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SOLICITATION AMENDMENT MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

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Title - Sujet Advocate Engineer - TCEVC-PMW	
Solicitation No. - N° de l'invitation W6837-161692/A	Amendment No. - N° modif. 001
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File No. - N° de dossier fe176.W6837-161692	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2016-10-13	Time Zone Fuseau horaire Eastern Daylight Saving Time EDT
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Signature	Date

THIS AMENDMENT IS ISSUED TO ADDRESS THE FOLLOWING:

A) SI7 SECURITY REQUIREMENT

Delete:

1. At the date of bid closing, the following conditions must be met:
 - (a) the Proponent must hold a valid organization security clearance as indicated in Supplementary Conditions SC1;
 - (b) the Proponent's proposed individuals requiring access to classified or protected information, assets or sensitive work site(s) must meet the security requirement as indicated in Supplementary Conditions SC1;
 - (c) the Proponent must provide the name of all individuals who will require access to classified or protected information, assets or sensitive work sites.;
2. For additional information on security requirements, proponents should refer to the Canadian Industrial Security Directorate (CISD), Industrial Security Program of Public Works and Government Services Canada (<http://ssi-iss.tpsgc-pwgsc.gc.ca/index-eng.html>) website.

Insert:

1. At the date of bid closing, the following conditions must be met:
 - (a) the Proponent must hold a valid organization security clearance as indicated in Supplementary Conditions SC1;
2. For additional information on security requirements, proponents should refer to the Canadian Industrial Security Directorate (CISD), Industrial Security Program of Public Works and Government Services Canada (<http://ssi-iss.tpsgc-pwgsc.gc.ca/index-eng.html>) website.

B) SRE 3.1.5 Security Requirement

Delete:

At bid closing, the following conditions must be met:

- a) The Proponent (Prime Consultant) must hold a valid facility security clearance as indicated in Supplementary Conditions SC1. The Proponent must provide this security information as indicated in Appendix E.
- b) The Proponent's Key Personnel identified in SRE 3.1.2 must EACH hold a valid **RELIABILITY STATUS**, granted or approved by CISC/PWGSC as indicated in Supplementary Conditions SC1.

Security Requirement must be met at bid closing. If the required security information is not provided in Appendix E, Canada will inform the Proponent of a time frame within which to provide the information. Failure to comply with these requests will deem the proposal non-responsive.

Insert:

3.1.5 Security Requirement

At bid closing, the following conditions must be met:

- a) The Proponent (Prime Consultant) must hold a valid facility security clearance as indicated in Supplementary Conditions SC1. The Proponent must provide this security information as indicated in Appendix E.

Security Requirement must be met at bid closing. If the required security information is not provided in Appendix E, Canada will inform the Proponent of a time frame within which to provide the information. Failure to comply with these requests will deem the proposal non-responsive.

C) APPENDIX E

Delete: Appendix E

Insert: Appendix E – Revision 1

**APPENDIX E – Revision 1: INFORMATION RELATED TO SECURITY
REQUIREMENT
(APPENDIX D – SRCL)**

PROPONENT (Engineer)	
Legal Name of Firm:	
Complete Address:	
Telephone Number:	
CISD File Number:	
Organization Security Clearance:	

D) TERMS OF REFERENCE

Delete: Terms of Reference

Insert: Terms of Reference – Revision 1

**TERMS OF REFERENCE - Revision 1
ADVOCATE ENGINEER**

Engineering and Consulting Services

For the

**TCE PLUME MANAGEMENT (WEST) –
VALCARTIER PROJECT (TCEVC-PMW PROJECT)**

September 2016

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1 DEFINITIONS AND ABBREVIATIONS

In these Terms of Reference, the terms or abbreviations below have the following meanings:

<i>Base Valcartier</i>	2nd Canadian Division Support Base Valcartier
<i>AE</i>	Advocate Engineer The entity that will be identified in this mandate to perform the required services
<i>CEAEQ</i>	Centre d'expertise en analyse environnementale du Québec
<i>DFO</i>	Department of Fisheries and Oceans Canada
<i>DND</i>	Department of National Defence/Her Majesty the Queen in Right of Canada/Canada/Departmental representative
<i>Documents</i>	Includes, but is not limited to, studies, reports, deliverables, minutes, data and databases, emails, proposals, approaches, drawings, maps, photographs, and videos, as well as any other printed or electronic information, regardless of format and origin, provided to the AE by DND and those generated by the AE
<i>DRDC</i>	Defence Research and Development Canada
<i>EC</i>	Environment Canada
<i>HC</i>	Health Canada
<i>IE</i>	Independent Engineer
<i>Key personnel</i>	Members of the AE's personnel whose roles and responsibilities are critical for completion of the work. These are individuals who have a direct and significant involvement in the performance of the mandate work.
<i>Mandate</i>	Also means contract
<i>MDDELCC</i>	Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques du Québec
<i>MFFP</i>	Ministère des Forêts, de la Faune et des Parcs du Québec
<i>MTQ</i>	Ministère des Transports du Québec
<i>NRCan</i>	Natural Resources Canada
<i>P&T System</i>	Pumping and treatment system, consisting of all the components of the P&T System, including, but not limited to, all infrastructure, equipment, treatment processes, control instruments and other accessory or related works or equipment.
<i>P&T System - Construction phase</i>	Includes the construction of all infrastructure and other facilities required by the P & T System, including commissioning.
<i>P&T System – Design phase</i>	Designates all the activities required prior to construction of the P&T System, including those associated with the preparation of various programs and manuals, including those related to commissioning (i.e. start-up of the system in a manner that the stated objectives are attained in terms of effectiveness in intercepting the TCE plume and the quality of the effluent), environmental monitoring, operation and maintenance, and quality assurance.
<i>P&T System – Operational phase</i>	Includes all the activities required during the run-in period that follows the commissioning of the P&T System, and operation of the P&T System for 15 years, including maintenance.

<i>PP</i>	Private partner
<i>PPP</i>	Public-private partnership
<i>PWGSC</i>	Public Works and Government Services Canada
<i>RCM</i>	Regional County Municipality
<i>RFP</i>	Request for Proposals
<i>RFQ</i>	Request for Qualifications
<i>Sites</i>	Various locations in the Valcartier area, on or outside DND land, where visits, inspections, activities or field work associated with the TCEVC-PMW Project will be carried out, including, but not limited to, surveys of the components of the natural environment and work sites associated with the construction and implementation of all the infrastructure and other facilities required for the P&T System.
<i>SPJCP</i>	Société de la piste Jacques-Cartier/Portneuf
<i>TCE</i>	Trichloroethylene

2 **BACKGROUND**

2.1 ***Issue of TCE contamination in Valcartier***

Practices related to the use of trichloroethylene (TCE) by the federal government and private sector organizations between 1940 and 1990 in the Valcartier area resulted in the presence of TCE dissolved in the groundwater.

The presence of TCE in the groundwater in the Valcartier area affects a large territory that includes various municipalities as well as federal, provincial, municipal and private land. The TCE plume, which originates on DND property as well as on an adjacent private property, is approximately 5 km long, nearly 750 m wide and 25 to 35 m thick, 10 m of which are below ground level. The direction of flow of TCE-contaminated groundwater is westwards (Municipality of Shannon and Jacques-Cartier River) as well as eastwards (Quebec City and Nelson River).

The TCE contamination issue has resulted in and continues to give rise to various legal actions against the Government of Canada, including a class action lawsuit, and has also attracted sustained political, regulatory and media attention for several years.

In 2003, Environment Canada (EC) issued a Directive to DND under subsection 38(6) of the *Fisheries Act* (FA) concerning the occurrence or serious and imminent danger of occurrence of irregular deposits of a deleterious substance, namely TCE, in water frequented by fish, in this case the Jacques-Cartier River. The Directive issued to DND orders DND, in particular, to take the necessary measures to prevent deposits from occurring and to mitigate or remedy any harm that might occur as a result of any such deposit.

The TCE issue in Valcartier involves many private and public stakeholders. At DND, this issue is being managed through an Omnibus approach, which encompasses all the management requirements and obligations of the Department and includes various separate, but interrelated, projects.

2.2 ***TCEVC-PMW Project***

The first project that DND plans to conduct in the context of the DND Omnibus approach is the TCE Plume Management (West) - Valcartier (TCEVC-PMW) Project. The TCEVC-PMW Project includes the design, construction, operation for at least 15 years (including restoration on a life cycle basis) and maintenance of a pumping and treatment system (P&T System), in order to intercept the TCE plume that flows in the groundwater under DND property in the direction of the Jacques-Cartier River.

The TCEVC-PMW Project is one of the elements of DND's Omnibus approach, and is one of the actions that DND has taken in response to the 2003 Directive. The Project will be carried out within the framework of a Public and Private Partnership (PPP) and an envelope of \$40 million has been approved for its implementation.

2.3 ***Location of the TCEVC-PMW Project***

The TCEVC-PMW Project will be carried out in the Valcartier area of Quebec.

For the purposes of the TCEVC-PMW Project, DND defines the Valcartier area as being located 30 km to the northwest of downtown Quebec City, between the Jacques-Cartier River to the west and the Nelson River to the east. It is bordered by the Keable Mountains to the north, Brillant to the east and Rolland-Auger to the south.

Two DND administrative entities share the DND property in Valcartier: the 2nd^{Canadian} Division Support Base Valcartier (Base Valcartier) and Defence Research and Development Canada (DRDC Valcartier).

Two municipalities border DND lands, namely Quebec City to the east (La Haute-St-Charles Borough) and the Municipality of Shannon to the west.

The private property from which part of the TCE-contaminated plume originates is located to the south of Base Valcartier and DRDC Valcartier.

A map providing an overview of the area affected by the TCE plume is provided in Annex A.

2.4 ***Components of the TCEVC-PMW Project***

The TCEVC-PMW Project comprises the following key components, which are detailed in Table 1.

The required infrastructure will be located on various sites on federal, provincial and municipal properties. A map showing the area concerned by the TCEVC-PMW Project and the locations of the Project components is provided in Annex B.

It should also be borne in mind that the required infrastructure may include the construction and/or use of access roads and/or right of ways and/or easements for the entire duration of the TCEVC-PMW Project. DND will negotiate access agreements with the property owners concerned. The same is true regarding authorizations to use sites that are not federal government property.

Table 1 Nature and location of P&T System components

Component	Location
<p><i>Hydraulic barrier</i></p> <ul style="list-style-type: none"> • Theoretical design; • The theoretical design includes numerical hydrogeological modelling that will be used to determine the location of the pumping and observation wells, confirm the required pumping flow rate and determine all the other parameters required for complete interception of the TCE plume, and the associated monitoring; • The effectiveness of the hydraulic barrier will be verified in the field following installation. 	<ul style="list-style-type: none"> • Not applicable.
<p><i>System for pumping the groundwater to be treated</i></p> <ul style="list-style-type: none"> • To be constructed; • Includes, but is not limited to, a certain number of pumping wells, with pumps, mechanical equipment, measuring equipment, well protection enclosures, etc.; • The number and locations of the pumping wells will be determined during the design of the hydraulic barrier. 	<ul style="list-style-type: none"> • Various sites on federal (DND) land located within a defined perimeter
<p><i>Observation wells</i></p> <ul style="list-style-type: none"> • Existing and to be constructed; • Used to monitor and confirm the effectiveness of the hydraulic barrier by conducting piezometric surveys; • Also used to monitor the quality of groundwater in the TCE plume; • The number and locations of the observation wells will be determined during the design of the hydraulic barrier. The locations of the observation wells may be more remote compared to the pumping wells. 	<ul style="list-style-type: none"> • Various sites located within an extended perimeter that includes properties belonging to different owners, including the federal government (DND) and possibly the provincial government (MTQ)

Component	Location
<i>Pipe to carry the pumped water to the treatment station</i> <ul style="list-style-type: none"> To be constructed; Includes an underground aqueduct with sluice gates. 	<ul style="list-style-type: none"> Located mainly on municipal land (Shannon) Remaining portion on federal (DND) land
<i>Pumped water treatment station</i> <ul style="list-style-type: none"> To be constructed; The type of treatment is not determined in advance, and must be proposed by the company awarded the PPP mandate; Includes, but is not limited to, a complete heated and ventilated building with electricity, control system, building mechanics and process mechanics, a wash-up room including toilet, sink, eye-wash station and shower, a chemical storage room (if required), a closed office, a site laboratory and operators' office, and an additional space for changes/additions to the treatment system in the event that other parameters must be monitored and treated or in the event that the pumping flow rate must be increased. 	<ul style="list-style-type: none"> Federal (DND) land
<i>Management of the treated water for disposal in the Jacques-Cartier River</i> <ul style="list-style-type: none"> To be constructed; Includes an underground discharge pipe and discharge infrastructure on the bank or at the bottom of the river. 	<ul style="list-style-type: none"> Various sites on municipal or provincial lands <ul style="list-style-type: none"> Under the Jacques-Cartier/Portneuf bike path which is located on land owned by the MTQ; Municipality of Shannon; Bank and bottom of the Jacques-Cartier River (MDDELCC)

2.5 ***Particular challenges associated with implementation of the TCEVC-PMW Project***

Implementation of the TCEVC-PMW Project involves carrying out work and operations in varied environments, including, but not limited to:

- Built-up urban sites, including highways, various access roads, businesses and residences;
- Undeveloped urban sites;
- Natural sites consisting of forests and/or wooded areas;
- Recreation and tourism sites, including the Jacques-Cartier/Portneuf bike path;

- A berm along the banks of the Jacques-Cartier River that includes other infrastructure (storm water drainage system and channels);
- The banks of the Jacques-Cartier River; and
- The water body of the Jacques-Cartier River.

