is not the property of Baffinland. It is assumed that only items with "3rd party" in the description of the equipment are not owned by Baffinland. Therefore, ARKTIS has included 3rd party equipment in Section 5.2 as ARKTIS considers the demobilization of 3rd Party Equipment as an Indirect Cost.

Table 3-2 only summarizes Baffinland's Estimate for new mechanical and mobile equipment brought to Site but not previously allocated and the associated increase.

Table 3-2 Summary of Mechanical and Mobile Equipment not previously allocated security reconciliation

Item	Unit Rate Type	Quantity (pcs)	Unit Rate ($/pcs)	Direct Cost
Generator	Heavy Equipment	1	$36,627.91	$36,628
745C Rock Truck	Heavy Mobile Equipment	4	$2,090.32	$8,360
950M Loader	Heavy Mobile Equipment	1	$2,090.32	$2,090
D8T Dozer	Medium Mobile Equipment	3	$1,456.15	$4,368
Kalamar DRT 450	Medium Mobile Equipment	1	$1,456.15	$1,456
Tower Trailer	Medium Mobile Equipment	3	$1,456.15	$4,368
Rescue Boat and Trailer	Light Mobile Equipment	1	$852.05	$852
TOTAL				**$58,122**

[18] In-person meeting held between QIA, supported by ARKTIS, and Baffinland on December 13, 2018.

3.3 2019 ENVIRONMENTAL AUDIT RESULTS

Table 3-3 reconciles findings from the 2019 Environmental Audit that QIA has directed Baffinland and ARKTIS to include in the 2020 Annual Security Report. Note that Baffinland has not reconciled all siteworks, despite being directed to do so by the QIA. Therefore, these items account for a significant share of the difference between Baffinland's Estimate and this estimate.

Table 3-3 QIA Audit Reconciliation

Item	Location	Quantity (m^2)	Unit Rate ($/$m^2$)	Direct Cost
Grade and Recontour				
Ore Crusher Stockpile- 2019 Audit Reconciliation	Mary River	34,934	$1.65	$57,641
Ore Stockpile Sedimentation Pond 2a- 2019 Audit Reconciliation	Milne Port	288	$1.65	$475
Airstrip- 2019 Audit Reconciliation	Mine Site	233,222	$1.65	$384,816
Tote Road- 2019 Audit Reconciliation	Tote Road	1,154,485	$1.65	$1,904,900
Crusher Maintenance Shop Laydown Area Expansion- 2019 Audit Reconciliation	Mine Site	-975	$1.65	($1,609)
Raw Water Intake Laydown- 2019 Audit Reconciliation	Milne Port	-66	$1.65	($109)
TOTAL		**1,421,888**		**$2,346,115**

4 DIRECT COSTS ANALYSIS

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

Where Baffinland has explicitly highlighted work that will not advance until the approval of Phase 2 is given, ARKTIS has included these costs in separate tables.

4.1 BUILDINGS AND FOUNDATIONS

Table 4-1 and **Table 4-2** show a summary of the security estimate for Buildings and Foundations. Baffinland identified new washroom facilities along the Tote Road. ARKTIS maintains the position that it is reasonable to believe the washroom facilities will contaminate the ground beneath them and included the associated direct cost using the Unit Rate for "Modular Buildings Contaminated". This is consistent with previous reclamation security estimates.

Table 4-1 Buildings and foundations security update

Item	Location	Quantity (m^2)	Unit Rate ($/$m^2$)	Direct Cost
Modular Building Not Contaminated				
Crusher services trailer (2 x 36 m2)	Milne Port	72	$60.52	$4,357
Contractor Offices and Garages on KM58 Laydown (4 x 36 m2)	Tote Road	144	$60.52	$8,714
Sailivik Camp Mine Dry	Mine Site	1,200	$60.52	$72,618
Office trailers for Environment (2 x 36 m2)	Mine Site	72	$60.52	$4,357
Office trailers for Crushing (2 x 36 m2)	Mine Site	72	$60.52	$4,357
Modular Building Contaminated				
Washroom facilities at KM26 and KM80 IT Towers (2x36 m2)	Tote Road	72	$181.55	$13,073
Fold Away Building Contaminated				
Heated explosive storage building	Milne Port	400	$123.27	$49,308
Thaw and Wash Bay	Milne Port	1,250	$123.27	$154,088
Warehouse staging area facility	Milne Port	540	$123.27	$66,566
Heated explosive storage building	Mine Site	400	$123.27	$49,308
Fold Away Building Not Contaminated				
Welding shop at KM110 Laydown	Mine Site	540	$35.47	$19,154
Heated building for equipment storage at KM 110 Laydown	Mine Site	60	$35.47	$2,128
Heated building for equipment storage at KM 110 Laydown	Mine Site	120	$35.47	$4,256
Slab on Grade				
Concrete Apron for Mine Truck Shop	Mine Site	1,020	$34.81	$35,506
Concrete Pad at 110 Laydown for Tire Maintenance	Mine Site	60	$34.81	$2,089
TOTAL				**$489,885**

Table 4-2 Buildings and foundations security update for Phase 2

Item	Location	Quantity (m^2)	Unit Rate ($/$m^2$)	Direct Cost
Modular Building Contaminated				
Four (4) Prefabricated Explosives Magazines (144 m^2 ea.)	Tote Road	576	$181.55	$104,573
Precast Concrete Foundations				
Car Dumper and Reclaim Tunnel Basement Foundation	Milne Port	2235	$36.15	$80,795
Conical Stockpile Tunnel Foundation	Milne Port	1040	$36.15	$37,596
TOTAL				**$222,964**

4.2 MECHANICAL AND MOBILE EQUIPMENT

Table 4-3 summarizes QIA's Estimate for mechanical and mobile equipment reclamation security. ARKTIS has used Baffinland's provided quantities. It is ARKTIS' opinion that 3rd Party Equipment at the Project cannot be landfilled in a reclamation scenario as it is not the property of Baffinland. Therefore, there is no direct cost associated with 3rd party owned mobile equipment in this estimate because 3rd Party Equipment is considered an Indirect Cost associated with demobilization and is discussed in Section 5.3.

