



Travaux publics et  
Services gouvernementaux  
Canada

Public Works and  
Government Services  
Canada

Matane

---

Dredging

Project n° R.071845.001

File n° 4380-M021/31-1

Specifications for Tender

Prepared by

Richard Lévesque

Acting Chief Dredging and hydrographic surveys

Marine Works – Project Management and A & E Services

May 2015

<u>DIVISIONS</u>	<u>SECTIONS</u>	<u>NUMBER OF PAGES</u>
<b><u>DIVISION 01</u></b>	<b>General Requirements</b>	
	01 11 01 Work related General Information	2
	01 33 00 Submittal Procedures	2
	01 35 30 (D) Health and Safety – Dredging	6
	01 35 43 Environmental Procedures	4
	01 52 00 Construction Facilities	1
<b><u>DIVISION 35</u></b>	<b>Waterway and Marine</b>	
	35 20 23 Dredging	12
<b><u>APPENDICES</u></b>		
Appendix A	Stockpiling Area	1
Appendix B	Particle-size Distribution of Dredged Material	1
Appendix C	Example of ASCII Bathymetry File (x,y,z)	1
<hr/>		
<b><u>DRAWINGS</u></b>	Matane	
	Drawing N° QU-14020-M – (Dredging Forecast)	1

**END OF SECTION**

**Part 1            General**

**1.1                WORK BY OTHERS**

- .1        Co-operate with other Contractors in carrying out their respective works and carry out instructions from the Departmental Representative.
- .2        Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to the Departmental Representative, in writing, any defects which may interfere with proper execution of Work.

**1.2                FUTURE WORK**

- .1        Insure that Work avoids encroachment into areas required for future work.

**1.3                WORK SEQUENCE**

- .1        Construct Work in stages to accommodate the Departmental Representative's use of premises during construction.
- .2        Co-ordinate Progress Schedule the Departmental Representative Occupancy during construction.
- .3        Construct Work in stages to provide for continuous public usage. Do not close off public usage of facilities until use of one stage of Work will provide alternate usage.
- .4        Maintain fire access/control.

**1.4                CONTRACTOR USE OF PREMISES**

- .1        Unrestricted use of site until Substantial Performance.
- .2        Limit use of premises for Work to allow:
  - .1        The Departmental Representative occupancy.
  - .2        Partial occupancy by the Departmental Representative.
  - .3        Work by other contractors.
  - .4        Public usage.
- .3        Co-ordinate use of premises under direction of Departmental Representative.
- .4        Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .5        Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .6        At completion of operations condition of existing work: equal to or better than that which existed before new work started.

**1.5 OCCUPANCY BY THE DEPARTMENTAL REPRESENTATIVE**

- .1 The Departmental Representative will occupy premises during entire construction period for execution of normal operations.
- .2 Co-operate with the Departmental Representative in scheduling operations to minimize conflict and to facilitate the Departmental Representative usage.

**1.6 REQUIRED DOCUMENTS**

- .1 Maintain at job site, one copy each document as follows:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Reviewed Shop Drawings.
  - .5 List of Outstanding Shop Drawings.
  - .6 Change Orders.
  - .7 Other Modifications to Contract.
  - .8 Field Test Reports.
  - .9 Copy of Approved Work Schedule.
  - .10 Health and Safety Plan and Other Safety Related Documents.
  - .11 Other documents as specified.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not used.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1            Public Works and Government Services Canada (PWGSC)
  - .1            PWGSC, Standard Acquisition Clauses and Conditions Manual (SACC) (cf. call for tender document).

**1.2                ADMINISTRATIVE**

- .1            Submit required documents and samples to Departmental Representative for review. Submit promptly and in orderly sequence to not cause delay in work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract time and no claim for extension by reason of such default will be allowed.
- .2            Do not proceed with work subject to submittals or mock-ups until submittals are fully reviewed and approved.
- .3            Characteristics shown on shop drawings, product data, samples and mock-ups shall be indicated in metric units (SI).
- .4            Verify documents before handing them to the Departmental Representative. This preliminary review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.
- .5            Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract documents stating reasons for deviations.
- .6            Verify field measurements and that affected adjacent work are coordinated.
- .7            Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .8            Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review.
- .9            Keep one reviewed copy of each submission on site.

.10 A covering letter containing the following information should accompany the documents submitted:

- .1 Date.
- .2 Project designation and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each document submitted.
- .5 Any other relevant information.

**1.3 CERTIFICATES AND MINUTES**

.1 Submit relevant documents required by the agency having jurisdiction for the protection of workers in case of work accident immediately after Contract award.

**Part 2 Products**

**2.1 NOT USED**

.1 Not used.

**Part 3 Execution**

**3.1 NOT USED**

.1 Not used.

**END OF SECTION**

**Part 1            General**

**1.1                SECTION INCLUDES**

- .1        The Contractor shall manage his activities in such manner that the health and safety of the public and the personnel at the work site/workplace, including environmental protection, are at all times given precedence over project cost or schedule considerations.

**1.2                REFERENCES**

- .1        As the context requires, the latest available release of the following documents shall always be referred to:
  - .1        Canada Labour Code - Part II, Canadian Occupational Safety and Health Regulations.
  - .2        Canadian Standards Association (CSA).
  - .3        Act Respecting Occupational Health and Safety, R.S.Q. Chapter S-2.1, last version.
  - .4        Construction Safety Code, S-2.1, r.6, last version.
  - .5        Any other law or regulation relating to health and safety that would be applicable under the company statute or the context of the works.

**1.3                SUBMITTALS**

- .1        Submit the documents required according to section 01 33 00 (Submittal Procedures).
- .2        Submit to Departmental Representative the site-specific work site/workplace safety program, as outlined in article 1.8 - Safety and Health Management at least ten (10) days prior to start of work. The Contractor must review his program during the course of the project if any change occurs in work as planned. The Departmental Representative may, after receiving the program or at any time during the project, ask the Contractor to update or modify the program in order to better reflect the reality of the worksite/workplace. The Contractor shall make the required changes before work begins.
- .3        Submit to Departmental Representative the worksite/workplace inspection sheet, duly completed at intervals indicated in article 1.12 - Workplace Inspection and Correction of Hazardous Situations.
- .4        Submit to Departmental Representative within 24 hours one copy of any inspection report, correction notice or recommendation issued by federal or provincial inspectors.
- .5        Submit to Departmental Representative within 24 hours an investigation report for any accident involving injury and any incident exposing a potential hazard.
- .6        Submit to Departmental Representative all material safety data sheets for controlled products to be used at the worksite/workplace at least three (3) days before they are to be used on the worksite/workplace.
- .7        Submit to Departmental Representative copies of the training certificates required toward the application of the safety program, in particular:

- .1 First aid in the workplace and cardiopulmonary resuscitation.
- .2 Work in confined areas.
- .3 Lock-out procedures.
- .4 Wearing and fitting of individual protective gear.
- .5 Any other training called for by regulation or the safety program.
- .8 Medical examinations: where legislation, regulations, directions, specifications or a safety program require medical examinations, the Contractor shall:
  - .1 Prior to mobilization, submit to Departmental Representative the certificates of medical examination for all concerned supervisory staff and employees who will be on duty when the worksite/workplace opens.
  - .2 Thereafter, submit without delay certificates of medical examination for any newcomers to the worksite/workplace.
- .9 Emergency plan: the emergency plan, as defined in article 1.8.3 - Safety and Health Management, shall be submitted to Departmental Representative at the same time as the site-specific safety program.
- .10 Work permits: the Contractor shall obtain all the municipal, provincial and federal permits that are required in the Contract. A copy of the permit application forms shall be submitted without delay to the Departmental Representative.
- .11 Plans and certificates of compliance: the Contractor shall provide the Departmental Representative with a copy of all plans, methods and certificates of compliance signed and sealed by an engineer in the following instance:
  - .1 Any changes to equipment or a piece of machinery that has not been authorized in writing by the manufacturer. Copy of these documents must be available at all times on the worksite/workplace.

