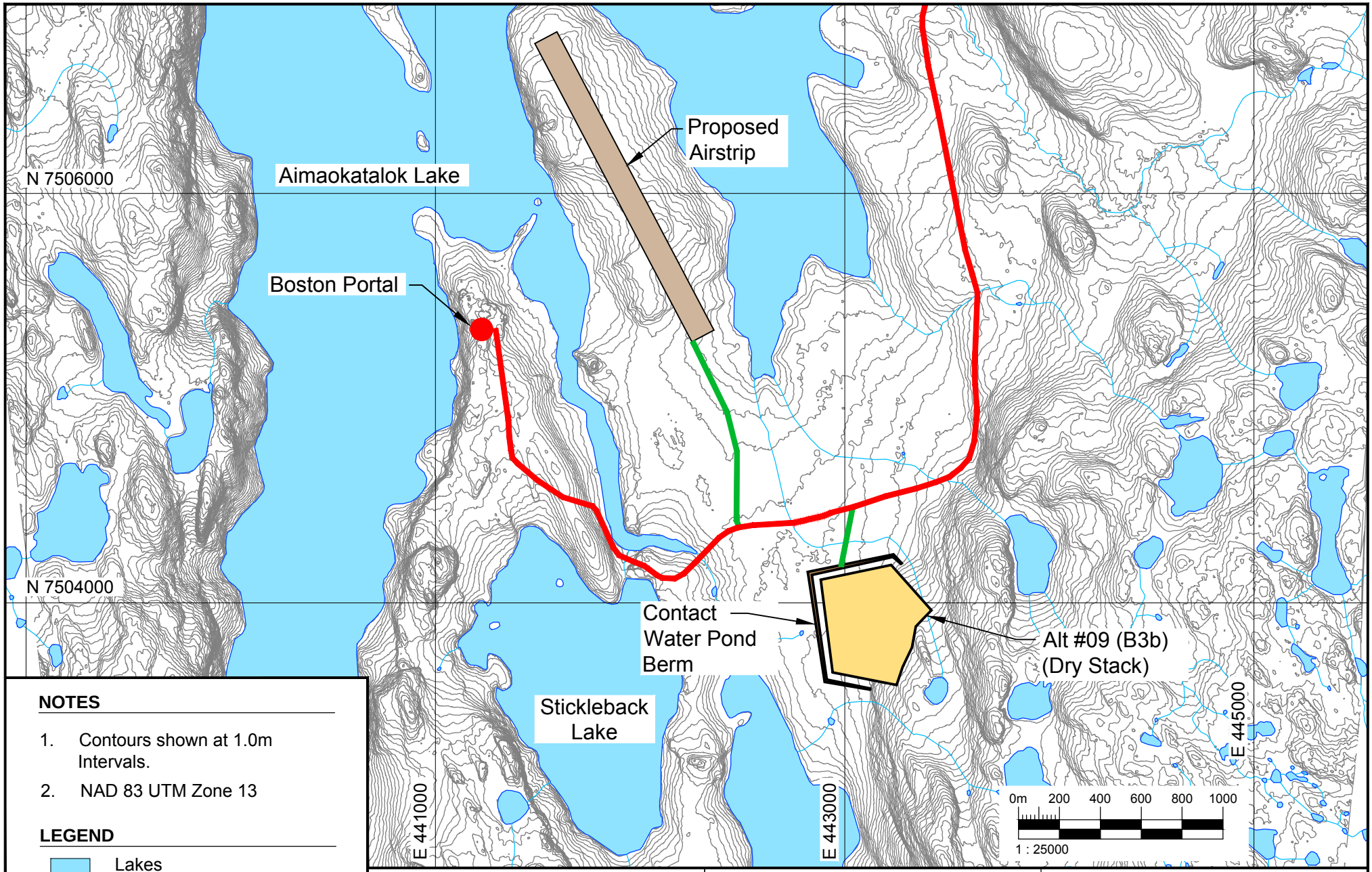

NOTES

1. Contours shown at 1.0m Intervals.
2. NAD 83 UTM Zone 13

LEGEND

- Lakes
- Tailings Area
- Creeks and Rivers
- Proposed Access Road
- Madrid-Boston Road

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TMAC RESOURCES

Boston Tailings Disposal Alternatives Assessment

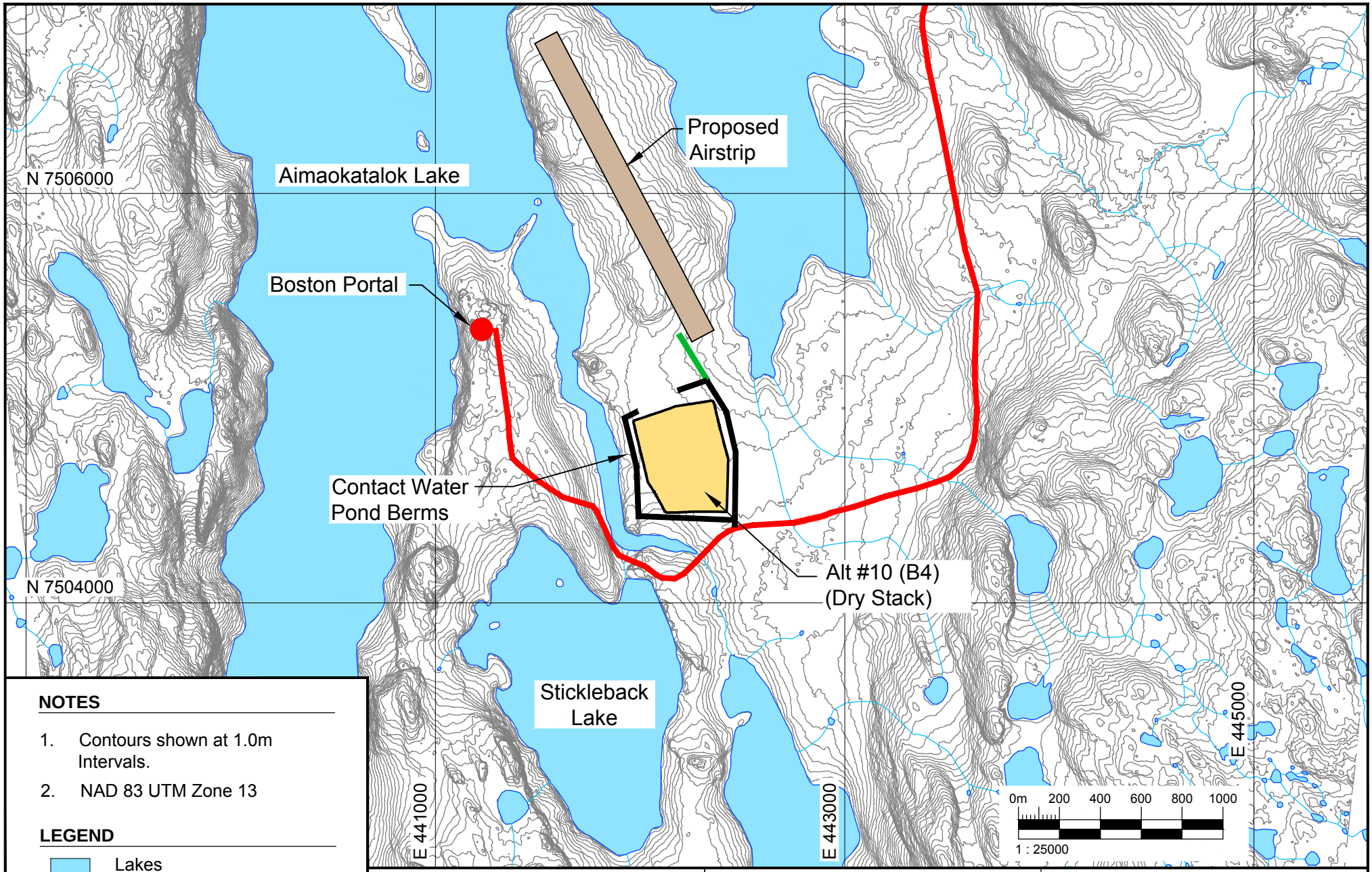
Alternative #09 (B3b) (Dry Stack)

