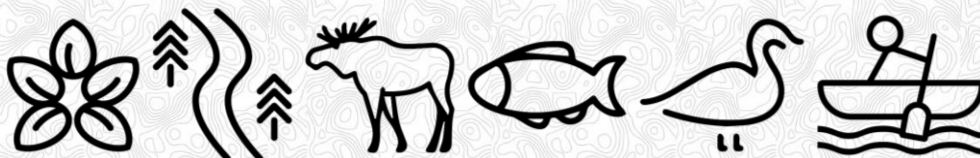




# Groundwater and Geochemistry Field Logistics Work Plan

*August 2021*





MARTEN FALLS FIRST NATION  
**ALL SEASON COMMUNITY ACCESS ROAD**

*Groundwater and Geochemistry Field Logistics Work Plan*

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# MARTEN FALLS FIRST NATION ALL SEASON COMMUNITY ACCESS ROAD

## *Groundwater and Geochemistry Field Logistics Work Plan*

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MARTEN FALLS FIRST NATION  
**ALL SEASON COMMUNITY ACCESS ROAD**

*Groundwater and Geochemistry Field Logistics Work Plan*

## Authors

### Report Prepared By:

*<Original signed by>*

Caitlin Cooke, M.Sc., P.Geol.  
Hydrogeologist  
Golder Associates Ltd.

*<Original signed by>*

Matthew Bowman, B.Sc., P.Geol.  
Hydrogeologist  
Golder Associates Ltd.

### Report Reviewed By:

*<Original signed by>*

John Piersol, M.Sc., P.Geol.  
Associate, Hydrogeologist  
Golder Associates Ltd.







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## Acronyms

Agency, the ...	Impact Assessment Agency of Canada
CAR .....	Community Access Road
EA .....	Environmental Assessment
HaSEP .....	Health and Safety and Environmental Protection Plan
IA .....	Impact Assessment
IAA .....	<i>Impact Assessment Act</i>
IS .....	Impact Statement
JSEA .....	Job Safety and Environmental Analysis
km .....	kilometre
LSA .....	Local Study Area
MECP .....	Ontario Ministry of the Environment, Conservation and Parks
MFFN .....	Marten Falls First Nation
PDA .....	Project Development Area
RSA .....	Regional Study Area
TISG .....	Tailored Impact Statement Guidelines
ToR .....	Terms of Reference
VC .....	Valued Component







# 1. Introduction

The Proponent of the Community Access Road (CAR or the Project) is Marten Falls First Nation (MFFN), a remote First Nation community in northern Ontario located at the junction of the Albany and Ogoki rivers, approximately 430 kilometres (km) from Thunder Bay, Ontario. The MFFN community is proposing an all-season CAR that will connect the MFFN community to Ontario's provincial highway network (Highway 643) to the south via the existing Painter Lake Road. MFFN, as the Proponent of the Project, has formed a MFFN CAR Project Team that includes MFFN CAR Community Member Advisors and MFFN CAR Project Consultants who act with input, guidance, and direction from the MFFN Chief and Council.

This document outlines the work plan to implement the field studies for groundwater and geochemistry recognizing that the results will be used to support a coordinated Impact Assessment (IA), required for Project review by the Impact Assessment Agency of Canada (the Agency) under the federal *Impact Assessment Act* (IAA), and an Environmental Assessment (EA), required for Project review by the Ontario Ministry of the Environment, Conservation and Parks (MECP) under the Ontario *Environmental Assessment Act*.

The Groundwater and Geochemistry Work Plan describes the proposed methods and schedule to complete the field program and considers both the Agency's Tailored Impact Statement Guidelines for the Marten Falls Community Access Road Project (TISG) (IAAC 2020) and the comments received on the Draft Terms of Reference (ToR) (AECOM 2020).





## 2. Overview and Approach

The approach and associated study areas for the groundwater and geochemistry field program are defined in the Groundwater and Geochemistry Study Plan (MFFN CAR 2021). These considerations were developed based on guidance from and discussions with both federal and provincial regulators. A brief description of the proposed methodology and staffing plan to complete the groundwater and geochemistry field program are described below, with the understanding that the technical content is limited to supplementary information (not previously included in the Groundwater and Geochemistry Study Plan).

### 2.1 Methodology

The proposed methodology for the groundwater and geochemistry field program is described in **Table 2-1**, and the corresponding survey locations are shown in **Figure 2-1**. The proposed methodology described below is in line with what was initially detailed in the Groundwater and Geochemistry Study Plan, with the exception of the In-Community Well Survey. Through discussions with MFFN Community Leaders and the Ministry of Transportation, it was determined that no groundwater wells are used to source drinking water. As a result, it was concluded that there was no need to conduct the In-Community Well Survey.

