



**RETURN BIDS TO:**

**RETOURNER LES SOUMISSIONS À:**

Travaux publics et Services gouvernementaux  
Canada

Place Bonaventure, portail Sud-Est  
800, rue de La Gauchetière Ouest  
7<sup>ème</sup> étage

Montréal

Québec

H5A 1L6

FAX pour soumissions: (514) 496-3822

**INVITATION TO TENDER**

**APPEL D'OFFRES**

**Tender To: Public Works and Government Services  
Canada**

We hereby offer to sell to Her Majesty the Queen in right of  
Canada, in accordance with the terms and conditions set  
out herein, referred to herein or attached hereto, the goods,  
services, and construction listed herein and on any attached  
sheets at the price(s) set out therefor.

**Soumission aux: Travaux Publics et Services  
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la  
Reine du chef du Canada, aux conditions énoncées ou  
incluses par référence dans la présente et aux annexes  
ci-jointes, les biens, services et construction énumérés  
ici et sur toute feuille ci-annexée, au(x) prix indiqué(s).

**Comments - Commentaires**

**Vendor/Firm Name and Address**

Raison sociale et adresse du  
fournisseur/de l'entrepreneur

**Issuing Office - Bureau de distribution**

Travaux publics et Services gouvernementaux Canada  
Place Bonaventure, portail Sud-Est

800, rue de La Gauchetière Ouest

7<sup>ème</sup> étage

Montréal

Québec

H5A 1L6

<b>Title - Sujet</b> Drainage work at Eastmain	
<b>Solicitation No. - N° de l'invitation</b> EF997-170431/B	<b>Date</b> 2016-07-15
<b>Client Reference No. - N° de référence du client</b> R.075197.001	<b>GETS Ref. No. - N° de réf. de SEAG</b> PW-\$MTC-560-13955
<b>File No. - N° de dossier</b> MTC-6-39069 (560)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2016-07-25</b>	
<b>Time Zone</b> Fuseau horaire Heure Avancée de l'Est HAE	
<b>F.O.B. - F.A.B.</b>	
<b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Ghali, Camille	<b>Buyer Id - Id de l'acheteur</b> mtc560
<b>Telephone No. - N° de téléphone</b> (514) 496-3871 ( )	<b>FAX No. - N° de FAX</b> (514) 496-3822
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> MINISTERE DES TRAVAUX PUBLICS ET SERVICES GOUVERNEMENTAUX CANADA 800, rue de la Gauchetière Ouest 7300 Montreal Québec H5A 1L6 Canada	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

<b>Delivery Required - Livraison exigée</b>	<b>Delivery Offered - Livraison proposée</b>
.	
<b>Vendor/Firm Name and Address</b> Raison sociale et adresse du fournisseur/de l'entrepreneur	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/</b> <b>de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

Solicitation No. - N° de l'invitation

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

EF997-170431/B

mtc560

Client Ref. No. - N° de réf. du client

File No. - N° du dossier

CCC No./N° CCC - FMS No/ N° VME

R. 075197.001

MTC-6-39069

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## INVITATION TO TENDER

**This bid solicitation cancels and supersedes previous bid solicitation number EF997-170431/A dated June 10<sup>th</sup>, 2016 with a closing of June 29<sup>th</sup>, 2016 at 2:00PM (EDT). A debriefing or feedback session will be provided upon request to bidders/offerors/suppliers who bid on the previous solicitation.**

### IMPORTANT NOTICE TO BIDDERS

**This requirement is subject to the Comprehensive Land Claims Agreements (CLCA) entitled the Convention of the James Bay and Northern Quebec Agreement (JBNQA) - CREE portion**

This procurement initiative is reserved for beneficiaries of the following Comprehensive Land Claims Agreement (CLCA) titled the James Bay and Northern Quebec Agreement (JBNQA) as defined in chapter 28, clauses 28.10.3 and 28.10.4 of this Agreement.

Further to Article 1802 of the Agreement on Internal Trade (AIT), the AIT does not apply to this procurement process.

This requirement is reserved for those individuals defined as "Cree", as defined in chapter 3 of the JBNQA (paragraphs 3.1.1, 3.2.1, 3.2.2 and 3.2.3). In respect to aboriginal Cree businesses, they must be located south of the 55th parallel or, for the Cree communities concerned, south of the 55.5th parallel, as described in chapter 5 of the JBNQA.

Solicitation No. - N° de l'invitation

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

EF997-170431/B

mtc560

Client Ref. No. - N° de réf. du client

File No. - N° du dossier

CCC No./N° CCC - FMS No/ N° VME

R. 075197.001

MTC-6-39069

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**TENDER DOCUMENTS:** Firms intending to submit tenders on this project should obtain tender documents through the website

<https://www.achatsetventes-buyandsell.gc.ca/>

#### **SUPPORT THE USE OF APPRENTICES**

Through Canada's Economic Action Plan 2013, the Government of Canada proposes to support the employment of apprentices in federal construction and maintenance projects. Refer to SI10.

#### **INTEGRITY PROVISIONS - BID**

Important changes have been made to the Integrity Provisions - Bid as of April 4<sup>th</sup>, 2016. See GI01, Integrity Provision-Bid of R2710T of the General Instructions for more information.

#### **LISTING of SUBCONTRACTORS**

As per GI07 of R2710T you should provide using Annex D at Bid closing a list of Subcontractors that have 20% or more of the tendered price value.

#### **PWGSC UPDATE ON ASBESTOS USE**

Effective April 1, 2016, all Public Works and Government Services Canada (PWGSC) contracts for new construction and major rehabilitation will prohibit the use of asbestos-containing materials. Further information can be found at <http://www.tpsgc-pwgsc.gc.ca/comm/vedette-features/2016-04-19-00-eng.html>

### **TABLE OF CONTENTS**

#### **SPECIAL INSTRUCTIONS TO BIDDERS (SI)**

- SI01 Bid Documents
- SI02 Enquiries during the Solicitation Period
- SI03 Mandatory/Optional Site Visit
- SI04 Revision of Bid
- SI05 Bid Results
- SI06 Insufficient Funding
- SI07 Bid Validity Period
- SI08 Construction Documents
- SI09 Industrial Security Related Requirements
- SI10 Public Works and Government Services Canada, Apprentice Procurement Initiative
- SI11 Web Sites
- SI12 Financial Bid

#### **R2710T GENERAL INSTRUCTIONS - CONSTRUCTION SERVICES - BID SECURITY REQUIREMENTS (GI) (2016-04-04)**

The following GI's are included by reference and are available at the following Web Site <https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R>

- GI01 Integrity Provisions - Bid
- GI02 Completion of Bid
- GI03 Identity or Legal Capacity of the Bidder
- GI04 Applicable Taxes
- GI05 Capital Development and Redevelopment Charges
- GI06 Registry and Pre-qualification of Floating Plant
- GI07 Listing of Subcontractors and Suppliers
- GI08 Bid Security Requirements
- GI09 Submission of Bid
- GI10 Revision of Bid

Solicitation No. - N° de l'invitation

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

EF997-170431/B

mtc560

Client Ref. No. - N° de réf. du client

File No. - N° du dossier

CCC No./N° CCC - FMS No/ N° VME

R. 075197.001

MTC-6-39069

---

- GI11 Rejection of Bid
- GI12 Bid Costs
- GI13 Procurement Business Number
- GI14 Compliance with Applicable Laws
- GI15 Approval of Alternative Materials
- GI16 Performance Evaluation
- GI17 Conflict of Interest-Unfair Advantage
- GI18 Code of Conduct for Procurement—bid

#### **SUPPLEMENTARY CONDITIONS (SC)**

- SC01 Requirements for Security of Documents Safeguarding location
- SC02 Insurance Terms

#### **CONTRACT DOCUMENTS (CD)**

##### **BID AND ACCEPTANCE FORM (BA)**

- BA01 Identification
- BA02 Business Name and Address of Bidder
- BA03 The Offer
- BA04 Bid Validity Period
- BA05 Acceptance and Contract
- BA06 Construction Time
- BA07 Bid Security
- BA08 Signature

Solicitation No. - N° de l'invitation

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

EF997-170431/B

mtc560

Client Ref. No. - N° de réf. du client

File No. - N° du dossier

CCC No./N° CCC - FMS No/ N° VME

R. 075197.001

MTC-6-39069

---

**APPENDIX 1 - VENTILATED BID FORM**

**APPENDIX 2 - INTEGRITY PROVISIONS – LIST OF NAMES**

**APPENDIX 3 - VOLUNTARY CERTIFICATION TO SUPPORT THE USE OF APPRENTICES**

**APPENDIX 4 - DEPARTMENTAL REPRESENTATIVE'S AUTHORITY**

**ANNEX A – CERTIFICATE OF INSURANCE**

**ANNEX B – VOLUNTARY REPORTS FOR APPRENTICES EMPLOYED DURING THE CONTRACT**

**ANNEX C – ABORIGINAL CERTIFICATION**

**ANNEX D – LIST OF SUBCONTRACTORS**

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## SPECIAL INSTRUCTIONS TO BIDDERS (SI)

### SI01 BID DOCUMENTS

1. The following are the bid documents:

- a. Invitation to Tender - Page 1;
- b. Special Instructions to Bidders;
- c. General Instructions - Construction Services - Bid Security Requirements R2710T (2016-04-04)
- d. Clauses & Conditions identified in "Contract Documents";
- e. Drawings and Specifications;
- f. Bid and Acceptance Form and related Appendix(s); and
- g. Any amendment issued prior to solicitation closing.

Submission of a bid constitutes acknowledgement that the Bidder has read and agrees to be bound by these documents.

2. General Instructions - Construction Services - Bid Security Requirements R2710T is incorporated by reference and is set out in the Standard Acquisition Clauses and Conditions (SACC) Manual, issued by Public Works and Government Services Canada (PWGSC). The SACC Manual is available on the PWGSC Web site: <https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R>

**Bids sent by fax will not be accepted**

### SI02 ENQUIRIES DURING THE SOLICITATION PERIOD

1. Enquiries regarding this bid must be submitted in writing to the Contracting Officer named on the Invitation to Tender - Page 1 as early as possible within the solicitation period. Except for the approval of alternative materials as described in G15 of R2710T, enquiries should be received no later than **ten (10)** calendar days prior to the date set for solicitation closing to allow sufficient time to provide a response. Enquiries received after that time may not result in an answer being provided.
2. To ensure consistency and quality of the information provided to Bidders, the Contracting Officer shall examine the content of the enquiry and shall decide whether or not to issue an amendment.
3. All enquiries and other communications related to this bid sent throughout the solicitation period are to be directed **ONLY** to the Contracting Officer named on the Invitation to Tender - Page 1. Failure to comply with this requirement may result in the bid being declared non-responsive.

### SI03 MANDATORY/OPTIONAL SITE VISIT

There is no site visit scheduled for this project.

### SI04 REVISION OF BID

A bid may be revised by letter or facsimile in accordance with G110 of R2710T. The facsimile number for receipt of revisions is (514) 496-3822.

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**SI05 BID RESULTS**

1. A public bid opening will be held in the office designated on the Front Page "Invitation to Tender" for the receipt of bids shortly after the time set for solicitation closing.
2. Following solicitation closing, bid results may be obtained by calling at No. [\(514\) 496-3388](tel:5144963388)

**SI06 INSUFFICIENT FUNDING**

In the event that the lowest compliant bid exceeds the amount of funding allocated for the Work, Canada in its sole discretion may

- a. cancel the solicitation; or
- b. obtain additional funding and award the Contract to the Bidder submitting the lowest compliant bid; and/or
- c. negotiate a reduction in the bid price and/or scope of work of not more than 15% with the Bidder submitting the lowest compliant bid. Should an agreement satisfactory to Canada not be reached, Canada shall exercise option (a) or (b).

**SI07 BID VALIDITY PERIOD**

1. Canada reserves the right to seek an extension to the bid validity period prescribed in BA04 of the Bid and Acceptance Form. Upon notification in writing from Canada, Bidders shall have the option to either accept or reject the proposed extension.
2. If the extension referred to in paragraph 1. of SI08 is accepted, in writing, by all those who submitted bids, then Canada shall continue immediately with the evaluation of the bids and its approvals processes.
3. If the extension referred to in paragraph 1. of SI08 is not accepted in writing by all those who submitted bids then Canada shall, at its sole discretion, either
  - a. continue to evaluate the bids of those who have accepted the proposed extension and seek the necessary approvals; or
  - b. cancel the invitation to tender.
4. The provisions expressed herein do not in any manner limit Canada's rights in law or under GI11 of R2710T.

**SI08 CONSTRUCTION DOCUMENTS**

The successful Contractor will be provided with one paper copy of the sealed and signed drawings, the specifications and the amendments upon acceptance of the offer. Additional copies, up to a maximum five (5), will be provided free of charge upon request by the Contractor. Obtaining more copies shall be the responsibility of the Contractor including costs.

**SI09 SECURITY RELATED REQUIREMENTS**

N/A

**SI10 PUBLIC WORKS AND GOVERNMENT SERVICES CANADA APPRENTICE PROCUREMENT INITIATIVE**

1. To encourage employers to participate in apprenticeship training, Contractors bidding on construction and maintenance contracts by Public Works and Government Services Canada (PWGSC) are being asked to sign a voluntary certification, signaling their commitment to hire and train apprentices.
2. Canada is facing skills shortages across various sectors and regions, especially in the skilled trades. Equipping Canadians with skills and training is a shared responsibility. In Economic Action Plan (EAP) 2013, the Government of Canada made a commitment to support the use of apprentices in federal construction and maintenance contracts. Contractors have an important role in supporting apprentices through hiring and training and are encouraged to certify that they are providing opportunities to apprentices as part of doing business with the Government of Canada.
3. Through the Economic Action Plan 2013 and support for training programs, the Government of Canada is encouraging apprenticeships and careers in the skilled trades. In addition, the government offers a tax credit to employers to encourage them to hire apprentices. Information on this tax measure administered by the Canada Revenue Agency can be found at: [www.cra-arc.gc.ca](http://www.cra-arc.gc.ca). Employers are also encouraged to find out what additional information and supports are available from their respective provincial or territorial jurisdiction.
4. Signed certifications (Appendix 3) will be used to better understand contractor use of apprentices on Government of Canada maintenance and construction contracts and may inform future policy and program development.
5. The Contractor hereby certifies the following:

In order to help meet demand for skilled trades people, the Contractor agrees to use, and require its subcontractors to use, reasonable commercial efforts to hire and train registered apprentices, to strive to fully utilize allowable apprenticeship ratios \* and to respect any hiring requirements prescribed by provincial or territorial statutes

The Contractor hereby consents to this information being collected and held by PWGSC, and Employment and Social Development Canada to support work to gather data on the hiring and training of apprentices in federal construction and maintenance contracts.

To support this initiative, a voluntary certification signaling the Contractor's commitment to hire and train apprentices is available at Appendix 3.

If you accept fill out and sign Appendix 3

*\* The journey person-apprentice ratio is defined as the number of qualified/certified journey persons that an employer must employ in a designated trade or occupation in order to be eligible to register an apprentice as determined by provincial/territorial (P/T) legislation, regulation, policy directive or by law issued by the responsible authority or agency.*

Solicitation No. - N° de l'invitation

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

EF997-170431/B

mtc560

Client Ref. No. - N° de réf. du client

File No. - N° du dossier

CCC No./N° CCC - FMS No/ N° VME

R. 075197.001

MTC-6-39069

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## SI11 WEB SITES

The connection to some of the Web sites in the solicitation documents is established by the use of hyperlinks. The following is a list of the addresses of the Web sites:

Treasury Board Appendix L, Acceptable Bonding Companies

<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=14494&section=text#appL>

Buy and Sell <https://www.achatsetventes-buyandsell.gc.ca>

Canadian economic sanctions <http://www.international.gc.ca/sanctions/index.aspx?lang=eng>

Contractor Performance Evaluation Report (Form PWGSC-TPSGC 2913)

<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/2913.pdf>

Bid Bond (form PWGSC-TPSGC 504) <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/504.pdf>

Performance Bond (form PWGSC-TPSGC 505) <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/505.pdf>

Labour and Material Payment Bond (form PWGWSC-TPSGC 506)

<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/506.pdf>

Standard Acquisition Clauses and Conditions (SACC) Manual

<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R>

PWGSC, Industrial Security Services <http://ssi-iss.tpsgc-pwgsc.gc.ca/index-eng.html>

PWGSC, Code of Conduct and Certifications

<http://www.tpsgc-pwgsc.gc.ca/app-acq/cndt-cndct/contexte-context-eng.html>

Construction and Consultant Services Contract Administration Forms Real Property Contracting

<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/formulaires-forms-eng.html>

Declaration Form

<http://www.tpsgc-pwgsc.gc.ca/ci-if/formulaire-form-eng.html>

## SI12 FINANCIAL BID

The total amount of the bid excludes taxes

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## SUPPLEMENTARY CONDITIONS (SC)

### SC01 SECURITY CLEARANCE RELATED REQUIREMENTS, DOCUMENT SAFEGUARDING

N/A

### SC02 INSURANCE TERMS

#### 1) Insurance Contracts

- (a) The Contractor must, at the Contractor's expense, obtain and maintain insurance contracts in accordance with the requirements of the Certificate of Insurance. Coverage must be placed with an Insurer licensed to carry out business in Canada.
- (b) Compliance with the insurance requirements does not release the Contractor from or reduce its liability under the Contract. The Contractor is responsible for deciding if additional insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any additional insurance coverage is at the Contractor's expense, and for its own benefit and protection.

#### 2) Period of Insurance

- (a) The policies required in the Certificate of Insurance must be in force from the date of contract award and be maintained throughout the duration of the Contract.
- (b) The Contractor must be responsible to provide and maintain coverage for Products/Completed Operations hazards on its Commercial General Liability insurance policy, for a period of six (6) years beyond the date of the Certificate of Substantial Performance.

#### 3) Proof of Insurance

- (a) Before commencement of the Work, and no later than thirty (30) days after acceptance of its bid, the Contractor must deposit with Canada a Certificate of Insurance on the form attached herein.
- (b) Upon request by Canada, the Contractor must provide originals or certified true copies of all contracts of insurance maintained by the Contractor pursuant to the Certificate of Insurance.

#### 4) Insurance Proceeds

In the event of a claim, the Contractor must, without delay, do such things and execute such documents as are necessary to effect payment of the proceeds.

#### 5) Deductible

The payment of monies up to the deductible amount made in satisfaction of a claim must be borne by the Contractor.