#### **1.4 RISK ASSESSMENT**

- .1 The Contractor must identify all hazards inherent to each task carried out at the worksite/workplace.
- .2 The Contractor shall plan and organize the work so as to foster hazard abatement at the source, or mutual protection, so that reliance on individual protective gear can be kept to a minimum. Where individual protection against falls is required, workers shall use a safety harness to CAN/CSA- Z-259.10-M90 requirements. Safety belts shall not be used as protection against falls.
- .3 Equipment, tools and protective gear which cannot be installed, fitted or used without compromising the health or safety of workers or the public shall be deemed inadequate for the work at hand.
- .4 All mechanical equipment shall be inspected before delivery to the worksite/workplace. Before using any mechanical equipment, the Contractor shall submit to Departmental Representative a certificate of compliance signed by a qualified mechanic. Whenever he suspects a defect or risk, the Departmental Representative may order the immediate shut-down of equipment and require a new inspection by a specialist of his own choosing.

## 1.5 MEETINGS

- .1 A Contractor's representative who has decisional ability must attend all meetings at which worksite/workplace safety and health issues are to be discussed.
- .2 The Contractor shall set up a safety committee, and convene meetings every second week. This committee must include at least one representative of the Contractor with decision authority and the workers' representative for each trade or industry. The committee's role is to see to the application of the safety program and ensure that measures are taken to promptly correct any situation that could cause an accident or adversely affect the health of workers.

## 1.6 REGULATORY REQUIREMENTS

- .1 Comply with all legislation, regulations and standards applicable to the Work.

## 1.7 SITE SPECIFIC / IMPLEMENTATION CONDITIONS

- .1 At this worksite/workplace, the Contractor must take into account of the following conditions:
  - .1 Risks involved in the transshipment, handling and closing-in of floating equipment; manual work in the vicinity of an operating hydraulic or cable shovel during dredging operations.
  - .2 Risks involved in the potential release of oil products at sea and with the operations undertaken to confine the spill.
  - .3 Risk of falling into the water and drowning.

## 1.8 SAFETY AND HEALTH MANAGEMENT

- .1 The Contractor shall acknowledge and assume all the charges and obligations which customarily devolve upon a Head Contractor and employer under the terms of the laws and regulations on occupational health and safety applicable to him.
- .2 The Contractor shall prepare a specific worksite/workplace safety program based on hazard identification and apply it from the start of project until close-out is completed. The safety program must take into account all the information appearing in article 1.7 - Site Specific / Implementation Conditions. The safety plan must be submitted to all parties concerned, in accordance with the provisions set forth in article 1.3 - Submittals. At minimum, the safety program shall include:
  - .1 Company safety and health policy.
  - .2 A description of the work, total costs, schedule and projected workforce curve.
  - .3 Flow chart of safety and health responsibility.
  - .4 The physical and material layout of the worksite/workplace.
  - .5 First-aid and first-line treatment standards.
  - .6 Identification of worksite/workplace-specific hazards.
  - .7 Risks identified to the tasks being carried out, including the preventive measures and the application procedures.
  - .8 Training requirements.
  - .9 Procedures in case of accident/injury.

- .10 Written commitment to comply with the prevention program, signed by all parties.
- .11 A worksite/workplace inspection schedule based on the preventive measures.
- .3 The Contractor shall draw up an effective emergency plan based on the characteristics and constraints of the worksite/workplace and its surroundings. Submit the emergency plan to all parties concerned, as required in article 1.3 - Submittals. The emergency plan shall include:
  - .1 Evacuation procedure.
  - .2 Identification of respondents (police, firefighters, ambulance services, etc.).
  - .3 Identification of persons in charge at the worksite/workplace.
  - .4 Identification of first-aid attendants.
  - .5 Training required for those responsible for applying the plan.
  - .6 Any other information needed, in the light of the worksite/workplace characteristics.

## **1.9 RESPONSIBILITIES**

- .1 No matter the size of the construction worksite/workplace or the number of workers on site, the Contractor shall one competent person to supervise and take responsibility for health and safety. Take all necessary measures to ensure the health and safety of persons and property at or in the immediate vicinity of the worksite/workplace and likely to be affected by work activities.
- .2 Take all necessary measures to ensure application of and compliance with the safety and health requirements of the contract documents, applicable federal or provincial regulations, applicable standards as well as the worksite/workplace-specific safety program, and comply without delay with any order or correction notice issued by an inspector.
- .3 The Contractor shall take all necessary measures to keep the worksite/workplace clean and tidy throughout the course of the work.

## **1.10 COMMUNICATIONS AND POSTING**

- .1 Make all necessary arrangements to ensure effective communication of safety and health information at the worksite/workplace. As they arrive on the worksite/workplace, all workers must be informed of the safety program and of their rights and obligations. The Contractor must insist on workers' right to refuse to perform work which they feel may threaten their own health, safety or physical integrity or that of other persons at the worksite/workplace. The Contractor shall keep on the worksite/workplace and update a written record of all information transmitted and the signature of all workers who received the information.
- .2 The following information and documents must be posted in a location readily accessible to all workers:
  - .1 Identification of the employer and/or the Head Contractor.
  - .2 Company Occupational Safety and Health policy.
  - .3 Worksite/workplace-specific safety program.
  - .4 Emergency plan.

- .5 Material safety data sheets (MSDS) for all controlled products used at the worksite/workplace.
- .6 Minutes of worksite/workplace committee meetings.
- .7 Names of worksite/workplace committee representatives.
- .8 Names of first-aid attendants.
- .9 Action reports and correction notices issued by inspectors.

**1.11 UNFORSEEN CIRCUMSTANCES**

- .1 Whenever a source of danger, not defined in the specifications or unidentifiable during the preliminary worksite/workplace inspection, arises as a result of the work or in the course of activities, the Contractor shall immediately suspend work, take appropriate temporary measures to protect the workers and the public and notify the Departmental Representative, both verbally and in writing. The Contractor shall then modify or update the safety program in order to resume work in safe conditions.

