



NIRB Application for Screening #125714 Chidliak Diamond Mine

Application Type: New

Project Type: Mine Development

Application Date: 6/1/2022 4:16:13 PM

Period of operation: from 0001-01-01 to 0001-01-01

Proposed Authorization: from 0001-01-01 to 0001-01-01

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DETAILS

Non-technical project proposal description

English: De Beers Canada Inc. (De Beers) is seeking to build a diamond mine at the Chidliak exploration site on the Hall Peninsula of Baffin Island. This proposed diamond mine, referred to as the Project, is currently in the early stages of planning. The Project is intended to incorporate a FutureSmart Mining approach which follows a set of key principles that will minimize environmental impacts and enable relatively small kimberlites (diamond bearing rock formations) to be mined. The key FutureSmart principles include the following: •Low-carbon energy •Small footprint •Minimal water use •Modular, automated, reliable, connected infrastructure •Remote monitoring •Modern employee operating model De Beers is currently in the process of completing the Pre-Feasibility Study (PFS) to support the Project. At this stage of the study, we are evaluating a set of options in each key area of the Project including mining, infrastructure, processing, information technology, logistics, and employee work models. It is anticipated that the preferred option in each key area will be identified during the upcoming phase. Alternative options may continue to be considered in some areas if additional study is required prior to a final decision. Completion of the PFS is anticipated in 2023. Feasibility studies on selected options will then begin and a summary of alternatives will be prepared. De Beers will also complete baseline studies to support an Impact Assessment for submission to the Nunavut Impact Review Board (NIRB). Unlike other projects which start their environmental baseline studies at the feasibility stage, this Project started the environmental baselines studies early and already has 13 years of environmental baseline data in the area. The Project has several important challenges, each of which presents an opportunity for innovation. The kimberlites in the Chidliak cluster are very small when compared to kimberlites that are mined elsewhere using conventional mining methods. The extreme northern climate and remote location of the Chidliak kimberlite cluster is also a challenge. This logistical challenge is complicated by the lack of infrastructure such as roads or an electrical energy grid in the area. The human population on Baffin Island is also small and widely dispersed, presenting a challenge for staffing of a future mine. De Beers views these challenges as opportunities for innovation and as the reason to find creative, low-cost, low-impact solutions. Similarly, by presenting this project proposal early in the planning process and providing a full range of options, De Beers is seeking community input to understand any technical synergies and/or regional collaborations with the host communities, Territorial government, Federal government, local businesses or Inuit organizations/corporations. At this point in the planning process, the mine is envisioned as a series of relatively small open pits, or underground mines, likely to be mined in sequence. Each cluster of kimberlites would have an adjacent rock pile and processed kimberlite area with supporting infrastructure. The process plant is envisioned to be a mobile, modular facility which could be relocated close to each cluster of kimberlites as required. The camp is anticipated to be small and modular, housing only those personnel that must be on site to perform their roles. Additional support personnel will be located off-site and may operate equipment remotely. De Beers is looking at low-carbon energy systems for use at the site, including synthetic diesel, micro-reactors, hydro-electricity, wind, and solar. To realize this vision however, many factors must come together. The site must be supported by adequate satellite or fiber optic line to ensure good connectivity. The mining technology must be developed sufficiently to minimize rock waste and to effectively mine the kimberlite at the site. Most importantly, the people of Nunavut must see the value in the Project and must be partners in the development of this FutureSmart Mine. De Beers has provided a Project Proposal for review by the Nunavut Planning Commission and NIRB. De Beers will work with NIRB to undertake the scoping and guidelines phase of assessment throughout 2022. It is understood that the Project Proposal will later be refined following completion of the PFS and that a detailed Project Description will be provided at that time for consideration by NIRB as part of the Impact Assessment.