This is in addition to the fact that many of the above-mentioned environments are not located on federal lands.

Residential and industrial development projects and work related to remediation of TCE-contaminated groundwater in the same area are in progress or planned for the near future.

2.6 *Previous studies and work carried out under the TCEVC-PMW Project*

Following the discovery in 1997 of TCE contamination in Valcartier's groundwater, DND undertook various environmental studies and investigations in an effort to define and gain a better understanding of this problem and to evaluate the feasibility of the various management options.

The study and investigation phases, which ended in 2010, took into account the knowledge requirements necessary to respond to the EC Directive, and included, without limitation, the following subjects:

- Detailed determination of the geology and hydro stratigraphy of the area;
- Characterization and modelling of the presence of TCE (origin, extent, quantity, behaviour and changes over time);
- Assessments of the applicability to the Valcartier area of various technologies for remediation of TCE-contaminated groundwater, including pilot testing and a technical and economic analysis of a pumping and treatment option.

Regarding the westward flow of TCE, which is the subject of the EC Directive, the results of the investigations and studies have shown in particular that:

- The environment is complex, including spatial variability of the hydrogeological conditions and of the TCE concentrations in groundwater;
- Most of the TCE-containing groundwater appears to come from the private property adjacent to DND land, and all of this water flows in a westerly direction under DND land before reaching the Municipality of Shannon in the direction of the Jacques-Cartier River;
- A permanent solution to the problem of TCE contamination of groundwater in the Valcartier area, including halting TCE discharges into the Jacques-Cartier River, as DND is required to do pursuant to the EC Directive, cannot be achieved as long as the TCE-containing groundwater originating from the property adjacent to DND land is not managed;
- An option to manage the problem by pumping and treatment is the most promising intervention method among the options evaluated for intercepting the plume of dissolved TCE flowing westward toward the Jacques-Cartier River.

In addition to the study of the problem, preparatory work has already been carried for implementation of the TCEVC-PMW Project. The following main additional studies have been carried out by DND in preparation for the PPP:

- Preliminary environmental assessment and collection of data on the receiving environment;
- Environmental characterization and geotechnical study;
- Hydraulic study of the existing storm water pipe on MTQ land which crosses the Jacques-Cartier/Portneuf bike path ;
- Environmental characterization of drinking water wells P4/P7, pumping and geochemical testing – Base Valcartier;
- Numerical modelling work on groundwater flow in the Valcartier area, both steady state and transient.

3 ROLE OF THE ADVOCATE ENGINEER

Implementation of the TCEVC-PMW Project in a PPP context requires an integrated multidisciplinary team composed of DND, PWGSC, PPP Canada, Justice Canada and several private firms working in various fields (scientific, technical, financial and legal).

DND is the authority responsible for the TCEVC-PMW Project, which includes, but is not limited to, its planning and implementation. PWGSC is acting as the mandating authority and PPP Canada is lending its support concerning the PPP-related aspects.

Three (3) private firms will play a central role in implementing the TCEVC-PMW Project, i.e. the Private Partner (PP), the Independent Engineer (IE) and the Advocate Engineer (AE). The services for which each firm will be responsible are interrelated and are described briefly below.

a) Private Partner (PP)

Under the mandate awarded to it, the PP will be responsible for:

- The design and construction of the P&T System;
- Operation and maintenance of the P&T System for at least 15 years;
- Transfer of the facilities to DND at the end of 15 years;
- Implementation and monitoring of the measures for mitigating the environmental effects.

b) Independent Engineer (IE)

The services of an IE will be retained concurrently with the PP. The IE will report to the PP and DND under a tripartite agreement. The IE is independent, because it does not represent any of the parties to the mandate, and must act independently and equitably toward all the parties within the limits of the mandate. The role of the IE is to attest to compliance and the fulfilment of the mutual obligations under the mandate. For example, the IE will be responsible for:

- Reviewing, commenting on and attesting to compliance of all the PP design work;
- Monitoring the progress and compliance of the construction work;
- Attesting to the certificates of substantial performance and final completion of all the PP deliverables:
- Reviewing all proposed changes to the facilities and operations, including to the maintenance plan;
- Conducting inspections during the operating period and providing inspection reports, including verification of repairs, modifications and improvements made to the facilities.

c) Advocate Engineer (AE)

Unlike the IE, the AE reports exclusively to DND. The AE assumes various roles in order to advise DND and protect its interests in relation with the implementation of the TCEVC-PMW Project.

For example, the AE will be responsible for:

- Assisting DND in fulfilling its procurement and contractual obligations toward the PP and the IE;
- Providing scientific and technical advice to DND.

The services required of the AE are described in section 4 *Services required* and section 5 *Detailed description of the services required*.

4 SERVICES REQUIRED

The services required of the AE are divided into four (4) components and ten (10) separate services, which represent different stages in the implementation of the TCEVC-PMW Project extending over a multi-year period. The objective, the description of the requirement and the tasks to be performed for each of the components and services are described in section 5 *Detailed description of the services required*.

At any time, DND can decide whether the components and their services will be carried out in full, in part, or will not be required.

Before initiating activities in connection with a service, the AE must receive authorization from DND, as described in section 7.28 *Authorization to begin a service*.

If, during the performance of a service, the AE wishes or must modify the work plan that was submitted for that service, the AE must receive prior authorization by DND.

If, during the performance of a service, it is necessary to carry out additional studies or work, the AE will first submit a revised work proposal, justify the changes and obtain authorization from DND.

The AE is expected to work in close collaboration with DND for a total period estimated at two (2) years following commissioning of the P&T System.

At all times, the AE will also take into account the fact that implementation of the TCEVC-PMW Project involves a large number of private and public stakeholders, including several levels of government. Different stages of information sharing, consultations and approvals external to DND must be considered. This situation may result in uncertainty concerning the exact nature of certain work required to be carried out under the TCEVC-PMW Project, result in unforeseen constraints and requirements, and make it difficult to draw up and meet timetables, which to some extent may be beyond DND's control.

5 DETAILED DESCRIPTION OF THE SERVICES REQUIRED

5.1 *Component 1 Preparatory phase for the PPP call for tenders*

The goal of the Preparatory phase is to obtain and complete the information and studies required in preparation for the PPP call for tenders.

This phase includes the performance of two services, i.e. the environmental assessment and the drafting of the technical specifications. These two services are complementary and have some degree of reciprocal impact.

5.1.1 *C1S1 Environmental assessment*

Pursuant to section 67 of the *Canadian Environmental Assessment Act*, 2012 (CEAA 2012), a federal authority may not permit a project to be carried out on federal lands, or exercise any power or perform any duty or function conferred on it under any other Act of Parliament, unless the authority determines that the carrying out of the project is not likely to cause significant adverse environmental effects.

The AE will carry out the environmental assessment for the TCEVC-PMW Project as well as all the studies on the receiving environment and the site studies required for the purposes of carrying out this assessment.

The activities associated with the environmental assessment must be carried out in compliance with the applicable DND requirements and requests. DND is also responsible for signing off on the environmental assessment.

The DND Directive on Environmental Assessment as well as the Environmental Effects Determination (EED) Report set out the elements that must be reviewed.

Although the TCEVC-PMW Project is not subject to an environment assessment according to the requirements of the Quebec government, nor to a certificate of authorization, the provincial legislative framework must be taken into consideration.

The environmental assessment will assess the TCEVC-PMW Project in its conceptual state as developed by the AE under service *C2S1 Technical specifications*.

The mitigation and follow-up measures identified during the environmental assessment will be incorporated into the technical specifications prepared by the AE under service *C1S2 Technical specifications*.

5.1.1.1 Needs assessment

The TCEVC-PMW Project has already been the subject of an environmental assessment and associated studies concerning the receiving environment. However, these studies and this assessment are incomplete and there are certain gaps in the information they provide.

The objective of this service is to correct these gaps and complete the required information, not to redo the work that has already been done. The previous studies and environmental assessment will be provided to the AE for this purpose.

As information only, DND will also provide guidance and inform the AE of certain gaps to be corrected and specific requirements for this environmental assessment. However, any information provided by DND must not be considered limiting or complete.

The tasks to be carried out by the AE include, but are not limited to, the following:

- Review the studies and other information made available to it by DND in order to determine the scope and exact nature of the work required;
- Determine whether additional studies might be required in order to document and characterize the receiving environments affected by implementation of the TCEVC-PMW Project. A field visit may be required so that the AE can properly assess the needs;
- Consider the specific needs concerning the request for review of the TCEVC-PMW Project submitted to DFO, as detailed in section 5.1.2.4 *Request for review of the project submitted to DFO*;
- Ensure that all the required elements are adequately covered and that the methods and techniques employed for the characterization of the environment are described and are scientifically defensible;
- Incorporate, use or modify, insofar as possible, any information in the documents made available to it;
- Document the needs assessment as well as the nature of the work required and the methodology proposed to conduct the environmental assessment;
- Submit the needs assessment as well as a description of the work required and the proposed methodology for DND approval before starting the environmental assessment.

5.1.1.2 Expertise of other federal and provincial departments and municipal entities

The AE must or may have to consult the government departments and entities listed below for the purposes of carrying out the environmental assessment.

