

Solicitation No – N° de l'invitation
EF997-142886/A
Client Ref No. – N° de réf. du client
EF997-14-2886

Amd. No. – N° de la modif.
File No. – N° du dossier
MTC-3-36448

Buyer ID – id de l'acheteur
mtc 250

INVITATION TO TENDER

IMPORTANT NOTICE TO BIDDERS

INSURANCE TERMS

The Certificate of Insurance and its instructions has been replaced see Annex A. (Completed certificate is NOT required at bid closing).

ASPHALT CEMENT PRICE ADJUSTMENT

This solicitation includes a price adjustment clause for asphalt cement. Refer to the Supplementary Conditions.

R2940D CLAUSE IS CANCELLED AND SECTION 3.8 OF R2830D IS MODIFIED

Following the repeal of the *Fair Wages and Hours of Labour Act*, R2940D clause is canceled for contracts awarded after January 1st 2014. For contracts awarded prior to that date the clause remains applicable.

The “Code of Conduct” is replaced with “Integrity Provision” and some modifications to the clause where done. See GI01 of R2710T.

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R2710T GENERAL INSTRUCTIONS - CONSTRUCTION SERVICES - BID SECURITY REQUIREMENTS (GI) (2014-03-01)

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
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APPENDIX 1 - COMBINED PRICE FORM

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SPECIAL INSTRUCTIONS TO BIDDERS (SI)

SI01 INTEGRITY PROVISIONS - ASSOCIATED INFORMATION

By submitting a bid, the Bidder certifies that the Bidder and its Affiliates are in compliance with the provisions as stated in Section 01 Integrity Provisions - Bid of General Instructions – Construction Services – Bid Security Requirements, R2710T (2014-03-01). The associated information required within the Integrity Provisions will assist Canada in confirming that the certifications are true.

SI02 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 (2014-03-01)
 - 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](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R)

SI03 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 GI15 of R2710T, enquiries should be received no later than seven (7) 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.

SI04 SITE VISIT

Non-applicable

SI05 REVISION OF BID

A bid may be revised by letter or facsimile in accordance with GI10 of R2710T. The facsimile number for receipt of revisions is (514) 496-3822.

SI06 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

SI07 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).

SI08 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

SI09 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.

SI10 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§ion=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 PWGSC-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/index-eng.html>

PWGSC Consent to a Criminal Record Verification (PWGSC-TPSGC 229)
<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/229.pdf>

Construction and Consultant Services Contract Administration Forms Real Property Contracting
<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/formulaires-forms-eng.html>

SUPPLEMENTARY CONDITIONS (SC)

SC01 SECURITY REQUIREMENTS, DOCUMENT SAFEGUARDING LOCATION

There is no security requirement applicable to this Contract.

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.

SC03 ASPHALT CEMENT PRICE ADJUSTMENT

1. The price of asphalt cement incorporated into hot mix asphalt shall be adjusted for each month in which paving occurs when the price index for that month differs by more than 5% from the price index for the month prior to bid closing. The price adjustment shall be calculated in accordance with the applicable price adjustment formula of paragraph 2.
2. Price Adjustment formulae:
 - a. When the price index, for the month in which paving occurs, is higher than 105% of the price index for the month prior to bid closing, Canada shall pay the Contractor a compensation of:
(Example based on a 5% increase)
 $PA = (IM - 1.05 IB) \times \text{quantity of asphalt cement in tons}$
 - b. When the price index, for the month in which paving occurs, is less than 95% of the price index for the month prior to bid closing, Canada shall deduct an amount from the monthly payment to the Contractor of:
(Example based on a 5% decrease)
 $PA = (.95IB - IM) \times \text{quantity of asphalt cement in tons}$

PA = payment adjustment for asphalt cement, in dollars

IB = asphalt cement price index for the month prior to bid closing

IM = asphalt cement price index for the month in which paving occurs

The price index shall be the Asphalt Cement Price Index published monthly by the Ontario Ministry of Transportation (MTO) in the Contract Bulletin displayed on the MTO Web site <http://www.mto.gov.on.ca>. This price index shall be used to calculate the adjustment per ton of all grades of asphalt cement accepted into the Work.

3. For each month in which a payment adjustment is made, Canada shall use the fixed asphalt cement content of the final job mix formula to determine the asphalt cement quantity that is used.
4. The payment adjustments shall be made on the monthly Request for Progress Payment form for the months in which hot mix paving occurs.

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	(2014-03-01);
GC2	Administration of the Contract	R2820D	(2012-07-16);
GC3	Execution and Control of the Work	R2830D	(2014-03-01);
GC4	Protective Measures	R2840D	(2008-05-12);
GC5	Terms of Payment	R2850D	(2010-01-11);
GC6	Delays and Changes in the Work	R2860D	(2013-04-25);
GC7	Default, Suspension or Termination of Contract	R2870D	(2008-05-12);
GC8	Dispute Resolution	R2882D	(2008-12-12);
GC9	Contract Security	R2890D	(2012-07-16);
GC10	Insurance	R2900D	(2008-05-12);
	Allowable Costs for Contract Changes Under GC6.4.1	R2950D	(2007-05-25);
	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.

BID AND ACCEPTANCE FORM (BA)

BA01 IDENTIFICATION

**Pavement of different areas at Kuujjuaq Airport
Kuujjuaq (QC)**

BA02 BUSINESS NAME AND ADDRESS OF BIDDER

Name: _____

Address: _____

Telephone: _____ Fax: _____ PBN: _____

Email: _____

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 [see section 01 11 01, item 1.13] 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

APPENDIX 1 - COMBINED PRICE FORM

- 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.

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.

LUMP SUM AMOUNT (LSA) Excluding applicable tax(es)
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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.

Item	Specification Reference	Class of Labour, Plant or Material	Unit of Measurement	Estimated Quantity (EQ)	Price per Unit applicable tax(es) extra (PU)	Extended amount (EQ x PU) applicable tax(es) extra
1	02 41 13	Demolition and removal of different element indicated on drawings	Global	1	Global	\$ _____
2	31 22 14	Common excavation	m ³	1 160	\$ _____	\$ _____
3	32 11 16.01	Granular sub-base MG112	Tons	950	\$ _____	\$ _____
4	32 11 23	Aggregate base courses MG20	Tons	5 575	\$ _____	\$ _____
5	32 16 15	Concrete curb (island)	m	144	\$ _____	\$ _____
6	32 16 15	Concrete sidewalk	m ²	65	\$ _____	\$ _____
7	34 71 13.25	Single W-Beam guard rail	m	20	\$ _____	\$ _____
8	34 71 13.25	Double W-Beam guard rail	m	67	\$ _____	\$ _____
9	31 22 16.13	Reshaping roadway subgrade	m ²	34 950	\$ _____	\$ _____
10	31 22 16.13	Pulverization of exist. bituminous pavement.	m ²	14 250	\$ _____	\$ _____
11	32 12 16	Asphalt pavement thickness of 65mm or 100mm	Tons	6 350	\$ _____	\$ _____
12	31 22 14	Levelling of surfaces (off roadway)	m ²	1 380	\$ _____	\$ _____
13	32 17 23	Pavement marking	Global	1	Global	\$ _____
14	32 17 23	Roadway Signalisation	Global	1	Global	\$ _____
15	33 42 13	Culvert PHDP diam.=900mm L=18m	Global	1	Global	\$ _____
16	32 31 13	Chain link fence	m	146	\$ _____	\$ _____

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17	32 31 13	Pedestrian gate	Each	1	\$ _____	\$ _____
18	35 42 60	Channel excavation	m ³	300	\$ _____	\$ _____
19	35 42 60	Cleaning and deepening of existing channel	m	25	\$ _____	\$ _____
20	31 23 33.01	Stone drain	m	10	\$ _____	\$ _____
21	31 37 00	Rip-rap	m ²	388	\$ _____	\$ _____
22	01 35 00.06	Traffic regulation	Global	1	Global	\$ _____
23	01 35 13.13	Allowance (escort)	Global	1	\$ 60 000	\$ 60 000
TOTAL DES PRIX CALCULÉS (TPC) Excluant les taxes applicable(s)						

TOTAL BID AMOUNT (LSA +TEA) Excluding applicable tax(s)	
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ANNEX A - CERTIFICATE OF INSURANCE

Description and Location of Work Paving in Kuujuaq	Contract No. EF997-142886
	Project No. R.062724.001

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

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
Commercial General Liability Umbrella/Excess Liability				\$	\$	\$
Builder's Risk / Installation Floater				\$		
Aviation Liability				<input type="checkbox"/> Per Incident <input type="checkbox"/> Per Occurrence		Aggregate \$
Insert other type of insurance as required				\$		

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

<p>General</p> <p>The insurance policies required on page 1 of the Certificate of Insurance must be in force and must include the insurance coverages listed under the corresponding type of insurance on this page.</p> <p>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.</p> <p>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.</p> <p>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.</p>	<p>Commercial General Liability</p> <p>The insurance coverage provided must not be substantially less than that provided by the latest edition of IBC Form 2100.</p> <p>The policy must either include or be endorsed to include coverage for the following exposures or hazards if the Work is subject thereto:</p> <ul style="list-style-type: none"> (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. <p>The policy must have the following minimum limits:</p> <ul style="list-style-type: none"> (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. <p>Umbrella or excess liability insurance may be used to achieve the required limits.</p>	<p>Builder's Risk / Installation Floater</p> <p>The insurance coverage provided must not be less than that provided by the latest edition of IBC Forms 4042 and 4047.</p> <p>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.</p> <p>The policy may exclude or be endorsed to exclude coverage for loss or damage caused by asbestos, fungi or spores, cyber and terrorism.</p> <p>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.</p> <p>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).</p>
<p>Aviation Liability</p> <p>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.</p>		

SET-ASIDE / ABORIGINAL BUSINESS

1. This procurement is set aside for Inuit* Aboriginal business under the federal government's Set-Aside Program for Aboriginal Business. Bidders must complete and sign the certification "Certification Requirements for the Set-Aside Program for Aboriginal Business" contained in Appendix "B", Requirements for the Set-Aside Program for Aboriginal Business, and this certification shall be submitted with the proposal. It is a precondition to the submission of a valid bid that this certification be accurately completed. Failure to complete and submit the Certification with the proposal shall render the proposal non-compliant.
2. By executing the certification, the Bidder represents and warrants that it is an Inuit Aboriginal business as defined in the Set-Aside Program for Aboriginal Business.
3. The Bidder acknowledges that the Minister relies upon such representation and warranty to evaluate bids and shall rely upon such representation and warranty to enter into any contract resulting from this bid. Such representation and warranty of the certification may be verified in such manner as the Minister may reasonably require.
4. Should a verification by the Minister disclose a breach of such representation and warranty, the Minister shall have the right to disqualify the bid or to treat any contract resulting from this bid as being in default and render it subject to the remedies set out in the certification and General Conditions.

*As defined in the James Bay and Northern Quebec Agreement and Complementary Agreements, paragraphs 3.1.2, 3.2.4, 3.2.5 and 3.2.6 of chapter 3 of the agreement

Entire Agreement

The Contract, including all Appendices, Annexes and all terms and conditions, including those incorporated by reference and the Requirements for the Set-Aside Program for Aboriginal Business and "Certification Requirements for the Set-Aside Program for Aboriginal Business" documents as completed and submitted by the Bidder, constitute the entire and sole agreement between the parties with respect to the subject matter of the Contract and supersedes all previous negotiations, communications and other agreements, whether written or oral, relating to it, unless they are incorporated by reference in the Contract. There are no terms, covenants, representations, statements of conditions binding on the parties other than those contained in the Contract.

ANNEX B

The Set-Aside Program for Aboriginal Business

Factors that may be considered in determining whether Aboriginal persons have at least 51% ownership and control of an Aboriginal business include:

- Capital Stock and Equity Accounts, i.e., preferred stock, convertible securities, classes of common stock, warrants, options
- Dividend policy and payments
- Existence of Stock Options to employees
- Different treatment of Equity transactions for Corporations, Partnerships, Joint Ventures, Community organizations, Cooperatives, etc.
- Examination of Charter Documents, i.e., corporate charter, partnership agreement, financial structure
- Concentration of ownership or managerial control in partners, stockholders, officers trustees and directors based definition of duties
- Principal occupations and employer of the officers and directors to determine who they represent, i.e. banker, vested ownerships
- Minutes of directors meetings and stockholders meetings for significant decisions that affect operations and direction
- Executive and employee compensation records for indication of level of efforts associated with position
- Nature of the business in comparison with the type of contract being negotiated
- Cash management practices, i.e., payment of dividends - preferred dividends in arrears
- Tax returns to identify ownership and business history
- Goodwill contribution/contributed asset valuation to examine and ascertain the Fair Market value of non cash capital contributions
- Contracts with owners, officers and employees to be fair and reasonable
- Stockholder authority, i.e. appointments of officers, directors, auditors
- Trust agreements made between parties to influence ownership and control decisions
- Partnership - allocation and distribution of net income, i.e., provision for salaries, interest on capital and distribution share ratios
- Litigation proceedings over ownership
- Transfer pricing from non-Aboriginal joint venturer
- Payment of management or administrative fees
- Guarantees made by the Aboriginal business
- Collateral agreements

ANNEX C

CERTIFICATION REQUIREMENTS FOR THE PROGRAM FOR ABORIGINAL* BUSINESS

A bidder who submits, under this program, a bid or proposal in response to a solicitation must complete and submit this certification. Failure to submit this certification will result in the proposal's being found noncompliant.

1. i) I, _____ (*Name of duly authorized representative of business*) hereby certify that _____ (*Name of business*) meets, and shall continue to meet throughout the duration of the contract, the requirements for this program as set out in the attached document entitled "Requirements for the SetAside Program for Aboriginal Business", which document I have read and understand.
- ii) The aforementioned business agrees to ensure that any subcontractor it engages with respect to the contract shall, if required, satisfy the requirements set out in "Requirements for the SetAside Program for Aboriginal Business."
- iii) The aforementioned business agrees to provide to Canada, immediately upon request, information to substantiate a subcontractor's compliance with this program.

PLEASE CHECK THE APPLICABLE BOXES IN 2 AND 3 BELOW

2. i) The aforementioned business is an Aboriginal* business which is a sole proprietorship, band, limited company, cooperative, partnership or notforprofit organization, []

OR

- ii) The aforementioned business is a joint venture between two or more Aboriginal businesses or an Aboriginal business and a nonAbioriginal business. []

3. The Aboriginal business or businesses have:

- i) fewer than six fulltime employees []

OR

- ii) six or more fulltime employees []

4. The aforementioned business agrees to immediately furnish to Canada, such evidence as may be requested by Canada from time to time, corroborating this certification. Such evidence shall be open to audit during normal business hours by a representative of Canada, who may make copies and take extracts from the evidence. The aforementioned business agrees to provide all facilities for audits and to furnish information requested by Canada with respect to the certification.

5. It is understood that the civil consequences of making an untrue statement in the bid documents, or of not complying with the requirements of the Program or failing to produce satisfactory evidence to Canada regarding the requirements of the Program, may include: forfeiture of the bid deposit; retention of the holdback; disqualification of the business from participating in future contracts under the Program; and/or termination of the contract.

In the event that the contract is terminated because of an untrue statement or noncompliance with the requirements of the Program, Canada may engage another contractor to complete the performance of the contract and any additional costs incurred by Canada shall, upon the request of Canada, be borne by the aforementioned business.

6. Date _____ Signature _____
Title (Duly authorized representative of business)
Place _____ Title _____
For

Name of Business

* The term «Aboriginal» in the context of this tender call is interpreted as «Inuit»

GOVERNMENT SUPPORT FOR ABORIGINAL ECONOMIC DEVELOPMENT THROUGH FEDERAL PROCUREMENT

REQUIREMENTS FOR THE SET-ASIDE PROGRAM FOR ABORIGINAL BUSINESS

Who is eligible?

An Aboriginal business, which can be: a band as defined by the Indian Act a sole proprietorship or a limited company a co-operative a partnership a not-for-profit organization in which Aboriginal persons have at least 51 percent ownership and control,

OR

A joint venture consisting of two or more Aboriginal businesses or an Aboriginal business and a non-Aboriginal business(es), provided that the Aboriginal business(es) has at least 51 percent ownership and control of the joint venture.

When an Aboriginal business has six or more full-time employees at the date of submitting the bid, at least thirty-three percent of them must be Aboriginal persons, and this ratio must be maintained throughout the duration of the contract.

The bidder must certify in its submitted bid that it is an Aboriginal business or a joint venture constituted as described above.

Are there any other requirements attached to bidders in the Set-Aside Program for Aboriginal Business?

Yes.

In respect of a contract, (goods, service or construction), on which a bidder is making a proposal which involves subcontracting, the bidder must certify in its bid that at least thirty-three percent of the value of the work performed under the contract will be performed by an Aboriginal business. *Value of the work performed* is considered to be the total value of the contract less any materials directly purchased by the contractor for the performance of the contract. Therefore, the bidder must notify and, where applicable, bind the subcontractor in writing with respect to the requirements that the Aboriginal Set-Aside Program (the Program) may impose on the subcontractor or subcontractors.

The bidder's contract with a subcontractor must also, where applicable, include a provision in which the subcontractor agrees to provide the bidder with information, substantiating its compliance with the Program, and authorize the bidder to have an audit performed by Canada to examine the subcontractor's records to verify the information provided. Failure by the bidder to exact or enforce such a provision will be deemed to be a breach of contract and subject to the civil consequences referred to in this document.

As part of its bid, the bidder must complete the *Certification of Requirements for the Set-Aside Program for Aboriginal Business* (certification) stating that it:

- i) meets the requirements for the Program and will continue to do so throughout the duration of the contract;
- ii) will, upon request, provide evidence that it meets the eligibility criteria;
- iii) is willing to be audited regarding the certification; and
- iv) acknowledges that if it is found NOT to meet the eligibility criteria, the bidder shall be subject to one or more of the civil consequences set out in the certification and the contract.

How must the business prove that it meets the requirements?

It is not necessary to provide evidence of eligibility at the time the bid is submitted. However, the business should have evidence of eligibility ready in case it is audited

The civil consequences of making an untrue statement in the bid documents, or of not complying with the requirements of the Program or failing to produce satisfactory evidence to Canada regarding the requirements of the Program, may include: forfeiture of the bid deposit; retention of the holdback; disqualification of the business from participating in future contracts under the program; and/or termination of the contract. In the event that the contract is terminated because of an untrue statement or non-compliance with the requirements of the Program, Canada may engage another contractor to complete the performance of the contract and any additional costs incurred by Canada shall, upon the request of Canada, be borne by the business.

What evidence may be required from the business?

Ownership and control

Evidence of ownership and control of an Aboriginal business or joint venture may include incorporation documents, shareholders' or members' register; partnership agreements; joint venture agreements; business name registration; banking arrangements; governance documents; minutes of meetings of Board of Directors and Management Committees; or other legal documents.

Ownership of an Aboriginal business refers to "beneficial ownership" i.e. who is the real owner of the business. Canada may consider a variety of factors to satisfy whether Aboriginal persons have true and effective control of an Aboriginal business. (See Appendix A for a list of the factors which may be considered by Canada.)

Employment and employees

Where an Aboriginal business has six or more full-time employees at the date of submitting the certification and is required by Canada to substantiate that at least thirty-three percent of the full-time employees are Aboriginal, the business must, upon request by Canada, immediately provide a completed *Owner/Employee Certification* form for each full-time employee who is Aboriginal.

Evidence as to whether an employee is or is not full-time and evidence as to the number of full-time employees may include payroll records, written offers for employment, and remittance and payroll information maintained for Revenue Canada purposes as well as information related to pension and other benefit plans.

A full-time employee, for the purpose of this program, is one who is on the payroll, is entitled to all benefits that other full-time employees of the business receive, such as pension plan, vacation pay and sick leave allowance, and works at least 30 hours a week. It is the number of full-time employees on the payroll of the business at the date of bid submission that determines the ratio of Aboriginal to total employees of the business for the purpose of establishing eligibility under the Program.

Owners who are Aboriginal and full-time employees who are Aboriginal must be ready to provide evidence in support of such status. The *Owner/Employee Certification* to be completed by each owner and full-time employee who is Aboriginal shall state that the person meets the eligibility criteria and that the information supplied is true and complete. This certification shall provide the person's consent to the verification of the information submitted.

