

2023 08 24

Agnes Wittmann  
Director  
Environmental Approvals Branch  
Manitoba Environment and Climate  
14 Fultz Boulevard  
Winnipeg MB R3Y 0L6

Dear Ms. Wittmann:

**RE: KEYYASK GENERATION PROJECT – CONSTRUCTION DECOMMISSIONING PLAN  
ENVIRONMENT ACT LICENCE NO. 3107, CLIENT FILE NO. 5555.0**

As per Clauses 10 and 74 of *Environment Act* Licence No. 3107 dated July 2, 2014 to the Keeyask Hydropower Limited Partnership (KHLP), the submission of a decommissioning plan is required. The requirement for a rehabilitation plan for any access routes created for the Project (Clause 10) has been met with the previous submission and approval of the Vegetation Rehabilitation Plan in 2015.

Manitoba Hydro, on behalf of the KHLP is submitting the attached document to fulfil the requirement for a decommissioning plan. It outlines the decommissioning activities to date on the Keeyask Project site, and those yet to be completed. This document also provides an overview of the status of revegetation of each area within the Project site.

If you have any questions or concerns, please contact me.

Yours truly,



Carolyn Northover  
Senior Environmental Specialist  
Generation Environmental Support  
Project Management  
Asset Planning & Delivery

CEN/eav/Keeyask Generation Project Decommissioning Plan.pdf



# Keeyask Generation Project

## Decommissioning Plan



# **KEYYASK GENERATION PROJECT**

## **DECOMMISSIONING PLAN**

Prepared By

Manitoba Hydro

On Behalf of The

Keeyask Hydropower Limited Partnership

August 2023

This report should be cited as follows:

Keeyask Hydropower Limited Partnership (KHLP). 2023. Keeyask Generation Project Decommissioning Plan. A plan prepared by Manitoba Hydro on behalf of the KHLP, August 2023.

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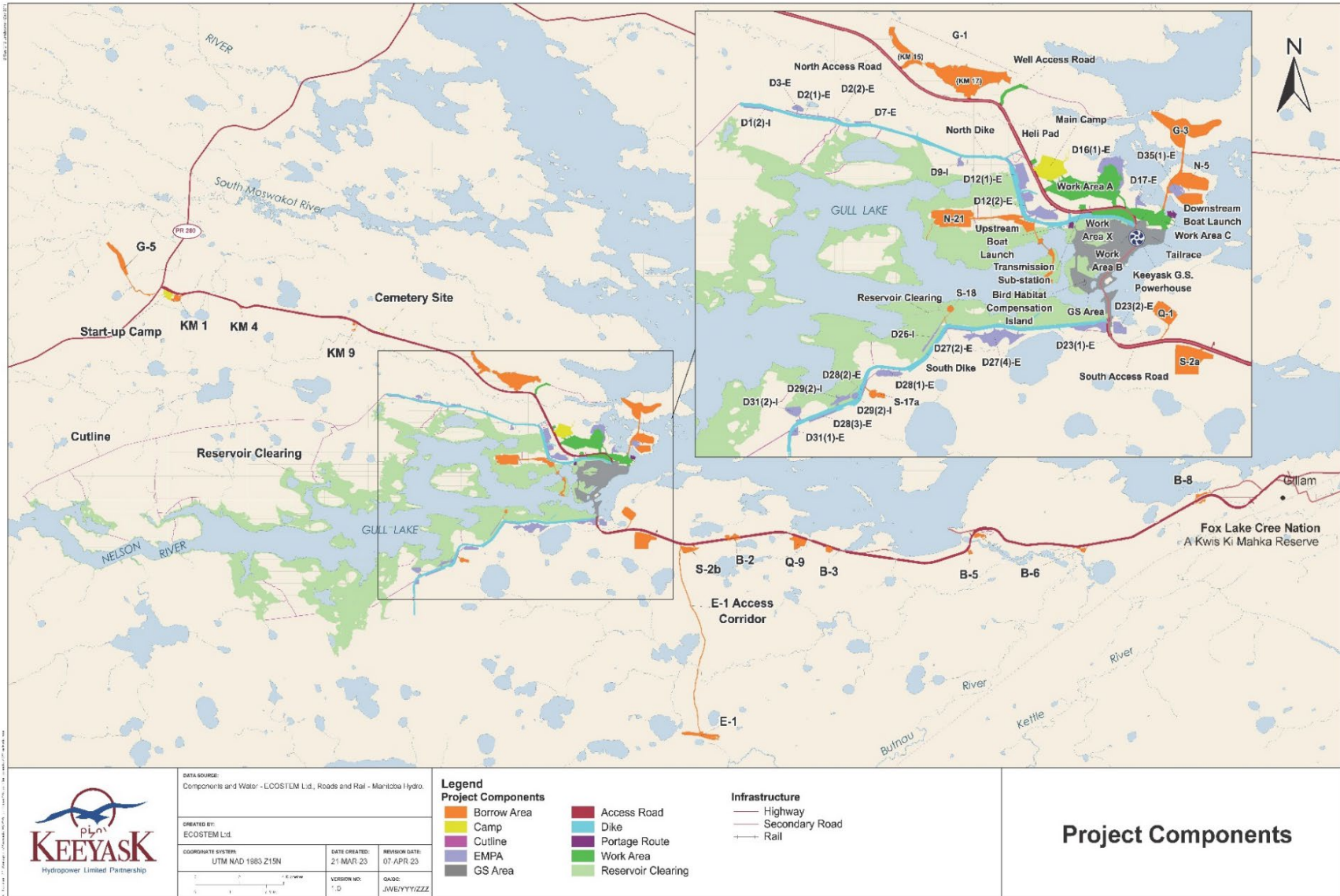
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# 1.0 INTRODUCTION