**1.12 WORKPLACE INSPECTION AND CORRECTION OF HAZARDOUS SITUATIONS**

- .1 Proceed to workplace inspection and complete the worksite/workplace inspection checklist at least once a week.
- .2 Immediately take all necessary measures to correct any lapses from legislative or regulatory requirements and any hazards identified by a government inspector, by the Departmental Representative, by the PWGSC safety and health coordinator, or during routine inspections.
- .3 Submit to Departmental Representative written confirmation of all measures taken to correct lapses and hazardous situations.
- .4 Work interruption: the Contractor shall give the safety officer or, where there is no safety officer, the person assigned to safety and health responsibilities, full authority to order interruption/resuming of work when deemed necessary or desirable in the interest of safety and health. This person should always act so that the safety and health of the public and worksite/workplace workers and environmental protection take precedence over cost and scheduling considerations. Without limiting the scope of the articles on “Health and Safety Management” and “Responsibilities” the Departmental Representative or any person appointed by Public Works and Governmental Services Canada may order cessation of work if, in his/her view, there exist hazards or threats to the safety or health of site workers or the public, or to the environment.

**1.13 BLASTING**

- .1 Blasting and any use of explosives is prohibited unless authorized in writing by the Departmental Representative.

**Part 2            Products**

**2.1                NOT USED**

.1            Not used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not used.

**END OF SECTION**

**Part 1            General**

**1.1                PRECEDENCE**

- .1        The sections in Division 01 have precedence over the technical in the other divisions of this project.

**1.2                FIRES**

- .1        Fires and burning of rubbish on site/workplace are not permitted.

**1.3                WASTE DISPOSAL**

- .1        Do not dispose of waste materials and/or volatile materials such as mineral spirits and thinners for oil or paint, in waterways, storm and sanitary sewers. These materials must be managed and disposed of in accordance with the requirements of local authorities.

**1.4                POLLUTION CONTROL**

- .1        Control emissions from equipment and plant to local authorities' emission requirements.
- .2        Prevent fine materials and other foreign matter from contaminating air beyond the work site.
- .3        Have absorbent materials available at all time on site/workplace in order to respond promptly in case of hazardous material spill.
- .4        In case of accidental marine spill, the Contractor shall immediately notify the Regional Alert and Warning Network (Canadian Coast Guard) at 1-800-363-4735 and take all actions required to correct the situation and minimize the environmental impacts.
- .5        In addition the Contractor shall have available on the dredge a spill control kit. This kit should include at least the following components:
  - .1        One (1) or several salvage drums with minimum storage capacity of 285 litres (75 US gallons).
  - .2        One hundred (100) absorbent pads 340 g (12 oz. CAN).
  - .3        Fifteen (15) flotation collars 0.07 m wide and 1.2 m long.
  - .4        Four (4) flotation collars 0.1 m wide and 3 m long.
  - .5        Nine (9) kg of granular sorbent.
  - .6        One (1) drain cover.
  - .7        One (1) shovel.
  - .8        Disposal bags.
  - .9        Sealing or patch (capping) paste.

The Contractor shall make use of the kit in the event of an oil spill and to comply with section 1.4.4 of this section.

- .6 Regarding transportation, handling and storage of dangerous goods on board vessels, the Contractor shall comply with the Canada Shipping Act and all regulations pursuant to that legislation; thereunder.
- .7 Do not dump excavated fill, waste material or debris in waterways.
- .8 Do not store oil products or other hazardous material less than 30 metres from the shore.
- .9 Perform vehicle maintenance and refueling at a minimum distance of 30 metres from the shore.

## 1.5 INVASIVE SPECIES

- .1 An exotic invasive species is, by definition, a species alien to the ecosystem where it is found, but able to breed and likely to have harmful effects on the economy, the environment or human health. This kind of nuisance includes, in addition to plants, some animals, fungi and microorganisms that are also a threat to biodiversity.
- .2 Marine ecosystems are vulnerable to allochthonous or invasive species, in particular when performing work that requires floating equipment. To prevent the introduction of invasive allochthonous species in the natural ecosystem when performing work in the marine environment with floating equipment, the following measures shall be observed. The risks of introducing allochthonous species are minimized when using clean marine equipment that has been stored on land prior to work inception. Thus:
  - .1 For equipment cleaned and stored on land just before work is undertaken, the Contractor shall:
    - .1 Submit to Departmental Representative, in writing, a list of the equipment with location of storage area and expected date for streaming. Departmental Representative shall be entitled to verify if equipment was actually cleaned and stored on land prior to work performance.
  - .2 In anticipation of using already waterborne equipment, the Contractor shall demonstrate, at own expense, that floating equipment is free from invasive species just before mobilization at worksite. Thus:
    - .1 The Contractor shall submit a written inspection report, immediately before its mobilization to worksite, certifying that equipment is free of invasive species. Inspection report to be prepared by a qualified biologist experienced in the identification of benthic fauna and the sampling performed by divers. Report shall include, without limitation, the following information and data: list of inspected equipment (tugs, tow-barges, etc.), date and location of inspection, summary of sampling and identification protocols, a list of the samples, a table of results, and a certification pertaining to the occurrence or absence of invasive species. The report shall include photographs and bear the signature of the qualified biologist prior to submittal to the Departmental Representative along with other Contract documents needed before equipment is mobilised.
    - .2 Should an occurrence of invasive species be confirmed in the inspection report, the Contractor shall be required to replace the equipment or to

proceed, at own expense, with complete cleaning of equipment. A description of the cleaning work performed shall be included in the additional inspection report (after cleaning) with all the relevant information herein mentioned.

- .3 The Department reserves right to seek a second expert opinion at any time. Should invasive species be observed, the Contractor shall suspend work and proceed, at own expense, with cleaning of the affected equipment and follow the above mentioned procedure.

**Part 2            Products**

**2.1                NOT USED**

- .1 Not used

**Part 3            Execution**

**3.1                MITIGATION MEASURES**

- .1 Throughout the work, the Contractor shall implement rigorously all the requirements listed in this section.

**3.2                DREDGING, RELEASE AND TRANSPORT OF SEDIMENTS**

- .1 Whenever possible, prioritize the use of a grab clamshell for dredging.
- .2 Curtail sediment resuspension.
- .3 Reduce the rate of rise and descent of the bucket. Avoid sudden movements of the bucket.
- .4 Avoid overfilling the barges to prevent liquid overflow and sediment spillage during during transport to the disposal site in open water.
- .5 Avoid dredging, transporting and releasing sediment during unfavorable weather conditions (strong winds, storms, etc.) in order to prevent overflow and minimize sediment dispersion.
- .6 Thus, where various debris are dredged, dispose of such materials on land at an authorized site.
- .7 Ascertain that the bottom of the barge is leak-proof during the transport of sediments.
- .8 Do not fill barges to capacity during inclement weather in order to prevent sediment overflow during transportation.
9. The Contractor must be able to demonstrate that his equipment was inspected and is free of invasive allogetic species.