Table 4-3 Mechanical and mobile equipment security update

Item	Unit Rate Type	Quantity (pcs)	Unit Rate ($/pcs)	Direct Cost
Feed Conveyor	Heavy Equipment	1	$36,627.91	$36,628
GE 16V250 Genset 3500 kW	Heavy Equipment	5	$36,627.91	$183,140
Generator 1000 kW	Heavy Equipment	1	$36,627.91	$36,628
Conveyors	Heavy Equipment	3	$36,627.91	$109,884
Jaw Crusher Unit	Heavy Equipment	1	$36,627.91	$36,628
Screener + Cone crusher unit	Heavy Equipment	1	$36,627.91	$36,628
349 Excavator	Heavy Mobile Equipment	1	$2,090.32	$2,090
908 Loader	Heavy Mobile Equipment	2	$2,090.32	$4,181
950 Loader	Heavy Mobile Equipment	2	$2,090.32	$4,181
345 Excavator	Heavy Mobile Equipment	1	$2,090.32	$2,090
988 loader with forks	Heavy Mobile Equipment	1	$2,090.32	$2,090
Western Star Tractor	Heavy Mobile Equipment	2	$2,090.32	$4,181
6060 Shovel	Heavy Mobile Equipment	1	$2,090.32	$2,090
793 Haul Truck	Heavy Mobile Equipment	3	$2,090.32	$6,271
992 Loader	Heavy Mobile Equipment	1	$2,090.32	$2,090
16M Grader	Heavy Mobile Equipment	1	$2,090.32	$2,090
D10 Dozer	Heavy Mobile Equipment	1	$2,090.32	$2,090
374 Excavator	Heavy Mobile Equipment	2	$2,090.32	$4,181
374F Excavator	Heavy Mobile Equipment	4	$2,090.32	$8,361
745C truck	Heavy Mobile Equipment	5	$2,090.32	$10,452
600kW Generators	Medium Equipment	2	$3,860.22	$7,720
60kW Generator	Medium Equipment	3	$3,860.22	$11,581
Atlas 1000 mVA Transformers	Medium Equipment	4	$3,860.22	$15,441
24p Passenger Bus	Medium Mobile Equipment	1	$1,456.15	$1,456
Fire Truck (4x4)	Medium Mobile Equipment	1	$1,456.15	$1,456

Item	Unit Rate Type	Quantity (pcs)	Unit Rate ($/pcs)	Direct Cost
740B Water Truck	Medium Mobile Equipment	1	$1,456.15	$1,456
F550 Snow Plow	Medium Mobile Equipment	2	$1,456.15	$2,912
14M Grader	Medium Mobile Equipment	1	$1,456.15	$1,456
Fuel Tanker	Medium Mobile Equipment	1	$1,456.15	$1,456
Service/Fuel Truck (F550)	Medium Mobile Equipment	8	$1,456.15	$11,649
Jet A Truck	Medium Mobile Equipment	1	$1,456.15	$1,456
Cube Truck	Medium Mobile Equipment	2	$1,456.15	$2,912
740 Water Truck	Medium Mobile Equipment	1	$1,456.15	$1,456
Vac Truck	Medium Mobile Equipment	2	$1,456.15	$2,912
48p School Bus	Medium Mobile Equipment	2	$1,456.15	$2,912
Steam Truck	Medium Mobile Equipment	1	$1,456.15	$1,456
Telehandler	Medium Mobile Equipment	1	$1,456.15	$1,456
D65 Dozer	Medium Mobile Equipment	1	$1,456.15	$1,456
Track Mounted Drill Rig	Medium Mobile Equipment	2	$1,456.15	$2,912
4x4 Hotseating Bus	Medium Mobile Equipment	2	$1,456.15	$2,912
Flatbed Boom Truck	Medium Mobile Equipment	1	$1,456.15	$1,456
CCM200E Concrete Mixer	Medium Mobile Equipment	1	$1,456.15	$1,456
Pressure Washing Truck	Medium Mobile Equipment	1	$1,456.15	$1,456
D6T Dozer	Medium Mobile Equipment	1	$1,456.15	$1,456
Portable C130 Jaw Crusher	Medium Mobile Equipment	3	$1,456.15	$4,368
Light Plant	Light Equipment	19	$1,666.54	$31,664
Light Vehicles (F250 or equiv.)	Light Mobile Equipment	1	$852.05	$852
Kubota Side by Side	Light Mobile Equipment	1	$852.05	$852
259B Skid Steer	Light Mobile Equipment	1	$852.05	$852
Light Vehicles (F350 or equiv.)	Light Mobile Equipment	28	$852.05	$23,857
Larue Snow Blower	Light Mobile Equipment	1	$852.05	$852
Skid Steer Snow Blower	Light Mobile Equipment	2	$852.05	$1,704
Skid Steer	Light Mobile Equipment	3	$852.05	$2,556
Powertraxx Tracked Vehicle	Light Mobile Equipment	1	$852.05	$852
257 Skid Steer	Light Mobile Equipment	2	$852.05	$1,704
Blaze Cube Frost Fighters	Light Mobile Equipment	2	$852.05	$1,704
Light Vehicles (F350 or equiv.)	Light Mobile Equipment	8	$852.05	$6,816
TOTAL		**154**		**$658,900**

4.3 SITE WORKS

Table 4-4 and **Table 4-5** show a summary of QIA's grade and recontour reclamation security estimate. ARKTIS has used the Unit Rate Grade and Recontour for all new quarries. However, ARKTIS believes it is reasonable to assume additional effort, such as drilling and blasting, will be required to close and reclaim the significant number of new quarries, therefore, ARKTIS recommends a new Unit Rate be developed for reclaiming quarries.