**Table 2-1: Field Study Methodology**

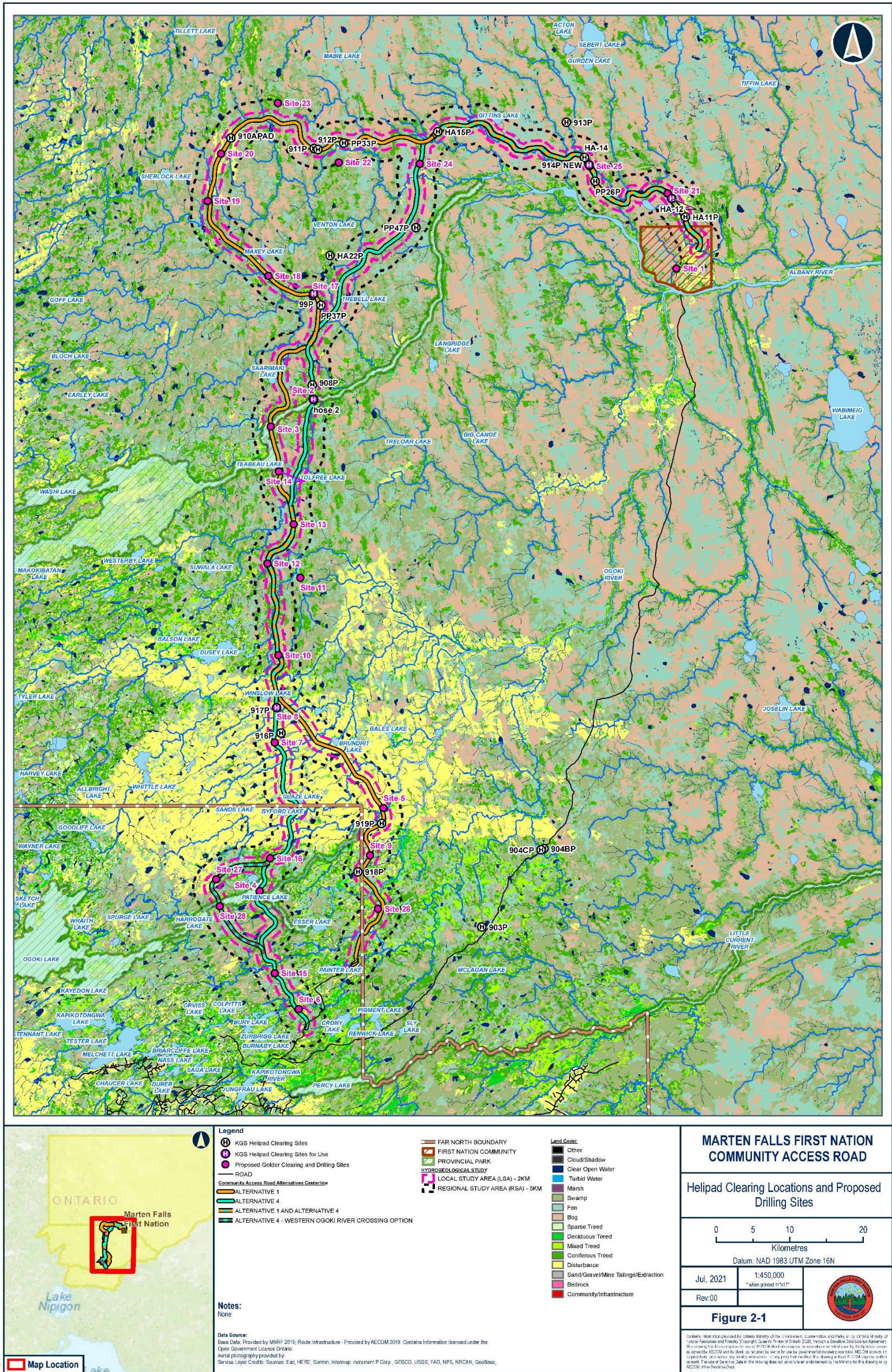
Groundwater and Geochemistry	
<b>Approvals to Conduct Field Study</b>	<ul style="list-style-type: none"> <li>■ Indigenous community acceptance of locations of disturbance</li> <li>■ MECP Letter of Authorization to Conduct Research in a Provincial Park or Conservation Reserve</li> <li>■ MNRF Work Permit, Letter of Authorization and Land Use Permits for conducting work on Public Lands</li> <li>■ MECP Species at Risk Clearance</li> <li>■ All work will be conducted in accordance with relevant Acts and regulations, regardless of whether approvals are required (e.g. nest sweeps prior to tree removal)</li> </ul>
<b>Field Study Methods</b>	<ul style="list-style-type: none"> <li>■ Study Area Reconnaissance and Determination of Key Groundwater Monitoring Locations</li> <li>■ Tree Clearing, Drilling and Installation of 50 Groundwater Monitoring Wells at 20 sites (28 sites are depicted in Figure 2-1 for contingency purposes)</li> <li>■ Well Surveying, Monitoring Well Development and Hydraulic Conductivity Testing following well installation</li> <li>■ Sampling Sessions that include the Groundwater Quantity and Quality Monitoring Program</li> <li>■ Soil and Rock Acid Rock Drainage / Metal Leaching Sampling from 30 Groundwater Monitoring Wells, collected during the first Sampling Session.</li> </ul>
<b>Lab Analysis Methods</b>	<ul style="list-style-type: none"> <li>■ Canadian Association for Laboratory Accreditation accredited laboratory for groundwater chemistry and geochemical analysis.</li> </ul>