Table 2 List of government departments and other entities with relevant expertise for the environmental assessment

Federal	Areas of expertise (including without limitation)
EC	<ul style="list-style-type: none"> • Surface water and groundwater quality • Air quality • Management of contaminated soils • Sediment management • Migratory birds and their habitats • Species at risk • Wetlands
DND	<ul style="list-style-type: none"> • Activities on and use of DND sites • Species at risk and protected species • Groundwater and surface water quality • Soil quality and geology • Cutting of trees and vegetation • Neighbouring projects • Consultations with Aboriginal peoples • Other (consult DND)
DFO	<ul style="list-style-type: none"> • Fish species at risk • Fish and fish habitat • Fish habitat compensation
Health Canada	<ul style="list-style-type: none"> • Quality of drinking water and recreational water
NRCan - Canadian Wildlife Service	<ul style="list-style-type: none"> • Forest management • Tree cutting
Transport Canada	<ul style="list-style-type: none"> • Navigation
Provincial	
MDDELCC	<ul style="list-style-type: none"> • Prevention or reduction of the contamination of water, air and soil • Quality of drinking water and groundwater • Biodiversity conservation • Waste management • Protection of ecosystems and biodiversity - protected areas, and protection of threatened or vulnerable plant species and their habitats • Protection of lakeshores, riverbanks and littoral zones
MFFP	<ul style="list-style-type: none"> • Forest management • Protection of wildlife and wildlife habitats
MTQ	<ul style="list-style-type: none"> • Development or reconstruction projects • Constraints associated with the construction and operation of infrastructure under the Jacques-Cartier/ Portneuf bike path

Federal	Areas of expertise (including without limitation)
Municipal/Regional	
Municipality of Shannon	<ul style="list-style-type: none"> • Constraints associated with infrastructure construction and operation on municipal lands • Surrounding projects • Traffic • Noise • Zoning
Jacques-Cartier RCM	<ul style="list-style-type: none"> • Land use and development plans • Geographic information (GIS) system and maps of the area and of the local municipalities in the area • Flood-risk areas • Watercourse management • Protection of water sources • Recreational and tourism uses • Development projects
SPJCP	<ul style="list-style-type: none"> • Management and maintenance of the Jacques-Cartier/Portneuf cycling path • Recreational and tourism uses

5.1.1.3 Request for review of the TCEVC-PMW Project submitted to DFO

The *Fisheries Act* requires that projects avoid causing serious harm to fish, unless authorized to do so by the Minister of Fisheries and Oceans Canada. This applies to work carried out in or near a body of water frequented by fish that are part of or that support a commercial, recreational or Aboriginal fishery. Protection of fish and fish habitat requires that efforts be made to avoid, mitigate or offset harm.

A DFO review of the discharge of treated water into the Jacques-Cartier River associated with the TCEVC-PMW Project is required to determine whether the Project might cause serious harm to fish.

In such a case, and if this harm cannot be avoided or mitigated, authorization from DFO will be required in order to allow the TCEVC-PMW Project to proceed according to the approach adopted at this time.

DND has already submitted a request to DFO for review of the discharge of treated water into the Jacques-Cartier River associated with the TCEVC-PMW Project. However, since this request was incomplete, DFO was unable to assess it.

The tasks to be carried out by the AE include, but are not limited to, the following:

- Read the review request that was submitted to DFO and the response received;
- Determine the nature of the information gaps identified;
- Determine the nature of the information and/or studies required in order to complete the request;

- Complete and/or amend the request for review submitted to DFO;
- Prepare answers to DFO's requests during the review process until a definitive answer is obtained from DFO;
- Incorporate in the environmental assessment the results of the DFO review and any measures to protect fish and fish habitat that may be required.

DND could ask the AE to participate in various meetings and discussions required with DFO.

5.1.1.4 Scope of the environmental assessment

5.1.1.4.1 *Elements to be reviewed*

In addition to the aspects described in section 2.5 *Particular challenges associated with implementation of the TCEVC-PMW Project*, the scoping of the environmental assessment will be carried out in a context where certain aspects of the TCEVC-PMW Project, such as the type of water treatment process after pumping, are not yet known. These uncertainties must be taken into account by the AE.

The complete life cycle of the TCEVC-PMW Project must also be considered, including:

- Site preparation in anticipation of the construction of the required infrastructure;
- Construction of the infrastructure over a period of approximately one year;
- Operation and maintenance of the P&T System and repair of infrastructure of the TCEVC-PMW Project for 15 years.

The scope must also specify any other aspects that are excluded. For example, the decommissioning, transfer and/or dismantling of the P&T System will not be considered.

The AE will:

- Determine and draft the scope of the environmental assessment;
- Document and justify its choices;
- Submit the proposed scope to DND for approval in order to ensure that this scope meets DND requirements before proceeding with the environmental assessment.

5.1.1.4.2 *Scope of the elements to be reviewed*

5.1.1.4.2.1 Temporal boundaries

The temporal boundaries define the time period over which the adverse environmental effects of the TCEVC-PMW Project will be considered.

The temporal boundaries established for the environmental assessment of the elements of the TCEVC-PMW Project will include site preparation, construction, operation and maintenance of the P&T System for 15 years.

The continued operation of the P&T System after 15 years and the possible dismantling of the associated facilities are excluded.

5.1.1.4.2.2 Spatial boundaries

The spatial boundaries established for the environmental assessment will include the geographical areas where it would be reasonable to anticipate that the TCEVC-PMW Project would have environmental effects, or that might be relevant to assessing cumulative environmental effects.

5.1.1.4.2.3 Changes that implementation of the project may cause to the environment

In addition to the valued components listed in the EED, the AE will consider the elements listed in Table 2.

Table 2 Additional elements to be reviewed for certain valued components

Component	Additional elements
Physical	<ul style="list-style-type: none"> • Surface water and groundwater quality • Hydrology • Presence of ice in the Jacques-Cartier River • Current measurement and discharge mixing zones • Sediment quality • Soil quality
Biological	<ul style="list-style-type: none"> • Fish habitat • Protected areas - migratory birds • Plant, wildlife and aquatic species at risk • Herpetofauna
Social and cultural	<ul style="list-style-type: none"> • Navigation • Esthetic and visual aspects • Quality of life

Consultation with the federal, provincial and municipal authorities as well as with other interested parties, the public and First Nations during the environmental assessment could lead to the addition of other components of the environment.

5.1.1.4.2.4 Assessment of the effects of the environment on the project

The environmental assessment must take into account how the environment could adversely affect the TCEVC-PMW Project.

Effects of the environment on the project may occur, such as earthquakes or extreme weather conditions. Aspects of the TCEVC-PMW Project that could potentially be affected by the environment include, without limitation:

- Pumping of groundwater
 - Variation in the groundwater level in the area that will be affected by the pumping due to natural causes;
- Structures for the discharge of treated water
 - Variations in the flow of the Jacques-Cartier River, including periods of high water and low water, and extreme precipitation or periods of drought;
 - Presence and movement of ice on the Jacques-Cartier River;
 - Movement of sediments in the Jacques-Cartier River near the treated water discharge area resulting from natural causes or human activities;
 - Flooding of the banks of the Jacques-Cartier River in the area where the treated water discharge infrastructure will be located;
 - Blockage of the discharge structure caused by natural or anthropogenic factors.

The AE must consider all plausible environmental conditions and not only events that are likely to occur regularly.

The process to be adopted for carrying out this part of the assessment is similar to the process that will be used for the assessment of the effects of the TCEVC-PMW Project on the environment.

5.1.1.4.2.5 Assessment of accidents and malfunctions

The AE must examine the accidents and malfunctions that could occur in connection with the TCEVC-PMW Project, so that the associated environmental effects will be taken into account in the environmental assessment.

The information provided will include a description of:

- Specific accidents and malfunctions that have a reasonable probability of occurring during the various phases of the TCEVC-PMW Project, including an explanation of how these incidents were identified for the purposes of this environmental assessment;
- The source, quantity, mechanism, flow, form and characteristics of contaminants and other materials (physical and chemical) that could be released into the surrounding environment in the event of an accident or malfunction; and
- All emergency plans or clean-up or restoration activities in the surrounding environment that could be required in the event of an accident or malfunction, or immediately thereafter.

Special attention must be paid to vulnerable components of the environment that could be affected by an accident or malfunction and could have more serious consequences (for example, proximity to communities, natural sites of special value).

5.1.1.4.2.6 Study of probable cumulative effects

Cumulative effects are residual effects of the TCEVC-PMW Project on the environment (i.e. that persist even after mitigation measures have been put in place) combined with the cumulative effects of past, present and future projects or activities. They may also result from a combination of various effects of the Project on the same environmental component. For the purposes of this assessment, the effect of the TCEVC-PMW Project and the effect of other projects and activities that have been or will be carried out and whose effects will be added to the effects of the TCEVC-PMW Project (at the same time and in the same location), will be considered.

All reasonably foreseeable projects will be considered, especially those that contribute to cumulative effects on the valued ecosystem components, particularly water quality, vegetation, wildlife habitats, air quality and noise, because these are the environmental factors that are most often impacted by the effects of multiple projects or cumulative effects.

This assessment of cumulative environmental effects will be based on the 1999 reference guide entitled *Cumulative Effects Assessment Practitioners' Guide*, issued by the Canadian Environmental Assessment Agency.

5.1.1.5 Environmental assessment approach

Since environmental assessment is a planning tool, it is normal that the technical details of the TCEVC-PMW Project may not be finalized while it is being carried out.

In connection with the TCEVC-PMW Project, environmental assessment by objectives and adaptive management are mechanisms that will be incorporated into the environmental assessment in order to develop mitigation and follow-up measures that are effective and adapted to a context where certain technical details have not yet been finalized.

5.1.1.5.1 *Environmental assessment by objectives*

Since at this stage of the TCEVC-PMW Project it will be difficult to develop very specific mitigation and follow-up measures, they will be expressed as objectives rather than specific parameters. This approach is called environmental assessment by objectives.

The details of the mitigation measures will be specified in the environmental follow-up program once the final plans and specifications for the TCEVC-PMW Project have been completed by the PP.

5.1.1.5.2 *Adaptive management*

Adaptive management is an approach that could be applied in the context of this environmental assessment. Subsection 38(5) of the *Canadian Environmental Assessment Act* stipulates as follows:

The results of follow-up programs may be used for implementing adaptive management measures or for improving the quality of future environmental assessments.

Owing to factors such as the complexity of ecosystems and the difficulty of predicting the details of future developments, all environmental assessments involve some degree of uncertainty with respect to determining the environmental effects, assessing their significance and the effectiveness of the mitigation measures.

In general, adaptive management is a planned and systematic process for continually improving environmental management practices by learning about their outcomes. Adaptive management provides flexibility for identifying and implementing new mitigation or follow-up measures, and for modifying existing measures during the life cycle of a project. The ultimate goal of applying adaptive management is to ensure that the most effective measures are instituted to mitigate any significant adverse environmental effects.

In cases where an adaptive management approach is identified as an alternative to support the proposed mitigation and follow-up measures, there must be a clear commitment to implement adaptive management measures if the results of the follow-up or monitoring program indicate that corrective measures are warranted.

5.1.1.6 Public participation

The AE may be called upon to participate in public consultation mechanisms, including with First Nations, concerning the environmental assessment process for the TCEVC-PMW Project. The tasks that might be entrusted to the AE include, but are not limited to:

- Planning one or more consultation activities in collaboration with DND;
- Preparing documents (invitations, questions and answers, minutes, responses to concerns, etc.), drawings, maps, photographs and/or presentations of a general or technical nature;
- Participating in and making presentations in person at consultation activities.

5.1.1.7 Environmental assessment report

The AE will:

- Prepare an environmental assessment report that complies with the DND document *Environmental Effects Determination (EED) Report* and includes, as a minimum, all the elements stipulated in that document;
- Incorporate all of the following additional requirements and details concerning the structure and content of the report. The details provided may repeat in part the elements stipulated in the EED report or may constitute new sections.

5.1.1.7.1 *Summary*

The summary must briefly describe the TCEVC-PMW Project, indicating the main anticipated environmental effects. The key aspects of the TCEVC-PMW Project and of the environment affected must be identified, and must be linked to the anticipated effects and to the proposed mitigation and follow-up measures. Any uncertainties or concerns of the public, First Nations, federal and provincial departments or other entities potentially affected by the TCEVC-PMW Project must also be identified.

5.1.1.7.2 *Information on the Project*

5.1.1.7.2.1 Legal framework

In this additional section of the EED, reference will be made to the following:

- The relevant federal and provincial legislation (acts, regulations and policies);
- The authorizations obtained or to be obtained from the provincial government, and a description of those aspects where provincial authorizations are not required;
- Agreements concluded or to be concluded between DND and the provincial government and the Municipality of Shannon.

5.1.1.7.2.2 Project summary

The summary of the TCEVC-PMW Project provided in the EED will also include a summary of the project rationale. Mention must also be made of the alternative options that were assessed for various aspects of the TCEVC-PMW Project, including the methods for discharging the treated water.