A Manitoba *Environment Act* Licence (MEAL No. 3107; Gov of MB 2014) was issued to the Keeyask Hydropower Limited Partnership (KHLP) on July 2, 2014, for the construction, operation, maintenance and decommissioning of the Keeyask Generation Project (KGP; the Project). Through this licence, the KHLP is committed to decommissioning and revegetating any areas disturbed by Project development that are not required during operations. This commitment is highlighted in the KGP's Environmental Impact Statement (EIS; KHLP 2012), the Vegetation Rehabilitation Plan (VRP; KHLP 2015), and the Environmental Protection Plan (EnvPP; KHLP 2014). The Terrestrial Effects Monitoring Plan (TEMP; KHLP 2015) annual reports detail disturbed and rehabilitated areas to ensure that decommissioning and revegetation of Project areas have occurred as outlined in the above documents. Additional revegetation efforts may be required for areas highlighted in the TEMP annual reports as having inadequate vegetative cover and where the VRP commitments have not been met.

As per Clauses 10 and 74 of MEAL No. 3107, this decommissioning plan outlines the decommissioning activities completed to date and those yet to be completed at each site within the licensed footprints. The revegetation status of each site is noted in this plan, but the detailed revegetation approach for all decommissioned sites is covered in more detail in the VRP. The scope of this decommissioning plan includes areas used for the construction of the Keeyask Infrastructure Project (KIP) and the KGP which are not required for Project operations, including temporary camp facilities, work areas, access and haul roads, borrow areas and quarries, and excavated material placement areas (EMPAs). All areas developed for KGP and KIP are delineated in Map 1. Decommissioning details are subject to further additions, as applicable for adequate decommissioning and revegetation standards.

The *Environment Act* Licence (MEAL No. 2952 R; Gov of MB 2011) issued for the KIP on March 8, 2011, included the construction and operation of a Start-up Camp for the KGP. Under Schedule B, Clause 27, the KIP licence required the submission and approval of site-specific decommissioning plans for the Start-up Camp and all wastewater infrastructure. To fulfill this requirement, the Start-up Camp Decommissioning Plan (KHLP 2020) was submitted on April 13, 2020 and approved by Manitoba's Environmental Approvals Branch on May 26, 2020. The Main Camp Wastewater Collection System and Wastewater Treatment Plant Decommissioning Plan (KHLP 2021) was submitted on November 2, 2021 and approved by the Environmental Approvals Branch on November 9, 2021. As such, these components are not covered in detail within this plan.



Map 1. Disturbed areas used for development of the Project, as of 2022.



## 2.0 SITE PREPARATION

Following decommissioning, site preparation prior to revegetation may include removing material stockpiles, decompacting surface materials, grading slopes, installation of erosion and sedimentation control (ESC) measures and distributing finer textured materials over the material that is present at each site. Site preparation prescriptions will be determined on a site-by-site basis as per the VRP. Areas within the KGP and KIP licensed footprints that have had minimal construction disturbance, are free of contamination, and are showing good natural revegetation may not require additional site preparation.

## 3.0 SCOPE OF DECOMMISSIONING WORK

Depending on the type of Project construction area, the scope of decommissioning activities varies. The sections below outline the decommissioning activities applicable to the various types of construction areas. The decommissioning status of all Project areas not required for operations is also detailed below.