Figure 2-1: VC Survey Locations for Groundwater and Geochemistry Field Program







## 2.2 Program Staffing

The proposed staff participating in the groundwater and geochemistry field program are outlined in **Table 2-2**.

**Table 2-2: Personnel Qualifications**

Name	Title	Project Role	Credentials	Years of Experience*
<b>John Piersol</b>	Associate, Hydrogeologist	Groundwater Senior Reviewer	M.Sc., P.Geo.	20
<b>Matthew Bowman</b>	Hydrogeologist	Groundwater Component Lead	B.Sc., P.Geo.	13
<b>Caitlin Cooke</b>	Hydrogeologist	Groundwater Component Alternate	M.Sc., P.Geo.	16
<b>To be determined</b>		Groundwater Field Crew Lead		
<b>David Brown</b>	Principal, Mine Water and Environment	Geochemistry Senior Reviewer	P.Geo. ON, NL	>30
<b>Laura Colgrove</b>	Geochemist	Geochemistry Component Lead	M.Sc., P.Geo.	2

Note: \* Experience as of March 2021

Please note that the staffing for the groundwater and geochemistry field program may also rely on additional members from the MFFN CAR Project Consultant Team and / or members from local Indigenous communities.





### 3. Discipline Specific-Schedule

The proposed schedule for the groundwater and geochemistry field program is presented below in **Table 3-1**. This schedule is subject to change based on evolving climactic conditions in the Project Area, including forest fires.

**Table 3-1: Program Schedule**

Task / Program	Start Date (MM/YR)	Approximate Duration	Targeted VC Interaction
■ Tree Clearing	■ September / October 2021	■ Three weeks	■ Groundwater
■ Drilling and Installation of 50 Groundwater Monitoring Wells	■ September / October 2021	■ One month	■ Groundwater
■ Monitoring Well Development, Well Surveying and Hydraulic Conductivity Testing	■ October 2021	■ Following well installation	■ Groundwater
■ Sampling Sessions (conducted annually in spring, summer and fall, dependent on weather and schedule)	■ October 2021 to Fall 2022	■ Two weeks per session	■ Groundwater
■ Soil and Rock Acid Rock Drainage / Metal Leaching Sampling	■ October 2021	■ Two weeks	■ Groundwater

Prior to field programs commencing, the following groups from the Project Contact List will be notified:

- Indigenous Community Key Contacts
- Tribal Councils, Provincial Territorial Organizations and Métis Nation of Ontario
- Other Indigenous Persons Identified for Consultation (including MFFN community members)
- Businesses
- Tourism Operators
- Community and Interest Groups and Non-Governmental Organizations
- Interested Parties / Potential Stakeholders – Unaffiliated
- Government Review Team
- Non-Government Review Team agency representatives
- Forest Management Companies
- Mining Claim Holders
- Emergency Medical Services and Law Enforcement
- Neighbouring Projects and their Contacts
- Other Agency Representatives (elected Members of Parliament and Provincial Parliament of Ontario)





## 4. Health and Safety

### 4.1 General

Golder is committed to the health and safety of employees, clients, contractors and the public, with the understanding that all work performed by Golder is subject to strict health and safety policies and applicable federal, provincial, and municipal acts and regulations. Golder has internal Work Safe Practices for aerial work, remote work, cold weather work, and working around water. All field crew members will be expected to review these protocols prior to commencing surveys. In addition, the Golder survey teams will develop a project specific Health and Safety and Environmental Protection Plan (HaSEP) prior to conducting field work. The Project's HaSEP will be reviewed and discussed with all field crew members (including pilot and Indigenous crew members) prior to the survey's commencement.