Subcontracts

Evidence of the proportion of work done by subcontractors may include contracts between the contractor and subcontractors, invoices, and paid cheques.

Evidence that a subcontractor is an Aboriginal business (where this is required to meet the minimum Aboriginal content of the contract) is the same as evidence that a prime contractor is an Aboriginal business.

WHO IS AN ABORIGINAL PERSON FOR PURPOSES OF THE SET-ASIDE PROGRAM FOR ABORIGINAL BUSINESS?

An Aboriginal person is an Indian, Metis or Inuit who is ordinarily resident in Canada.

Evidence of being an Aboriginal person will consist of such proof as:

Indian registration in Canada
membership in an affiliate of the Metis National Council or the Congress of Aboriginal Peoples, or other recognized Aboriginal organizations in Canada
acceptance as an Aboriginal person by an established Aboriginal community in Canada
enrolment or entitlement to be enrolled pursuant to a comprehensive land claim agreement, or membership or entitlement to membership in a group with an accepted comprehensive claim

Evidence of being resident in Canada includes a provincial or territorial driver's licence, a lease or other appropriate document.

For further information on the Set-Aside Program for Aboriginal Business, contact the Access to Federal Procurement Directorate in the Department of Indian Affairs and Northern Development at (819)997-8383 or (819) 997-8746 or fax (819) 994-0445.

* The term «Aboriginal» in the context of this tender call is interpreted as «Inuit»

GOVERNMENT SUPPORT FOR ABORIGINAL ECONOMIC DEVELOPMENT THROUGH FEDERAL PROCUREMENT

OWNER/EMPLOYEE CERTIFICATION FORM

SET-ASIDE PROGRAM FOR ABORIGINAL BUSINESS

1. I, _____, am
Name

owner and/or full-time employee of _____,
business

Name of

and an Aboriginal person, as described in the document "Requirements for the Set-Aside Program for Aboriginal Business".

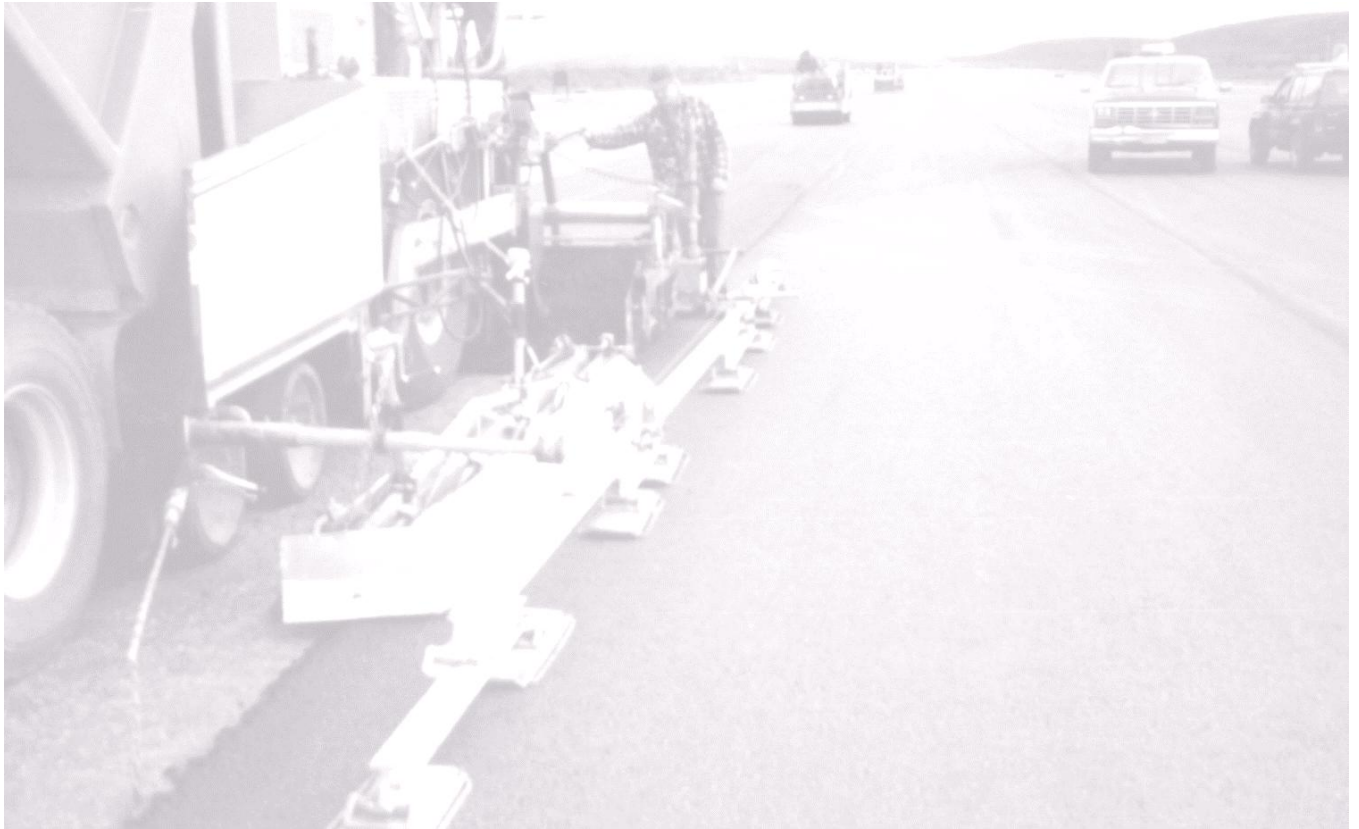
2. I certify that the above statement is true and consent to its verification upon the request of Canada.

Date

Signature of owner and/or employee

Place

End of the solicitation document.



**Pavement of different areas at Kuujuaq airport,
Kuujuaq, Quebec.**

Project PWGSC : R.062724.001

TECHNICAL SPECIFICATION FOR TENDER

March 2014



Travaux publics et
Services gouvernementaux
Canada

Public Works and
Government
Services Canada



Transports
Canada

Transport
Canada

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APPENDICES

N/A

DRAWINGS	Description	Date
Q121Q612C028	GENERAL DRAWING - APRON AREA.....	Marsh 2014
Q121Q612C029	GENERAL LAYOUT - AIRPORT ACCES ROAD	Marsh 2014
Q121Q612C030	GENERAL LAYOUT - PAVEMENT TERMINAL AREA	Marsh 2014
Q121Q612C031	GENERAL LAYOUT - TURNING BUTTON	Marsh 2014
Q121Q612C032	PARKING LOT - MARKING AND ROAD SIGN	Marsh 2014
Q121Q612C033	TYPICAL SECTIONS AND DETAILS (2 sheets).....	Marsh 2014

END OF TABLE

Part 1 General**1.1 WORK UNDER THIS CONTRACT**

- .1 Works under this contract include the pavement with asphaltic concrete of different areas, of the Kuujuaq airport, these areas are;
 - The enlargement of the apron currently gravelled and which part of it as been stabilized with bituminous emulsion,
 - The turning button at the end 07 of the main runway currently gravelled,
 - The surface on the front of the terminal building (air side) currently gravelled and which part of it as been stabilized with bituminous emulsion,
 - The public parking currently gravelled,
 - The main access road to the airport currently paved with asphalt,
 - All other related works indicated on drawings and specifications.

1.2 WORK BY OTHERS

- .1 Co-operate with other Contractors or stakeholders in carrying out their respective works and carry out instructions from the Departmental Representative.
- .2 Co-ordinate work with the works of others Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to the Departmental Representative, in writing, any defects which may interfere with proper execution of Work.
- .3 The electrical connection located in the area of the turning button of the main runway will be carried out by the airport staff.

1.3 WORK SCHEDULING

- .1 Construct Work in stages in the order and within the time specified on drawing. The duration of each phase of work is expressed in calendar day. The duration must be considered as the maximum time allowed for completion of a phase. In cases where the work of a phase is performed in less time than expected, the work of the next phase can begin without interruption, notified the Departmental Representative at least 48 hours prior change of phase.
- .2 Co-ordinate Progress Schedule with the airport operation and co-ordinate with the Departmental Representative.
- .3 Construct Work in stages to provide for continuous public usage. Do not close off public usage of facilities until use of one stage of Work will provide alternate usage.
- .4 Maintain fire access/control.

1.4 CONTRACTOR USE OF PREMISES

- .1 Limit use of premises for Work.

- .2 Co-ordinate use of premises under direction of Departmental Representative.
- .3 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.5 OCCUPANCY BY THE DEPARTMENTAL REPRESENTATIVE

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

1.6 EXISTING UTILITY 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 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 operations.
- .3 Provide alternative routes for pedestrian and vehicular traffic.
- .4 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.
- .5 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .6 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .7 Record locations of maintained, re-routed and abandoned service lines.

1.7 REQUIRED DOCUMENTS

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

.11 Other documents as specified.

1.8 TYPE OF CONTRACT

- .1 Tenders will be made on a unit and/or a lump sum price to include labour, materials, equipment and all other cost pertaining to the work or as set forth in the contract.
- .2 All expenses incurred to meet the requirements of the present contract and non covered by item of payment of the unit price table will have to be included in the overheads of the contractor and distributed proportionally on the different items of tender.
- .3 The Contractor when submitting his tender agrees that he is fully informed regarding all the conditions affecting the work to be done, the labour, materials, equipment plant he is to supply and the means of access to the site and that his information was obtained by personal investigation on the site by himself or his authorized representative and not from verbal information given to him by representatives of this Department.
- .4 While the drawings and specifications indicate the general nature of the work to be performed, it must be distinctly understood that the Department reserves the right to alter the alignment grades or the extent of the work as may be found desirable without in any way invalidating the conditions of the contract.

1.9 CODES

- .1 The works must be executed in a manner to satisfied at all exigency :
 - .1 Of contractual documents.
 - .2 Regulations and specified Codes and all other document referred to.
 - .3 Local authority.
- .2 In any case of conflict or discrepancy, the more stringent requirements shall apply.

1.10 WORK SCHEDULE

- .1 Provide within 5 working days after Contract award, a schedule showing anticipated progress stages and final completion of work within time period required by Contract documents.
- .2 Interim reviews of real work progress based on work schedule will be done as required by the Departmental Representative. Schedule updates will be carried out by the Contractor with the collaboration and approval of the Departmental Representative.
- .3 The approval of the revised schedule by the Departmental Representative does not free the Contractor from his responsibility relative to all consequences resulting from a non respect of the original calendar requirements.

1.11 REGULATED ZONE

- .1 The work of the present contract is located in part inside the regulated zone of the airport. It is the responsibility of the contractor to know the requirements for airport security and safety. See the requirement of section 01 35 13.13 Special procedures; airports in use.

1.12 ADDITIONAL DRAWINGS

- .1 The Departmental Representative may furnish additional drawings for clarification. These additional drawings have same meaning and intent as if they were included with the plans referred to in Contract documents.

1.13 SCHEDULE TO COMPLETE ALL WORKS

- .1 All works must be completed at least 70 calendar days after unloading date at Kuujjuaq of the first maritime transport.

1.14 PARTICULAR CONDITIONS

- .1 Turning button area :
 - .1 The works to be done on the turning button must be conducted outside of the airport operation period. These works must be executed between 19h00 and 10h00.
 - .2 During the period of operation, the trench excavation must have been backfilled and the initial compaction must be done. The equipments, stockpile of excavation or backfill material will not be tolerated inside the site.
- .2 Apron and front of the terminal area :
 - .1 The works to be done on the apron must be conducted in a manner to not interfere with aircraft circulating from taxiways to the parking area located in front of the terminal building and vice versa.
 - .2 The works on the adjacent area of the existing apron, must be executed and realized outside of the airport operation period, so between 19h00 and 10h00. A special attention should be brought to the surface D, that to permit the airport operations. One passage for pedestrians and luggage trolley (fork-lift) should be maintained at all times.
 - .3 On the adjacent area of the existing apron, during the period of operation, the trench excavation must have been backfilled and the initial compaction must be done. The equipments, stockpile of excavation or backfill material will not be tolerated inside the graded area.
- .3 Parking lot and access road:
 - .1 The works in the parking lot and on the airport access road must be conducted in a manner to not disturb the different users of the airport, the access must be maintained in all time to the different buildings.

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 CASH ALLOWANCES

- .1 Cash allowances, unless otherwise specified, cover net cost to Contractor of services, products, construction machinery and equipment, freight, handling, unloading, storage and other authorized expenses incurred in performing Work.
- .2 Contract Price, and not cash allowance, includes Contractor's overhead and profit in connection with such cash allowance.
- .3 Contract Price will be adjusted by written order to provide for excess or deficit to each cash allowance.
- .4 Where costs under a cash allowance exceed amount of allowance, Contractor will be compensated for excess incurred and substantiated plus allowance for overhead and profit as set out in Contract Documents.
- .5 Include progress payments on accounts of work authorized under cash allowances in monthly certificate for payment.
- .6 Amount of each allowance, for Work specified in respective specification Sections is as follows:
 - .1 Section 01 35 13.13- Airports in use, include allowance of \$60 000 for the supply of airport escort services.

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 SPECIFIED ELSEWHERE**

- .1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by Departmental Representative are specified under various sections.

1.2 APPOINTMENT AND PAYMENT

- .1 Departmental Representative will appoint and pay for services of testing laboratory except follows:
 - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
 - .2 Inspection and testing performed exclusively for Contractor's convenience.
 - .3 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.
 - .4 Mill tests and certificates of compliance.
 - .5 Tests specified to be carried out by Contractor under the supervision of Departmental Representative.
 - .6 Additional tests specified as follows:
- .2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Departmental Representative to verify acceptability of corrected work.

1.3 CONTRACTOR'S RESPONSIBILITIES

- .1 Provide labour, equipment and facilities to:
 - .1 Provide access to Work for inspection and testing.
 - .2 Facilitate inspections and tests.
 - .3 Make good Work disturbed by inspection and test.
 - .4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.
- .2 Notify Departmental Representative sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.
- .3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.
- .4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by Departmental Representative

1.4 MEASUREMENT FOR PAYMENT

- .1 All costs for this section will be included in different tender items.

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 PRECONSTRUCTION MEETING**

- .1 Within 10 days after award of Contract, the departmental representative will request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Departmental Representative, Contractor and his major Subcontractors will be in attendance.
- .3 The Departmental Representative will Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
- .4 The departmental representative will record minutes of meetings and circulate to attending parties and affected parties not in attendance within 3 days after meeting.
- .5 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work: Construction Progress Schedules - Bar (GANTT) Chart.
 - .3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
 - .5 Delivery schedule of materials.
 - .6 Site security.
 - .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
 - .8 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .9 Monthly progress claims, administrative procedures, photographs, hold backs.
 - .10 Appointment of inspection and testing agencies or firms.
 - .11 Insurances, transcript of policies.

1.2 PROGRESS MEETINGS

- .1 During course of Work and 2 weeks prior to project completion, the departmental Representative will establish schedule progress meetings periodically.
- .2 Contractor, major Subcontractors involved in Work and Departmental Representative are to be in attendance.
- .3 the departmental Representative will notify parties minimum 5 days prior to meetings.
- .4 The departmental representative will record minutes of meetings and circulate to attending parties and affected parties not in attendance within 3 days after meeting.
- .5 Agenda to include the following:

- .1 Review, approval of minutes of previous meeting.
- .2 Review of Work progress since previous meeting.
- .3 Field observations, problems, conflicts.
- .4 Problems which impede construction schedule.
- .5 Review of off-site fabrication delivery schedules.
- .6 Corrective measures and procedures to regain projected schedule.
- .7 Revision to construction schedule.
- .8 Progress schedule, during succeeding work period.
- .9 Review submittal schedules: expedite as required.
- .10 Maintenance of quality standards.
- .11 Review proposed changes for affect on construction schedule and on completion date.
- .12 Other business.

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 All section of the division 01.
- .2 Section 02 41 13 – Selective Site Demolition.
- .3 Section 31 32 19.01 – Geotextiles.
- .4 Section 32 11 16.01 - Granular Sub base.
- .5 Section 32 11 23 - Aggregate Base Courses.
- .6 Section 32 12 13.15 – Asphalt tack Coat.
- .7 Section 32 12 16 – Asphalt paving.
- .8 Section 32 17 23 – Roadway sign and pavement Markings.
- .9 Section 32 31 13 - Chain Link Fences and Gates.
- .10 Section 33 42 13 - Pipe Culverts.
- .11 Section 34 71 13.25 – Vehicle W-beam Guide Rail.

1.2 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 Work 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.

1.3 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 Province Territory 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 10 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 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent work.
- .9 After Departmental Representative's review, distribute copies.
- .10 Submit electronic copy or 3 copies of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit electronic copy or 3 copies 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 electronic copy or 3 copies 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 electronic copy or 3 copies 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 electronic copy or 3 copies of manufacturers 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 concerning impedances, hazards and safety precautions.
- .15 Submit electronic copy or 3 copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.

- .16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .17 Submit electronic copy or 3 copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
- .18 Delete information not applicable to project.
- .19 Supplement standard information to provide details applicable to project.
- .20 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.
- .21 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.

1.4 SAMPLES

- .1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Departmental Representative's.
- .3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples 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 samples which Departmental Representative may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.5 MOCK-UPS

- .1 Erect mock-ups in accordance with 01 45 00 - Quality Control.

1.6 PHOTOGRAPHIC DOCUMENTATION

- .1 Submit electronic copy of colour digital photography in jpg format, standard resolution as directed by Departmental Representative.
- .2 Project identification: name and number of project and date of exposure indicated.
- .3 Frequency of photographic documentation: as directed by Departmental Representative.
 - .1 Photos must be taken at all stages and all construction activities taking care to capture all works or all situations from the point of view where environmental protection was an issue.
 - .2 Upon completion of services and before concealment and as directed by Departmental Representative.

1.7 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 Section 02 41 13 – Selective site demolition.
- .2 Section 31 22 16.13 - Roadway Subgrade Reshaping
- .3 Section 32 11 16.01 - Granular Sub-base
- .4 Section 32 11 23 - Aggregate Base Courses
- .5 Section 32 12 13.15 - Asphalt Prime and Tack Coat
- .6 Section 32 12 16 - Asphalt Paving
- .7 Section 32 17 23 - Pavement Markings.

1.2 REFERENCES

- .1 Ministère des transports du Québec. Normes Tome V, chapitre 4, de 2011.
- .2 Canadian standard association: CAN/CSA-Z96 ‘high -visibility safety apparel’.

1.3 PROTECTION OF PUBLIC TRAFFIC

- .1 Supply, installation and maintaining of the material, sign and others required signage dispositive necessary to the maintain of the circulation of vehicles and pedestrian during the works on the airport access road and public parking lot will be paid as a lump sum. The price must include the cost of labour and equipments and all other incidental expenses related to maintain and the regulation of traffic.

1.4 PROTECTION OF THE PUBLIC TRAFFIC

- .1 Comply with laws, regulations, standards and ordinances governing the movement and use of roads on which it is necessary to perform the work or transporting materials and equipment.
- .2 When work is performed on a floor in service, perform the following,
 - .1 Arrange the equipment so as to cause the minimum of inconvenience and risks to users.
 - .2 Group material as possible, preferably on the same side of the road
 - .3 Do not leave equipment on the floor overnight
- .3 No lane should be closed without the written permission of the Departmental Representative.
 - .1 Prior to divert traffic, install appropriated signs in accordance with Chapter 4 of Volume 5 of the standards of the ‘Ministère des transports du Québec (Travaux de courte durée)’
- .4 Keep the road levelled, free of potholes, and wide enough to allow the use of the required number of lanes

- .1 Temporary roads must be at least 7 m wide when the traffic in the area of work and deviations must be done in both directions.
- .2 Temporary roads must be at least 4 m in width when traffic in the area of work and deviations must be in one direction
- .5 If necessary, arrange gravelled temporary or derivation lane as directed by the Departmental Representative to allow traffic to bypass the site.

1.5 INFORMATIONAL AND WARNING DEVICES

- .1 Provide, install 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 or reflex.
- .2 Provide and place signs and other devices to the standard recommended in the "Ministère des transports du Québec., travaux de courte durée" specification.
- .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.

1.6 CONTROL OF PUBLIC TRAFFIC

- .1 Provide competent flag personnel, trained in accordance with applicable regulations, and properly equipped to for situations as follows:
 - .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 At each end of restricted sections where pilot cars are required.
 - .8 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 light traffic signal system.