## CONTRACT DOCUMENTS (CD)

1. The following are the contract documents:
  - a. Contract Page when signed by Canada;
  - b. Duly completed Bid and Acceptance Form and any Appendices attached thereto;
  - c. Drawings and Specifications;
  - d. General Conditions and clauses
 

GC1	General Provisions – Construction Services	R2810D	(2016-04-04);
GC2	Administration of the Contract-	R2820D	(2016-01-28);
GC3	Execution and Control of the Work	R2830D	(2015-02-25);
GC4	Protective Measures	R2840D	(2008-05-12);
GC5	Terms of Payment	R2850D	(2016-01-28);
GC6	Delays and Changes in the Work	R2860D	(2016-01-28);
GC7	Default, Suspension or Termination of Contract	R2870D	(2008-05-12);
GC8	Dispute Resolution	R2880D	(2016-01-28);
GC9	Contract Security	R2890D	(2014-06-26);
GC10	Insurance	R2900D	(2008-05-12);
	Allowable Costs for Contract Changes Under GC6.4.1	R2950D	(2015-02-25);
	Supplementary Conditions		
  - e. Any amendment issued or any allowable bid revision received before the date and time set for solicitation closing;
  - f. Any amendment incorporated by mutual agreement between Canada and the Contractor before acceptance of the bid; and
  - g. Any amendment or variation of the contract documents that is made in accordance with the General Conditions.
2. The documents identified by title, number and date above are incorporated by reference and are set out in the Standard Acquisition Clauses and Conditions (SACC) Manual, issued by Public Works and Government Services Canada (PWGSC). The SACC Manual is available on the PWGSC Web site: <https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>
3. The language of the contract documents is the language of the Bid and Acceptance Form submitted.

Solicitation No. - N° de l'invitation

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

EF997-170431/B

mtc560

Client Ref. No. - N° de réf. du client

File No. - N° du dossier

CCC No./N° CCC - FMS No/ N° VME

R. 075197.001

MTC-6-39069

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## BID AND ACCEPTANCE FORM (BA)

### BA01 IDENTIFICATION

Drainage improvements and related miscellaneous work at Eastmain airport, Québec, for Transport Canada. The project includes, without limitation, improvement of the drainage network as well as other various related works.

### BA02 BUSINESS NAME AND ADDRESS OF BIDDER

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_ PBN: \_\_\_\_\_

E-mail address: \_\_\_\_\_

### BA03 THE OFFER

The Bidder offers to Canada to perform and complete the Work for the above named project in accordance with the Bid Documents for the **TOTAL BID AMOUNT INDICATED IN APPENDIX 1**.

### BA04 BID VALIDITY PERIOD

The bid shall not be withdrawn for a period of sixty [60] days following the date of solicitation closing.

### BA05 ACCEPTANCE AND CONTRACT

Upon acceptance of the Contractor's offer by Canada, a binding Contract shall be formed between Canada and the Contractor. The documents forming the Contract shall be the contract documents identified in Contract Documents (CD).

### BA06 CONSTRUCTION TIME

The Contractor shall perform and complete the Work within [fourteen] [14] weeks from the date of notification of acceptance of the offer.

### BA07 BID SECURITY

The Bidder is enclosing bid security with its bid in accordance with GI08 - Bid Security Requirements of R2710T - General Instructions - Construction Services - Bid Security Requirements.

### BA08 SIGNATURE

\_\_\_\_\_  
Name and title of person authorized to sign on behalf of Bidder (Type or print)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Solicitation No. - N° de l'invitation

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

EF997-170431/B

mtc560

Client Ref. No. - N° de réf. du client

File No. - N° du dossier

CCC No./N° CCC - FMS No/ N° VME

R. 075197.001

MTC-6-39069

**APPENDIX 1 - VENTILATED BID FORM (hereafter)**

- 1) The prices per unit shall govern in establishing the Total Extended Amount. Any arithmetical errors in this Appendix will be corrected by Canada.
- 2) Canada may reject the bid if any of the prices submitted do not reasonably reflect the cost of performing the part of the work to which that price applies.

The contractor must complete this ventilated bid form and submit it with the bid. These prices must include the provision of materials, labor, general fees, administration & profits of subcontractors and the general contractor. The unit prices established by the contractor when submitting his tender as a basis for measuring purposes, for all work done in excess or below the estimated areas.

**LUMP SUM**

The Lump Sum Amount designates Work to which a Lump Sum Arrangement applies.

- (a) Work included in the Lump Sum Amount represents all work not included in the unit price table.

<b>LUMP SUM AMOUNT (LSA)</b> Excluding applicable tax(s)	
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**UNIT PRICE TABLE**

The Unit Price Table designates Work to which a Unit Price Arrangement applies.

- (a) Work included in each item is as described in the referenced specification section.
- (b) The Price per Unit shall not include any amounts for Work that is not included in that unit price Item.

<b>TOTAL EXTENDED AMOUNT (TEA)</b> Excluding applicable tax(s)	
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<b>TOTAL BID AMOUNT (LSA +TEA)</b> Excluding applicable tax(s)	
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Solicitation No. - N° de l'invitation

Amd. No. - N° de la modif.

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EF997-170431/B

mtc560

Client Ref. No. - N° de réf. du client

File No. - N° du dossier

CCC No./N° CCC - FMS No/ N° VME

R. 075197.001

MTC-6-39069

### APPENDIX 3 - VOLUNTARY CERTIFICATION TO SUPPORT THE USE OF APPRENTICES

*Note; The contractor will be asked to fill out a report every six months or at project completion as per sample "Voluntary Reports for Apprentices Employed during the Contract" provided at Annex C*

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Company Name: \_\_\_\_\_

Company Legal Name: \_\_\_\_\_

Solicitation Number: \_\_\_\_\_

Number of company employees: \_\_\_\_\_

Number of apprentices planned to be working on this contract: \_\_\_\_\_

Trades of those apprentices:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Solicitation No. - N° de l'invitation

Amd. No. - N° de la modif.

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EF997-170431/B

mtc560

Client Ref. No. - N° de réf. du client

File No. - N° du dossier

CCC No./N° CCC - FMS No/ N° VME

R. 075197.001

MTC-6-39069

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## APPENDIX 4 – DEPARTMENTAL REPRESENTATIVE'S AUTHORITY

### TO BE PROVIDED AT CONTRACT AWARD.

#### Contracting Authority is :

Name : \_\_\_\_\_

Title : \_\_\_\_\_

Department : \_\_\_\_\_

Division : \_\_\_\_\_

Telephone : \_\_\_\_ - \_\_\_\_ - \_\_\_\_\_

e-mail : \_\_\_\_\_

#### Technical Authority is :

Name : \_\_\_\_\_

Title : \_\_\_\_\_

Department : \_\_\_\_\_

Division : \_\_\_\_\_

Telephone : \_\_\_\_ - \_\_\_\_ - \_\_\_\_\_

e-mail : \_\_\_\_\_

Solicitation No. - N° de l'invitation

Amd. No. - N° de la modif.

Buyer ID - Id de l'acheteur

EF997-170431/B

mtc560

Client Ref. No. - N° de réf. du client

File No. - N° du dossier

CCC No./N° CCC - FMS No/ N° VME

R. 075197.001

MTC-6-39069

**ANNEX A - CERTIFICATE OF INSURANCE** (Not required at solicitation closing)**CERTIFICATE OF INSURANCE**

Page 1 of 2

Travaux publics et  
Services gouvernementaux  
CanadaPublic Works and  
Government Services  
Canada

Description and Location of Work Drainage work , Eastmain	Contract No. EF997-170431
	Project No. R.075197.001

Name of Insurer, Broker or Agent	Address (No., Street)	City	Province	Postal Code
Name of Insured (Contractor)	Address (No., Street)	City	Province	Postal Code
Additional Insured <i>Her Majesty the Queen in Right of Canada as represented by the Minister of Public Works and Government Services</i>				

Type of Insurance	Insurer Name and Policy Number	Inception Date D / M / Y	Expiry Date D / M / Y	Limits of Liability		
				Per Occurrence	Annual General Aggregate	Completed Operations Aggregate
<b>Commercial General Liability</b>				\$	\$	\$
<b>Umbrella/Excess Liability</b>				\$	\$	\$
<b>Builder's Risk / Installation Floater</b>				\$		
<b>Pollution Liability</b>				\$ <input type="checkbox"/> Per Incident <input type="checkbox"/> Per Occurrence		Aggregate \$
<b>Marine Liability</b>				\$		
<b>Aviation Liability</b>				\$ <input type="checkbox"/> Per Incident <input type="checkbox"/> Per Occurrence		Aggregate \$
<b>Insert other type of insurance as required</b>				\$		

I certify that the above policies were issued by insurers in the course of their Insurance business in Canada, are currently in force and include the applicable insurance coverage's stated on page 2 of this Certificate of Insurance, including advance notice of cancellation / reduction in coverage.

Name of person authorized to sign on behalf of Insurer(s) (Officer, Agent, Broker)

Telephone number

Signature

Date D / M / Y

Solicitation No. - N° de l'invitation

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R. 075197.001

MTC-6-39069

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## CERTIFICATE OF INSURANCE Page 2 of 2

### General

The insurance policies required on page 1 of the Certificate of Insurance must be in force and must include the insurance coverage listed under the corresponding type of insurance on this page.

The policies must insure the Contractor and must include Her Majesty the Queen in Right of Canada as represented by the Minister of Public Works and Government Services as an additional Insured.

The insurance policies must be endorsed to provide Canada with not less than thirty (30) days notice in writing in advance of a cancellation of insurance or any reduction in coverage.

Without increasing the limit of liability, the policies must protect all insured parties to the full extent of coverage provided. Further, the policies must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.

### Commercial General Liability

The insurance coverage provided must not be substantially less than that provided by the latest edition of IBC Form 2100.

The policy must either include or be endorsed to include coverage for the following exposures or hazards if the Work is subject thereto:

- (a) Blasting.
- (b) Pile driving and caisson work.
- (c) Underpinning.
- (d) Removal or weakening of support of any structure or land whether such support be natural or otherwise if the work is performed by the insured contractor.

The policy must have the following minimum limits:

- (a) **\$5,000,000** Each Occurrence Limit;
- (b) **\$10,000,000** General Aggregate Limit per policy year if the policy contains a General Aggregate; and
- (c) **\$5,000,000** Products/Completed Operations Aggregate Limit.

Umbrella or excess liability insurance may be used to achieve the required limits.

### Builder's Risk / Installation Floater

The insurance coverage provided must not be less than that provided by the latest edition of IBC Forms 4042 and 4047.

The policy must permit use and occupancy of any of the projects, or any part thereof, where such use and occupancy is for the purposes for which a project is intended upon completion.

The policy may exclude or be endorsed to exclude coverage for loss or damage caused by asbestos, fungi or spores, cyber and terrorism.

The policy must have a limit that is **not less than the sum of the contract value** plus the declared value (if any) set forth in the contract documents of all material and equipment supplied by Canada at the site of the project to be incorporated into and form part of the finished Work. If the value of the Work is changed, the policy must be changed to reflect the revised contract value.

The policy must provide that the proceeds thereof are payable to Canada or as Canada may direct in accordance with GC10.2, "Insurance Proceeds" (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R/R2900D/2>).

### Contractors Pollution Liability

The policy must have a limit usual for a contract of this nature, but not less than **\$1,000,000** per incident or occurrence and in the aggregate.

### Aviation Liability

The insurance coverage shall include Bodily Injury (including passenger Bodily Injury) and Property Damage, in an amount of not less than **\$5,000,000** per incident or occurrence and in the aggregate.

### Marine Liability

The insurance coverage must be provided by a Protection & Indemnity (P&I) insurance policy and must include excess collision liability and pollution liability.

The insurance must be placed with a member of the International Group of Protection & Indemnity Associations or with a fixed market in an amount of not less than the limits determined by the *Marine Liability Act*, S.C. 2001, c. 6. Coverage must include crew liability, if it is not covered by the statutory requirements of the Territory or Province having jurisdiction over such employees.

The policy must waive all rights of subrogation against Canada as represented by Public Works and Government Services Canada for any and all loss of or damage to the watercraft however caused.

### Other types of Insurance

To be inserted below according to specifics of project.



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## ANNEXE C

### ABORIGINAL BUSINESS CERTIFICATION

#### Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their proposal.

1. The Bidder must check the applicable box below:
  - i.  The Bidder is an Aboriginal business that is a sole proprietorship, band, limited company, co-operative, partnership or not-for-profit organization.  
**OR**
  - ii.  The Bidder is either a joint venture consisting of two or more Aboriginal businesses or a joint venture between an Aboriginal business and a non-Aboriginal business.
  
2. The Bidder must check the applicable box below:
  - i.  The Aboriginal business has fewer than six full-time employees.  
**OR**
  - ii.  The Aboriginal business has six or more full-time employees.
  
3. The Bidder must, upon request by Canada, provide all information and evidence supporting this certification. The Bidder must ensure that this evidence will be available for audit during normal business hours by a representative of Canada, who may make copies and take extracts from the evidence. The Bidder must provide all reasonably required facilities for any audits.
  
4. By submitting a bid, the Bidder certifies that the information submitted by the Bidder in response to the above requirements is accurate and complete.

**NOTE** - In the context of this request for proposal, "Aboriginal" is understood as following: CREE As defined in the James Bay and Northern Quebec Agreement and Complementary Agreements, paragraphs 3.1.1, 3.2.1, 3.2.2 and 3.2.3 of chapter 3 of the agreement.

Solicitation No. - N° de l'invitation

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EF997-170431/B

mtc560

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CCC No./N° CCC - FMS No/ N° VME

R. 075197.001

MTC-6-39069

### ANNEX D - LISTING OF SUBCONTRACTORS

- 1) In accordance with GI07 - Listing of Subcontractors and Suppliers of R2710T- General Instructions - Construction Services - Bid Security Requirements, the Bidder should provide a list of Subcontractors with his Bid.
- 2) The Bidder should submit the list of Subcontractors and for any portion of the Work valued at 20% or greater of the submitted Bid Price.

	Subcontractor	Division	Estimated value of work
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

TENDER FORM

ART.	DESCRIPTION	UNIT	UNIT PRICE a	APPROX. QUANTITY b	CALCULATED TOTAL AMOUNT a x b = c
<b>1.0</b>	<b>OVERHEAD</b>				
1.1	Mobilization and demobilization	lump sum			\$
1.2	Building site organization	lump sum			\$
<b>1.0 - OVERHEAD TOTAL</b>					\$

TENDER FORM

ART.	DESCRIPTION	UNIT	UNIT PRICE a	APPROX. QUANTITY b	CALCULATED TOTAL AMOUNT a x b = c
<b>2.0</b>	<b>CLEARING AND GRUBBING</b>				
2.1	Brushwood clearing	m <sup>2</sup>	\$	44 120	\$
2.2	Close cut clearing	ha	\$	0,800	\$
2.3	Grubbing	ha	\$	0,100	\$
2.4	Beavers dam removal	unit	\$	2	\$
	<b>2.0 - CLEARING AND GRUBBING TOTAL</b>				\$

TENDER FORM

ART.	DESCRIPTION	UNIT	UNIT PRICE	APPROX. QUANTITY	CALCULATED TOTAL AMOUNT
			a	b	a x b = c
<b>3.0</b>	<b>WATERWAY CHANNEL MAINTENANCE</b>				
3.1	Side ditch digging -excavation depth > 0,5 m, ( bottom width of 1,2 m)	m	\$	380	\$
3.2	Side ditch reprofiling -excavation depth <0,5 m, ( bottom width of 1,2 m)	m	\$	2 227	\$
3.3	Outlet channel digging -excavation depth > 0,5 m, ( bottom width of 2,0 m)	m	\$	15	\$
3.4	Outlet channel reprofiling -excavation depth <0,5 m, ( bottom width of 2,0 m)	m	\$	340	\$
3.5	Secondary Channel digging -excavation depth < 1,0 m, (Bottom width of 1,2 m)	m	\$	40	\$
	<b>3.0 - WATERWAY CHANNEL MAINTENANCE TOTAL</b>				\$

TENDER FORM

ART.	DESCRIPTION	UNIT	UNIT PRICE a	APPROX. QUANTITY b	CALCULATED TOTAL AMOUNT a x b = c
<b>4.0</b>	<b>Culverts and miscellaneous</b>				
	<i>Pipe Culvert</i>				
4.1	Removal and disposal of pipe culvert				
4.1.1	-800 mmΦ, [culvert ES2]	m	\$	10	\$
4.2	Proposed pipe culvert				
4.2.1	-800 mmΦ, ACSP, thickness 2,8 mm, [Culvert ES2]	m	\$	12	\$
4.3	Culvert cleaning				
4.3.1	-Pipe 1000 mmΦ, [culvert ES3]	m	\$	16	\$
4.3.2	-Pipe 1200 mmΦ, [culvert ES4]	m	\$	4	\$
4.3.3	-Pipe 1370 mmΦ, [culvert ES1]	m	\$	69	\$
4.4	Riprap for end pipe culvert				
4.4.1	-Pipe 800 mmΦ, [culvert ES2]	unit	\$	2	\$
4.4.3	-Pipe 1000 mmΦ, [culvert ES3]	unit	\$	2	\$
4.4.3	-Pipe 1200 mmΦ, [culvert ES4]	unit	\$	2	\$
4.4.3	-Pipe 1370 mmΦ, [culvert ES1]	unit	\$	2	\$
	<b>Miscellaneous</b>				
4.6	Final construction site cleanup and level	lump sum	\$	1	\$
4.7	Granular material MG 20b for base repair (supply by Ministry)	m <sup>3</sup>	\$	220	\$
	<b>4.0 - CULVERTS AND MISCELLANEOUS TOTAL</b>				\$

TENDER FORM

SUMMARY OF COSTS		AMOUNT
	1.0 - OVERHEAD TOTAL	\$
	2.0 - CLEARING AND GRUBBING TOTAL	\$
	3.0 - WATERWAY CHANNEL MAINTENANCE TOTAL	\$
	4.0 - CULVERTS AND MISCELLANEOUS TOTAL	\$
	<b>TOTAL AMOUNT</b>	<b>\$</b>
	Total amount to be reported at section BA 03 of the invitation to tender form	



**Public Works and Government Services Canada**

**Drainage corrections of Eastmain Airport**

**Project N° R.075197.001**

These tender documents has been prepared and verified by the undersigned:

Prepared by:

\_\_\_\_\_  
Gilbert Rolland, ing. M. Ing.