SRK JOB NO.: 1CT022.004.600.20

FILE NAME: 1CT022.004T600-FIGURE 6 B3b.dwg

HOPE BAY PROJECT

DATE:	APPROVED:	FIGURE:
Nov. 2016	IM	05



NOTES

1. Contours shown at 1.0m Intervals.
2. NAD 83 UTM Zone 13

LEGEND

- Lakes
- Tailings Area
- Creeks and Rivers
- Proposed Access Road
- Madrid-Boston Road

srk consulting

TMAC RESOURCES

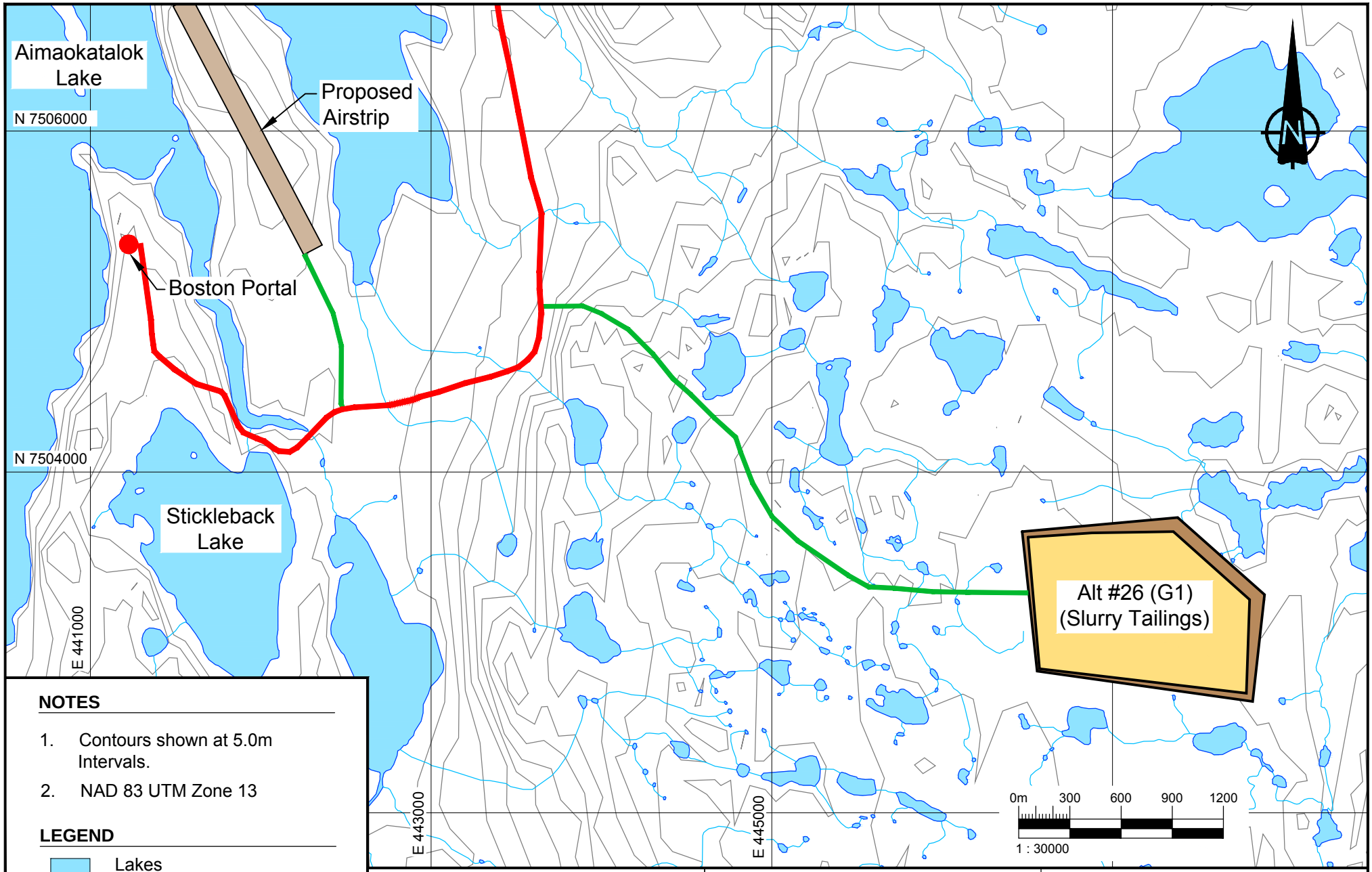
Boston Tailings Disposal Alternatives Assessment

Alternative #10 (B4) (Dry Stack)

SRK JOB NO.:	1CT022.004.600.20
FILE NAME:	1CT022.004T600-FIGURE 7 B4.dwg

HOPE BAY PROJECT

DATE:	APPROVED:	FIGURE:
Nov. 2016	IM	06



NOTES

1. Contours shown at 5.0m Intervals.
2. NAD 83 UTM Zone 13

LEGEND

- Lakes
- Tailings Area
- Creeks and Rivers
- Proposed Access Road
- Madrid-Boston Road

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SRK JOB NO.: 1CT022.004.600.20

FILE NAME: 1CT022.004T600-FIGURE 8 G1.dwg

TMAC RESOURCES

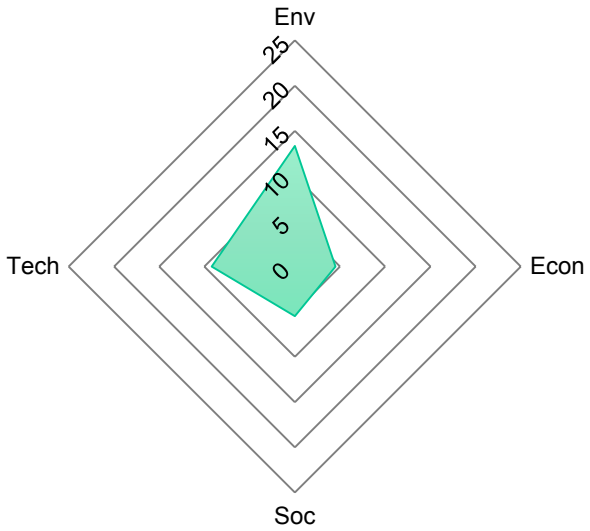
HOPE BAY PROJECT

Boston Tailings Disposal Alternatives Assessment

Alternative #26 (G1) (Slurry Tailings)

DATE:	APPROVED:	FIGURE:
Nov. 2016	IM	07

Alt #08 (B3a)



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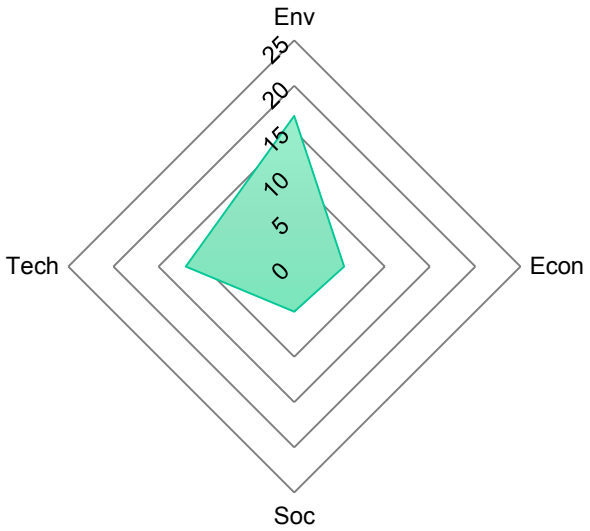

