

ANNEX A - STATEMENT OF WORK (SOW)
Supply and Install Permanent Waterway Barrier (Safety Boom) at Latchford Dam

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1 SCOPE SUMMARY

The Contractor must design, supply, and install a permanent (i.e. ice-resistant) waterway barrier (safety boom) at Latchford Dam, and also supply and deliver spare parts to the dam office at the Timiskaming Dam.

The new waterway barrier will remain in place year-round and hence must be able to withstand environmental conditions in all four seasons including ice and debris loads.

The waterway barrier floats are expected to be log-shaped yellow floats tied together with shackles and weldless links or chains to form a continuous barrier with a short gap between individual floats. The chain of floats must contain a boat gate. All these are expected to be Commercial-Off-The-Shelf (COTS) components selected and assembled to suit expected loading.

The chain of floats are expected to be anchored at the river banks by mechanical or epoxy anchors drilled into rock, or by anchors bars cast within precast concrete blocks, or by some other means that achieves anchorage strong enough for the device and suitable for the geometry of the intended layout. An in-water anchor is also expected to be necessary, as the existing waterway barrier contains one.

The Contractor must warrant the waterway barrier materials and their installation for five years.

2 BACKGROUND

2.1 Dam Location

The Latchford Dam is located on the Montreal River, a tributary to Lake Timiskaming. The dam is within the Town of Latchford, located on Ontario Highway 11, between the Cities of North Bay and Timiskaming Shores (see Figures 1 and 2). The reservoir upstream of Latchford Dam is known as Bay Lake. The dam is new as of 2016, replacing an earlier structure.

The existing waterway barrier spans between a spit upstream of the dam and the opposite shore of Bay Lake (see Figure 2, which shows an older waterway barrier, but in the same location as the existing one). The existing waterway barrier was designed for summer use only, but was damaged by ice in the spring of 2018 when high water flows in the previous fall prevented its removal before freeze-up (see Figure 4).

2.2 Waterway Barrier Location

General location is shown in Figure 2. See site plan drawings for bathymetric and property information (Annex B).

Table 1: Access to Waterway Barrier at Latchford Dam

Access by Land	Left Bank	Right Bank
	Not really possible. Down steep and heavily wooded bank on private property. Would be difficult on foot, not possible for equipment.	Down spit of land upstream of dam in a wooded area right at water's edge. (see Figure 2). Equipment that can access here is about size of a pickup truck, then some 30-40 feet must be travelled by foot due to brush.
Access by Water	Boat launch at municipal marina within Town of Latchford. Figures 2 and 9. Contractor must make all arrangements to use marinas and boat ramps as required for boat access, including purchase of all permits as required.	

2.3 Environmental Conditions

The new waterway barrier must withstand the following environmental conditions:

- Temperature: -40°C to +32°C
- Ice thickness: 0.7 m
- Waves: Maximum 1m
- Wind: 72 km/h

2.4 Water Information

- 1) **Dam Design.**—The dam was designed for a maximum upstream water level of 278.05 m at discharge of 1040 m³/s (1:1000 year return period)
- 2) **Water Elevations.**—The following water elevations at the dams are taken from the rule curves.
 - Maximum 277.15 m
 - Minimum 275.65 m

Note that water elevations outside these limits may occasionally occur.

- 3) **Water Flows.**—The following flows are applicable for the different return periods:

Table 2: Statistical Flows at Latchford Dam

Return Period	Flow (m ³ /s)
2	291
5	409
10	490
20	570
50	674
100	751
1000	1040

Maximum recorded daily average flow is 854.2 m³/s (May 14, 1960)

3 GOVERNING DOCUMENTS

Contractor must comply with at least the following, though there may be others applicable depending on Contractor's chosen methods of work.

In the event of a conflict between the contents of this document and the applicable portions of the referenced documents, inform the Departmental Representative of the differences and request for a resolution.