Date: \_\_\_\_\_

Verified by:

\_\_\_\_\_  
Gilles Marcotte, ing.  
Project Manager

Date: \_\_\_\_\_

<u>Section Number</u>	<u>Section Title</u>	
00 00 07	Seals Page	Page 1 of 1
00 01 10	Table of contents	Page 1 of 2
01 11 00	Summary of work	Page 1 of 3
01 33 00	Submittal procedures	Page 1 of 4
01 35 00.06	Special procedures for traffic control	Page 1 of 3
01 35 13.13	Special procedures for airport facilities	Page 1 of 6
01 35 29.06	Health & safety requirements	Page 1 of 4
01 35 43	Environmental procedures	Page 1 of 5
01 74 11	Cleaning	Page 1 of 3
01 74 21	Construction/Demolition waste management and disposal	Page 1 of 3
31 00 99	Earthwork for minor works	Page 1 of 2
31 05 16	Aggregate materials	Page 1 of 2
31 11 00	Clearing and grubbing	Page 1 of 5
31 23 33.01	Excavation, trenching and backfilling	Page 1 of 5
31 32 19.01	Geotextiles	Page 1 of 3
31 37 00	Rip-rap	Page 1 of 2
32 11 23	Aggregate base courses	Page 1 of 3
33 42 13	Pipe culverts	Page 1 of 4
35 42 60	Waterway channel maintenance	Page 1 of 4
Appendix A	Descriptive specifications	Page 1 of 5

LIST OF PLANS

Q198Q623C001	LOCATION PLAN
Q198Q623C002	LEGEND
Q198Q623C003	RUNWAY SIDE DITCHES – PLAN AND PROFILE CH. 4+800 @ 5+300
Q198Q623C004	RUNWAY SIDE DITCHES – PLAN AND PROFILE CH. 5+300 @ 5+800
Q198Q623C005	RUNWAY SIDE DITCHES – PLAN AND PROFILE CH. 5+800 @ 6+020
Q198Q623C006	OUTLET CHANNEL # 1 AND # 3 – PLANS AND PROFILES
Q198Q623C007	APRON SIDE DITCHES – PLANS AND PROFILES
Q198Q623C008	DETAILS PLAN

END OF SECTION

**Part 1 GENERAL**

**1.1 RELATED REQUIREMENTS**

- .1 Not Used.

**1.2 WORK COVERED BY CONTRACT DOCUMENTS**

- .1 The work covered by this contract includes drainage correction work at the Eastmain airport. This work includes without being limited to:
  - .1 Clearing;
  - .2 Grubbing;
  - .3 Underbrush clearing;
  - .4 Beaver dam removal;
  - .5 Runway lateral ditch reprofiling;
  - .6 Runway lateral ditch digging;
  - .7 Outlet channel reprofiling;
  - .8 Outlet channel digging;
  - .9 Installation and replacement of culverts;
  - .10 Cleaning of culverts;
  - .11 Final construction site cleanup and level

**1.3 CONTRACT METHOD**

- .1 Construct Work under single unit price contract.
- .2 Subcontractor must have obtained contractor license before proceeding with the works require for the contractor.

**1.4 WORK SEQUENCE**

- .1 Construct Work in stages to accommodate Departmental Representative continued use of premises during construction see Section 01 35 13.13 – Special procedures for airport facilities.

**1.5 PERIOD OF EXECUTION**

- .1 The period of execution of all work is 10 weeks from the date of award of the contract to Contractor.

**1.6 OWNER OCCUPANCY**

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

## **1.7 DEPARTMENTAL REPRESENTATIVE FURNISHED ITEMS**

- .1 Departmental Representative Responsibilities:
  - .1 Arrange for delivery of shop drawings, product data, samples, manufacturer's instructions, and certificates to Contractor.
  - .2 Deliver supplier's bill of materials to Contractor.
  - .3 Verify condition of MG 20b materials on site with Contractor.
  - .4 Arrange for replacement of damaged, defective or missing items.
- .2 Contractor Responsibilities:
  - .1 Designate submittals and delivery date for each product in progress schedule.
  - .2 Review shop drawings, product data, samples, and other submittals. Submit to Departmental Representative notification of observed discrepancies or problems anticipated due to non-conformance with Contract Documents.
  - .3 Receive and unload products at site.
  - .4 Inspect deliveries jointly with Departmental Representative; record shortages, and damaged or defective items.
  - .5 Handle products at site, including uncrating and storage.
  - .6 Protect products from damage, and from exposure to elements.
  - .7 Assemble, install, connect, adjust, and finish products.
  - .8 Provide installation inspections required by public authorities.
  - .9 Repair or replace items damaged by Contractor or subcontractor on site (under his control).
- .3 Schedule of Departmental Representative furnished items:
  - .1 The Departmental Representative shall supply MG 20b materials for the installation of pipe culvert and repair the granular material base layer of tumulus repairing the shoulder of the runway, taxiway and apron. These materials are located in airport reserves area. Refer to Section 31 11 23 – Aggregate Base Courses.

## **1.8 EXISTING SERVICES**

- .1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give the Departmental Representative 48 hours notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to airport facilities.
- .3 Provide alternative routes for vehicular traffic.
- .4 Establish location and extent of service lines in area of work before starting Work. Notify the Departmental Representative of findings.

- .5 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .6 Where unknown services are encountered, immediately advise Department Representative and confirm findings in writing.
- .7 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .8 Record locations of maintained, re-routed and abandoned service lines.

#### **1.9 DOCUMENTS REQUIRED**

- .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 RELATED REQUIREMENTS**

- .1 Contractor shall provide Departmental Representative with certificates, certificates of conformity and data sheets for the materials required for the execution of the Work.

**1.2 REFERENCES**

- .1 Not Used.

**1.3 ADMINISTRATIVE**

- .1 Submit to Departmental Representative submittals listed 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 extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to Departmental Representative. This 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 considered rejected.
- .6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Works are co-ordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10 Keep one reviewed copy of each submission on site.

**1.4 SHOP DRAWINGS AND PRODUCT DATA**

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Submit drawings stamped and signed by professional engineer registered or licensed in Québec Province of Canada.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which

- adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Allow 15 days for Departmental Representative's review of each submission.
  - .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
  - .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
  - .7 Accompany submissions with transmittal letter, in duplicate, containing:
    - .1 Date;
    - .2 Project title and number;
    - .3 Contractor's name and address;
    - .4 Identification and quantity of each shop drawing, product data and sample;
    - .5 Other pertinent data.
  - .8 Submissions include:
    - .1 Date and revision dates;
    - .2 Project title and number;
    - .3 Name and address of:
      - .1 Subcontractor
      - .2 Supplier
      - .3 Manufacturer
    - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
    - .5 Details of appropriate portions of Work as applicable:
      - .1 Fabrication;
      - .2 Layout, showing dimensions, including identified field dimensions, and clearances;
      - .3 Setting or erection details;
      - .4 Standards;
      - .5 Operating weight.
  - .9 After Departmental Representative's review, distribute copies.
  - .10 Submit six (6) print copies or one (1) electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
  - .11 Submit six (6) print copies or one (1) electronic copy of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

- .12 Submit six (6) print copies or one (1) electronic copy of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
  - .2 Testing must have been within [3] years of date of contract award for project.
- .13 Submit six (6) print copies or one (1) electronic copy of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
  - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit six (6) print copies or one (1) electronic copy of manufacturer's instructions for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets and safety precautions.
- .15 Delete information not applicable to project.
- .16 Supplement standard information to provide details applicable to project.
- .17 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, [transparency] [copies] will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .18 The review of shop drawings by Public Works and Government Services Canada (PWGSC) is for sole purpose of ascertaining conformance with general concept.
  - .1 This review shall not mean that PWGSC approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
  - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

## 1.5 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.

**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 REQUIREMENTS**

- .1 For work on or near road right-of-ways, Contractor shall control road traffic.

### **1.2 REFERENCES**

- .1 Ministère des Transports du Québec
  - .1 Tome V des Normes des ouvrages routiers intitulé « Signalisation routière »;
  - .2 CCDG, édition 2015.

### **1.3 PROTECTION OF PUBLIC TRAFFIC**

- .1 Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.
- .2 When working on travelled way:
  - .1 Place equipment in position to minimize interference and hazard to travelling public.
  - .2 Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.
  - .3 Do not leave equipment on travelled way overnight.
- .3 Close lanes of road only after receipt of written approval from Departmental Representative.
  - .1 Before re-routing traffic erect suitable signs and devices according to “Tome V, Signalisation routière”.
- .4 Keep travelled way graded, free from pot holes and of sufficient width for required number of lanes of traffic.
  - .1 Provide 7 m wide minimum temporary roadway for traffic in two-way sections through Work and on detours.
  - .2 Provide 5 m wide minimum temporary roadway for traffic in one-way sections through Work and on detours.

### **1.4 INFORMATIONAL AND WARNING DEVICES**

- .1 Provide and maintain signs and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Project Work which requires road user response.
- .2 Supply and erect signs, delineators, barricades and miscellaneous warning devices according to “Tome V, Signalisation routière” des Normes des ouvrages routiers du ministère des Transports du Québec.
- .3 Meet with Departmental Representative prior to commencement of Work to prepare list of signs and other devices required for project. If situation on site changes, revise list to approval of Departmental Representative.

- .4 Continually maintain traffic control devices in use:
  - .1 Check signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
  - .2 Remove or cover signs which do not apply to conditions existing from day to day.

## 1.5 CONTROL OF PUBLIC TRAFFIC

- .1 Provide competent flag personnel, trained in accordance with, and properly equipped according to “Tome V, Signalisation routière” des Normes des ouvrages routiers du ministère des Transports du Québec.
  - .1 When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.
  - .2 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use.
  - .3 When workmen or equipment are employed on travelled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.
  - .4 Where temporary protection is required while other traffic control devices are being erected or taken down.
  - .5 For emergency protection when other traffic control devices are not readily available.
  - .6 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.
  - .7 Delays to public traffic due to contractor's operators:[15] minutes maximum.
- .2 Where roadway, carrying two-way traffic, is restricted to one lane, for 24 hours each day, provide portable traffic signal system.
  - .1 Adjust, as necessary, and regularly maintain system during period of restriction.
  - .2 Ensure signal system meets requirements according to “Tome V, Signalisation routière” des Normes des ouvrages routiers du ministère des Transports du Québec.

## 1.6 PAYMENT

- .1 Costs for traffic control procedures are included in tender unit prices.

## 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 REQUIREMENTS**

- .1 Not Used.

**1.2 GENERAL PROTECTION**

- .1 Do not disrupt airport business except as permitted by Departmental Representative.
- .2 Provide temporary protection for safe handling of public, personnel, pedestrians and vehicular traffic.
- .3 Provide barricades and lights where directed by Departmental Representative.

**1.3 MOVEMENT OF EQUIPMENT AND PERSONNEL**

- .1 In areas of airport not closed to aircraft traffic:
  - .1 Obtain Departmental Representative's approval on scheduling of Work.
  - .2 Control movements of equipment and personnel as directed by Departmental Representative.
  - .3 Provide qualified field personnel at locations designated by Departmental Representative to relay signals from airport traffic control tower to equipment and personnel wishing to cross live traffic areas.
  - .4 Immediately obey signals from airport traffic control tower.

**1.4 UNSERVICEABLE AREAS**

- .1 Mark off areas made unserviceable for aircraft by Work of this Contract by providing highly visible danger markings by day and red lights by night.
- .2 Open flames and flammable fuels are not permitted.
- .3 Park equipment not in use and stockpile materials so that stockpile tops are below 50 to 1 ratio from ends of useable landing strip and below 20 to 1 ratio from sides of aircraft traffic areas.
  - .1 Mark tops with red lights as directed by Departmental Representative.

**1.5 TRENCHING**

- .1 Obtain Departmental Representative's written permission to undertake trenching on pavements open to aircraft traffic which cannot be completed, backfilled and sealed within 1 working day.

**1.6 AIRPORT FACILITIES**

- .1 Departmental Representative will stake or indicate location of underground facilities such as cables, pipes, ducts and other services and utilities.
- .2 Notify Departmental Representative of work areas [48] hours minimum in advance of operations to allow sufficient time for underground facilities and service to be located.

**Part 2 PRODUCTS**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 EXECUTION**

**3.1 NOT USED**

- .1 Not Used.

**Part 4 SPECIFIC REQUIREMENTS**

**4.1 GENERAL**

- .1 These specifications define the special requirements set out in this Contract relative to the impacts of the Work on air traffic and the site environment. The Work specified herein consists of, without being limited to:
  - .1 Maintenance of air traffic;
  - .2 Compliance with requirements set out in “*Aerodromes Standards and Recommended Practices – TP 312, 5<sup>th</sup> Edition*” and “*Aéroports et héliports*” from the Quebec standards collection;
  - .3 Compliance of signalling equipment.

**4.2 GENERAL MEASURES**

- .1 Airport areas
  - .1 This document is consistent with the operations plan during construction (OPC), which will be produced and approved by Transport Canada. The OPC is a prerequisite for all Work carried out on the airport site and must be strictly adhered to by Contractor.
  - .2 To enable or facilitate the performance of the Work, the runway will be closed except during peak air traffic periods and for medical emergencies, in accordance with the terms and conditions described in items 4.5.2 and 4.6.1 herein.

**4.3 AIRPORT AREA WORKPLAN**

- .1 Contractor’s workplan shall be approved by Transport Canada as part of the OPC. Contractor shall request a coordination meeting with Transport Canada and the Departmental Representative at least 4 weeks prior to the start of the Work.
- .2 The present project is divided into three phases:
  - .1 Site preparation and outlet channel digging and culvert replacement;
  - .2 Lateral ditch reprofiling and digging work, including culvert replacement;
  - .3 Culvert cleaning and final construction site cleanup and levelling.

- .3 Contractor is required to submit a workplan to the Departmental Representative that takes into consideration the requirements specified in item 4.6 - Air Traffic Maintenance and the impacts of the Work on airport activities, and includes provisions for maintaining air and land traffic at the site during construction.
- .4 In addition to the measures the Contractor intends to apply to mitigate impacts on air traffic, the workplan details the signs and visual markers, their locations and the equipment it plans to use.
  - .1 According to the content of the workplan, Transport Canada will issue any necessary NOTAMs (Notice to air men/Message aux navigants) with which Contractor shall comply.

#### **4.4 AIRSIDE ACCESS**

- .1 Authorization for airside access shall be given by the on-site “observer/communicator” employed by Transport Canada. Whenever the runway or part of the runway is in service, it is imperative that Contractor obtain permission to access the runway from the “observer/communicator” under penalty of the Work being suspended. Contractor shall therefore ensure that a member of its team holds a restricted radiotelephone operator’s certificate and that this person serves as an “Escort” for vehicles that require airside access.
- .2 Airside escort service is required at all times when the runway is open to air traffic. Contractor can minimize use of airside escort service by reducing the periods it works when the runway is open to aircraft traffic.

#### **4.5 WORK SCHEDULE**

- .1 General
  - .1 Work shall be performed on a regular schedule that is approved by the Departmental Representative at least 2 weeks prior to the start of the Work. Contractor shall adapt its work schedule in terms of the air traffic restrictions specified in item 4.5.2, runway closure periods specified in item 4.5.3, and the constraints pertaining to air traffic maintenance specified in item 4.6.
- .2 Air traffic restrictions
  - .1 Prior to the start of the Work and given the air traffic maintenance requirement, Contractor shall obtain confirmation from Transport Canada of the time slots during which no work and no vehicular traffic are permitted on the airport’s active movement areas.
  - .2 A daily restricted period applies as of a half hour prior to the first flight and one hour after the last flight. The regular Air Creebec passenger flight schedule is provided in the tender documents. Contractor shall note that this schedule is provided for information purposes, and that flight delays can extend the restricted period and that the flight schedule may be modified prior to the award of the contract or during the contract. With respect to freight transportation, cargo plane operations shall take place during the restricted time slot.

- .3 Runway closure
  - .1 Prior to the start of the Work, Contractor shall obtain confirmation of the time slots during which the runway is closed. During these closure periods, Contractor is permitted to travel and work airside, without any traffic-related constraints and without an airside escort under the following conditions:
    - .1 Contractor shall return the runway to active service at any time in the event of distress alerts or medical emergencies, for which timing and conditions are specified in item 4.6 herein.
    - .2 Contractor shall inspect and restore the runway to proper condition at the end of each closure period.
      - .1 Runway closures occur on a daily basis and extend for about 14 hours on Mondays, Wednesdays, Thursdays and Fridays.
    - .3 As noted earlier, Contractor shall note that runway closure periods may be reduced owing to flight delays or the release of a new schedule.

#### **4.6 AIR TRAFFIC MAINTENANCE**

- .1 To maintain air traffic, work undertaken on or near movement areas shall be performed primarily outside air traffic periods. No transportation on the runway is permitted within these periods.
  - .1 Distress alerts and medical emergencies
    - .1 In the event of distress alerts or medical emergencies, Contractor shall be prepared to restore the runway to active service at any time. For this purpose, Contractor shall submit an emergency plan at least 2 weeks prior to the start of the Work to the Departmental Representative for approval.
- .2 During the takeoff and landing of aircraft involved with emergency services, Contractor shall comply with the following directives:
  - .1 In the event of a medical evacuation, Contractor shall turn over full access to movement areas within a maximum of 2 hours of notice provided by Departmental Representative and suspend all work and movement for the period specified by the Departmental Representative.
  - .2 To return runway to active service, Contractor shall inspect the runway and restore it to proper condition.
  - .3 During periods when work is suspended, Contractor shall move to and store equipment at a holding position approved by the Departmental Representative.
- .3 Lateral ditch reprofiling and digging
  - .1 This phase of the Work shall be performed during runway closure periods as indicated in item 4.5.3 herein.
  - .2 At the end of each shift, Contractor shall return the full length of the runway to active service. Surfaces that are likely to be used by aircraft shall not have any surface asperities such as granular materials or potholes. The interface between the area of work and the untouched area, or the filled part and unfilled part, shall have a longitudinal runway gradient of less than 0.2% to ensure the movement of aircraft over the 2 surfaces. This gradient shall be reduced to 0.1% in areas where

wheels touchdown at the ends of the runway. Contractor shall ensure appropriate compaction of surfaces. Outside these hours of work, Contractor shall ensure the full width and length of the runway is serviceable.

- .4 Lateral ditch or outlet channel reprofiling and digging
  - .1 To plan this phase of the work, Contractor shall allow for the fact that the airport can serve as a transitional airport for Air Creebec, which results in aircraft being parked overnight, every night, on the existing apron.
  - .2 At the end of each shift, Contractor shall make the entire apron area serviceable and provide aircraft with surfaces that are properly compacted. Contractor shall also include in its management plans markers for denoting work areas using visual aids installed in sufficient quantities, including lights as required.
- .5 Final cleaning and levelling
  - .1 This phase of the work shall be performed during runway closure periods, as indicated in item 4.5.3 herein.
  - .2 Contractor is responsible for any damage to marker and navigation aid equipment and to the runway subgrade surface that may occur during the execution of the Work. Contractor shall undertake replacement and/or corrective work at its expense to the satisfaction of the Departmental Representative and Transport Canada.
  - .3 Existing markers as well as visual aids to navigation, such as runway identification lights (RILS) and windsocks, shall be protected and maintained in operating condition on the entire length of the runway.
  - .4 Service interruptions on existing visual aids to navigation are authorized only for very short periods and must be approved by the Departmental Representative and Transport Canada, which will issue a NOTAM, as required.