- .1 Adjust, as necessary, and regularly maintain system during period of restriction.
- .2 Ensure signal system meets requirements of applicable regulations.

1.7 MAINTAIN OF THE AIR TERMINAL BUILDING ACCESS

- .1 In all the time during the works, the contractor shall allow the public free access, by car and by foot to the terminal arrival.
- .2 Lay-out and maintain the temporary access roads, temporary signalling devices and necessary protections to ensure the safety of workers and the traveling public.

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 SUMMARY****1.2 RELATED SECTIONS**

- .1 Section 01 11 01 – General information about Work
- .2 Section 01 52 00 – Construction facilities.
- .3 Section 01 21 00 - Allowances

1.3 DEFINITIONS

- .1 Restricted or secured area; Any area on airport property to which access is restricted by sign and/or monitored is a secured or restricted area.
- .2 Movement area; Airport surfaces used for movement of aircrafts including apron, taxiways and runways.

1.4 CONTRACTOR'S RESPONSIBILITY

- .1 The Contractor shall familiarize himself with the « Airport Traffic Regulations» and give appropriate instructions to his employees and sub-contractors
- .2 Rules and regulations are available at the following address:
<http://www.tc.gc.ca/eng/acts-regulations/acts-air.htm> under Government Property Traffic Act.
- .3 Be responsible for construction, personnel and vehicles employed on project and requiring access to restricted areas.
- .4 Supply to departmental representative a list of the responsible personal, including subcontractor, in case of emergency, who can be contacted after work shift.

1.5 ESCORTS

- .1 Kativik regional government (KRG) will provide the airport escort services. Kativik regional government will also supply the escort vehicles and the radio with the flight station services (FSS) frequency.
- .2 Every vehicle or person entering the restricted area must be escorted and every vehicle must be equipped with a amber rotary beacon. The Contractor and his employees must instantly observe orders given by the escort.
- .3 Contractor will advise the Kativik regional government (KRG) at least 12 hours in advance of any schedule or program modifications when escorts are required. This requirement is necessary to organize the escort's working schedules.

1.6 MEASUREMENTS FOR PAYMENTS

- .1 The contractor will have to pay Kativik regional government (KRG) directly for the expenses associated with escort services. These services are subject to an allowance included in the contract price and will be reimbursed as described in section 21 00 00 – Allowances.
- .2 All others costs associated with meeting the requirements of this section of the specifications shall be included in the Contractor overhead and profit for the different items of the tender.

1.7 ACCESS

- .1 Ensure that the gate is properly locked and no breaches are present in the perimeter fence of the airport at each end of working days.

1.8 DAILY SECURITY

- .1 On the apron area, no torch work, fire or smoking will be tolerated under penalty of fine to the person infringing airport regulations. This is because of ever present motor-fuel conduits and vapour.

1.9 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.

1.10 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.
- .2 The Contractor and his employees must instantly observe orders given by the escort.
 - .1 Contractor will supply radios needed for the communications between the contractor, the departmental representative and the Transport Canada officer. See section 01 52 00 – Construction facilities.

1.11 TEMPORARY MARKERS FOR CLOSED MOVEMENT AREAS

- .1 The Contractor will supply, install, locate and relocate the temporary markers to indicated day and night closed movement areas.
- .2 Closed areas to aircraft traffic will be delimited by barricades during the day and by artificial lights during the night, as followed:
 - .1 On apron : barricades must be erected with markers installed 3,0 meters apart.

- .1 Barricades: Marker type barrels TRV7 made of polyethylene, approved by the MTQ and trimmed with white reflective high intensity film strip of 84mm wide and fluorescent orange stripe of 120mm wide. Each marker must be weighted with the required number of weighed needed to withstand the blast produced by aircraft.
Markers characteristics:
 - .1 Thickness of 5/32"
 - .2 Total height of 1321mm
 - .3 318mm Diameter at the head and 495mm at the base.
 - .4 Approximate weight of each marker: 4.5kg,
- .2 During the night, barricades will be supplied of artificial red lights in continuous with the following features:
 - .1 type : omni directional
 - .2 colour : red
 - .3 Average intensity :CD x 1 000 : 0,4 CD – Candela
 - .4 Distance between lights : maximum 3,0 meters (10 feet) apart
 - .5 set up to 350mm high (14 inches).

Part 2 Products**2.1 NOT USED****Part 3 Execution****3.1 NOT USED****END OF SECTION**

Part 1 General**1.1 SECTION INCLUDES**

- .1 Contractor shall manage his operations so that safety and security of the public and of site workers always take precedence over cost and scheduling considerations.

1.2 REFERENCES

- .1 Canada Labour Code - Part II, Canadian Occupational Safety and Health Regulations.
- .2 Canadian Standards Association (CSA)
- .3 Workplace Hazardous Materials Information System (WHMIS)
- .4 Act Respecting Occupational Health and Safety, R.S.Q. Chapter S-2.1.
- .5 Construction Safety Code, S-2.1, r.6.

1.3 SUBMITTALS

- .1 Submit the documents required according to section 01 33 00 - (Documents and samples to be submitted).
- .2 Submit to Departmental Representative, the CSST, the Association paritaire en santé et sécurité du secteur de la construction (ASP Construction) the site-specific safety program, as outlined in 1.8 at least 10 days prior to start of work. The Contractor must review his program during the course of the project if any change occurs in work methods or site conditions. The Departmental Representative may, after receiving the program or at any time during the project, ask the Contractor to update or modify the program in order to better reflect the reality of the construction site and activities. The Contractor must make the required changes before work begins.
- .3 Submit to Departmental Representative the site inspection sheet, duly completed, at the intervals indicated in 1.12.1.
- .4 Submit to Departmental Representative within 24 hours a copy of any inspection report, correction notice or recommendation issued by federal or provincial inspectors.
- .5 Submit to Departmental Representative within 24 hours an investigation report for any accident involving injury and any incident exposing a potential hazard.
- .6 Submit to Departmental Representative all safety data sheets for hazardous material to be used at the site at least three days before they are to be used.
- .7 Submit to Departmental Representative copies of all training certificates required for application of the safety program, in particular:
 - .1 General construction site safety and health courses;
 - .2 Safety officer attestations;
 - .3 First aid in the workplace and cardiopulmonary resuscitation;

- .4 Work likely to release asbestos dust;
 - .5 Work in confined spaces;
 - .6 Lockout procedures;
 - .7 Wearing and fitting of individual protective gear;
 - .8 forklift truck;
 - .9 positioning platform;
 - .10 Any other requirement of Regulations or the safety program.
- .8 Medical examinations : Wherever legislation, regulations, directives, specification or a safety program require medical examinations, Contractor must:
- .1 Prior to start-up, submit to Departmental Representative certificates of medical examination for all concerned supervisory staff and employees who will be on duty when the site opens.
 - .2 Thereafter, submit without delay certificates of medical examination for any newly hired concerned personnel as and when they start work at the site.
- .9 Emergency plan : The emergency plan, as defined in 1.8.3, shall be submitted to Departmental Representative at the same time as the site-specific safety program.
- .10 Notice of site opening : Notice of site opening shall be submitted to the *Commission de la santé et de la sécurité du travail* before work begins . A copy of such notice shall be submitted to Departmental Representative at the same time and another posted in full view at the site. During demobilization, a notice of site closing shall be submitted to the CSST, with copy to Departmental Representative.
- .11 Plans and certificates of compliance : Submit to the CSST and to Departmental Representative a copy signed and sealed by engineer of all plans and certificates of compliance required pursuant to the Construction Safety Code (S-2.1, r. 6), or by any other legislation or regulation or by any other clause in the specifications or in this contract. Copies of these documents must be on hand at the site at all times.
- .12 Certificate of compliance delivered by the CSST: The certificate of compliance is a document delivered by the CSST confirming that the contractor is in rule with the CSST, i.e. that he had pay out all the benefits concerning this contract. This document must be delivered to Departmental Representative at the end of the work.

1.4 HAZARDS ASSESSMENT

- .1 The contractor must identify all hazards inherent in each task to be carried out at the site.
- .2 The contractor must plan and organize work so as to eliminate hazards at source or promote mutual protection so that reliance on individual protective gear can be kept to a minimum. Where individual protection against falling is required, workers shall use safety harness that meets standard Can - CSA- Z-259.10 - M90. Safety belts shall not be used as protection against falling.
- .3 Equipment, tools and protective gear which cannot be installed, fitted or used without compromising the health or safety of workers or the public shall be deemed inadequate for the work to be executed.

- .4 All mechanical equipment shall be inspected before delivery to the site. Before using any mechanical equipment, submit to Departmental Representative a certificate of compliance signed by a qualified mechanic. Whenever he suspects a defect or accident risk, Departmental Representative may at any time order the immediate shut-down of equipment and require a new inspection by a specialist of his own choosing.

1.5 MEETINGS

- .1 Contractor decisional representative must attend any meetings at which site safety and health issues are to be discussed
- .2 Set up a site safety committee, and convene meetings every in accordance with the Construction Safety Code (S-2.1, r.6).

1.6 LEGAL AND REGULATORY REQUIREMENTS

- .1 Comply with all legislation, regulations and standards applicable to the site and its related activities.
- .2 Comply with specified standards and regulations to ensure safe operations at site containing hazardous or toxic materials.
- .3 Regardless of the publication date shown in the construction safety code, always use the most recent version.

1.7 SITE-SPECIFIC CONDITIONS

- .1 At the site, the contractor must take account of the following specific conditions:
 - .1 Evening and night works.

1.8 SAFETY AND HEALTH MANAGEMENT

- .1 Acknowledge and assume all the tasks and obligations which customarily devolve upon a principal Contractor under the terms of the Act Respecting Occupational Health and Safety (R.S.Q., chapter S-2.1) and the Construction Safety Code (S-2.1, r.6).
- .2 Develop a site-specific safety program based on the hazards identified and apply it from the start of project work until close-out is completed. The safety program must take account of all information appearing in 1.7 and must be submitted to all parties concerned, in accordance with the provisions set forth in 1.3. At a minimum, the site-specific safety program must include :
 - .1 Company safety and health policy.
 - .2 A description of the work, total costs, schedule and projected workforce curve.
 - .3 Flow chart of safety and health responsibility.
 - .4 The physical and material layout of the site.
 - .5 First-aid and first-line treatment standards.
 - .6 Identification of site-specific hazards.
 - .7 Risk assessment for the tasks to be carried out, including preventive measures and the procedures for applying them.

- .8 Training requirements.
 - .9 Procedures in case of accident/injury
 - .10 Written commitment from all parties to comply with the prevention program.
 - .11 A site inspection schedule based on the preventive measures.
- .3 The contractor must draw up an effective emergency plan based on the characteristics and constraints of the site and its surroundings. Submit the emergency plan to all parties concerned, pursuant to the provisions of 1.3. The emergency plan must include:
- .1 Evacuation procedure;
 - .2 Identification of resources (police, firefighters, ambulance services, etc.);
 - .3 Identification of persons in charge at the site;
 - .4 Identification of those with first-aid training;
 - .5 Training required for those responsible for applying the plan;
 - .6 Any other information needed, in the light of the site characteristics.

1.9 RESPONSIBILITIES

- .1 No matter the size of the construction site or how many workers are present at the workplace, designate a competent person to supervise and take responsibility for health and safety. Take all necessary measures to ensure the health and safety of persons and property at or in the immediate vicinity of the site and likely to be affected by any of the work.
- .2 Take all necessary measures to ensure application of and compliance with the safety and health requirements of the contract documents, applicable federal and provincial regulations and standards as well as the site-specific safety program, complying without delay with any order or correction notice issued by the Commission de la santé et de la sécurité du travail.
- .3 Take all necessary measures to keep the site clean and in good order throughout the course of the work

1.10 COMMUNICATIONS AND POSTING

- .1 Make all necessary arrangements to ensure effective communication of safety and health information at the site. As they arrive on site, all workers must be informed of their rights and obligations pertaining to the site specific safety program. The Contractor must insist on their right to refuse to perform work which they feel may threaten their own health, safety or physical integrity or that of other persons at the site. The Contractor must keep and update a written record of all information transmitted with signatures of all affected workers.
- .2 The following information and documents must be posted in a location readily accessible to all workers:
 - .1 Notice of site opening;
 - .2 Identification of principal Contractor;
 - .3 Company OSH policy;
 - .4 Site-specific safety program;

- .5 Emergency plan;
- .6 Data sheets for all hazardous material used at the site;
- .7 Minutes of site committee meetings;
- .8 Names of site committee representatives;
- .9 Names of those with first-aid training;
- .10 Action reports and correction notices issued by the CSST.

1.11 UNFORESEEN CIRCUMSTANCES

- .1 Whenever a source of danger not defined in the specifications or identified in the preliminary site inspection arises as a result of or in the course of the work, immediately suspend work, take appropriate temporary measures to protect the workers and the public and notify Departmental Representative, both verbally and in writing. Then the Contractor must modify or update the site specific safety program in order to resume work in safe conditions.

1.12 INSPECTION OF SITE AND CORRECTION OF HAZARDOUS SITUATIONS

- .1 Inspect the work site and complete the site inspection sheet at least once a week.
- .2 Immediately take all necessary measures to correct any lapses from legislative or regulatory requirements and any hazards identified by a government inspector, by the Departmental Representative, by the site safety and health coordinator or during routine inspections.
- .3 Submit to Departmental Representative written confirmation of all measures taken to correct lapses and hazardous situations.
- .4 Give the safety officer or, where there is no safety officer, the person assigned to safety and health responsibilities, full authority to order interruption and resuming of work as and when deemed necessary or desirable in the interests of safety and health. This person should always act so that the safety and health of the public and site workers and environmental protection take precedence over cost and scheduling considerations.
- .5 Without limiting the scope of sections 1.8 and 1.9, Departmental Representative may order cessation of work if, in his/her view, there is any hazard or threat to the safety or health of site personnel or the public or to the environment.

1.13 BLASTING

- .1 Blasting and other use of explosives are forbidden unless authorized in writing by Departmental Representative.
- .2 Any operation involving explosives must be carried out under the supervision of a qualified shot firer.
- .3 The purchase, carriage, storage and use of explosives must comply with all applicable federal and provincial legislation:

- .1 Canada: Explosives Act (E-17)1, Explosives Regulations (C.R.C. CH. 599), Standard for Storage of Blasting Charges and Detonators, Transportation of Dangerous Goods Act and Regulations.
- .2 Quebec: Explosives Act (E-22), Explosives Regulations (E-22, r.1), Safety Code for the Construction Industry (S-2.1, r.6), Transportation of Dangerous Goods Regulations.
- .4 Contractor shall obtain all permits required pursuant to the legislation and regulations referred to above and keep copies on hand at the site.
- .5 Contractor shall facilitate inspection of the site, stored explosives and vehicles used to transport explosives by any government representatives or police officers whose jurisdiction encompasses explosives.

1.14 POWDER ACTUATED DEVICES

- .1 Use of power hammers and other explosive-actuated devices must be authorized by Departmental Representative.
- .2 Any person using a power hammer shall hold a training certificate and meet all requirements of Section 7 of the Construction Safety Code (S-2.1, r. 6).
- .3 Any other explosive-actuated device shall be used in accordance with the manufacturer's directions and applicable standards and regulations

END OF SECTION

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 Section 02 41 13 – Selective site demolition.
- .2 Section 03 30 00.01 – Cast in place concrete – short form.
- .3 Section 31 23 33.01 – Excavating, trenching and backfilling.
- .4 .Section 32 12 13.15 – Asphalt Tack Coat.
- .5 Section 32 12 16 - Asphalt paving.
- .6 Section 35 42 60 – Waterway channel maintenance.

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 humankind; or degrade environment aesthetically, culturally and/or historically.
 - .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.
- .2 Reference Standards:
 - .1 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC Version 1.0-2004, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.
 - .2 Rating System Addenda for New Construction and Major Renovations LEED Canada-NC Version 1.0-Addendum 2007.
 - .3 LEED Canada-CI Version 1.0-2007, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Guide For Commercial Interiors.
 - .2 U.S. Environmental Protection Agency (EPA)/Office of Water
 - .1 EPA 832/R-92-005-92, Storm Water Management for Construction Activities, Chapter 3.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

- .2 Prior to commencing construction activities or delivery of materials to site, provide Environmental Protection Plan for review and approval by Departmental Representative.
- .3 Ensure Environmental Protection Plan includes comprehensive overview of known or potential environmental issues to be addressed during construction.
- .4 Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .5 Include in Environmental Protection Plan:
 - .1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.
 - .2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.
 - .3 Names and qualifications of persons responsible for training site personnel.
 - .4 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, EPA 832/R-92-005, Chapter 3 requirements.
 - .5 Drawings showing 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.
 - .6 Spill Control Plan including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
 - .7 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
 - .8 Waste Water Management Plan identifying methods and procedures for management and/or 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.

1.4 FIRES

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

1.5 DRAINAGE

- .1 Provide Erosion and Sediment Control Plan identifying type and location of erosion and sediment controls provided. Ensure plan includes 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, EPA 832/R-92-005, Chapter 3 requirements.
- .2 Storm Water Pollution Prevention Plan (SWPPP) to be substituted for erosion and sediment control plan.

- .3 Provide temporary drainage and pumping required to keep excavations and site free from water.
- .4 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.
- .5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.6 WORK ADJACENT TO WATERWAYS

- .1 Construction equipment to be operated on land only.
- .2 Do not use waterway beds for borrow.
- .3 Waterways to be 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 to be above water and 100 m minimum from indicated spawning beds.

1.7 POLLUTION CONTROL

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 Control emissions from equipment and plant to local authorities' emission requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.8 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 Do not take action until 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.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 CLEANING

- .1 Clean in accordance with Section 01 74 11 – Cleaning.
- .2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .3 Bury rubbish and waste materials on site after receipt of written approval from Departmental Representative.
- .4 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 02 41 13 – Selective site demolition.
- .2 Section 03 30 00.01 – Cast-in-Place Concrete.
- .3 Section 31 05 16 - Aggregate Materials.
- .4 Section 31 22 14 – Airfield Grading.
- .5 Section 31 22 16.13 – Roadway subgrade reshaping.
- .6 Section 31 23 33.01 – Excavating, Trenching and Backfilling.
- .7 Section 32 11 16.01 – Granular Sub-base.
- .8 Section 32 11 23 – Aggregate Base Courses.
- .9 Section 32 12 16 - Asphalt paving.

1.2 INSPECTION

- .1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.
- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.

1.3 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.

- .3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and reinspection.

1.4 ACCESS TO WORK

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

1.5 PROCEDURES

- .1 Notify appropriate agency and [Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.6 REJECTED WORK

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

1.7 REPORTS

- .1 Submit (4) copies of inspection and test reports to Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested.

1.8 TESTS AND MIX DESIGNS

- .1 Furnish test results and mix designs as requested.

- .2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

1.9 MOCK-UPS

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct in locations acceptable to Departmental Representative.
- .3 Prepare mock-ups for Departmental Representative review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups 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.
- .5 If requested, Departmental Representative will assist in preparing schedule fixing dates for preparation.
- .6 Mock-ups may remain as part of Work.

1.10 MILL TESTS

- .1 Submit mill test certificates as requested in the different section of the spec.

1.11 EQUIPMENT AND SYSTEMS

- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

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 Section 01 35 00.06 – Special Procedures for Traffic Control.

1.2 REFERENCES

- .1 Canadian Green Building Council (CaGBC)
 - .1 LEED Canada-NC Version 1.0-[December 2004], LEED (Leadership in Energy and Environmental Design): Green Building Rating System For New Construction and Major Renovations.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CAN/CSA-Z321-96(R2001), Signs and Symbols for the Occupational Environment.
- .3 U.S. Environmental Protection Agency (EPA) / Office of Water
 - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.4 INSTALLATION AND REMOVAL

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

1.5 SITE STORAGE/LOADING

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.6 CONSTRUCTION ACCESS ROADS

- .1 Provide and maintain adequate access roads to project site.
- .2 If authorized to use existing roads for access to project site, maintain such roads in good condition for duration of Contract. Repair damage resulting from Contractors' use of roads.
- .3 Clean runways and taxi areas where used by Contractor's equipment.

1.7 SECURITY

- .1 Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.

