

CAT-TRAIN: Canadian Arctic Tidal Transect Research and Infrastructure Network (2018-2020)

Application Type:	New
Project Type:	Infrastructure
Application Date:	12/6/2017 5:32:53 PM
Period of operation:	from 0001-01-01 to 0001-01-01
Proposed Authorization:	from 0001-01-01 to 0001-01-01
Project Proponent:	Adrian Schimnowski Arctic Research Foundation 1505 Charleswood Road Winnipeg MB R3S1C2 Canada Phone Number:: 204-470-5408, Fax Number::

DETAILS

Non-technical project proposal description

English: The Arctic Research Foundation (ARF) recently developed self-sustaining portable research laboratories, called Mobile Marine-Archeology-Geology Network (M-MAG-N) labs. These labs were designed to run specifically on green energy, which includes wind and solar panel power. The approvals for the project obtained in 2017 were not in place in time to allow us to deploy the mobile laboratories in the spring of 2017. Since that time we have further developed our plans for the mobile labs. As such we have three modifications to make to our previous application: 1) As the labs were not deployed in 2017 we are requesting to shift our timeline from Spring 2017- Spring 2019 to Spring 2018- Spring 2020 2) To improve the utility of the lab intended to support fisheries research we are requesting to change the site from Halokvik ~60km west to Lauchlan River, another commercial fishery site commonly accessed by community members from Cambridge Bay. 3) To support ongoing research in the Bathurst Inlet area we request to add a third lab near the town site at Umingmaktok. Our goal for this project is to deploy and maintain this key research infrastructure in areas where it will be useful to research projects in the Kitikmeot Region. As such we are applying to relocate three M-Mag-N labs over sea ice (March-April 2018) and set them up at three strategic locations, the Finlayson Islands and Lauchlan River in Dease Strait, and near the town site at Umingmaktok, where they will be left for two years. The research labs will be moved on skids as part of a train that will also include an accommodation trailer and cooking trailer. A tracked vehicle will lead the train to clear a path and a second will pull the train. Up to five snowmobiles will escort the train to provide transportation to crew and to allow crew members to travel ahead to pre-scout the route. The preferred route for the deployment of the labs will be from Cambridge Bay where the labs are currently located to the Finlayson Islands, on to Lauchlan River site, and then south to Umingmaktok, following direct routes when permitted by ice conditions and weather. If weather or ice conditions do not permit direct access the train will follow a less direct route along the coast, or be split into two trips with the Finlayson Island and Lauchlan River Labs being deployed on one trip and the Umingmaktok on another. After setting up the labs, the tracked vehicles, accommodation trailer and cooking trailer along with all remaining fuel and waste will follow the same route back to Cambridge Bay or return using a more direct route from Umingmaktok over sea ice immediately south of Kent peninsula and crossing the peninsula at the narrow point near Minto Islands. Lab Use: Once the labs are deployed we have two main research objectives and anticipate that other research programs will utilize the facilities. Our current plans for the labs in 2018-2020 are to: 1) Take measurements of sea ice growth and decay processes and monitor air-sea CO₂ exchange. 2) Study Arctic char physiology and migration in relation to their rapidly changing environments. Note that after consultations with NIRB in Spring, 2017, we have agreed that each research program will independently secure its own approval for activities utilizing the labs and as such the current amendment/application only pertains to the deployment and removal of the three mobile laboratories.

French: Not required as project is not in Iqaluit area

[illegible]