3.1 Legal and Regulatory

- 1) Workplace Hazardous Materials Information System (WHMIS 2015)
- 2) **Federal Government**
 - a) *Canadian Navigable Waters Act* (R.S.C., 1985, c. N-22)
 - i) *Navigable Waters Works Regulations* C.R.C., c. 1232
 - b) Transport Canada Publications: TP 14542 *Cardinal Buoys and Special Buoys*
- 3) **Province Ontario**
 - a) *Environmental Protection Act*, RSO 1990, c E.19
 - i) O. Reg. 224/07 *Spill Prevention and Contingency Plans*
 - ii) O. Reg. 347 *General - Waste Management*, as amended
 - iii) R.R.O. 1990, Reg. 360 *Spills*
 - b) *Lakes and Rivers Improvement Act*, R.S.O. 1990, c. L.3
 - i) O. Reg. 454/96 *Construction*
 - c) *Occupational Health and Safety Act*, R.S.O. 1990, c. 0.1
 - i) O. Reg. 213/91 *Regulations for Construction Projects*
 - ii) O. Reg. 490/09 *Designated Substances*

- iii) R.R.O. 1990, Reg. 860 *Workplace Hazardous Materials Information System (WHMIS)*
- iv) If divers are to be used: O Reg 629/94 *Diving Operations*
- d) *Workplace Safety and Insurance Act*, 1997, S.O. 1997, c. 16, Sched. A,
 - i) R.R.O. 1990; Reg. 1101 *First Aid Requirements*

3.2 **Codes and Standards**

- 1) **Canadian Dam Association**
 - a) 2007 *Dam Safety Guidelines* (2013 Edition)
 - b) 2011 *Guidelines for Public Safety Around Dams*
 - c) Technical Bulletin: *Booms and Buoys for Public Safety Around Dams*
- 2) **ASTM International**
 - a) ASTM C-578 *Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation*
- 3) **Government of the United States of America**
 - a) US Federal Standard 595C *Colors Used in Government Procurement*
 - b) US Army Corps of Engineers, EM 1110-2-1612 *Ice Engineering*. Available online at:
https://www.publications.usace.army.mil/Portals/76/Users/182/86/2486/EM_1110-2-1612.pdf?ver=2019-03-07-121846-310

3.3 **Internal Documents**

- 1) The following will be provided to the Contractor after Award:
 - Details of Existing Anchors
 - Design Calculation Notes for Existing Anchors

4 **TECHNICAL REQUIREMENTS FOR WATERWAY BARRIER**

4.1 **General**

- 1) Provide only new materials
- 2) Assemble floating portions of waterway barrier as modular units made from Commercial Off-the-Shelf components.
- 3) Select safe working loads of all components of waterway barrier with a minimum factor of safety of 1.5
- 4) Products must be durable with demonstrated successful performance in similar applications at dams.

4.2 **Floats**

- 1) Floats must be able to transmit all loads to the external unit connectors.
- 2) Floats must maintain buoyancy even if outer casing is damaged or punctured.
- 3) Floats must be approximately circular in cross-section with recessed ribbing as required for strength. Hexagonal also acceptable.
- 4) **Dimensions**
 - a) Minimum diameter 410 mm
 - b) Length: minimum 610 mm
- 5) Colour: Safety Yellow #FS-13655 to US Federal Standard 595C *Colors Used in Government Procurement*.

- 6) On each float, on upstream sides of the float, provide embedded letter, black colour, minimum letter height 100mm high, Arial font, showing the following wording and graphics (see also Figure 5):



Depending on size and shape of float, text may be separated onto different floats.

- 7) Markings must be oriented so they will be upright and normally legible when unit is floating.
- 8) Ensure a minimum 305mm freeboard on floats when assembled and floating.

4.3 Connection Hardware Between Floats

- 1) For the purposes of future maintenance, connector assemblies must be able to be assembled by two people using common hand tools working from a small boat.
- 2) To allow relative movement between floats during wave action, connection assemblies must permit minimum movement of 90 degrees between floats in a horizontal and vertical plane.
- 3) All connection hardware: stainless steel or hot-dipped galvanized.
- 4) Connector shackles: Stainless steel, hot dipped galvanized steel. Safety type, with safety nut and cotter pin to prevent safety bolt from coming loose. Mark shackles with safe working loads.
- 5) Weldless Link Connectors or Connecting Chains: Stainless steel, hot dipped galvanized steel. Strength to suit site requirements. Length to provide an assembled distance between boom floats of maximum 460mm (18").