1.8 COMMUNICATION

- .1 Supply radio and charger (3) to the escort personal for communication between contractor, the Transport Canada Officer and the departmental representative.

1.9 CONTRACTOR OFFICES

- .1 As needed, provide an office for the contractor uses and his employees. The departmental representative will indicate where the office can be installed.

1.10 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.11 SANITARY FACILITIES

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

1.12 POWER

- .1 Arrange, pay for and maintain temporary electrical power supply in accordance with governing regulations and ordinances.

1.13 WATER SUPPLY

- .1 Arrange, pay for and maintain temporary water supply in accordance with governing regulations and ordinances

1.14 SIGN FOR RESTRICTED AREAS

- .1 Conform to section 01 35 13.13 – Special project procedures for Airports facilities, concerning temporary signs during construction.

1.15 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Refer to section 01 35 00.06 - Special Procedures for Traffic Control to know the requirements for maintaining and regulating traffic on the access road and the airport parking.

1.16 TEMPORARY LIGHTING

- .1 For work performed at night, provide lightning devices in sufficient number and quality to achieve quality work and in a safely manner.

1.17 TEMPORARY PARKING

- .1 The works in the public parking should be executed in a manner to maintain at all times access to the terminal and adjacent buildings. Lay-out an temporary parking lot in the adjacent gravelled surfaces to the weather enclosure. Allow sufficient space to accommodate a minimum of 50 vehicles.
- .2 Plan in advance the work in the public parking lot and set up temporary signage to direct long-term users outside of the work area to avoid towing vehicles.

1.18 CLEAN-UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

1.19 MEASUREMENT PROCEDURES

- .1 The cost incurred to comply with the requirements of this section must be included in the overhead of the contractor and distributed proportionally in the different item of the tender.

Part 2 Products**2.1 NOT USED**

- .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 requirements of authorities having jurisdiction.
- .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.

END OF SECTION

Part 1 General**1.1 REFERENCES**

- .1 Within text of each specifications section, reference may be made to reference standards.
- .2 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3 If there is question as to whether any product or system is in conformance with applicable standards, the departmental representative reserves right to have such products or systems tested to prove or disprove conformance.
- .4 Cost for such testing will be born by the departmental representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.2 QUALITY

- .1 Products, materials, equipment and articles (referred to as products throughout specifications) incorporated in Work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .3 Should any dispute arise as to quality or fitness of products, decision rests strictly with The departmental representative based upon requirements of Contract Documents.
- .4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.3 AVAILABILITY

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of products are foreseeable, notify The departmental representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify The departmental representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, The departmental representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.4 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Remove and replace damaged products at own expense and to satisfaction of The departmental representative.
- .5 Touch-up damaged factory finished surfaces to the departmental representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.5 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.

1.6 MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify The departmental representative in writing, of conflicts between specifications and manufacturer's instructions, so that The departmental representative may establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes the departmental representative to require removal and re-installation at no increase in Contract Price or Contract Time.

1.7 QUALITY OF WORK

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify the departmental representative if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. The departmental representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with the departmental representative, whose decision is final.

1.8 CO-ORDINATION

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.

- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.9 REMEDIAL WORK

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.10 LOCATION OF FIXTURES

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Departmental Representative of conflicting installation. Install as directed.

1.11 FASTENINGS

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.12 FASTENINGS - EQUIPMENT

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.13 PROTECTION OF WORK IN PROGRESS

- .1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Departmental Representative.

1.14 EXISTING UTILITIES

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General**1.1 PROJECT CLEANLINESS**

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris.
- .2 Remove waste materials from site at daily. Do not burn waste materials on site.
- .3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .4 Provide on-site containers for collection of waste materials and debris.
- .5 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .6 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

1.2 FINAL CLEANING

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste materials from site. Do not burn waste materials on site.
- .5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .6 Sweep and wash clean paved areas.

1.3 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

1.4 MESUREMENT FOR PAYMENT

- .1 All costs for this section will be included in different tender items

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 Accomplish maximum control of solid construction waste.
- .3 Preserve environment and prevent pollution and environment damage.

1.2 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).

1.3 DOCUMENTS

- .1 Maintain at job site, one copy of following documents:
 - .1 Waste Reduction Workplan.
 - .2 Material Source Separation Plan.

1.4 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare and submit following prior to project start-up:
 - .1 Submit 2 copies of completed Waste Reduction Workplan (WRW): Schedule B.
 - .2 Submit 2 copies of Materials Source Separation Program (MSSP) description.
- .3 Submit before final payment summary of waste materials salvaged for reuse, recycling or disposal by project using deconstruction/disassembly material audit form.
 - .1 Failure to submit could result in hold back of final payment.
 - .2 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled, co-mingled and separated off-site or disposed of site.
 - .3 For each material reused, sold or recycled from project, include amount in tonnes and the destination.
 - .4 For each material land filled or incinerated from project, include amount in tonnes of material and identity of landfill, incinerator or transfer station.

1.5 WASTE REDUCTION WORKPLAN (WRW)

- .1 Prepare WRW prior to project start-up.
- .2 WRW should include but not limited to:
 - .1 Destination of materials listed.
 - .2 Deconstruction/disassembly techniques and sequencing.
 - .3 Schedule for deconstruction/disassembly.
 - .4 Location.
 - .5 Security.
 - .6 Protection.
 - .7 Clear labelling of storage areas.
 - .8 Details on materials handling and removal procedures.
 - .9 Quantities for materials to be salvaged for reuse or recycled and materials sent to landfill.
- .3 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.
- .4 Describe management of waste.
- .5 Post WRW or summary where workers at site are able to review content.
- .6 Set realistic goals for waste reduction, recognize existing barriers and develop strategies to overcome these barriers.
- .7 Monitor and report on waste reduction by documenting total volume and cost of actual waste removed from project.

1.6 MATERIALS SOURCE SEPARATION PROGRAM (MSSP)

- .1 Prepare MSSP and have ready for use prior to project start-up.
- .2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Departmental Representative.
- .3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.
- .4 Provide containers to deposit reusable and recyclable materials.
- .5 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.
- .6 Locate separated materials in areas which minimize material damage.

- .7 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition.
 - .1 Transport to approved and authorized recycling facility.
- .8 Collect, handle, store on-site, and transport off-site, salvaged materials in combined condition.
 - .1 Ship materials to site operating under Certificate of Approval.
 - .2 Materials must be immediately separated into required categories for reuse or recycling.

1.7 STORAGE, HANDLING AND PROTECTION

- .1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.
- .2 Unless specified otherwise, materials for removal become Contractor's property.
- .3 Protect, stockpile, store and catalogue salvaged items.
- .4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.
- .5 Protect structural components not removed for demolition from movement or damage.
- .6 Support affected structures. If safety of building is endangered, cease operations and immediately notify Departmental Representative.
- .7 Protect surface drainage, mechanical and electrical from damage and blockage.
- .8 Separate and store materials produced during dismantling of structures in designated areas.
- .9 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
 - .1 On-site source separation is recommended.
 - .2 Remove co-mingled materials to off-site processing facility for separation.
 - .3 Provide waybills for separated materials.

1.8 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 Tonnage reused or recycled.
 - .5 Reused or recycled waste destination.
- .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.
- 1.9 USE OF SITE AND FACILITIES**
- .1 Execute work with least possible interference or disturbance to normal use of premises.
 - .2 Maintain security measures established by existing facility.
- 1.10 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 Do Work in compliance with WRW.
 - .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 Source separate materials to be reused/recycled into specified sort areas.

3.3 DIVERSION OF MATERIALS

.1 From following list, separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by Departmental Representative, and consistent with applicable fire regulations.

- .1 Mark containers or stockpile areas.
- .2 Provide instruction on disposal practices.

.2 On-site sale of recovered materials is not permitted.

.3 Demolition Waste:

Material Type	Recommended Diversion %	Actual Diversion %
Granular from excavation	100%	Re-use or stockpiled at location designated by the departmental representative
-Exceeding excavated materials and top soil	100%	Re-used or stockpiled in the slope at location designated by the departmental representative, top soil will be installed as protection in slope.
Pulverised bituminous material residues	100%	Recycled in granular sub base material under roadway to be paved
- electrical material	100%	Transport to recycling facilities
-Steel	100%	Transport to recycling facilities
-Bituminous residue	100%	Transport to recycling facilities
Wood (uncontaminated)	100%	Transport to recycling facilities

.4 Construction Waste:

Material Type	Recommended Diversion %	Actual Diversion %
Cardboard	100%	Transport to recycling facilities
Plastic Packaging	100%	Transport to recycling facilities
Rubble	100%	Transport to recycling facilities
Steel	100%	Transport to recycling facilities
Wood (uncontaminated)	100%	Transport to recycling facilities
Other		Transport to recycling facilities

3.4 WASTE REDUCTION WORKPLAN (WRW)

.1 Schedule B:

(1) Material Category	(2) Person(s) Respon- sible	(3) Total Quantity of Waste (unit)	(4) Reused Amount (units) Projected	Actual	(5) Recycled Amount (unit) Projected	Actual	(6) Material(s) Destina- tion
Wood and Plastics Material Warped Pallet Forms Plastic Packag ing Card- board Packag ing Other							
Painted Frames Glass Wood Metal Other							

3.5 CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT

.1 Schedule E - Government Chief Responsibility for the Environment:

Québec	Ministère de l'Environnement et de la Faune, Siège social 150, boul, René-Lévesque Est Québec QC G1R 4Y1	418-643-3127 800- 561-1616	418-646-5974
	Conseil de la conservation et de l'environnement 800, place d'Youville, 19e étage Québec QC G1R 3P4	418-643-3818	

END OF SECTION

Part 1 General**1.1 SUMMARY**

- .1 Section Includes.
 - .1 Methods and procedures for demolishing, salvaging, recycling and removing sitework items designated to be removed in whole or in part, and for backfilling resulting trenches and excavations.
- .2 Related Sections.
 - .1 Section 01 33 00 - Submittal Procedures].
 - .2 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
 - .3 Section 01 35 43 - Environmental Procedures.
 - .4 Section 01 35 29.06 - Health and Safety Requirements.
 - .5 Section 31 23 33.01 - Excavating, Trenching and Backfilling.
- .3 Measurement Procedures.
 - .1 The demolition and removal of the elements indicated on the drawings will be paid as a lump sump. The price must included the demolition and removal of the foundations and/or seating's and the rehabilitation of the terrain at the satisfaction of the departmental representative. Not limited to, the demolition and removal include:
 - .1 The saw cuts and removal of existing paving strips facing the connections with new pavements.
 - .2 The removal of existing culverts 900mm diam. and others.
 - .3 The removal of guard rail.
 - .4 The removal of sidewalk at the weather station.
 - .5 The removal of the chain link and wooded fence.
 - .2
 - .3 Payment for salvage, stockpiling, sealing, disposal, alternative disposal, recycling, excavating, backfilling and restoration will be included in above removal items.

1.2 REFERENCES

- .1 Canadian Council of Ministers of the Environment (CCME).
 - .1 PN1326, Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products.
- .2 Department of Justice Canada (Jus).
 - .1 Canadian Environmental Assessment Act (CEAA), 1995, c. 37.
 - .2 Canadian Environmental Protection Act, 1999 (CEPA), c. 33.
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
 - .1 Material Safety Data Sheets (MSDS).
- .4 Transport Canada (TC).

- .1 Transportation of Dangerous Goods Act, 1992 (TDGA), c. 34.

1.3 DEFINITIONS

- .1 Demolition: rapid destruction of building following removal of hazardous materials.
- .2 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: asbestos PCB's, CFC's, HCFC's poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or other material that can endanger human health or well being or environment if handled improperly.
- .3 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. WRW is based on information acquired from WA.

1.4 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop drawings.
 - .1 Submit for approval drawings, diagrams or details showing sequence of demolition work and supporting structures and underpinning, where required by authorities having jurisdiction.
 - .2 Submit drawings stamped and signed by qualified professional engineer registered or licensed in Province of quebec.
- .3 Hazardous Materials: provide description of Hazardous Materials and Notification of Filing with proper authorities prior to beginning of Work as required.
- .4 Waste Reduction Workplan: prior to beginning of Work on site submit detailed Waste Reduction Workplan in accordance with Section 01 74 21 - Construction/Demolition
- .5 Certificates: submit copies of certified weigh bills from authorized disposal sites and reuse and recycling facilities for material removed from site upon request of Departmental Representative.
 - .1 Written authorization from Departmental Representative is required to deviate from facilities listed in Waste Reduction Workplan.

1.5 QUALITY ASSURANCE

- .1 Regulatory Requirements: ensure Work is performed in compliance with applicable Provincial/Territorial regulations.
- .1 Site Meetings.
 - .1 Convene pre-installation meeting one week prior to beginning work of this Section to:
 - .1 Verify project requirements.
 - .2 Review execution conditions.
 - .3 Co-ordination with other building subtrades.

- .2 Arrange for site visit with Departmental Representative to examine existing site conditions adjacent to demolition work, prior to start of Work.
 - .3 Hold project meetings every week.
 - .4 provide written report on status of waste diversion activity at each meeting.
 - .5 Departmental Representative will provide notification of change to meeting schedule established upon contract award 24 hours prior to scheduled meeting.
- .2 Health and Safety.
- .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Perform Work in accordance with Section 01 35 43 - Environmental Procedures.
- .2 Storage and Protection.
 - .1 Protect in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.
 - .2 Protect existing items designated to remain and items designated for salvage. In event of damage to such items, immediately replace or make repairs to approval of Departmental Representative and at no cost to Departmental Representative.
 - .3 Remove and store materials to be salvaged, in manner to prevent damage.
 - .4 Store and protect in accordance with requirements for maximum preservation of material.
 - .5 Handle salvaged materials as new materials.
- .3 Waste Management and Disposal.
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
 - .2 Divert excess materials from landfill to site approved by Departmental Representative.
 - .3 Separate for recycling and place in designated containers Steel, Metal and Plastic waste in accordance with Waste Management Plan.
 - .4 Place materials defined as hazardous or toxic in designated containers.
 - .5 Handle and dispose of hazardous materials in accordance with CEPA, Regional and Municipal regulations.
 - .6 Label location of salvaged material's storage areas and provide barriers and security devices.
 - .7 Ensure emptied containers are sealed and stored safely.
 - .8 Source separate for recycling materials that cannot be salvaged for reuse including wood, metal, concrete and asphalt, and gypsum.
 - .9 Remove materials that cannot be salvaged for reuse or recycling and dispose of in accordance with applicable codes at licensed facilities.

1.7 SITE CONDITIONS

- .1 Site Environmental Requirements.

- .1 Perform work in accordance with Section 01 35 43 - Environmental Procedures.
 - .2 Ensure that selective demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.
 - .3 Do not dispose of waste of volatile materials including but not limited to, mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.
 - .1 Ensure proper disposal procedures are maintained throughout the project.
 - .4 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers or onto adjacent properties.
 - .5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with erosion and sediment control plan as per 01 35 43 – Environmental procedures and as directed by Departmental Representative.
 - .6 Protect trees, plants and foliage on site and adjacent properties where indicated.
- .2 Existing Conditions.
- .1 Remove contaminated or hazardous materials from site, prior to start of demolition Work, and dispose of at designated disposal facilities in safe manner in accordance with TDGA and other applicable regulatory requirements.

1.8 SCHEDULING

- .1 Employ necessary means to meet project time lines without compromising specified minimum rates of material diversion.
- .2 Notify Departmental Representative in writing when unforeseen delay[s] occur.

Part 2 Products

2.1 EQUIPMENT

- .1 Leave machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.

Part 3 Execution

3.1 PREPARATION

- .1 Inspect site with Departmental Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.
- .2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.
 - .1 Notify and obtain approval of utility companies before starting demolition.

3.2 REMOVAL OF HAZARDOUS WASTES

- .1 Remove contaminated or dangerous materials defined by authorities having jurisdiction, relating to environmental protection, from site and dispose of in safe manner to minimize danger at site or during disposal.

3.3 REMOVAL OPERATIONS

- .1 Remove items as indicated.
- .2 Do not disturb items designated to remain in place.
- .3 Removal of Pavements, Curbs and Gutters:
 - .1 Square up adjacent surfaces to remain in place by saw cutting or other method approved by Departmental Representative.
 - .2 Protect adjacent joints and load transfer devices.
 - .3 Protect underlying and adjacent granular materials.
- .4 Prevent contamination with base course aggregates, when removing asphalt pavement for subsequent incorporation into hot mix asphalt concrete paving,
- .5 Excavate at least 300mm below pipe invert, when removing pipes under existing or future pavement area.
- .6 Stockpile topsoil for final grading and landscaping.
 - .1 Provide erosion control and seeding if not immediately used.
- .7 Salvage.
 - .1 Dismantle items containing materials for salvage and stockpile salvaged materials.
- .8 Disposal of Material.
 - .1 Dispose of materials not designated for salvage or reuse on site at authorized facilities approved in Waste Reduction Workplan.
 - .2 Trim disposal areas to approval of Departmental Representative.
- .9 Backfill.
 - .1 Backfill in areas as indicated and in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.

3.4 STOCKPILING

- .1 Label stockpiles, indicating material type and quantity.
- .2 Designate appropriate security resources/measures to prevent vandalism, damage and theft.
- .3 Locate stockpiled materials convenient for use in new construction to eliminate double handling wherever possible.

- .4 Stockpile materials designated for alternate disposal in location which facilitates removal from site and examination by potential end markets, and which does not impede disassembly, processing, or hauling procedures.

3.5 REMOVAL FROM SITE

- .1 Remove stockpiled material as directed by Departmental Representative, when it interferes with operations of project.
- .2 Remove stockpiles of like materials by alternate disposal option once collection of materials is complete.
- .3 Transport material designated for alternate disposal using approved receiving organizations listed in Waste Reduction Workplan and in accordance with applicable regulations.
 - .1 Written authorization from Departmental Representative is required to used alternate solution than the one listed in Waste Reduction Workplan.
- .4 Dispose of materials not designated for alternate disposal in accordance with applicable regulations.
 - .1 Disposal Facilities: approved and listed in Waste Reduction Workplan.
 - .2 Written authorization from Departmental Representative is required to deviate from disposal facilities listed in Waste Reduction Workplan.

3.6 RESTORATION

- .1 Restore areas and existing works outside areas of demolition to match condition of adjacent, undisturbed areas.
- .2 Use soil treatments and procedures which are not harmful to health, are not injurious to plants, and do not endanger wildlife, adjacent water courses or ground water.

3.7 CLEANING

- .1 Remove debris, trim surfaces and leave work site clean, upon completion of Work
- .2 Use cleaning solutions and procedures which are not harmful to health, are not injurious to plants, and do not endanger wildlife, adjacent water courses or ground water.

END OF SECTION

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 Section 01 74 19 - Construction/Demolition Waste Management And Disposal.
- .2 Section 31 05 16 – Aggregate materials
- .3 Section 32 31 13 – Chain link fences and gates
- .4 Section 32 16 15 – Concrete walks, curbs and gutters

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM D1751, Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-19.24, Multicomponent, Chemical-Curing Sealing Compound.
- .3 Canadian Standards Association (CSA)
 - .1 CAN/CSA-A23.1, Concrete Materials and Methods of Concrete Construction.
 - .2 CAN/CSA-A23.2, Methods of Test for Concrete.
 - .3 CAN/CSA-A3000-A5, Portland Cement.
 - .4 CAN/CSA-G30.5, Welded Steel Wire Fabric for Concrete Reinforcement.
 - .5 CAN/CSA-G30.18, Billet-Steel Bars for Concrete Reinforcement.

1.3 MEASUREMENT PROCEDURES

- .1 No measurement will be made under this section. Include costs in items of concrete work for which cast-in-place concrete, reinforcement , formwork or falsework are required.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop Drawings:
 - .1 Submit placing drawings prepared in accordance with plans to clearly show size, shape, location and necessary details of reinforcing.
 - .2 Submit drawings showing formwork and falsework design to: CSA A23.1/A23.2.
 - .3 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Quebec, Canada.
- .3 At least 4 weeks prior to beginning Work, submit to Departmental Representative samples of following materials proposed for use: curing compound, joint filler, waterstops.

- .4 Provide testing results and reports for review by Departmental Representative and do not proceed without written approval when deviations from mix design or parameters are found.
- .5 Concrete hauling time: provide for review by Departmental Representative deviations exceeding maximum allowable time of [120] for concrete to be delivered to site of Work and discharged after batching.