#### **4.7 MARKING OF WORK AREAS (AIRPORT AREA)**

- .1 In general, Contractor shall comply with the requirements set out in “*Aerodromes Standards and Recommended Practices – TP 312, 5<sup>th</sup> Edition*” and in the “*Canadian Aviation Regulations, Part III.*”

#### **4.8 COMMUNICATIONS EQUIPMENT**

- .1 Contractor’s site manager shall be equipped with a radio transmitter-receiver compatible with the frequencies used by the airport. The site manager shall be available at all times through this equipment.

#### **4.9 HEAVY MACHINERY AND ESCORT VEHICLES**

- .1 All vehicles used in the performance of the Work shall be equipped with an orange rotating or flashing warning light, including trucks transporting aggregate between the work site and the aggregate production site and/or stockpile. When airside, these vehicles shall have their low beam headlights turned on.
- .2 Holding points are determined for every phase of the Work and are approved by the Departmental Representative and Transport Canada. Contractor shall use these holding points to remain off the runway while waiting to receive authorization to move by the “observer-communicator.”

- .3 During all takeoffs and landings and after every shift, all equipment must be moved off movement areas and must comply with standards set out in TP 312, 4<sup>th</sup> Edition.

#### **4.10 ISSUE OF NOTAM**

- .1 NOTAMs are issued by the Departmental Representative and Transport Canada. Contractor shall therefore coordinate the issue of a NOTAM with the Departmental Representative and Transport Canada in terms of its work schedule.
- .2 Contractor shall notify the Departmental Representative and Transport Canada at least 72 hours prior to beginning any work that is likely to affect air traffic, specifically:
  - .1 Starting work or working on another part of the runway, taxiway or apron;
  - .2 Using equipment that does not comply with requirements set out in TP 312, 4<sup>th</sup> Edition, as regards obstacle limitation surfaces.

#### **4.11 PAYMENT METHODS FOR AIR TRAFFIC MAINTENANCE AND WORK AREA SIGNAGE**

- .1 Air traffic maintenance and work area signage costs are included in tender unit prices.
- .2 Tender unit prices for air traffic maintenance and work area signage include all expenses arising from the requirements and specifications indicated herein, including labour, runway closure management and emergency plans, supply, installation and maintenance of signs, visual markers and runway closure markers, all perimeters established for the safety of airport users and workers, changes required during the Work, time wasted by Contractor owing to density of air traffic, distress alerts and medical emergency interventions, airside escort costs as stipulated in item 1.4 herein, and all incidental expenses. Finally, all expenses arising from related work that is not specifically described herein are included in the various phases indicated above.

#### **4.12 SPECIAL SIGN**

- .1 At the start of construction, Contractor shall install a 2,438 mm x 1,219 mm sign on the side of the access road to the airport as indicated in the layout plan provided by the Departmental Representative. This sign must remain in good condition for the duration of the Work. Contractor shall therefore protect the self-adhesive sheet with a transparent plastic material. The self-adhesive sheet will be supplied by the Departmental Representative.
- .2 This sign is included in the tender unit prices which cover the supply of all materials except the self-adhesive sheet, as well as labour, the equipment required to install the sign, sign maintenance, and any incidental expenses.

**END OF SECTION**

**Part 1 GENERAL**

**1.1 RELATED REQUIREMENTS**

- .1 Not used.

**1.2 REFERENCES**

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .3 Province of Quebec
  - .1 An Act Respecting Occupational Health and Safety, R.S.Q. 1997 (updated 26 July 2005).

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
  - .1 Results of site specific safety hazard assessment.
  - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
- .3 Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to authority having jurisdiction, daily to Departmental Representative.
- .4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .5 Submit copies of incident and accident reports.
- .6 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 5 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 2 days after receipt of comments from Departmental Representative.
- .7 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .8 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.
- .9 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

#### **1.4 FILING OF NOTICE**

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.

#### **1.5 SAFETY ASSESSMENT**

- .1 Perform site specific safety hazard assessment related to project.

#### **1.6 MEETINGS**

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

#### **1.7 PROJECT/SITE CONDITIONS**

- .1 Work at site will involve contact with:
  - .1 Section 01 35 00.06 - Special procedures for traffic control.
  - .2 Section 01 35 13.13 - Special procedures for airport facilities.

#### **1.8 GENERAL REQUIREMENTS**

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

#### **1.9 RESPONSIBILITY**

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

#### **1.10 COMPLIANCE REQUIREMENTS**

- .1 Comply with Workers Compensation Act, B.C. Reg.
- .2 Comply with Occupational Health and Safety Act, Industrial and Commercial Establishments Regulation, R.R.Q.
- .3 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

#### **1.11 UNFORSEEN HAZARDS**

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

### **1.12 HEALTH AND SAFETY CO-ORDINATOR**

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
  - .1 Have site-related working experience specific to activities associated with works in Cree community.
  - .2 Have working knowledge of occupational safety and health regulations.
  - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
  - .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
  - .5 Be on site during execution of Work [and report directly to and be under direction of Registered Occupational Hygienist

### **1.13 POSTING OF DOCUMENTS**

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Departmental Representative.

### **1.14 CORRECTION OF NON-COMPLIANCE**

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

### **1.15 WORK STOPPAGE**

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

**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 REQUIREMENTS**

- .1 Not Used.

### **1.2 REFERENCES**

- .1 Definitions
  - .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade environment aesthetically, culturally and/or historically.
  - .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction.
- .2 References
  - .1 Federal government
    - .1 Canadian Environmental Protection Act (CEPA 1999) (S.C., 1999, c.33).
  - .2 Gouvernement du Québec
    - .1 Loi sur les forêts (L.R.Q., chapitre F-4.1).
    - .2 Règlement sur les normes d'intervention dans les forêts du domaine de l'État (R.R.Q., c. Q-2, r.19).
    - .3 Règlement sur l'enfouissement et l'incinération des matières résiduelles (R.R.Q., c. Q-2, r.19).
    - .4 Règlement sur les matières dangereuses (R.R.Q., c. Q-2, r. 32).
    - .5 Loi sur la qualité de l'environnement (R.L.R.Q., chapitre Q-2).
    - .6 Règlement relatif à l'application de la Loi sur la qualité de l'environnement (R.L.R.Q., chapitre Q-2, r. 3).
    - .7 Règlement sur les carrières et sablières (R.L.R.Q., chapitre Q-2, r. 7).
    - .8 Règlement sur la circulation de véhicules motorisés dans certains milieux fragiles (R.L.R.Q., chapitre Q-2, r. 9).
    - .9 Règlement sur l'enfouissement des sols contaminés (R.L.R.Q., chapitre Q-2, r. 18).
    - .10 Règlement sur les normes environnementales applicables aux véhicules lourds (R.L.R.Q., chapitre Q-2, r. 23).
    - .11 Règlement sur le stockage et les centres de transfert de sols contaminés (R.L.R.Q., chapitre Q-2, r. 46).
    - .12 Loi sur la conservation et la mise en valeur de la faune (R.L.R.Q., chapitre C-61.1).
    - .13 Règlement sur les habitats fauniques (R.L.R.Q., chapitre C-61.1, r. 18).
    - .14 Règlement sur la protection des forêts (R.L.R.Q., chapitre F-4.1, r. 11).
    - .15 Politique de protection des rives, du littoral et des plaines inondables (R.L.R.Q, chapitre Q-2, r. 32).

- .16 Politique québécoise de gestion des matières résiduelles (R.L.R.Q., chapitre Q-2, r. 35.1).
- .17 Politique de protection des sols et de réhabilitation des terrains contaminés.
- .18 Code de sécurité pour les travaux de construction (R.L.R.Q., chapitre S-2.1, r. 4).

### 1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for proposed materials and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Before commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative.
- .4 Environmental Protection Plan must include comprehensive overview of known or potential environmental issues to be addressed during construction.
- .5 Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .6 Include in Environmental Protection Plan:
  - .1 Name[s] of person[s] responsible for ensuring adherence to Environmental Protection Plan.
  - .2 Name[s] and qualifications of person[s] responsible for manifesting hazardous waste to be removed from site.
  - .3 Name[s] and qualifications of person[s] responsible for training site personnel.
  - .4 Descriptions of environmental protection personnel training program.
  - .5 Erosion and sediment control plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
  - .6 Drawings indicating locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.
  - .7 Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather.
    - .1 Plans to include measures to minimize amount of material transported onto paved public roads by vehicles or runoff.
  - .8 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use.
    - .1 Plan to include measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.

- .9 Spill Control Plan to include procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .10 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris (Section 01 74 21).
- .11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.
- .12 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
- .13 Waste Water Management Plan identifying methods and procedures for management and discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.
- .14 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.
- .15 Pesticide treatment plan to be included and updated, as required.

#### **1.4 FIRES**

- .1 Fires and burning of rubbish on site is not permitted.

#### **1.5 DRAINAGE**

- .1 Develop and submit erosion and Sediment Control Plan (ESC) identifying type and location of erosion and sediment controls provided. Plan to include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
- .2 Provide temporary drainage and pumping required to keep excavations and site free from water.
- .3 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.
- .4 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

#### **1.6 SITE CLEARING AND PLANT PROTECTION**

- .1 Protect trees and plants on site and adjacent properties as indicated.
- .2 Protect trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m minimum.
- .3 Protect roots of designated trees to drip line during excavation and site grading to prevent disturbance or damage.
  - .1 Avoid unnecessary traffic, dumping and storage of materials over root zones.

- .4 Minimize stripping of topsoil and vegetation.
- .5 Restrict tree removal to areas indicated and designated by Departmental Representative.

#### **1.7 WORK ADJACENT TO WATERWAYS**

- .1 Construction equipment to be operated on land only.
- .2 Use waterway beds for borrow material only after written receipt of approval from Departmental Representative.
- .3 Waterways to be kept free of excavated fill, waste material and debris.
- .4 Design and construct temporary crossings to minimize erosion to waterways.
- .5 Do not skid logs or construction materials across waterways.
- .6 Avoid indicated spawning beds when constructing temporary crossings of waterways.
- .7 Blasting is allowed only above water and 100 m minimum from indicated spawning beds.

#### **1.8 POLLUTION CONTROL**

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 Control emissions from equipment and plant in accordance with local authorities' emission requirements.
- .3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

#### **1.9 HISTORICAL/ARCHAEOLOGICAL CONTROL**

- .1 Provide historical, archaeological, cultural resources, biological resources, and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands known to be on project site: and identifies procedures to be followed if historical archaeological, cultural resources, biological resources and wetlands not previously known to be onsite or in area are discovered during construction.
- .2 Plan: include methods to assure protection of known or discovered resources and identify lines of communication between Contractor personnel and Departmental Representative.

#### **1.10 NOTIFICATION**

- .1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.
- .2 Contractor: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.
  - .1 Take action only after receipt of written approval by Departmental Representative.
- .3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.

- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

#### **1.11 CONTAMINATED SOIL**

- .1 Contractor shall immediately inform the Departmental Representative when potentially contaminated soil is identified during excavation work.
- .2 The Departmental Representative will provide Contractor with directives regarding the continuation of the work.

### **Part 2 PRODUCTS**

#### **2.1 NOT USED**

- .1 Not Used.

### **Part 3 Execution**

#### **3.1 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Bury rubbish and waste materials on site where directed after receipt of written approval from Departmental Representative.
- .3 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.
- .4 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .5 Waste Management: waste materials disposal in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

**END OF SECTION**

**Part 1 GENERAL**

**1.1 RELATED REQUIREMENTS**

- .1 Not Used.

**1.2 REFERENCES**

- .1 Not Used.

**1.3 PROJECT CLEANLINESS**

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Owner or other Contractors.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .3 Clear snow and ice from work areas, bank/pile snow in designated areas only.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Dispose of waste materials and debris authorised at designated dumping areas.
- .6 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .7 Schedule cleaning operations so that resulting dust, debris and other contaminants will not contaminate the environment.

**1.4 FINAL CLEANING**

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .3 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris in compliance with applicable laws and regulations and subject to approval from the band council.
- .5 Clean lighting reflectors, lenses, and other lighting surfaces.
- .6 Clean all pipe culverts at the end of the work.

**1.5 WASTE MANAGEMENT AND DISPOSAL**

- .1 Disposal of waste in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

**1.6 FINAL CONSTRUCTION SITE CLEANUP AND LEVELLING**

- .1 Final levelling includes the touch-ups required to ensure that the profiles fully conform to theoretical longitudinal and cross lines, and the work required to clean and restore the sites.
- .2 At the request of the Departmental Representative, Contractor will use MG20b materials to repair the runway base course and shoulders including flare points. Transport Canada will provide engineered MG 20b materials from the airport's reserves.
- .3 Carry out touch-ups to ensure profiles fully conform to theoretical longitudinal and cross lines and all the work required to clean and restore the sites.
- .4 Shape the flare points on each shoulder and the slopes of the runway ditches and other structures on which work was executed. The flare points shall be perfectly straight and parallel to the runway centreline and shall comply with the theoretical dimensions indicated on the plans. The slopes of ditches or other structures shall be straight and consistent in keeping with the state of the art for such structures.

**1.7 PAYMENT METHOD**

- .1 Cleaning
  - .1 Cleaning costs are included in tender unit prices.
- .2 Waste management and disposal
  - .1 Waste management and disposal costs are included in tender unit prices.
- .3 Final construction site cleanup and levelling
  - .1 The prices indicated are global prices. A global payment will be made once all the work has been approved by the Departmental Representative
  - .2 When supporting materials are required to fill depressions as directed by the Departmental Representative, these materials are paid as per contract unit prices provided they do not replace excavated, moved or contaminated materials as part of the execution of the Work.
  - .3 MG 20b granular material used for repairs is paid by the m<sup>3</sup>. The unit price includes loading, transportation, shaping, compaction, and all incidental expenses.

**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 WASTE MANAGEMENT GOALS**

- .1 Prior to start of Work conduct meeting with Departmental Representative to review and discuss PWGSC's Waste Management Plan and Goals.
- .2 PWGSC's Waste Management Goal is to reduce the total Project Waste to be diverted from landfill sites. Provide Departmental Representative documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced.
- .3 Accomplish maximum control of solid construction waste.
- .4 Preserve environment and prevent pollution and environment damage.

**1.2 RELATED REQUIREMENTS**

- .1 Not Used.

**1.3 DEFINITIONS**

- .1 Class III: non-hazardous waste - construction renovation and demolition waste.
- .2 Cost/Revenue Analysis Workplan (CRAW): based on information from WRW, and intended as financial tracking tool for determining economic status of waste management practices.
- .3 Demolition Waste Audit (DWA): relates to actual waste generated from project.
- .4 Inert Fill: inert waste - exclusively asphalt and concrete.
- .5 Materials Source Separation Program (MSSP): consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.
- .6 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
- .7 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .8 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- .9 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
  - .1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
  - .2 Returning reusable items including pallets or unused products to vendors.
- .10 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
- .11 Separate Condition: refers to waste sorted into individual types.

- .12 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.
- .13 Waste Audit (WA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill. Refer to Schedule A.
- .14 Waste Management Co-ordinator (WMC): contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.
- .15 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. Refer to Schedule B. WRW is based on information acquired from WA (Schedule A).

#### **1.4 DOCUMENTS**

- .1 Maintain at job site, one copy of the following document:
  - .1 Construction demolition waste management and disposal plan.

#### **1.5 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit non-hazardous waste management and disposal plan identifying methods and sites for disposal of solid waste and clearing debris (Section 35 42 60) and the disposal of existing culverts to be replaced (Section 33 42 13).

#### **1.6 DISPOSAL OF WASTES**

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste, volatile materials, mineral spirits, oil, paint thinner into waterways, storm, or sanitary sewers.
- .3 Keep records of construction waste including:
  - .1 Number and size of bins;
  - .2 Waste type of each bin;
  - .3 Total tonnage generated.
- .4 Remove materials from deconstruction as deconstruction/disassembly Work progresses.
- .5 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.
- .6 Dispose waste at an authorized site.

#### **1.7 USE OF SITE AND FACILITIES**

- .1 Execute work with least possible interference or disturbance to normal use of premises.

#### **1.8 SCHEDULING**

- .1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

**Part 2 PRODUCTS**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 EXECUTION**

**3.1 APPLICATION**

- .1 Execute work in compliance with plans and specifications and the waste disposal and management plan.
- .2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

**3.2 CLEANING**

- .1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.
- .2 Clean-up work area as work progresses.

**3.3 CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT**

- .1 Ministère de l'Environnement et de la Faune, siège social 150, boul. René-Lévesque Est, Québec (Québec) G1R 3P4.

**END OF SECTION**

**Part 1 GENERAL**

**1.1 RELATED REQUIREMENTS**

- .1 Not Used.

**1.2 SCOPE OF WORK**

- .1 The Contractor shall remove Beaver Dams at the locations indicated in the plans and specifications or indicated by the representative of the Department.
- .2 The work in this section involves removing beaver dams, which includes the removal of pools of water, ditches and culverts.

**1.3 REFERENCES**

- .1 Not Used.

**1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Erosion and Sedimentation Control: submit erosion and sedimentation control plan in accordance with Section 01 35 43 – Environmental Procedures.
- .3 Construction Waste Management:
  - .1 Submit project Waste Management Plan in accordance with Section 01 74 21 – Construction/Demolition waste management and disposal.

**1.5 MEASURING AND PAYMENT METHOD**

- .1 Removal of beaver dams is paid on the basis of a unit price. The price includes trapping and relocating the animals, dismantling the dam, excavation, loading and spreading waste material, backfilling, and all incidental expenses.

**Part 2 PRODUCTS**

**2.1 MATERIALS**

- .1 Not Used.

**Part 3 EXECUTION**

**3.1 EXAMINATION**

- .1 Verification of conditions
  - .1 Prior to beginning the work, identify in the presence of the Departmental Representative the location of the beaver dams in the outlet channel (including 100 m downstream) and in drainage ditches including lateral ditches.
  - .2 Prior to beginning the work, verify and identify the location of service lines on or near the site including electric power cables.

- .2 Evaluation
  - .1 Take the necessary measures with the relevant authorities to reroute underground lines that are likely to impact the execution of the work, and assume the cost of such work.
  - .2 Prior to beginning the work, verify in the presence of the Departmental Representative the condition of existing runway culverts, mounds, shoulders and slope of runway fill, trees, vegetation, fencing, service poles, cables, paved surfaces, boundary posts, and benchmarks that may be affected by the Work.