4.4 Boat Gate

Provide one boat gate in waterway barrier to allow Damkeepers to make temporary boat access through waterway barrier.

4.5 Connections to Anchors

- 1) Weldless links or chains, and safety shackles, as per connections between floats, and configured to suit anchors.
- 2) Select the length, diameter, and type of bolt and all connectors, plates, eyes, and other fittings required to fasten the waterway barrier to shore end anchor.
- 3) Maximum distance from end of last float to point of connection with shore anchor: approximately 4500mm; exact measurement to be determined in final design. This distance must be large enough to allow for deployment of waterway barrier but small enough that unauthorized vessels cannot get past the waterway barrier at the ends. The distance will be accepted by the Departmental Representative at Preliminary Design Review.

4.6 In-Channel Anchor

- 1) Provide at least one in-channel anchor to create a V-shaped waterway barrier roughly similar in configuration to the existing.
- 2) Locate in-channel anchor(s) in a configuration to promote self-rescue.

4.7 Shore End Anchors

- 1) **Definition.**—Anchors are the portion containing the gravity element (rock) and the fixed eye to which the float's connection hardware is to be fastened.

2) **Location**

- a) Locations of existing anchors are shown in Figure 3. Use same location as existing; see drawings. Constraints apply for position of anchors due to property ownership rights.
 - b) For Damkeeper access at all time, connection point must be above maximum water elevation by a minimum of 500mm.
- 3) **Gravity Elements - Anchor Blocks:** Use either existing boulders and install mechanical or epoxy anchors, or cast-in-place anchors, precast concrete, and all other materials as per Contractor's design.

4.8 **Buoy Integral to Waterway Barrier**

There is currently one integral buoy at the centre of the barrier. Assume integral buoy will be re-used with new barrier. Details of existing will be provided to successful bidder.

5 **SCOPE OF WORK**

5.1 **PHASE 1 Initial Submittals**

- 1) Submit the following preliminary documentation no later than 14 calendar days after Award. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
 - a) For the **Contractor's Team** (ref. Section 6.1.1 of this SOW)
 - i) **Project Manager's** name and contact information
 - ii) **Site Supervisor's** name and contact information
 - iii) Contractor's **FTP** site
 - iv) **Project Management Plan** and sub-documents (ref. Section 6.1.2 of this SOW)
 - b) **Health and Safety** submittals (ref. Section 6.3.3 of this SOW)
 - c) **Environmental Protection Plan** (ref. Section 6.4.3 of this SOW)
- 2) Departmental Representative will review and comment on submittals. Contractor must revise and resubmit. This process will continue until acceptable submittals have been made.
- 3) Contractor may not go to site until acceptable submittals have been received.
- 4) Other submittals are required during the course of the Contract; submit these when indicated under the various other sections of this SOW.

5.2 **PHASE 2 Design**

5.2.1 **Design Visit**

- 1) Make a trip to the Latchford Dam Site and confirm site conditions and overall approach for waterway barrier.
- 2) Discuss water and ice conditions at Latchford Dam with Damkeepers, some of whom have been working at this site for several years and have corporate memory of site conditions.
- 3) Obtain all field data and measurements that will be required for design.

5.2.2 **Design Criteria**

- 1) **Environmental Conditions.**—See Section 2.3 and 2.4 of this SOW.
- 2) **Number of Floats.**—Determine required length of string of floats to suit the desired “across the river” configuration approximately the same as the existing waterway barrier.
- 3) **Anchors and Fittings.**— Contractor to select specific type of anchors and also to design all details associated with it, but must submit proposed type and details to Departmental Representative for review and comment.