1.5 QUALITY ASSURANCE

- .1 Provide to Departmental Representative, 4 weeks minimum prior to starting concrete work, valid and recognized certificate from plant delivering concrete.
 - .1 Quality Control Plan: provide written report to Departmental Representative verifying compliance that concrete in place meets performance requirements.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Delivery and Acceptance Requirements:
 - .1 Concrete hauling time: deliver to site of Work and discharged within 120 minutes maximum after batching.
 - .1 Do not modify maximum time limit without receipt of prior written agreement from Departmental Representative and concrete producer as described in CSA A23.1/A23.2.
 - .2 Deviations to be submitted for review by the Departmental Representative.
 - .2 Concrete delivery: ensure continuous concrete delivery from plant meets CSA A23.1/A23.2.
 - .3 Packaging Waste Management: remove for reuse in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

- .1 Portland cement: to CAN/CSA-A3000-A5, Type 10.
- .2 Water: to CSA A23.1/A23.2.
- .3 Reinforcing bars: to CAN/CSA-G30.18, Grade 400.
- .4 Welded steel wire fabric: to ASTM A185.
- .5 Premoulded joint filler:
 - .1 Bituminous impregnated fibreboard: to ASTM D1751.
- .6 Joint sealer/filler: grey to CAN/CGSB-19.24, Type 1, Class B.
- .7 Other concrete materials: to CSA A23.1/A23.2.

2.2 MIXES

- .1 Alternative 2 - Prescriptive Method for specifying concrete: owner's concrete mix in accordance with CSA A23.1.
 - .1 Ensure materials used in concrete mix have been submitted for testing and meet requirements of CSA A23.1.
 - .2 Proportion concrete in accordance with CAN/CSA-A23.1 including:
 - .3 Minimum compressive strength at 28 days:
 - .1 32 MPa for curb and concrete base.
 - .2 25 MPa for fences posts
 - .4 Class of exposure:
 - .1 C-2 for curb and concrete base.
 - .2 B for fences posts
 - .5 Nominal maximum size of coarse aggregate: to CAN/CSA-A23.1.
 - .6 Slump: to CAN/CSA-A23.1.
 - .7 Air content: concrete to contain purposely entrained air in accordance with CAN/CSA-A23.1, Table 10
 - .8 . Admixtures: to CAN/CSA-A23.1.

Part 3 Execution**3.1 PREPARATION**

- .1 Provide Departmental Representative 24 hours notice before each concrete pour.
- .2 During concreting operations:
 - .1 Development of cold joints not allowed.
 - .2 Ensure concrete delivery and handling facilitates placing with minimum of rehandling, and without damage to existing structure or Work.
- .3 Protect previous Work from staining.
- .4 Clean and remove stains prior to application of concrete finishes.

3.2 INSTALLATION/APPLICATION

- .1 Do cast-in-place concrete work in accordance with CSA A23.1/A23.2.
- .2 Sleeves and inserts:
 - .1 Cast in sleeves, ties, slots, anchors, reinforcement, frames, conduit, bolts, waterstops, joint fillers and other inserts required to be built-in.
 - .2 Sleeves and openings greater than 100 mm x 100 mm not indicated, must be reviewed by Departmental Representative.

3.3 FINISHES

- .1 Formed surfaces exposed to view: sack rubbed finish in accordance with CSA A23.1/A23.2.

- .2 Pavements, walks, curbs and exposed site concrete:
 - .1 Screed to plane surfaces and use floats.
 - .2 Provide round edges and joint spacings using standard tools.
 - .3 Trowel smooth to provide lightly brushed non-slip finish.

3.4 CONTROL JOINTS

- .1 Cut and Form control joints in slabs on grade at locations indicated, to CSA A23.1/A23.2 and install specified joint sealer/filler.

3.5 EXPANSION AND ISOLATION JOINTS

- .1 Install premoulded joint filler in expansion and isolation joints full depth of slab flush with finished surface to CSA A23.1/A23.2.

3.6 CURING

- .1 Use curing compounds compatible with applied finish on concrete surfaces free of bonding agents and to CSA A23.1/A23.2.

3.7 SITE TOLERANCES

- .1 Concrete floor slab finishing tolerance to CSA A23.1/A23.2.

3.8 FIELD QUALITY CONTROL

- .1 Concrete testing: to CSA A23.1/A23.2 by testing laboratory designated and paid for by Departmental Representative.

3.9 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Use trigger operated spray nozzles for water hoses.
- .3 Designate cleaning area for tools to limit water use and runoff.
- .4 Cleaning of concrete equipment to be done in accordance with Section 01 35 43 Environmental Procedures.
- .5 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

END OF SECTION

Part 1 General**1.1 SUMMARY**

- .1 This Section defines correction to maximum dry density to take into account aggregate particles larger than 4.75 mm.

1.2 DEFINITIONS

- .1 Corrected maximum dry density is defined as:
 - .1 $D = (F1 \times D1) + (0.9 \times D2 \times F2)$
 - .2 Where: D = corrected maximum dry density kg/m³.
 - .1 F1 = fraction (decimal) of total field sample passing 4.75 mm sieve
 - .2 F2 = fraction (decimal) of total field sample retained on 4.75 mm sieve (equal to 1.00 - F1)
 - .3 D1 = maximum dry density, kg/m³ of material passing 4.75 mm sieve determined in accordance with Method A of ASTM D1557-00.
 - .4 D2 = bulk density, kg/m³, of material retained on 4.75 mm sieve, equal to 1000G where G is bulk specific gravity (dry basis) of material when tested to ASTM C127-88 (93).
 - .3 For free draining aggregates, determine D1 (maximum dry density) to ASTM D4253-00 dry method when directed by Engineer.

Part 2 Products**2.1 NOT USED**

- .1 Not Used.

Part 3 Execution**3.1 NOT USED**

- .1 Not Used.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Section 01 33 00 - Submittal Procedures.
- .3 Section 03 30 00.01 – Cast in place concrete (short form).
- .4 Section 31 05 10 – Corrected maximum dry density for fill.
- .5 Section 31 22 14 – Airfield grading
- .6 Section 31 23 33.01 – Excavating, trenching and backfilling.
- .7 Section 31 37 00 – Rip-Rap.
- .8 Section 32 11 16.01 – Granular sub-base.
- .9 Section 32 11 23 – Aggregate base courses

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM D4791-99, Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.

1.3 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 During the production of aggregate, the contractor shall assume daily the quality control of aggregates and submit daily to the departmental representative all tests results.
- .3 However, in any time the departmental representative take aggregate samples and the contractor must provide Engineer with access to source and processed material for sampling.
- .4 Pay cost of sampling and testing of aggregates which fail to meet specified requirements.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Divert unused granular materials from landfill to local quarry as approved by departmental representative.

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, or other substances that would act in deleterious manner for use intended.
- .2 Flat and elongated particles of coarse aggregate: to ASTM D4791.
 - .1 Greatest dimension to exceed five times least dimension.
- .3 Fine aggregates satisfying requirements of applicable section to be one, or blend of following:
 - .1 Natural sand.
 - .2 Screenings produced in crushing of quarried rock, boulders, gravel or slag.
- .4 Coarse aggregates satisfying requirements of applicable section to be one of or blend of following:
 - .1 Crushed rock.
 - .2 Gravel and crushed gravel composed of naturally formed particles of stone.

2.2 SOURCE QUALITY CONTROL

- .1 Inform departmental representative of proposed source of aggregates and provide access for sampling at least 4 weeks prior to commencing production.
- .2 If, in opinion of departmental representative, materials from proposed source do not meet, or cannot reasonably be processed to meet, specified requirements, locate an alternative source or demonstrate that material from source in question can be processed to meet specified requirements.
- .3 Advise departmental representative 4 weeks in advance of proposed change of material source.
- .4 Acceptance of material at source does not preclude future rejection if it fails to conform to requirements specified, lacks uniformity, or if its field performance is found to be unsatisfactory.

Part 3 Execution**3.1 PREPARATION**

- .1 Aggregate source preparation
 - .1 Prior to excavating materials for aggregate production, clear and grub area to be worked, and strip unsuitable surface materials. Dispose of cleared, grubbed and unsuitable materials as directed by departmental representative
 - .2 Clear, grub and strip area ahead of quarrying or excavating operation sufficient to prevent contamination of aggregate by deleterious materials.

- .3 When excavation is completed dress sides of excavation to nominal 1.5:1 slope, and provide drains or ditches as required to prevent surface standing water.
- .4 Trim off and dress slopes of waste material piles and leave site in neat condition.
- .2 Processing
 - .1 Process aggregate uniformly using methods that prevent contamination, segregation and degradation.
 - .2 Blend aggregates, if required, to obtain gradation requirements, percentage of crushed particles, or particle shapes, as specified. Use methods and equipment approved by departmental representative.
 - .3 Wash aggregates, if required to meet specifications. Use only equipment approved by departmental representative.
 - .4 When operating in stratified deposits use excavation equipment and methods that produce uniform, homogeneous aggregate.
- .3 Handling
 - .1 Handle and transport aggregates to avoid segregation, contamination and degradation.
- .4 Stockpiling
 - .1 Stockpile aggregates on site in locations as indicated unless directed otherwise by departmental representative. Do not stockpile on completed pavement surfaces.
 - .2 Stockpile aggregates in sufficient quantities to meet Project schedules.
 - .3 Stockpiling sites to be level, well drained, and of adequate bearing capacity and stability to support stockpiled materials and handling equipment.
 - .4 Except where stockpiled on acceptably stabilized areas, provide compacted sand base not less than 300 mm in depth to prevent contamination of aggregate. Stockpile aggregates on ground but do not incorporate bottom 300 mm of pile into Work.
 - .5 Separate different aggregates by strong, full depth bulkheads, or stockpile far enough apart to prevent intermixing.
 - .6 Do not use intermixed or contaminated materials. Remove and dispose of rejected materials as directed by departmental representative within 48 h of rejection.
 - .7 Stockpile materials in uniform layers of thickness max 1.5 m .
 - .8 Uniformly spot-dump aggregates delivered to stockpile in trucks and build up stockpile as specified.
 - .9 Do not cone piles or spill material over edges of piles.
 - .10 Do not use conveying stackers.
 - .11 During winter operations, prevent ice and snow from becoming mixed into stockpile or in material being removed from stockpile.

3.2 CLEANING

- .1 Leave aggregate stockpile site in tidy, well drained condition, free of standing surface water.
- .2 Leave any unused aggregates in neat compact stockpiles as directed by departmental representative.

- .3 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 SECTIONS**

- .1 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Section 02 41 13 - Selective Site Demolition.
- .3 Section 31 22 16.13 - Roadway Subgrade Reshaping.
- .4 Section 31 23 33.01 - Excavating, Trenching and Backfilling.
- .5 Section 31 05 10 - Corrected Maximum Dry Density for Fill.
- .6 Section 32 11 16.01 – Granular sub-base.
- .7 Section 32 11 23 - Aggregate base courses.

1.2 MEASUREMENT PROCEDURES

- .1 Common Excavation.
 - .1 Measure in cubic metres calculated from cross sections taken in areas of excavation.
 - .2 In areas of excavation, take initial cross sections after clearing, and grubbing and prior to stripping of topsoil.
 - .3 Removal and stock piling of top soil will not be measured separately, it will be part of common excavation volume calculated in 1.2.1.1 and 1.2.1.2.
 - .4 Removal and stockpiling of granular material to be re-used, material like crushed aggregate base courses material, will not be measured separately, it will be part of common excavation volume calculated in 1.2.1.1 and 1.2.1.2.
 - .5 No measurement for payment will be made for backfill done with excavation material.
 - .6 The transportation, spreading and brut levelling of waste materials in the site designated by the departmental representative (inside the airport property) will not be measured. The coast for that works in the price for common excavation.
- .2 The levelling of surfaces off roadway done with excavated material will be paid in square meter or levelled and compacted surface approved by the departmental representative.

1.3 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM C117-95, Test Method for Materials Finer Than 75- Φ m (No. 200) Sieve in Mineral Aggregates by Washing.
 - .2 ASTM C136-01, Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .3 ASTM D422-63 (1998), Method for Particle-Size Analysis of Soils.
 - .4 ASTM D4318-00, Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

- .2 Canadian General Standards Board (CGSB).
 - .1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.
 - .2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

1.4 DEFINITIONS

- .1 Excavation classes: two 2 classes of excavation will be recognized; common excavation and rock excavation.
 - .1 Rock Excavation: excavation of material from solid masses of igneous, sedimentary or metamorphic rock which, prior to its removal, was integral with its parent mass, and boulders or rock fragments having individual volume in excess of 1 m³.
 - .2 Common Excavation: excavation of materials of whatever nature, which are not included under definition of rock excavation, including dense tills, hardpan and frozen materials.
 - .3 Unclassified excavation: excavation of deposits of whatever character encountered in work.
- .2 Compaction classes: two classes of soil are recognized for compaction purposes; cohesionless and cohesive soil:
 - .1 Cohesionless soil:
 - .1 Soils which have less than 20% passing 0.075 mm sieve, when tested to ASTM C117, regardless of plasticity of fines.
 - .2 Soils containing between 20% to 50% passing 0.075 mm sieve and having liquid limit less than 25 and plasticity index less than 6 when tested to ASTM D4318.
 - .2 Cohesive soil: soil not having properties to be classified as cohesionless.
- .3 Topsoil: material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.
- .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 Pavement structure: combination of layers of unbound or stabilized granular sub-base, base, and asphalt or concrete surfacing.
- .7 Subgrade elevation: elevation immediately below pavement structure.
- .8 Unsuitable materials:
 - .1 Weak and compressible materials under pavement areas.
 - .2 Frost susceptible materials under pavement areas.
 - .3 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 C136: Sieve sizes to CAN/CGSB-8.1.

Sieve Designation	% passing
2.00 mm	100
0.10 mm	45-100
0.02 mm	10-80
0.005 mm	0-45

- .2 Coarse grained soils containing more than 10 % by mass passing 0.075 mm sieve.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Dispose of unused topsoil as directed by Departmental Representative.

Part 2 Products

2.1 MATERIALS

- .1 Fill materials: to approval of Departmental Representative.

Part 3 Execution

3.1 EXCAVATING

- .1 General:
- .1 Advise Departmental Representative at least 7 days in advance of excavation operations for initial cross sections to be taken.
 - .2 Remove and stockpile the topsoil as directed by departmental representative.
 - .3 Excavate to lines, grades, elevations and dimensions as indicated.
 - .4 Ensure drainage of excavated areas and maintain crowns and cross slopes to provide surface drainage.
 - .5 Notify Departmental Representative whenever unsuitable materials are encountered in cut sections, remove unsuitable materials as directed and replace with material approved by Departmental Representative to depth and extent as directed.
 - .6 Treat ground slopes at grade points, where subgrade is on transition from excavation to embankment or earth to rock, as directed by Departmental Representative.
 - .7 Dispose of surplus excavated material at the disposal site for common excavation.
- .2 Rock excavation:
- .1 During excavation: when material appearing to conform to classification for rock is encountered, notify Departmental Representative in sufficient time to enable measurements to be made to determine volume of rock.
 - .2 Provide drainage to ditches, leaving no un-drained pockets in foundation.

- .3 Do not disturb foundation materials of adjacent pavements or structures which are to remain in place.

3.2 PLACING FILL

- .1 Before taking material from borrow areas, completely use, in fill areas, suitable materials removed from excavation.
- .2 Do not place material which is frozen nor place material on frozen surfaces.
- .3 Maintain crowned surface during construction to ensure run-off of surface water. Do not place material in free standing water. Drain low areas, before placing material.
- .4 Material containing less than 25% by volume of rock fragments larger than 100 mm maximum dimension:
 - .1 Place and compact to full width in uniform layers not exceeding 200 mm loose thickness. Departmental Representative may authorize thicker lifts if specified compaction can be achieved.
 - .2 Compact fill materials, in non-pavement areas, minimum 90 % of corrected maximum dry density.
 - .3 Compact cohesionless fill soils , under pavement areas, minimum 95 % of corrected maximum dry density and cohesive fill soils minimum 90 % of corrected maximum dry density.
- .5 Bring moisture content of soil to level required to achieve specified compaction. Add water or aerate as required.
- .6 Do not place stones and boulders exceeding 50 mm maximum dimension within 100 mm of finished surface in graded areas.
- .7 Fill area: do not place stones and boulders exceeding 150 mm maximum dimension within 0.5 m of subgrade elevation.
- .8 Shape subgrade to required cross section and grade.

3.3 FINISHING AND TOLERANCES

- .1 Profile finished surfaces in cut and fill areas free from ruts, depressions, rocks in excess of 150 mm and debris. Do not disturb soil under the subgrade line.
- .2 Roll finished surfaces to tight dense condition.
- .3 Finish pavement subgrade within 25 mm of design elevations, but not uniformly high or low.
- .4 Finish graded area within 30 mm of design elevations, but not uniformly high or low.
- .5 Surfaces free from depressions exceeding 30 mm in 5 m.

3.4 LEVELLING OF SURFACE

- .1 Up to 100mm below the level of the finished ground, use excavated materials to complete the work of surface levelling.
- .2 Level and compact materials to a minimum of 90% of the maximum corrected dry density
- .3 Complete leveling work surface with 100mm of topsoil recuperated from excavation works.

3.5 MAINTENANCE

- .1 Maintain finished surfaces in a condition in accordance with this Section until succeeding material is applied or until acceptance by Departmental Representative.

END OF SECTION

Part 1 General**1.1 SECTION INCLUDES**

- .1 This section cover the work of pulverisation of existing pavement (asphaltic concrete and surface treatment) as well as the work of reshaping granular pavement.

1.2 RELATED SECTIONS

- .1 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Section 31 05 16 - Aggregate Materials.
- .3 Section 31 22 14 - Airfield Grading.
- .4 Section 31 05 10 - Corrected Maximum Dry Density for Fill.
- .5 Section 32 11 23 - Aggregate base courses.
- .6 Section 32 12 13.15 - Asphalt tack coat.
- .7 Section 31 11 16.01 – Granular sub-bas.

1.3 MEASUREMENT PROCEDURES

- .1 Measure the pulverization of existing pavement in square metres of pavement pulverised.
- .2 Measure reshaping subgrade of granular base in square metres of roadway subgrade reshaped.
- .3 Measure additional aggregate base course material required to achieve the roadway subgrade reshaping works in tons of aggregate base course in accordance with section 32 11 23 – Aggregate base courses.
- .4 The stockpiling of exceeding material will not be measured separately, it will be part of the reshaping subgrade operations.

1.4 REFERENCES

- .1 American Society for Testing and Materials International (ASTM).
 - .1 ASTM D698-[00a], Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN-m/m³).

1.5 DEFINITIONS

- .1 Pulverization : operation that consists in reducing an existing asphaltic pavements to the state of granular materials and to mix it with a part of underlying granular material
- .2 Reshaping subgrade: scarifying, blading, reshaping and recompacting existing subgrade surface.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Divert excess materials as directed by Departmental Representative.

Part 2 Products**2.1 NOT USED**

- .1 Not used.

Part 3 Execution**3.1 PUVERIZATION**

- .1 As indicated on drawings, pulverize the bituminous pavement and aggregate base course material in place and mix it at the indicated deepness.
- .2 The contractor shall forecast a continuous control of the granular gradation obtain by pulverization. The gradation curve must include 100% of particles passing the sieve 50mm and 10% of the particles passing the sieve 80 microns.
- .3 The re-use of material from pulverization of existing pavements must be limited to the layer of granular sub-base preparation under area to be paved.

3.2 SCARIFYING AND RESHAPING

- .1 Scarify the subgrade to full width and to minimum depth of 150 mm.
- .2 Scarify and break down scarified material to 35 mm maximum soil clod size, except that stones larger than this size may be left intact as directed by Departmental Representative.
- .3 Blade and trim scarified material to elevation and cross section dimensions as indicated and as directed by Departmental Representative.
- .4 The Contractor shall ensure that the longitudinal profile of the airport main acces road meets the desired slope and curvature and vertical alignment for a minimum design speed of 70 km / h as described in the standards of 'Ouvrages routiers' of MTQ Volume I Chapter . 6 and the following requirement.
 - .1 Longitudinal slope : 4% maximum
 - .2 Convex vertical curve (crest) :
K=22 minimum
S (distance of visibility) = 110m
 - .3 Concave vertical curve (sag)
K=24 minimum
S (distance of visibility) = 110m

- .5 On the parking's, apron and turning button, respect the final grade as per the indications on the drawings plan view.
- .6 Where deficiency of material exists, add and blend additional subgrade material as directed by Departmental Representative.
- .7 Re-use excess material in areas of material deficiency and over shoulder and trim as directed by Departmental Representative.