5.1.1.7.3 *Discussion of the environmental effects*

5.1.1.7.3.1 *Scope of the assessment*

This additional section of the EED must document and justify the basic principles adopted for framing the environmental assessment, including temporal and spatial boundaries, excluded elements, etc. This section is complementary to the Determination of Valued Components section of the EED.

5.1.1.7.3.2 *Project effects and associated mitigation measures*

This section of the EED must include a systematic review of the environmental effects and must contain all the information required to identify the selected elements. The assessment methodology should be summarized and the results of the assessment process clearly documented in the form of matrices or summary tables.

5.1.1.7.3.3 Assessment of environmental effects

In this section of the EED, the assessment will be conducted in a manner consistent with the following general method, using the relevant and appropriate tools, where applicable:

- Identify the potential interactions between the project activities and the existing environment during construction and normal operations, and during identified relevant accidents or malfunctions;
- Describe the changes that are likely to occur to the environmental components and the valued ecosystem components following interactions with the project;
- Identify and describe the technically and economically feasible mitigation measures that could be applied to each likely adverse effect (or sequence of effects);
- Describe the significance of the environmental effects likely to occur as a result of the project, taking the implementation of the proposed mitigation measures into account.

5.1.1.7.3.4 Assessment of the effects of the environment on the Project

In this additional section of the EED, the assessment must be conducted in a step-wise fashion, similar to the method described for the assessment of the effects of the TCEVC-PMW Project. The significant possible interactions between natural hazards and the Project will first be identified, followed by an assessment of the effects of those interactions, effective mitigation measures and the significance of any remaining adverse environmental effects.

5.1.1.7.3.5 Assessment of accidents and malfunctions

In this additional section of the EED, the assessment must also be conducted in a step-wise fashion, similar to the method described for the assessment of the Project effects. The environmental assessment will examine the accidents and malfunctions that might occur, so that the relevant environmental effects can be taken into account in the assessment.

5.1.1.7.3.6 Assessment of likely cumulative effects

This additional section of the EED must consider all reasonably foreseeable projects, especially those that contribute to the cumulative effects on the valued components, particularly on water quality, vegetation, wildlife habitats, air quality and the sound environment, since these are the environmental factors that are most often subject to the effects of multiple projects or cumulative effects.

5.1.1.7.3.7 Assessment of the significance of the residual environmental effects

The preceding sections described the significance of the effects of:

- The TCEVC-PMW Project on the environment;
- The environment on Project TCEVC-PMW;
- TCEVC-PMW Project accidents and malfunctions on the environment; and

- The TCEVC-PMW Project and other activities connected with past, present and known future projects (cumulative effects).

This section of the EED will consider all of these effects and provide an opinion on whether the project is likely to cause significant adverse environmental effects when the mitigation measures are taken into account.

5.1.1.7.3.8 Environmental management plan – monitoring and follow-up program

Environmental monitoring is an essential mechanism for verifying the satisfactory implementation of mitigation measures when work is carried out. The purpose of this monitoring is to ensure that project activities are at all times in compliance with the measures agreed upon in the environmental assessment.

The purpose of the follow-up program is to assist in determining whether the environmental and cumulative effects of the project are as predicted in the environmental assessment. The follow-up program also seeks to confirm whether the identified mitigation measures are effective and, if applicable, to determine whether new mitigation strategies might be necessary (adaptive management).

In this additional section of the EED, the environmental assessment will indicate whether an environmental monitoring and/or follow-up program is required. If so, the environmental assessment will describe the activities of the environmental monitoring and/or follow-up program. The monitoring and follow-up programs must be appropriate to the scale of the TCEVC-PMW Project and to the issues addressed in the environmental assessment.

5.1.1.7.3.9 Expertise of federal and provincial departments and municipal entities

This amended EED section will also include a description of the consultations held with federal and provincial departments, and with entities potentially affected by the TCEVC-PMW Project. The description will include a list of the main interested parties and the subjects for which they were consulted, as well as a summary of the issues raised and of the measures taken to address them.

5.1.1.7.3.10 Conclusions and recommendations concerning the decision

When the environmental assessment process is concluded, DND will decide whether or not the TCEVC-PMW Project is likely to have significant adverse effects on the environment following implementation of the appropriate mitigation and follow-up measures.

This section is additional to the EED. The main issues associated with the TCEVC-PMW Project will be summarized, along with the main recommendations for ensuring that the TCEVC-PMW Project will not cause any significant adverse effects. These recommendations will enable DND to make decisions on the environmental assessment in accordance with section 67 of the *Canadian Environmental Assessment Act*.

5.1.1.7.3.11 References, annexes, plans and photographs of the site where applicable

This additional section of the EED will properly present the relevant references, annexes, plans and photographs.

5.1.2 C1S2 Technical specifications

The AE is responsible for preparing the technical specifications that will be used for the purposes of the procurement process for awarding the PP mandate for the design and construction of the P&T System as well as for the operation and maintenance of the P&T System for at least 15 years. The AE is also responsible for drawing up an estimate of the costs of the PPP.

5.1.2.1 Needs assessment

In addition to being based on the work and previous studies carried out in connection with the TCEVC-PMW Project, the technical specifications will consider all the data or information needs and requirements for the purposes of the design and construction by the PP, to the extent that they are considered reasonably necessary by the PP in order to prepare its technical proposal.

The tasks to be carried out by the AE include, but are not limited to, the following:

- Review the information made available by DND concerning the TCEVC-PMW Project, including previous studies and work;
- Determine whether additional data, information or studies might be required or whether there are any information gaps. The aspects to be considered for this exercise include, for example:
 - Geotechnical data;
 - Hydrogeology, including modelling. The AE shall consider the existing hydrogeological model provided by DND;
 - Flow rates, level and quality of the surface water of the Jacques-Cartier River, including its variations over time;
 - Current measurement and presence of ice in the Jacques-Cartier River;
 - Environment (other than for the environmental assessment);
 - Physicochemical data;
 - Requirements, availability and conditions of the sites required for the TCEVC-PMW Project, including considerations associated with current and anticipated development plans of DND, the MTQ and the Municipality of Shannon;
 - Conditions of surface and underground infrastructure, existing or under development, that could be impacted by the TCEVC-PMW Project, in order to ensure their integrity;
 - Surveying and topographical surveys;
 - Data requirements and/or particular constraints associated with the construction of discharge infrastructure along the Jacques-Cartier River;
 - Presence and availability of utilities (water supply system, sewers, electrical network adequate for an industrial facility, etc.);

- Document the needs assessment as well as the nature of the work required;
- Submit the needs assessment as well as a description of the work required for DND approval before starting on the drafting of the technical specifications. Any additional investigations, if necessary, will be carried out under *Component 4 General support*.

5.1.2.2 Preparation of the technical specifications

An initial version of the technical specifications has already been prepared. However, this version is incomplete and there are certain gaps in the information it provides. It also does not meet the current need for a design development to 33% completion stage, as required by this service.

The objective of this service is to correct these gaps and complete the required information, not to redo the work that has already been done. The specifications developed earlier will be provided to the AE for this purpose.

As information only, DND will also provide guidance and inform the AE of certain gaps to be corrected and specific requirements for the preparation of the technical specifications. However, any information provided by DND must not be considered limiting or complete.

The tasks to be carried out by the AE include, but are not limited to, the following:

- Prepare the technical specifications to a 33% development stage which can support the cost estimate with a degree of accuracy consistent with PPP Canada's *Schematic Design Estimate Guide*;
- Consider, incorporate, use and/or modify any relevant information in the documents made available to the AE for the purpose of this service, including the existing version of the technical specifications;
- Ensure that the specifications cover all the components of the TCEVC-PMW Project, as described in section 3.3 *Components of the Project*;
- Consider, without limitation, the specifications to be developed for the following aspects:
 - Design and verification of the effectiveness of the hydraulic barrier;
 - Pumping of the water before treatment;
 - Design of the building housing the P&T System;
 - Design of the P&T System;
 - Monitoring of water quality before, during and after treatment ;
 - Performance criteria for the treatment of the pumped water;
 - Ownership of the facilities;
 - Tests, trials and verifications;
 - Commissioning;
 - Automation and instrumentation, including remote controls ;
 - Quality control;
 - Fire safety;
 - Health and safety;
 - Management of raw materials, recyclable materials and waste;
 - Management of infrastructure over the entire life cycle, including operation, maintenance and repairs;

- Communications, including in the event of emergencies or malfunctions of the facilities, as well as stoppages for maintenance or repairs;
- Arrangements for transferring the facilities after 15 years of operation of the P&T System;
- Incorporate the mitigation and follow-up measures, as well as any other future requirements resulting from environmental assessment by objectives and adaptive management, if applicable, identified during the environmental assessment conducted in service C1S1 *Environmental assessment*;
- Ensure that the specifications include, without limitation, clear, measurable and appropriate mandate requirements that are ready to be incorporated into the PP mandate;
- Prepare, modify and/or compile drawings, maps, photographs, documents or other reference information to be included in the specifications;
- Amend the technical specifications, if necessary, in light of the results of the risk workshops and/or the market study that will be carried out in Component 2 *PPP procurement*.

5.1.3 **C1S3 Cost estimate**

An initial version of the PPP cost estimate has already been prepared by DND. However, this version is incomplete and there are certain gaps in the information it provides. It also does not reflect the most recent developments of the TCEVC-PMW Project and does not consider the current need for design development to 33% completion stage, as required by this service.

The objective of this service is to update and complete the existing cost estimate. The previously developed cost estimate will be provided to the AE for this purpose. This cost estimate will also be used in the context of service C2S1 *Procurement options analysis* for the PPP.

For information only, DND will also provide guidance and inform the AE of certain gaps to be corrected and specific requirements for the preparation of the estimate. However, any information provided by DND must not be considered limiting or complete.

The tasks to be carried out by the AE include, but are not limited to, the following:

- Prepare a cost estimate of the PPP in accordance with PPP Canada's *Schematic Design Estimate Guide*;
- Add, modify or adapt any element that is not adequately considered in PPP Canada's *Schematic Design Estimate Guide* in order to meet the needs for the PPP in the context of the TCEVC-PMW Project;
- Consider any other requirement or data provided by DND for preparation of the estimate;
- Amend the cost estimate, if necessary, in light of the results of the risk workshops and/or the market study that will be carried out in Component 2 *PPP procurement* or any other situation that could require revision of the estimate.

5.2 Component 2 PPP procurement

The AE will provide technical support to DND in connection with the procurement process for the issuing of the PP mandate.

5.2.1 C2S1 Analysis of procurement options for the PPP

The PPP procurement process in the context of the TCEVC-PMW Project includes an options analysis according to the methods set out in the PPP Canada guides *Procurement Options Analysis Development* and *Procurement Options Analysis Methodology*.

The AE will provide support to DND concerning the technical aspects of this analysis, including:

- Participating in risk workshops;
- Participating in determining and/or providing opinions on the bidder evaluation criteria and method;
- Providing assistance and other technical advice, as required.

It should be noted that a Fairness Monitor will monitor the PPP call for tender process.

5.2.2 C2S2 PPP call for tenders period

The services of the AE will focus on providing consulting services concerning the technical aspects of the procurement documents, including the Request for Qualifications (RFQ), the Request for Proposals (RFP) and the PPP mandate.

The tasks to be carried out by the AE include, but are not limited to, the following:

- Participate in the planning, coordination and/or preparation of bidder information sessions;
- Provide engineering, technical, scientific and/or financial advice concerning questions from bidders, and prepare answers to those questions;
- Provide engineering, technical, scientific and/or financial advice concerning information contained in the bidders' proposals;
- Prepare information and/or communications documents, drawings, maps, photographs and/or presentations of a general and/or technical nature in support of the bidder information sessions;
- Prepare amendments and/or addenda to the technical specifications in response to questions from bidders.

5.2.3 C2S3 Evaluation committee

The AE may be called upon to participate in the committee set up to evaluate the technical proposals received in connection with the PPP mandate. This committee may include individuals from different fields of specialization appointed by DND. This process includes:

- Review of the documents resulting from the RFQ;
- Individual review and evaluation of bids resulting from the RFP;
- Consensual review of the bids with the other members of the committee ;
- Preparation of the detailed list of technical irregularities for each bidder.