### 3.1 BORROW AND QUARRY AREAS

Borrow and quarry areas (outside of the reservoir impoundment area) that have been or will be decommissioned (as indicated in Table 1) receive the following treatment:

- All construction equipment, debris and temporary erosion control measures have been removed.
- Excavation walls were sloped to 4H:1V or flatter to limit erosion and sediment release and facilitate revegetation.
- All access roads were removed to surface level (including removal of geotextile, apart from exceptions noted in Table 1), and ground material was levelled and decompacted.
- Oversized rock fragments that would impact future revegetation were removed.
- Soil and/or groundwater were inspected for petroleum hydrocarbon contamination. Any contamination found has been remediated to the Canadian Council of Ministers of the Environment (CCME) Canada-Wide Standards (CCME 2001).

**Table 1: Borrow and Quarry Area Decommissioning Status**

<b>Site Name</b>	<b>Decommissioning Status</b>	<b>Site Preparation Status</b>	<b>Planting Status</b>
S-4, S-11, B-4, B-7, B-9	Borrow area never developed.	Not applicable.	Not applicable.
G-3, N-5, N-21 E-1, S-17A, Km 4, Km 9, G-1* (Km 14/15)	Decommissioned	Complete	Tree planted.
B-5	Decommissioned	Complete	Naturally revegetating.
B-8	Decommissioned	Complete	To be revegetated.
B-3	Decommissioned	Requires additional site preparation.	Seeded with native grasses.
B-2, S-2B	Decommissioned	Site preparation prior to revegetation.	To be revegetated.
Q-1, Q-9	Decommissioned	Site preparation prior to revegetation.	To be revegetated around excavated quarry area.
Km 1, B-6	To be decommissioned.	Requires additional site preparation.	Partially tree planted.
S-2A, G-1* (Km 17)	To be decommissioned following material extraction and wetland construction activities.	Site preparation prior to revegetation.	Partially tree planted.
Q-A*	To be decommissioned following the completion of concrete disposal in quarry.	Site preparation prior to revegetation.	To be revegetated around excavated quarry area.
G-5	To be decommissioned. Possible future use by MTI for road maintenance.	Site preparation prior to revegetation.	To be revegetated.

\* Access roads will be levelled and decompacted, but geotextile material will remain in place.

## 3.2 EXCAVATED MATERIAL PLACEMENT AREAS

Excavated Material Placement Areas (EMPAs) (outside of the reservoir impoundment area) that have been or will be decommissioned (as indicated in Table 2) receive the following treatment:

- All construction equipment, debris and temporary erosion control measures have been removed.
- Materials were sloped to 10H:1V or flatter.
- Oversized rock fragments that would impact future revegetation were removed.
- Soil and/or groundwater was inspected for petroleum hydrocarbon contamination. Any contamination found has been remediated to the Canadian Council of Minister of the Environment (CCME) Canada-Wide Standards.

**Table 2: Excavated Material Placement Areas Decommissioning Status**

<b>Site Name</b>	<b>Decommissioning Status</b>	<b>Site Preparation Status</b>	<b>Planting Status</b>
D(1-1, 4, 5, 6, 8, 10, 13, 14, 21, 23-3, 24, 25, 26, 27-3, 29-1, 29-2, 30, 31-2, 33, 34)	EMPA never developed.	Not applicable.	Not applicable.
D(1-2, 2-1, 2-2, 3, 7, 9)	Decommissioned	Complete	Naturally revegetating.
D(12-2, 16, 17, 23-1, 27-4, 28-1, 28-2, 31, 31-1, 35-1)	Decommissioned	Complete	Tree planted.
D23-2	Decommissioned	Site preparation prior to revegetation.	To be revegetated.
D12-1	To be decommissioned.	Site preparation prior to revegetation.	Partially tree planted.

### 3.3 WORK AREAS

Work Areas that have been or will be decommissioned (as indicated in Table 3) receive the following treatment:

- All construction equipment, debris, contaminated materials, and temporary erosion control measures have been removed.
- Concrete pads were broken up and disposed of in quarry Q-A and/or gravel pads were decompacted, where applicable.
- Soil and/or groundwater was inspected for petroleum hydrocarbon contamination. Any contamination found has been remediated to the Canadian Council of Ministers of the Environment (CCME) Canada-Wide Standards.

**Table 3: Work Areas Decommissioning Status**

<b>Site Name</b>	<b>Decommissioning Status</b>	<b>Site Preparation Status</b>	<b>Planting Status</b>
WA-A (BBE Pad, Canmec & Voith Pad), WA-D	Decommissioned	Complete	Tree planted.
WA-B, WA-X	A portion of the work area will remain for Project operations. The remainder of the site to be decommissioned.	Site preparation prior to revegetation.	To be revegetated.
WA-A (Fuel Pad), WA-C	To be decommissioned.	Site preparation prior to revegetation.	To be revegetated.