3.3 COMPACTING

- .1 Compact to density not less than 100% corrected maximum dry density.
- .2 Shape and roll alternately to obtain smooth, even and uniformly compacted subgrade surface.
- .3 Apply water as necessary during compaction to obtain specified density.
- .4 If material is excessively moist, aerate by scarifying with suitable equipment until moisture content is corrected to value not greater than 1% moisture above optimum value for compaction in accordance with ASTM D698.

3.4 SITE TOLERANCES

- .1 Reshaped compacted surface to be within plus or minus 10 mm of elevation as indicated.
- .2 For the main access road to the airport; the index IRI (International Roughness Index) desired for this section of road is 1.2m/km per 100m, measured using a profilometer

3.5 PROTECTION

- .1 Maintain reshaped surface in condition conforming to this section until succeeding material is applied or until Departmental Representative acceptance.

3.6 CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 01 35 27 – Airports In Use.
- .2 Section 01 35 43 – Environmental Procedures.
- .3 Section 31 05 10 – Corrected Maximum Dry Density.
- .4 Section 31 32 19.01 – Geotextiles.
- .5 Section 32 16 15 - Concrete Walks, Curbs And Gutters.
- .6 Section 33 42 13 - Pipe Culverts.

1.2 MEASUREMENT PROCEDURES

- .1 The stone drain will be paid in linear meter of stone drain constructed. The price must include the required excavation, the supply and installation of the geotextile, the supply and installation of the new type 3 material, the backfill of the channel with type 2 materials, the final leveling of the surfaces and the transportation and stockpiling of the exceeding excavated materials at the Transport Canada storage area.
- .2 For other works in trench excavation, no measurement will be done for this section. The cost for excavation, digging, bedding preparation, surrounding, trench backfilling and refection of finished surfaces works must be included in item where those works are required.

1.3 SUBMITTALS

- .1 Samples:
 - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Inform the departmental representative at least 2 weeks prior to commencing Work, of proposed source of fill materials and provide access for sampling.

1.4 PROTECTION OF EXISTING FEATURES

- .1 Existing buried utilities and structures:
 - .1 Size, depth and location of existing utilities and structures as indicated are for guidance only. Completeness and accuracy are not guaranteed.
 - .2 Prior to commencing excavation Work, notify applicable Owner or authorities having jurisdiction, establish location and state of use of buried utilities and structures. Owners or authorities having jurisdiction to clearly mark such locations to prevent disturbance during Work.
 - .3 Confirm locations of buried utilities by careful test excavations.
 - .4 Maintain and protect from damage, water, sewer, gas, electric, telephone and other utilities and structures encountered as indicated.
 - .5 Where utility lines or structures exist in area of excavation, obtain direction of The departmental representative before removing or re-routing.

- .6 Record location of maintained, re-routed and abandoned underground lines.
- .2 Existing buildings and surface features:
 - .1 Conduct, with the departmental representative, condition survey of existing buildings, trees and other plants, lawns, fencing, service poles, wires, rail tracks, pavement, survey bench marks and monuments which may be affected by Work.
 - .2 Protect existing buildings and surface features from damage while Work is in progress. In event of damage, immediately make repair to approval of the departmental representative.
- .3 Shoring, bracing and underpinning
 - .1 Protect existing features in accordance with applicable local regulations.

Part 2 Products

2.1 MATERIALS

- .1 Type 1 fill (sand).
 - .1 Crushed, pit run or screened stone sand: unfrozen, sound, hard, durable material free from organic material, clay lumps or minerals, or others substances that would act in deleterious manner for use intended. Gradations to be within limits specified when tested to ASTM C 136-96a and ASTM C 117-95:

Sieve designation	% passing
9,500 mm	100
4,750 mm	70 – 95
0,850 mm	30 – 70
0,425 mm	10 – 40
0,075 mm	2 – 10

- .2 Type 2 fill: selected material from excavation like MG-20 or other sources, approved by the departmental representative for use intended.
- .3 Type 3 fill : Crushed, pit run or screened stone sand: unfrozen, sound, hard, durable material free from organic material, clay lumps or minerals, or others substances that would act in deleterious manner for use intended. Gradations to be within limits specified above:

Sieve designation	% passing
80,0 mm	100
31,5 mm	0

Part 3 Execution

3.1 SITE PREPARATION

- .1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.
- .2 In paved areas, cut pavement or sidewalk neatly along limits of proposed excavation in order that surface may break evenly and cleanly.

3.2 STOCKPILING

- .1 Stockpile fill materials in areas designated by the departmental representative. Stockpile granular materials in manner to prevent segregation.
- .2 Protect fill materials from contamination.

3.3 DEWATERING AND HEAVE PREVENTION

- .1 Keep excavations free of water while Work is in progress.
- .2 Submit for the departmental representative's review details of proposed dewatering or heave prevention methods, such as dikes or well points.
- .3 Protect open excavations against flooding and damage due to surface run-off.
- .4 Dispose of water in accordance with Section 01 35 43 - Environmental Procedures, and in manner not detrimental to public and private property, or any portion of Work completed or under construction.

3.4 EXCAVATION

- .1 Excavate to lines, grades, elevations and dimensions as indicated by the departmental representative.
- .2 Remove concrete, paving, walks, demolished foundations and rubble, and other obstructions encountered during excavation.
- .3 Excavation must not interfere with bearing capacity of adjacent foundations.
- .4 For trench excavation, unless otherwise authorized by The departmental representative in writing, do not excavate more than 15 m of trench in advance before proceeding with the installation of the element to be buried. Before each operation period describe in section 01 11 11 ' ' Description of work' ', all trenches must be backfilled and compacted. No change in ground level or stockpile will be tolerated in proximity of the runway during operation period.
- .5 and do not leave any trenches open at end of day's operation.
- .6 Dispose of surplus and unsuitable excavated material as directed by departmental representative.
- .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 Obtain the departmental representative approval of completed excavation.
- .10 Clean for any improper material the bottom of trench on area and deepness as directed by the departmental representative.

- .11 Correct unauthorized over-excavation with type 1 fill, compacted to not less than 95% of corrected maximum dry density as per Section 31 05 10 – Corrected Maximum Dry Density.
- .12 Hand trim, make firm and remove loose material and debris from excavations. Where material at bottom of excavation is disturbed, compact foundation soil to density at least equal to undisturbed soil.

3.5 **FILL TYPES AND COMPACTION**

- .1 Materials as indicated on typical section. Backfill and compact in layer of 150mm of thickness to at least 95% of corrected maximum dry density as per Section 31 05 10 - Corrected Maximum Dry Density. Type 3 fill cannot be compacted, install these materials and puddle it.

3.6 **BACKFILLING**

- .1 Do not proceed with backfilling operations until the departmental representative has inspected and approved installations.
- .2 Areas to be backfilled to be free from debris, snow, ice, water and frozen ground.
- .3 Do not use backfill material which is frozen or contains ice, snow or debris.
- .4 Place compactable backfill material in uniform layers not exceeding 150 mm compacted thickness up to grades indicated. Compact each layer before placing succeeding layer.
- .5 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 0.4 m.
 - .4 Where temporary unbalanced earth pressures are liable to develop on walls or other structures:
 - .1 Permit concrete to cure for minimum 14 days or until it has sufficient strength to withstand earth and compaction pressure and approval obtained from the departmental representative.
 - .2 If approved by the departmental representative, erect bracing or shoring to counteract unbalance, and leave in place until removal is approved by the departmental representative.

3.7 **RESTORATION**

- .1 Upon completion of work, remove waste materials and debris, trim slopes, and correct defects as directed by the departmental representative.
- .2 Replace topsoil as indicated by the departmental representative.
- .3 Clean and reinstate areas affected by Work as directed by the departmental representative.

.4 The exceeding excavated materials will be transported and stockpiled at the Transports Canada storage area.

END OF SECTION

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 31 23 33.01 - Excavating, Trenching and Backfilling.
- .3 Section 31 37 00 – Rip-Rap.

1.2 MEASUREMENT AND PAYMENT

- .1 The geotextiles used in the construction of rip-rap will not be measured. The cost for that works must be included in the works where geotextile is required.
- .2 The geotextiles used in drainage trench will not be measured. The cost must be included in the works where geotextile is required.

1.3 REFERENCES

- .1 ASTM International
 - .1 ASTM A123/A123M-09, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - .2 ASTM D4491-99a(2009), Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
 - .3 ASTM D4595-09, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.ASTM D4716-08, Standard Test Method for Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.
 - .4 ASTM D4751-04, Standard Test Method for Determining Apparent Opening Size of a Geotextile.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-4.2 No. 11.2-2004, Textile Test Methods - Bursting Strength - Ball Burst Test (Extension of September 1989).
 - .2 CAN/CGSB-148.1, Methods of Testing Geotextiles and Complete Geomembranes.
 - .1 No.2-M85, Methods of Testing Geosynthetics - Mass per Unit Area.
 - .2 No.3-M85, Methods of Testing Geosynthetics - Thickness of Geotextiles.
 - .3 No.6.1-93, Methods of Testing Geotextiles and Geomembranes - Bursting Strength of Geotextiles Under No Compressive Load.
 - .4 No.7.3-92, Methods of Testing Geotextiles and Geomembranes - Grab Tensile Test for Geotextiles.
 - .5 No. 10-94, Methods of Testing Geosynthetics - Geotextiles - Filtration Opening Size.
- .3 CSA International

- .1 CSA G40.20/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

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, printed product literature and data sheets for geotextiles and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Test and Evaluation Reports:
 - .1 Submit copies of mill test data and certificate at least 4 weeks prior to start of Work.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions.
- .2 Packaging Waste Management: remove for reuse in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 MATERIAL

- .1 Geotextile: non-woven synthetic fibre fabric, supplied in rolls.
 - .1 Width: 3.5 m minimum.
 - .2 Length: 50 m minimum.
 - .3 Composed of: minimum 85% by mass of polypropylene and/or polyester with inhibitors added to base plastic to resist deterioration by ultra-violet and heat exposure for 60 days.
- .2 Securing pins and washers: to CAN/CSA-G40.21, Grade 300W, hot-dipped galvanized with minimum zinc coating of 600 g/m² to CAN/CSA G164.
- .3 Thread for sewn seams: equal or better resistance to chemical and biological degradation than geotextile.
- .4 Physical properties:
- .5 Physical and hydraulic properties:
 - .1 For use in rip-rap;
 - .1 Thickness: to CAN/CGSB-148.1, No.3, minimum 5.8 mm.
 - .2 Grab tensile strength and elongation: to CAN/CGSB-148.1, No.7.3.
 - .3 Breaking force: minimum 2500 N, wet condition.
 - .4 Elongation at failure: 65-105%.

- .5 Filtration opening size (FOS): 40-70 micron to CAN/CGSB-148.1 No.10.
- .2 For use in roadway bed and culvert;
 - .1 Thickness: to CAN/CGSB-148.1, No.3, minimum 1.4 mm.
 - .2 Grab tensile strength and elongation: to CAN/CGSB-148.1, No.7.3.
 - .3 Breaking force: minimum 755 N, wet condition.
 - .4 Elongation at future: 45-105%.
 - .5 Filtration opening size (FOS): 75-115 micron to CAN/CGSB-148.1 No.10.

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.
- .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 with securing pins as per manufacturer recommendations
- .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 h of placement.
- .8 Replace damaged or deteriorated geotextile to approval of departmental representative.
- .9 Install rip-rap stone as per section 31 37 00 – Rip-rap.

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.Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 PROTECTION

- .1 Vehicular traffic not permitted directly on geotextile.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Section 31 32 19.01 - Geotextiles.

1.2 MEASUREMENT PROCEDURES

- .1 Rip rap erected at the extremity of culvert will not be measured under this section; the cost for that work must be included in the price of culvert.
- .2 Measure rip-rap, other than extremity of culvert, in square metres of material placed. The price must include surface preparation, the supply and installation of the geotextile.

1.3 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM C144-99, Standard Specification for Aggregate for Masonry Mortar.
 - .2 ASTM C618-00, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
- .2 Canadian Standards Association (CSA)
 - .1 CAN/CSA-A23.1-00, Concrete Materials and Methods of Concrete Construction.
 - .2 CAN/CSA-A3000-98, Cementations Materials Compendium.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Collect and separate plastic in accordance with Waste Management Plan.
- .3 Place materials defined as hazardous or toxic in designated containers.
- .4 Fold up metal banding, flatten and place in designated area for recycling.
- .5 Divert left over aggregate materials from landfill at the location indicated by the departmental representative.
- .6 Divert left over hardened cement materials from landfill to local quarry for reuse as approved by the departmental representative.
- .7 Divert left over geotextiles at the location indicated by the departmental representative.

Part 2 Products**2.1 STONE**

- .1 Hard, durable quarry stone, free from seams, cracks or other structural defects, to meet following size distribution for use intended:
 - .1 Hand placed rip-rap:
 - .1 Minimum size of individual stones; 100mm, and maximum size; 200mm .
 - .2 Supply rock spalls or cobbles to fill open joints.

2.2 GEOTEXTILE FILTER

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

Part 3 Execution**3.1 PLACING**

- .1 Fine grade area to be rip-rapped to uniform, even surface. Fill depressions with suitable material and compact to provide firm bed.
- .2 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.
- .3 Place rip-rap to thickness and details as indicated.
- .4 Place stones in manner approved by the departmental representative to secure surface and create a stable mass. Place larger stones at bottom of slopes.
- .5 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 PRODUCTS INSTALLED BUT NOT SUPPLIED UNDER THIS SECTION**

- .1 This section is about exigency of the construction works of granular sub-base layer.

1.2 RELATED SECTIONS

- .1 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Section 31 22 14 - Airfield Grading
- .3 Section 31 05 16 - Aggregate Materials.
- .4 Section 31 22 16.13 - Roadway Subgrade Reshaping.
- .5 Section 32 11 23 - Aggregate base courses.

1.3 MEASUREMENT PROCEDURES

- .1 Measure granular sub-base in metric tons of material incorporated into work and accepted by departmental representative. The price must included supply, loading and transportation, installation required water and compaction of the granular sub-base layer.
- .2 Material resulting from pulverization of existing bituminous pavements and consider acceptable by the departmental representative and re-used as granular sub-bas materials will be measured as per 1.3.1. above paragraph.

1.4 REFERENCES

- .1 LC testing method of Transport Quebec laboratory.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Divert unused granular material from landfill as directed by the departmental representative.

Part 2 Products**2.1 MATERIALS**

- .1 Granular sub-base material: in accordance with Section 31 05 16 - Aggregate Materials and following requirements:
 - .1 Crushed, pit run or screened stone, gravel or sand.
 - .2 Gradations to be within limits specified when tested to LC 21-040. Sieve sizes to the following table;

.3 Table

Sieve Designation	% Passing MG 112 (MTQ)
112 mm	100
80 mm	-
56 mm	-
40 mm	-
31.5 mm	-
20 mm	-
14 mm	-
9.5 mm	-
5 mm	12 – 100
1.25 mm	-
0.315 mm	-
0.080 mm	0 – 10

.4 Intrinsic characteristic to following test ::

- .1 * Methylene blue (LC 21-255) : $\leq 0,20$
 - .2 Los Angeles (LC 21-400) : ≤ 50
 - .3 Micro-Deval (LC 21-070) : ≤ 40
 - .4 MD + LA : ≤ 85
 - .5 *Organic material (LC 31-228) : $\leq 0,8$
- *for aggregates from sand or gravel pit.

- .2 Only the exceeding material coming from pulverization of existing pavements and meeting the granular sieves exigencies of the section 31 22 16.13 and containing a minimum of 50% of granular base material will be re-used as granular sub-base material.

Part 3 Execution**3.1 PLACING**

- .1 Place granular sub-base after subgrade is inspected and approved by the departmental representative.
- .2 Construct granular sub-base to depth and grade in areas indicated.
- .3 Ensure no frozen material is placed.
- .4 Place material only on clean unfrozen surface, free from snow or ice.
- .5 Begin spreading sub-base material on crown line or high side of one-way slope.
- .6 Place granular sub-base materials using methods which do not lead to segregation or degradation.
- .7 Place material to full width in uniform layers not exceeding 150 mm compacted thickness. The departmental representative may authorize thicker lifts (layers) if specified compaction can be achieved.

- .8 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.
- .9 Remove and replace portion of layer in which material has become segregated during spreading.

3.2 COMPACTION

- .1 Compaction equipment to be capable of obtaining required material densities.
- .2 Compact to density of not less than 98% corrected maximum dry density] in accordance with section 31 05 10 – Corrected Maximum Dry Density.
- .3 Shape and roll alternately to obtain smooth, even and uniformly compacted sub-base.
- .4 Apply water as necessary during compaction to obtain specified density.
- .5 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved by the departmental representative.
- .6 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

3.3 SITE TOLERANCES

- .1 Finished sub-base surface to be within 10 mm of elevation as indicated but not uniformly high or low.

3.4 PROTECTION

- .1 Maintain finished sub-base in condition conforming to this section until succeeding base is constructed, or until granular sub-base is accepted by the departmental representative.

END OF SECTION

Part 1 General**1.1 PRODUCTS IMPLEMENTED ONLY UNDER THE TERMS OF THIS SECTION**

- .1 This section treats relative requirements of the construction of aggregate base courses layer.

1.2 RELATED SECTIONS

- .1 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Section 31 05 16 - Aggregate Materials.
- .3 Section 31 22 14 - Airfield Grading.
- .4 Section 31 22 16.13 - Roadway Subgrade Reshaping.
- .5 Section 32 11 16.01 – Granular sub-base.
- .6 Section 32 16 15 - Concrete Walks, Curbs And Gutters.

1.3 MEASUREMENT PROCEDURES

- .1 Measure granular base materials in metric tons of material, incorporated to the works and accepted by the departmental representative. The price must include supply, loading and transportation to the works, installation, water and compaction of the aggregate base courses material.

1.4 REFERENCES

- .1 LC testing method of Transport Quebec laboratory.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Delivering aggregates as and when they are needed in order to avoid creating piles on site.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Divert unused granular material as approved by the departmental representative.

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 Gradations to be within limits specified when tested to LC 21-040. Gradation curve plotted on a semi-logarithmic diagram must be progressive and continue.
 - .1 Gradation to:

Sieve Designation	% Passing MG 20 (MTQ)
31,5 mm	100
20 mm	90 – 100
14 mm	68 – 93
5 mm	35 – 60
1,25 mm	19 – 38
0,315 mm	9 – 17
0,080 mm	2 – 7

- .3 Intrinsic characteristic to following test :
- .1 * Methylene blue (LC 21-255) : $\leq 0,20$
 - .2 Los Angeles (LC 21-400) : ≤ 50
 - .3 Micro-Deval (LC 21-070) : ≤ 35
 - .4 MD + LA : ≤ 80
 - .5 *Organic material (LC 31-228) : $\leq 0,8$
- *for aggregates from sand or gravel pit.

Part 3 Execution

3.1 SEQUENCE OF OPERATION

- .1 Place granular base after sub-base surface is inspected and approved by the 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 Begin spreading base material on crown line or on high side of one-way slope.
 - .5 Place material using methods which do not lead to segregation or degradation of aggregate.
 - .6 For spreading and shaping material, use spreader boxes having adjustable templates or screeds which will place material in uniform layers of required thickness.
 - .7 Place material to full width in uniform layers not exceeding 150 mm compacted thickness. The departmental representative may authorize thicker lifts (layers) if specified compaction can be achieved.
 - .8 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.
 - .9 Remove and replace that portion of layer in which material becomes segregated during spreading.
- .3 Compaction Equipment
 - .1 Compaction equipment to be capable of obtaining required material densities.
- .4 Compacting

- .1 Compact to density not less than 100% corrected maximum dry density in accordance with section 31 05 10 - Corrected Maximum Dry Density.
- .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 by the departmental representative.
- .5 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

3.2 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.

