

Town of North Rustico

Pond Street Water Line Replacement



Issued for Tender & Approval

September 2026

Contract No. 262649.00

**Pond Street
Water Line Replacement**

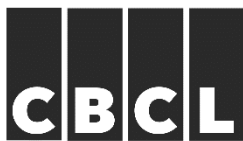
Issued for Tender & Approval	AHG	September 9, 2026	JAD
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Town of North Rustico
Pond Street Water Line
Replacement
Contract No. 262649.00

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1. GENERAL

1.1 DESCRIPTION OF WORK

- .1 The project is located on Pond Street in the Town of North Rustico. The work generally includes, but is not limited to, replacement of the existing water line including installation of ~125m of new water main, live tap into the existing asbestos cement watermain, installation of new services, disinfection of the new waterline, transfer the existing services to the new water line, and decommissioning the existing line. Service of the customers is to remain in place during the duration of the project aside from short duration outages during transfer from the existing to the new water line.

1.2 LIST OF DRAWINGS

COVER

C01 Plan & Profile Sta. 0+000 to Sta. 0+130

C02 Details

END OF SECTION 00 21 10

PART 1 - GENERAL

1.1 INFORMATION

- .1 A complete Tender is comprised of the following:
 - .1 Section 00 41 43 - Tender Form – Unit Rate in its entirety, with all pages and spaces for entry of information filled by Tenderers.
 - .2 Acknowledgement of addenda received by the Tenderer during the tendering period.
 - .3 Tender Security (refer to clause .10 herein).
 - .4 Construction Schedule
- .2 Submission
 - .1 The tender shall be submitted in a sealed envelope marked as follows:

TENDER FOR
Town of North Rustico
Pond Street Water Line Replacement
Contract No. 262649.00
 - .2 One (1) copy of the submission document must be delivered to the following address up until 2:00p.m., local time, on Friday, September, 18th, 2026 hereinafter referred to as the Tender Closing.

Attention: CBCL Limited
135 St. Peters Road, Suite 201
Charlottetown, PE C1A 5P3
 - .3 No fax, email or electronic submissions will be accepted as the sole method of submission. It is the tenderer's responsibility to ensure that the tender is received prior to the deadline noted above.
- .3 Tender
 - .1 Tender opening will be public.
 - .1 Tender opening will occur following Tender Closing at the same address of submission documents.
 - .2 Before tendering, Tenderers shall have examined the Site of the Work and shall have satisfied themselves as to the working conditions, including labour conditions and labour rules, the nature and kind of work to be done, any special risks associated therewith and all other matters which may be necessary in order to form a proper conception under which the work will be required to be performed. Tenderers shall not be entitled to claim at any time after closing of tenders that there was any misunderstanding in regard to all such conditions.

- .3 When forming their estimates and preparing their tenders, Tenderers shall take full cognizance of the content of all the Contract Documents listed in Section 00 41 43 - Tender Form – Unit Rate.
- .4 Any ambiguities, inconsistencies, or uncertainties in the Contract Documents which may become apparent to Tenderers when tendering shall be advised via email to the Consultant at jdoiron@cbcl.ca, not less than three (3) working days before Tender Closing. Tenderers will be advised simultaneously of any decisions on such matters as necessary by means of addenda (which will be serially numbered) and all addenda issued shall be incorporated into the Contract Documents. It is the responsibility of the Tenderer to ensure all addenda have been received.
- .5 Tenderer shall fill in the Completion Time and provide a schedule as part of the tender submission. The Tenderer is notified that the construction schedule may be taken into account in considering the tenders.
- .6 All tenders shall be valid for acceptance for sixty (60) calendar days from the Closing Date.
- .7 The Agreement is included in the Contract Documents at the time of tendering and is provided for information only and shall not be completed at the time of tendering.
- .8 The appending of any qualifying clauses to the tender or failure to comply with these instructions and with all other relevant provisions contained in the documents in the completing of any tender may render such tender liable to disqualification as determined by the Owner.
- .9 Contract Price to exclude HST. Harmonized sales tax shall be indicated as a separate amount and included in the Total Amount Payable.
- .10 Each tender shall be accompanied by Tender Security in the amount of ten percent (10%) of the Total Amount Payable (inclusive of Value Added Taxes) in evidence of the bona fide nature of the tender. Tender security must satisfy the same requirements of Contract Security as set forth in clause .11 herein.
- .11 Tender and Contract Security shall be in favour of the Owner and shall be in the form of a Certified Cheque, irrevocable Letter of Credit or a Bond. Tender Security shall guarantee to the Owner that in the event of the successful Tenderer declining to enter into a formal agreement with the Owner as called for in the Contract Documents, or declining or neglecting to provide the Insurance or Contract Security required by the Contract Documents, then the Owner will be reimbursed the additional cost of accepting another tender or Tender Security amount, whichever is the lesser.
 - .1 The bonds shall be issued by a company whose guarantee bonds are acceptable to the Government of Canada. Use the latest edition of CCDC Form 220.