### **3.2 EXCAVATION**

- .1 Temporary erosion and sediment control measures
  - .1 Implement temporary erosion and sediment control measures to prevent soil loss and sediment transport by runoff in compliance with the erosion and sediment control plan in Section 01 35 43 – Environmental Procedures.
  - .2 Inspect erosion and sediment control measures in place, and maintain and repair them as required.
- .2 Protection of existing structures
  - .1 Protect existing culverts that are to be retained.
  - .2 To discharge any water accumulated upstream of a beaver dam, clean the culverts and the upstream and downstream ends of the culverts to maximize the hydraulic performance of the culvert.
- .3 Trap and relocate the animals prior to beginning the work and removing the dams.

### **3.3 GRADING**

- .1 Grade to ensure that water will drain away from buildings, walls and paved areas, to catch basins and other disposal areas approved by Departmental Representative. Grade to be gradual between finished spot elevations as indicated.

### **3.4 CLEANING**

- .1 Progress Cleaning: clean unauthorized waste in accordance with Section 01 74 11 - Cleaning.
  - .1 Dispose of cleared and grubbed material off site daily.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: disposal of unauthorized waste in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

**END OF SECTION**

**Part 1 GENERAL**

**1.1 RELATED REQUIREMENTS**

- .1 Not Used.

**1.2 SUPPLY OF MATERIAL**

- .1 The Departmental Representative will provide the MG 20b material for the installation of the pipe culvert and repair of the granular material base layer of the tumulus. This material will come from the airport reserves in compliance with Section 32 11 23 – Aggregate Base Courses.
- .2 Contractor shall supply and install MG 112 granular material for the backfill of pipe culvert in compliance with Section 33 42 13 – Pipe Culverts.

**1.3 REFERENCES**

- .1 ASTM International
  - .1 ASTM D4791-[10], Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.
- .2 Bureau de la normalisation du Québec
  - .1 Norme NQ 2560-114 « Travaux de génie civil – Granulats ».

**1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions (certificate of conformity from accredited laboratory), printed product literature and data sheets for [aggregate materials] and include product characteristics, performance criteria, physical size, finish and limitations.

**1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Transportation and Handling: handle and transport aggregates to avoid segregation, contamination and degradation.

**Part 2 PRODUCTS**

**2.1 MATERIALS**

- .1 Aggregate quality: sound, hard, durable material free from soft, thin, elongated or laminated particles, organic material, clay lumps or minerals, free from adherent coatings and injurious amounts of disintegrated pieces or other deleterious substances.
- .2 Aggregate base course material MG 20 must be conform to the specifications of « Bureau de normalisation du Québec », Norme NQ 2560-114 Travaux de génie civil – Granulats.

- .3 Rip-rap must meet the specifications of « Bureau de normalisation du Québec », Norme NQ 2560-114 Travaux de génie civil – Granulats.
- .4 Rip-rap must be fractured, inert and non-potentially acid generator.
- .5 Granular material MG 112 must be conform to Norme NQ 2560-114 Travaux de génie civil – Granulats.

## **2.2 SOURCE QUALITY CONTROL**

- .1 Not Used.

## **Part 3 EXECUTION**

### **3.1 EXAMINATION**

- .1 Not Used.

### **3.2 PREPARATION**

- .1 Not Used.

### **3.3 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Leave aggregate stockpile site in tidy, well drained condition, free of standing surface water.
- .4 Leave any unused aggregates in neat compact stockpiles as directed by Departmental Representative.
- .5 Contaminated granular material disposed of in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .6 For temporary or permanent abandonment of aggregate source, restore source to condition meeting requirements of authority having jurisdiction.

**END OF SECTION**

**Part 1 GENERAL**

**1.1 RELATED REQUIREMENTS**

- .1 Not Used.

**1.2 SCOPE OF WORK**

- .1 The Contractor must perform the work of clearing and grubbing indicated in the plans and the specifications.
- .2 Appendix A provide descriptive specifications which specify the location, the extend and the quantities of the work.

**1.3 MEASUREMENT PROCEDURES**

- .1 Measure following items in hectares and square meters within limits as indicated:
  - .1 Clearing;
  - .2 Grubbing;
  - .3 Close cut clearing;
  - .4 Underbrush clearing.
- .2 Clearing isolated trees and the removal of their stumps shall be measured superficially taking into consideration the perimeter of exterior branches.
- .3 Pruning is included as part of the clearing or underbrush clearing work, as appropriate.

**1.4 REFERENCE**

- .1 Gouvernement du Québec
  - .1 Loi sur les forêts (L.R.Q., c. f-4.1).
  - .2 Règlement sur les normes d'intervention dans les forêts du domaine de l'État.

**1.5 DEFINITIONS**

- .1 Clearing consists of cutting off trees and brush vegetative growth to not more than specified height above ground and disposing of felled trees, previously uprooted trees and stumps, and surface debris.
- .2 Close-cut clearing consists of cutting off standing trees, brush, scrub, roots, stumps and embedded logs, removing at, or close to, existing grade and disposing of fallen timber and surface debris.
- .3 Clearing isolated trees consists of cutting off to not more than specified height above ground of designated trees, and disposing of felled trees and debris.
- .4 Underbrush clearing consists of removal from treed areas of undergrowth, deadwood, [and trees smaller than 50 mm trunk diameter] and disposing of fallen timber and surface debris.
- .5 Grubbing consists of excavation and disposal of stumps and roots, boulders and rock fragments of specified size to not less than specified depth below existing ground surface.

## **1.6 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Submit Construction/Demolition Waste management and disposal plan according with Section 01 74 21 – Construction/Demolition waste management and disposal.

## **1.7 STORAGE AND PROTECTION**

- .1 Prevent damage to fencing, trees, landscaping, natural features, bench marks, existing buildings, existing pavement, utility lines, site appurtenances, water courses, root systems of trees, which are to remain.
  - .1 Repair damaged items to approval of Departmental Representative.
  - .2 Replace trees designated to remain, if damaged, as directed by Departmental Representative.

## **1.8 WASTE MANAGEMENT AND DISPOSAL**

- .1 Remove all forest waste materials and debris from clearing and underbrush clearing work in areas indicated in the plans and specifications or by the Departmental Representative.
- .2 Contractor is authorized to spread shredded forest debris from underbrush clearing work away from the minor bed of the ditch.
- .3 Forest waste and debris from clearing and underbrush clearing work becomes Contractor's property. Contractor shall dispose of it in compliance with applicable laws and regulations, with the approval of the band council, and in compliance with the waste management plan specified in Section 01 74 21 – Construction/Demolition Waste Management and Disposal.
- .4 Waste materials and debris shall be removed from the airport site as the clearing and underbrush clearing work progresses.

## **Part 2 PRODUCTS**

### **2.1 MATERIALS**

- .1 Not Used.

## **Part 3 EXECUTION**

### **3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL**

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to sediment and erosion control plan, specific to site, and prepared according to existing laws and regulations.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

### **3.2 PREPARATION**

- .1 Inspect site and verify with Departmental Representative, items designated to remain.
- .2 Keep roads, runaways, taxiway and apron free of dirt and debris.

### **3.3 CLEARING**

- .1 Clearing includes felling, trimming, cutting of trees into sections and satisfactory disposal of trees and other vegetation designated for removal, including downed timber, snags, brush, rubbish and as occurring within cleared areas.
- .2 Clear as indicated by Departmental Representative, by cutting at height of not more than 300 mm above ground. In areas to be subsequently grubbed, height of stumps left from clearing operations to be not more than 1 000 mm above ground surface.
- .3 Cut off branches, cut down trees overhanging area cleared as directed by Departmental Representative.
- .4 Cut off unsound branches on trees designated to remain as directed by Departmental Representative.

### **3.4 CLOSE CUT CLEARING**

- .1 Close cut clearing to ground level to within 100 mm of ground surface.
- .2 Perform close cut clearing by hand so that existing muskeg is not damaged.
- .3 Cut off branches and down trees overhanging area cleared as directed by Departmental Representative.
- .4 Cut off unsound branches on trees designated to remain as directed by Departmental Representative.

### **3.5 ISOLATED TREES**

- .1 Cut off isolated trees as indicated by [Departmental Representative at height of not more than 300 mm above ground surface.
- .2 Grub out isolated tree stumps.
- .3 Prune individual trees as indicated.
- .4 Trim trees designated to be left standing within cleared areas of dead branches 4 cm or more in diameter; and trim branches to heights as indicated.
- .5 Cut limbs and branches to be trimmed close to bole of tree or main branches.

### **3.6 UNDERBRUSH CLEARING**

- .1 General
  - .1 Contractor shall execute underbrush clearing work using the appropriate equipment at the locations indicated on the plans.

.2 Implementation

Contractor shall comply with the following:

- .1 Underbrush clearing and debris removal shall be carried out within the right-of-ways indicated on the plans.
- .2 During clearing operations, shrubs and cuttings from brush up to a maximum height of 150 mm from ground level shall be finely shredded.
- .3 Underbrush clearing is necessary before ditches or outlet channels can be cleaned. In the case of lateral runway ditches, underbrush clearing includes flare point, slope of excavation, lateral ditch, slope of the excavated material, and an additional 1.5 m in width toward the runway right-of-way.
- .4 Contractor shall manage brush cuttings appropriately and ensure they do not impede flow of runoff water.
- .5 If cutting isolated trees is required in the underbrush cutting area, Contractor shall cut the trunk to 100 mm above ground level.
  - .1 Cut trunk at 100 mm above ground level.
  - .2 Collect the wood and manage it in compliance with applicable laws and regulations.
  - .3 Manage underbrush cutting and shredding debris and ensure they do not impede the flow of surface runoff.

**3.7 GRUBBING**

- .1 Remove and dispose of roots larger than 7.5 cm in diameter, matted roots, and designated stumps from indicated grubbing areas.
- .2 Grub out stumps and roots to not less than 200 mm below ground surface.
- .3 Grub out visible rock fragments and boulders, greater than 300 mm in greatest dimension, but less than 0.25 m<sup>3</sup>.
- .4 Fill depressions made by grubbing with suitable material and to make new surface conform with existing adjacent surface of ground.

**3.8 REMOVAL AND DISPOSAL**

- .1 Remove cleared and grubbed materials off site, to disposal area according to construction demolition with management and disposal plans (Section 01 74 21).
- .2 Cut timber greater than 125 mm diameter to 2 400 mm lengths and stockpile as indicated. Stockpiled timber becomes property of Departmental Representative.
- .3 Keep runway, taxiway, apron road free of dirt and debris.

**3.9 FINISHED SURFACE**

- .1 Leave ground surface in condition suitable for drainage correction works.

**3.10 CLEANING**

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.

- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

**END OF SECTION**

**Part 1 GENERAL**

**1.1 RELATED REQUIREMENTS**

- .1 Not Used.

**1.2 SCOPE OF WORK**

- .1 Section related to this section:
  - .1 Section 33 42 13 Pipe Culverts
  - .2 Section 31 37 00 Rip-rap

**1.3 MEASUREMENT PROCEDURES**

- .1 The cost for common excavation is included in the tender or lump sum unit prices.
- .2 The cost for backfilling with MG 20 or other materials is included in the tender or lump sum unit prices.

**1.4 REFERENCES**

- .1 Bureau de la normalisation du Québec
  - .1 Norme NQ 2560-114 – Travaux de génie civil – Granulats.

**1.5 DEFINITIONS**

- .1 Excavation classes: two classes of excavation will be recognized; common excavation and rock excavation.
  - .1 Rock: solid material in excess of 1.00 m<sup>3</sup> and which cannot be removed by means of heavy duty mechanical excavating equipment with 0.95 to 1.15 m<sup>3</sup> bucket]. Frozen material not classified as rock.
  - .2 Common excavation: excavation of materials of whatever nature, which are not included under definitions of rock excavation.
- .2 Unclassified excavation: excavation of deposits of whatever character encountered in Work.
- .3 Topsoil:
  - .1 Material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.
  - .2 Material reasonably free from subsoil, clay lumps, brush, objectionable weeds, and other litter, and free from cobbles, stumps, roots, and other objectionable material larger than [25 millimeters] [1 inch] in any dimension.
- .4 Waste material: excavated material unsuitable for use in Work or surplus to requirements.
- .5 Borrow material: material obtained from locations outside area to be graded, and required for construction of fill areas or for other portions of Work.
- .6 Recycled fill material: material, considered inert, obtained from alternate sources and engineered to meet requirements of fill areas.

- .7 Unsuitable materials:
- .1 Weak, chemically unstable, and compressible materials.
  - .2 Frost susceptible materials:
    - .1 Fine grained soils with plasticity index less than 10 when tested to ASTM D4318, and gradation within limits specified when tested to [ASTM D422] [ASTM C136] : Sieve sizes to [CAN/CGSB-8.1] [CAN/CGSB-8.2].
    - .2 Table:

Sieve Designation	% Passing
2.00 mm	[100]
0.10 mm	[45 - 100]
0.02 mm	[10 - 80]
0.005 mm	[0 - 45]
    - .3 Coarse grained soils containing more than 20 % by mass passing 0.075 mm sieve.

## 1.6 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Submit certificates of conformity for MG 20 materials.
  - .2 Submit certificates of conformity for geotextiles.
  - .3 Submit certificates of conformity for rip-rap.
  - .4 Submit certificates of conformity for granular material MG 112.
- .2 Submit erosion and sediment control plan in compliance with Section 01 35 43 – Environmental Procedures.
- .3 Submit waste and debris disposal plan in compliance with Section 01 74 21 – Construction Waste Management and Disposal.

## 1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Waste materials disposal in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

## 1.8 EXISTING CONDITIONS

- .1 Buried services:
  - .1 Confirm locations of buried utilities by careful [test excavations] [soil hydrovac methods].
  - .2 Maintain and protect from damage, water, sewer, gas, electric, telephone and other utilities and structures encountered as indicated.
  - .3 Record location of maintained, re-routed and abandoned underground lines.
  - .4 Confirm locations of recent excavations adjacent to area of excavation.

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**Part 2 PRODUCTS**

**2.1 MATERIALS**

- .1 MG 20 and MG 112 granular materials: properties to Section 31 05 16 – Aggregate Materials and the following requirements:
  - .1 Crushed, pit run or screened stone, gravel or sand.
  - .2 Gradations according to Norm NQ 2560-114 – Travaux de genie civil – Aggregate.
- .2 Geotextiles: According with Section 31 32 19.01 - Geotextiles.

**Part 3 EXECUTION**

**3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL**

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion, according to sediment and erosion control plan, specific to site, Section 01 35 43 – Environmental Procedures.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

**3.2 SITE PREPARATION**

- .1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.
- .2 Carry out underbrush cutting and clearing in compliance with Section 31 11 00 – Clearing and Grubbing.
- .3 Remove beaver dams in compliance with Section 31 00 99 – Earthwork for Minor Works.

**3.3 PREPARATION/PROTECTION**

- .1 Keep excavations clean, free of standing water, and loose soil.
- .2 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.
- .3 Protect buried services that are required to remain undisturbed.

**3.4 DEWATERING AND HEAVE PREVENTION**

- .1 Keep excavations free of water while Work is in progress.
- .2 Provide for Departmental Representative review details of proposed dewatering or heave prevention methods, including dikes, well points, and sheet pile cut-offs.
- .3 Avoid excavation below groundwater table if quick condition or heave is likely to occur.

- .1 Prevent piping or bottom heave of excavations by groundwater lowering.
- .4 Protect open excavations against flooding and damage due to surface run-off.
- .5 Dispose of water in accordance with Section 01 35 43 - Environmental Procedures and in manner not detrimental to environment.
  - .1 Provide and maintain temporary drainage ditches and other diversions outside of excavation limits.
- .6 Provide flocculation tanks, settling basins, or other treatment facilities to remove suspended solids or other materials before discharging to storm sewers, watercourses or drainage areas.

### **3.5 EXCAVATION**

- .1 Excavate to lines, grades, elevations and dimensions as indicated Departmental Representative.
- .2 For trench excavation, unless otherwise authorized by Departmental Representative in writing, do not excavate more than 30 m of trench in advance of installation operations and do not leave open more than 15 m at end of day's operation.
- .3 Keep excavated and stockpiled materials safe distance away from edge of trench as directed by Departmental Representative.
- .4 Restrict vehicle operations directly adjacent to open trenches.
- .5 Dispose of surplus and unsuitable excavated material off site.
- .6 SPEC NOTE: Co-ordinate with Section
- .7 Do not obstruct flow of surface drainage or natural watercourses.
- .8 Earth bottoms of excavations to be undisturbed soil, level, free from loose, soft or organic matter.
- .9 Notify Departmental Representative when bottom of excavation is reached.
- .10 Obtain Departmental Representative approval of completed excavation.
- .11 Remove unsuitable material from trench bottom including those that extend below required elevations to extent and depth as directed by Departmental Representative.
- .12 Hand trim, make firm and remove loose material and debris from excavations.
  - .1 Where material at bottom of excavation is disturbed, compact foundation soil to density at least equal to undisturbed soil.
- .13 Install geotextiles in accordance with Section 31 32 19.01 - Geotextiles.

### **3.6 FILL TYPES AND COMPACTION**

- .1 Use types of fill as indicated or specified. Compaction densities are percentages of maximum densities.

### **3.7 BEDDING AND SURROUND OF UNDERGROUND SERVICES**

- .1 Place and compact granular material for bedding and surround of underground services as indicated and according to Section 33 42 13 – Pipe Culverts.

- .2 Place bedding and surround material in unfrozen condition.

### **3.8 BACKFILLING**

- .1 Use compaction equipment approved by Departmental Representative.
- .2 Do not proceed with backfilling operations until completion of following:
  - .1 Departmental Representative has inspected and approved installations.
  - .2 Inspection, testing, approval, and recording location of underground utilities.
- .3 Areas to be backfilled to be free from debris, snow, ice, water and frozen ground.
- .4 Do not use backfill material which is frozen or contains ice, snow or debris.
- .5 SPEC NOTE: Private Sector to identify to what elevation backfill is required. (Rough and finish grade relationship).
- .6 Place backfill material in uniform layers not exceeding 150 mm compacted thickness up to [grades indicated]. Compact each layer before placing succeeding layer.
- .7 Backfilling around installations:
  - .1 Place bedding and surround material as specified elsewhere.
  - .2 Do not backfill around or over cast-in-place concrete within 24 hours after placing of concrete.
  - .3 Place layers simultaneously on both sides of installed Work to equalize loading. Difference not to exceed 150 m.

### **3.9 RESTORATION**

- .1 Upon completion of Work, remove waste materials and debris in accordance to Section 01 74 21 - Construction/Demolition Waste Management and Disposal, trim slopes, and correct defects as directed by Departmental Representative.
- .2 Replace topsoil as indicated by Departmental Representative.
- .3 Protect newly graded areas from traffic and erosion and maintain free of trash or debris.