3.3 PROTECTION

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

3.4 MATCHING.

- .1 The matching between finished base surface and adjacent pavement will not exceed 5% on 20 meters.

END OF SECTION

Part 1 General**1.1 SECTION INCLUDES**

- .1 Materials and application of asphalt tack coat to an existing asphalt or concrete surface prior to asphalt paving.

1.2 RELATED SECTIONS

- .1 Section 01 33 00 – Submittal Procedures.
- .2 Section 01 74 11 – Cleaning.
- .3 Section 32 11 23 - Aggregate base courses.
- .4 Section 32 12 16 – Asphalt Paving.

1.3 REFERENCES

- .1 Specification 4105 (2004-12-15) of MTQ (Ministère des transports du Québec).

1.4 MEASUREMENT PROCEDURES

- .1 Tack coat will not be measured. The coat for this section must be included in section 32 12 16 – Asphalt paving.

1.5 SUBMITTALS

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit two - 4 L samples of asphalt Tack coat material proposed for use in clean, airtight, plastic cans to the departmental representative, at least 2 weeks prior to beginning Work.
- .3 Provide access on tank truck for departmental representative to sample asphalt material to be incorporated into Work, in accordance with ASTM D140-00.

1.6 QUALITY ASSURANCE

- .1 Submit manufacturer's test data and certification that bitumen emulsion material meets requirements of this section.

Part 2 Products**2.1 MATERIALS**

- .1 Bitumen emulsion : to spec 4105 of Ministère des Transports du Québec. Binder type RS-1, SS-1 or CSS-1, as per the recommendations of CCDG.

2.2 EQUIPMENT

- .1 Pressure distributor to be:
 - .1 Designed, equipped, maintained and operated so that asphalt material can be:
 - .1 Maintained at even temperature.
 - .2 Applied uniformly on variable widths of surface up to 5 m.
 - .3 Applied at readily determined and controlled rates from 0.2 to 5.4 L/m² with uniform pressure, and with an allowable variation from any specified rate not exceeding 0.1 L/m².
 - .4 Distributed in uniform spray without atomization at temperature required.
 - .2 Equipped with meter, registering metres of travel per minute, visibly located to enable truck driver to maintain constant speed required for application at specified rate.
 - .3 Equipped with pump having flow meter graduated in units of 5 L or less per minute passing through nozzles and readily visible to operator. Pump power unit to be independent of truck power unit.
 - .4 Equipped with an easily read, accurate and sensitive device which registers temperature of liquid in reservoir.
 - .5 Equipped with accurate volume measuring device or calibrated tank.
 - .6 Equipped with nozzles of same make and dimensions, adjustable for fan width and orientation.
 - .7 Cleaned if previously used with incompatible asphalt material.

Part 3 Execution**3.1 APPLICATION**

- .1 Obtain departmental representative approval of surface before applying asphalt prime coat.
- .2 Bitumen emulsion:
 - .1 Apply asphalt tack coat evenly to pavement surface as directed by departmental representative.
 - .1 Spread a thin coat of tack coat between the different lifts and on old pavement during construction and as directed by departmental representative.
 - .2 Only if as directed by departmental representative, apply asphalt tack coat only on clean and dry surface.
 - .3 Apply asphalt tack coat only on unfrozen surface.
 - .3 Do not apply asphalt tack coat when air temperature is less than 10°C or when rain is forecast within 2 hours of application.
 - .4 Where traffic is to be maintained, treat no more than one half of width of surface in one application.
 - .5 Avoid overlap on joints.
 - .6 Do not apply tack coat on surface that will be visible after paving.

- .7 Keep traffic off tacked areas until asphalt tack coat has set.
- .8 Re-tack contaminated or disturbed areas as directed by departmental representative.
- .9 Permit asphalt tack coat to set before placing asphalt pavement.

END OF SECTION

Part 1 General**1.1 SECTION INCLUDES**

- .1 These sections cover the requirements about the fabrication and the installation of hot asphalt concrete paving.

1.2 RELATED SECTIONS

- .1 Section 01 33 00 – Submittal Procedures.
- .2 Section 01 74 11 – Cleaning.
- .3 Section 02 41 14 – Removal of Existing Asphalt Pavement.
- .4 Section 31 05 16 – Aggregate Materials.
- .5 Section 32 12 13.15 – Asphalt Tack Coat.

1.3 RÉFÉRENCE

- .1 Specification from MTQ ((Ministère des transports du Québec).
 - .1 Specification 4101 - Asphalt binder (Liants bitumineux).
 - .2 Specification 4202 – Hot mix LC method (Méthode LC).
 - .3 Specification 2101 – Aggregates (granulates).
- .2 CCDG, Cahier des charges et devis généraux du MTQ (Ministère des transports du Québec).

1.4 MEASUREMENT PROCEDURES

- .1 The asphalt pavement will be measured in metric tons of material incorporated to the works and accepted by the departmental representative. The price must included the supply and installation of the asphalt tack coat and the supply and installation of new bituminous pavement with a thickness of 65mm or 100mm as describe on drawings.

1.5 PRODUCT DATA

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit asphalt concrete mix design and trial mix test results to departmental representative for approval at least 4 weeks prior to commencing work.
- .3 Submit calibration charts for each cold and hot aggregates bins.
- .4 Asphalt Binder:
 - .1 While buying the Asphalt Binder and before sending it to the site, Contractor will provide to departmental representative, all tests results done on each batch.

- .2 All batches will be rejected and will not be sent to the site if they do not comply with this section.
- .3 Before sending any batch to the site, Contractor will submit:
 - .1 Minimal and maximal storage temperature.
 - .2 Minimal and maximal mixing temperature.
 - .3 Minimal and maximal paving temperature.
 - .4 Minimal and maximal compacting temperature (Minimal temperature will not be lower than 100°C).
 - .5 All other helpful information.
- .4 At least 3 weeks prior to commencing work, submit viscosity temperature chart for asphalt binder to be supplied showing either Saybolt-Furol viscosity in seconds or kinematic viscosity in centistokes, temperature range 105° to 175°C.
- .5 Submit manufacturer's test data and certification that asphalt binder meets requirements of this section and to specification 4104 – Binders (Bitumes) from MTQ.

1.6 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Inform departmental representative of proposed source of aggregates at least 4 weeks prior to beginning Work and provide access for sampling.
- .3 During the production of aggregates, Contractor will have to submit, daily, all his testing results proving the crushing consistency (sieve analysis) and all other tests results proving that aggregates are in accordance with this section (Los Angeles, soundness, sand equivalent etc.) to the departmental representative.
- .4 Asphalt Binder:
 - .1 While producing Asphalt Binder, submit typical samples from each batch produce for this contract.
 - .2 In any time, Contractor will give departmental representative free access to production, quality control, storage and loading facilities.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 When necessary to blend aggregates from one or more sources to produce required gradation, do not blend in stockpiles.
- .2 Stockpile fine aggregate separately from coarse aggregate, although separate stockpiles for more than two mix components are permitted.
- .3 Provide approved storage, heating tanks and pumping facilities for asphalt cement.
- .4 Asphalt Binder:
 - .1 Submit to departmental representative copies of freight and waybills for asphalt cement as shipments are received.
 - .2 All Asphalt Binder containers will be identified as per:
 - .1 The Asphalt Binder Performance Grade

- .2 The Batch Number
- .3 The Production Date
- .4 The Producer Identification
- .5 The Distributor Identification
- .3 Provide approved storage, heating and pre-heating tanks with agitator and pumping facilities for Asphalt Binder.
- .4 Contractor will be careful not to mix the different types of Asphalt binders.
- .5 Contractor will use a full batch before using another one.

Part 2 Products

2.1 MATERIALS

- .1 Asphalt Binder: to MTQ specifications number 4101, grade PG 58-34.
- .2 Asphalt concrete mix conform to specification 4202 – Hot mix formulated according to LC method of MTQ:
 - .1 For new bituminous pavement of 100mm thick :
 - .1 Surface coarse: type ESG-10, thickness of 40mm.
 - .2 Base coarse: type ESG-14, thickness of 60m.
 - .2 For new bituminous pavement of 65mm thick :
 - .1 single coarse: type ESG-10.
- .3 Do not use aggregates having known polishing characteristics in mixes for surface courses.
- .4 Aggregates Categories for hot mix :
 - .1 Coarse aggregates:
 - .1 Intrinsic categories: cat. 3.
 - .2 Fabrication categories: cat. b.
 - .2 Fine aggregates
 - .1 Intrinsic and fabrication categories: cat. 2
- .5 Complementary characteristic of aggregates for hot mix:

Loss by washing
 (Particles <0,080 mm)
 A23.2-5A (Grav.
 & sand) 1,0

Loss by washing
 (Particles <0,080 mm)
 A23.2-5A(Quarry) 1,5

Polishing 0,45
Coefficient by
Projection(LC21-102)

Fine aggregates

Clay lumps
And friable
Particles
(NQ2560-250)%max. 2,0

2.2 **EQUIPMENT**

- .1 Pavers: mechanical grade controlled self-powered pavers capable of spreading mix within specified tolerances, true to line, grade and crown indicated.
- .2 Joint Heater equipment: « Poweray Infrared » type or equivalent.
- .3 Rollers: sufficient number of type and weight to obtain specified density of compacted mix.
- .4 Haul trucks: sufficient number and of adequate size, speed and condition to ensure orderly and continuous operation and as follows:
 - .1 Boxes with tight metal bottoms.
 - .2 Covers of sufficient size and weight to completely cover and protect asphalt mix when truck fully loaded.
 - .3 In cool weather or for long hauls, insulate entire contact area of each truck box.
 - .4 Use only trucks which can be weighed in single operation on scales supplied.
- .5 Hand tools:
 - .1 Lutes or rakes with covered teeth for spreading and finishing operations.
 - .2 Tamping irons having mass not less than 12 kg and bearing area not exceeding 310 cm² for compacting material along curbs, gutters and other structures inaccessible to roller. Mechanical compaction equipment, when approved by Departmental representative, may be used instead of tamping irons.
 - .3 Straight edges, 4.5 m in length, to test finished surface and one will be supplied to departmental representative.

2.3 **MIX DESIGN**

- .1 As per specification,
 - .1 4202 - Hot mix formulated according to LC method of MTQ.

Part 3 **Execution**

3.1 **PREPARATION**

- .1 As per CCDG and as per indications on drawings.

3.2 TRANSPORTATION OF MIX

- .1 Transport mix to job site in clean vehicles free of foreign material.
- .2 Paint or spray truck beds with limewater, soap or detergent solution, or non petroleum based commercial product, at least daily or as required. Elevate truck bed and thoroughly drain. No excess solution to remain in truck bed.
- .3 Deliver material to paver at uniform rate and in an amount within capacity of paving and compacting equipment.
- .4 Deliver loads continuously in covered vehicles and immediately spread and compact. Deliver and place mixes at temperature within range as directed by the departmental representative, but not less than the one supplied by the asphalt cement producer.
- .5 Hot mix to transported on long distance must be transported as following;
 - .1 Use only trucks equipped with heated box and covered with insulated liner.
 - .2 At loading point, loaded mix temperature must not be under 15 degrees of the mixing temperature.
 - .3 Do not overheat the mix above the maximal temperature specified by the binder manufacturer.

3.3 PLACING CONDITION AND COMPACTION

- .1 As per CCDG exigencies and as per following exigencies:
- .2 When using an extension for a longitudinal joint, the extension will be equipped with heat, vibratory and an endless screw (auger) extension.
- .3 While paving, Contractor will use a joint heater approved by Engineer before laying new pavement. The equipment used to heat asphalt concrete will be designed specifically for those works and its efficacy will be recognized. And this equipment will be attached to the paver.
- .4 An tack coat binder must be applied to the pavement uniformly and progressively and let it cured. Avoid passage of vehicles on fresh installed binder coat. The surface cover with tack coat must be covered inside the same day.
- .5 The bituminous mix must be compacted as soon as possible after installation, begin by joints and edge of pavement, and from bottom of the slope to the high point. That operation must be continue until satisfactory compactness.

3.4 FINISH TOLERANCES

- .1 Finished asphalt surface to be within 5mm of design elevation but not uniformly high or low.
- .2 Finished asphalt surface not to have irregularities exceeding 5mm when checked with 4.5 m straight edge placed in any direction.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 03 30 00.01 - Cast-in-place Concrete.
- .2 Section 31 05 16 – Aggregate materials.
- .3 Section 31 23 33.01 - Excavating, trenching and backfilling.

1.2 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM C117-[04], Standard Test Method for Materials Finer than 0.075 mm (No. 200) Sieve in Mineral Aggregates by Washing.
 - .2 ASTM C136-[05], Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .3 ASTM D260-[86(2001)], Standard Specification for Boiled Linseed Oil.
 - .4 ASTM D698-[00ae1], Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft³) (600 kN-m/m³).
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-3.3-[99(March 2004)], Kerosene, Amend. No. 1, National Standard of Canada.
 - .2 CAN/CGSB-8.1-[88], Sieves, Testing, Woven Wire, Inch Series.
- .3 Canadian Standards Association (CSA International)
 - .1 CSA-A23.1-[04]/A23.2-[04], Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2

1.3 MEASUREMENT PROCEDURES

- .1 Concrete walk will be measured in square metres. Price must included preparation of subjacent granular base.
- .2 Concrete Island will be measured in meter of installed curb. Price must included preparation of subjacent granular base.

1.4 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Inform Departmental Representative of proposed source of materials and provide access for sampling at least 4 weeks prior to commencing work.
- .3 If materials have been tested by accredited testing laboratory within previous 2 months and have passed tests equal to requirements of this specification, submit test certificates from testing laboratory showing suitability of materials for this project.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 MATERIALS**

- .1 Concrete mixes and materials: in accordance with Section 03 30 00.01 - Cast-in-Place Concrete.
- .2 Joint filler and Curing Compound: in accordance with Section 03 30 00.01 - Cast-in-Place Concrete.
- .3 Granular base: material to Section 31 05 16 - Aggregate Materials and requirement of section 32 11 23 - Aggregate base courses.
- .4 Non-staining mineral type form release agent: chemically active release agents containing compounds that react with free lime to provide water-soluble soap.

Part 3 Execution**3.1 GRADE PREPARATION**

- .1 Do grade preparation work in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.
- .2 Construct embankments using excavated material free from organic matter or other objectionable materials.
 - .1 Dispose of surplus and unsuitable excavated material in approved location on site.
- .3 When constructing embankment provide for minimum 0.5 m shoulders, where applicable, outside of neat lines of concrete.
- .4 Place fill in maximum 150mm layers and compact to at least 95% of maximum dry density to ASTM D698.

3.2 GRANULAR BASE

- .1 Obtain Departmental Representative's approval of subgrade before placing granular base.
- .2 Place granular base material to lines, widths, and depths as indicated.
- .3 Compact granular base in maximum 150 mm layers to at least 95% of maximum density to ASTM D698.

3.3 CONCRETE

- .1 Obtain Departmental Representative approval of granular base prior to placing concrete.

- .2 Do concrete work in accordance with Section 03 30 00.01 - Cast-in-Place Concrete.
- .3 Immediately after floating, give sidewalk surface uniform broom finish to produce regular corrugations not exceeding 2 mm deep, by drawing broom in direction normal to centre line.
- .4 Provide edging as indicated with 10 mm radius edging tool.
- .5 Slip-form pavers equipped with string line system for line and grade control may be used if quality of work acceptable to Departmental Representative can be demonstrated.

3.4 TOLERANCES

- .1 Finish surfaces to within 3 mm in 3 m as measured with 3 m straightedge placed on surface.

3.5 EXPANSION AND CONTRACTION JOINTS

- .1 Install tooled transverse contraction joints after floating, when concrete is stiff, but still plastic, at intervals of 1.5 m.
- .2 Install expansion joints at intervals of 6 m.
- .3 When sidewalk is adjacent to curb, make joints of curb, gutters and sidewalk coincide.

3.6 ISOLATION JOINTS

- .1 Install isolation joints around manholes and catch basins and along length adjacent to concrete curbs, catch basins, buildings, or permanent structure.
- .2 Install joint filler in isolation joints [in accordance with Section 03 30 00.01 - Cast-in-Place Concrete.
- .3 Seal isolation joints with sealant approved by Departmental Representative.

3.7 CURING

- .1 Cure concrete by adding moisture continuously in accordance with CSA-A23.1/A23.2 to exposed finished surfaces for at least 1 day after placing, or sealing moisture in by curing compound.
- .2 Where burlap is used for moist curing, place two prewetted layers on concrete surface and keep continuously wet during curing period.
- .3 Apply curing compound evenly to form continuous film, in accordance with manufacturer's requirements.

3.8 BACKFILL

- .1 Allow concrete to cure for 7 days prior to backfilling.
- .2 Backfill to designated elevations with the specified material.

- .1 Compact and shape to required contours as indicated.

3.9 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 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 35 29.06 - Health and Safety Requirements.
- .3 Section 02 41 13 – Selective site demolition.
- .4 Section 32 12 16 – Asphalt paving.

1.2 MEASUREMENT FOR PAYMENT

- .1 Pavement marking will be paid as a lump sum. The price must include the supply and installation of the paint and the setting out of the marks to be painted as indicated on drawings.
- .2 The road sign will be paid as a lump sum. The price must include the supply and installation sign indicated on drawings, including all hardware's and posts required to the installation..

1.3 REFERENCES

- .1 American Society for Testing and Material (ASTM)
 - .1 D562, Standard test method for consistency of paints using the Stormer Viscometer.
 - .2 D711, Standard test method for No-Pick-UP Time of traffic paint.
 - .3 D1210, Standard test method for Fineness of pigment-Vehicule Systems by Hegman-type cage.
 - .4 D1475, Standard test method for Density of liquid coating, inks and related products.
 - .5 D2244, Standard test method for calculation of color differences from instrumentally measured color coordinates.
 - .6 D2369, Standard test method for volatile content of coatings
 - .7 D2371, Standard test method for pigment content of solvent-reducible paints.
 - .8 D4017, Standard test method for water in paints and paints materials by Carl Fisher method.
 - .9 E1347, Standard test method for color and color difference measurement by tristimulus (filter) colorimetry.
- .2 Ministère des Transports du Québec (MTQ), Laboratoire des chaussées (LC)
 - .1 LC 34-301, Peinture – Détermination du bioxide de titane.
 - .2 LC 34-505, Peinture – Détermination de la consistance à 5 °C.

- .3 LC 34-506, Peinture – Détermination du degré de sédimentation par la méthode Patton.
 - .4 LC 34-507, Peinture – Détermination de la teneur en chromate de plomb.
 - .5 LC 34-508, Peinture – Détermination de la teneur en anhydride phtalique.
- .3 Ministère des Transports du Québec (MTQ), normes 10201; Peinture alkyde pour le marquage des routes.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature and data sheets for pavement markings and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit [two] copies of WHMIS MSDS in accordance with Section [01 35 29.06 - Health and Safety Requirements] [01 35 43 - Environmental Procedures].
- .3 Construction Waste Management:
 - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
 - .2 Low-Emitting Materials: submit listing of paints and coatings to comply with VOC and chemical component limits or restrictions requirements.

1.5 CLOSEOUT SUBMITTALS

- .1 Operations and Maintenance Data: submit information on materials relative to work of this Section for inclusion in operations and maintenance manual and as follows:
 - .1 Technical data sheet of paint and product utilised.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 MATERIALS**

.1 Paint as per the following specifications:

Physical and chemical characteristic	Testing method	Requirements	
		Max.	Min.
Consistency (KU)			
at 24 °C	ASTM D562	75	85
at 5 °C	LC34-505	-	135
Drying (min.)	ASTM D711	7	20
Fineness of grind (µm)	ASTM D1210	80	-
Bleeding	ASTM D969	-	4
White paint		4	-
Yellow paint		6	
Volatile organic contents (% weight)	ASTM D2369		
White paint		28	32
Yellow paint		26	31
Water content (% weight)	ASTM D4017	1	-
Powdery content (% weight)	ASTM D2371		
White paint		51	55
Yellow paint		52	57
Phthalic anhydride (% weight) of non volatil binder	LC 34-508	32	37
Density (kg/l)	ASTM D1475		
White paint, Yellow paint		Value at approval	
Black pigment		Value at approval	

.1 The paint must satisfy all requirements of the MTQ in matter of pavement markings.