### 3.4 ACCESS AND HAUL ROADS

Construction access and haul roads (outside of the reservoir impoundment area) that have been or will be decommissioned (as indicated in Table 4) receive the following treatment:

- All construction equipment and debris have been removed, including geotextile where applicable.
- All roads have been removed to ground level (with one exception noted in Table 4), and surface material was levelled and decompacted.
- Soil and/or groundwater was inspected for petroleum hydrocarbon contamination. Any contamination found has been remediated to the Canadian Council of Ministers of the Environment (CCME) Canada-Wide Standards.

**Table 4: Access and Haul Road Decommissioning Status**

Site Name	Decommissioning Status	Site Preparation Status	Planting Status
Haul Road 21	Haul road never developed.	Not applicable.	Not applicable.
Haul Road 1, 6, 8, 13, 17, 22	To remain for Project operations. Haul Roads 8 and 13 will remain accessible for upstream and downstream boat launch.	Not applicable.	Not applicable.
N-21 Access Road	To remain in place for potential future maintenance of fish berms at N-21.	Not applicable.	Not applicable.
Haul Road 2, 3, 4, 7, 12, 14, 15, 16	Decommissioned	Complete	Haul roads 2, 3, 4, 7, 12, 14, 15 have been tree planted. Haul Road 16 resides within EMPA D-16 and does not require planting.
Q-1 Access Road*	To be decommissioned. Rock berm to be removed.	Site preparation prior to revegetation.	To be revegetated.
G-5 Access Road	To be decommissioned. Possible future use by MTI for road maintenance.	Site preparation prior to revegetation.	To be revegetated.
WA-A Access Road	A portion of the access road will remain for Project operations. The remainder to be decommissioned.	Site preparation prior to revegetation.	To be revegetated.

\* Surface material will be decompacted, but not removed to ground level due to thickness of road base.

### 3.5 RESERVOIR IMPOUNDMENT AREA

In addition to the standard decommissioning outlined above for other sites, areas within the now-impounded reservoir (including cleared areas) have had the following activities completed:

General Cleared Areas:

- All construction equipment, debris, dewatering pipes and temporary erosion controls were removed prior to impoundment.

Haul Roads:

- Any geotextile remaining in place had a 300-500mm mineral soil cover, or the haul road was removed if the elevation was above 156m (for safety reasons following impoundment).

EMPAs:

- Peat was stored outside of the reservoir impoundment area or capped by a minimum of 1m of mineral soil if located within the impoundment area.

**Table 5: Reservoir Impoundment Area**

Site Name	Decommissioning Status	Site Preparation Status	Planting Status
Haul Road 2*, 5, 7*, 8*, 9, 10, 11, 18, 19, 20	Decommissioned	Not applicable.	Not applicable.
Borrow S-18	Decommissioned	Not applicable.	Not applicable.
Quarry Q-7	Decommissioned	Not applicable.	Not applicable.
EMPA D-18, 19, 20	Decommissioned	Not applicable.	Not applicable.

\*Site footprint is partially in reservoir impoundment area.

## 3.6 MAIN CAMP

The Keeyask Main Camp facilities were developed for use by the KGP and were officially closed on December 10, 2022. The planned decommissioning activities for the Main Camp are outlined by site component. Preliminary decommissioning has begun at Main Camp, and the decommissioning process for the listed components is ongoing.

Site components (as shown in Photos 1-3) include:

1. Main Camp Pad
2. Communications Office
3. Helicopter Pad
4. Wells
5. Weather Station

## **3.6.1 MAIN CAMP PAD**

### **3.6.1.1 BUILDINGS, FOUNDATIONS, ELECTRICAL & MISCELLANEOUS**

- Disassemble and remove all buildings and complexes, including above-ground foundations (concrete pads, wood blocks). Concrete pads will be broken up and be disposed of in Quarry A.
- Remove below-ground foundations including steel piles to 0.9 m below the surface.
- Remove above-ground and overhead power distribution and telecommunication services. Terminate below-ground electrical service connections and cables to 0.9 m below the surface and backfill area with granular material. Cabling less than 0.9 m below the surface will be removed entirely.
- Remove all infrastructure not required for operation such as signage, culverts, bollards, boardwalks, concrete traffic barriers, parking lot infrastructure, construction storage and material stockpiles.
- Remove all equipment, fuel, chemicals, waste, and hazardous materials.
- Inspect soil and/or groundwater for petroleum hydrocarbon contamination. Any contamination found will be remediated to the Canadian Council of Minister of the Environment (CCME) Canada-Wide Standards.
- Remove and dispose of temporary erosion and sediment control equipment where no longer required. Granular erosion protection installed alongside slopes, backslopes and ditching will be left in place. Any other granular material that can be salvaged may be removed and stockpiled in an approved borrow pit and kept for future road maintenance.
- Close landfill facilities.