French: De Beers Canada Inc. (De Beers) cherche à construire une mine de diamants sur le site d'exploration de Chidliak, dans la péninsule Hall, sur l'île de Baffin. Cette mine de diamants proposée (le Projet) est actuellement aux premiers stades de la planification. Le Projet est censé intégrer une approche minière «FutureSmart» qui suit un ensemble de principes clés qui minimiseront les impacts environnementaux et permettant l'exploitation de kimberlites (formations rocheuses diamantifères) relativement petites. Les principes clés de «FutureSmart» sont les suivants: •Énergie faible en carbone •Empreinte modeste •Consommation d'eau minimale •Infrastructures modulaires, automatisées, fiables et connectées •Surveillance à distance •Modèle d'exploitation moderne axé sur les employé(e)s De Beers est actuellement en voie d'achever l'étude de préféabilité pour soutenir le Projet. À ce stade de l'étude, nous évaluons un ensemble d'options dans chaque domaine clé du Projet, notamment l'exploitation minière, l'infrastructure, le traitement, la technologie de l'information, la logistique et les modèles de travail des employé(e)s. On s'attend à ce que l'option privilégiée dans chaque domaine clé soit identifiée au cours de la prochaine phase. Des options alternatives peuvent continuer à être envisagées dans certains domaines si des études supplémentaires sont nécessaires avant une décision finale. L'achèvement de l'étude de préféabilité est prévu en 2023. Les études de faisabilité sur les options sélectionnées commenceront par la suite, et un résumé des alternatives sera préparé. De Beers mènera également des études préliminaires en vue d'alimenter une évaluation des impacts qui sera soumise à la Commission du Nunavut chargée de

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Personnel

Personnel on site: 300

Days on site: 365

Total Person days: 109500

Operations Phase: from 2026-03-24 to 2029-12-24

Operations Phase: from 2029-12-25 to 2045-12-23

Closure Phase: from 2045-12-24 to 2047-12-24

Post-Closure Phase: from 2047-12-25 to 2049-12-24

Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Chidliak Leases	Camp	Crown	The main lease block includes three camps, Discovery, Sunrise, and CH-6. These camps have supported advanced exploration and will be utilized to support the new Chidliak Diamond Mine Project as well.	Extensive archaeological studies have been conducted throughout the Project area. These studies will be utilized to support the Project Impact Assessment.	The nearest community is Iqaluit, located 120km to the southwest. Pangnirtung, is located 200 km to the North of the Project.
Chidliak Leases	Fuel and chemical storage	Crown	Fuel and chemical storage is permitted under the existing Land Use Permit (N2018C0002). Additional fuel and chemical storage will be required as part of the Project. Fuel storage will include hydro-carbon based fuel including diesel, jet fuel and gasoline as well as any of the following alternative fuel sources: uranium or alternative nuclear fuel source, bio-gas, natural gas, liquified natural gas and hydrogen fuel cells.	Extensive archaeological studies have been conducted throughout the Project area. These studies will be utilized to support the Project Impact Assessment.	The nearest community is Iqaluit, located 120km to the southwest. Pangnirtung, is located 200 km to the North of the Project.
Chidliak Leases	Baseline data	Crown	A substantial long term baseline data set has been developed. These baseline data will be utilized to support a baseline report for inclusion in the Impact Statement for the Project.	Extensive archaeological studies have been conducted throughout the Project area. These studies will be utilized to support the Project Impact Assessment.	The nearest community is Iqaluit, located 120km to the southwest. Pangnirtung, is located 200 km to the North of the Project.
Chidliak Leases	Landfill	Crown	The main lease block includes camps and infrastructure associated with advanced exploration	Extensive archaeological studies have been conducted throughout the Project area. These studies will be	The nearest community is Iqaluit, located 120km to the southwest. Pangnirtung, is located 200 km

			activities. There is no landfill currently on site, however landfills will be required as part of the Chidliak Project.	utilized to support the Project Impact Assessment	to the North of the Project
Chidliak Leases	Quarry/Borrow pit	Crown	The main lease block includes temporary structures only. Quarries and borrow pits will be required to support construction of additional infrastructure including site roads and pads.	Extensive archaeological studies have been conducted throughout the Project area. These studies will be utilized to support the Project Impact Assessment.	The nearest community is Iqaluit, located 120km to the southwest. Pangnirtung, is located 200 km to the North of the Project
Chidliak Leases	Site Cleanup/Remediation	Crown	The main lease block includes some physical disturbance including three camps, drill sites, sumps and other associated infrastructure. Remediation activities will proceed following completion of the Project.	Extensive archaeological studies have been conducted throughout the Project area. These studies will be utilized to support the Project Impact Assessment.	The nearest community is Iqaluit, located 120km to the southwest. Pangnirtung, is located 200 km to the North of the Project
Chidliak Leases	Airstrip use or construction	Crown	The main lease block includes an unimproved landing strip. An airstrip with apron, sump, and associated infrastructure will be constructed to facilitate passenger and cargo air travel to site. A landing pad for airships may also be constructed at site and in Iqaluit.	Extensive archaeological studies have been conducted throughout the Project area. These studies will be utilized to support the Project Impact Assessment.	The nearest community is Iqaluit, located 120km to the southwest. Pangnirtung, is located 200 km to the North of the Project.
Chidliak Leases	Advanced Mineral Exploration	Crown	The Project is authorized for advanced mineral exploration under LUP #2018C0002. Exploration, drilling, trenching, bulk sample collection, and associated activities will continue as part of the Project.	Extensive archaeological studies have been conducted throughout the Project area. These studies will be utilized to support the Project Impact Assessment.	The nearest community is Iqaluit, located 120km to the southwest. Pangnirtung, is located 200 km to the North of the Project.