Table 4-4 Site works security update

Item	Location	Quantity (m^2)	Unit Rate ($/$m^2$)	Direct Cost
Grade and Recontour				
Additional disturbed are for heated explosives storage area	Milne Port	27,700	$1.65	$45,705
Laydown LD-1	Tote Road	34,300	$1.65	$56,595
Laydown LD-5	Tote Road	11,700	$1.65	$19,305
Laydown LD-6	Tote Road	14,500	$1.65	$23,925
Laydown LD-7	Tote Road	10,500	$1.65	$17,325
Laydown LD-8	Tote Road	82,000	$1.65	$135,300
Laydown LD-9	Tote Road	16,300	$1.65	$26,895
Laydown LD-10	Tote Road	6,400	$1.65	$10,560
Laydown LD-11	Tote Road	3,900	$1.65	$6,435
Laydown LD-13	Tote Road	10,100	$1.65	$16,665
Laydown LD-14	Tote Road	9,600	$1.65	$15,840
Laydown LD-15	Tote Road	28,800	$1.65	$47,520
Laydown LD-17	Tote Road	37,200	$1.65	$61,380
Laydown LD-19	Tote Road	25,000	$1.65	$41,250
Laydown LD-20	Tote Road	35,300	$1.65	$58,245
Laydown LD-21	Tote Road	19,800	$1.65	$32,670
Laydown LD-22	Tote Road	24,700	$1.65	$40,755
Laydown LD-23	Tote Road	15,500	$1.65	$25,575
Laydown LD-24	Tote Road	3,400	$1.65	$5,610
Laydown LD-25	Tote Road	17,400	$1.65	$28,710
Laydown LD-26	Tote Road	25,000	$1.65	$41,250
Laydown LD-27	Tote Road	28,200	$1.65	$46,530
Laydown LD-28	Tote Road	17400	$1.65	$28,710
Laydown LD-29	Tote Road	14,600	$1.65	$24,090
Laydown LD-30	Tote Road	23,300	$1.65	$38,445
Laydown LD-31	Tote Road	13,900	$1.65	$22,935
Laydown LD-32	Tote Road	17,200	$1.65	$28,380
Laydown R3 Expansion	Tote Road	73,275	$1.65	$120,904
Quarry PQ2	Tote Road	188,000	$1.65	$310,219
Quarry Q27	Tote Road	110,000	$1.65	$181,511
Quarry Q42	Tote Road	70,000	$1.65	$115,507
Quarry PQ5a	Tote Road	230,000	$1.65	$379,523
Quarry PQ9a	Tote Road	90,000	$1.65	$148,509
Quarry PQ9b	Tote Road	30,000	$1.65	$49,503
Quarry PQ10B	Tote Road	100,000	$1.65	$165,010
Quarry PQ13	Tote Road	460,000	$1.65	$759,047
Quarry PQ14B	Tote Road	110,000	$1.65	$181,511
Quarry PQ15A	Tote Road	90,000	$1.65	$148,509
Quarry PQ15B	Tote Road	70,000	$1.65	$115,507

Item	Location	Quantity (m^2)	Unit Rate ($/m^2$)	Direct Cost
Quarry PQ4B	Tote Road	130,000	$1.65	$214,513
Quarry PQ5B	Tote Road	580,000	$1.65	$957,059
Quarry PQ6B	Tote Road	230,000	$1.65	$379,523
Quarry PQ10A	Tote Road	130,000	$1.65	$214,513
Quarry PQ12B	Tote Road	200,000	$1.65	$330,020
Quarry PQ14A	Tote Road	50,000	$1.65	$82,505
Quarry PQ2B	Tote Road	240,000	$1.65	$396,024
Quarry P2	Tote Road	80,000	$1.65	$132,008
Warehouse Laydown Area	Mine Site	3,200	$1.65	$5,280
Expansion of the mine workshop area and haul road	Mine Site	18,000	$1.65	$29,700
Explosives Pad Expansion	Mine Site	8,000	$1.65	$13,200
Grade and Recontours with Liner				
New Hazardous Waste Containment Facilities	Milne Port	72	$4.68	$337
Hazardous Waste Berm Containment facilities	Mine Site	456	$4.68	$2,134
Geotube Settling Pond	Mine Site	3000	$4.68	$14,040
Waste Rock Facility Sedimentation Pond	Mine Site	50,000	$4.68	$234,000
Mine Haul Road Sedimentation Pond	Mine Site	10,000	$4.68	$46,800
TOTAL		**3,927,703**		**$6,673,525**

Table 4-5 Site works security update for Phase 2

Item	Location	Quantity (m^2)	Unit Rate ($/m^2$)	Direct Cost
Grade and Recontour				
Car Dumper Basement Disturbed Area	Milne Port	15,300	$1.65	$25,245
Service Access Road for Rail Alignment at KM 0	Milne Port	21,500	$1.65	$35,475
Rail Access Roads	Tote Road	315,278	$1.65	$520,209
Explosives Magazines Laydowns	Tote Road	90,550	$1.65	$149,408
Tote Road Level Crossing (KM1.9)	Tote Road	14,000	$1.65	$23,100
Tote Road Level Crossing (KM9)	Tote Road	14,000	$1.65	$23,100
Tote Road Level Crossing (KM12)	Tote Road	14,000	$1.65	$23,100
Tote Road Level Crossing (KM23)	Tote Road	14,000	$1.65	$23,100
Tote Road Level Crossing (KM55)	Tote Road	14,000	$1.65	$23,100
Tote Road Level Crossing (KM86)	Tote Road	14,000	$1.65	$23,100
Tote Road Level Crossing (KM91)	Tote Road	14,000	$1.65	$23,100
Tote Road Level Crossing (KM95)	Tote Road	14,000	$1.65	$23,100
TOTAL		**554,628**		**$915,136**

4.4 STORAGE TANKS

Table 4-6 and **Table 4-7** summarize QIA's storage tanks security estimate. ARKTIS used quantities provided by Baffinland.

Table 4-6 Storage tanks security update

Item	Quantity (ea.)	Unit Rate ($/ea.)	Direct Cost
Water Tanks – Light Tank	4	$2,501	$10,004
Fuel Tanks – Light Diesel Tank	1	$3,156	$3,156
Fuel Tanks – Medium Mobile Diesel Tank	4	$9,069	$36,275
TOTAL	**9**		**$49,435**

Table 4-7 Storage tanks security update for Phase 2

Item	Quantity (ea.)	Unit Rate ($/ea.)	Direct Cost
Fuel Tanks – Largest Diesel Tanks	1	$156,276	$156,276

4.5 PIPING

Baffinland has added 3,750m of piping to be installed at the Mine Site, as shown in **Table 4-8**. In Baffinland's Estimate[3] the table references culverts, rather than piping.

Table 4-8 Piping security update

Item	Location	Quantity (m)	Unit Rate ($/m)	Direct Cost
Fuel Line- Bulk Fuel Storage Area	Mine Site	250	$52.68	$13,169
Transfer Line for Deposit 1 to Waste Rock Facility	Mine Site	3500	$52.68	$184,368
TOTAL		**3,750**		**$197,537**

4.6 FILL APPLICATION

Table 4-9 summarizes QIA's fill application security estimate. ARKTIS used Baffinland's quantity estimate, therefore any differences would be based on Unit Rates.