### **3.6.1.2 WATER TREATMENT PLANT & DISTRIBUTION SYSTEM**

The water distribution system consists of two production wells, a raw water line, watermain supply, watermain return and service connections.

### **3.6.1.3 PRODUCTION WELLS**

- Seal two production wells, as per the Well Standards Regulation under the provincial Groundwater and Well Water Act.

### **3.6.1.4 RAW WATER LINE**

- Buried horizontal raw water line will remain in place.



- At the water treatment plant, cut off vertical portion protruding from the surface; remove to 0.9 m below the surface, cap pipe and backfill area with granular material.

### **3.6.1.5 WATERMAIN SUPPLY**

- Buried horizontal watermain line will remain in place.
- At the water treatment plant, cut off vertical supply line portion protruding from the surface; remove to 0.9 m below the surface, cap pipe and backfill area with granular material.
- Cut off fire hydrants and watermain system valves; remove to 0.9 m below the surface and backfill area with granular material.

### **3.6.1.6 WATERMAIN RETURN**

- Buried horizontal watermain line will remain in place.
- At the water treatment plant, cut off vertical return line portion protruding from the surface; remove to 0.9 m below the surface, cap pipe and backfill area with granular material.

### **3.6.1.7 SERVICE CONNECTIONS**

- Buried pipes will remain in place.
- Cut off building connections, remove to 0.9 m below the surface, cap pipe and backfill area with granular material.

## **3.6.2 WASTEWATER COLLECTION SYSTEM AND TREATMENT PLANT**

The wastewater collection system for the KGP was installed in the Main Camp, Work Area A, Work Area B, Work Area C and along access roads. The wastewater treatment plant was located in Work Area C. Detailed decommissioning measures for these components are outlined in the Keeyask Main Camp Wastewater Collection System and Wastewater Treatment Plant Decommissioning Plan (KHLP 2021), approved by the Province on November 9, 2021.

## **3.6.3 SITE PREPARATION**

The Main Camp gravel pad will be decompacted to a minimum depth of 0.5 m below the surface. The site perimeter will be graded to a minimum 4H:1V standard or flatter. Organic material or sand will be placed on the decompacted pad, where available. The material placement will be followed by discing to ensure adequate mixing of surface substrates.

### 3.7 COMMUNICATIONS OFFICE

- Disassemble and remove all buildings and complexes, including above-ground foundations (concrete pads, wood blocks). Concrete pads will be broken up and disposed of in Quarry A or at an off-site disposal facility.
- Remove above-ground and overhead power distribution and telecommunication services. Terminate below-ground electrical service connections and cables to 0.9 m below the surface and backfill area with granular material. Cabling less than 0.9 m below the surface will be removed entirely.
- Remove all infrastructure not required for operation such as signage, culverts, bollards, boardwalks, concrete traffic barriers, parking lot infrastructure, construction storage and stockpiles.
- Remove all equipment, fuel, chemicals, waste, and hazardous materials.
- Inspect soil and/or groundwater for petroleum hydrocarbon contamination. Any contamination found will be remediated to the Canadian Council of Minister of the Environment (CCME) Canada-Wide Standards.
- Decompact gravel pad to a minimum depth of 0.5 m below the surface. The site perimeter will be graded to a minimum 4H:1V standard or flatter. Organic material or sand will be placed on the decompacted pad, where available. The material placement will be followed by discing to ensure adequate mixing of surface substrates.

### 3.8 HELICOPTER PAD

- Remove all equipment, fuel, chemicals, waste, and hazardous materials.
- Remove road approach, and decompact the gravel pad. Any granular material that can be salvaged may be removed and stockpiled in an approved area to be kept for future road maintenance.
- Inspect soil and/or groundwater for petroleum hydrocarbon contamination. Any contamination that is found will be remediated to the Canadian Council of Minister of the Environment (CCME) Canada-Wide Standards.
- Decompact gravel pad to a minimum depth of 0.5 m below the surface. The site perimeter will be graded to a minimum 4H:1V standard or flatter. Organic material or sand will be placed on the decompacted pad, where available. The material placement will be followed by discing to ensure adequate mixing of surface substrates.