- .10 The Contractor shall implement an Environmental Emergency Plan (EEP) to deal with spills involving oil products or other hazardous material. The EEP shall be available on site and be communicated to all employees.
- .11 Proceed to a preliminary inspection of equipment and regular check-up thereafter in order to ensure that the machinery is in good working order, clean and leak proof. In case of failure, repair or replace the equipment in appropriate locations identified in the Contractor's EEP.
- .12 Prefer floating equipment running on type HF biodegradable oil specially designed for this type of equipment.
- .13 Have on hand and maintain permanently a spill emergency kit both near the dredge and in the refuelling areas. The kit shall include all the necessary material in sufficient quantity to recover all contaminants.
- .14 Do not dispose of volatile materials or other hazardous material by releasing such products into the aquatic environment.
- .15 Should a spill occur, respond immediately to contain the leak and confine the hazardous materials. The area affected by the spill should be cleaned and the contaminated material removed and disposed of at an authorised site.
- .16 In case of spill, immediately report the occurrence to Environment Canada's emergency service (1-866-283-2333), to Urgence Environnement du Québec (1-866-694-5454) and the Canadian Coast Guard (1-800-363-4735).
- .17 Manage used oils and other contaminated waste in accordance with applicable regulations. This includes on-site storage, transportation and disposal.
- .18 Should a marine mammal come within 400 metres of the barges or dredger, the dredging operations or sediment release shall be stopped and boats must maintain a stationary position until the animal is more than 400 m away or until at least 20 minutes have lapsed since the last sighting.
- .19 The use of means or devices to scare marine mammals is prohibited.
- .20 Coordinate the dredging operations as much as possible with the demolition of the finger pier and manage to dredge before the piles in the finger pier are extracted.

**END OF SECTION**

**Part 1 General**

**1.1 CONTENT OF THIS SECTION**

- .1 Offices and storage.

**1.2 PRECEDENCE**

- .1 Sections of Division 01 have precedence over the technical sections in the other divisions of this specification.

**1.3 SITE OFFICES**

- .1 The Contractor shall provide the Departmental Representative with reasonable site office space on the dredge, with relevant amenities.

**1.4 SANITARY FACILITIES**

- .1 Provide sanitary facilities for the work force in accordance with governing regulations and ordinances.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not used.

**END OF SECTION**

**Part 1            General**

**1.1                RELATED SECTIONS**

- .1        Section 01 11 01 – Work related General Information
- .2        Section 01 35 43 – Environmental Procedures

**1.2                MEASUREMENT FOR PAYMENT PURPOSES**

- .1        Only the materials excavated above the required dredging level (plus an additional 0.1 m in depth) and within the side slopes indicated or specified will be measured.
- .2        Quantities indicated in the price schedule are approximate expected quantities, and they may not be increased without a written permission from the Departmental Representative. No payment will be made to the Contractor for work involving additional quantities without prior written authorisation by PWGSC.

.3        Mobilization/Demobilization:

.1        Item n° 1.1 - Floating equipment

- .1        The Contractor agrees to provide, at Departmental Representative's request and within 48 hours, the following information related to the lump-sum defined in this section:

- .1        Location of the equipment
- .2        Distances to be travelled (or travelled) in km
- .3        Itinerary (route)
- .4        Approximate dates.

- .2        The lump-sum will represent the costs incurred by the Departmental Representative in relation to the installation and start-up of the Contractor's equipment at the dredging site and the dismantling and demobilization of same at work completion.

.2        Item n° 1.2 - Other equipment (land-based)

- .1        Before the contract is awarded, the Contractor agrees to provide, at Departmental Representative's request and within 48 hours, the following information related to the lump-sum defined in this section:

- .1        Location of the equipment
- .2        Distances to be travelled in km
- .3        Itinerary (route)
- .4        Approximate dates

- .2        The lump-sum will represent the costs incurred by the Departmental Representative in relation to the installation and start-up of the Contractor's equipment at the dredging site and the dismantling and demobilization of same at work completion, including all fit-up and dismantling costs required for land-based installations.

- .3        Worksite organisation costs are included in this amount.

.4 Dredging

.1 Item n° 2.1 - Dredging – sediments

- .1 The Contractor shall submit a unit price per cubic metre measured in-place ( $m^3mp$ ) to be applied to the volume dredged. The Contractor may submit a request for payment once the Certificate of Completion is signed by the Departmental Representative on the site.
- .2 Should the work exceed thirty (30) days, a progressive payment based on the cubic metres scow measurement may be accepted.
- .3 The dredging area is defined within the lateral limits and grade depths indicated on the drawings and includes side slopes of 3 horizontal to 1 vertical ratio, as defined in section 1.3.9 of this section.
- .4 Dredging will be measured per cubic meter in place (CMPM). The volume will be based on bathymetric surveys before and after the complete dredging of the areas delineated on the drawings.
- .5 The Departmental Representative reserves the right to change the horizontal and/or vertical limits of dredging at all times before the beginning of work.
- .6 Post dredge surveys and mechanical sweeping of dredged areas are included in the unit price for dredging, as well as all the equipment, tooling, labour, etc., required to perform the work.
- .7 All operations relating to the installation of the dredging equipment are considered incidental to the work and will not be measured for separate payment.
- .8 Filling and sedimentation in previously dredged areas, or where the work is not yet completed, may occur before acceptance. The Contractor remains responsible and he shall remove this material and complete the dredging of all areas shown on the drawings at the specified depth in order to obtain the Certificate of Completion. The removal of filling or sedimentation during dredging will not be measured separately for payment.
- .9 In his unit price, the Contractor shall include all costs associated with material dredged below the dredging line and outside the dredging limits.

.5 Disposal

.1 Item n° 3.1 - Open-water disposal (release)

- .1 The unit price submitted for open-water disposal of non-contaminated spoil will consist of the payable volume of Item n° 2.1 ( $m^3mp$ ) in the unit price schedule multiplied by the shortest navigable distance in kilometers (km) (Appendix A) between the dredging site and the authorized open-water disposal site.
- .2 The disposal of dredged material shall be conducted in accordance with the requirements herein including mitigation measures, and in the other contract documents.
- .3 All operations related to the disposal of materials at the open-water disposal site will be considered incidental to the work and will not be measured separately for payment.