Chidliak Leases	Aerial surveys	Crown	Aerial surveys have been conducted to gather environmental baseline data to date. Various aerial surveys will continue to be conducted as part of the baseline data collection and planned monitoring Programs.	Extensive archaeological studies have been conducted throughout the Project area. These studies will be utilized to support the Project Impact Assessment.	The nearest community is Iqaluit, located 120km to the southwest. Pangnirtung, is located 200 km to the North of the Project.
Potential Winter Trail Route to Chidliak	Access Road	Crown	Access to the site has occurred periodically via a winter trail. The Project will include use of a winter trail from Iqaluit to the site to transport cargo. The specific alignment of the winter trail is yet to be determined.	Extensive archaeological studies have been conducted throughout the Project area. These studies will be utilized to support the Project Impact Assessment.	The nearest community is Iqaluit, located 120km to the southwest. Pangnirtung, is located 200 km to the North of the Project
Potential Transmission Line to Chidliak	Other	Crown	There is currently no hydro-electric transmission to the site. The Project may include an electric transmission line from a power plant located closer to Iqaluit to the site.	Extensive archaeological studies have been conducted throughout the Project area. These studies will be utilized to support the Project Impact Assessment.	The nearest community is Iqaluit, located 120km to the southwest. Pangnirtung, is located 200 km to the North of the Project.
Chidliak Leases	Other	Crown	The site has operated as an advanced exploration site. As part of the Project an energy source will be required. This may include conventional diesel or alternative, and or solar panels, wind turbines, micro-nuclear reactor, hydrogen fuel cells or hydroelectricity.	Extensive archaeological studies have been conducted throughout the Project area. These studies will be utilized to support the Project Impact Assessment.	The nearest community is Iqaluit, located 120km to the southwest. Pangnirtung, is located 200 km to the North of the Project
Chidliak Leases	Mine Development/Bulk Sampling	Crown	The site operates as an advanced exploration site. As part of the Project it will be transformed into a Diamond Mine. Facilities may include a process plant, processed kimberlite storage facilities, mine	Extensive archaeological studies have been conducted throughout the Project area. These studies will be utilized to support the Project Impact Assessment.	The nearest community is Iqaluit, located 120km to the southwest. Pangnirtung, is located 200 km to the North of the Project.

			rock storage facilities, backfilled pits, dykes and berms, water storage ponds and tanks, ditches, pipes, pumps, and temporary buildings and associated infrastructure. The mine is expected to include open pits, vertical mining and/or underground mining methods.		
Chidliak Leases	Other	Crown	The site is fairly isolated. As part of the Project, communication linkages will be established via satellite technologies, physical towers, radio-communication, cable and or fiber links.	Extensive archaeological studies have been conducted throughout the Project area. These studies will be utilized to support the Project Impact Assessment.	The nearest community is Iqaluit, located 120km to the southwest. Pangnirtung, is located 200 km to the North of the Project.
Chidliak Local Study Area	Equipment installation	Crown	The Local Study Area will be the focus of Impact Assessment. The main activities associated with the mine will be located within the LSA (e.g. camp, pits, waste rock storage areas etc.). Research, environmental sampling, and some surface infrastructure (e.g. access roads, pipelines) may extend beyond the LSA.	Extensive archaeological studies have been conducted throughout the Project area. These studies will be utilized to support the Project Impact Assessment.	The nearest community is Iqaluit, located 120km to the southwest. Pangnirtung, is located 200 km to the North of the Project.

Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Iqaluit	De Beers has engaged with several organizations and individuals regarding the Project. Key organizations include the City of Iqaluit, Amaruq HTO, QIA Lands and Resources, GN, Nunavut Arctic College, NPC, Nunavut Research Institute, CIRNAC and	For a summary of key engagements, please see Appendix A to the Project Proposal.	2021-01-01

	others.		
Pangnirtung	De Beers has engaged with several organizations and individuals regarding the Project. Key organizations include the Hamlet of Pangnirtung, Pangnirtung HTO, GN - ED&T, Pangnirtung Working Group, Pangnirtung Health Centre, QIA-CLARC, employees and others	For a summary of key engagements, please see Appendix A to the Project Proposal	2021-01-01