The aerial / helicopter support for the Project will be designed and scheduled according to Golder's and the client's health and safety policies, procedures, and training. Restrictions on aircraft type and pilot proficiency will apply. Prior to daily take-off, the pilot will provide an aircraft orientation and safety briefing to all members of the survey team. The briefing will include identifying hazards, emergency response plans and procedures, and general helicopter protocol (including how to exit and enter an aircraft). As part of these briefings, hazards specific to the day's task will also be identified, discussed, and documented on a job safety and environmental analysis (JSEA) form, with a plan for all crew members to sign the JSEA. Field surveys will only occur when weather conditions allow safe aircraft operations, recognizing that (1) field crew members have the right to refuse substandard actions or conditions if the worker feels that these actions / conditions are imminently dangerous to their safety or to the safety of others and (2) field crew members should rely on pilot judgement as well as their own experienced and comfort level to determine if flights should occur or be prematurely terminated.

As part of each field day, field crew members will pack extra food, water, and clothing in case of aircraft mechanical trouble and unexpected delays. In addition, each field crews will carry a survival and first aid kit for emergency situations (supplementary to the aircraft emergency survival kit). Daily check-in times with a designated contact will be pre-determined as part of the HaSEP, noting that satellite phones or satellite communication devices (e.g., Garmin inReach) will be used in areas where cell phone coverage is not reliable.







## 4.2 COVID-19

All COVID-19 related risk mitigation and recovery measures have been established in line with government protocols and AECOM corporate measures. Field crews will employ preventative COVID-19 actions including daily screening questionnaires and the use of Personal Protective Equipment such as gloves, masks, regular disinfection and social distancing.

Members of the field crews are not to attend site, or must remove themselves from site, if they fit any of the following criteria:

- They have symptoms associated with COVID-19 (e.g., fever, cough, sore throat, shortness of breath, sneezing / running nose or loss of sense of smell);
- They have been confirmed for COVID-19 or are awaiting the results from being tested for COVID-19;
- They have been in close-contact with a known or suspected case of COVID-19 in the past 14 days; and / or
- They have returned, or been in contact with someone who has returned, from overseas in the past 14 days.

When working in the community, field crews will strictly adhere to the COVID-19 preventative measures as described above. Where community access is required to facilitate a field survey, entry will be discussed with the community in advance. As needed, a negative COVID-19 test will be presented prior to entering Indigenous communities.

Field crews will have access to an adequate supply of sanitizer, and, as part of this, the crew members will regularly sanitize their hands. Further to this: field crews will minimize use of shared tools and equipment, as practical (including the use of hand tools, electronic devices, pens, clipboards, and notepads); all work surfaces and equipment used in the course of work will be adequately cleaned and disinfected at the end of the work shift or more frequently when visibly soiled or used repeatedly; and cloth or surgical masks (as a minimum) will be worn by field crews at all times during the course of work and in transit to the work site in line with government direction.





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*Groundwater and Geochemistry Field Logistics Work Plan*

For all workers, regardless of specific exposure risks, it is always a good practice to:

- Frequently wash your hands with soap and water for at least 20 seconds, noting that, when soap and running water are unavailable, use of an alcohol-based hand rub with at least 60% alcohol is suggested.
- Avoid touching your eyes, nose, or mouth with unwashed hands.
- Avoid close contact with people who are sick.
- Cover your mouth and nose with your bent elbow or tissue when you cough or sneeze, and immediately dispose of the used tissue.
- Stay home if you are sick.





## 5. References

AECOM Canada Ltd. (AECOM), 2020:

Marten Falls First Nation Proposed Terms of Reference Marten Falls Community Access Road – Environmental Assessment

Impact Assessment Agency of Canada (IAAC), 2020:

Tailored Impact Statement Guidelines for the Marten Falls Community Access Road Project.

<https://iaac-aeic.gc.ca/050/documents/p80184/133937E.pdf>

Marten Falls First Nation Community Access Road Project (MFFN CAR), 2021:

Groundwater and Geochemistry Study Plan







MARTEN FALLS FIRST NATION  
**ALL SEASON COMMUNITY ACCESS ROAD**

Phone: 1-800-764-9114  Email: [info@martenfallsaccessroad.ca](mailto:info@martenfallsaccessroad.ca)  Web: <http://www.martenfallsaccessroad.ca>