- .6 Other considerations
  - .1 The global price and the unit prices include all materials, transportation, rental, installation of equipment, equipment, tools, labour, and expenses for performing work not specifically described on the plans or in the specifications or in other tender documents and yet considered necessary to comply with best practices.
  - .2 All work described in this specification or shown on the drawings, and work required toward completion of the work covered by this specification, yet not defined as separate items entitling to a lump-sum or unit price payment, will be considered directly or indirectly as related to the overall purpose of the contract and no separate payment will be made in respect of any of this work; the cost of all activities directly or indirectly related to the matter of this contract must, however, be included in the unit prices quoted in the bid.
  - .3 There will be no additional payment for temporary structures used during dredging operations.
  - .4 There will be no additional payment for delays due to fishing activities or gear located at the dredging sites or at the open-water disposal site.
  - .5 There will be no additional payment for delays resulting from maritime traffic.
  - .6 There will be no additional payment for downtime.
  - .7 There will be no additional payment for mooring and anchoring facilities for dredging or other floating equipment.
  - .8 There will be no additional payment for downtime resulting from operational adjustments to the execution.
  - .9 There will be no additional payment for time losses due to weather conditions or time losses resulting from the monitoring of marine mammals.
- .7 Tenderers must prepare their bids by filling out the unit price schedule included in the tender documents.
- .8 Obstacles
  - .1 The removal of debris or obstacles, where authorized by the Departmental Representative, will be paid according to the number of hours on task toward such removal multiplied by the hourly rate calculated by the Departmental Representative as described in the next paragraph.
  - .2 The hourly rate will be calculated at the end of the contract by dividing the amount paid for dredging and the disposal of dredged material, excluding the costs of mobilization and demobilization, with the number of operational hours of the dredge during the contract (excluding interruptions due to repairs, bad weather conditions, etc.). The periods of less than a half an hour in duration for dredging and/or removal of obstacles will not be considered.
- .9 Payment by instalments

The Departmental Representative will pay the Contractor as follows:

  - .1 Mobilization/Demobilization
    - .1 Floating equipment: in accordance with clause 1.2.3.1 (and sub-paragraphs), when the barge is on site and dredging, fifty percent (50%) of the fixed price for Mobilization/Demobilization indicated in the bid document.

- .2 The remaining fifty percent (50%) will be included in the final payment of the contract, after signature of the Certificate of Completion.
- .2 Dredging
  - .1 In accordance with clause 1.2.4 (and sub-paragraphs), in monthly progress payment(s) as assessed by the Departmental Representative or, after signature of the Certificate of Completion, one hundred percent (100%) of the amount established in multiplying the m<sup>3</sup>mp dredged volume by the unit price of dredging.
- .3 Disposal
  - .1 Open-water: in accordance with clause 1.2.5 (and sub-paragraphs), in monthly progress payment(s) as assessed by the Departmental Representative or, after signature of the Certificate of Completion, one hundred percent (100%) of the amount established in multiplying the m<sup>3</sup>mp dredged volume by the unit price of open-water disposal.
  - .2 Land-based: in accordance with clause 1.2.5 (and sub-paragraphs), in monthly progress payment(s) as assessed by the Departmental Representative or, after signature of the Certificate of Completion, one hundred percent (100%) of the amount established in multiplying the m<sup>3</sup>mp dredged volume by the unit price of land-based disposal.

### 1.3 DEFINITIONS

- .1 Dredging: excavating, transporting and disposing of underwater materials.
- .2 Disposal: transport and release of excavated materials to an authorised open-water disposal site or to an authorized terrestrial disposal site.
- .3 Class A materials: solid rock requiring drilling or blasting, and boulders or rock fragments of individual volumes of at least 3.0 m<sup>3</sup>.
- .4 Class B materials: loose or schistose rock, silt, quick sand, mud, gravel, coastal gravel, clay, gumbo, boulders, layers or hardpan and debris of individual volumes less than 3.0 m<sup>3</sup>.
- .5 Debris: pieces of wood, wire rope, scrap steel, pieces of concrete and other waste materials.
- .6 Dredge grade: horizontal plane above which all material is to be dredged.
- .7 m<sup>3</sup>mp (CMPM): cubic metres place measurement, expressed in m<sup>3</sup>.
- .8 m<sup>3</sup>mc (CMSM): cubic metres scow measurement, expressed in m<sup>3</sup>.
- .9 Side slope: inclined surface or plane from subgrade at side limit of dredging area to intersect original ground line outside of side limit and to be expressed as ratio of horizontal to vertical.
- .10 DGPS-RTK: technology that provides real time GPS location (x,y,z) with centimetric precision.

- .11 Chart datum: permanently established plane from which soundings or tide heights are referenced, usually Lowest Normal Tide (L.N.T.).
- .12 Coordinates
  - .1 MTM projection: modified transverse Mercator projection.
  - .2 MTM coordinates: plane rectangular coordinates used in grid system in which grid network is applied to MTM. projection. In fact, coordinates constitute the horizontal reference parameters.
- .13 Instantaneous depth mode: mode of operation of hydrographic survey equipment where all sounding data observed at predetermined distance interval over entire course is retained in memory.
- .14 Matrix cells: each dredge area is represented as a number of cells of 2.0 m x 2.0 m or 4.0 m x 4.0 m. Depending on where bathymetric surveys are carried out, each cell may contain several depths.
- .15 Least of minimum plan: hydrographic survey plan in which least sounding in grouping of matrix blocks is plotted.
- .16 Cleared area: area of dredging accepted as complying with plans and specifications.
- .17 Certificate of completion: letter or memo provided to the Contractor by the Departmental Representative on the site stating that dredging was completed.

#### **1.4 REGULATORY REQUIREMENTS**

- .1 Comply with all rights and privileges of others and all federal, provincial and municipal laws, regulations and decrees; Contractor shall also see to compliance by his de jure or de facto employees, including subcontractors.
- .2 Mark floating equipment with lights in accordance with the Collision Regulation and the Rules of Road for the Great Lakes Basin.

#### **1.5 WORK SCHEDULE**

- .1 Within a maximum of two (2) weeks of the notice of acceptance of the offer, submit a work schedule to the Departmental Representative for approval, including the execution time of each specified operation until completion.
- .2 In addition to the schedule required in the above paragraph, the Contractor shall notify the Departmental Representative of his arrival at the location two (2) weeks in advance.
- .3 The Contractor shall comply with the agreed schedule and take immediate steps to correct any deficiencies by either changing the current dredging or by transporting and moving other equipment. Inform the Departmental Representative of the corrective measures adopted.
- .4 The Work must be completed by the dates indicated in the contract documents.

## **1.6 LOCATION**

- .1 The Work to be performed is located on the south shore of the St. Lawrence River, specifically in the town of Matane, in the main basin of the Port of Matane.
- .2 The location of material to be dredged is indicated on drawing N° QU-14020-M (attached) while appendices A and B specify that of the open-water disposal site.