Inuinnaqtun: CAT-TRAIN: Kanataq Ukiuqtaqtuanik Taryaaqamik Qauyihaiyut Naunaiqhitiyullu Illittuqtihiigiit Taapkua havakluaqpaktut havaanut hapkuningga taapkua Ukiuqtaqtumi Qauyihaiyit Tunngaviat (Arctic Research Foundation ARF), nanminiuyuq manighiunngittut katimaqatigiit, havaarilluariyaat taapkua ikayurumaplugit hivituyut Ukiuqtaqtumi pivighanik qauyihaiyut Qitiqmiuni aviktuqhimayumi. ARF-kut iniqhihaaqhimayut ilikkuuqtunik agyaqtaqtunik qauyihavingnik, atilgit Mobile Marine-Arecheology-Geology Network (M-MAG-N) qauyihaviit. Hapkua qauyihaviit hanayauhimayut aulayughat huanngaqaqtunit, taapkuningga anurimit hiqinimitlu huanngautainik. Havaaghatigut hapkunuuna aullaqtittiyumayugut aulapkaqlugulu qauyihaiyut havauhighait ikayuutauniaqtunik qauyihaiyunut Qitiqmiuni Aviktuqhimayumi. Talvuuna tughiraqtugut nuutittumaplugit pingahut M-Mag-N qauyihavighat taryukkut hikukkut (March-April 2018-mi) atuinnarialaqilugit pingahunit havakvighainut, Ungahitak-mut, Lauchlan Kuugaanut talvani Dease Ikirahaanit, talvanilu Umingmaktuum haniani, talvaniinnahuat malrungnik ukiunik. Qauyihaviiit agyaqtaunahuat pilraaqtuakut ingilrayukkut uniaqtunut ilaulutik hiniktaqviharuaqtuqlu uniarutilingmik igavingmiklu. Aghalualik pualritiqyuq hivuliqtuinahuaqtuq apqutighaliuqlutik aippaattauq uniaqluni atatayunik. Tallimauniarungnaqhiyut sikiitut ingilraqatigilugit agyaqtut havaktiit imaalu nahittaqtuqtighait hivuanit aghaluutituqtut apqutighaqhiuqlutik. Iqaluktuuttiaqmit aullarahuat ihuatqiyaungmat qauyihavighaliuqtut talvunga Ungahitangmut, Lauchlan Kuugaanut, talvunga hivuraanuttuq Umingmaktuumut, ingilralugit ingilravilluat piqaluyainnaunngitpat hilalu nakuukpat. Hilalukpat hikulu ingilrannaitpat agyaqtaqtut ahikkuurniaqtut ingilrattiarnaqtumit hinaagut, imaaluuniit aviktuqtaulutik malruiqtughat taapkua Ungahitangmi Lauchlan Kuugaanilu qauyihavighait atauttikut agyaqtaulutik agyaqtaqlutiktaut Umingmaktuumut kinguani. Qauyihavighait atuinnarialaqigumik, aghalualgit agyaqtautit, hiniktarviit igaviallu taapkualu amiakkuut iqqakuilu utiqtitaniaqtut ingilraviiqut Iqaluktuuttiaqmut utiqlutikluuniit ihuariyaigut Umingmaktuumit taryum hikuagut hivuraanit Hiiqtinniq ikaaqlutiku tikirannuamut Minto Qikiqtait haniani.

Personnel on site: 10
Days on site: 40
Total Person days: 400
Operations Phase: from 2018-03-13 to 2020-04-21

Activities

Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Potential extent of route pending ice and snow conditions	Other	Marine	Cat-trains have been operated over the sea ice in the region many times by the contractors involved. We cross over land on existing roads/paths while leaving and returning to Cambridge bay and at the narrow connection between Kent Peninsula and the mainland.	None known.	The project is based out of Cambridge Bay, and extends to townsite at Umingmaktok ~200km south west of Cambridge Bay
Umingmaktok Mobile Lab Location	Researching	Inuit Owned Surface Lands	This location is small town-site and a popular and traditional camping location for Kitikmeot residents	None known.	Umingmaktok is approximately 200km south west of Cambridge Bay and approximately 300km east of Kugluktuk
Lauchlan River Mobile Lab Location	Researching	Inuit Owned Surface Lands	Lauchlan River is frequently used by locals from Cambridge Bay as a camping, hunting and fishing site and in some years is also a focus of the local commerical fishery.	None known.	Lauchlan River is approximately 140km west of Cambridge Bay.
Finlayson Island Mobile Lab Location	Researching	Crown	The Finlayson Island site currently has a weather station and is visited on a regular basis for maintenance.	None known.	The Finlayson Islands are 30km west of Cambridge Bay
Proposed Lauchlan River Route	Other	Marine	Cat-trains have been operated over the sea ice in the region by the contractors involved. We cross over land on existing roads/paths while leaving and returning to Cambridge bay	None known.	The route is based out of Cambridge Bay, and extends to Lauchlan River approximately 140km west of Cambridge Bay.
Proposed Umingmaktok Route	Other	Inuit Owned Surface Lands	Cat-trains have been operated over the sea ice in the region by the contractors involved. We cross over land on existing roads/paths	None known.	The route is based out of Cambridge Bay, and extends to Umingmaktok approximately 200km southwest of Cambridge Bay.

		while leaving and returning to Cambridge bay and at the narrow connection between Kent Peninsula and the mainland which is Inuit owned surface land. We are not aware of prior activity in this area but will remain on ice rather than land whenever possible.	
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Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Kugluktuk	Amanda Dumond	Kugluktuk HTO	2017-12-11
Cambridge Bay	Beverly Maksagak	Ekaluktutiak Hunters & Trappers Organization	2017-12-19

Authorizations

Indicate the areas in which the project is located

Kitikmeot

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Aboriginal Affairs and Northern Development Canada	Land use for Finlayson Island site, will apply once under NIRB review	Not Yet Applied		
Kitikmeot Inuit Association	Land use for proposed routes and for the Umingmaktok and Lauchlan River laboratory sites. Will apply once under NIRB review	Not Yet Applied		