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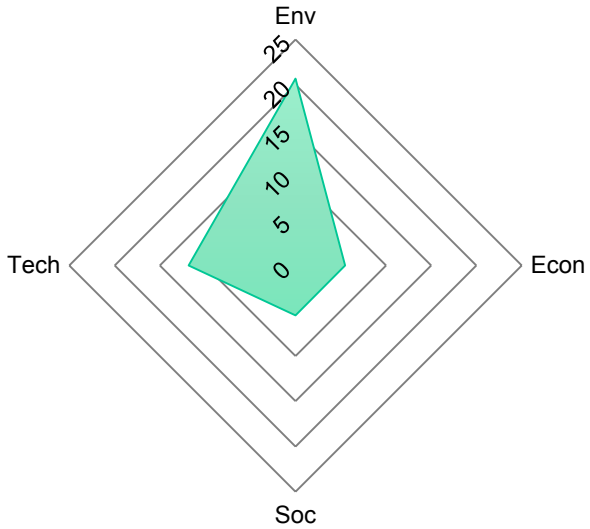
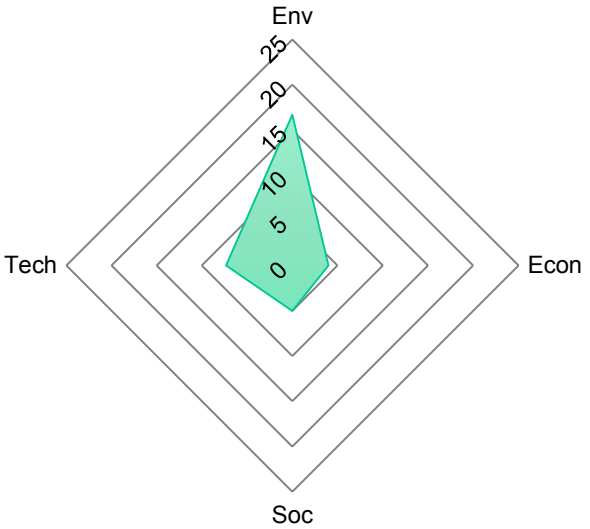


Alt #26 (G1)



srk consulting

TMAC RESOURCES

Boston Tailings Disposal Alternatives Assessment

Alternative Account Merit Scores as Radar Charts

Job No: 1CT022.004.600.020

Filename: 1CT022.004_AlternativeAcoountMeritScores_rev02.pptx

HOPE BAY PROJECT

Date:	Approved:	Figure:
Nov 2016	MMM	8

Appendix A – MAA Summary Tables

Table A-1: Summary of Tailings Disposal Alternatives

Site Number	Site #01	Site #02	Site #03	Site #04	Site #05	Site #06	Site #07	Site #08	Site #09	Site #10	Site #11	Site #12	Site #13	Site #14	Site #15	Site #16	Site #17	Site #18
Site Descriptor	A1	A2	A3a	A3b	A4	B1	B2	B3a	B3b	B4	C1	C2	C3	C4	D1	D2	D3	E1
Figure #	02	02	02,03,04	02	02	02	02	02,03,05	02,03,06	02,03,07	02	02	02	02	02	02	02	02
Site Location	SSE of Mill	SSE of Mill	S of Mill	S of Mill	S of Mill	ENE of Mill	NE of Mill	ESE of Mill	ESE of Mill	ESE of Mill	NE of Mill	NNE of Mill	NNE of Mill	NNE of Mill	NNW of Mill	NNW of Mill	N of Mill	NE of Mill
Tailings Deposition Method	Slurry	Slurry	Filtered	Filtered	Slurry	Slurry	Slurry	Slurry	Filtered	Filtered	Slurry	Slurry	Slurry	Slurry	Slurry	Slurry	Slurry	Slurry
Deposition Type	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AQ	Sub-AE	Sub-AQ	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE
Straight Line Distance from Mill (km)	6.82	3.94	1.28	1.28	1.30	3.56	2.39	2.24	2.12	1.68	5.89	5.36	7.44	10.01	7.66	10.58	12.89	11.73
Footprint (ha)	84	71	18	30	118	90	100	54	21	15	88	47	123	114	109	81	97	138
Dam/Dry Stack Height (m)	12	14	23	12	6	13	8	10	25	26	17	25	12	10	19	22	8	9
Maximum Storage Volume (Mm^3)	4.4	4.8	2.3	2.3	4.9	4.8	5.4	4.9	2.3	2.3	5.2	4.6	5.6	5.5	5.5	5.0	4.5	5.4
Dam Descriptor	Ring Dam	Ring Dam	CWP Berm	Water Retaining Dam	Water Retaining Dam	Ring Dam	Water Retaining Dam	Sidehill Dam	CWP Berm	CWP Berm	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Ring Dam
Within PDA	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	no	yes	yes	no	no

Notes:

PDA = Potential Development Area

CWP Berm = Contact Water Pond Berm

Sub-AE = Sub-aerial

Sub-AQ = Sub-Aqueous

Table A-1: Summary of Tailings Disposal Alternatives (continued)

Site Number	Site #19	Site #20	Site #21	Site #22	Site #23	Site #24	Site #25	Site #26	Site #27	Site #28	Site #29	Site #30	Site #31	Site #32	Site #33	Site #34	Site #35
Site Descriptor	E2	E3	F1	F2	F3	F4	F5	G1	G2	G3	H1	H2	I1	I2	J1	J2	J3
Figure #	02	02	02	02	02	02	02	02,03,08	02	02	02	02	02	02	02	02	02
Site Location	NNE of Mill	ENE of Mill	ENE of Mill	ENE of Mill	ENE of Mill	NNE of Mill	NNE of Mill	ESE of Mill	ENE of Mill	E of Mill	ESE of Mill	ESE of Mill	SSE of Mill	SE of Mill	SSE of Mill	S of Mill	S of Mill
Tailings Deposition Method	Slurry	Slurry	Slurry	Slurry	Slurry	Slurry	Slurry	Slurry	Slurry	Slurry	Slurry	Slurry	Slurry	Slurry	Slurry	Slurry	Slurry
Deposition Type	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE	Sub-AE
Straight Line Distance from Mill (km)	14.31	9.27	11.09	11.62	6.81	8.43	10.04	5.27	10.11	6.07	14.82	12.52	14.93	13.32	12.38	6.53	3.89
Footprint (ha)	125	117	135	135	91	89	134	120	138	136	138	138	131	135	137	61	62
Dam/Dry Stack Height (m)	9	6	15	6	15	13	11	15	6	4	5	9	7	7	7	15	15
Maximum Storage Volume (Mm^3)	4.6	5.5	5.3	5.0	5.0	5.3	4.8	5.1	5.1	5.1	4.6	5.5	5.4	4.9	5.1	4.9	4.7
Dam Descriptor	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Ring Dam	Sidehill Dam
Within PDA	no	no	no	no	no	no	no	yes	no	yes	no	no	no	no	no	no	yes

Notes:

PDA = Potential Development Area

CWP Berm = Contact Water Pond Berm

Sub-AE = Sub-aerial

Sub-AQ = Sub-Aqueous

Table A-2: Pre-Screening (Primary and Secondary) of Tailings Disposal Alternatives

Criteria	Rationale	Site #01	Site #02	Site #03	Site #04	Site #05	Site #06	Site #07	Site #08	Site #09	Site #10	Site #11	Site #12	Site #13	Site #14	Site #15	Site #16	Site #17
		A1	A2	A3a	A3b	A4	B1	B2	B3a	B3b	B4	C1	C2	C3	C4	D1	D2	D3
Pre-screening: Fatal Flaw Criteria																		
Within PDA	The alternative must be within the PDA to be included in further assessment	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	no	yes	yes	no
Practical distance from process plant	The alternative must be within a practical distance (less than 10 km) to the Boston Process Plant. Alternatives located further away than 10 km were excluded from further assessment	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	no	no	no	no	no
Passing fatal flaw criteria		**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Prescreening: Refinement																		
No major stream diversions required	The alternative must not be in the path of any major streams that would require diversion. Alternatives in the path of major streams were excluded from further assessment	no	no	yes	yes	yes	no	no	yes	yes	yes	yes						
Allow for adequate management of runoff	The alternative must have the ability to capture any contact runoff water	yes	yes	yes	yes	yes	yes	no	yes	yes	yes	no						
Does not require lake listing on Schedule 2 of the MMER	Alternatives that require a lake to be delisted under Schedule 2 of the MMER were excluded from further assessment	yes	no	yes	no	no	yes	no	yes	yes	yes	no						
Potential for increased tailings deposition capacity	Alternatives that cannot be expanded beyond the currently assessed capacity were excluded from further assessment	yes	yes	no	yes	yes	yes	yes	yes	yes	yes	yes						
Alternative carried forward to detailed analysis		**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**YES**	**YES**	**YES**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Notes:

PDA = Potential Development Area

Table A-2: Pre-Screening (Primary and Secondary) of Tailings Disposal Alternatives (continued)

Criteria	Rationale	Site #18	Site #19	Site #20	Site #21	Site #22	Site #23	Site #24	Site #25	Site #26	Site #27	Site #28	Site #29	Site #30	Site #31	Site #32	Site #33	Site #34	Site #35
		E1	E2	E3	F1	F2	F3	F4	F5	G1	G2	G3	H1	H2	I1	I2	J1	J2	J3
Pre-screening: Fatal Flaw Criteria																			
Within PDA	The alternative must be within the PDA to be included in further assessment	no	no	no	no	no	no	no	no	yes	no	yes	no	no	no	no	no	no	yes
Practical distance from process plant	The alternative must be within a practical distance (less than 10 km) to the Boston Process Plant. Alternatives located further away than 10 km were excluded from further assessment	no	no	no	no	no	no	no	no	yes	no	yes	no	no	no	no	no	no	yes
Passing fatal flaw criteria		**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**YES**	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**YES**
Prescreening: Refinement																			
No major stream diversions required	The alternative must not be in the path of any major streams that would require diversion. Alternatives in the path of major streams were excluded from further assessment									yes		yes							yes
Allow for adequate management of runoff	The alternative must have the ability to capture any contact runoff water									yes		yes							no
Does not require lake listing on Schedule 2 of the MMER	Alternatives that require a lake to be delisted under Schedule 2 of the MMER were excluded from further assessment									yes		no							no
Potential for increased tailings deposition capacity	Alternatives that cannot be expanded beyond the currently assessed capacity were excluded from further assessment									yes		yes							yes
Alternative carried forward to detailed analysis		**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**YES**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Notes:

PDA = Potential Development Area

Table A-3: Detailed Description of Shortlisted Alternatives

Site Number	Site #08	Site #09	Site #10	Site #26
Site Descriptor	**B3a**	**B3b**	**B4**	**G1**
Site Location	ESE of Mill	ESE of Mill	ESE of Mill	ESE of Mill
Tailings Deposition Method	Slurry	Filtered	Filtered	Slurry
Straight Distance from Mill (km)	2.2	2.1	1.7	5.3
Footprint (ha)	54	21	15	120
Dam or Drystack Maximum Height (m)	10	25	26	15
Maximum Tailings Storage (Mm^3)	4.9	2.3	2.3	5.1
Estimated Dam Fill Volume (Mm^3)	1.80	0.25	0.19	2.28
Storage Efficiency	4	N/A	N/A	5
Access Road Length (km)	0.6	0.3	0.1	3.8
Description	This alternative would be located southeast of the mill abutting a bedrock outcrop directly adjacent to the proposed Madrid Boston Road. The containment dam would surround the south, west, and north sides of the facility, with the east portion being contained by natural topography. The total length would be approximately 1.9 km. The dam would be constructed in successive raises with a maximum final height of 10 m. The TIA would have a footprint of 56 ha. The outflow of a small pond with a footprint of 1 ha would be diverted into the TIA or around the facility. No major lakes or streams would be directly affected.	This facility would occupy a smaller footprint in the same location as Alternative B3a. No tailings containment structures would be required as the tailings would be filtered and deposited as a dry stack on the facility's 21 ha footprint.	This is a drystack facility located north of the Madrid Boston Road. The height is about 26 m and the footprint is 20 ha.	This alternative is a conventional slurry facility, located on high ground about 6.5 kilometers southeast of the mill. The dam height would be 10 meters, and the footprint 119 hectares. Freshwater diversion and runoff water collection are provided.
Dam Details	One large dam surrounding the north, west, and south sides. Dam length = 1.9 km; max dam height = 10 m.	One large contact water berm surrounding the north, west, and south sides. Berm length = 1.2 km; max berm height = 4 m	One large contact water berm on the east and south sides, proposed Boston Airstrip access road acting as a contact water berm on the east, one small berm to the north. Berm length (excluding airstrip access road) = 1 km; max berm height = 4 m.	One large dam surrounding the facility on all sides. Dam length = 4.2 km; max dam height = 15 m.
Synopsis of Operation	Slurry tailings would be pumped from the process plant and deposited sub-aerially through spigots located on the perimeter of the TIA. Reclaim water would be pumped back to the process plant from a reclaim barge.	Filtered tailings will be trucked from the filter plant and compacted in 5 m benches with 3H:1V slopes to a maximum height of 25 m. Any water collected in the contact water ponds will be pumped to the water treatment facility or discharged to the environment as appropriate.	Filtered tailings will be trucked from the filter plant and compacted in 5 m benches with 3H:1V slopes to a maximum height of 26 m. Any water collected in the contact water ponds will be pumped to the water treatment facility or discharged to the environment as appropriate.	Slurry tailings will be pumped directly from the mill and deposited sub-aerially into the tailings containment. Supernatant water will be pumped back to the mill as process water.
Synopsis of Closure	At closure, a dry cover consisting of 1 m of not potentially acid generating (NPAG) waste rock or other clean rock incorporating a geomembrane would be constructed. The dam would be breached to the elevation of the cover to prevent the impoundment of any water.	Dry stack will be covered with a minimum 1 m dry cover, incorporating a low permeability geomembrane. Contact water berms will be breached to prevent impounding any water.	Dry stack will be covered with a minimum 1 m dry cover, incorporating a low permeability geomembrane. Contact water berms will be breached to prevent impounding any water.	Tailings will be covered with a 1 m dry cover, incorporating a low permeability geomembrane. The dam will be breached to the elevation of the cover to prevent impounding any water.

Table A-4: Detailed Analysis per the Technical/Operational Criteria (Subaccounts)