Authorizations

Indicate the areas in which the project is located:

South Baffin

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Indigenous and Northern Affairs Canada	Class A Land Use Permit	Active	2017-12-01	2024-11-30
Nunavut Water Board	Class B Water Use Licence	Active	2018-04-30	2023-05-31
Government of Nunavut, Nunavut Research Institute	Nunavut Research Permit	Active	2020-06-09	2022-12-31
Indigenous and Northern Affairs Canada	Mining Leases.	Active	2019-08-17	2040-08-17
Other	GN - Workers Safety and Compensation Commission Detonator Magazine Permit and Explosives Magazine Permit	Active	2021-11-23	2026-11-23
Other	Mining Recorder - NWT Corporate Prospectors Licence	Active	2021-04-01	2023-03-31

Project transportation types

Transportation Type	Proposed Use	Length of Use
Air	Regular Flights using conventional aircraft and airships. Use of helicopters for short range travel .	
Water	Water Use, Treatment, Disposal for the purposes of supporting the Chidliak Diamond Mine	
Land	Exploration, Construction, Operations and Closure of a Diamond Mine enabling future use	

Project accomodation types

Temporary Camp

Permanent Camp

Community

Material Use

Equipment to be used (including drills, pumps, aircraft, vehicles, etc)

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Mining Equipment	TBD	TBD	Drills, Haul Trucks, Conveyors, Light Vehicles, Large front-end Loaders, Dozers, Shovels, Processing Plant, Monitoring equipment, Drill and Blast equipment, Graders, pumps, pipelines, cutters and multiple other types of heavy machinery required for mining operations. Transportation to site will require an aerodrome as well as potentially an all-weather road and/or winter trail and potentially a transmission line. Monitoring will require several meteorological towers and various instrumentation.
Airships	TBD	TBD	Cargo transport to site
Aircraft	TBD	TBC	Cargo and Personnel Transport

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Ammonium Nitrate	hazardous	1	16000	16000	Metric Tons	Ammonium Nitrate-fuel oil (emulsion/ANFO blend) will be utilized in drill and blast operations. Sodium nitrate, sulfamic acid, mineral oil, detonator caps and delays, and pentex boosters will also be utilized. Smaller quantities of a wide variety of other chemicals, including propylene glycol and ethylene glycol, may also be utilized. Material Data Sheets will be maintained for all chemicals stored on site. No. Containers and volumes of each expected is TBD.
Small modular nuclear reactor	hazardous	1	10	10	Lbs	A small or micro modular nuclear

						reactor is under consideration for use at the Project. Nuclear waste associated with the reactor would be transported off site for disposal at an approved facility. No. Containers and capacity are not yet determined.
Diesel	fuel	20	500	10000	Liters	Re-fueling mobile and fixed equipment
Diesel	fuel	10	50000	500000	Liters	refueling mobile and fixed equipment
Diesel	fuel	2	12000000	24000000	Liters	Mobile and non-mobile equipment
Gasoline	fuel	10	500	5000	Liters	Fueling snowmobiles, boats, other small craft
Aviation fuel	fuel	3	10000	30000	Liters	re-fueling aircraft
Diesel	fuel	200	208	41600	Liters	storage for remote field programs

Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
10000	The daily amount has not yet been determined. Water for industrial use will be re-cycled to the extent possible and water for domestic use will be treated and discharged.	Qamaniruluk Y Lake, Qamanialuk [McKeand] Lake, Sunrise Lake, Glacier Lake, McKeand River, and other water bodies

Waste

Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Waste disposal	Combustible wastes	200kg/day	Organic food waste will either be incinerated, shipped off-site, composted for use in reclamation, or other means of disposal to prevent attraction by wildlife. Incinerator ash will be deposited in the on-site landfill or mixed with soil as an additive for use in reclamation.	Alternative disposal methods will be explored in the environmental assessment phase.
Camp	Greywater	~200M3/day	Greywater will be disposed of overland in sumps, to the processed kimberlite facility and/or to a water management pond or alternative. .	Sewage will be treated prior to discharge. Sewage bi-products (e.g. dried matter) may be disposed of within the landfill, burned in the incinerator, or utilized as fertilizer in reclamation projects
Landfill	Non-Combustible wastes	5000m3/year	Construction, Operational and Demolition related non-hazardous wastes will be deposited in on-site landfills. The landfills may be located within or adjacent to other waste storage facility such as a mine rock pile, processed kimberlite storage facility or other.	Materials will be re-used and re-cycled preferentially, however it is anticipated that on-site landfills will still be required.
Drilling	Overburden (organic soil, waste material, tailings)	~100m3/day	Cuttings from drilling operations will be deposited in on-land sumps or disposed of in on-site containment facilities.	No additional treatment required
Mine Development/Bulk Sampling	Overburden (organic soil, waste material, tailings)	200 Mt (TBD)	Mine Rock will be deposited on land in mine rock piles, within pits as backfill, utilized for on-site road and laydown construction and other on-site uses.	No additional treatment required
Mine Development/Bulk Sampling	Overburden (organic soil, waste material, tailings)	60 Mt	Processed Kimberlite will be deposited in on-site storage facilities, within pits, used for dyke, road	Methods to accelerate natural carbonization of processed kimberlite may be utilized including