5.2.3 Design Submittals

- 1) **Nature of Departmental Representative's Review.**— Departmental Representative will review submittals to ensure that Contractor has not omitted anything critical or made any incorrect assumptions. Contractor remains fully responsible for design.
- 2) Departmental Representative will obtain required approvals from Transport Canada, Department of Fisheries and Oceans and Ontario Ministry of Natural Resources. Contractor is expected to provide input and technical information throughout approval process.
- 3) **Review Packages.**—Submit two packages during the design stage as follows:
 - a) **Initial Design Review Package.**—Submit the following after the initial fieldwork and when the design is about 33% complete:
 - i) *Report* from Design Visit. Include in above Report a summary of all design parameters, and an assessment of the adequacy of the existing rock anchors (if anchors are inadequate, provide estimate for cost of providing new ones).
 - ii) *Anchorage Design Submittals:* In above report, Contractor to submit Professional Engineer's signed and sealed drawings and calculations related to design of all anchors for waterway barriers. Canada will review to ensure that Contractor has not omitted anything critical or made any incorrect assumptions. Contractor remains responsible for design.
 - iii) *Product Data.*—For Commercial Off-the-Shelf (COTS) components provide product data demonstrating that these meet all technical requirements
 - b) **Critical Design Review Package.**—Submit the following when the design is 99% complete :
 - i) Final drawings and product data that will be used for installation.
 - ii) *Copies of Permits.*—Submit to Departmental Representative copies of the following:
 - (1) File *Notice of Project* (Form 0175) with the Ontario Government as required by O. Reg 213/91 *Regulations for Construction Projects*. Form can be filled-out online at the website here: <https://www.enop.labour.gov.on.ca/ENOPWeb/welcome.do?action=language&language=EN>
 - (2) If divers will be used during installation, file "*Notice of Diving Operation*" (Form 0069) with the Ontario Government as required by O. Reg. 629/94. Form can be filled-out online at the website here: <https://www.appmybizaccount.gov.on.ca/wps85/osb/public/eform?formNumber=016-0069E&lang=en>

5.3 PHASE 3 Fabricate and Install Waterway Barrier

- 1) **Schedule**
 - a) Install waterway barrier after June 20 and before July 31. Confirm these dates with current MNRF restrictions for in water works.
 - b) The unpredictability of future inflows creates a certain degree of uncertainty with regards to the exact date of boom installation. Confirm with Departmental Representative the week before anticipated mobilization to site to confirm that water conditions are still convenient for the work.

2) General Requirements for Work at Dam Site

- a) No advertising will be permitted on this project.
- b) Ample parking for Contractor is available adjacent to the dam building. Park on upstream side of building as much as possible, leaving downstream parking for the public, who use the dam site as a recreational facility.
- c) Follow approved SSHAHSP and EPP during all work on site.

3) Temporary Construction Facilities

- a) Provide toilet facilities and drinking water for all persons present during construction (there is no toilet at the Latchford Dam).
- b) Provide all electrical generators, lights, heat, and other temporary utilities necessary for the installation crew.
- c) Provide all trucks, cranes, barges, scaffolding, and ladders as needed for access.
- d) Provide on-site and off-site storage for materials and equipment; and provide all measures required for security of stored items.

4) Removals.—Remove existing waterway barrier, chains, and floats and deliver these to Timiskaming Dam Office.**5) Installation.**—Supply all materials, labour, and equipment required to fabricate and install waterway barrier designed in Phase 2 to accepted shop drawings.**6) Cleaning**

- a) Clean-up as work progresses.
- b) Upon completion of work, make good any damage to adjacent areas created during work and clean areas to a condition equal to that which previously existed.
- c) Remove all waste materials from site at end of installation Work.

7) Written Deliverables

- a) Submit exact longitude and latitude of waterway barrier within 15 days of their installation with sufficient detail to allow for publication of their positions and characteristics in Transport Canada marine notices (Notices to Mariners; Notices to Shipping) and for charting of the buoy(s) by the Canadian Hydrographic Service.
- b) Submit dimensioned drawings showing location and configuration of “across the river” waterway barrier end anchors and latitude and longitude of these and of the buoy anchors. This is required for Canada to update Notices of Mariners.

5.4 PHASE 4 Supply and Deliver Spare Parts

- 1) Supply the following spare parts and deliver these to the Timiskaming dam office at the following address

Timiskaming Dam Office
c/o Superintendent Dieudonné Nault
141 Hwy 63
Thorne ON P0H 2J0

- a) 4 Floats
 - b) 4 weldless links, or 4 lengths of connector chain
 - c) 4 of each size of shackles, complete with all fittings
- 2) Provide all blocking and pallets necessary for storing spare components outdoors year round.
 - 3) Delivery must take place during Damkeepers’ working hours which are 8 AM - 4 PM, Monday through Friday. Coordinate exact date and time with Departmental Representative no less than one week before expected delivery date.