## **1.7 INTERFERENCE TO NAVIGATION**

- .1 To ascertain information on vessel movements and fishing activities in area affected by dredging operations, please call the Port Director, Mr. Jean-Pierre Harrison, at 418-566-7152.
- .2 Plan and execute work in manner not to interfere with fishing operations, construction activities at the wharf, demolition works at the finger pier, marina activities, or access to wharves by land or water.
- .3 The Departmental Representative is not responsible for loss of time, materials or equipment or for any other expenses caused by ships at anchor in the work area or resulting from other work performed by the Contractor.
- .4 Where possible, the Contractor will notify the Departmental Representative forty-eight (48) hours in advance of any special movement of his dredging equipment (either for reasons of supply, repairs, etc.).
- .5 Keep Marine Communications and Traffic Services (MCTS) informed with precision of ongoing dredging operations, at Department of Fisheries and Oceans - Canadian Coast Guard tel.: 418-233-2854, fax: 418-233-2017, e-mail: [Opsavis@dfo-mpo.gc.ca](mailto:Opsavis@dfo-mpo.gc.ca).
- .6 Should the Contractor's equipment cause an obstruction to navigation, the Contractor shall:
  - .1 Notify MPO's Marine Communications and Traffic Services (MCTS) and the Departmental Representative.
  - .2 Comply with paragraph 3.1.14 of this section.
  - .3 Remove at once this equipment at own expense. Should the Contractor fail in that obligation, the Departmental Representative will proceed to the removal of the obstacle and all costs incurred will be charged to the Contractor.

## **1.8 CHART DATUM, DEPTHS AND TIDAL BENCHMARKS**

- .1 Elevations and dredging levels used in this specification and the contract drawings are in metres referred to Chart Datum.
- .2 Areas to be dredged are to be referenced to vertical bench marks using DGPS-RTK technology. The Contractor shall be responsible for obtaining, on his own and at own expense all relevant data concerning the water level values to be used for the work.

### **1.9 FLOATING EQUIPMENT**

- .1 The Contractor shall provide and maintain all his dredging equipment to dredge, load, transport and dispose of the entire volume of the materials mentioned in the estimate, taking into account the swelling of materials and surplus of dredged material as appropriate.
- .2 All equipment necessary for the execution of the dredging contract must and shall at all times be deemed satisfactory to the Departmental Representative.
- .3 The Contractor must imperatively use, in the framework of this contract, tow-barges or barges whose characteristics prevent leakage of dredged material during loading or towing operations.
- .4 Before the start of work, obtain and forward to the Departmental Representative a letter of compliance issued by Transport Canada approving any watercraft (transport, rescue, inspection or other) used by the Contractor (reference Mr. Gilbert Gosselin, Transport Canada, 418-648 -7912).

### **1.10 SITE INSPECTION**

- .1 Prior to submitting a bid, it is the responsibility of the Contractor to travel to the job site and obtain all the necessary information regarding the nature and scope of the Work, and acknowledge all the conditions that may affect the execution of said works.
- .2 By the very fact of filing a bid, the Contractor acknowledges having secured the nature and geographic location of the work, the general and local conditions, especially weather or climate conditions, the roughness of water, tidal levels, specific physical conditions at the work site, the nature of the soil and seabed, the nature of the material to be dredged, and any other circumstance likely to affect the execution conditions of the contract and the value of the work.

### **1.11 SITE-RELATED INFORMATION**

- .1 Take necessary steps to become fully familiar with potential inclement weather and sea conditions in this area.
- .2 The particle size of surface materials is shown in Appendix B.
- .3 Most of the dredging area has never been dredged. The materials accumulated may be compacted and offer more resistance than in the case of recurring dredging.
- .4 Given potential hydrodynamic and climate events, the Contractor may expect, during execution, a sediment transport flux that could be deposited in the dredging area (refer to paragraph 1.2.4 of this section).
- .5 In Matane, the tidal range can reach 4,0 m and the water level can be between 2,8 m and 4,0 m above chart datum. Daily tidal predictions can be obtained from the following website: [www.marees.gc.ca/eng](http://www.marees.gc.ca/eng)
- .6 The location of material to be dredged and the dredging grade are indicated on drawing No. QU-14020-M.

- .7 The environmental study is available for consultation at the Procurement office, Public Works and Government Services Canada in Québec City.
- .8 The contractor shall conduct research on the historical weather and wave conditions and assess the difficulties that may be encountered.

#### **1.12 HYDROGRAPHIC SURVEY AND ACCEPTANCE OF WORK**

- .1 Bathymetric surveys will be performed by the Departmental Representative before the inception of dredging activities to locate as accurately as possible the materials to be dredged and to determine their volume.
- .2 The pre-dredging bathymetric survey was provided in the Call for Tender documents. Before starting work, the Contractor shall confirm in writing to the Departmental Representative that the Contractor performed all the usual verifications and the results of the survey are accepted. No claim of additional quantities will be accepted during the contract period, i.e., after acceptance of the pre-dredging survey.
- .3 A qualified representative of the Contractor shall be in attendance with the Departmental team of surveyors during the post-dredging bathymetric surveys in order that both parties accept formally the survey results.
- .4 The Departmental Representative will provide the Contractor with the basic data for the work (pre- and post-dredging hydrographic data) in ASCII format (cf. Appendix C). The digital files will be emailed to the Contractor.
- .5 At work completion, the Contractor shall submit a formal application to carry out the post-dredging surveys at least five (5) business days in advance. The performance of bathymetric surveys is weather-dependent.
- .6 At work completion, the Departmental Representative will undertake if required two (2) bathymetric surveys, a verification sounding and a final post-dredging survey. Any additional surveys and waiting time will be charged to the Contractor on an hourly basis as follows:
  - .1 Hourly rate \$300.00.
  - .2 Will be considered survey team waiting time any period in excess of twenty-four (24) hours between the end of the verification sounding and the beginning of the final post-dredging survey.
  - .3 Waiting time will be counted by the Departmental Representative on the site in periods of eight (8) hours per day, i.e., from 8:00 to 16:00. Should the Contractor require surveys beyond this period, they will also be charged to the Contractor as waiting time.
  - .4 It should be noted that due to circulation restrictions on routes related to the special transport permit, no movement of the Departmental survey vessel may be performed on Sundays and public holidays.
- .7 In all cases, bathymetric surveys will be conducted during daylight and the Departmental craft will dock at sunset.
- .8 Bathymetric surveys are weather-dependent.

- .9 The Departmental Representative will not proceed to surveys, whether before or after dredging, in the presence of ice. There will be no additional payment for delays caused by such conditions or situations.
- .10 Should there remain materials above the specified level of dredging after verification soundings or subsequent surveys, the Contractor will be required to return to the site and complete the work to the satisfaction of the Departmental Representative.

### **1.13 SYSTEM OF UNITS**

- .1 Values for bathymetry surveys, water levels, distances, surface areas and volumes, and vertical bench mark elevations (referenced to CD), etc., mentioned in this specification as well as the values referred to during the execution of the work are and will be expressed in the International System of Units (SI).

## **PART 2 Products**

### **2.1 DREDGING EQUIPMENT AND POSITIONING DEVICES**

- .1 The work shall be performed using a clamshell dredge and/or a hydraulic shovel.
- .2 The dredger must, by its size, characteristics and draft, be suitable for the execution of work.