			and laydown construction, as cover for on-site landfills, landforming and in reclamation.	physical, chemical, and biological treatments in an effort to sequester carbon.
Quarry/Borrow pit	Overburden (organic soil, waste material, tailings)	10,000m ³ /year TBD	Quarries will be required during initial construction. Material may be used to construct roads and pads.	Not expected

Environmental Impacts:

Potential impacts and mitigation measures were provided in the Additional Information Section under 'Identification of Impacts and Proposed Mitigation Measures'.

Additional Information

SECTION A1: Project Info

SECTION A2: Allweather Road

SECTION A3: Winter Road

SECTION B1: Project Info

De Beers Canada Inc. (De Beers) is seeking to build a diamond mine at the Chidliak exploration site on the Hall Peninsula of Baffin Island. The Project is envisioned to incorporate a FutureSmart Mining approach which adheres to a set of key principles that will minimize environmental impacts and enable relatively small kimberlites (diamond bearing rock formations) to be mined.

SECTION B2: Exploration Activity

Exploration in the Project area has been focused on a cluster of kimberlite bodies referred to as the Chidliak kimberlite field. The field consists of 74 kimberlites (the type of rock known to often contain diamonds) within an 80km by 60km area. The first kimberlite was discovered in 2008 and the most recent kimberlite to be discovered was in 2014. The kimberlites in this region are generally small in size (average <1 ha) and can be found both at surface and sub-surface. In 2019, 39 of these 74 kimberlites were surrendered to the Nunavut Mining Recorder and 35 were kept within the Project mining leases. De Beers maintains 41 mining leases with an area of approximately 42,000 hectares in the Project area. Exploration will continue as part of the Project.

SECTION B3: Geosciences

SECTION B4: Drilling

Drilling to delineate the kimberlite resources is anticipated to continue as part of the Project.

SECTION B5: Stripping

Stripping of overburden will be required to access the ore

SECTION B6: Underground Activity

Kimberlite ore bodies are likely to be mined using underground techniques.

SECTION B7: Waste Rock

Waste Rock will be generated as a waste product of mining

SECTION B8: Stockpiles

Stockpiles of kimberlite to be processed will be maintained.

SECTION B9: Mine Development

Waste rock and processed kimberlite facilities will be constructed and maintained.

SECTION B10: Geology

SECTION B11: Mine

The mine is envisioned as a series of open pits and/or underground mines at each of the economically viable kimberlites. There are 35 kimberlites located within the Project Area which could be mined, however Phase 1 of mining will focus on just 6 high priority kimberlites.

SECTION B12: Mill

The process plant is envisioned to be a mobile, modular, facility which could be relocated to each cluster of kimberlites as required

SECTION C1: Pits

SECTION D1: Facility

SECTION D2: Facility Construction

SECTION D3: Facility Operation

SECTION D4: Vessel Use

SECTION E1: Offshore Survey

SECTION E2: Nearshore Survey

SECTION E3: Vessel Use

SECTION F1: Site Cleanup

SECTION G1: Well Authorization

SECTION G2: Onland Exploration

SECTION G3: Offshore Exploration

SECTION G4: Rig

SECTION H1: Vessel Use

SECTION H2: Disposal At Sea

SECTION I1: Municipal Development

Description of Existing Environment: Physical Environment

The Project is located on the Hall Peninsula, southern Baffin Island, within the Northern Arctic Ecozone. This ecozone is approximately 1.5 million square kilometers spanning from the very north of Quebec to northwest Keewatin, Baffin Island (excepting the eastern coast) and is one of the largest ecosystems in the world. The landscape is dominated by low relief plains with occasional hills and plateaus; these can be barren or covered with variable (but often thin) quaternary deposits. The Project area is generally about 600 to 900 m in elevation with higher land to the east and covered by glaciers