Criteria	Rationale/Issues/Concerns	Site #08	Site #09	Site #10	Site #26
		B3a	B3b	B4	G1
Deposition Method	Slurry or Filtered Tailings	Slurry	Filtered	Filtered	Slurry
Road Distance from Mill (km)	Longer distance requires more capital and operational cost, presents operational challenges such as risk of pipeline freezing, risk of spill, and results in greater footprint, i.e. more habitat impact.	2.4	2.7	2.6	6.5
Maximum Height of the Facility (m)	Increased height of a facility compared to the surrounding topography will have greater visual impact as well as increase exposure to wind-born dust emissions.	10	25	26	15
Quarry volume requirements for dam, access road, and closure cover construction (Mm^3)	Larger rock fill volumes require larger quarries, i.e. greater land disturbance and habitat loss; Larger quarry development results in higher dust emissions due to crusher dust.	1.80	0.25	0.19	2.28
Foundation Conditions Ratio	Poor foundation conditions present engineering and construction challenges. Bedrock is the most preferable foundation, whereas frost polygons pose the most challenges. Higher ratios are preferable.	1.6 16% bedrock, 41% flat unpatterned ground, and 43% frost polygons.	3.2 40% bedrock and 60% flat unpatterned ground	2.0 100% flat unpatterned ground	3.4 58% bedrock, 22% flat unpatterned ground, and 20% frost polygons
Storage Factor	The storage factor is the ratio of slurry tailings storage volume to the dam fill volume. A higher storage factor indicates greater storage efficiency. Arbitrarily set to 100 for Dry Stacks due to no containment structures being required.	4	150	150	5
Elevation Difference (m)	More energy is required to pump slurry tailings or truck filtered tailings to a facility at a higher elevation than the mill. A negative value indicates that the TIA is lower than the mill.	1.0	26.0	17.0	62.2
Flexibility with regard to technical, operational, and environmental uncertainties	Mill upsets can result in substantially different supernatant water chemistry, which places high demands on a water treatment plant; Mill upsets can result in variable supernatant volumes, which is difficult to handle in a water treatment plant; Severe climatic conditions can result in excessive ice entrainment in tailings, which will affect the impoundment storage volume; Extreme hydrological events can result in extreme drought or flood conditions affecting the system water balance and potential capacity.	Moderately flexible. System will require increased dam heights to create additional storage	System highly flexible. Excess storage capacity available.	System highly flexible. Excess storage capacity available.	Moderately flexible. System will require increased dam heights to create additional storage
Footprint (Ha)	Sites that permanently change large areas of habitat are less desirable.	54	21	15	120
Footprint / Height Trade-off	Sites where the footprint cannot be reduced by increasing the height of the dam or dry stack are less desirable.	Footprint can be reduced by increasing the height of the facility.	Footprint can be reduced by increasing the height of the facility.	Height of facility cannot be increased due to interference with proposed new Boston Airstrip, therefore footprint cannot be reduced	Footprint can be reduced by increasing the height of the facility.
Progressive reclamation	Ideal tailings disposal alternatives will allow the pre-mining land use to return and allow for the facility to be reclaimed progressively. Climate does not allow for a rapid re-growth of vegetation.	No	Yes	Yes	No
Favorable topography	Ideal tailings disposal alternatives will utilize the natural topography as much as possible to reduce dam fill requirements.	Yes	Yes	No	No
Minimum contact water stored (m^3)	Alternatives that store large volumes of water are less desirable.	39,085	0	0	87,381
Consequence of Dam/Dry Stack Failure	The consequence of dam or dry stack failure is higher when there are environmentally sensitive areas downstream of the facility and/or the tailings have very high mobility i.e. Slurry tailings.	High	Low	Low	High
Water Management Add-on	Alternatives that require water to be managed outside of the TIA are less desirable.	Internal Reclaim Pond	External to facility, inside the Mill; no Reclaim Pond	External to facility, inside the Mill; no Reclaim Pond	Internal Reclaim Pond

Table A-5: Detailed Analysis per the Project Economic Criteria (Subaccounts)

Criteria	Rationale/Issues/Concerns	Site #08	Site #09	Site #10	Site #26
		B3a	B3b	B4	G1
Capital costs (excluding taxes and royalties)	This includes the cost of primary infrastructure (i.e. dams, water treatment plant, etc.), tailings service road and support systems, tailings feed pipeline, secondary geotechnical structures (i.e. shoreline protection, stream diversions etc.), contractor mobilization, engineering and construction supervision.	$11,564,000	$7,304,000	$7,243,000	$15,329,000
Operational costs (excluding taxes and royalties)	This includes actual tailings deposition costs (excluding mill costs to deliver tailings) for the two-year operational life. This includes annual inspections, monitoring, water treatment, construction associated with adaptive management etc.	$627,000	$14,997,000	$14,997,000	$627,000
Closure costs (excluding taxes and royalties)	This includes dam deconstruction (if required), dry cover placement (if required), contractor mobilization, engineering and construction supervision.	$13,195,000	$5,229,000	$3,664,000	$29,497,000
Post closure costs (excluding taxes and royalties)	This allows for inspection and monitoring for a period of up to 100 years.	$690,000	$690,000	$690,000	$690,000
Total costs (sum of all of the above, excluding taxes and royalties)	Sum total of capital, operations, closure, and fish compensation and monitoring costs listed above.	$26,076,000	$28,220,000	$26,594,000	$46,143,000
Economic risks (Very low; Low; Low to Medium; Medium to High; High; Very high)	Economic risks include commodity prices; a drop in price may render any of these alternatives uneconomical; Unforeseen technical difficulties in terms of foundation complexities for dams etc., may increase the cost burden; Royalty, and other compensation payments may increase; Predicted performances may not realize requiring more funding; Regulatory permit requirements may pose require additional funding.	Medium to High. Regulatory uncertainty (MMER Sched. II). Perpetual care required.	Low to Medium. Perpetual care required.	Low to Medium. Perpetual care required.	Medium to High. Regulatory uncertainty (MMER Sched. II). Perpetual care required.
Construction risks (Very low; Low; Low to Medium; Medium to High; High; Very high)	Complex structures may be delayed due to harsh climatic conditions; Mobilization and demobilization may be delayed due to sea-ice conditions; Unforeseen geotechnical conditions may require design modifications	Low to Medium. Dam is small and can be completed in one season or successive raises. Foundation conditions are uncertain.	Low to Medium. Foundation conditions uncertain.	Low to Medium. Foundation conditions uncertain.	Medium to High. Dam can be completed in one season or successive raises. Subsurface conditions unknown. Unforeseen foundation conditions may result in construction delays.

Table A-6: Detailed Analysis per the Environmental Criteria (Subaccounts)