- .12 The Tender Security of the unsuccessful Tenderers will be returned to them after the Owner enters into a formal agreement with the successful Tenderer or the expiration of validity of their tenders, whichever occurs first.
- .13 The Town of Rustico, The Government of PEI, and CBCL Limited shall be added to all insurance policies as an "Additionally Insured".
 - .1 Insurance shall be endorsed to provide The Government of PEI's Risk Manager and the Town of North Rustico (or the acting or assistant) with thirty (30) day advance written notice of cancellation or material change and fifteen (15) days notice in the event of non-payment.
- .14 On the written acceptance by the Owner of a tender, that tender becomes the Contract and the Tenderer who has submitted it becomes the Contractor. The Contractor will be required to enter into a formal agreement with the Owner following receipt of a written notice of acceptance from the Owner. The written notice of acceptance forms a Contract Agreement until the formal "Agreement" included herein is executed.
- .15 Within seven (7) days of written acceptance of a tender, the Contractor shall provide Contract Security in the amount and form as specified in Section 00 73 00 - Supplementary General Conditions for CCDC 18-2023, and Insurance as specified in CCDC 18-2023, GC 11.1 and supplemented in CCDC 41-2020.
- .16 Complete the Tender Form and have corrections initialled by the individual signing the tender.
- .17 Where manufactured articles are described or specified in the Contract Documents by name, catalogue number of a manufacturer or supplier, Tenderers shall tender on the basis of using only such articles. Procedure concerning substitution of a specified article with another shall be in accordance with Section 01 33 00 - Submittal Procedures.
- .18 The Owner will not defray any expenses whatsoever incurred by Tenderers in the preparation and submission of their tenders. The Owner reserves the right to waive any formality or technicality in any tender.
- .19 The Owner reserves the right to accept or to reject any or all tenders received, or to select a tender which is deemed by the Owner to be in its best interests. The Owner reserves the right to negotiate with the lowest compliant tenderer in the event that all tendered prices are higher than anticipated.
- .20 Tenders, which in the opinion of the Owner are considered to be informal or unbalanced, may be rejected.
- .21 Tenders will be evaluated based on compliance with the specification, costs, completion time and other factors, which may affect the overall cost and performance of the final product.

- .22 Tenders may be amended or withdrawn without penalty, by email to jdoiron@cbcl.ca prior to Tender Closing. Amendments shall not disclose either original or revised total price.
- .1 Subject line of amendment or withdrawal to read as follows:
"Amendment/Withdrawal of Tender for the Town of North Rustico Pond Street Water Line Replacement Contract No. 262649.00". Provide an electronic signature and submit at email address provided above. All Submissions must be received prior to Tender Closing.
- .2 The Owner will not be responsible for any failure attributable to the transmission or reception of the email. The time stamp of the email received by jdoiron@cbcl.ca will be used to determine if the submission was received in time – not the time it was emailed by the sender. Last minute submissions are not recommended.
- .23 No Geotechnical Investigation has been carried out at the Site.

END OF SECTION 00 21 13

1. TENDER FORM

1.1 SALUTATION:

- .1 To: Town of North Rustico
106 Riverside Drive
North Rustico, PE C0A 1X0
- .2 For: Pond Street Water Line Replacement
Contract No. 262649.00
- .3 From: _____

1.2 TENDERER DECLARES:

- .1 That this tender was made without collusion or fraud.
- .2 That the proposed work was carefully examined.
- .3 To have personal knowledge of the location of the proposed Work and is informed as to the actual conditions and requirements, including labour conditions and labour rules and shall not claim at any time after execution of the Agreement that there was any misunderstanding in regard to such conditions and requirements.
- .4 That Contract Documents and Addenda No. _____ to _____ inclusive were carefully examined.
- .5 That all the above were taken into consideration in preparation of this Tender.