6 ADMINISTRATIVE REQUIREMENTS

6.1 Project Management

6.1.1 Contractor's Team

- 1) Provide an FTP site for the exchange of large documents during the project.
- 2) Have on staff, or provide under sub-contract, all the skills required to perform work of this contract.
- 3) **Project Manager.**—Appoint a competent Project Manager to plan, direct, control, and make decisions for the Contractor and who must be the main point of contact between the Contractor and the Departmental Representative.
- 4) **Site Supervisor.**—For installation work at the dam site, appoint a Site Supervisor who is “competent” as defined in health and safety regulations, and who is an employee of the Contractor. Assign responsibility and obligation to Site Supervisor to stop Work when it is advisable to do so for reasons of health or safety. Departmental Representative may also stop Work for health and safety considerations.
- 5) **Engineer of Record.**—Designer of waterway barrier system (including anchors) must be a licensed Professional Engineer in the province of Ontario.
- 6) **Sub-Contractors.**—Sub-contracting is permitted. Contractor is responsible for coordinating work of his sub-contractors and for supervising them whenever they are on the dam site. Subcontractors must fulfil all the requirements contract.

6.1.2 Project Management Plan

- 1) Prepare and deliver a Project Management Plan describing how the Contractor intends to fulfil the project management requirements of this SOW. Include in the Project Management Plan a Work Breakdown Structure, a Project Schedule, a Risk Management Plan, and Installation Plan, and a Quality Control Plan.
 - a) Work Breakdown Structure will show the logical steps required to achieve the project objectives and must include the milestones of design, assembly, and installation at the dam site.
 - b) Project Schedule will be based on the Work Breakdown structure and shall be in bar-chart format.
 - c) Risk Management Plan will describe Contractor's procedures for identification, assessment, management, reporting, tracking, reduction and elimination of risks arising from the performance of Work.
 - d) Installation Plan will describe how the waterway barrier will be installed, integrated and tested at the dam site, including from where barges will be launched and how shore access will be accomplished.
 - e) Quality Control Plan will describe how the Contractor will ensure all technical requirements are met in delivering the waterway barrier.

6.1.3 Project Status Reports

Submit monthly Project Status Reports.

6.1.4 Project Meetings

- 1) The Contractor will take and distribute all minutes of meetings.
- 2) A kick-off meeting will be held a few days after submittal of documents from PHASE 1. The discussion must include, but not necessarily be limited to, a review of the project requirements and the Contractor's schedule and identification of items on critical path.

- 3) Progress Review Meetings during design phase will be held as mutually agreed between the Departmental Representative and the Contractor, but generally these will be monthly. The Contractor must issue Project Status Reports at least 3 days before the date of the Progress Review Meeting.
- 4) All Progress Review Meetings will be held by teleconference unless otherwise agreed between the Departmental Representative and the Contractor.

6.2 Health and Safety Requirements

6.2.1 Responsibility

- 1) When on the dam site, the Contractor is the “Constructor” to O. Reg. 213/91 and is therefore responsible for health and safety of own personnel and of sub-contractors (e.g. barge operator, etc.) and must comply with all requirements for health and safety in construction work for the province of Ontario.
- 2) Immediately address health and safety non-compliance issues, whether identified by Authority Having Jurisdiction, or by Departmental Representative.
- 3) Submit to the Departmental Representative, within twenty-four hours of occurrence, copies of all site visit reports and directions issued by Federal or Provincial health and safety inspector, and reports of all accidents, incidents, and/or near-misses. Submit copies Contractor’s own health and safety inspection reports.
- 4) If unforeseen or peculiar safety-related conditions arise during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Ontario and advise Departmental Representative both verbally and in writing.
- 5) Comply with Ontario O. Reg. 213 requirements for posting of health and safety related documents at job site. Recognizing that with no office trailer the only physical location where such posting is possible will likely be a tool trailer or such.
- 6) Provide all training and personal protective equipment required.
- 7) Ensure site has appropriate number of persons trained in CPR and First Aid according to Ontario Requirements.