- .1 White color: MTQ HOM 8010-201-08 Alkyde 462-742.
- .2 Yellow color: MTQ HOM 8010-201-07 lead free 462-784.
- .2 Road signs as per specifications of MTQ Ouvrages routiers - Tome 5 norme de signalisation routières.
 - .1 Aluminum panel minimum 2mm thickness, dimension as indicated on drawing .
 - .2 Retroreflective sheeting.
 - .3 One square galvanized steel post per sign type L6X-3, 44.4mm x 44.4mm with anchor sleeve as per specifications of MTQ Ouvrages routiers - Tome 3 Ouvrages d'art.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates and surfaces to receive pavement markings previously installed under other Sections or Contracts are acceptable for product installation .
 - .1 Visually inspect substrate in presence of Departmental Representative.
- .2 Pavement surface: dry, free from water, frost, ice, dust, oil, grease and other deleterious materials.
- .3 Proceed with Work only after unacceptable conditions have been rectified.

3.2 EQUIPMENT REQUIREMENTS

- .1 Paint applicator: approved pressure type with positive shut-off distributor capable of applying paint in single, double and dashed lines and capable of applying marking components uniformly, at rates specified, and to dimensions as indicated.

3.3 APPLICATION

- .1 Pavement markings: lay out pavement markings as indicated on drawings.
- .2 Unless otherwise approved by Departmental Representative, apply paint only when air temperature is above 10 degrees C, wind speed is less than 50 km/h and no rain is forecast within next 6 hours.
- .3 Apply traffic paint evenly at rate of 2.5 m²/L.
- .4 Do not thin paint unless approved by Departmental Representative.
- .5 Symbols and letters to dimensions indicated.
- .6 Paint lines: of uniform colour and density with sharp edges.
- .7 Thoroughly clean distributor tank before refilling with paint of different colour.

3.4 SIGNALISATION

- .1 Install the sign as per the MTQ indications for the specified type of post, anchor and coupling.
- .2 Use only stainless steel hardware.

3.5 TOLERANCE

- .1 Paint markings: within plus or minus 12 mm of dimensions indicated.

3.6 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: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.7 PROTECTION OF COMPLETED WORK

- .1 Protect pavement markings until dry.
- .2 Repair damage to adjacent materials caused by pavement marking application.

END OF SECTION

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .3 Section 01 35 29.06 - Health and Safety Requirements.
- .4 Section 02 41 13 – Selective site demolition.
- .5 Section 03 00 00.01 - Cast-in-Place Concrete.

1.2 MEASUREMENT AND PAYMENT

- .1 Measure supply and erection of chain link fence in metres erected.
- .2 Supply and installation of one mesh under the fence in a ditch will not be measured, Include the costs for that works in the erection of chain link fence.
- .3 Measure supply and erection of pedestrian chain link fence gates including lock and hardware in units erected.

1.3 REFERENCES

- .1 ASTM International
 - .1 ASTM A53/A53M-10, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .2 ASTM A90/A90M-09, Standard Test Method for Weight Mass of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings.
 - .3 ASTM A121-07, Standard Specification for Zinc-Coated (Galvanized) Steel Barbed Wire.
 - .4 A653/A653M-10, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .5 ASTM C618-08a, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
 - .6 ASTM F1664-08, Standard Specification for Poly(Vinyl Chloride) (PVC)-Coated Steel Tension Wire Used with Chain-Link Fence.
 - .7 ASTM A123/A123M-09, Standard Specification for Zinc (Hot Dip Galvanized) coatings on Iron and Steel Products.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-138.1-96, Fabric for Chain Link Fence.
 - .2 CAN/CGSB-138.2-96, Steel Framework for Chain Link Fence.
 - .3 CAN/CGSB-138.3-96, Installation of Chain Link Fence.
 - .4 CAN/CGSB-138.4-96, Gates for Chain Link Fence.
 - .5 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.

- .3 CSA International
 - .1 CSA A23.1/A23.2-09, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
 - .2 CAN/CSA-A3000-08, Cementitious Materials Compendium.
- .4 Master Painters Institute (MPI)
 - .1 Architectural Painting Specification Manual - current edition.
- .5 U.S. Environmental Protection Agency (EPA) / Office of Water
 - .1 EPA 832/R-92-005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

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, printed product literature and data sheets for fences, posts and gates and include product characteristics, performance criteria, physical size, finish and limitations.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials in accordance with manufacturer's recommendations.
 - .2 Store and protect fence and gate materials from damage.
 - .3 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

- .1 Concrete mixes and materials: in accordance with Section 03 30 00 - Cast-in-Place Concrete.
- .2 Chain-link fence fabric: to CAN/CGSB-138.1.
 - .1 Type 1, Class B, medium style, Grade 1.
 - .2 Height of fabric: 1.8 m.
- .1 Posts, braces and rails: to CAN/CGSB-138.2, galvanized steel pipe. Dimensions as indicated.
 - .1 End, stiffening and corner posts – 89 mm diameter.

- .2 Line posts – 60 mm diameter.
- .3 Brace and top rail – 42 mm diameter.
- .2 Bottom tension wire: to CAN/CGSB-138.2, single strand, galvanized steel wire 5mm diameter.
- .3 Tie wire fasteners: single strand, galvanized steel wire conforming of fence fabric, 3.8 mm diameter
- .4 Tension bar: to ASTM A653/A653M, 5 x 20 mm minimum galvanized steel.
- .5 Gates: to CAN/CGSB-138.4.
- .6 Gate frames: to ASTM A53/A53M, galvanized steel pipe, standard weight 45 mm outside diameter pipe for outside frame, 35 mm outside diameter pipe for interior bracing.
 - .1 Fabricate gates as indicated with electrically welded joints, and hot-dip galvanized after welding.
 - .2 Fasten fence fabric to gate with twisted selvage at top.
 - .3 Furnish gates with galvanized malleable iron hinges, latch and latch catch with provision for padlock which can be attached and operated from either side of installed gate.
 - .4 Furnish double gates with chain hook to hold gates open.
- .7 Fittings and hardware: to CAN/CGSB-138.2, galvanized steel, malleable or ductile cast iron.
 - .1 Tension bar bands: 3 x 20 mm minimum galvanized steel or 5 x 20 mm minimum aluminum.
 - .2 Post caps to provide waterproof fit, to fasten securely over posts and to carry top rail.
 - .3 Overhang tops to provide waterproof fit, to hold top rails and an outward projection to hold barbed wire overhang.
 - .4 Include projection with clips or recesses to hold 3 strands of barbed wire spaced 100 mm apart.
 - .5 Projection of approximately 300 mm long to project from fence at 45 degrees above horizontal.
 - .6 Turnbuckles to be drop forged.
- .8 Organic zinc rich coating: to CAN/CGSB-1.181.
- .9 Barbed wire: to CAN/CGSB-138.2, 2.5 mm diameter.
- .10 Lock for pedestrian gate; acceptable product: KABA Simplex EE1000 series model EE1021 or equivalent.
 - .1 Lock with keys and mechanical push button and knob each side of the gate.
 - .2 Programmable code by push button keyboard.
 - .3 Resistant and solid metal pushbuttons.
 - .4 Left handed, reversible.
 - .5 Latch cylindrical 19mm.

- .6 Key override removable cores; key format ASSA 6 pin length, supply 20 keys.
- .7 Satin chrome finish.
- .8 Highly weather resistant.

2.2 FINISHES

- .1 Galvanizing:
 - .1 For chain link fabric: to CAN/CGSB-138.1 Grade B.
 - .2 For pipe: 550 g/m² minimum to ASTM A90.
 - .3 For barbed wire: to CAN/CGSB-138.2.
 - .4 For other fittings: to ASTM A123/A123M.
- .2 Aluminum coating:
 - .1 For barbed wire: to ASTM A121, Class 2.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrate previously installed under other Sections or Contracts are acceptable for fence and gate 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 Grading:
 - .1 Remove debris and correct ground undulations along fence line to obtain smooth uniform gradient between posts.
 - .1 Provide clearance between bottom of fence and ground surface of 30 mm to 50 mm.

3.3 ERECTION OF FENCE

- .1 Erect fence along lines as indicated and to CAN/CGSB-138.3.
- .2 Excavate post holes to dimensions indicated.
- .3 Space line posts 3 m apart, measured perpendicularly to ground surface.
- .4 Space straining posts at equal intervals not to exceed 30 m between end or corner posts on straight continuous lengths of fence over reasonably smooth grade.

- .5 Install additional straining posts at sharp changes in grade and where directed by Departmental Representative.
- .6 Install corner post where change in alignment exceeds 10 degrees.
- .7 Install end posts at end of fence and at buildings.
 - .1 Install gate posts on both sides of gate openings.
- .8 Place concrete in post holes then embed posts into concrete to depths indicated.
 - .1 Extend concrete 50 mm above ground level and slope to drain away from posts.
 - .2 Brace to hold posts in plumb position and true to alignment and elevation until concrete has set.
- .9 Install fence fabric after concrete has cured, minimum of 5 days.
- .10 Install brace between end and gate posts and nearest line post, placed in centre of panel and parallel to ground surface.
 - .1 Install braces on both sides of corner and straining posts in similar manner.
- .11 Install overhang tops and caps.
- .12 Install top rail between posts and fasten securely to posts and secure waterproof caps and overhang tops.
- .13 Install bottom tension wire, stretch tightly and fasten securely to end, corner, gate and straining posts with turnbuckles and tension bar bands.
- .14 Lay out fence fabric. Stretch tightly to tension recommended by manufacturer and fasten to end, corner, gate and straining posts with tension bar secured to post with tension bar bands spaced at 300 mm intervals.
 - .1 Knuckled selvedge at bottom.
 - .2 Twisted selvedge at top.
- .15 Secure fabric to top rails, line posts and bottom tension wire with tie wires at 450 mm intervals.
 - .1 Give tie wires minimum two twists.
- .16 Install barbed wire strands and clip securely to lugs of each projection.
- .17 Install grounding rods as indicated.

3.4 INSTALLATION OF GATES

- .1 Install gates in locations as indicated.
- .2 Level ground between gate posts and set gate bottom approximately 40 mm above ground surface.
- .3 Install gate stops where indicated.

3.5 TOUCH UP

- .1 Clean damaged surfaces with wire brush removing loose and cracked coatings. Apply two coats of organic zinc-rich paint to damaged areas.
 - .1 Pre-treat damaged surfaces according to manufacturers' instructions for zinc-rich paint.

3.6 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: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.7 MESH UNDER A FENCE CROSSING A DITCH

- .1 Block the opening under a fence to crossing a ditch with an assembly of galvanized 'T' post spaced not more than 100mm. The posts must be driven into the ground to a depth of 450mm minimum and mechanically fastened at their top to an horizontal galvanized steel piece.

END OF SECTION

Part 1 General**1.1 SECTION INCLUDES**

- .1 Materials and installation for pipe culverts.

1.2 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 31 22 14 - Airfield Grading.
- .3 Section 31 23 33.01 - Excavating, trenching and backfilling.
- .4 Section 31 05 16 - Aggregate Materials.
- .5 Section 31 32 19.01 – Geotextiles.
- .6 Section 31 37 00 – Rip-rap.

1.3 MEASUREMENT PROCEDURES

- .1 The installation of culvert will be paid as a lump sum for each type of culvert installed. The price must include the supply and installation of polyethylene high density pipes double wall, the excavation and backfill, any necessary dewatering, supply and installation of bedding, supply and installation of lateral backfill and backfill, installation of geotextile, supply and installation of cutoff wall and the finishing of the end of culvert in rip-rap.
 - .1 Culvert of 900mm diameter, 18m length.

1.4 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM D1248-02, Standard Specification for Polyethylene Plastics Extrusion Materials For Wire and Cable.

1.5 SUBMITTALS

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Inform departmental representative at least 4 weeks prior to beginning Work, of proposed source of bedding materials and provide access for sampling.
- .3 Submit manufacturer's test data and certification at least 4 weeks prior to beginning Work.
- .4 Certification to be marked on pipe.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

- .2 Divert unused metal materials from landfill to metal recycling facility as approved by departmental representative.
- .3 Divert unused concrete materials from landfill to local quarry as approved by departmental representative.
- .4 Divert unused aggregate materials from landfill to quarry for reuse as approved by departmental representative
- .5 Fold up metal banding, flatten and place in designated area for recycling.

Part 2 Products

2.1 CORRUGATED POLYETHYLENE PIPE AND FITTINGS

- .1 To ASTM F667.
 - .1 High density polyethylene resin with a smooth interior (double wall): to ASTM D3350, cell class 324420C.
 - .2 Weathering resistance: to ASTM D1248, Class C.
- .2 The corrugated pipes must have a minimum stiffness of 320KPa for a deflection of %5 as per ASTM D2412.
- .3 The pipes must be joined with coupling as per the pipes manufacturer specifications.

2.2 GRANULAR BEDDING AND BACKFILL

- .1 Granular bedding material to Section 31 05 16 - Aggregate Materials and to the requirements of the MTQ:
 - .1 Granular material MG 20
- .2 Lateral backfill and backfill material to Section 31 05 16 - Aggregate Materials and to the requirements of the MTQ:
 - .1 Granular material CG 14.

Part 3 Execution

3.1 TRENCHING

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

3.2 BEDDING

- .1 Dewater excavation, as necessary, to allow placement of culvert bedding in dry condition.

- .2 Place minimum thickness of 150 mm of approved granular material on bottom of excavation and compact to minimum 95% 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.

3.3 LAYING CORRUGATED POLYETHYLENE PIPE CULVERTS

- .1 Begin laying at downstream end of culvert.
- .2 Install pipe in trench by lowering.
- .3 Ensure bottom of pipe is in contact with shaped bedding throughout pipe length.
- .4 Do not allow water to flow through pipes during construction except as permitted by departmental representative.

3.4 JOINTS FOR POLYETHYLENE CULVERTS

- .1 Install couplings in accordance with manufacturer's instructions.

3.5 BACKFILLING

- .1 Backfill around and over culverts as indicated or as directed by departmental representative.
- .2 Place lateral backfill material, approved by departmental representative, 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 600 mm cover of compacted fill before heavy equipment is permitted to cross. 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.

3.6 RIP-RAP

- .1 Install Rip-rap as indicated and as per section 31 37 00 – Rip-Rap.

END OF SECTION

Part 1 General**1.1 RELATED SECTIONS**

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

1.2 MEASUREMENT PROCEDURES

- .1 Measure supply and erection steel W-beam guide rail in meter of erected W-beam, single or double as per case. The price must including the posts, end section and all the required hardware to the installation.
- .2 The measurement must be taken from outer tips of steel W-beam guide rail and must include the anchor sections and ends section.

1.3 REFERENCES

- .1 American Association of State Highway and Transportation Officials (AASHTO)
 - .1 AASHTO M180-2000, Corrugated Sheet Steel Beams for Highway Guardrails.
- .2 American Society for Testing and Materials (ASTM International)
 - .1 ASTM A307-00, Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength .
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.28-98, Exterior, Alkyd, House Paint.
 - .2 CAN/CGSB-1.40-M97, Anti-corrosive, Structural Steel Alkyd Primer.
 - .3 CAN/CGSB-1.59-97, Alkyd Exterior Gloss Enamel.
 - .4 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
 - .5 CGSB 31-GP-107Ma-90, Non-inhibited, Phosphoric Acid Base Metal Conditioner and Rust Remover.
- .4 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-O80 Series-97 (February 2000), Wood Preservation.
 - .2 CAN/CSA-G164-M92 (R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.

1.4 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

- .1 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.
- .2 Place materials defined as hazardous or toxic in designated containers.
- .3 Divert unused metal materials from landfill to metal recycling facility as approved by departmental representative.
- .4 Unused paint or coating material must be disposed of at an official hazardous material collections site as approved by departmental representative.
- .5 Fold up metal banding, flatten and place in designated area for recycling.
- .6 Do not dispose of unused paint material into sewer system, into streams, lakes, onto ground or in any other location where it will pose a health or environmental hazard.
- .7 Do not dispose of preservative treated wood through incineration.
- .8 Do not dispose of preservative treated wood with other materials destined for recycling or reuse.
- .9 Dispose of treated wood, end pieces, wood scraps and sawdust at a sanitary landfill.
- .10 Dispose of unused preservative material at an official hazardous material collections site. Do not dispose of unused preservative material into the sewer system, streams, lakes, on ground or in any other location where they will pose a health or environmental hazard.

Part 2 Products

2.1 MATERIALS

- .1 Steel W-beam guide rail as indicated and to following requirements:
 - .1 Steel rail and terminal sections: to AASHTO M180, class A Type 1 zinc coated.
 - .2 Bolts, nuts and washers: to ASTM A307, hot dip galvanized to CSA G164.
- .2 Organic zinc-rich coating: to CAN/CGSB-1.181.
- .3 Posts.
 - .1 As indicated on drawings.

Part 3 Execution

3.1 ERECTION

- .1 Set posts by instrument for alignment, and locations as indicated and as directed by departmental representative.
- .2 Excavate post holes to depths as indicated and to diameter of 360 mm plus or minus 20 mm. Compact bottom to provide firm foundation. Set post plumb and square in hole.
- .3 Backfill around posts using excavated material and compact in uniform layers not exceeding 150 mm compacted thickness.

- .4 Cut off tops of posts as indicated, with tops parallel to grade of pavement edge.
- .5 Workers protections : workers must wear glove, dust mask, eyes protection and protection clothes to handle, drill, cut or to sand treated wood and galvanized steel and for preservative product application or make touch-up to an galvanised coating.
- .6 Treat cut tops with two coats of cut preservative product.
- .7 Erect steel W-beam components to details as indicated. Lap joints in direction of traffic. Tighten nuts to 100 N.m torque. Maximum protrusion of bolt 12 mm beyond nut.

3.2 TOUCH UP

- .1 Galvanized steel-touch up:
 - .1 Clean damaged surfaces with wire brush removing loose and cracked coatings. Apply two coats of organic zinc-rich paint to damaged areas. Pre-treat damaged surfaces according to manufacturer's instructions for zinc-rich paint.

END OF SECTION

Part 1 General**1.1 SUMMARY**

- .1 Section Includes:
 - .1 Methods and requirements for cleaning, deepening and excavating water channels.

1.2 RELATED SECTIONS

- .1 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .2 Section 01 35 43 - Environmental Procedures.
- .3 Section 01 52 00 - Construction Facilities.
- .4 Section 01 35 29.06 - Health and Safety Requirements.
- .5 Section 02 41 13 - Selective Site Demolition.
- .6 Section 31 23 33.01 Excavating, Trenching and Backfilling.

1.3 MEASUREMENT PROCEDURES

- .1 Channel excavation for new channels will be measured in cubic metres in their original locations by method of average end areas.
- .2 Common excavation: initial cross sections will be taken after clearing and grubbing and prior to stripping of topsoil.
- .3 Cleaning and deepening of existing channels will be measured in metres of channel along centreline.

1.4 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 m³.
- .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. Unclassified excavation: deposits of whatever character encountered in Work.

1.5 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental Representative following information for channel excavation operation:

- .1 Description of process to be implemented including, but not limited to, site plan and available equipment specifications.
- .2 Detailed operating procedures for proposed excavation method.
- .3 Detailed operating procedures for proposed dewatering method.
- .4 Detailed description and specifications for environmental controls including, but not limited to, control of sediment migration.

1.6 QUALITY ASSURANCE

- .1 Health and Safety:
 - .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 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.
- .2 Waste Management and Disposal:
 - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
 - .2 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material for recycling in accordance with Waste Management Plan.
 - .3 Divert rock materials requiring disposal from dump site to local quarry as directed by Departmental Representative.

Part 2 Products

2.1 MATERIALS

- .1 Not Used.

Part 3 Execution

3.1 EXCAVATION

- .1 Excavate new 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 Stockpile fill material at on-site staging area as directed by Departmental Representative.

- .1 Provide adequate silt control as provided for in Section 01 35 43 - Environmental Procedures.
- .5 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.
- .6 Upon completion of excavation, clean and trim site.
- .1 Reinststate disturbed areas immediately after completion of grading as directed by Departmental Representative.
- .7 Dispose of excavated materials:
 - .1 Place excavated materials on channel shores in a manner to occupy the less areas possible and to not block up furrow and transversal channel. Excess excavated material must be transported to the designated disposition site for excavated material and levelled at the satisfaction of the departmental representative.

END OF SECTION