Project transportation types

Transportation Type	Quantity	Proposed Use	Length of Use
Water	0	The lead tracked vehicle, the tracked vehicle pulling the train, and the snowmobiles will travel primarily over sea-ice and occasionally over land	
Land	0	The lead tracked vehicle, the tracked vehicle pulling the train, and the snowmobiles will travel primarily over sea-ice and	

		occasionally over land	
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Project accomodation types

Temporary Camp

Other,

Material Use

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

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Mobile Shipping Container Laboratories	3	6m * 2.5m * 2.5m	These temporary structures will serve as a research space and will provide power through its two wind turbines and solar panels. There will be one unit per site
Generator	3	2m * 0.5m * 1.5m	Backup power supply (x1 per site)
Tracked Vehicle/dozer	2	4.5m * 2.5m * 3.1m	Clear route and tow train of mobile labs and two personnel trailers
Accommodation and Kitchen (personnel) Trailers	2	6m *2.5m *2.5m	Sleeping and cooking space for crew on deployment trip. Will return to Cambridge Bay with crew
Snowmobiles	up to 5	3.4m * 1.1m * 1.3m	Transportation of crew and pre-scouting route for safety

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Diesel	fuel	6	200	1200	Liters	Fuel for tracked vehicle
Gasoline	fuel	2	200	400	Liters	Fuel for Snowmobiles
Gel Batteries	hazardous	15	2	30	Liters	used to store power from the green-energy systems. These batteries are secured in the labs, and are designed so that they cannot spill acid, even if they are cracked ("non-spillable" gel batteries)
oil	hazardous	2	26	52	Liters	Engine Oil

Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
0	brought from cambridge bay	cambridge bay municipality

Waste

Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Researching	Greywater	0-10kg/day	Stored and returned to Cambridge Bay for disposal for mobilization/deployment phase over ice	None
Researching	Hazardous	0-50L	Oil changes may be needed. All oil will be	None

			stored and returned to Cambridge Bay for disposal.	
Researching	Other, Garbage	0-10kg/day	Returned to Cambridge Bay for disposal in landfill	None
Researching	Other, recycling	0-10kg	Returned to Cambridge Bay for recycling	None
Researching	Sewage (human waste)	0-10kg/day	Stored and returned to Cambridge Bay and disposed of through municipality for the mobilization/deployment phase	None

Environmental Impacts:

We expect this project to have a minimal negative environmental impact, as waste products, excess fuel/oil and all other foreign items/objects (excluding 3 mobile research labs) will be taken back with us to Cambridge Bay for proper storage or disposal. The project will have a lead tracked vehicle, and a Cat-train with one tracked vehicle towing 5 trailers, which will consist of 3 mobile labs (M-MAG-N), 1 accommodation trailer and 1 kitchen trailer. Up to 5 snowmobiles will be present to transport personnel along with the cat-train and to pre-scout the sea ice route before the cat-train arrives. All fuel for the snowmobiles and the tracked vehicle (gasoline and diesel) will be stored on the cat-train. To mitigate further environmental impacts, an emergency spill response plan has been set in place with personnel being trained in spill response prior to leaving Cambridge Bay. When the labs are set up on site they will be left on their transport skis/skids to limit ground disturbance and we will take the shortest route possible when it is necessary to cross over land. The Umingmaktok and Lauchlan River locations were chosen specifically in part because Kitikmeot residents (Cambridge Bay and Kugluktuk) routinely use these areas for camping, hunting, and commercial and subsistence fishing so there is already some level of human activity. We do not anticipate any substantial environmental impacts based on the fact the area is already in active use, and given the relatively small scale of the proposed project. From a socioeconomic standpoint the impact will be positive. The Cat train will be operated by local contractors and collaborators (e.g. Local Canadian Rangers and Field assistants hired through the HTO) at an estimated \$50000 minimum for deployment and retrieval. Furthermore the labs will at a minimum support locally valuable environmental and fisheries research.

Additional Information

SECTION A1: Project Info

SECTION A2: Allweather Road

SECTION A3: Winter Road

SECTION B1: Project Info

SECTION B2: Exploration Activity

SECTION B3: Geosciences

SECTION B4: Drilling

SECTION B5: Stripping

SECTION B6: Underground Activity

SECTION B7: Waste Rock

SECTION B8: Stockpiles

SECTION B9: Mine Development

SECTION B10: Geology

SECTION B11: Mine

SECTION B12: Mill

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

Description of Existing Environment: Biological Environment

Description of Existing Environment: Socio-economic Environment

Identification of Impacts and Proposed Mitigation Measures

Cumulative Effects

Impacts

Identification of Environmental Impacts

Construction																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-
Operation																									
Other		-	-	-	-	-	-	N	-	-	-	-	N		N	-	-	-	-		P	-	-	-	-
Researching		-	-	-	-	-	-	-	-	-	-	-	N		N	-	-	-	-		P	-	-	-	-
Decommissioning																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

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