Table 4-9 Fill application security update

Item	Location	Quantity (m^2)	Unit Rate ($/$m^2$)	Direct Cost
Fill Application for 2020 Estimate	Mine Site	5,170	$38.43	$198,702

4.7 CONTAMINATED SOIL REMOVAL

Table 4-10 and **Table 4-11** summarize QIA's contaminated soil removal estimate. QIA has included contaminated soil removal Direct Costs for the contaminated buildings proposed in the 2020 Work Plan. For all items, 50% of the soil was assumed contaminated at a depth of 0.5m, concurrent with the 2014 Comprehensive Security Estimate[5]. The Indirect Costs for the treatment of the soil are included in Section 5.

Baffinland did not include any increase in contaminated soil removal.

Table 4-10 Contaminated soil removal reclamation security update

Item	Quantity (m^3)	Unit Rate ($/$m^3$)	Direct Cost
Washroom facilities at KM26 and KM80 IT Towers (2x36 m2)	18	$29.10	$524
Heated explosive storage building	100	$29.10	$2,910
Thaw and Wash Bay	312.5	$29.10	$9,092
Warehouse staging area facility	135	$29.10	$3,928
Heated explosive storage building	100	$29.10	$2,910
TOTAL	**665.5**		**$19,363**

Table 4-11 Contaminated soil removal reclamation security update for Phase 2

Item	Quantity (m^3)	Unit Rate ($/$m^3$)	Direct Cost
Four (4) Prefabricated Explosives Magazines (144 m2 ea.)	144	$29.10	$4,190

4.8 CABLING REMOVAL

Table 4-12 summarizes QIA's cabling removal reclamation security estimate. ARKTIS used Baffinland's quantity estimate, therefore any differences would be based on Unit Rates.

Table 4-12 Cabling removal reclamation security update

Item	Location	Quantity (m)	Unit Rate ($/m)	Direct Cost
Additional permanent lighting at the warehouse	Mine Site	600	$24.87	$14,922

5 INDIRECT COSTS ANALYSIS

The following subsections describe in detail, by reclamation activity, changes to Indirect Costs resulting from Baffinland's Estimate. A summary of all Indirect Costs by line item is presented in Appendix B. Where Baffinland has explicitly highlighted work that will not advance until the approval of Phase 2 is given, ARKTIS has included the associated estimates in separate tables.

5.1 CONTAMINATED SOIL TREATMENT

Contaminated Soil Treatment is included as an Indirect Cost consistent with the 2014 Comprehensive Security Estimate[5]. For this estimate, ARKTIS has not included worker and fuel mobilization costs as it is included in the Unit Rate in this case. The contaminated soil removed in **Table 4-10** and **Table 4-11** is brought to the Landfarm for treatment. This cost is provided in **Table 5-1** and **Table 5-2**.

Table 5-1 Contaminated Soil Treatment security update

Item	Quantity (m^3)	Unit Rate ($/$m^3$)	Indirect Cost
Washroom facilities at KM26 and KM80 IT Towers (2x36 m2)	18	$9.40	$169
Heated explosive storage building	100	$9.40	$940
Thaw and Wash Bay	312.5	$9.40	$2,938
Warehouse staging area facility	135	$9.40	$1,269
Heated explosive storage building	100	$9.40	$940
TOTAL	**665.5**		**$6,256**

Table 5-2 Contaminated Soil Treatment security update for Phase 2

Item	Quantity (m^3)	Unit Rate ($/$m^3$)	Indirect Cost
Four (4) Prefabricated Explosives Magazines (144 m2 ea.)	144	$9.40	$1,354

5.1 EXPLOSIVES

Table 5-3 summarizes QIA's security estimate for the demobilization of Ammonium Nitrate. There is no difference in total Indirect Costs as QIA has used Baffinland's quantity and unit rate estimate.

Table 5-3 Demobilization of Ammonium Nitrate security update

Item	Quantity (m^3)	Unit Rate ($/$m^3$)	Indirect Cost
Ammonium Nitrate	7,983	$358	$2,857,914

5.2 SEA CONTAINERS

Consistent with the 2019 Annual Security Report, ARKTIS adjusts security for the maximum number of Sea Containers observed on-site. During the 2019 Environmental Audit, this was found to be 2,765 TEU. This is an increase of 766 TEU and is shown in **Table 5-4.** For the Report, the Unit Rate has been decreased to $612.54/TEU from $694/TEU, consistent with the 2019 Nunavut Freight Rates[19]. This has been reconciled in throughout the Report.

Table 5-4 Sea Container security update

Item	Quantity (TEU)	Unit Rate ($/TEU)	Indirect Cost
Remove 20" ISO-Container (TEU), 2018 Unit Rate Adjustment	-1999	$694	($1,387,306)
Add 20" ISO-Container (TEU), 2019 Unit Rate Adjustment	1999	$612.54	$1,224,387
Remove 20" ISO-Container (TEU)	766	$612.54	$469,206
TOTAL	**2,765**		**$306,287**

5.3 3RD PARTY OWNED EQUIPMENT

Table 5-5 summarizes QIA's reclamation security estimate for 3rd Party Owned Equipment. As discussed in Sections 3.2 and 4.2, Baffinland has included 3rd party owned equipment as a Direct Cost. Baffinland's Estimate includes an Indirect Cost associated with the mobilization and demobilization of equipment calculated as 10% of the Direct Costs[3]. Note due to the inconsistences of Baffinland's reporting and the lack of tracking system or database that ARKTIS considers to be reasonable security is not reduced for the mobile equipment that Baffinland has determined is no longer on-site.

Table 5-5 3rd party owned equipment security update

Item	Quantity (pcs)	Unit Rate ($/pc)	Indirect Cost
3rd Party Heavy Mobile Equipment (make up for 'typical' fleet)	325	$15,964.53	$5,188,471
3rd Party Medium Mobile Equipment (make up for 'typical' fleet)	297	$2,785.99	$827,439
3rd Party Light Mobile Equipment (make up for 'typical' fleet)	174	$8,202.67	$1,427,264
TOTAL	**796**		**$7,443,175**

[19] NEAS (2019). Sealift Rates for 2019 Season. April 1st, 2019.