Criteria	Rationale/Issues/Concerns	Site #08	Site #09	Site #10	Site #26
		B3a	B3b	B4	G1
Air Quality	Fugitive dust and emissions through construction, operation and closure may differ meaningfully between alternatives. A VEC.	Ongoing mitigation required during operations; reclamation work required	Ongoing mitigation required during operations; reclamation work required	Ongoing mitigation required during operations; reclamation work required	Ongoing mitigation required during operations; reclamation work required
Surface Water Quantity and Quality	Streamflows may be diverted or otherwise affected and effluent discharges may differ meaningfully between alternatives. A VEC.	Treatment of runoff water required for a finite time post-closure; natural hydrometric levels can be re-established post-closure	Treatment of runoff water or complex discharge strategy required during operations; hydrometric levels may require active mitigation through operations	Treatment of runoff water or complex discharge strategy required during operations; hydrometric levels may require active mitigation through operations	Treatment of runoff water required for a finite time post-closure; natural hydrometric levels can be re-established post-closure
Fish and Fish Habitat	Effects to fish and fish habitat through construction, operation and closure as well as complexity of regulatory permitting may differ meaningfully between alternatives. A VEC.	Effects to fish and fish habitat at a level that necessitate Fisheries Act Authorization and offsetting, including listing under Schedule 2 of the Metal Mining Effluent Regulations	Minor effects to fish and fish habitat; Fisheries Act Authorization and offsetting not required	Minor effects to fish and fish habitat; Fisheries Act Authorization and offsetting not required	Effects to fish and fish habitat at a level that necessitate Fisheries Act Authorization and offsetting, including listing under Schedule 2 of the Metal Mining Effluent Regulations
Terrestrial Ecology, Vegetation and Landforms	Effects to rare or unique aspects of terrestrial ecology, vegetation and landforms may differ meaningfully between alternatives. A VEC.	Minor, mitigable effects to unique, rare or culturally special landscape features or surface ecology; reclamation goals can be achieved through established methods	Minor, mitigable effects to unique, rare or culturally special landscape features or surface ecology; reclamation goals can be achieved through established methods	No unique, rare or culturally special landscape features or surface ecology affected; small terrestrial footprint compared to other alternatives; reclamation goals can be achieved through established methods	No unique, rare or culturally special landscape features or surface ecology affected; larger terrestrial footprint compared to other alternatives; reclamation goals can be achieved through established methods
Caribou	Ranges of three caribou herds overlap the Project area, one of which (Dolphin-Union herd) is a federally-listed population. Effects to caribou health, safety, habitat or movement may differ meaningfully between alternatives. A VEC.	Potential effects and risks of the alternative require specific mitigation; no effects on special habitat or disruption of primary migration trails; reclamation goals can be achieved through established methods	Potential effects and risks of the alternative require specific mitigation; no effects on special habitat or disruption of primary migration trails; reclamation goals can be achieved through established methods	Minor incremental effects of the alternative; the alternative does not introduce acute health or safety risks to caribou; no effects on special habitat or disruption of migration trails; reclamation goals can be achieved through established methods	Minor incremental effects of the alternative; the alternative does not introduce acute health or safety risks to caribou; no effects on special habitat or disruption of migration trails; reclamation goals can be achieved through established methods
Wolverine	Federally-listed species; importance of wolverine to Inuit was raised in the IQ workshop. Effects to wolverine health, safety, habitat or movement may differ meaningfully between alternatives. A VEC.	No measureable incremental effects of the alternative; the alternative does not introduce acute health or safety risks to wolverine; no effects on special habitat; reclamation goals can be achieved through established methods	No measureable incremental effects of the alternative; the alternative does not introduce acute health or safety risks to wolverine; no effects on special habitat; reclamation goals can be achieved through established methods	No measureable incremental effects of the alternative; the alternative does not introduce acute health or safety risks to wolverine; no effects on special habitat; reclamation goals can be achieved through established methods	No measureable incremental effects of the alternative; the alternative does not introduce acute health or safety risks to wolverine; no effects on special habitat; reclamation goals can be achieved through established methods
Grizzly Bear	Federally-listed species. Effects to grizzly bear health, safety, habitat or movement may differ meaningfully between alternatives. A VEC.	Minor, mitigable effects or risks during operations; no effects on special habitat; reclamation goals can be achieved through established methods	Minor, mitigable effects or risks during operations; no effects on special habitat; reclamation goals can be achieved through established methods	No measureable incremental effects of the alternative; the alternative does not introduce acute health or safety risks to grizzly bear; no effects on special habitat; reclamation goals can be achieved through established methods	No measureable incremental effects of the alternative; the alternative does not introduce acute health or safety risks to grizzly bear; no effects on special habitat; reclamation goals can be achieved through established methods
Migratory Birds	Regulated under the Migratory Birds Convention Act. Effects to migratory bird's health, safety, habitat or movement may differ meaningfully between alternatives. A VEC.	Minor, mitigable effects and risks during operations; no effects on special habitat or disruption of primary migration trails; reclamation goals can be achieved through established methods	No measureable incremental effects of the alternative; the alternative does not introduce acute health or safety risks to migratory birds; no effects on special habitat or disruption of migration paths	No measureable incremental effects of the alternative; the alternative does not introduce acute health or safety risks to migratory birds; no effects on special habitat or disruption of migration paths	Minor, mitigable effects and risks during operations; no effects on special habitat or disruption of primary migration trails; reclamation goals can be achieved through established methods
Raptors	Includes federally-listed species such as the peregrine falcon. Effects to raptor health, safety, habitat or movement may differ meaningfully between alternatives. A VEC.	No measureable incremental effects of the alternative; the alternative does not introduce acute health or safety risks to raptors; no effects on special habitat	No measureable incremental effects of the alternative; the alternative does not introduce acute health or safety risks to raptors; no effects on special habitat	No measureable incremental effects of the alternative; the alternative does not introduce acute health or safety risks to raptors; no effects on special habitat	No measureable incremental effects of the alternative; the alternative does not introduce acute health or safety risks to raptors; no effects on special habitat

Table A-7: Detailed Analysis According to Socio-Economic Criteria (Subaccounts)

Criteria	Rationale/Issues/Concerns	Site #08	Site #09	Site #10	Site #26
		B3a	B3b	B4	G1
Archaeological Sites	Effects to archaeological sites may differ meaningfully between alternatives. A VEC.	Sites may be present because this area has not been fully surveyed	Sites may be present because this area has not been fully surveyed	Previous survey conducted; no known sites present that require mitigation	Sites are likely to be present since area has not been surveyed and has moderate-high archaeological potential
Inuit Employment and Training	Effects to Inuit employment and training may differ meaningfully between alternatives. A VEC.	Alternative expected to provide proportionally greater Inuit employment and training compared to the Project as a whole	Alternative expected to provide proportionally similar Inuit employment and training compared to the Project as a whole	Alternative expected to provide proportionally similar Inuit employment and training compared to the Project as a whole	Alternative expected to provide proportionally greater Inuit employment and training compared to the Project as a whole
Inuit Economic Opportunities	Effects to Inuit economic opportunities may differ meaningfully between alternatives. A VEC.	Alternative expected to provide proportionally similar Inuit economic opportunities compared to the Project as a whole	Alternative expected to provide proportionally less Inuit economic opportunities compared to the Project as a whole	Alternative expected to provide proportionally less Inuit economic opportunities compared to the Project as a whole	Alternative expected to provide proportionally similar Inuit economic opportunities compared to the Project as a whole
Traditional Land Use	Effects to traditional land use may differ meaningfully between alternatives. A VEC.	Minor incremental effect during operations that does not affect locations of traditional significance; post-closure goals for traditional land use for the Project as a whole are not compromised; relatively larger footprint compared to other alternatives	Minor incremental effect during operations that does not affect locations of traditional significance; post-closure goals for traditional land use for the Project as a whole are not compromised; relatively smaller footprint than other alternatives	Minor incremental effect during operations that does not affect locations of traditional significance; post-closure goals for traditional land use for the Project as a whole are not compromised; relatively smaller footprint than other alternatives	Minor incremental effect during operations that does not affect locations of traditional significance; post-closure goals for traditional land use for the Project as a whole are not compromised; relatively larger footprint compared to other alternatives
Community Response	Feedback on the proposed tailings management alternatives received through the community engagement program.	No data available. Public consultation still in progress at the time this assessment was completed.	No data available. Public consultation still in progress at the time this assessment was completed.	No data available. Public consultation still in progress at the time this assessment was completed.	No data available. Public consultation still in progress at the time this assessment was completed.
Regulatory Response	Feedback on the proposed tailings management alternatives received through the regulatory engagement program.	No data available. Public consultation still in progress at the time this assessment was completed.	No data available. Public consultation still in progress at the time this assessment was completed.	No data available. Public consultation still in progress at the time this assessment was completed.	No data available. Public consultation still in progress at the time this assessment was completed.

Table A-8: Technical/Operational Criteria (Subaccounts) Scoring Matrix

Points	Deposition Method	Road Distance from Mill (km)	Maximum Height of the Facility (m)	Total Dam Fill (Mm^3)	Foundation Conditions Ratio	Storage Factor	Elevation Difference (m)	Flexibility with Regard to Technical, Operational, and Environmental Uncertainties
5	Filtered	Less than 1 km	Less than 5 m	Less than 0.1 Mm^3	More than 4	More than 50	Less than 0 m (i.e. downhill)	yes
4	Slurry	Between 1 and 2 km	Between 5 and 10 m	Between 0.1 and 0.2 Mm^3	Between 3.5 and 4	Between 40 and 50	Between 0 and 10 m	no
3	Not used	Between 1 and 3 km	Between 10 and 15 m	Between 0.2 and 0.5 Mm^3	Between 3 and 3.5	Between 30 and 40	Between 10 and 20 m	Not used
2		Between 3 and 4 km	Between 15 and 20 m	Between 0.5 and 1.0 Mm^3	Between 2.5 and 3	Between 20 and 30	Between 20 and 30 m	
1		Between 4 and 5 km	Between 20 and 25 m	Between 1.0 and 2.0 Mm^3	Between 2 and 2.5	Between 10 and 20	Between 30 and 40 m	
0		More than 5 km	More than 25 m	More than 2.0 Mm^3	Less than 2	Less than 10	More than 40 m	

Table A-8: Technical/Operational Criteria (Subaccounts) Scoring Matrix (Continued)