6.2.2 Existing Known Safety Hazards

- 1) Currently known hazards and conditions at the dam site include, but are not necessarily limited to, the following:
 - a) Remote location
 - b) Weather hazards (hot, cold, precipitation)
 - c) Uneven ground, slippery surfaces, and tripping hazards
 - d) Working from boats and barges
 - e) Potential exposure to Covid-19
 - f) **Designated Substances.**—Concrete contains silica. Contractor is not expected to be in contact with any other Ontario “Designated Substances” during the work of this project.

6.2.3 Health & Safety Submittals

PSPC requires a variety of submittals proving Contractor compliance with legislated requirements. Hence, submit the following:

- 1) **Company information** (also submit for those sub-contractors who will be working at the dam site):
 - a) **Clearance Certificate** from the Workplace Safety Insurance Board (WSIB Ontario)
 - b) Company’s **Health & Safety Policy Statement** meeting the requirement of the Ontario Occupational Health and Safety Act.
 - c) Company’s **Occupational Health and Safety Program** meeting the requirements of the Ontario

Occupational Health and Safety Act.

- 2) **Employee information:** For all members of Contractor's team (both staff and sub-contractors) who will be on site for this Contract:
 - a) *Names* of all persons who will be present on site, both employees and sub-contractors.
 - b) *Proof of health & safety training* for all employees in a minimum of the following areas:
 - i. *Workplace Hazardous Materials Information System (WHMIS)*. All crewmembers on site must have this training. Products currently anticipated to be used at the site include lubricants.
 - ii. *First Aid and CPR*. Whenever a crew is on site, at least two employees must be trained in first aid and CPR.
 - iii. Additional training as required to address other specific hazards associated with this Contract (e.g. boat-related courses).
- 3) **Site-Specific Hazard Assessment and Health and Safety Plan (SSHAHSP).**—Develop written SSHAHSP based on hazard assessment before starting Work on site.
 - a) **Part 1 - Safety Hazard Assessment and Mitigation Measures.**—Consider all operations required to effect Work of this contract and identify safety hazards and their probability. Currently known hazards include, but are not necessarily limited to, the ones listed in 6.7.2 *Existing Known Safety Hazards* as well as other hazards Contractor foresees arising during Work.

For each safety hazard identified, describe measures and controls that will be used to protect employees and subcontract personnel and for ensuring compliance with Federal, Provincial, and Municipal laws and regulations. Include name of person(s) responsible for ensuring adherence to SSHAHSP.
 - b) **Part 2 - Emergency Contacts.**—This is simply a list of names, roles, and phone numbers, and must include all sub-contractors. Include name of nearest health facility and how they will be contacted during an emergency.
 - c) **Part 3 - Emergency Response Plan.**—Describe standard operating procedures specific to the project site to be implemented during emergencies.

6.2.4 Diving

The Contractor may elect to use divers to install some or all anchors. If so, then, the Contractor must submit the following a minimum of three weeks before diving operations are scheduled to start:

6.2.4.1 **Pre-Dive Submittals**

A separate hazard assessment and safety plan for the diving operations which, in addition to the above requirements in Section 6.2.3, must include the following:

1. *Names* of all divers and copies of their *Commercial Diver's Certification* from the Diver Certification Board of Canada and a *Diver's Medical Certificates* from the Canadian Association of Diving Contractors.
2. *Operational Plan* and *Contingency Plan*, to requirements of O. Reg.629. Note that known hazards associated with working near the dam include general hazards around dam structures as well as leakage through stoplogs and around gates that may impose on a diver water current forces.
3. *Safety Communications Plan* that must include contact information for all key team members including at minimum the Dive Supervisor and Standby Divers; ;
4. copy of employer's written *Notice of Diving* submitted to Ministry of Labour (provide at minimum 24 hours before starting diving operations);
5. confirmation of availability of an adequate first aid kit including equipment necessary to deliver 100% oxygen to an injured diver;
6. type, location, and time to deploy equipment required to immediately remove an unconscious diver from the water;
7. copy of *Safe Practices Manual* or *Safe Operations Manual* that describes safe diving procedures, pre- and post-

dive checklists, dive team assignments and responsibilities, emergency procedures in case of equipment failure and in case of injury or medical illness.