5.4 WORKER MOBILIZATION AND CAMP ACCOMMODATIONS

Table 5-6 summarizes QIA's reclamation security estimate for worker mobilization and accommodations. The additional person days associated with Phase 2 are shown in **Table 5-7**. ARKTIS calculates that an additional 9,443 person-days will be required and 11,633 if Phase 2 is permitted. ARKTIS continues to use the 70/30 split between northern and southern workers on 20-day shifts. The cost for accommodation and camp operation continues to be $225.50/person day and includes camp maintenance, catering, housekeeping, and fuel costs.

Table 5-6 Worker mobilization and camp accommodations security update

Item	Quantity	Unit Rate ($/person-days)	Indirect Cost
Worker Mobilization - Northern Hires	2,833	$63.16	$178,932
Worker Mobilization - Southern Hires	6,610	$76.62	$506,458
Worker Accommodations and Camp Operations	9,443	$225.50	$2,129,397
TOTAL			**$2,814,787**

Table 5-7 Worker mobilization and camp accommodations security update for Phase 2

Item	Quantity	Unit Rate ($/person-days)	Indirect Cost
Worker Mobilization for Phase 2-Northern Hires	657	$63.16	$41,496
Worker Mobilization for Phase 2 - Southern Hires	1,533	$76.62	$117,458
Worker Accommodations and Camp Operations for Phase 2	2,190	$225.50	$493,845
TOTAL			**$652,799**

5.5 FUEL

Table 5-8 summarizes QIA's reclamation security estimate for the Indirect Cost for fuel. ARKTIS was only able to calculate the demobilization costs for the 15,000 m^3 fuel tank at the Mine Site due to Baffinland not providing volumes for the Light Diesel Tanks and Medium Mobile Diesel Tanks (Note that this was not clear in the EBS provided by Baffinland). Baffinland states the Largest Diesel Tank (15,000 m^3) is a Phase 2 addition. However, fuel demobilization costs for the 15,000 m^3 is not identified as a Phase 2 item in Baffinland's Estimate. As such, ARKTIS has included this as a non-Phase 2 item in calculating fuel demobilization costs.

The following three assumptions have been included in QIA's reclamation security estimate.

1. QIA takes the conservative assumption that fuel abandoned on-site will not be available for use for reclamation activities, as there is no guarantee QIA will have access to the fuel, as another creditor may be awarded this asset.
2. QIA assumes that 50% of total fuel storage capacity will be left at closure and will need to be demobilized from Site.
3. QIA assumes that all fuel required for reclamation will have to be mobilized to Site. Contrarily, Baffinland typically assumes it will only need to bring half of the required fuel to complete reclamation activities.

The difference in fuel mobilization is due to Baffinland assuming that 50% of the fuel for reclamation will be available at closure. An ongoing concern QIA has with this is that the fuel calculated as needed for reclamation activities by Baffinland is lower than the fuel claimed on-site that doesn't hold security. This difference will need to be demobilized in the event of closure.

Table 5-8 Fuel security update

Item	Quantity (m^3)	Unit Rate ($/$m^3$)	Indirect Cost
Fuel Demobilization	7,500	$100	$750,000
Fuel Mobilization	2,815	$380	$1,069,700
TOTAL	**10,315**		**$1,819,700**

Table 5-9 Fuel security update for Phase 2

Item	Quantity (m^3)	Unit Rate ($/$m^3$)	Indirect Cost
Fuel Mobilization for Phase 2	1,248	$380	$474,240

5.6 CONTINGENCY

As detailed in the 2019 Mary River Security Update Report[16], QIA has maintained contingency at 20% due to the nature of the information used to develop the Report. This has been applied to marginal and historical total Direct Costs, contaminated soil treatment costs, care and maintenance costs, and closure monitoring/reporting costs as established in 2014[5]. QIA's increase in marginal security based on a 20% contingency is **$2,997,421** without Phase 2, or **$3,405,248** with Phase 2.

5.7 SUPERVISION, PROJECT MANAGEMENT AND CONTRACT ADMINISTRATION

The 2020 reclamation security estimate for project supervision, management and contract administration is **$1,512,708** or **$1,694,507** with Phase 2. Supervision, Project Management and Contract Administration is calculated as 14% of the total Direct Costs, contaminated soil treatment costs, care and maintenance costs, and closure monitoring/reporting costs. This increase has been applied due to an update to the OSPE Fee Guideline[20] and based on ARKTIS' experience at other projects in Canada's Arctic.

5.8 ENGINEERING FEES

ARKTIS has increased the Engineering Fee percentage to 5% of total Direct Costs based on a revision to the Association of Consulting Engineering Companies' Budget Guidelines for Engineering Services[21] and based ARKTI's experience at other projects in Canada's Arctic.

ARKTIS has calculated the 2019 Engineering Fees to be **$539,940** or **$604,868** with Phase2.

[20] OSPE FEE GUIDELINE 2015

[21] ACEC-BC. Budget Guidelines for Engineering Services – Infrastructure and Transportation. https://www.acec-bc.ca/resources/procurement/

6 RECOMMENDATIONS

Table 6-1 and **Table 6-2** summarize the reclamation security described throughout this Report. Both the marginal increase with and without Phase 2 approval have been calculated along with their respective increase due to inflation. The estimated security increase without Phase 2 was calculated to be $31,097,000. The estimated security increase with Phase 2 totaled $34,178,500. These have been added to the 2019 Security Estimate to provide a total security estimate for 2020. Estimates have been rounded to the nearest hundredth.

6.1 INFLATION

As the unit rates used to determine Direct Costs were updated in 2018, ARKTIS has adjusted the Direct Costs to October 2019 Canadian dollars using the monthly Commercial Price Index for Canada[22]. Similarly, all Indirect Costs were updated from 2018 to 2019 Canadian dollars, less the Unit Rate for mobilizing sea containers as that was updated for 2019.

The mathematical formula used to determine the Inflation Rate can be found in the 2018 ASI Reclamation Security Report[15]. Baffinland has not applied an adjustment for inflation and change in market conditions.

Table 6-1 Summary of recommendations without Phase 2

Item	Cost without Inflation	Costs with Inflation
2019 Security Estimate	$124,611,900	$128,131,800
2020 Work Plan increase	$31,097,000	$32,139,800
2020 Total Security Estimate	**$155,708,900**	**$160,271,600**

Table 6-2 Summary of recommendations with Phase 2

Item	Cost without Inflation	Costs with Inflation
2019 Security Estimate	$124,611,900	$128,131,800
2020 Work Plan increase	$34,178,500	$35,278,700
2020 Total Security Estimate	**$158,790,400**	**$163,410,500**

[22] CANSIM table 326-0020

7 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 C.