Description of Existing Environment: Biological Environment

The Hall Peninsula contains three ecoregions: Hall Peninsula Upland Ecoregion; Pangnirtung Upland Ecoregion; and Meta Incognita Ecoregion. The Project is located within the Hall Peninsula Upland Ecoregion with the other two ecoregions adjacent to the Project. Due to low productivity, the ecoregion supports low populations of terrestrial mammals and birds. Overall, the available habitat for the majority of breeding bird species is considered unproductive. Waterfowl and waterbirds were widely distributed across the study area and occupied lakes, small ponds, and the McKeand River and its larger tributaries (and the adjacent uplands) in low densities. Arctic char is the dominant fish in the region. It has been the only fish captured in most years (Tetra Tech 2016). Fish sampling and fish habitat classification has occurred at the McKeand River, Sunrise Lake and Qamanialuk Lake. Fish sampling has included biometrics, fish health, fish tissue analysis, aging, and parasite presence. A large portion of the fish sampled over the years have been infected with parasites.

Description of Existing Environment: Socio-economic Environment

The communities of Iqaluit and Pangnirtung have the closest ties to the Project, having a demonstrated use of the Project area and surrounding area. Iqaluit is 120 km to the west and Pangnirtung is 200 km to the North. Nunavut has a population of just 38,000 people, approximately 8,000 of whom live in Iqaluit. Pangnirtung has a population of approximately 1,500 people. The population in Nunavut is young when compared to Canada as a whole; 32.5% of the population is between 0 to 14 years old in Nunavut as compared to 16.6% in Canada (Statistics Canada, 2016 Census). Approximately 63.7% of the population in Nunavut is aged 15 to 64 (approximately 24,206 people) and therefore of working age. Many of these people live in smaller communities located far from the Project site.

Miscellaneous Project Information

Additional information can be found in the Project Proposal.

Identification of Impacts and Proposed Mitigation Measures

Potential effects to the biophysical and human environment may include:

- Releases to the environment (air, land, and water) of various substances (e.g., nutrients, metals, carbon) with concomitant increases in concentrations of various constituents in the environmental media (air, soils, water) and biota (vegetation, fish, birds, mammals, humans).
- Changes to the land and terrestrial habitat through clearing, blasting, excavating, waste and process residue deposits and release of emissions
- Changes in connectivity between shallow and deep groundwater and surface water
- Changes to aquatic habitat through clearing, blasting, excavating and release of emissions
- Changes to wildlife harvesting ability
- Changes to socio-economic opportunities (e.g., employment, compensation, or other human activities on the landscape)

Various mitigations will be utilized to minimize to the extent possible measurable effects. In pursuit of responsible environmental legacy and enduring community benefits, De Beers will:

- Ensure employees, contractors, and agents are aware of our sustainable development commitments and foster a culture of personal accountability based on mutual caring and respect for the environment, our employees and communities in which we operate.
- Responsibly operate our exploration sites and mines and maximize local community capacity by encouraging communities to participate in opportunities provided by our business.
- Provide a safe, secure, and healthy work environment.
- Be responsible and vigilant stewards of the lands and water we occupy through a precautionary approach, pollution prevention, and adaptive management.
- Seek to reduce the environmental footprint of our operations and related activities.
- Maintain compliance with all legal requirements and commitments.
- Set objectives for continuous improvement.
- Develop closure and rehabilitation plans to reduce long-term environmental and community impacts.

Demonstrate honesty and integrity. De Beers will develop the Project with mitigations and environmental design features to reduce effects to the environment. Mitigations will include, but will not be limited to, the following:

- Minimize extent of the mine footprint.
- Minimize the extent of permanent alteration or destruction of fish habitat.
- Obtain authorizations if required under the Fisheries Act.
- Develop an offsetting plan in consultation with the local communities and with Fisheries and Oceans Canada.
- Complete archaeological surveys of the footprint area.
- Avoid or preserve archaeological and/or heritage materials discovered during mine activities.
- Minimize land disturbance and potential for effects on permafrost.
- Water roads, airstrip, and laydown areas to suppress dust as required.
- Enforce speed limits (to reduce dust and vehicle emissions).
- Use of low-sulphur diesel or alternative energy sources for vehicles.
- Alternative primary power generation.
- seek to use autonomous vehicles.
- Monitor noise, air quality, water quality, soil quality, wildlife against standards and adaptively manage.

Cumulative Effects

There is very little regional development on Hall Peninsula. Most development is in the immediate vicinity of Iqaluit. De Beers may also require infrastructure in Iqaluit such as housing, equipment and fuel storage, logistics and transport including air shipments and some use of the port mainly during construction. Cumulative Effects of this Project, together with existing developments and potential future developments will be considered as part of the Impact

Assessment.