5.3 ***Component 3 PPP implementation phase***

The Implementation phase comprises the tasks associated with the work of designing, constructing and operating (including maintenance) the P&T System that will be performed by the PP under the oversight of the IE.

The AE is responsible for providing support and advice to DND in connection with the review and monitoring of the work and deliverables of the PP and the IE in order to ensure compliance with the associated contractual agreements as well as for the purposes of acceptance and payment of the work and deliverables.

To this end and before starting any service in connection with Component 3, the AE must be thoroughly familiar with all the relevant documents relating to the PP and IE mandates, including the mandate documents and related reference documents, technical data, guarantees and the PP technical proposal submitted in response to the PPP call for tenders, in order to ensure that the AE is well briefed on their content and able to provide the requisite support to DND.

5.3.1 **C3S1 Design**

The design work comprises all the activities required prior to construction of the P&T System, including those associated with the preparation of various programs and manuals, including commissioning (i.e. start-up of the system in a manner that ensures that the stated objectives are attained in terms of effectiveness in intercepting the TCE plume and the quality of the effluent), environmental monitoring, operation and maintenance, and quality assurance.

The objective is to attain a high level of confidence in the quality of the design and to ensure that the P&T System meets all the contractual requirements.

In keeping with DND's needs, the tasks to be carried out by the AE include, but are not limited to, the following:

- Mandate management
 - IE mandate
 - ✓ Review the reports of the IE for acceptance and payment purposes, and provide the results of these reviews to DND, including, without limitation, the scientific, technical, environmental, financial, quality and contractual aspects;
 - PP mandate
 - ✓ Assist DND in supervising and monitoring the PP mandate, including the following tasks, without limitation, and make comments and recommendations to that end:

- Review the PP deliverables (for example, periodic reports, operations reports, results of various sampling campaigns, compliance with discharge requirements, etc.), and provide the results of these reviews to DND;
 - Identify, evaluate and recommend to DND any need for corrective measures;
 - As an integral part of the joint review with the IE, verify and question any aspects of the work that are not compliant or that appear to deviate from the technical requirements or other requirements in relation to, without limitation, the PP proposal, the final design, the operating requirements, industry-recommended practice (best practices) and/or health and safety and/or other acts or regulations or requirements (including environmental protection), and provide the results of this verification to DND;
- Changes, corrective measures and deficiencies
 - ✓ Review the proposals made by the IE and the PP or by other stakeholders (where applicable) regarding requests for additional work, for changes (including for the purpose of improving the technical requirements) and for corrective measures, and provide relevant comments and recommendations to DND to assist decision-making concerning these proposals;
 - ✓ Help to coordinate and manage the additional work, changes and corrective measures to the scope of the work of the PP that DND has authorized, including, without limitation, keeping a record of the nature of these elements, including recommendations, etc.);
- Problems resulting from the work of the PP and of the IE
 - ✓ Identify and inform DND of actual or anticipated problems resulting from the work of the IE and of the PP, including ,without limitation, the scientific, technical, environmental, financial, quality and contractual aspects;
- Collaboration and discussion
 - Collaborate (if needed) in DND consultations with various stakeholders;
 - Represent DND or participate with DND, on request, in person or by other means (in keeping with DND requirements) in consultations, open discussion sessions, meetings, committees and/or visits:
 - ✓ With the PP and/or the IE for any required topics, including in connection with worksite meetings and conflict resolution; and
 - ✓ With private organizations, concerned property owners, municipal, provincial and federal authorities, or any other person or entity identified by DND.
- Technical advice
 - Clarify or assess questions, methods, approaches and/or products that exceed the scope of the IE and the PP mandates.
- Conflict resolution
 - Represent the interests of DND in any conflict resolution process, as provided for in the PPP mandate, which includes:
 - ✓ Reviewing relevant documents;
 - ✓ Attending relevant meetings;
 - ✓ Facilitating discussion with the relevant parties;
 - ✓ Conducting a cost analysis, on request.
- Financial management

- Support DND in reviewing the billing of IE and PP fees for approval, and provide the results of these reviews to DND;
- Assist DND in monitoring expenses and produce progress estimates of PP and IE costs according to the methods prescribed by DND;
- Provide assistance to DND concerning the estimation and negotiation of costs relating to additional work, corrective measures or changes to the work set out in the PP and IE mandates, including analyses, comments and recommendations.

5.3.2 **C3S2 Overseeing construction work**

The construction work includes the construction of all infrastructure and other facilities required by the P & T System, including commissioning.

The objective is to attain a high level of confidence in the quality of the work and to ensure that the P&T System meets all the contractual requirements.

In keeping with DND's needs, the tasks to be carried out by the AE include, but are not limited to, the following:

- Mandate management
 - IE mandate
 - ✓ Review the reports of the IE for acceptance and payment purposes, and provide the results of these reviews to DND, including, without limitation, the scientific, technical, environmental, financial, quality and contractual aspects;
 - PP mandate
 - ✓ Assist DND in supervising and monitoring the PP mandate, including the following tasks, without limitation, and make comments and recommendations to that end:
 - Review the PP deliverables (for example, periodic reports, operations reports, results of various sampling campaigns, compliance with discharge requirements, etc.), and provide the results of these reviews to DND;
 - Identify, evaluate and recommend to DND any need for corrective measures;
 - As an integral part of the joint review with the IE, verify and question any aspects of the work that are not compliant or that appear to deviate from the technical requirements or other requirements in relation to, without limitation, the PP proposal, the final design, the operating requirements, industry-recommended practice (best practices) and/or health and safety and/or other acts or regulations or requirements (including environmental protection), and provide the results of this verification to DND;
 - Conduct periodic site visits and/or checks and verifications of various kinds on the sites in order to ensure that DND's interests are protected;
 - Changes, corrective measures and deficiencies
 - ✓ Review the proposals made by the IE and the PP or by other stakeholders (where applicable) regarding requests for additional work, for changes (including for the purpose of improving the technical requirements) and for corrective measures, and provide relevant comments and recommendations to DND to assist decision-making concerning these proposals;

- ✓ Help to coordinate and manage the additional work, changes and corrective measures to the scope of the work of the PP that DND has authorized, including, but not limited to, keeping a record of the nature of these elements, including recommendations, approvals, etc.);
 - Problems resulting from the work of the PP and of the IE
 - ✓ Identify and inform DND of actual or anticipated problems resulting from the work of the IE and of the PP, including, without limitation, the scientific, technical, environmental, financial, quality and contractual aspects;
- Collaboration and discussion
 - Collaborate (if needed) in DND consultations with various stakeholders;
 - Represent DND or participate with DND, on request, in person or by other means (in keeping with DND requirements) in consultations, open discussion sessions, meetings, committees and/or visits:
 - ✓ With the PP and/or the IE for any required topics, including in connection with site meetings and conflict resolution; and
 - ✓ With private organizations, concerned property owners, municipal, provincial and federal authorities, or any other person or entity identified by DND.
- Technical advice
 - Clarify or assess questions, methods, approaches and/or products that exceed the scope of the IE and the PP mandates.
- Conflict resolution
 - Represent the interests of DND in any conflict resolution process, as provided for in the PPP mandate, which includes:
 - ✓ Reviewing relevant documents;
 - ✓ Attending relevant meetings;
 - ✓ Facilitating discussion with the relevant parties;
 - ✓ Conducting a cost analysis, on request.
- Financial management
 - Support DND in reviewing the billing of IE and PP fees for approval purposes;
 - Assist DND in monitoring expenses and produce progress estimates of PP and IE costs;
 - Provide assistance to DND concerning the estimation and negotiation of costs relating to additional work, corrective measures or changes to the work set out in the PP and IE mandates, including analyses, comments and recommendations.

5.3.3 C3S3 Operational phase support

The AE will support DND for two years following the commissioning of the P&T System.

The objective is to attain a high level of confidence in the quality of the work and to ensure that the P&T System and its associated functions (management of infrastructure, etc.) meet all the contractual requirements.

In keeping with DND's needs, the tasks to be carried out by the AE include, but are not limited to, the following:

- Mandate management
 - IE mandate
 - ✓ Review the reports of the IE for acceptance and payment purposes, and provide the results of these reviews to DND, including, without limitation, the scientific, technical, environmental, financial, quality and contractual aspects;
 - PP mandate
 - ✓ Assist DND in supervising and monitoring the PP mandate, including the following tasks, without limitation, and make comments and recommendations to that end:
 - Review the PP deliverables (for example, periodic reports, operations reports, results of various sampling campaigns, compliance with discharge requirements, etc.), and provide the results of these reviews to DND;
 - Identify, evaluate and recommend to DND any need for corrective measures;
 - As an integral part of the joint review with the IE, verify and question any aspects of the work that are not compliant or that appear to deviate from the technical requirements or other requirements in relation to, without limitation, the PP proposal, the final design, the operating requirements, industry-recommended practice (best practices) and/or health and safety and/or other acts or regulations or requirements (including environmental protection), and provide the results of this verification to DND;
 - Conduct periodic site visits and/or checks and verifications of various kinds on the sites in order to ensure that DND's interests are protected;
 - Changes, corrective measures and deficiencies
 - ✓ Review the proposals made by the IE and the PP or by other stakeholders (where applicable) regarding requests for additional work, for changes (including for the purpose of improving the technical requirements) and for corrective measures, and provide relevant comments and recommendations to DND to assist decision-making concerning these proposals;
 - ✓ Help to coordinate and manage the additional work, changes and corrective measures to the scope of the work of the PP that DND has authorized, including, without limitation, keeping a record of the nature of these elements, including recommendations, approvals, etc.);
 - Problems resulting from the work of the PP and of the IE
 - ✓ Identify and inform DND of actual or anticipated problems resulting from the work of the IE and of the PP, including, without limitation, the scientific, technical, environmental, financial, quality and contractual aspects;
- Collaboration and discussion
 - Collaborate (if needed) in DND consultations with various stakeholders;
 - Represent DND or participate with DND, on request, in person or by other means (in keeping with DND requirements) in consultations, open discussion sessions, meetings, committees and/or visits:
 - ✓ With the PP and/or the IE for any required topics, including in connection with site meetings and conflict resolution; and
 - ✓ With private organizations, concerned property owners, municipal, provincial and federal authorities, or any other person or entity identified by DND.
- Technical advice

- Clarify or assess questions, methods, approaches and/or products that exceed the scope of the IE and the PP mandates.
- Conflict resolution
 - Represent the interests of DND in any conflict resolution process, as provided for in the PPP mandate, which includes:
 - ✓ Reviewing relevant documents;
 - ✓ Attending relevant meetings;
 - ✓ Facilitating discussion with the relevant parties;
 - ✓ Conducting a cost analysis, on request.
- Financial management
 - Support DND in reviewing the billing of IE and PP fees for approval purposes;
 - Assist DND in monitoring expenses and produce progress estimates of PP and IE costs;
 - Provide assistance to DND concerning the estimation and negotiation of costs relating to additional work, corrective measures or changes to the work set out in the PP and IE mandates, including analyses, comments and recommendations.

5.4 **Component 4 - General support**

DND could have additional requirements in connection with the implementation of the TCEVC-PMW Project.

In particular, in addition to the activities for which the PP and the IE are responsible, DND may find it expedient or necessary to conduct its own checks and verifications to ensure that the work and the environment are adequately protected and to meet the expectations of the community and of the regulatory authorities concerned. DND may also have needs in connection with additional studies and work required for the procurement process or during any other phase of the TCEVC-PMW Project, as well as for various types of technical advice and support.

The AE will be called upon to provide scientific and/or technical support to DND in connection with the implementation of the TCEVC-PMW Project.

Scientific and technical expertise services may be required in any order and at any time.