ARKTIS SOLUTIONS INC.

Nick Jewitt

M.A.Sc.

APPENDIX A – SUMMARY OF DIRECT COST ADJUSTMENTS

The Table below provides a summary of the Direct Cost adjustments. The subtotals are provided for non-Phase 2 and Phase 2 items. The total including Phase 2 is also calculated. The difference is calculated by taking Baffinland's estimated cost and subtracting QIA's estimate. Therefore, a negative difference represents cost that is either higher for QIA or is a negative cost in Baffinland's Estimate. NA is used when there is a difference of opinion in the assumptions associated with that line item, but the cost is accounted for elsewhere.

Description	Direct Cost		
	Baffinland	QIA	Diff
Aecon Workshops	$62,882	$58,532	$4,350
Sana Workshop	$23,820	$30,258	($6,438)
Carpenter Workshop	$3,334	$3,547	($213)
Generator	$32,950	$36,628	($3,678)
Bucket Wheel Stacker Reclaimer	($65,900)	$0	($65,900)
Screen Metso FS353	($32,950)	$0	($32,950)
30,000 L Fuel Tanker Truck	($22,825)	$0	($22,825)
745C Rock Truck	$8,300	$8,361	($61)
950M Loader	$2,075	$2,090	($15)
Heavy Duty Shunt Truck	($2,075)	$0	($2,075)
Feeder Dolly	($2,075)	$0	($2,075)
Fines Mobile Stacker	($2,075)	$0	($2,075)
Conveying - Jump Conveyor	($2,075)	$0	($2,075)
Conveying - Conveyor Feeder	($2,075)	$0	($2,075)
Pump fire truck	($2,075)	$0	($2,075)
WHEEL DOZER-CAT 824H	($2,075)	$0	($2,075)
922K Wheel Loader	($2,075)	$0	($2,075)
Jet A Truck	($2,075)	$0	($2,075)
D10 Dozer	($2,075)	$0	($2,075)
D8T Dozer	$3,488	$4,368	($881)
Tri-Trombone flat trailer	($1,163)	$0	($1,163)
Zoom Boom 12,000 lbs	($1,163)	$0	($1,163)
4x4 hotseating bus	($1,163)	$0	($1,163)
Boom Truck	($1,163)	$0	($1,163)
Pressure washing truck	($1,163)	$0	($1,163)
Kalamar DRT 450	$1,163	$1,456	($294)
Tower Trailer	$3,488	$4,368	($881)
Light ERT utility vehicle	($729)	$0	($729)
Portable water pump	($1,460)	$0	($1,460)
Pickup truck (F350 or similar)	($5,118)	$0	($5,118)
Genie Manlift z60	($1,464)	$0	($1,464)
Genie Manlift s135x	($2,200)	$0	($2,200)
Frost Fighter Heater	($4,405)	$0	($4,405)
Rescue Boat and Trailer	$734	$852	($118)
Light Plant	($33,260)	$0	($33,260)
Generator/Air Compressor	($1,584)	$0	($1,584)
3rd Party Heavy Mobile Equipment (make up for typical fleet)	$124,500	NA	$124,500
3rd Party Medium Mobile Equipment (make up for typical fleet)	$77,888	NA	$77,888
3rd Party Light Mobile Equipment (make up for typical fleet)	$47,398	NA	$47,398

Description	Direct Cost		
	Baffinland	QIA	Diff
Decommissioned Drill	($2,075)	$0	($2,075)
Decommissioned Vehicles	($2,188)	$0	($2,188)
Hagglunds Snow Vehicle	($729)	$0	($729)
3rd Party Heavy Mobile Equipment (make up for typical fleet)	($22,825)	$0.00	($22,825)
3rd Party Medium Mobile Equipment (make up for typical fleet)	($6,975)	$0.00	($6,975)
3rd Party Light Mobile Equipment (make up for typical fleet)	($22,605)	$0.00	($22,605)
Ore Crusher Stockpile- 2019 Audit Reconciliation	$0	$57,641	($57,641)
Ore Stockpile Sedimentation Pond 2a- 2019 Audit Reconciliation	$0	$475	($475)
Airstrip- 2019 Audit Reconciliation	$0	$384,816	($384,816)
Tote Road- 2019 Audit Reconciliation	$0	$1,904,900	($1,904,900)
Crusher Maintenance Shop Laydown Area Expansion- 2019 Audit Reconciliation	$0	($1,609)	$1,609
Raw Water Intake Laydown- 2019 Audit Reconciliation	$0	($109)	$109
Crusher services trailer (2 x 36 m2)	$3,456	$4,357	($901)
Washroom facilities at KM26 and KM80 IT Towers (2x36 m2)	$3,456	NA	$3,456
Contractor Offices and Garages on KM58 Laydown (4 x 36 m2)	$6,912	$8,714	($1,802)
Sailivik Camp Mine Dry	$57,120	$72,618	($15,498)
Office trailers for Environment (2 x 36 m2)	$3,427	$4,357	($930)
Office trailers for Crushing (2 x 36 m2)	$3,427	$4,357	($930)
Washroom facilities at KM26 and KM80 IT Towers (2x36 m2)	NA	$13,071	($13,071)
Heated explosive storage building	$45,600	$49,309	($3,709)
Thaw and Wash Bay	$142,500	$154,090	($11,590)
Warehouse staging area facility	$61,560	$66,567	($5,007)
Heated explosive storage building	$45,600	$49,309	($3,709)
Welding shop at KM110 Laydown	$18,004	$19,156	($1,152)
Heated building for equipment storage at KM 110 Laydown	$2,000	$2,128	($128)
Heated building for equipment storage at KM 110 Laydown	$4,001	$4,257	($256)
Concrete Apron for Mine Truck Shop	$30,600	$35,506	($4,906)
Concrete Pad at 110 Laydown for Tire Maintenance	$1,800	$2,089	($289)
Feed Conveyor	$32,950	$36,628	($3,678)
GE 16V250 Genset 3500 kW	$164,750	$183,140	($18,390)
Generator 1000 kW	$32,950	$36,628	($3,678)
Conveyors	$98,853	$109,884	($11,031)
Jaw Crusher Unit	$32,952	$36,628	($3,676)
Screener + Cone crusher unit	$32,953	$36,628	($3,675)
349 Excavator	$2,075	$2,090	($15)
908 Loader	$4,150	$4,181	($31)
950 Loader	$4,150	$4,181	($31)
345 Excavator	$2,075	$2,090	($15)
988 loader with forks	$2,075	$2,090	($15)
Western Star Tractor	$4,150	$4,181	($31)
6060 Shovel	$2,075	$2,090	($15)
793 Haul Truck	$6,225	$6,271	($46)
992 Loader	$2,075	$2,090	($15)
16M Grader	$2,075	$2,090	($15)
D10 Dozer	$2,075	$2,090	($15)