Impacts

Identification of Environmental Impacts

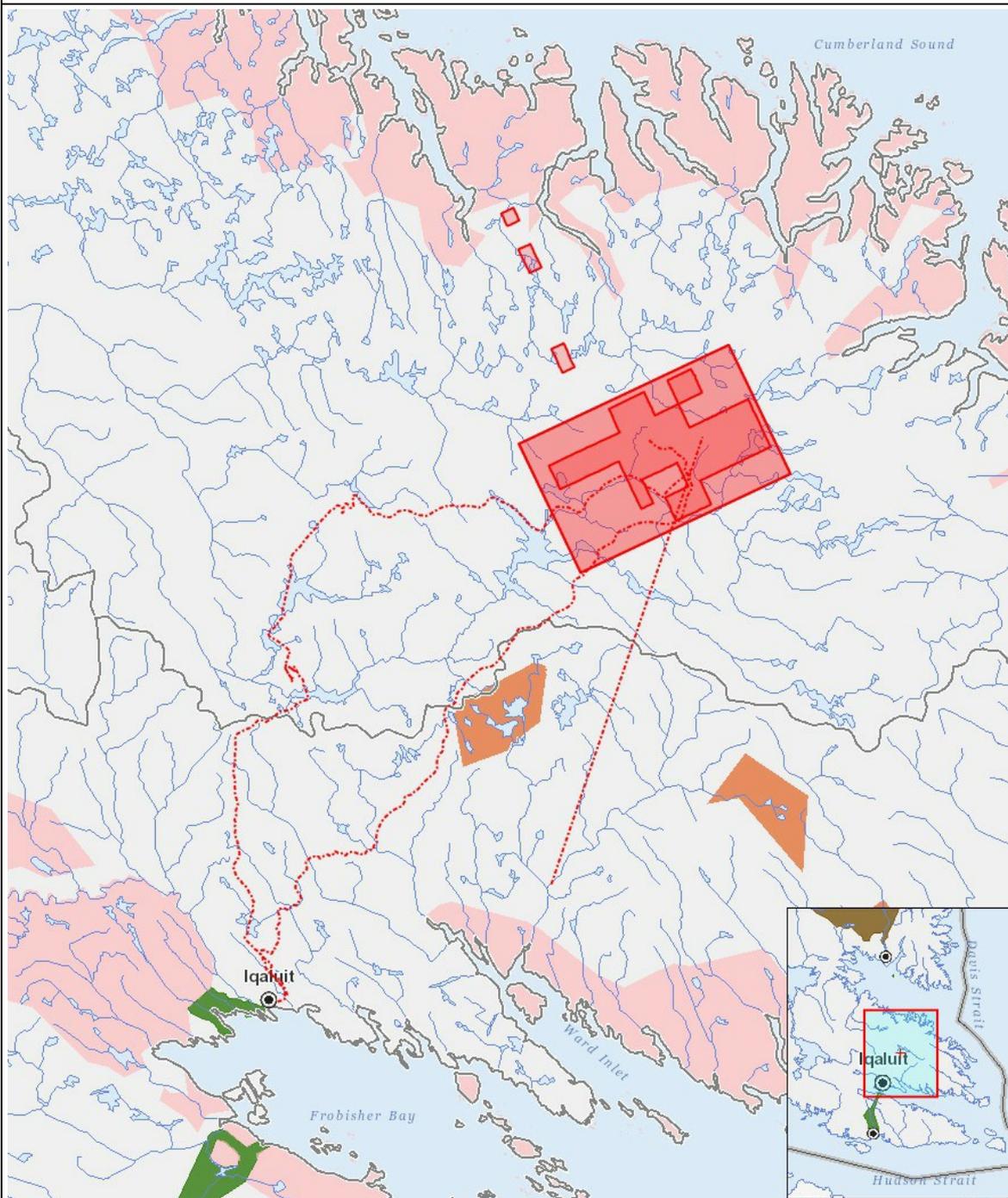
	PHYSICAL	Designated environmental areas	Ground stability	Permafrost	Hydrology / Limnology	Water quality	Climate conditions	Eskers and other unique or fragile landscapes	Surface and bedrock geology	Sediment and soil quality	Tidal processes and bathymetry	Air quality	Noise levels	BIOLOGICAL	Vegetation	Wildlife, including habitat and migration patterns	Birds, including habitat and migration patterns	Aquatic species, incl. habitat and migration/spawning	Wildlife protected areas	SOCIO-ECONOMIC	Archaeological and cultural historic sites	Employment	Community wellness	Community infrastructure	Human health
Construction																									
Airstrip use or construction		-	-	-	-	-	-	-	M	M	-	M	M		M	M	M	-	-		-	P	-	-	-
Baseline data		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	P	-	-	-
Camp		-	-	-	-	M	-	-	M	M	-	M	M		M	M	M	-	-		-	P	-	-	-
Equipment installation		-	-	-	-	-	-	-	M	M	-	-	M		M	M	M	-	-		M	P	-	P	-
Fuel and chemical storage		-	-	-	-	M	M	-	-	-	-	M	M		M	-	-	-	-		-	P	-	-	-
Landfill		-	-	-	-	M	-	-	M	M	-	-	-		M	M	M	-	-		-	-	-	-	-
Quarry/Borrow pit		-	M	-	-	M	-	M	M	M	-	M	M		M	M	M	-	-		-	P	-	-	-
Access Road		-	-	M	-	M	-	M	-	M	-	M	M		M	M	-	-	-		-	P	P	P	-
Advanced Mineral Exploration		-	M	-	-	M	-	-	M	M	-	-	M		M	M	-	-	-		-	P	-	-	-
Mine Development/Bulk Sampling		-	M	M	-	M	M	M	M	M	-	M	M		M	M	M	M	-		M	P	P	P	P
Operation																									
Aerial surveys		-	-	-	-	-	-	-	-	-	-	-	M		-	M	-	-	-		-	P	-	-	-
Airstrip use or construction		-	-	-	-	-	-	-	M	M	-	M	M		M	M	M	-	-		-	P	-	-	-
Baseline data		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	P	-	-	-
Camp		-	-	-	-	M	-	-	M	M	-	M	M		M	M	M	-	-		-	P	-	-	-
Equipment installation		-	-	-	-	-	-	-	M	M	-	-	M		M	M	M	-	-		M	P	-	P	-
Fuel and chemical storage		-	-	-	-	M	M	-	-	-	-	M	M		M	-	-	-	-		-	P	-	-	-
Landfill		-	-	-	-	M	-	-	M	M	-	-	-		M	M	M	-	-		-	-	-	-	-
Quarry/Borrow pit		-	M	-	-	M	-	M	M	M	-	M	M		M	M	M	-	-		-	P	-	-	-
Access Road		-	-	M	-	M	-	M	-	M	-	M	M		M	M	-	-	-		-	P	P	P	-
Advanced Mineral Exploration		-	M	-	-	M	-	-	M	M	-	-	M		M	M	-	-	-		-	P	-	-	-
Mine Development/Bulk Sampling		-	M	M	-	M	M	M	M	M	-	M	M		M	M	M	M	-		M	P	P	P	P