Points	Footprint (Ha)	Footprint / Height Trade-off	Progressive reclamation	Favorable topography	Capacity for expansion	Minimum contact water stored (m^3)	Consequence of Dam/Drystack Failure	Water Management Add-on
5	Less than 15 Ha	Yes	Yes	Yes	Yes	None	Low	Internal
4	Between 15 and 20	No	No	No	No	Less than 0.01 Mm^3	Not used	External
3	Between 20 and 25	Not used	Not used	Not used	Not used	Between 0.01 and 0.03 Mm^3		Not used
2	Between 25 and 50					Between 0.03 and 0.06 Mm^3	Moderate	
1	Between 50 and 100					Between 0.06 and 1.0 Mm^3	Not used	
0	More than 100					More than 1.0 Mm^3	High	

Table A-9: Project Economic Criteria (Subaccounts) Scoring Matrix

Points	Total costs	Economic risks	Construction risks
5	Less than $30M	Very Low	Very Low
4	Between $30M and $45M	Low	Low
3	Between $45M and $60M	Low to Medium	Low to Medium
2	Between $60M and $75M	Medium to High	Medium to High
1	Between $75M and $90M	High	High
0	More than $90M	Very High	Very High

Table A-10: Environmental Criteria (Subaccounts) Scoring Matrix

Points	Air Quality	Surface Water Quantity and Quality	Fish and Fish Habitat	Terrestrial Ecology, Vegetation and Landforms	Caribou	Wolverine	Grizzly Bear	Migratory Birds	Raptors
5	Negligible - no measurable effects on air quality	Negligible - no measurable effects on water quality; no measureable changes to hydrometric levels	Negligible - no measureable effects on fish and fish habitat; Fisheries Act authorization and offsetting not required	Negligible - no incremental effect due to the alternative	Negligible - no incremental effect due to the alternative	Negligible - no incremental effect due to the alternative	Negligible - no incremental effect due to the alternative	Negligible - no incremental effect due to the alternative	Negligible - no incremental effect due to the alternative
4	Low - acceptable air quality without mitigation	Low - acceptable water quality without mitigation; acceptable changes to hydrometric levels without mitigation	Low - minor effects to fish and fish habitat; Fisheries Act Authorization and offsetting not required	Low - no unique, rare or culturally special landscape features or surface ecology affected; small terrestrial footprint compared to other alternatives; reclamation goals can be achieved through established methods	Low - minor incremental effects of the alternative; the alternative does not introduce acute health or safety risks to caribou; no effects on special habitat or disruption of migration trails; reclamation goals can be achieved through established methods	Low - no measureable incremental effects of the alternative; the alternative does not introduce acute health or safety risks to wolverine; no effects on special habitat; reclamation goals can be achieved through established methods	Low - no measureable incremental effects of the alternative; the alternative does not introduce acute health or safety risks to grizzly bear; no effects on special habitat; reclamation goals can be achieved through established methods	Low - no measureable incremental effects of the alternative; the alternative does not introduce acute health or safety risks to migratory birds; no effects on special habitat or disruption of migration paths	Low - no measureable incremental effects of the alternative; the alternative does not introduce acute health or safety risks to raptors; no effects on special habitat
3	Low to medium - occasional ad hoc mitigation required on specific areas	Low to medium - occasional treatment of runoff water may be required on a contingency basis; acceptable changes to hydrometric levels without mitigation	Low to Medium - effects to fish and fish habitat at a level that necessitates Fisheries Act Authorization and offsetting	Low to Medium - no unique, rare or culturally special landscape features or surface ecology affected; larger terrestrial footprint compared to other alternatives; reclamation goals can be achieved through established methods	Not used	Not used	Not used	Not used	Not used
2	Medium to high - ongoing mitigation required during operations	Medium to high - treatment of runoff water or complex discharge strategy required during operations; hydrometric levels may require active mitigation through operations	Medium to High - effects to fish and fish habitat at a level that necessitates Fisheries Act Authorization and offsetting, including listing under Schedule 2 of the Metal Mining Effluent Regulations	Medium to High - minor, mitigable effects to unique, rare or culturally special landscape features or surface ecology; reclamation goals can be achieved through established methods	Medium to High - potential effects and risks of the alternative require specific mitigation; no effects on special habitat or disruption of primary migration trails; reclamation goals can be achieved through established methods	Medium to High - minor, mitigable effects or risks during operations; no effects on special habitat; reclamation goals can be achieved through established methods	Medium to High - minor, mitigable effects or risks during operations; no effects on special habitat; reclamation goals can be achieved through established methods	Medium to High - minor, mitigable effects and risks during operations; no effects on special habitat or disruption of primary migration trails; reclamation goals can be achieved through established methods	Medium to High - minor, mitigable effects during operations; no effects on special habitat; reclamation goals can be achieved through established methods
1	High - ongoing mitigation required during operations; reclamation work required	High - treatment of runoff water required for a finite time post-closure; natural hydrometric levels can be re-established post-closure	High - long-term effects on fish, fish habitat and Aboriginal fishery; complex remedial work required that results in permanently altered local habitat; complex Fisheries Act Authorization required including complex offsetting works and listing under Schedule 2 of the Metal Mining Effluent Regulations	Not used	Not used	Not used	Not used	Not used	Not used
0	Very high - required level of mitigation during operations or closure is unavailable or not practicable	Very high - perpetual treatment of runoff water required; hydrometric levels changed permanently and negatively	Very high - permanent loss of fish habitat that permanently changes local fish populations and Aboriginal fishery; Fisheries Act authorizations may not be possible; no identified offsetting concepts of sufficient magnitude	Very high - permanent loss or negative alteration of unique, rare or culturally special landscape features or surface ecology; required level of mitigation during operations or closure is unavailable or not practicable	Very high - permanent loss or negative alteration of special habitat areas or primary migration trails; required level of mitigation during operations or closure is unavailable or not practicable	Very high - permanent loss or negative alteration of special habitat areas; required level of mitigation during operations or closure is unavailable or not practicable	Very high - permanent loss or negative alteration of special habitat areas; required level of mitigation during operations or closure is unavailable or not practicable	Very high - permanent loss or negative alteration of special habitat areas or primary migration trails; required level of mitigation during operations or closure is unavailable or not practicable; contravenes Migratory Birds Convention Act	Very high - permanent loss or negative alteration of special habitat areas; required level of mitigation during operations or closure is unavailable or not practicable

Table A-11: Socio-economic Criteria (Subaccounts) Scoring Matrix

Points	Archaeological Sites	Inuit Employment and Training	Inuit Economic Opportunities	Traditional Land Use	Community Response	Regulatory Response
5	Negligible - verified no sites present	Very high (positive effect) - alternative expected to provide proportionally greater Inuit employment and training compared to the Project as a whole and greater than other alternatives	Very high (positive effect) - alternative expected to provide proportionally greater Inuit economic opportunities compared to the Project as a whole and greater than other alternatives	Negligible - no incremental effect due to the alternative	Preferred - perceived as beneficial for Inuit, local communities and Nunavut; perceived as environmentally safe	Preferred - allowable under applicable Acts and Regulations; industry-leading environmental and social responsibility plans
4	Low - no sites present	High - alternative expected to provide proportionally greater Inuit employment and training compared to the Project as a whole	High - alternative expected to provide proportionally greater Inuit economic opportunities compared to the Project as a whole	Low - minor incremental effect during operations that does not affect locations of traditional significance; reclaimed alternative achieves post-closure goals for traditional land use	Not used	Not used
3	Low to medium - no sites present that require mitigation	Medium to high (positive effect) - alternative expected to provide proportionally similar Inuit employment and training compared to the Project as a whole	Medium to high (positive effect) - alternative expected to provide proportionally similar Inuit economic opportunities compared to the Project as a whole	Low to medium - minor incremental effect during operations that does not affect locations of traditional significance; post-closure goals for traditional land use for the Project as a whole are not compromised; relatively smaller footprint than other alternatives	Acceptable - perceived as beneficial or neutral for Inuit, local communities and Nunavut; environmental concerns require mitigation and close monitoring	Acceptable - allowable under applicable Acts and Regulations; follows industry best management approaches to environmental and social responsibility
2	Medium to high - sites are present that require mitigation through project design	Low to medium - alternative expected to provide proportionally less Inuit employment and training compared to the Project as a whole	Low to medium - alternative expected to provide proportionally less Inuit economic opportunities compared to the Project as a whole	Medium to high - minor incremental effect during operations that does not affect locations of traditional significance; post-closure goals for traditional land use for the Project as a whole are not compromised; relatively larger footprint compared to other alternatives	Not used	Not used
1	High - sites are present that require mitigation through retrieval	Low (positive effect) - alternative expected to provide proportionally less Inuit employment and training compared to the Project as a whole and lower than other alternatives	Low (positive effect) - alternative expected to provide proportionally less Inuit economic opportunities compared to the Project as a whole and lower than other alternatives	High - potential effects to areas of traditional significance require mitigation; post-closure goals for traditional land use for the Project as a whole are not compromised	Not Preferred - perceived as neutral for Inuit, local communities and Nunavut; high uncertainty that environmental concerns can be satisfactorily mitigated	Not Preferred - allowable under applicable Acts and Regulations; does not follow industry best management approaches to environmental and social responsibility
0	Very high - sites of special cultural significance are present where mitigation is not practicable	Negligible - alternative expected to provide no Inuit employment and training	Negligible - alternative expected to provide no Inuit economic opportunities	Very high - permanent loss of areas of traditional significance; post-closure goals for traditional land use for the Project as a whole are compromised	Not acceptable - perceived as detrimental to Inuit, local communities and Nunavut; environmental issues cannot be satisfactorily mitigated	Not acceptable - not allowable under applicable Acts and Regulations