6.2.4.2 *During Diving Operations*

1. Contractor must ensure that:
 - a. a qualified diving supervisor is on site and authorized to act as required to ensure work is properly and safely carried out; and
 - b. all divers maintain an updated dive log and present this log upon request from the Departmental Representative.

6.3 Environmental Requirements

6.3.1 Related documents

- 1) This section is to be read in conjunction with attached Mitigation Measures Form (MMF) September 1, 2020.
- 2) For items covered in both sections, items from Mitigation Measures Form (MMF) September 1, 2020 will take precedence.

6.3.2 Responsibility

- 1) **Objective.**—The work must not release any deleterious substance into the environment nor may it disturb habitat and/or individual of any species.
- 2) Contractor is responsible for protection of the environment during all work at the dam site.
- 3) Immediately address environmental non-compliance issues, whether identified by authority having jurisdiction or by Departmental Representative. Departmental Representative may stop work if non-compliance of environmental requirements is not corrected.
- 4) Upon request, provide to Departmental Representative all additional evidence of compliance with municipal, provincial, and federal environmental laws and regulations.
- 5) Submit copies of all environmental incident and accident reports to Departmental Representative.
- 6) **Spills**
 - a) **Prevention.**—During all operations where there is a risk of spill, such as handling of greases and oils, take measures to prevent release of spills or leaks into environment. For example, provide drip container positioned to catch potential spills during re-fuelling operations, etc.
 - b) **Spill Response**
 - i) Provide appropriate spill kits, to be on-site and available at all times. Be prepared to mitigate, intercept, clean up, and dispose of spills or releases that may occur whether on land or water. Follow accepted spill procedures described in reviewed Site-Specific Environmental Protection Plan.
 - ii) Promptly report spills and releases potentially causing damage to environment to:
 - (1) Departmental Representative
 - (2) Ontario Ministry of the Environment SPILL Coordinator (Telephone No. 1-800-268-6060 website <http://www.ontario.ca/page/report-spill#!/>).
 - (3) Authority having jurisdiction or interest in spill or release including conservation authority, water supply authorities, drainage authority, road authority, and fire department.
 - (4) For spills greater than 5 litres, also report to the National Service Call Centre at 1-800-463-1850.

- iii) Further information on dangerous goods emergency clean-up and precautions including a list of companies performing this work can be obtained from Transport Canada's 24-hour number (613) 996-6666 collect.

6.3.3 Existing Known Environmental Hazards

- 1) Currently known environmental hazards at the dam site include, but are not necessarily limited to, the following:
 - a) Fuel and oil associated with boats, drills, and portable generators
 - b) Concrete and grout (potential, depending on type of anchors selected)
 - c) Epoxy adhesives for rock anchors (potential, depending on type of anchors selected)
 - d) Turbidity from underwater drilling
- 2) There may be other products involved, depending on Contractor's chosen materials and work procedures.

6.3.4 Submittals

- 1) Develop and submit an Environmental Protection Plan (EPP) for work to take place at the dam site. EPP is most conveniently presented in the form of a table.
- 2) Implement and enforce requirements of EPP whenever work takes place at the dam site.
- 3) Include name of person(s) responsible for ensuring adherence to EPP during time on site.
- 4) EPP must contain:
 - a) **Part 1 - Hazard Assessment and Mitigation Measures.**— Consider all operations required to effect Work of this contract and identify environmental hazards and their probability. Currently known hazards include, but are not necessarily limited to, the ones listed in 6.3.2 Existing Known Environmental Hazards as well as other hazards Contractor foresees arising during Work.

For each environmental hazard identified, describe measures and controls that will be used to protect environment and for ensuring compliance with Federal, Provincial, and Municipal laws and regulations. Include name of person(s) responsible for ensuring adherence to EPP.
 - b) **Part 2 - Environmental Emergency Response Plan.**—Describe equipment and procedures you will use in event of unforeseen spills and all other potential environmental emergencies.
 - c) **Part 3 - Waste Disposal.**—Identify methods and locations for hazardous and non-hazardous waste handling and disposal.