## **PART 3 Execution**

### **3.1 GENERAL**

- .1 Before work is undertaken, the Contractor shall obtain the Departmental Representative's written approval of the work schedule.
- .2 Dredge the materials to the dredge line indicated on the drawing (plus an additional depth of 0,1 m).
- .3 During execution of the work, cover the entire area above the dredging level as shown on the drawing.
- .4 The Contractor shall comply with the dredge line, which will be indicated to him by the Departmental Representative, and be careful to dredge the least amount of materials below such level (with the exception of the additional depth). Any excess dredging will be the sole responsibility of the Contractor and performed at his expense.
- .5 The Contractor shall dredge using a data processing system capable of properly displaying on a monitor both the position of the dredge and bathymetric data relevant to the work (location and thicknesses of material to be dredged) and the dredging template.
- .6 The coordinates of the relevant points used to determine the horizontal boundaries of the areas to be dredged will be provided by the Departmental Representative.
- .7 The Contractor shall be responsible for ensuring on his own the spatial positioning of the dredge.

- .8 The Departmental Representative may verify at his convenience the accuracy of the Contractor's positioning system(s).
- .9 All the (X,Y), (X,Y,Z) points and the main, intermediate or secondary (lat, long) points used by the Contractor, whether determined by him or provided to him by the Departmental Representative or by someone else shall be the Contractor's exclusive responsibility, especially in consideration of the risks to himself.
- .10 During the execution of the contract, the dredge and support equipment must be kept in efficient working order and in good repair at all times.
- .11 Demobilization: the Contractor may demobilize his dredging equipment only after obtaining the Departmental Representative's authorisation. Permission to demobilize will be given to the Contractor after final acceptance of the work.
- .12 Buoys required for the contract: the Contractor shall provide, place (lie at anchor) and maintain at own expense all the buoys/markers required to perform the work properly. Should, by accident or otherwise, one or more buoys/markers sink or drift, they will be refloated and/or recovered at Contractor's expense and to the satisfaction of the Departmental Representative. The Contractor shall assume responsibility for all accidents of any kind whatsoever, due to the buoys/markers being improperly placed or insufficiently visible during the day or improperly lighted during the night or for any other reason.
- .13 Navigation buoys: the Contractor shall not, at any time, remove or move the main navigation buoys. Any justified relocation of one or more buoys will be performed by the Department of Fisheries and Oceans; forward requests for this service to Departmental Representative at least five (5) business days in advance. Departmental Representative reserves the right to assess the merits of any such request by the Contractor.
- .14 Keep all signals and lights required to be installed on all floating equipment in accordance with the "Collision Regulations" and the "Navigation Safety Regulations" on the St-Lawrence. All equipment required for the work shall be properly identified and/or visible at all times.
- .15 Unless otherwise authorised by the Departmental Representative, no stockpiling of dredged material will be permitted outside of the disposal site indicated by the Departmental Representative.
- .16 Mark floating equipment with lights in accordance with International Rules of Road and maintain radio watch on board.
- .17 The Contractor shall complete daily reports on his activities. Forms will be provided by the Departmental Representative before the start of work.
- .18 Carry out work so that no damage is caused to fishing gear and minimize interference with fishing operations in the conduct of operations within the areas identified.
- .19 The Contractor shall be responsible for any damage to fishing gear within the marked areas if they result from dredging and damage is caused. Assume responsibility for replacement and repair costs and loss of fishing opportunity.

- .20 All plant and equipment must be maintained in good repair and seaworthy condition.
- .21 Where in the judgment of the Departmental Representative during the performance of work, the equipment supplied is not suitable and adequate to perform the work properly or if the Contractor is delayed in the work schedule, the Contractor shall, within fifteen (15) days of a written notice from the Departmental Representative, provide any additional equipment approved by the latter.
- .22 Establish and maintain water level gauges or tide boards in order that proper depth of dredging can be determined. Locate gauges or tide boards so as to be clearly visible..
- .23 Remove shoaling which occurs as result of Work at no expense to the Departmental Representative.
- .24 Remove material cast-over on surrounding area and dispose of it as dredged material. Do not cast-over material unless authorized by Departmental Representative.
- .25 Immediately notify Departmental Representative upon encountering object which might be classified as obstruction , including boulders 3.0 m<sup>3</sup> in volume or more and solid rock. By-pass object after clearly marking location with buoys manufactured before the start of work and continue Work after providing Departmental Representative with MTM coordinates.
- .26 Foresee the anchoring of the dredging equipment and bear costs.
- .27 Take the necessary precautions to protect existing structures or features in the vicinity of the work. Where applicable, any damage to these structures will be repaired at Contractor's expense.
- .28 Unless authorised in writing by the Departmental Representative, do not dredge at a distance less than 3.0 metres of an existing structure. The intersection between the side slope and the original bottom surface line must be at 3.0 m from the structure, these distances being measured perpendicular to the face of the structure. Unless otherwise indicated on the plans, dredge side slope to three horizontal to one vertical.
- .29 Always give precedence to port operations over dredging and unloading operations.
- .30 Dredging and unloading operations must be coordinated with the port authorities.
- .31 The Transport Canada property shall be kept clean throughout the project.
- .32 No dockside work (unloading, transshipment, transport, handling, etc.) may proceed and no temporary facility may be under construction (or in place) when cruise ships are docked.
- .33 The Contractor shall dredge to an additional depth of 0.1 m below the surfaces to be dredged.
- .34 Non-contaminated dredged material will be dredged in a sequence to be specified by the Departmental Representative just before the work is undertaken.

### 3.2 CLASS A SPOIL

- .1 Class A materials are not expected in the areas to be dredged. Should this type of material be encountered, the Contractor will remove the cover material (Class B).
- .2 Should Class A materials need to be dredged, the Departmental Representative will assess this additional work and, upon request by the Departmental Representative, the Contractor shall provide the necessary and appropriate dredging equipment to load, transport and dispose of the Class A materials to the satisfaction of Departmental Representative. The cost of this additional work to the contract (dredging of Class A materials) will be determined in advance and mutually agreed upon by the Contractor and the Departmental Representative.

### 3.3 DISPOSAL OF DREDGED MATERIAL

- .1 Sediments
  - .1 Dispose of dredged material at the disposal sites indicated on the plans in a manner approved by Departmental Representative and in accordance with environmental requirements.
  - .2 Mark the boundaries of the disposal area with leading buoys equipped with lights and radar reflectors.
  - .3 The buoys marking the disposal area will lie at anchor within a 15 m radius of the theoretical position provided by the Departmental Representative.
  - .4 Dump the dredged material according to a grid pattern defined by the Departmental Representative. The Contractor shall have on hand the release pattern before starting work.
  - .5 The release will be performed using a DGPS positioning system accurate to  $\pm 5$  m or better.
  - .6 Avoid overloading barges, especially in rough conditions.
  - .7 Proceed to releases as quickly as possible at the disposal site.

### 3.4 OVERHAUL OF DEFICIENT DREDGING

- .1 Re-dredge areas that do not meet requirements to the satisfaction of the Departmental Representative.