5.4.1 **C4S1 Scientific and technical expertise**

The required services concern the following aspects, without limitation:

- Plans, maps and photographs
 - Prepare drawings, maps, plans of sites and facilities, work site plans and/or photographs;
- Real property information
 - Surveying and topographical surveys;
 - Confirm the status of real property titles;
 - Identify and prepare plans indicating all the utilities, roads, and surface and underground infrastructure;

- Infrastructure
 - Assess the status of the site, including surveys of underground infrastructure;
 - Assess the effect of the TCEVC-PMW Project on existing or planned infrastructure, including discharges into the Jacques-Cartier River;
- Hydrogeology and modelling
 - Provide advice on and/or assess the need for a revision of the existing modelling of groundwater flow or the need for additional modelling, including the associated costs;
 - Provide advice on and/or assess various pumping options including, without limitation, the technical aspects, risks, human and environmental effects, and costs;
 - Provide advice on and/or assess the locations of P&T System infrastructure;
 - Document groundwater levels and flow rates;
 - Identify needs and/or determine the technical specifications for drilling, and for pumping and observation wells.
- Geotechnical aspects
 - Assess the requirements and/or solutions that may be helpful in solving problems that arise in the course of the TCEVC-PMW Project, such as the structural movement/subsidence/damage affecting infrastructure;
- Treatment of pumped groundwater
 - Assess the need and options for an additional treatment or changes to the existing treatment, and make recommendations in this regard;
 - Assess the need to conduct pilot tests and the testing methods, and monitor these tests.
- Performance
 - Prepare reports on treatment performance, hydraulic barrier effectiveness, discharge quality, operating problems, etc.;
 - Monitor, verify and/or assess the attainment of management and performance objectives;
 - Prepare reports on and/or conduct theoretical and/or field checks and verifications of the performance of the treatment system and/or of the adequacy of the PP's activities regarding this aspect, for the purpose of compliance with the contractual requirements;
 - Prepare reports covering the pumped and treated volumes, waste generated, the environmental quality of the effluents, the performance of the treatment system, etc.;
 - Identify needs for modifications and/or improvement to performance, and prepare recommendations in this regard;
 - Prepare an explanatory assessment of the changes made in comparison with the initial concept of the TCEVC-PMW Project, including any possible deviations from the anticipated results;
 - Conduct own theoretical and/or field checks and verifications of the effectiveness of the hydraulic barrier and/or of the adequacy of the PP's activities, and make recommendations to DND concerning the effectiveness of the interception of the TCE plume, for the purpose of compliance with the contractual requirements. For this purpose, the AE must use, without limitation, the numerical hydrogeological model provided by DND;
- Compliance
 - Prepare and/or review documents required in connection with processes associated with the requirements of government orders as well as federal, provincial and municipal authorizations;

- Review the requests prepared by the PP and the responses of the authorities concerned, and make recommendations in this regard ;
- Verify compliance with any requirement indicated in the authorizations and permits that may have been issued for implementation of the TCEVC-PMW Project.
- Sampling and analyses
 - Conduct sampling and/or send for analysis samples of groundwater before pumping and/or before treatment and/or during pumping tests; samples of surface water from the Jacques-Cartier River or from other sources; samples of the water treated by the P&T System, etc.;
 - Conduct sampling and/or send for analysis samples of soils and sediments in connection with various sites concerned by the work of the TCEVC-PMW Project, including before and during excavations, before off-site disposal and before backfilling;
 - Conduct sampling and/or send for analysis samples of soils and sediments in connection with various sites concerned by the work of the TCEVC-PMW Project, including before and during excavations, before off-site disposal and before backfilling, etc.;
 - Carry out toxicological tests on samples of water before and after treatment, as well as on water samples from the Jacques-Cartier River;
 - Conduct sampling and/or send for analysis samples of any other component of the natural environment;
 - Assess and interpret the requirements, protocols, parameters, criteria/standards/ recommendations/guidance values to be considered and the results of sampling of soil, sediment and air and of toxicological tests or any other component of the natural environment;
 - Review and/or amend the methods and procedures associated with groundwater and surface water monitoring programs.
- Environmental monitoring and verification
 - Verify and/or assess and/or follow up on the PP's environmental monitoring process, including sampling of various components of the environment;
 - Identify and/or assess and/or recommend additional mitigation measures and additional follow-up and/or modifications of these measures;
 - Verify and/or assess and/or monitor the state of natural areas affected by the TCEVC-PMW Project, including fish habitat, with any additional requirements identified by DFO, the protection of species at risk and the protection of migratory birds;
 - Determine, verify and/or monitor discharge mixing zones in the Jacques-Cartier River;
 - Assess and/or monitor the effect of the TCEVC-PMW Project on river current and on the movement and quality of sediments;
 - Verify the segregation, movement, accumulation and disposal of soils and waste on or outside the sites used for the TCEVC-PMW Project, including the characterization and disposal of materials.
- Monitoring and inspection
 - Prepare and carry out a monitoring and inspection program that involves conducting on-site checks and verifications of the operations of the P&T System. The inspection program should have the following characteristics, without limitation:
 - ✓ The scope of the program must reflect the nature and importance of the PP's activities;

- ✓ Be able to be carried out on a continuous, periodic or as-required basis depending on the nature of the work to be verified or DND requirements;
- ✓ Cover all the stages of construction as well as all the components of the P&T System;
- ✓ Include environmental management measures, including incorporation of the mitigation measures and follow-up program identified at the time of the environmental assessment;
- ✓ Sampling, analyses and/or toxicological tests of water, air, soil or any other natural component;
- ✓ Ensure that operating manuals are up to date and verify maintenance and operation of installed equipment and all systems or processes;
- ✓ Verify the condition of the facilities;
- ✓ Verify the implementation and maintenance of the maintenance program (including repairs made), including the availability of complete maintenance logs and records for each piece of mechanical or electrical equipment, and for each piece of instrumentation equipment, etc.;
- ✓ Verify that alarms, stoppages of the P&T System and/or discharges, and communications with DND have been carried out in accordance with the proper procedures;
- ✓ Verify water sampling protocols and results before and after treatment;
- ✓ Verify maintenance of the mitigation measures and follow-up program identified during the environmental assessment.
- Quality assurance
 - Verify that the PP's quality assurance program is implemented and up-to-date.
- Miscellaneous
 - Assess the effect of the TCEVC-PMW Project on the activities of the Jacques-Cartier/Portneuf bike path and local traffic, including any maintenance work that may be required;
 - Clarify and/or assess questions, methods, approaches or products;
 - Prepare plans and specifications;
 - Prepare presentations;
 - Prepare, review and/or compile documents;
 - Create and/or manage databases;
 - Evaluate, determine and/or review priorities;
 - Plan, review and/or follow the schedules;
 - Monitor progress and/or prepare progress reports;
 - Develop, review and/or maintain quality management plans;
 - Prepare, review and/or maintain risk logs;
 - Provide advice on contractual approaches and/or contract terms and conditions;
 - Prepare, review and/or assess cost estimates and cost-benefit analyses;
 - Intervene with other enterprises (utilities, for example);
 - Provide support for the negotiation of agreements with the owners of the sites concerned by the TCEVC-PMW Project.

6 PROJECT TIMETABLE**6.1 General**

The timetable and duration of the AE mandate are directly linked to the TCEVC-PMW Project timetable.

6.2 Major milestones

The major milestones for implementation of the TCEVC-PMW Project, the AE mandate and the mandate components are summarized below. Their duration and start dates are dictated by the TCEVC-PMW Project timetable and are subject to change.

The AE must take all these dates into account in its work schedule.

Project milestone	Approximate date
Launch of the PPP call for tenders	Spring 2017
Closing of the PPP call for tenders	Spring 2018
Design - P&T System	Summer 2018
Construction - P&T System	Fall 2018
Operation – P&T System	2018 to 2033 (15 years)
Decommissioning – P&T System	2033

Engineering mandate milestones – AE

Project milestone	Approximate date
Posting of the AE call for tenders	August 2016
Awarding of the AE mandate	October 2016
End of the AE mandate	October 2020

Milestones for completion of the mandate components – AE

Component	Projected start period	Projected end period
1 Preparatory phase of the PPP call for tenders	October 2016	Winter 2017
2 PPP procurement	Spring 2017	Spring 2018
3 PPP implementation phase	2018	2020 (for AE mandate)
4 General support	At all times from awarding of the AE mandate until the end of the mandate provided in October 2020	

7 ADMINISTRATION

The following administrative requirements apply to the mandate as a whole.

7.1 *DND's responsibilities under the mandate and communications aspects*

- DND is responsible for the TCEVC-PMW Project and its advancement;
- DND serves as the technical authority for this mandate. In this capacity, DND is responsible for the administration and management of this mandate, including acceptance of mandate-associated deliverables and payment of invoices submitted by the AE;
- DND provides liaison between the AE, PWGSC, P3 Canada and the other departments or entities that are or could be involved in the TCEVC-PMW Project;
- All communications concerning this mandate will be made with the DND representative designated for this purpose;
- By default, all official communications between the AE and DND must be in writing. Official communications include, but are not limited to:
 - Directives, processes, methods and any other instructions, constraints or criteria dictated by DND;
 - Authorization requests, the need to inform, recommendations, advice or justifications required from the AE;
 - Submission of deliverables by the AE and their acceptance by DND;
 - DND's replies to the AE's requests.

7.2 *General responsibilities of the AE for performance of the mandate*

The AE will:

- Provide all the human and material resources required for the performance of this mandate, in a manner that ensures that all the requirements of this mandate are met at all times.
- Consider, without limitation, the following areas of expertise for performance of the mandate:
 - Project management in the context of a PPP, and if possible as AE;
 - Commissioning of industrial building and processes, including pumping stations and wastewater or contaminated water treatment systems;
 - Management of facilities similar to those of the TCEVC-PMW Project, including maintenance and repair;
 - Landscaping;
 - Surveying;
 - Architecture;
 - Cost estimation;
 - Structural engineering;
 - Mechanical engineering;
 - Electrical engineering;

- Civil engineering;
 - Process engineering, including contaminated water treatment processes;
 - Communication and telemetry systems;
 - Instrumentation and control;
 - Code-compliant fire protection and health and safety;
 - Geotechnical aspects;
 - Hydrogeology, including groundwater interception/pumping and modelling;
 - Environmental assessment, including the follow-up of mitigation measures and the implementation of follow-up programs, consultations with the public or other parties, etc.);
 - Characterization and assessment of the natural environment, including the aquatic environment;
 - Environmental management and characterization (water, air, soil, toxicology, and raw material, residual material and waste management);
 - Quality control;
 - Preparation of technical and performance specifications, and plans and specifications.
-
- Retain the services of competent and experienced engineers, professionals and technicians in the various fields necessary for performance of the mandate ;
 - Employ accredited professional personnel where required by the Quebec Professional Code;
 - Ensure that any engineer designated as such by the AE holds a licence or permit issued by the Ordre des ingénieurs du Québec (OIQ);
 - Ensure that the professionals assigned to carry out the mandate perform the work diligently and competently, with the objective of serving the interests of DND. The AE's resources must have interpersonal skills in communication, negotiation and customer service in order to establish ties and facilitate the performance of the work to be carried out under this mandate;
 - Organize the work and allocate the necessary human and material resources in order to meet, at all times, the work schedule and all other deadlines and response times required under this mandate or required by DND in the course of the mandate;
 - Take full responsibility for ensuring that the requirements of this mandate are met, and for all the actions and work carried out during and after this mandate. This responsibility also applies in full to the AE's personnel, including all subcontractors and other contractors;
 - Promptly notify DND of any circumstances or problems that could have an effect on the ability of the AE to carry out this mandate in accordance with the mandate requirements;
 - Ensure that the work is organized according to a logical, structured, flexible and cost-effective approach that takes into account all the information and instructions provided by DND;
 - Have knowledge of the applicable acts, regulations, policies, guides and directives, and with the data management tools and software programs that are relevant to the work to be performed;
 - Become familiar with and gain an understanding of the administrative, legal, political, regulatory, scientific and technical context of the TCE contamination problem in Valcartier;

- Become familiar with, use and incorporate data and other scientific, technical, regulatory, administrative or other information, and work and/or studies carried out by others provided by DND concerning the TCE contamination problem in Valcartier;
- Become familiar with and take into account DND's other activities and projects on DND land in Valcartier, including those related to the TCE contamination problem in Valcartier;
- Become familiar with and use the formats, databases and other tools provided by DND;
- Follow the guides, directives, processes, methods and any other instructions, constraints and criteria dictated by DND;
- Ensure the health and safety of its personnel;
- Take responsibility for any damage or accidents caused to sites, property and persons by the AE.