7 IMAGES

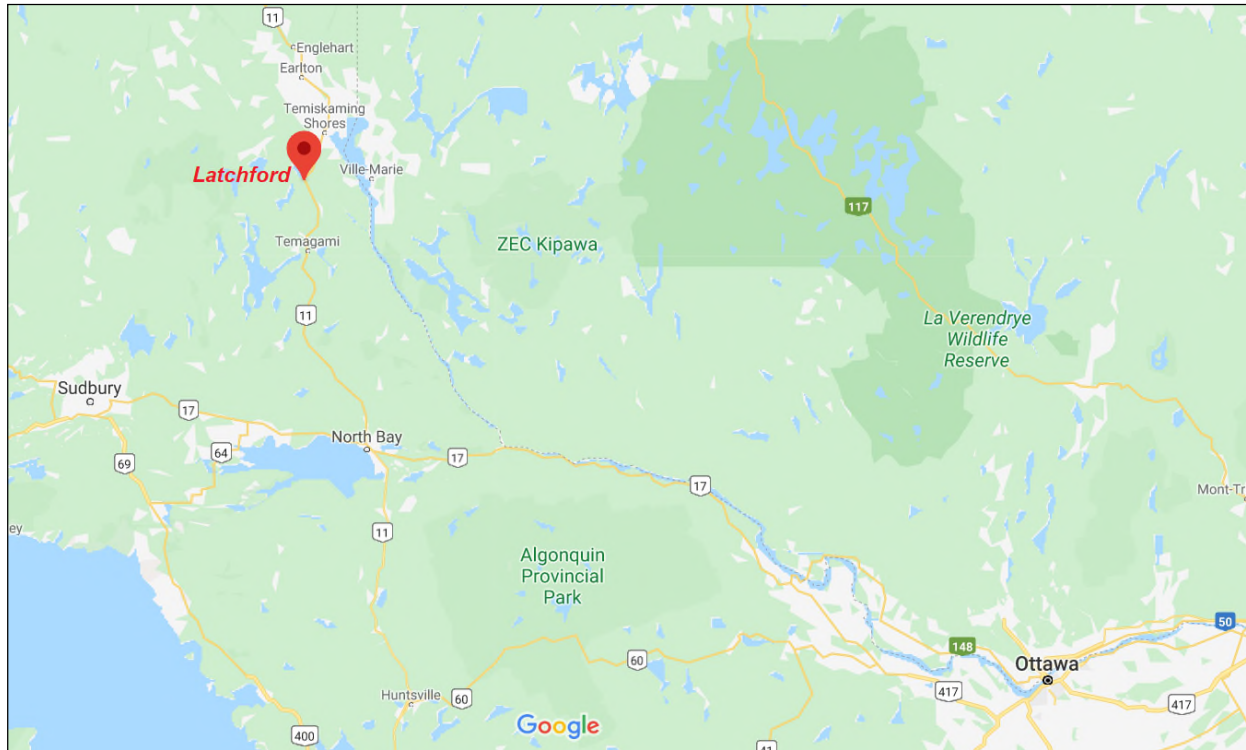


Figure 1: Location of the town of Latchford, Ontario



Figure 2: General view of Latchford Dam site.
See also Figure 9 for details of marina (NOTE: This is the previous dam, but the new configuration is not very different.)



Figure 3: Configuration of existing waterway barrier



Figure 4: View of existing waterway barrier, looking upstream from deck of Latchford Dam.



Figure 5: Close-up view of warning message and contact information on existing waterway barrier. These floats shown were those that had been damaged by ice.



Figure 6: Close-up view of waterway barrier in water, attached to an anchor rock.



Figure 7: Existing waterway barrier during its installation, looking from right shore towards spit.



Figure 8: Existing waterway barrier, in position, after ice damage occurred.

Note jog in centre of photo, which is splice between new floats and old floats installed after the damage (old floats are lower in the water)..



Figure 9: Boat launch at Marina in Town of Latchford, upstream of Latchford Dam.

See also Figure 2 which shows location of this marina with respect to the dam.



Figure 10: Ice conditions upstream of Latchford Dam (typical).
The spit of land upon which the left anchor is located is visible in the upper right of the photograph.