**END OF SECTION**

**Part 1 GENERAL**

**1.1 RELATED REQUIREMENTS**

- .1 Not Used.

**1.2 SCOPE OF WORK**

- .1 Contractor shall install geotextile rip-rap under the quarry stone rip-rap at the ends of the culverts, as indicated on plans and specifications in Section 31 37 00 Rip-rap.

**1.3 MEASUREMENT AND PAYMENT**

- .1 Geotextiles under rip-rap are paid as part of the unit price for rip-rap.

**1.4 REFERENCES**

- .1 ASTM International
  - .1 ASTM A123/A123M-[09], Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - .2 ASTM D4595, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.
  - .3 ASTM D4355, Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-148.1, Methods of Testing Geotextiles and Complete Geomembranes.
    - .1 No.1-[94], Methods of Testing Geosynthetics – Sampling and Preparation of Test Specimens.
    - .2 No.2-[M85], Methods of Testing Geosynthetics - Mass per Unit Area.
    - .3 No.3-[M85], Methods of Testing Geosynthetics - Thickness of Geotextiles.
    - .4 No.4-[94], Methods of Testing Geosynthetics – Permeability to Water in a normal way without compression.
    - .5 No.6.1-[93], Methods of Testing Geotextiles and Geomembranes - Bursting Strength of Geotextiles Under No Compressive Load.
    - .6 No.7.3-[92], Methods of Testing Geotextiles and Geomembranes - Grab Tensile Test for Geotextiles.
    - .7 No. 10-[94], Methods of Testing Geosynthetics - Geotextiles - Filtration Opening Size.

**1.5 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:

- .1 Submit manufacturer's instructions, printed product literature and data sheets for geotextiles and include product characteristics, performance criteria, physical size, finish and limitations.

## **1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Storage and Handling Requirements:
  - .1 Store materials [off ground] [indoors] [in dry location] and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect geotextiles from direct sunlight and UV rays.
  - .3 Replace defective or damaged materials with new.

## **Part 2 PRODUCTS**

### **2.1 MATERIAL**

- .1 Geotextile: [woven] [non-woven] synthetic fibre fabric, supplied in rolls.
  - .1 Width: 3.5 m minimum.
  - .2 Length: 100 m minimum.
  - .3 Composed of: [minimum 85% by mass of] [polypropylene] [polyester] [with inhibitors added to base plastic to resist deterioration by ultra-violet and heat exposure for 60 days.
- .2 Physical properties:
  - .1 Thickness: to CAN/CGSB-148.1, No.3, minimum 2.0 mm.
  - .2 Mass per unit area: to CAN/CGSB-148.1, No.2, minimum 250 g/m<sup>2</sup>.
- .3 Hydraulic properties:
  - .1 Filtration opening size (FOS): to CAN/CGSB-148.1 No.10, OPSS 1860: 53-93 micrometres.
  - .2 Permittivity: 0.7 pers.
- .4 Securing pins and washers: to CSA G40.21, Grade 300W, hot-dipped galvanized with minimum zinc coating of 600 g/m<sup>2</sup> to ASTM A123/A123M.
- .5 Factory seams: sewn in accordance with manufacturer's recommendations.
- .6 Thread for sewn seams: equal or better resistance to chemical and biological degradation than geotextile.

**Part 3 EXECUTION**

**3.1 EXAMINATION**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for geotextile material installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

**3.2 INSTALLATION**

- .1 Place geotextile material by unrolling onto graded surface in orientation, manner and locations indicated and retain in position with pins and washers as requested by the Departmental Representative.
- .2 Place geotextile material smooth and free of tension stress, folds, wrinkles and creases.
- .3 Place geotextile material on sloping surfaces in one continuous length from toe of slope to upper extent of geotextile.
- .4 Overlap each successive strip of geotextile 600 mm over previously laid strip.
- .5 Pin successive strips of geotextile as indicated by Departmental Representative with securing pins at 1 000 mm interval at midpoint of lap.
- .6 Protect installed geotextile material from displacement, damage or deterioration before, during and after placement of material layers.
- .7 After installation, cover with overlying layer within 4 hours of placement.
- .8 Replace damaged or deteriorated geotextile to approval of Departmental Representative.
- .9 Place rip-rap according to section 31 37 00.

**3.3 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

**3.4 PROTECTION**

- .1 Vehicular traffic not permitted directly on geotextile.

**END OF SECTION**

**Part 1 GENERAL**

**1.1 RELATED REQUIREMENTS**

- .1 Not Used.

**1.2 SCOPE OF WORK**

- .1 Contractor shall install rip-rap at the ends of culverts as indicated in the plans and specifications. Rip-rap is installed on geotextile in compliance with Section 31 32 19.01.

**1.3 MEASUREMENT PROCEDURES**

- .1 Rip-rap at the end of a culvert is paid as part of a unit price. The price includes excavation, disposal of excavated material, shaping of ditch/channel bottom, compaction, geotextiles and overlays, supply and installation of rip-rap, and all incidental expenses.

**1.4 REFERENCES**

- .1 Bureau de la normalisation du Québec
  - .1 NQ 2560-114 “Travaux de génie civil – Granulat”.

**1.5 SUBMITTALS FOR APPROVAL**

- .1 Submit required documents and samples in compliance with Section 01 33 00 – Submittal Procedures.
- .2 Data sheets (certificates of conformity by accredited laboratory)
  - .1 Submit required data sheets and manufacturer’s instructions and documentation for rip-rap. Data sheets shall indicate product characteristics, performance criteria, dimensions, limitations and finish.
  - .2 Rip-rap shall be inert and non-acid-generating.

**Part 2 PRODUCTS**

**2.1 STONE**

- .1 Hard, dense with relative density (formally specific gravity) not less than 2.65, durable quarry stone, free from seams, cracks or other structural defects, to meet drawings and specifications requirement.
- .2 Meet the requirements of Bureau de normalisation du Québec, Norme NQ 2560-14, Travaux de génie civil – Granulats.
- .3 Inerte and non-potentially acid generator and fractured stones.

**2.2 GEOTEXTILE FILTER**

- .1 Geotextile: in accordance with Section 31 32 19.01 - Geotextiles.

**Part 3 EXECUTION**

**3.1 PLACING**

- .1 Where rip-rap is to be placed on slopes, excavate trench at toe of slope to dimensions as indicated.
- .2 Fine grade area to be rip-rapped to uniform, even surface. Fill depressions with suitable material and compact to provide firm bed.
- .3 Place geotextile on prepared surface in accordance with Section 31 32 19.01- Geotextiles and as indicated. Avoid puncturing geotextile. Vehicular traffic over geotextile not permitted.
- .4 Place rip-rap to thickness and details as indicated.
- .5 Place stones in manner approved by Departmental Representative to secure surface and create a stable mass. Place larger stones at bottom of slopes.
- .6 Hand placing:
  - .1 Use larger stones for lower courses and as headers for subsequent courses.
  - .2 Stagger vertical joints and fill voids with rock spalls or cobbles.
  - .3 Finish surface evenly, free of large openings and neat in appearance.

**END OF SECTION**

**Part 1 GENERAL**

**1.1 SUPPLY OF MATERIAL**

- .1 The Departmental Representative will supply only the MG 20b material for the installation of pipes culvert and repair of the granular material base layer of the tumulus. This material comes from the airport's reserves.
- .2 MG 20b granular material required to correct poorly constructed structures shall be supplied and installed at Contractor's expense and to the Departmental Representative's satisfaction.

**1.2 RELATED REQUIREMENTS**

- .1 Not Used.

**1.3 MEASUREMENT AND PAYMENT**

- .1 Material MG 20b for surface correction: Measure granular base in cubic metres, truck box measurement of material incorporated into Work and accepted in writing by Departmental Representative.
- .2 MG 20 material: Installation of MG 20 material required for culvert installation and the repair of tumulus are included in culvert unit price.

**1.4 REFERENCE**

- .1 Bureau de la Normalisation du Québec
  - .1 Norme 2560-114 « Travaux de génie civil – Granulat ».

**1.5 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit documents and certificates of conformity issued by accredited laboratory in compliance with Section 01 33 00 – Submittal Procedure.

**1.6 DELIVERY AND HANDLING**

- .1 Transport and handle granular material so as to prevent segregation, contamination and degradation.

**Part 2 PRODUCTS**

**2.1 MATERIALS**

- .1 Granular base: material in accordance with Section 31 05 16 - Aggregate Materials and following requirements:
  - .1 Crushed stone or gravel.
  - .2 MG 20 materials shall conform to NQ standard 2560-114 « Travaux de genie civil – Granulats ».
  - .3 MG 20b materials shall conform to specifications in table below:

Granular material	Sieve Size (mm)							Sieve Size (µm)	
	31,5	20	14	10	5	2,5	1,25	315	80
	% Passing								
<b>Engineered MG 20b</b>	100	95-100	68-93	60-85	45-60	30-48	19-38	9-17	5.11

**Part 3 EXECUTION**

**3.1 PREPARATION**

- .1 Temporary Erosion and Sedimentation Control:
  - .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing according to sediment and erosion control plan, specific to site according to Section 01 35 43 – Environmental Procedures.
  - .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
  - .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

**3.2 PLACEMENT AND INSTALLATION**

- .1 Place granular base after subgrade surface is inspected and approved in writing by Departmental Representative.
- .2 Placing:
  - .1 Construct granular base to depth and grade in areas indicated.
  - .2 Ensure no frozen material is placed.
  - .3 Place material only on clean unfrozen surface, free from snow and ice.
  - .4 Place material using methods which do not lead to segregation or degradation of aggregate.
  - .5 For spreading and shaping material, use spreader boxes having adjustable templates or screeds which will place material in uniform layers of required thickness (shoulder corrections).
  - .6 Place material to full width in uniform layers not exceeding 150 mm compacted thickness.
  - .7 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.
  - .8 Remove and replace that portion of layer in which material becomes segregated during spreading.
- .3 Compaction Equipment:
  - .1 Ensure compaction equipment is capable of obtaining required material densities.
  - .2 Efficiency of equipment not specified to be proved at least as efficient as specified equipment at no extra cost and written approval must be received from Departmental Representative before use.

- .4 Compacting:
  - .1 Compact to density not less than 98 % corrected maximum dry density, maximum dry density to ASTM D698 and ASTM D1557.
  - .2 Shape and roll alternately to obtain smooth, even and uniformly compacted base.
  - .3 Apply water as necessary during compacting to obtain specified density.
  - .4 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved in writing by Departmental Representative.
  - .5 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

### **3.3 SITE TOLERANCES**

- .1 Finished base surface to be within plus or minus 10 mm of established grade and cross section but not uniformly high or low.

### **3.4 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

### **3.5 PROTECTION**

- .1 Maintain finished base in condition conforming to this Section until succeeding material is applied or until acceptance by Departmental Representative.

**END OF SECTION**

**Part 1 GENERAL**

**1.1 RELATED REQUIREMENTS**

- .1 Not Used.

**1.2 SUPPLY OF MATERIAL**

- .1 Departmental Representative will supply granular base material MG 20b for bedding and bedding the pipe culvert.

**1.3 MEASUREMENT AND PAYMENT**

- .1 The proposed pipe culverts are paid by the metre for each diameter, type and class of continuous pipe measured to the central axis of the pipeline between the ends of the structure for the supply and installation of pipes including the supply of materials, excavation, foundation preparation, bedding, installation, backfilling to ground level, repair of existing base granular material layer and cleaning of pipe at end of work.
- .2 Cleaning of existing culverts is paid by the metre for each diameter specified. The price includes labour, equipment, extraction, pumping and waste disposal, backfilling, compaction and all incidental expenses.
- .3 Culvert removal and disposal are paid by the metre for each diameter removed. The price includes excavation, backfilling, compaction, culvert removal, loading, transportation, disposal at an authorized site, and all incidental expenses.

**1.4 REFERENCES**

- .1 CSA International
  - .1 CAN/CSA G401, Corrugated Steel Pipe Products.
- .2 Bureau de la Normalisation du Québec
  - .1 Norme NQ 2560-114 “Travaux de génie civil – Agrégats”.

**1.5 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions (certificate of conformity, certificates), printed product literature and data sheets for pipes and backfill and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Certification: to be marked on pipe.
- .4 Erosion and Sedimentation Control: submit copy of erosion and sedimentation control plan in accordance with Section 01 35 43 – Environment Procedures.
- .5 Construction Waste Management:
  - .1 Submit project Waste Management Plan according to Section 01 74 21.

## **1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Transport, store and handle materials and equipment so as to eliminate risk of chipping, cracking and bending stress.
- .2 Handle aluminized corrugated steel pipe carefully to protect the metal coating. Take special precautions to prevent deformation: twisted or deformed pipes shall be rejected.
- .3 Repair damage to aluminum coating with a metal coating approved by manufacturer.
- .4 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .5 Storage and Handling Requirements:
  - .1 Store materials in accordance with manufacturer's recommendations.
  - .2 Store and protect pipes from damage.
  - .3 Replace defective or damaged materials with new.

## **Part 2 PRODUCTS**

### **2.1 CORRUGATED STEEL PIPE**

- .1 Aluminized corrugated steel pipe: to CAN/CSA-G401.
- .2 Water-tight cut-off collars: as indicated.
- .3 Contrary to what is shown in the plans, the thickness of the pipe wall is 2.8 mm.

### **2.2 GRANULAR BEDDING AND BACKFILL**

- .1 Granular bedding and backfill material to Section 31 05 16 - Aggregate Materials and following requirements:
  - .1 Crushed pit run or screened stone, gravel or sand.
  - .2 Granular materials MG 20 and MG 12 with gradations according to BNQ Norm NQ 2560-114.

## **Part 3 EXECUTION**

### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for pipe culvert installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

### **3.2 PREPARATION**

- .1 Temporary Erosion and Sedimentation Control:
  - .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion according to sediment and erosion control plan, specific to site with Section 01 35 43 – Environmental Procedures.
  - .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
  - .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

### **3.3 TRENCHING**

- .1 Do trenching Work in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.
- .2 Obtain Departmental Representative's approval of trench line and depth prior to placing bedding material or pipe.

### **3.4 BEDDING**

- .1 Dewater excavation, as necessary, to allow placement of culvert bedding in dry condition.
- .2 Place 200 mm minimum thickness of approved granular material on bottom of excavation and compact to 95 % minimum of corrected maximum dry density.
- .3 Shape bedding to fit lower segment of pipe exterior so that width of at least 50 % of pipe diameter is in close contact with bedding and to camber as indicated or as directed by Departmental Representative, free from sags or high points.
- .4 Place bedding in unfrozen condition.

### **3.5 LAYING CORRUGATED STEEL PIPE CULVERTS**

- .1 Begin pipe placing at downstream end.
- .2 Ensure bottom of pipe is in contact with shaped bed or compacted fill throughout its length.
- .3 Lay pipe with outside circumferential laps facing upstream [and longitudinal laps or seams at side or quarter points].
- .4 Lay paved invert or partially lined pipe with longitudinal centre line of paved segment coinciding with flow line.
- .5 Do not allow water to flow through pipes during construction except as permitted by Departmental Representative.

### **3.6 JOINTS: CORRUGATED STEEL CULVERTS**

- .1 Corrugated steel pipe:
  - .1 Match corrugations or indentations of coupler with pipe sections before tightening.

- .2 Tap couplers firmly as they are being tightened, to take up slack and ensure snug fit.
- .3 Insert and tighten bolts.
- .4 Repair spots where damage has occurred to spelter coating by applying [two coats of asphalt paint approved in writing by Departmental Representative [two coats of zinc rich [epoxy] paint].

### **3.7 BACKFILLING**

- .1 Backfill around and over culverts as indicated or as directed by Departmental Representative.
- .2 Place granular backfill material MG 20, in 150 mm layers to full width, alternately on each side of culvert, so as not to displace it laterally or vertically.
- .3 Compact each layer to 95 % corrected maximum dry density taking special care to obtain required density under haunches.
- .4 Protect installed culvert with minimum 900 mm cover of compacted fill before heavy equipment is permitted to cross.
  - .1 During construction, width of fill, at its top, to be at least twice diameter or span of pipe and with slopes not steeper than 1:2.
- .5 Place backfill in unfrozen condition.

### **3.8 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: Waste disposal in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

**END OF SECTION**

**Part 1 GENERAL**

**1.1 RELATED REQUIREMENTS**

- .1 Prior to executing work specified in this section, execute the following work:
  - .1 Section 31 00 99 Earthwork for Minor Works
  - .2 Section 31 11 00 Clearing and Grubbing
  - .3 Section 33 42 13 Pipe Culverts

**1.2 SCOPE OF WORK**

- .1 The Contractor must dig or reprofile lateral ditches and outlet in accordance of the plans and specifications.
- .2 Appendix A provides descriptive specifications with specify the location, the extend and the quantities of the work.
- .3 The Contractor must perform the work by not using the runway of the airport, the taxiway or the apron traffic, unless he obtain the permission of the Departmental Representative.
- .4 The Contractor must extend on site and level the ditches cutting material (opposite side of the runaway while avoiding that these materials may impede surface drainage or that it constitutes an obstacle to air zoning.
- .5 Following an audit of air zoning and authorization of the Depermental Representative, the Contractor's equipment could be left at the airport grip limit at the end of the day.

**1.3 MEASUREMENT AND PAYMENT**

- .1 Definitions
  - .1 An airport's runway drainage system consists of:
    - .1 Lateral ditches that collect runoff from the runway, taxiway and apron.
    - .2 Outlet channels that discharge water into receiving watercourses, or that are the receiving watercourses.
  - .2 Contractor shall perform the drainage corrections as summarized below:
    - .1 Reprofilng including cleaning and deepening of existing ditches (lateral ditches or outlet channels).
    - .2 Digging of lateral ditches or outlet channels.
  - .3 Payment for lateral ditches and outlet channels is determined on the basis of the depth of the reprofiling or digging measured from the profile of the bottom of the existing ditch or the natural ground level and the profile of the proposed ditch or channel as follows:
    - .1 Reprofilng: depth less than 0.5m.
    - .2 Digging: depth greater than 0.5m.
- .2 Measurements for payment purposes
  - .1 Ditch reprofiling is paid by the metre as per the drainage section indicated in the plans. The price includes excavation to a maximum depth of 0.5 m, surveying,

- loading, disposal at authorized site, shaping of ditch walls and bottom, compaction, and all incidental expenses.
- .2 Ditch digging is paid by the metre as per drainage section indicated in the plans. The price includes excavation to depths greater than 0.5 m, surveying, loading, disposal at authorized site, shaping of ditch walls and bottom, compaction, and all incidental expenses.
- .3 Outlet channel reprofiling is paid by the metre as per drainage section indicated in the plans. The price includes excavation to a maximum depth of 0.5 m, surveying, spreading of excavated material on site, shaping of channel walls and bottom, compaction, and all incidental expenses.
- .4 Outlet channel digging is paid by the metre as per drainage section indicated in the plans. The price includes excavation to depths greater than 0.5 m, surveying, spreading of excavated material on site, profiling of channel walls and bottom, compaction, and all incidental expenses.
- .5 Secondary outlet digging is paid by the metre as per drainage section indicated in the plans. The price includes excavation to depths greater than 0.5 m, surveying, spreading of excavated material on site, profiling of channel walls and bottom, compaction, and all incidental expenses.