Table A-12: Overall Accounts Ledger

			Total Score	84	105	111	78
			Ranking	3	2	1	4
Account	**Sub-account**	**Notes**	Counter	**B3a**	**B3b**	**B4**	**G1**
Technical/Operational	Deposition Method	Slurry or Filtered Tailings	1	4	5	5	4
	Road Distance from Mill (km)	Longer distance requires more capital and operational cost, presents operational challenges such as risk of pipeline freezing, risk of spill, and results in greater footprint, i.e. more habitat impact.	2	4	3	3	0
	Maximum Height of the Facility (m)	Increased height of a facility compared to the surrounding topography will have greater visual impact as well as increase exposure to wind-born dust emissions.	3	3	0	0	2
	Quarry volume requirements for dam, access road, and closure cover construction (Mm^3)	Larger rock fill volumes require larger quarries, i.e. greater land disturbance and habitat loss; Larger quarry development results in higher dust emissions due to crusher dust.	4	1	5	5	1
	Foundation Conditions Ratio	Poor foundation conditions present engineering and construction challenges. Bedrock is the most preferable foundation, whereas frost polygons pose the most challenges. Higher ratios are preferable.	5	0	3	1	3
	Storage Factor	The storage factor is the ratio of slurry tailings storage volume to the dam fill volume. A higher storage factor indicates greater storage efficiency. Arbitrarily set to 100 for Dry Stacks due to no containment structures being required.	6	0	5	5	0
	Elevation Difference (m)	More energy is required to pump slurry tailings or truck filtered tailings to a facility at a higher elevation than the mill. A negative value indicates that the TIA is lower than the mill.	7	4	2	3	0
	Flexibility with regard to technical, operational, and environmental uncertainties	Mill upsets can result in substantially different supernatant water chemistry, which places high demands on a water treatment plant; Mill upsets can result in variable supernatant volumes, which is difficult to handle in a water treatment plant; Severe climatic conditions can result in excessive ice entrainment in tailings, which will affect the impoundment storage volume; Extreme hydrological events can result in extreme drought or flood conditions affecting the system water balance and potential capacity.	8	5	4	4	5
	Footprint (Ha)	Sites that permanently change large areas of habitat are less desirable.	9	1	3	5	0
	Footprint / Height Trade-off	Sites where the footprint cannot be reduced by increasing the height of the dam or dry stack are less desirable.	10	5	5	4	5
	Progressive reclamation	Ideal tailings disposal alternatives will allow the pre-mining land use to return and allow for the facility to be reclaimed progressively. Climate does not allow for a rapid re-growth of vegetation.	11	4	5	5	4
	Favorable topography	Ideal tailings disposal alternatives will utilize the natural topography as much as possible to reduce dam fill requirements.	12	5	5	4	4
	Minimum contact water stored (m^3)	Alternatives that store large volumes of water are less desirable.	13	3	5	5	2
	Consequence of Dam/Dry Stack Failure	The consequence of dam or dry stack failure is higher when there are environmentally sensitive areas downstream of the facility and/or the tailings have very high mobility i.e. Slurry tailings.	14	0	5	5	0
	Water Management Add-on	Alternatives that require water to be managed outside of the TIA are less desirable.	15	5	4	4	5
Project Economics	Total costs (sum of all of the above, excluding taxes and royalties)	The total cost of the alternative (capital, operational, closure, post-closure and fish compensation) is vitally important to the proponent to ensure that the project remain economically viable.	1	4	5	5	3
	Economic risks (Very low; Low; Low to Medium; Medium to High; High; Very high)	Risks and uncertainties associated with the cost estimates are of the utmost importance to the proponent, since large cost variances could jeopardize the economic viability of the Project.	2	2	3	3	2
	Construction risks (Very low; Low; Low to Medium; Medium to High; High; Very high)	Complex structures may be delayed due to harsh climatic conditions; Mobilization and demobilization may be delayed due to sea-ice conditions; Unforeseen geotechnical conditions may require design modifications	3	3	3	3	3
Environmental	Air Quality	Fugitive dust and emissions through construction, operation and closure may differ meaningfully between alternatives. A VEC.	1	1	1	1	1
	Surface Water Quantity and Quality	Stream flows may be diverted or otherwise affected and effluent discharges may differ meaningfully between alternatives. A VEC.	2	1	2	2	1
	Fish and Fish Habitat	Effects to fish and fish habitat through construction, operation and closure and complexity of regulatory permitting may differ meaningfully between alternatives. A VEC.	3	2	4	4	2
	Terrestrial Ecology, Vegetation and Landforms	Effects to rare or unique aspects of terrestrial ecology, vegetation and landforms may differ meaningfully between alternatives. A VEC.	4	2	2	4	3
	Caribou	Ranges of three caribou herds overlap the Project area, one of which (Dolphin-Union herd) is a federally-listed population. Effects to caribou health, safety, habitat or movement may differ meaningfully between alternatives. A VEC.	5	2	2	4	4
	Wolverine	Importance of wolverine to Inuit was raised in the IQ workshop; federally-listed species. Effects to wolverine health, safety, habitat or movement may differ meaningfully between alternatives. A VEC.	6	4	4	4	4
	Grizzly Bear	Federally-listed species. Effects to grizzly bear health, safety, habitat or movement may differ meaningfully between alternatives. A VEC.	7	2	2	4	4
	Migratory Birds	Regulated under the Migratory Birds Convention Act. Effects to migratory bird's health, safety, habitat or movement may differ meaningfully between alternatives. A VEC.	8	2	4	4	2
	Raptors	Includes federally-listed species such as the peregrine falcon. Effects to raptor health, safety, habitat or movement may differ meaningfully between alternatives. A VEC.	9	4	4	4	4
Socio-Economics	Archaeological Sites	Effects to archaeological sites may differ meaningfully between alternatives. A VEC.	1	2	2	3	1
	Inuit Employment and Training	Effects to traditional land use may differ meaningfully between alternatives. A VEC.	2	4	3	3	4
	Inuit Economic Opportunities	Effects to Inuit economic opportunities may differ meaningfully between alternatives. A VEC.	3	3	2	2	3
	Traditional Land Use	Effects to traditional land use may differ meaningfully between alternatives. A VEC.	4	2	3	3	2
	Community Response	Feedback on the proposed tailings management alternatives received through the community engagement program.	5	n/a	n/a	n/a	n/a
	Regulatory Response	Feedback on the proposed tailings management alternatives received through the regulatory engagement program.	6	n/a	n/a	n/a	n/a