### 3.9 WELLS

- Production wells will be decommissioned as outlined above.
- Remove infrastructure such as buildings, gravel pad and debris.
- Remove all equipment, fuel, chemicals, waste, and hazardous materials.
- Block or remove access to trail along east perimeter.
- Remove approach and access road, including the removal and disposal of any geotextile fabrics. Any granular material that can be salvaged may be removed and stockpiled in an approved area, to be kept for future road maintenance.
- Inspect soil and/or groundwater for petroleum hydrocarbon contamination. Any contamination that is found will be remediated to the Canadian Council of Minister of the Environment (CCME) Canada-Wide Standards.
- Decompact gravel pad to a minimum depth of 0.5 m below the surface. The site perimeter will be graded to a minimum 4H:1V standard or flatter. Organic material or sand will be placed on the decompacted pad, where available. The material placement will be followed by discing to ensure adequate mixing of surface substrates.

### 3.10 WEATHER STATION

The weather station will remain in place during operations. No site preparation or revegetation will occur within a 100 m buffer of the weather station, to facilitate ongoing operation and maintenance.

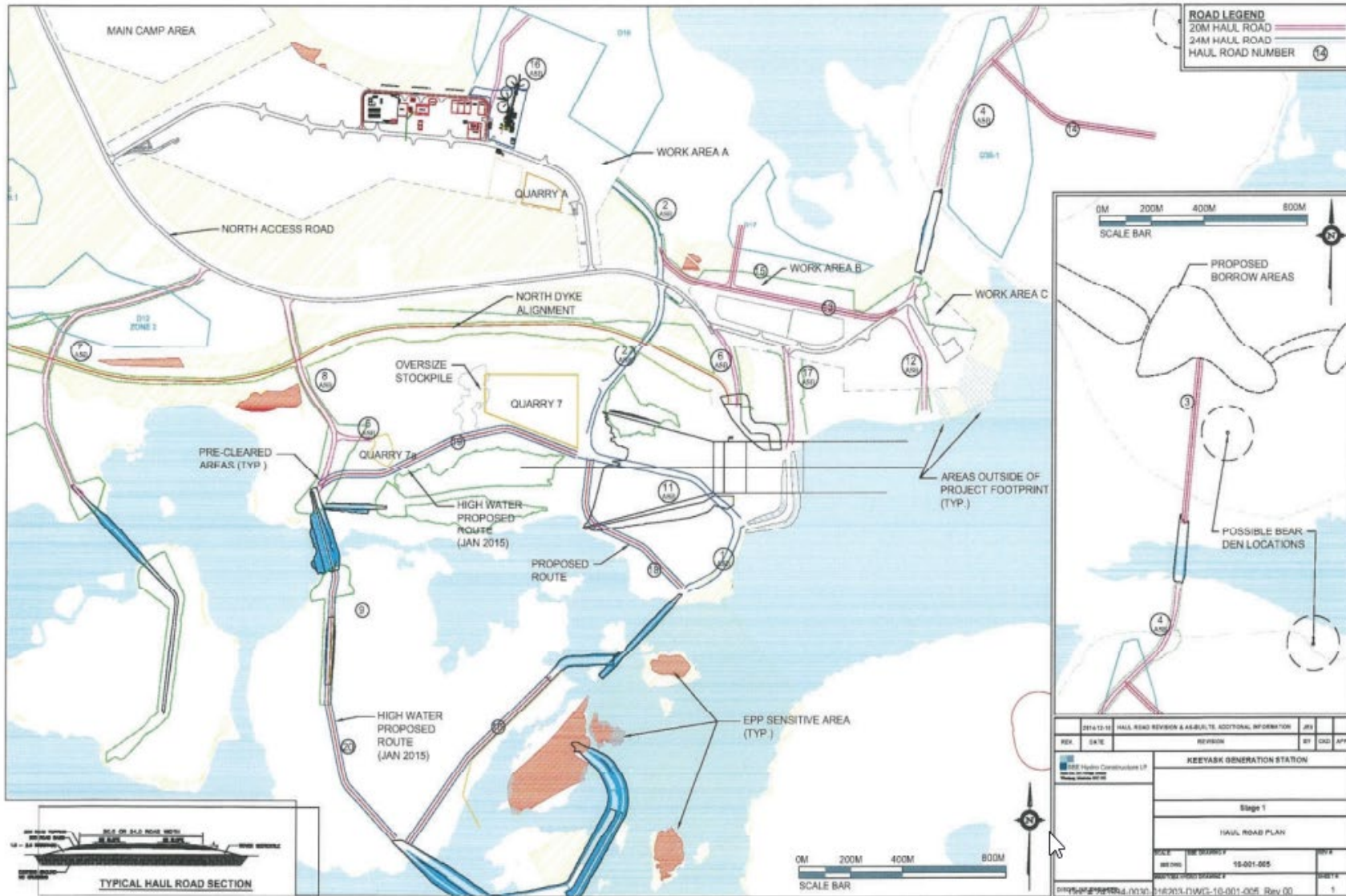
### 3.11 START-UP CAMP

A site-specific decommissioning plan for this area is outlined in the approved Keeyask Infrastructure Project Start-up Camp Decommissioning Plan (KHLP 2020), approved by the Province on May 26, 2020. Preliminary decommissioning has begun at Start-up Camp, and the decommissioning process is ongoing.