7.3 Confidentiality

The AE must obtain prior authorization from DND:

- Before using, transferring, communicating, disclosing, sharing or referencing, either in print form or verbally, documents or other information associated with the performance of this mandate, or disclosed while carrying out this mandate, in connection with the TCEVC-PMW Project or the TCE contamination problem in Valcartier; and
- To use these documents and this information for any purpose other than those for which they were provided or disclosed to the AE.

7.4 Language proficiency of the AE

This mandate as well as the TCEVC-PMW Project with which it is associated will be carried out in a Francophone environment that is sometimes unilingual.

In particular:

- All documents and information relevant to this mandate will be in French;
- The reference documentation from the Quebec government is unilingual French;
- The written and verbal communications of the parties involved in the TCEVC-PMW Project, including those relating to this mandate, will be in French;
- All DND interactions and activities during the TCEVC-PMW Project, including concerning this mandate, will be in French. This includes, but is not limited to:
 - All documents drafted as well as all written and verbal DND communications, including consultations and meetings with the various parties involved in the TCEVC-PMW Project, will be in French;
 - Mandate management and monitoring;
 - The evaluation of proposals, reviews of and comments on deliverables, as well as any other information, document or work of any nature whatsoever.

The AE will:

- Render all services in both official languages;
- Prepare, without limitation, deliverables, opinions, advice, comments and recommendations, as well as draft all other communications and documents required under this mandate, in French, except documents that will be designated as bilingual by DND. Notwithstanding the foregoing, the draft versions of bilingual documents will have to be in French for the purposes of their review by DND;
- Ensure that its personnel are capable of expressing themselves, interacting, reading and writing effectively in French in all circumstances, including in emails, as well as during meetings and public consultation processes;
- Ensure that the quality of the products and services are equivalent in both official languages, and that this requirement does not under any circumstances delay the performance of the mandate in any manner whatsoever.

7.5 *Translation*

- Certain AE deliverables, including technical specifications, will have to be bilingual. The deliverables that must be bilingual will be identified by DND and no translation expenses will be approved;
- At DND's request, and other than for the deliverables identified as having to be bilingual, the AE may have responsibility for translating documents, references or other information of any nature whatsoever that are required for the performance of this mandate, as well as responsibility for verifying the accuracy of this translation. Any translation will be considered as a deliverable and must comply with the related conditions, as specified in this mandate;
- However, the AE is entirely responsible, at its own expense, for translation requirements that do not stem from DND requirements. No translation services will be offered;
- Before undertaking any translation work, whether or not at DND's request, the AE will first request and receive written authorization from DND. In the event that a translation does not stem from a DND requirement, the translations produced by the AE will not be recognized by DND.

7.6 *Delays, temporary suspensions or modifications of activities*

It is anticipated that delays or temporary suspensions of the work to be carried out under this mandate could occur at various times. These temporary situations of unknown duration could result from waiting for decisions or authorizations from various government agencies concerned by the TCEVC-PMW Project.

Considering the context and the nature of the TCEVC-PMW Project, it is also possible that unforeseen or particular circumstances may result in the need for modifications, cancellations or additions to the work planned or in progress.

The AE will consider this eventuality in allocating its resources, their availability and time management.

7.7 *Response times*

Response times will vary according to the different types of work required and depending on the needs, complexity and level of effort deemed to be required by DND.

For example, and for guidance only:

- The members of the AE's personnel must be available to attend meetings or respond to requests for information from DND within two (2) business days;
- The AE's key personnel must be available to provide advice, answer questions or prepare documents relating to media or political requests within a period of less than 24 hours following receipt by the AE;
- All requests for advice or questions in connection with the PPP procurement process must be processed within 72 hours following their receipt by the AE;
- The AE's mandate manager must provide DND with a means of contact at all times. The mandate manager must respond to DND communications within four (4) working hours of sending the communication.

7.8 *Locations and travel of the members of the AE's personnel*

- The AE should anticipate that activities associated with this mandate may take place in different locations. The anticipated locations for these activities include Quebec City, Valcartier and the surrounding area, including the Municipality of Shannon, as well as the National Capital Region (Ottawa). It should be noted that the representatives of DND, PWGSC and 3P Canada associated with this mandate are located in Ottawa;
- The activities concerned may include site visits, meetings with DND and other concerned entities, and consultations;
- The AE must ensure that its personnel are assigned to locations that make possible rapid, effective and cost-effective interactions with the above-mentioned locations;
- At DND's request, the physical presence of key personnel, and of other members of the AE's personnel if deemed necessary, will be required. Participation by teleconferencing or videoconferencing will not be accepted.

7.9 *Equipment*

The AE is entirely responsible:

- For providing the members of its personnel with all the equipment required for the performance of this mandate. This includes, in particular, but is not limited to, work site safety equipment and individual protective equipment; and
- For the security of its equipment and materials during and after working hours. DND shall not be held liable for any acts of vandalism, theft, loss, or breakage caused by weather or other conditions.

7.10 *Laboratories*

The AE will:

- Retain the services of laboratories accredited by the CEAEQ in order to conduct chemical analyses, if necessary;
- Ask the laboratories to provide directly to DND and at its request any additional data collected in connection with this mandate for the purpose of populating DND's environmental database.

7.11 *Document management*

7.11.1 *Reference documents*

The AE:

- Is responsible for obtaining, at its own expense, all the references required for the performance of this mandate. This includes, but is not limited to, the acts and regulations, policies, guidelines, standards, criteria, guides, recommendations and other relevant publications issued by government agencies or authorities;
- Will ensure that the most up-to-date versions of all references are used. If new versions become available in the course of the mandate, the AE will use them and adjust its work accordingly;
- Will promptly inform DND, in writing, of any particular problems in applying a new version or if the publication date has an impact on the work schedule. Such situations will be evaluated by DND on a case-by-case basis. DND will inform the AE of its decision concerning the applicable approach and the AE will abide by this decision.

7.11.2 *Access to DND documents*

- At the beginning and over the course of the mandate, DND will provide the AE with documents that are relevant to this mandate;
- The AE will be informed by DND, on a case-by-case basis, of the need to review documents with restricted access and the related conditions;
- Documents that are provided to the AE remain the property of DND. At DND's request, the AE undertakes to return all documents made available to it by DND under this mandate, in the same condition in which they were provided and within the stipulated time frames.

7.11.3 **Record-keeping**

The AE will:

- Ensure that documentation pertaining to the mandate is kept in orderly fashion;
- Deliver, at DND's request, a complete copy of the engineer's file, including calculations, diagrams, etc.

7.11.4 **Exchange portal**

The AE must have the ability to use a secure website that may be imposed by DND for the exchange and management of documents with DND and other stakeholders. This site must be made secure and protected with a password specific to this mandate. Access must be restricted to the AE's personnel and user fees may be charged, if any.

7.12 ***Licences***

- The AE must abide by the conditions concerning the intellectual property of the documents sent by DND, including the requirements associated with existing licences.

7.13 ***DND use of documents generated by the AE***

- DND reserves the right to make free use, without further authorization, of all documents generated by the AE, including the information that they contain. This use includes, but is not limited to:
 - The use of content, including foreground content (i.e. content that was produced by anyone prior to this mandate and that is used or referred to in a document generated by the AE under this mandate);
 - Reproduction, in whole or in part;
 - Public dissemination, in whole or in part;
 - Dissemination to various governmental and non-governmental stakeholders.

7.14 ***Interactions with third parties***

Under no circumstances may the AE, without DND authorization, initiate or respond to written or verbal communications with, or receive from or provide information of any kind whatsoever to third parties other than those designated by DND.

This rule applies to this mandate, the TCEVC-PMW Project and the TCE contamination problem in Valcartier, and to the following stakeholders, without limitation:

- Representatives of federal, provincial or municipal regulatory authorities;
- Non-profit or community organizations;
- Owners of a site concerned by the mandate or the TCEVC-PMW Project;

- Contractors and consultants other than those designated as being part of the AE team under this mandate;
- Any civic association;
- Members of the public.

The AE must immediately inform DND, in writing, of any attempted contact by a third party, specifying the date, the name of the individual and the subject of the communication, and also provide any information or documents that have might have been obtained or received.

7.15 *Media relations*

- The AE is prohibited from granting interviews, answering questions, providing information or interacting in any manner whatsoever with the media concerning this mandate, the TCEVC-PMW Project or the issue of TCE contamination in Valcartier;
- No interaction with the media, of any kind whatsoever, will be permitted unless authorized in advance by DND, in writing, and in accordance with the conditions established by DND.

7.16 *Advertising*

- Any advertising by the AE associated with this mandate, the TCEVC-PMW Project or the TCE contamination problem in Valcartier must be submitted to DND for prior approval. Without restricting the generality of the foregoing, this requirement applies to all forms of advertising, such as radio, television, the Web, social media, newspapers, magazines and other print formats, on the work site and elsewhere;
- The AE shall not post any signs, billboards or other advertising on the TCEVC-PMW Project sites without prior authorization from DND.

7.17 *Public engagements*

- No presentations, engagements or attendance at training sessions, conferences or other similar activities, in any form whatsoever, in connection with this mandate, the TCEVC-PMW Project or the issue of TCE contamination in Valcartier will be permitted without prior authorization from DND;
- In such cases, DND reserves the right to approve any materials that will be presented or used and to specify any other conditions before granting authorization.

7.18 Access and use of sites

7.18.1 Access authorizations

The AE will:

- Take into consideration the fact that the TCEVC-PMW Project will be carried out on sites owned by various entities, some of which are not DND property. There may also be physical constraints limiting access;
- Consider that access to certain parts of DND land may be restricted and/or require an escort;
- Take any necessary measures to obtain authorization from the property owner at all sites that do not have public access where access is required in order to carry out this mandate;
- Take the required measures to minimize disturbances to site occupants and activities;
- Consider that access to or work on certain sites outside DND property may have to take place at specific times early in the morning or late in the evening during weekdays;
- Restrict access to the sites concerned by the TCEVC-PMW Project that do not have public access to AE personnel directly involved in this mandate.

7.18.2 Roads and vehicles

All the sites are accessible by road. However, the AE must consider that access to certain areas may require an all-terrain vehicle.

7.18.3 Services

The AE must consider that no services (telephone, electricity, drinking water, washroom facilities, shelters) will be available in certain sectors of the sites, nor will they be provided by DND.

However, these services are available nearby (less than 5 km) or could be obtained, at the AE's expense, from other firms performing work associated with the TCEVC-PMW Project on these sites.

7.18.4 Hazards

Hazardous substances and conditions may exist on the sites concerned by the TCEVC-PMW Project. In particular, volatile organic compounds (VOCs) or other compounds at potentially high concentrations could be released from the soil or groundwater, and other hazards may exist in connection with the implementation of the P&T System.

The AE will take into account the hazards associated with the sites when carrying out work under this mandate, including risks to the health and safety of its personnel.

7.18.5 Management of vegetation, raw materials, materials and waste

- The accumulation, storage, burning, discharge into the environment or burial of raw materials, including hazardous materials, other materials, scrap and other waste is prohibited on the sites concerned by the TCEVC-PMW Project;
- The destruction and/or cutting of trees and other types of vegetation must be carried out in accordance with the terms and conditions stipulated by DND;
- If required by the work to be performed, specific directives and authorizations on this subject will be provided by DND.

7.19 Photographs and videos

Except as otherwise indicated by DND, the AE is prohibited from photographing or filming certain parts of the sites that are on DND property. Written authorizations must also be obtained from the owners of sites that are not federal government property and that have no public access before carrying out any such activity. Such needs must be communicated to DND, which will be responsible for obtaining the requisite authorizations.