### 3.5 ASSISTANCE TO AND COOPERATION WITH THE DEPARTMENTAL REPRESENTATIVE

- .1 Co-operate with the Departmental Representative on inspection of Work and provide assistance requested.
- .2 The Contractor shall provide the necessary and satisfactory water transportation to the Departmental Representative or his authorised agent from a local dock to the dredging plant to allow site visits or for any other reason as seen fit by the Departmental Representative.
- .3 The Contractor shall also commit to provide landing facilities, and secure at own expense the necessary space (on land and sea, as required) for his equipment for the entire duration of the project.

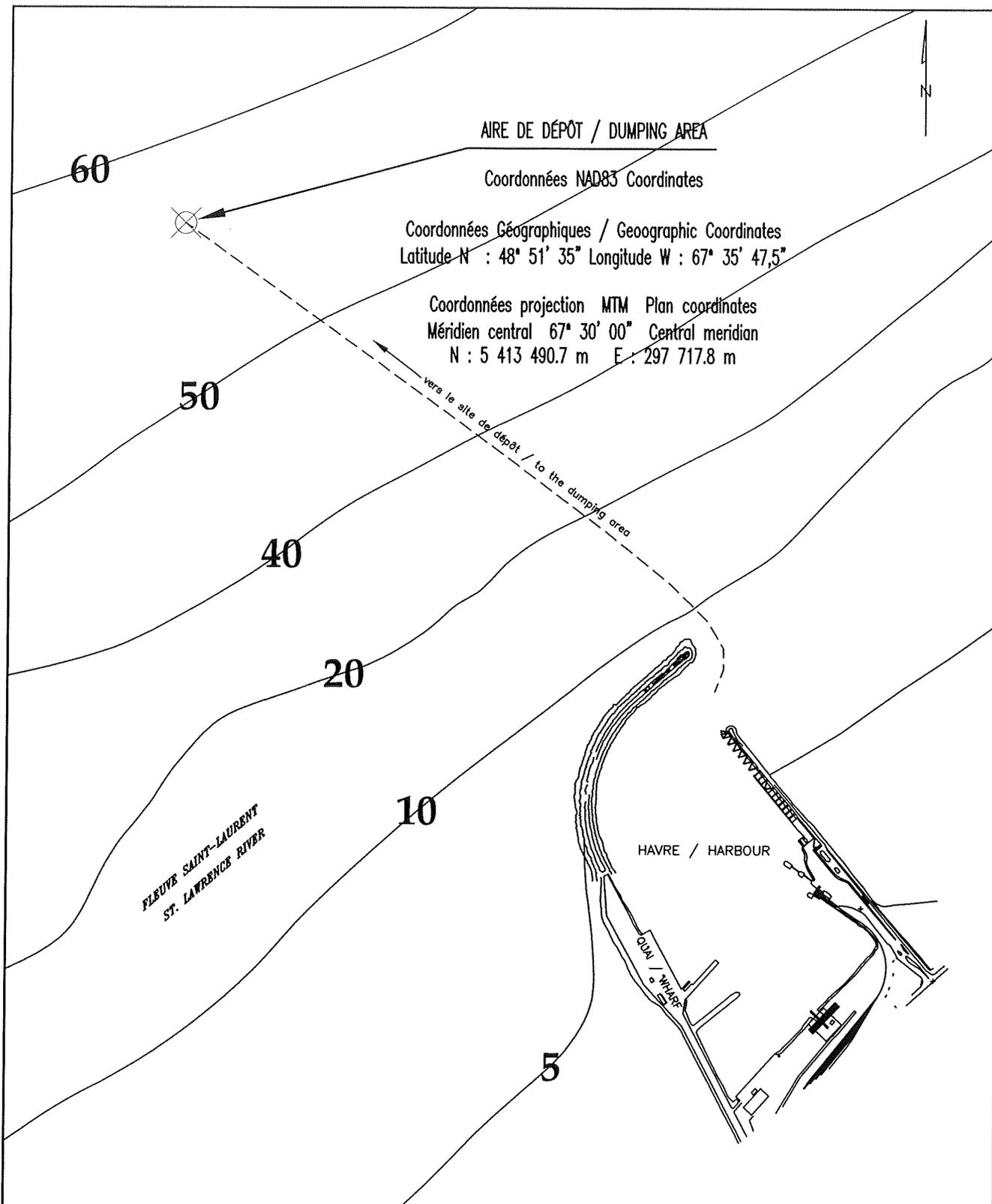
END OF SECTION

---

**APPENDIX A**

STOCKPILING AREA

---



**AIRE DE DÉPÔT / DUMPING AREA**

Coordonnées NAD83 Coordinates

Coordonnées Géographiques / Geographic Coordinates  
 Latitude N : 48° 51' 35" Longitude W : 67° 35' 47,5"

Coordonnées projection MTM Plan coordinates  
 Méridien central 67° 30' 00" Central meridian  
 N : 5 413 490.7 m E : 297 717.8 m

vers le site de dépôt / to the dumping area

FLEUVE SAINT-LAURENT  
 ST. LAWRENCE RIVER

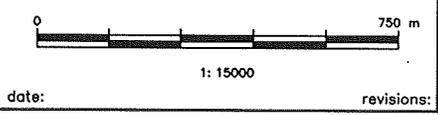
HAVRE / HARBOUR

QUAI / WHARF

 Travaux publics et Services gouvernementaux Canada	Public Works and Government Services Canada

Titre du dessin: Drawing title:  
**AIRE DE DÉPÔT  
 2015 / 2016  
 DUMPING AREA**

conçu par: designed by:	date:
dessiné par: drawn by:	date:
approuvé par: approved by:	date:



no. du projet: project no.	dessin no. dwg. no.
date:	revisions:

---

**APPENDIX B**

PARTICLE-SIZE OF DREDGED MATERIALS

---

## APPENDIX B

### Particle-size distribution and sedimentation analysis – Note (1)

The harbour area itself is predominantly clay and silt (64.0%) and sand (34.7%). Note how survey D1 in the harbour reveals a very small proportion of fine particles (13.9%) and a strong occurrence of gravel (11.3%) when compared with other surveys conducted within the harbour (overall average of 64.0%). For their part, surveys D7 and D9 show a very high content of fine sediments (>80%). The distribution of gravelly sediments is limited to samples D1 to D7.

#### Analytical results of the particle-size distribution in the sediments :

Samples	Silty clay >0.63 mm	Sand 0.063-2 mm	Gravel 2-32 mm
D1	13.9	74.8	11.3
D3	54.7	44.1	1.2
D4	58.3	39.1	2.6
D5	64.7	32.5	2.8
D6	68.0	31.1	0.9
D7	80.3	18.4	1.3
D8	65.5	34.5	0.0
D9	80.7	19.3	0.0

**Note (1): Soil and sediment characterization in the Port of Matane, SNC-Lavalin, Z1/01/2015.**

---

**APPENDIX C**

EXAMPLE OF ASCII FILE

---

## APPENDIX C

### File format (example):

- East Coordinates(metre)<tab>North Coordinates(metre)<tab>Depth(metre)

```
288183.24 5237654.78 3.79  
288181.90 5237652.29 3.80  
288183.81 5237652.86 3.67
```

N.B.: Depth is positive below chart datum.