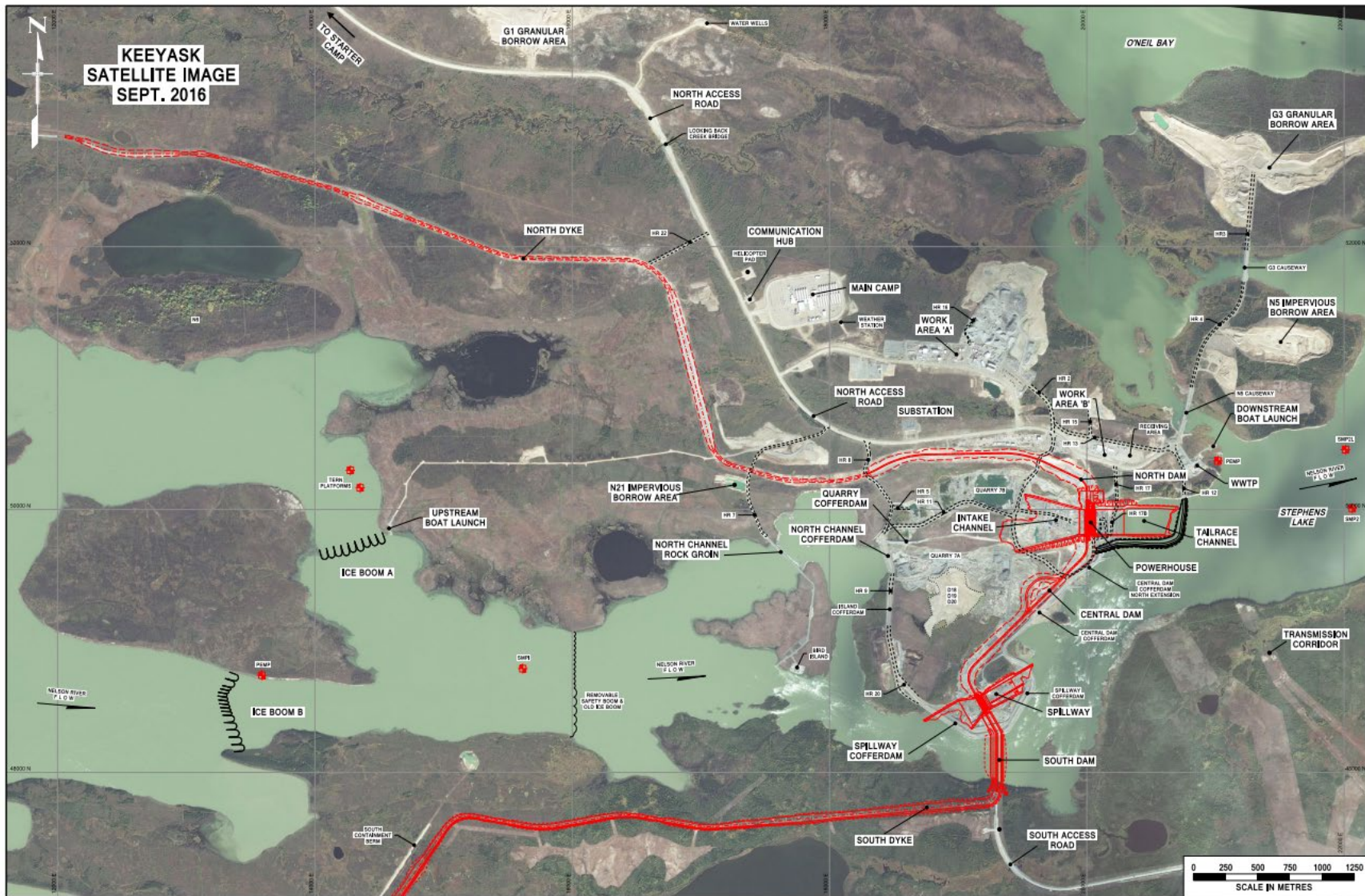
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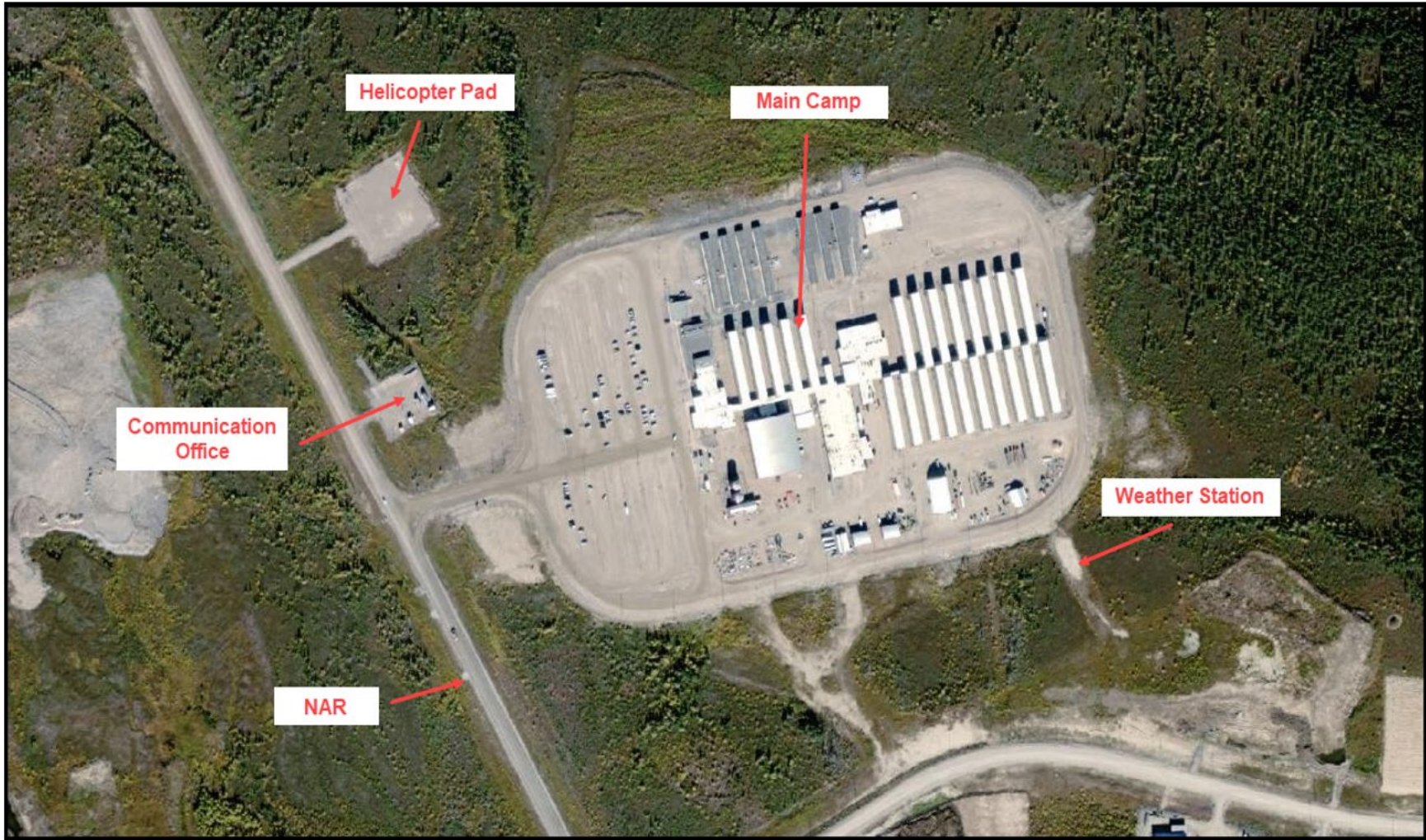
# **APPENDIX 1: KEEYASK SITE COMPONENTS**



Map 2. Proposed haul roads during the construction phase.



Map 3. Proposed Project components during the construction phase in 2016.



**Photo 1. Keyyask Main Camp facilities and infrastructure.**





Photo 2. Keyyask Wastewater Treatment Plant infrastructure.



**Photo 3. Keeyask Main Camp Wells infrastructure.**