Description	Direct Cost		
	Baffinland	QIA	Diff
374 Excavator	$4,150	$4,181	($31)
374F Excavator	$8,300	$8,361	($61)
745C truck	$10,375	$10,452	($77)
600kW Generators	$6,785	$7,720	($935)
60kW Generator	$10,181	$11,581	($1,400)
Atlas 1000 mVA Transformers	$13,578	$15,441	($1,863)
24p Passenger Bus	$1,163	$1,456	($294)
Fire Truck (4x4)	$1,163	$1,456	($294)
740B Water Truck	$1,163	$1,456	($294)
F550 Snow Plow	$2,325	$2,912	($587)
14M Grader	$1,163	$1,456	($294)
Fuel Tanker	$1,163	$1,456	($294)
Service/Fuel Truck (F550)	$9,300	$11,649	($2,349)
Jet A Truck	$1,163	$1,456	($294)
Cube Truck	$2,325	$2,912	($587)
740 Water Truck	$1,163	$1,456	($294)
Vac Truck	$2,325	$2,912	($587)
48p School Bus	$2,325	$2,912	($587)
Steam Truck	$1,163	$1,456	($294)
Telehandler	$1,163	$1,456	($294)
D65 Dozer	$1,163	$1,456	($294)
Track Mounted Drill Rig	$2,325	$2,912	($587)
4x4 Hotseating Bus	$2,325	$2,912	($587)
Flatbed Boom Truck	$1,163	$1,456	($294)
CCM200E Concrete Mixer	$1,163	$1,456	($294)
Pressure Washing Truck	$1,163	$1,456	($294)
D6T Dozer	$1,163	$1,456	($294)
Portable C130 Jaw Crusher	$3,488	$4,368	($881)
Light Plant	$30,092	$31,664	($1,572)
Light Vehicles (F250 or equiv.)	$729	$852	($123)
Kubota Side by Side	$729	$852	($123)
259B Skid Steer	$729	$852	($123)
Light Vehicles (F350 or equiv.)	$20,418	$23,857	($3,440)
Larue Snow Blower	$729	$852	($123)
Skid Steer Snow Blower	$1,458	$1,704	($246)
Skid Steer	$2,188	$2,556	($369)
Powertraxx Tracked Vehicle	$729	$852	($123)
257 Skid Steer	$1,458	$1,704	($246)
Blaze Cube Frost Fighters	$1,458	$1,704	($246)
Light Vehicles (F350 or equiv.)	$5,834	$6,816	($983)
3rd Party Heavy Mobile Equipment (make up for 'typical' fleet)	$549,875	NA	$549,875
3rd Party Medium Mobile Equipment (make up for 'typical' fleet)	$267,375	NA	$267,375
3rd Party Light Mobile Equipment (make up for 'typical' fleet)	$79,483	NA	$79,483
Additional disturbed are for heated explosives storage area	$41,273	$45,705	($4,432)
Laydown LD-1	$51,107	$56,595	($5,488)
Laydown LD-5	$17,433	$19,305	($1,872)
Laydown LD-6	$21,605	$23,925	($2,320)

Description	Direct Cost		
	Baffinland	QIA	Diff
Laydown LD-7	$15,645	$17,325	($1,680)
Laydown LD-8	$122,180	$135,300	($13,120)
Laydown LD-9	$24,287	$26,895	($2,608)
Laydown LD-10	$9,536	$10,560	($1,024)
Laydown LD-11	$5,811	$6,435	($624)
Laydown LD-13	$15,049	$16,665	($1,616)
Laydown LD-14	$14,304	$15,840	($1,536)
Laydown LD-15	$42,912	$47,520	($4,608)
Laydown LD-17	$55,428	$61,380	($5,952)
Laydown LD-19	$37,250	$41,250	($4,000)
Laydown LD-20	$52,597	$58,245	($5,648)
Laydown LD-21	$29,502	$32,670	($3,168)
Laydown LD-22	$36,803	$40,755	($3,952)
Laydown LD-23	$23,095	$25,575	($2,480)
Laydown LD-24	$5,066	$5,610	($544)
Laydown LD-25	$25,926	$28,710	($2,784)
Laydown LD-26	$37,250	$41,250	($4,000)
Laydown LD-27	$42,018	$46,530	($4,512)
Laydown LD-28	$25,926	$28,710	($2,784)
Laydown LD-29	$21,754	$24,090	($2,336)
Laydown LD-30	$34,717	$38,445	($3,728)
Laydown LD-31	$20,711	$22,935	($2,224)
Laydown LD-32	$25,628	$28,380	($2,752)
Laydown R3 Expansion	$109,180	$120,904	($11,724)
Quarry PQ2	$280,120	$310,219	($30,099)
Quarry Q27	$163,900	$181,511	($17,611)
Quarry Q42	$104,300	$115,507	($11,207)
Quarry PQ5a	$342,700	$379,523	($36,823)
Quarry PQ9a	$134,100	$148,509	($14,409)
Quarry PQ9b	$44,700	$49,503	($4,803)
Quarry PQ10B	$149,000	$165,010	($16,010)
Quarry PQ13	$685,400	$759,047	($73,647)
Quarry PQ14B	$163,900	$181,511	($17,611)
Quarry PQ15A	$134,100	$148,509	($14,409)
Quarry PQ15B	$104,300	$115,507	($11,207)
Quarry PQ4B	$193,700	$214,513	($20,813)
Quarry PQ5B	$864,200	$957,059	($92,859)
Quarry PQ6B	$342,700	$379,523	($36,823)
Quarry PQ10A	$193,700	$214,513	($20,813)
Quarry PQ12B	$298,000	$330,020	($32,020)
Quarry PQ14A	$74,500	$82,505	($8,005)
Quarry PQ2B	$357,600	$396,024	($38,424)
Quarry P2	$119,200	$132,008	($12,808)
Warehouse Laydown Area	$4,768	$5,280	($512)
Expansion of the mine workshop area and haul road	$26,820	$29,700	($2,880)
Explosives Pad Expansion	$11,920	$13,200	($1,280)
New Hazardous Waste Containment Facilities	$297	$337	($40)
Hazardous Waste Berm Containment facilities	$1,879	$2,134	($255)