#### 1.4 REFERENCES

- .1 Definitions:
  - .1 Rock Excavation:
    - .1 Material excavated from solid masses of igneous, sedimentary or metamorphic rock which, prior to its removal, was integral with its parent mass.
    - .2 Boulders or rock fragments having individual volume in excess of 1 m<sup>3</sup>.
  - .2 Common excavation: materials of whatever nature, which are not included under definition of rock excavation, including dense tills, hard pan, frozen materials and partially cemented materials which can be ripped and excavated with heavy construction equipment.

#### 1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section [01 33 00 - Submittal Procedures].
- .2 Submit information as follows for channel excavation operation:
  - .1 Description of processes to be implemented including, but not limited to, site plan, and available equipment specifications.
- .3 Submit project Waste Management Plan.
- .4 Erosion and Sedimentation Control: submit erosion and sedimentation control plan in accordance with Section 01 35 43 – Environmental Procedures.

## **1.6 ENVIRONMENTAL PROTECTION**

- .1 Provide erosion and sediment control measures to prevent migration of suspended sediments in downstream areas and erosion of on-site soils/sediments during the execution of the work as per requirements of Section 01 35 43 - Environmental Procedures.

## **Part 2 PRODUCTS**

### **2.1 MATERIALS**

- .1 Not Used.

## **Part 3 EXECUTION**

### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for waterway channel maintenance.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with maintenance work only after unacceptable conditions have been remedied [and after receipt of written approval to proceed from Departmental Representative.

### **3.2 EXCAVATION**

- .1 Excavate new and existing channels to design lines, grades and cross sections as indicated.
- .2 Deepen existing channels to design lines, grades and cross sections as indicated.
- .3 Confirm existing grades and adjust excavation quantities as necessary to produce desired channel configuration.
- .4 Provide and maintain means and devices for dewatering of water entering excavated areas.
  - .1 Remove water as fast as it collects without interfering with execution of work as reviewed by Departmental Representative.
- .5 Execute drainage ditch digging and reprofiling work during winter.
- .6 Use appropriate toothless bucket for the reprofiling and digging excavation work.
- .7 Excavate as indicted in plans and specifications, protect slopes and grades, and execute the Work in compliance with applicable provincial and municipal regulations.
- .8 Use appropriate equipment to avoid damaging the surface of runways, and the taxiway, apron and access road shoulders.

- .9 Materials produced by the excavation, reprofiling and digging of lateral ditches shall be disposed of offsite as specified in waste management plan.
- .10 Materials produced by the excavation, reprofiling and digging of outlet channels shall be spread out on site in such a way so as to ensure they do not leach into the outlet channel.
- .11 Ensure protection of the aquatic environment in compliance with environmental protection laws and regulations.
- .12 Do not place excavated materials adjacent to channel in manner that will impede flow of surface water from adjacent land, or cause instability of channel banks.
- .13 Upon completion of excavation, clean and trim site.
  - .1 Reinststate disturbed areas immediately after completion of grading as directed by Departmental Representative.
- .14 Dispose of excavated materials as directed by Departmental Representative.

### **3.3 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

**END OF SECTION**

**Part 1            GENERAL**

This appendix provides descriptive specifications of items of tender form for the following sections:

- .1        31 00 99 Earthwork for minor works.
- .2        31 11 00 Clearing and grubbing.
- .3        35 42 60 Waterway channel maintenance

PWGSC  
 EASTMAIN AIRPORT  
 DRAINAGE CORRECTIONS  
 DESCRIPTIVE SPECIFICATIONS - SECTIONS 31 11 00, 35 46 60 AND 31 00 99

#	DESCRIPTION	CHAINING		Side	length (m)	width (m)	Quantity	Unit
		from	to					
<b>2.0</b>	<b>SECTION 31 11 00 - CLEARING AND GRUBBING</b>							
<b>2.1</b>	<b>Brushwood clearing</b>							
2.1.1	-Runaway	4+860	5+155	G	295	11	3 245	m <sup>2</sup>
2.1.2	-Runaway	5+155	5+400	G	245	13	3 185	m <sup>2</sup>
2.1.3	-Runaway	5+400	5+620	G	220	20	4 400	m <sup>2</sup>
2.1.4	-Runaway	5+620	5+790	G	170	20	3 400	m <sup>2</sup>
2.1.5	-Runaway	5+790	6+000	G	80	35	2 800	m <sup>2</sup>
2.1.6	-Runaway	6+000	6+140	G	80	15	1 200	m <sup>2</sup>
2.1.7	-Runaway	4+860	5+401	D	541	15	8 115	m <sup>2</sup>
2.1.8	-Runaway	5+401	5+940	D	539	15	8 085	m <sup>2</sup>
2.1.9	-Runaway	5+940	6+010	D	70	13	910	m <sup>2</sup>
2.1.10	-Runaway	6+060	6+140	D	80	15	1 200	m <sup>2</sup>
2.1.11	-Runaway	6+140		C	70	15	1 050	m <sup>2</sup>
2.1.12	-Runaway	4+920		C	50	15	750	m <sup>2</sup>
2.1.13	-Outlet 1	0+135	0+170		35	20	700	m <sup>2</sup>
2.1.14	-Outlet 1	0+040	0+060		20	20	400	m <sup>2</sup>
2.1.15	-Outlet 3	0+003	0+163		160	20	3 200	m <sup>2</sup>
2.1.16	-Outlet 3	0+179	0+264		85	20	1 700	m <sup>2</sup>
2.1.17	-Apron	0+000	0+140		140	10	1 400	m <sup>2</sup>
2.1.18	-Apron	0+000	0+118		118	10	1 180	m <sup>2</sup>

PWGSC  
 EASTMAIN AIRPORT  
 DRAINAGE CORRECTIONS  
 DESCRIPTIVE SPECIFICATIONS - SECTIONS 31 11 00, 35 46 60 AND 31 00 99

#	DESCRIPTION	CHAINING		Side	length (m)	width (m)	Quantity	Unit
		from	to					
2.1.19	-Secondary outlet (reference runaway)	5+560		G	10	10	100	m <sup>2</sup>
2.1.20	-Secondary outlet (reference runaway)	5+690		G	10	10	100	m <sup>2</sup>
2.1.21	-Secondary outlet (reference runaway)	5+740		G	10	10	100	m <sup>2</sup>
2.1.22	-Secondary outlet (reference runaway)	6+000		G	10	10	100	m <sup>2</sup>
	<b>Subtotal - Brushwood clearing</b>						<b>47 320</b>	<b>m<sup>2</sup></b>
<b>2.2</b>	<b>Close cut clearing</b>							
2.2.1	-Outlet 1	-0+010	0+040		50	20	1 000	m <sup>2</sup>
2.2.2	-Access to secondary outlet	5+400	6+100		700	10	7 000	m <sup>2</sup>
	Subtotal square meters						8 000	m <sup>2</sup>
	<b>Subtotal - Close cut clearing</b>						<b>0,800</b>	<b>ha</b>
<b>2.3</b>	<b>Grubbing</b>							
2.4.1	-Outlet 1	-0+010	0+040		50	20	1 000	m <sup>2</sup>
	Subtotal square meters						1 000	m <sup>2</sup>
	<b>Subtotal - grubbing</b>						<b>0,100</b>	<b>ha</b>
	<b>SECTION 31 00 99 - EARTHWORK FOR MINOR WORKS</b>							
<b>2.4</b>	<b>Beavers dam removal</b>							
2.1	-Outlet 1	0+000					1	unité
2.2	-Outlet 1, provision						1	unité
	<b>Subtotal - Beaver dam removal</b>						<b>2</b>	<b>unités</b>

PWGSC  
 EASTMAIN AIRPORT  
 DRAINAGE CORRECTIONS  
 DESCRIPTIVE SPECIFICATIONS - SECTIONS 31 11 00, 35 46 60 AND 31 00 99

#	DESCRIPTION	CHAINING		Side	length (m)	width (m)	Quantity	Unit
		from	to					
<b>3.0</b>	<b>SECTION 35 46 60 - WATERWAY CHANNEL MAINTENANCE</b>							
<b>3.1.0</b>	<b>Side ditch reprofiling</b>							
3.1.1	-Runaway	4+860	5+155	G	295		295	m
3.1.2	-Runaway	5+165	5+401	G	236		236	m
3.1.3	-Runaway	5+401	5+620	G	219		219	m
3.1.4	-Runaway	4+920		C	75		75	m
3.1.5	-Runaway	4+860	5+401	D	541		541	m
3.1.6	-Runaway	5+401	5+945	D	544		544	m
3.1.7	-Runaway	5+945	6+010	D	65		65	m
3.1.8	-Apron	0+000	0+139	D	139		139	m
3.1.9	-Apron	0+000	0+113	G	113		113	m
	<b>Subtotal - Side ditch reprofiling</b>						<b>2 227</b>	<b>m</b>
<b>3.2</b>	<b>Side ditch digging</b>							
3.1	-Runaway	5+620	5+790	G	170		170	m
3.2	-Runaway	5+790	6+000	G	210		210	m
	<b>Subtotal - Side ditch digging</b>						<b>380</b>	<b>m</b>
<b>3.3</b>	<b>Channel reprofiling</b>							
3.3.1	-Outlet 1	0+150	0+170		20		20	m
3.3.2	-Outlet 1	-0+010	0+065		75		75	m
3.3.3	-Outlet 3	0+003	0+163		160		160	m
3.3.4	-Outlet 3	0+179	0+264		85		85	m
	<b>Subtotal channel</b>						<b>340</b>	<b>m</b>

PWGSC  
 EASTMAIN AIRPORT  
 DRAINAGE CORRECTIONS  
 DESCRIPTIVE SPECIFICATIONS - SECTIONS 31 11 00, 35 46 60 AND 31 00 99

#	DESCRIPTION	CHAINING		Side	length (m)	width (m)	Quantity	Unit
		from	to					
3.4 3.4.1	Channel digging -Outlet 1	0+135	0+150		15		15	m
	<b><i>Subtotal - Channel digging</i></b>						<b>15</b>	<b>m</b>
3.5	Secondary channel digging -Reference: runway -Reference: runway -Reference: runway -Reference: runway	5+560 5+690 5+740 6+000		G G G G			10 10 10 10	m m m m
	<b><i>Subtotal - Secondary digging</i></b>						<b>40</b>	<b>m</b>


 Transports Canada  
 Groupe Programmes  
 Région du Québec

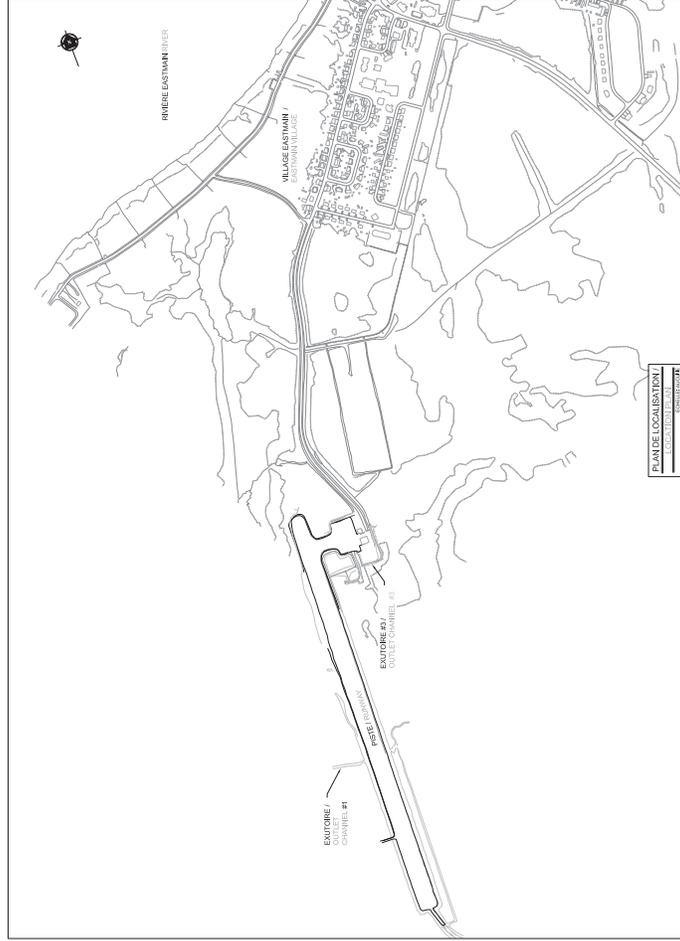
Transport Canada  
 Programs Group  
 Quebec Region


 Travaux publics et  
 Services Gouvernementaux  
 Canada  
 USC - MPOTC

Public Works and  
 Government Services  
 Canada  
 GSC - DFO/TC



**PLAN GÉNÉRAL DE LOCALISATION /**  
**GENERAL LOCATION PLAN**



**PLAN DE LOCALISATION /**  
**LOCATION PLAN**

**LISTE DES PLANS / LIST OF PLANS**

Q1980623C001	PLAN DE LOCALISATION / LOCATION PLAN
Q1980623C002	LÉGENDE / LEGEND
Q1980623C003	PISTE FOSSÉS LATÉRAUX PLAN ET PROFIL / RUNWAY SIDE DITCHES PLAN AND PROFILE CH. 4+800 @ 5+300
Q1980623C004	PISTE FOSSÉS LATÉRAUX PLAN ET PROFIL RUNWAY SIDE DITCHES PLAN AND PROFILE CH. 5+300 @ 5+800
Q1980623C005	PISTE FOSSÉS LATÉRAUX PLAN ET PROFIL RUNWAY SIDE DITCHES PLAN AND PROFILE CH. 5+800 @ 6+020
Q1980623C006	EXUTOIRES #1 et #3 / PLANS ET PROFILS OUTLET CHANNEL #1 and #3 PLANS AND PROFILES
Q1980623C007	AIRE DE TRAFIC FOSSÉS LATÉRAUX PLANS ET PROFILS / SIDE DITCHES PLANS AND PROFILES
Q1980623C008	PLAN DE DÉTAILS / DETAILS PLAN



**STAVIBEL**

**CORRECTIONS DU DRAINAGE DE L'AÉROPORT D'EASTMAIN /**  
**DRAINAGE CORRECTIONS OF EASTMAIN AIRPORT**  
**PROJET / PROJECT R.075197.001**

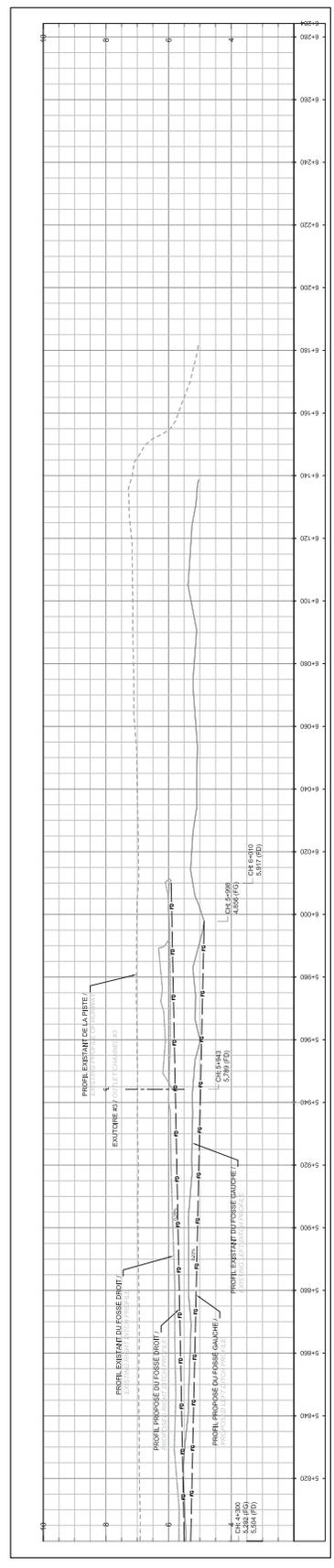
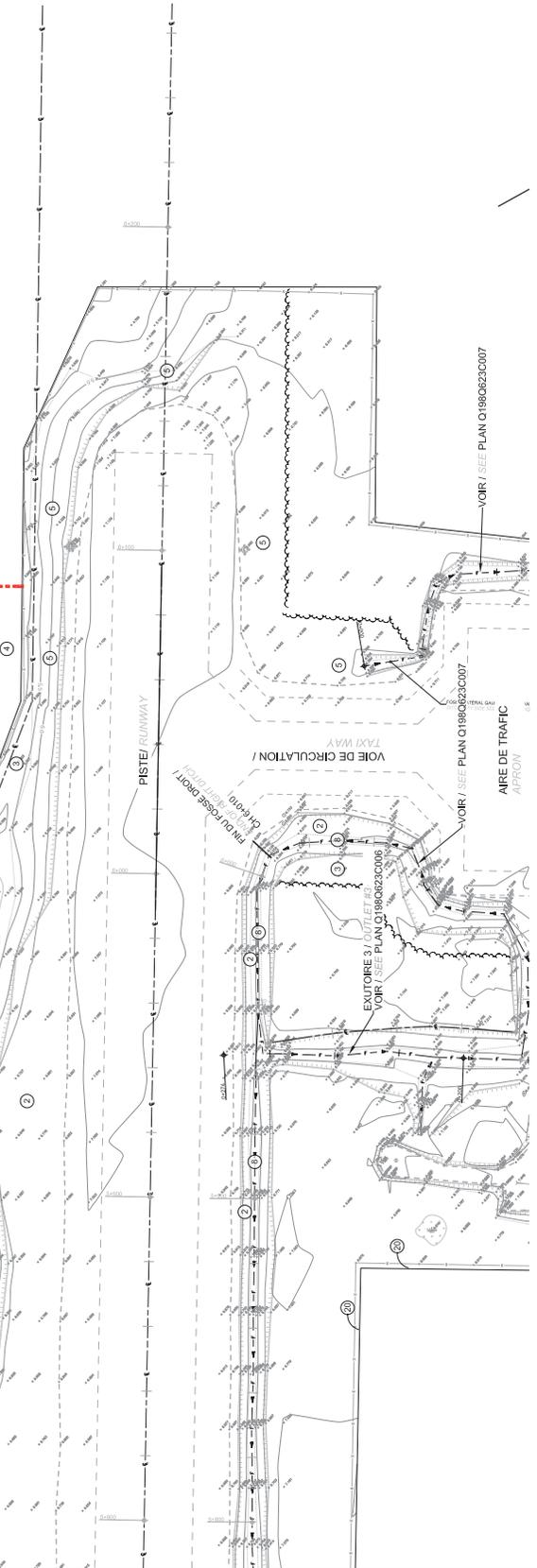