7.20 Access to DND restricted sites

- Except as otherwise indicated by DND, and excluding the PP's work schedule, work to be performed on the sites concerned by the TCEVC-PMW Project that requires access by the AE to restricted DND sites must be carried out during working days between 7:30 am and 5:00 pm;
- If the AE plans to perform work on these sites on weekends, holidays or outside the specified times, the AE must first apply for and obtain authorization from DND before proceeding with the work.

7.21 Compliance**7.21.1 Permits, licences and authorizations**

The AE is responsible for identifying and obtaining all authorizations (permits, licences and other authorizations) required to perform the work under this mandate, in order to comply with the most recent versions of the applicable federal, provincial and municipal acts and regulations. These authorizations must be obtained before the work in question is carried out.

7.21.2 Compliance with acts and regulations applicable to work on the sites

When carrying out work under its responsibility on the sites concerned by the TCEVC-PMW Project, the AE will at all times comply with the requirements specified in the mandate documents and in its internal documents, as well as in relevant federal, provincial and municipal acts and regulations and any policy documents with regard to the following aspects:

- Occupational health and safety, in particular the *Canada Labour Code* and the *Quebec Act Respecting Occupational Health and Safety* and its regulations;
- Environmental protection.

In the event that certain sectors of the site concerned by work carried out under this mandate are located within protected areas under the *Species at Risk Act*, the AE is responsible for ensuring that its personnel have the necessary training and follow the requisite procedures in the field in order to ensure the protection of any protected species or habitat.

In the event of conflict between certain requirements, the strictest requirements shall apply.

7.21.3 ***Delays***

In the event that the AE is responsible for a delay in carrying out its work on the sites because of a violation of legal regulations or health and safety requirements, the AE shall, at DND's discretion and at no additional cost to DND, ensure compliance with the timetable that has been established.

7.21.4 ***Unforeseen hazards***

If an unforeseen or particular risk or hazard occurs during the performance of work that is under the responsibility of the AE, the AE will:

- Take immediate measures to correct the situation and to prevent any damage or injury; and
- Immediately inform DND of the hazard.

7.22 ***Accidents and damage***

The AE will at all times take full responsibility for any accidents or damage, including, but not limited to, injuries or damage caused by its personnel and its equipment on the sites, as well as to property and persons on the sites.

7.23 ***Meetings***

- For the entire duration of this mandate, the AE's key personnel must attend various types of meetings, including, without limitation, start-up meetings, periodic meetings (including weekly or bimonthly meetings), meetings for the purpose of conflict resolution, meetings with public authorities; etc.;
- At DND's request, the physical presence of the AE's representatives may be required for any meeting;
- Except as otherwise indicated by DND, the AE is responsible for drafting and distributing to the participants minutes of all meetings attended, in accordance with DND's instructions.

7.24 Deliverables**7.24.1 DND instructions**

For each deliverable, DND will provide to the AE special instructions concerning the software to be used, format, content, organization of the information, deadlines, submission method, review process and acceptance process.

The following sections provide general guidelines on this point.

7.24.2 Review of deliverables by DND

- DND will review the deliverables in order to determine whether they comply with the requirements of this mandate;
- In particular, this exercise will include a review of product quality which includes, but is not limited to, the clarity and organization, spelling and syntax of the text, and a review of the technical and scientific information and the conclusions in order to ensure that they are complete, accurate and appropriate;
- If the content and/or quality of the deliverable submitted by the AE is deemed to be unacceptable or non-compliant with the requirements established for this mandate, DND reserves the right to demand that the AE, at its own expense, submit to DND other versions by the deadlines set by DND, until such time as the deliverable is deemed to be satisfactory;
- DND's review of the content of the deliverables submitted for acceptance by DND under this mandate will not discharge the AE of its legal, financial and professional obligations and responsibilities under this mandate, in particular with regard to the submission of complete and accurate documents.

7.24.3 Nomenclature

The AE will:

- Use and maintain a uniform and standardized document format for the duration of the mandate;
- Use a document naming procedure that includes, as a minimum, the name of the TCEVC-PMW Project, the names of the authors, revisers and persons who approved the document, the date and a table of revisions.

7.25 Daily reports and progress reports

Depending on the nature of the work to be performed under this mandate, the AE may have to submit to DND, in addition to the deliverables already identified specifically for this mandate:

- Daily reports describing day-to-day activities concerning the work being done on the sites;
- Progress reports (including periodic reports) specifying the work performed during the associated reference period established by DND.

7.26 Recommendations

Generally speaking, in the event that the AE recommends to DND changes or actions that are in addition to those already provided for under this mandate or related to the implementation of the TCEVC-PMW Project, the AE will provide, as a minimum, the following information:

- The nature, description and justification for the recommended additional changes or actions;
- The impacts on this mandate and/or the TCEVC-PMW Project of not carrying out the changes or actions;
- A breakdown of the estimated associated costs;
- An estimate of the time required to carry out the additional changes or actions.

DND may also provide special instructions concerning the inclusion or non-inclusion of recommendations in the deliverables generated by the AE.

7.27 AE work plans and schedules

The AE will:

- Prepare, keep up to date and adhere to work plans, including detailed timetables, for performance of all the work under the mandate, as well as by service, including critical paths, where applicable;
- Prepare and maintain timetables in the form of Gantt charts;
- Promptly notify DND of any known or anticipated changes or delays, and keep accurate records of the causes of the delays;
- Provide work plans and timetables according to the frequency and within the deadlines specified by DND;
- The work plans must include, but are not limited to, the following:
 - A description of the service showing that the AE understands the tasks to be performed;
 - A list and detailed description of the deliverables;
 - An allocation of hours by employee category, where applicable;

- The names, positions and responsibilities of the human resources that will be assigned to work directly in carrying out the service;
- A budget, with breakdown, including the hourly rates, level of effort for each resource and outlays;
- A detailed timetable, including:
 - ✓ Scheduling of tasks in accordance with the deadlines established by DND;
 - ✓ Milestones and critical elements;
 - ✓ Start and end dates and the duration of the tasks. Statutory holidays and any other periods of work stoppage of the AE, PP and IE must be included when known;
- Mobilize, and on a priority basis, dedicate personnel to the TCEVC-PMW Project in order to meet critical deadlines;
- Adhere to the work plans and timetables as submitted to and accepted by DND;
- Promptly inform DND of any change or circumstance that would make it impossible to adhere to the work plans and timetables, and submit alternatives to DND for approval, where applicable.

7.28 ***Authorization to begin a service***

Before beginning each service, the AE will:

- Prepare or confirm the work plan prepared in accordance with the requirements of section 7.27 *AE work plans and schedules*;
- Review the work plan in light of DND's comments, where applicable;
- Obtain authorization from DND before initiating the tasks stipulated in the service.

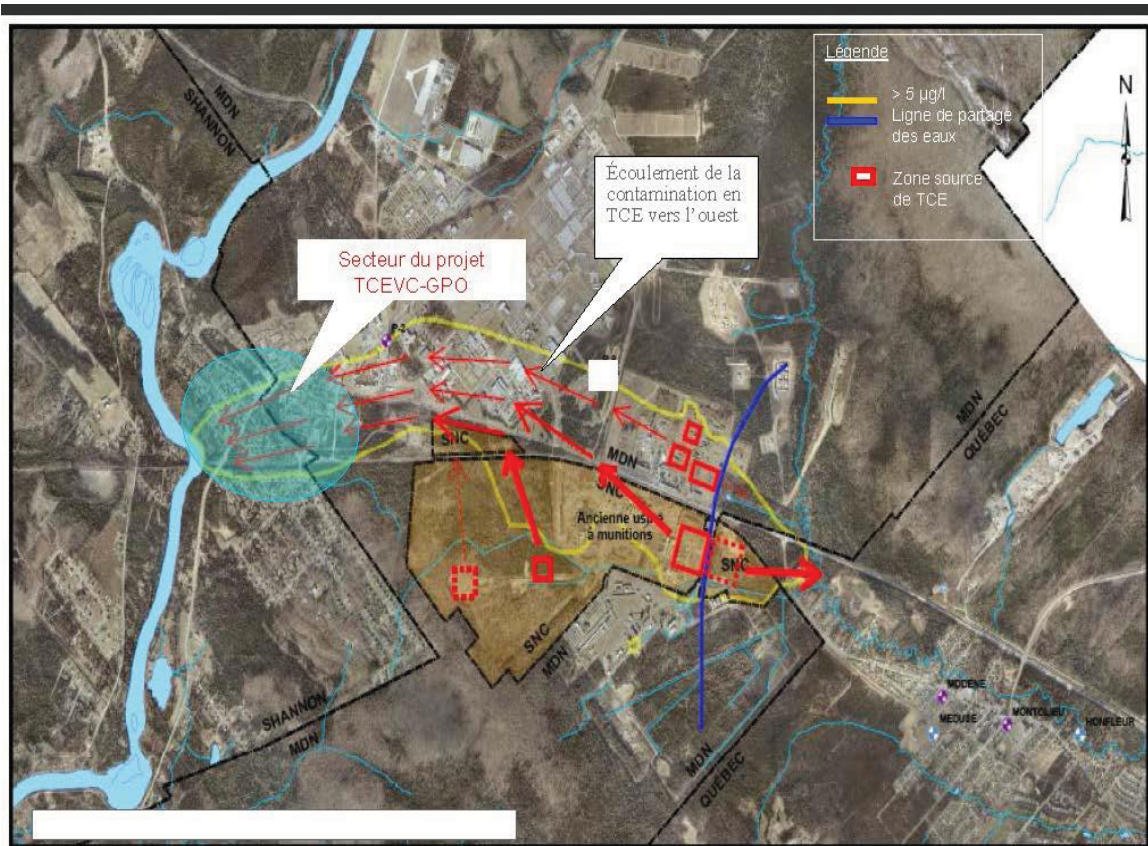
8 LIST OF REFERENCE DOCUMENTS AVAILABLE FOR CONSULTATION

The list of reference documents relating to the TCEVC-PMW Project is provided in Annex C – LIST OF REFERENCE DOCUMENTS AVAILABLE FOR CONSULTATION.

A CD containing the reference documents is available and will be send by the Contracting Authority upon request.

ANNEX A

GRAPHICAL REPRESENTATION OF THE TCEVC-PMW PROJECT AREA



ANNEX B

LOCATIONS OF THE TCEVC-PMW PROJECT COMPONENTS



ANNEX C

LIST OF REFERENCE DOCUMENTS AVAILABLE FOR CONSULTATION

1. Applicabilité du pompage et traitement pour le contrôle de la migration vers l'ouest du TCE dissous dans l'aquifère deltaïque du secteur Valcartier, INRS ETE (mars 2010)
2. Synthèse du contexte hydrogéologique et de la problématique du TCE à Valcartier. INRS. Mai 2010
3. Installation d'un puits de pompage et essais de pompage – Secteur Place Vanier – Garnison Valcartier – Courcelette (Qc), Biogénie (Mars 2012)
4. Évaluation des options de gestion de l'eau après pompage et traitement, LVM (Janvier 2014)
5. Étude de capacité hydraulique d'une conduite d'égout pluvial le long de la vélo-piste Jacques-Cartier/Portneuf, LVM (Octobre 2014)
6. Caractérisation environnementale et étude géotechnique, LVM (Mars 2015)
7. Caractérisation environnementale P4/P7, essai de pompage et géochimie – Garnison Valcartier, LVM (Mars 2015)
8. Projet TCEVC-GPO – Secteur Valcartier – Caractérisation écologique du milieu récepteur, Groupe DDM (Mars 2015)
9. Échantillonnage des eaux de surface, Valcartier, Québec – campagnes printemps et été 2015, Cima+ (Février 2016)
10. Rapport final – Suivi de la qualité des eaux souterraines - Printemps et été 2015 – Secteur Valcartier, Englobe (Mars 2016)