Decommissioning

Airstrip use or construction	-	-	-	-	-	-	-	-	M	M	-	M	M	P	P	P	-	-	-	P	-	-	-
Baseline data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-
Camp	-	-	-	-	M	-	-	M	M	-	M	M	P	P	P	-	-	-	P	-	-	-	
Equipment installation	-	-	-	-	-	-	-	M	M	-	-	M	M	M	M	M	-	-	M	P	-	P	-
Fuel and chemical storage	-	-	-	-	M	M	-	-	-	-	M	M	P	-	-	-	-	-	P	-	-	-	
Landfill	-	-	-	-	M	-	-	M	M	-	-	-	P	P	P	-	-	-	-	-	-	-	
Quarry/Borrow pit	-	M	-	-	M	-	M	M	M	-	M	M	P	P	P	-	-	-	P	-	-	-	
Access Road	-	-	M	-	M	-	M	-	M	-	M	M	P	P	-	-	-	-	P	P	P	-	
Advanced Mineral Exploration	-	M	-	-	M	-	-	M	M	-	-	M	P	P	-	-	-	-	P	-	-	-	
Mine Development/Bulk Sampling	-	M	M	-	M	M	M	M	M	-	M	M	P	P	P	P	-	P	P	P	P	P	

(P = Positive, N = Negative and non-mitigatable, M = Negative and mitigatable, U = Unknown)

Project Location



List of Project Geometries

1	polygon	Chidliak Leases
2	polygon	Chidliak Local Study Area
3	polygon	Chidliak Local Study Area
4	polyline	Potential All Weather Access Road to Chidliak
5	polyline	Potential Transmission Line to Chidliak
6	polyline	Potential Winter Trail Route to Chidliak