Scale	1:500
North Arrow	True North
Units	Metres
Projection	UTM
Zone	18N
Datum	WGS 84
Author	STABIL
Date	2023-07-20



- LEGENDE / LEGEND**
- RECHERCHER LE SENS DE LA LIGNE**
- 1. Délimitation de la zone de travaux / Work zone delimitation
  - 2. Localisation des fossés existants / Existing ditches location
  - 3. Localisation des fossés proposés / Proposed ditches location
  - 4. Localisation des points de mesure / Measurement points location
  - 5. Localisation des points de mesure / Measurement points location
  - 6. Localisation des points de mesure / Measurement points location
  - 7. Localisation des points de mesure / Measurement points location
  - 8. Localisation des points de mesure / Measurement points location
  - 9. Localisation des points de mesure / Measurement points location
  - 10. Localisation des points de mesure / Measurement points location
- ENTRETIEN DE COURS D'EAU**
- 1. Délimitation de la zone de travaux / Work zone delimitation
  - 2. Localisation des fossés existants / Existing ditches location
  - 3. Localisation des fossés proposés / Proposed ditches location
  - 4. Localisation des points de mesure / Measurement points location
  - 5. Localisation des points de mesure / Measurement points location
  - 6. Localisation des points de mesure / Measurement points location
  - 7. Localisation des points de mesure / Measurement points location
  - 8. Localisation des points de mesure / Measurement points location
  - 9. Localisation des points de mesure / Measurement points location
  - 10. Localisation des points de mesure / Measurement points location
- POINTEAU ET DIMERS**
- 1. Localisation des points de mesure / Measurement points location
  - 2. Localisation des points de mesure / Measurement points location
  - 3. Localisation des points de mesure / Measurement points location
  - 4. Localisation des points de mesure / Measurement points location
  - 5. Localisation des points de mesure / Measurement points location
  - 6. Localisation des points de mesure / Measurement points location
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  - 8. Localisation des points de mesure / Measurement points location
  - 9. Localisation des points de mesure / Measurement points location
  - 10. Localisation des points de mesure / Measurement points location
- PROFILS EN LONG**
- 1. Localisation des points de mesure / Measurement points location
  - 2. Localisation des points de mesure / Measurement points location
  - 3. Localisation des points de mesure / Measurement points location
  - 4. Localisation des points de mesure / Measurement points location
  - 5. Localisation des points de mesure / Measurement points location
  - 6. Localisation des points de mesure / Measurement points location
  - 7. Localisation des points de mesure / Measurement points location
  - 8. Localisation des points de mesure / Measurement points location
  - 9. Localisation des points de mesure / Measurement points location
  - 10. Localisation des points de mesure / Measurement points location

- LEGENDE PROFILES / LEGEND**
- PROFILS EN LONG**
- 1. Localisation des points de mesure / Measurement points location
  - 2. Localisation des points de mesure / Measurement points location
  - 3. Localisation des points de mesure / Measurement points location
  - 4. Localisation des points de mesure / Measurement points location
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  - 8. Localisation des points de mesure / Measurement points location
  - 9. Localisation des points de mesure / Measurement points location
  - 10. Localisation des points de mesure / Measurement points location

**STABIL**

**AEROPORT / AIRPORT**

**EASTMAN**

**CORRECTIONS DE DRAINAGE / DRAINAGE CORRECTIONS**

**INTE**

FORSES LATERAUX  
PLAN ET PROFILS  
RVAISON PROPOSEE  
CH-1400 @ 1405

Project: 25-102-0015  
Client: 25-102-0015  
Date: 2023-07-20  
Scale: 1:500  
Author: STABIL  
Date: 2023-07-20  
Scale: 1:500  
Author: STABIL



**STAVBEL INC.**  
 1000 Avenue de l'Éclaircie  
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 Télécopieur: (418) 653-1112  
 Site Web: www.stavbel.com

**PROJET:** AÉROPORT / AIRPORT  
**CLIENT:** AÉROPORT QUÉBEC

**DATE:** 2013-03-20

**ÉCHELLE:** 1:1000

- LEGENDE / LEGEND**
- RECHÈCHEMENT / RESEARCH**
- 1. Recherche de terrain / Terrain search
  - 2. Recherche de lignes de contour / Contour line search
  - 3. Recherche de points de vue / View point search
  - 4. Recherche de points de mesure / Measurement point search
  - 5. Recherche de points de repère / Reference point search
  - 6. Recherche de points de nivellement / Levelling point search
  - 7. Recherche de points de bornage / Boundary point search
  - 8. Recherche de points de bornage / Boundary point search
  - 9. Recherche de points de bornage / Boundary point search
  - 10. Recherche de points de bornage / Boundary point search
- ENTREPRISE / COMPANY**
- 11. Entreprise / Company
  - 12. Entreprise / Company
  - 13. Entreprise / Company
  - 14. Entreprise / Company
  - 15. Entreprise / Company
  - 16. Entreprise / Company
  - 17. Entreprise / Company
  - 18. Entreprise / Company
  - 19. Entreprise / Company
  - 20. Entreprise / Company
- PROFILS / PROFILES**
- 21. Profil / Profile
  - 22. Profil / Profile
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- PROFILS / PROFILES**
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- PROFILS / PROFILES**
- 41. Profil / Profile
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  - 50. Profil / Profile

**PROFILS / PROFILES**

| PROFIL |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     |
| 11     | 12     | 13     | 14     | 15     | 16     | 17     | 18     | 19     | 20     |
| 21     | 22     | 23     | 24     | 25     | 26     | 27     | 28     | 29     | 30     |
| 31     | 32     | 33     | 34     | 35     | 36     | 37     | 38     | 39     | 40     |
| 41     | 42     | 43     | 44     | 45     | 46     | 47     | 48     | 49     | 50     |
| 51     | 52     | 53     | 54     | 55     | 56     | 57     | 58     | 59     | 60     |
| 61     | 62     | 63     | 64     | 65     | 66     | 67     | 68     | 69     | 70     |
| 71     | 72     | 73     | 74     | 75     | 76     | 77     | 78     | 79     | 80     |
| 81     | 82     | 83     | 84     | 85     | 86     | 87     | 88     | 89     | 90     |
| 91     | 92     | 93     | 94     | 95     | 96     | 97     | 98     | 99     | 100    |

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 Site Web: www.stavbel.com

**PROJET:** AÉROPORT / AIRPORT  
**CLIENT:** AÉROPORT QUÉBEC

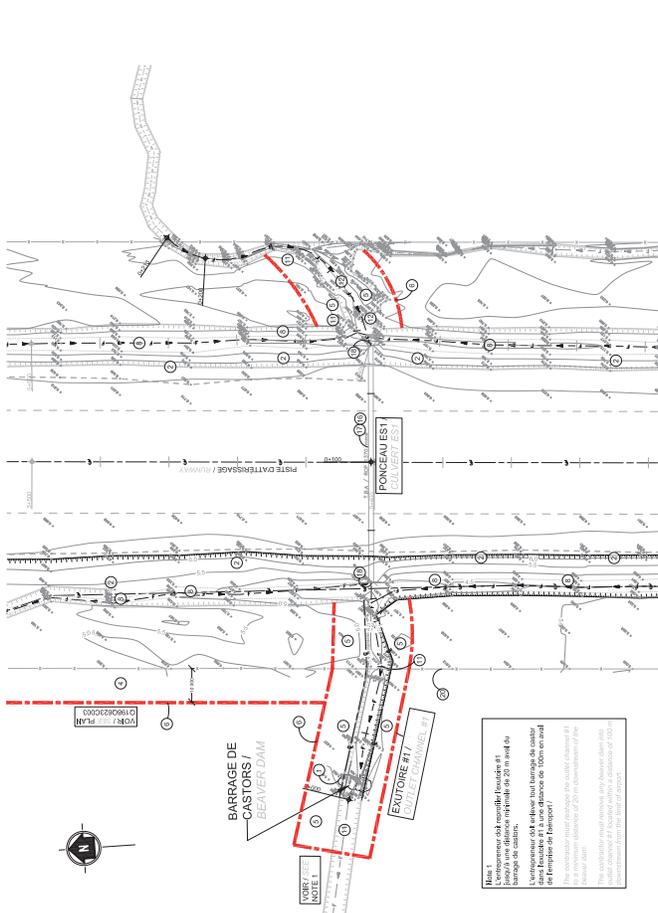
**DATE:** 2013-03-20

**ÉCHELLE:** 1:1000

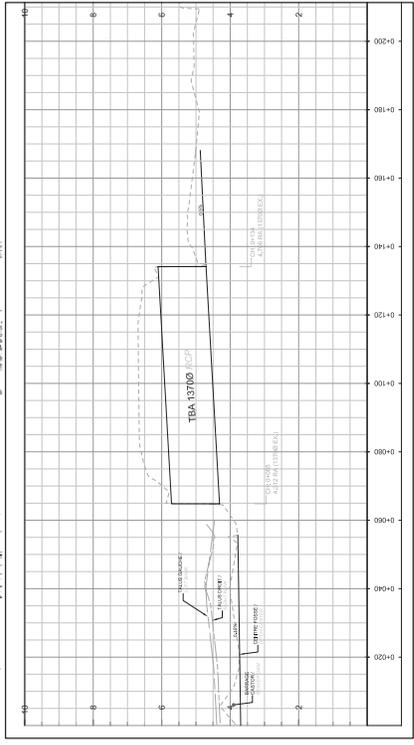
**PROFILS / PROFILES**

**ENTREPRISE / COMPANY**

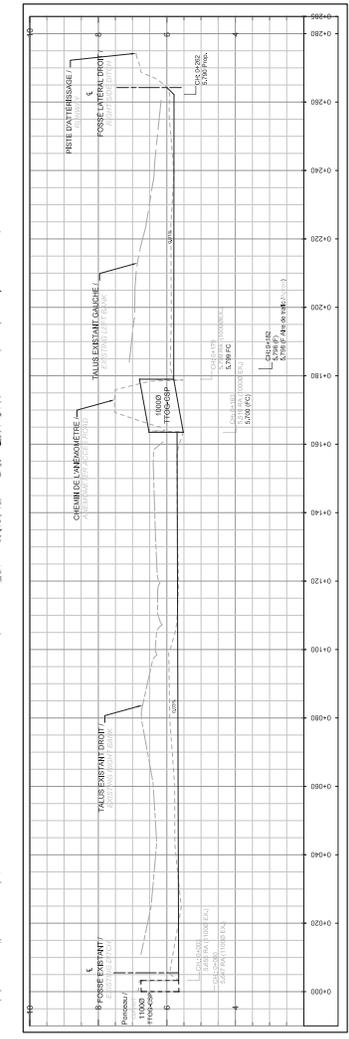
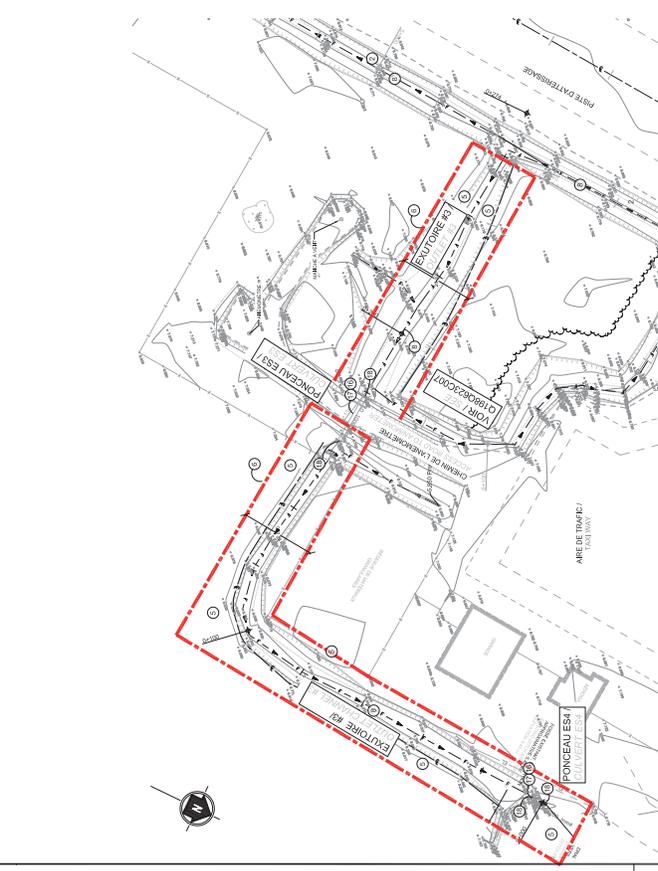
**PROFILS / PROFILES**



**Plan 1**  
 Le tronçon de canalisation à l'aval du barrage de castors sera construit en béton précontraint. Le tronçon de canalisation à l'amont du barrage de castors sera construit en béton précontraint. Le tronçon de canalisation à l'amont du barrage de castors sera construit en béton précontraint. Le tronçon de canalisation à l'amont du barrage de castors sera construit en béton précontraint.



EXUTOIRE #17 / OUTLET CHANNEL #17

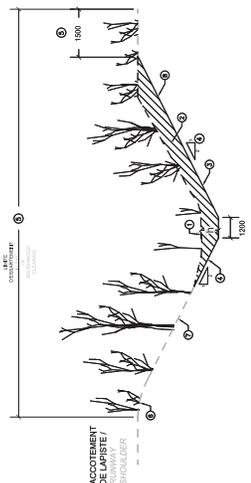


EXUTOIRE #18 / OUTLET CHANNEL #18

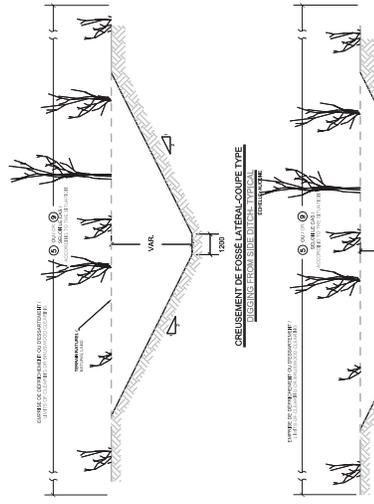


**MAINTENANCE DE COURS D'EAU**  
**WATERWAY CHANNEL MAINTENANCE**

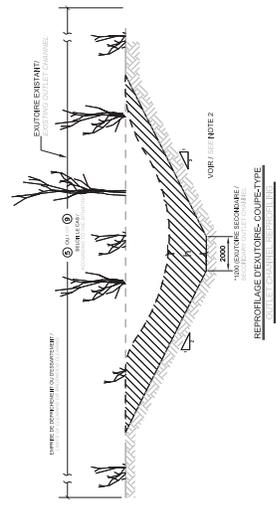
- LEGENDE / LEGEND**
- ① FOSSE EXISTANTE / EXISTING DITCH
  - ② SÉPARÉS EN LIGES ET BOSQUES / SEPARATED BY LOGS AND BUSHES
  - ③ FOSSE PROPRIÉTÉ / PROPERTY DITCH
  - ④ PENTE EXISTANTE / EXISTING SLOPE
  - ⑤ ESARTEMENT / SPREADING
  - ⑥ TALUS DE DÉBLAIS / DEBRIS BANK
  - ⑦ TALUS DE BÉTAIL / STOCK BANK
  - ⑧ ARRondi / ROUNDED
  - ⑨ DÉFRICHEMENT / CLEARING



**REPROFILAGE DE FOSSE LATÉRALE - COUPE TYPE**  
**RESHAPING OF LATERAL DITCH - CROSS SECTION**

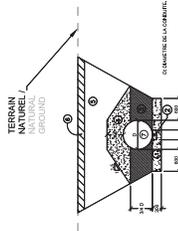


**CREUSEMENT DE FOSSE LATÉRALE - COUPE TYPE**  
**DIGGING OF LATERAL DITCH - CROSS SECTION**



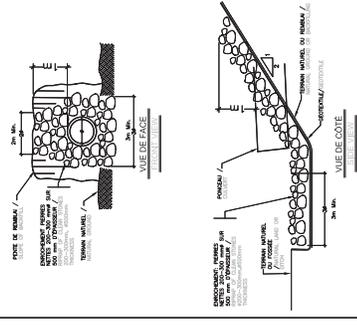
**REPROFILAGE DE VOUTURE - COUPE TYPE**  
**RESHAPING OF VOUTURE - CROSS SECTION**

**PONCEAU / PIPE CULVERT**



- INSTALLATION DE PONCEAU - COUPE TYPE**  
**INSTALLATION OF PIPE CULVERT - CROSS SECTION**
- ① COUVERCLE EN CIMENT / CONCRETE COVER
  - ② COUVERCLE EN CIMENT / CONCRETE COVER
  - ③ COUVERCLE EN CIMENT / CONCRETE COVER
  - ④ COUVERCLE EN CIMENT / CONCRETE COVER
  - ⑤ COUVERCLE EN CIMENT / CONCRETE COVER
  - ⑥ COUVERCLE EN CIMENT / CONCRETE COVER
  - ⑦ COUVERCLE EN CIMENT / CONCRETE COVER
  - ⑧ COUVERCLE EN CIMENT / CONCRETE COVER
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  - ㊸ COUVERCLE EN CIMENT / CONCRETE COVER
  - ㊹ COUVERCLE EN CIMENT / CONCRETE COVER
  - ㊺ COUVERCLE EN CIMENT / CONCRETE COVER

**EMPIERREMENT / RIPRAP**



**PERRE À L'EXTREMITÉ DU PONCEAU - COUPE TYPE**  
**STONE AT THE END OF PIPE CULVERT - CROSS SECTION**



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**STAVIBEL**

**AÉROPORT / AIRPORT**  
**EASTMAN**  
**CORRECTIONS DE DRAINAGE /**  
**DRAINAGE CORRECTIONS**

PLAN DE DÉTAILS  
DETAILS PLAN

Client: Société Paradi, Québec, Québec  
Projet: 201402015  
Dessiné par: Jean-François Gauthier  
Vérifié par: Jean-François Gauthier  
Date: 2014-02-01  
Projet: 201402015  
Dessiné par: Jean-François Gauthier  
Vérifié par: Jean-François Gauthier  
Date: 2014-02-01  
Projet: 201402015  
Dessiné par: Jean-François Gauthier  
Vérifié par: Jean-François Gauthier  
Date: 2014-02-01