Description	Direct Cost		
	Baffinland	QIA	Diff
Geotube Settling Pond	$12,360	$14,040	($1,680)
Waste Rock Facility Sedimentation Pond	$206,000	$234,000	($28,000)
Mine Haul Road Sedimentation Pond	$41,200	$46,800	($5,600)
Water Tanks – Light Tank	$6,840	$10,004	($3,164)
Fuel Tanks – Light Diesel Tank	$2,950	$3,156	($206)
Fuel Tanks – Medium Mobile Diesel Tank	$33,524	$36,275	($2,751)
Fuel Line- Bulk Fuel Storage Area	$13,283	$13,169	$113
Transfer Line for Deposit 1 to Waste Rock Facility	$185,955	$184,368	$1,587
Fill Application for 2020 Estimate	$200,596	$198,702	$1,894
Washroom facilities at KM26 and KM80 IT Towers (2x36 m2) Contaminated Soil Removal	$0	$524	($524)
Additional permanent lighting at the warehouse Contaminated Soil Removal	$12,780	$14,922	($2,142)
Heated explosive storage building Contaminated Soil Removal	$0	$2,910	($2,910)
Thaw and Wash Bay Contaminated Soil Removal	$0	$9,092	($9,092)
Warehouse staging area facility Contaminated Soil Removal	$0	$3,928	($3,928)
Heated explosive storage building Contaminated Soil Removal	$0	$2,910	($2,910)
SUBTOTAL WITHOUT PHASE 2	**$8,529,183**	**$10,798,804**	**($2,269,620)**
Four (4) Prefabricated Explosives Magazines (144 m2 ea.) Contaminated Soil Removal	$0	$4,190	($4,190)
Four (4) Prefabricated Explosives Magazines (144 m2 ea.)	$66,182	$104,570	($38,388)
Car Dumper and Reclaim Tunnel Basement Foundation	$69,062	$80,795	($11,734)
Conical Stockpile Tunnel Foundation	$32,136	$37,596	($5,460)
Car Dumper Basement Disturbed Area	$22,797	$25,245	($2,448)
Service Access Road for Rail Alignment at KM 0	$32,035	$35,475	($3,440)
Rail Access Roads	$469,764	$520,209	($50,444)
Explosives Magazines Laydowns	$134,920	$149,408	($14,488)
Tote Road Level Crossing (KM1.9)	$20,860	$23,100	($2,240)
Tote Road Level Crossing (KM9)	$20,860	$23,100	($2,240)
Tote Road Level Crossing (KM12)	$20,860	$23,100	($2,240)
Tote Road Level Crossing (KM23)	$20,860	$23,100	($2,240)
Tote Road Level Crossing (KM55)	$20,860	$23,100	($2,240)
Tote Road Level Crossing (KM86)	$20,860	$23,100	($2,240)
Tote Road Level Crossing (KM91)	$20,860	$23,100	($2,240)
Tote Road Level Crossing (KM95)	$20,860	$23,100	($2,240)
Fuel Tanks- Largest Diesel Tanks	$137,278	$156,276	($18,998)
SUBTOTAL OF PHASE 2	**$1,131,054**	**$1,298,563**	**($167,509)**
TOTAL WITH PHASE 2	**$9,660,237**	**$12,097,367**	**($2,437,130)**

APPENDIX B – SUMMARY OF INDIRECT COST ADJUSTMENTS

The Table below provides a summary of the Indirect Cost adjustments. Phase 2 items are highlighted. The subtotals are provided for non-Phase 2 and Phase 2 items. The total including Phase 2 is also calculated. The difference is calculated by taking Baffinland's estimated cost and subtracting QIA's estimate. Therefore, a negative difference represents cost that is higher for QIA.

Description	Indirect Cost		
	Baffinland	QIA	Diff
Contaminated Soil Treatment	$0	$6,256	($6,256)
Ammonium Nitrate	$2,857,914	$2,857,914	$0
Sea Containers*	$0	$306,287	($306,287)
3rd Party Heavy Mobile Equipment (make up for 'typical' fleet)	$0	$5,188,471	($5,188,471)
3rd Party Medium Mobile Equipment (make up for 'typical' fleet)	$0	$827,439	($827,439)
3rd Party Light Mobile Equipment (make up for 'typical' fleet)	$0	$1,427,264	($1,427,264)
Fuel Demobilization	$750,000	$750,000	$0
Fuel Mobilization	$292,200	$1,069,700	($777,500)
Worker Mobilization - Northern Hires	$169,050	$178,932	($9,882)
Worker Mobilization - Southern Hires	$449,296	$506,458	($57,162)
Worker Accommodations and Camp Operations	$1,693,731	$2,129,397	($435,666)
Mobilization and Demobilization of Equipment and Materials	$948,000	$0	948,000
Contingency (12.5%/20%)	$1,593,000	$2,997,421	($1,404,421)
PM Fees (9.4$/14%)	$891,000	$1,512,708	($621,708)
Engineering Fees (3.9%/5%)	$370,000	$539,940	($169,940)
SUBTOTAL WITHOUT PHASE 2	$10,014,191	$20,298,188	($10,283,997)
Contaminated Soil Treatment for Phase 2	$0	$1,354	-$1,354
Contingency (12.5%/20%) for Phase 2	$0	$407,827	-$407,827
PM Fees for Phase 2 (9.4%/14%)	$0	$181,799	-$181,799
Engineering Fees for Phase 2 (3.9%/5%)	$0	$64,928	-$64,928
Fuel Mobilization for Phase 2	$0	$474,240	-$474,240
Worker Mobilization for Phase 2- Northern Hires	$0	$41,496	-$41,496
Worker Mobilization for Phase 2 - Southern Hires	$0	$117,458	-$117,458
Worker Accommodations and Camp Operations for Phase 2	$0	$493,845	-$493,845
SUBTOTAL OF PHASE 2	$0	$1,782,947	-$1,782,947
TOTALWITH PHASE 2	$10,014,191	$22,081,135	-$12,066,944

*Sea Containers are presented as a total increase. See Section 5.2 for individual line items.

APPENDIX C – 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 Solutions 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.