1.3 TENDERER AGREES:

- .1 To enter into a contract to supply all labour, material and equipment and to do all work necessary to construct the Work as described and specified herein for the unit prices stated in Subsection 2. hereunder, Schedule of Quantities and Unit Prices.
- .2 To pay the Owner forthwith, upon demand, all liquidated damages resulting out of failure to meet the time for completion, as specified Section 00 73 00 - Supplementary General Conditions for CCDC 18-2023, GC 14.2.
- .3 That the estimated Contract Price shall be the sum of the products of the tendered unit prices multiplied by the estimated quantities in Subsection 2. hereunder.
- .4 That this Tender is valid for acceptance for sixty (60) calendar days from the time of Tender Closing.
- .5 That measurement and payment for items listed in Subsection 2 hereunder shall be in accordance with corresponding items in Section 01 29 00 - Project Particulars And Measurement.

- .6 Upon request to provide evidence of ability and experience within seven (7) calendar days of request, including experience in similar work, work currently under contract, senior supervisory staff available for the project, equipment available for use on the Work, and financial resources.
- .7 To execute in triplicate the Agreement and forward same together with the specified contract security and insurance documents to the Owner within fourteen (14) calendar days of written notice of award.
- .8 That failure to enter into a formal contract and give specified insurance documents and contract security within time required will constitute grounds for forfeiture of tender security.
- .9 That if bid security is forfeited, Owner will retain difference in money between amount of Tender and amount for which Owner legally contracts with another party to perform the Work and will refund balance, if any, to Tenderer.
- .10 Understands that in the event that the tendered Contract Price is not within the project budget, the Owner has the right to negotiate the Contract with the low bidder or reject all tenders received.
- .11 Agrees that the Warranty Period defined in the Contract Documents shall be for a period of one (1) year from the date of Ready-for-Takeover.
- .12 Understands that Substantial Performance of the Work will be established in accordance with General Conditions of the Contract and applicable lien legislation.
- .13 Understands that after the issuance of the certificate of Substantial Performance of the Work by the Owner's Representative, provided that the Contractor has relieved the Owner from any and all claims, demands and lien claims for and in respect of the Contract, and has completed all outstanding items and corrected all deficiencies, the Contractor shall submit an application for Final Payment and the Owner's Representative will thereafter prepare the Final Certificate for payment in accordance with the General Conditions of the Contract and applicable lien legislation.
- .14 Understands that the payment of holdback will be in accordance with the General Conditions of the Contract and subject to the provisions of the lien legislation applicable to the Place of Work.
- .15 Understands the occupational Health and Safety Legislation and any Workers or Workplace compensation legislation applicable to the Place of the Work and declares that they are in good standing and have all necessary certification as required by such legislation.
- .16 Agrees that time shall be construed as being of the essence of the Contract.
- .17 That the Contract Documents include:
 - .1 Section 00 21 10 - Description Of Work And List Of Drawings
 - .2 Section 00 21 13 - Information To Tenderers

- .3 Section 00 41 43 - Tender Form – Unit Rate
- .4 Section 00 53 42 - CCDC 18-2023 Form of Agreement - Civil Works Contract
- .5 Section 00 71 00 - CCDC 18-2023 Definitions
- .6 Section 00 72 00 - CCDC 18-2023 General Conditions of the Civil Works Contract
- .7 Section 00 72 10 - CCDC 41 Insurance Requirements
- .8 Section 00 73 00 - Supplementary General Conditions for CCDC 18-2023
- .9 Technical Specifications
- .10 Drawings
 - .1 COVER
 - .2 C01 Plan & Profile Sta. 0+000 to Sta. 0+130
 - .3 C02 Details
- .11 Addenda as issued and as confirmed in subsection 1.2.4 of this section.

2. SCHEDULE OF QUANTITIES AND UNIT PRICES

Item	Description	Unit	Qty.	Unit Price	Total Price
1.	General Mobilization/Demobilization	LS	1	_____	_____
2.	Locate and Accommodate Existing Infrastructure	LS	1	_____	_____
3.	Traffic Control	LS	1	_____	_____
4.	Environmental Protection	LS	1	_____	_____
5.	Demolition & Removals	LS	1	_____	_____
6.	Water Main and Fittings				
.1	150mm dia. PVC Watermain	m	120	_____	_____
.2	150mm dia. PVC Watermain (Bored)	m	7	_____	_____
7.	150mm Tapping Tee and Gate Valve	EA	1	_____	_____

8.	Fire Hydrant and Gate Valve (150mm)	EA	1	_____	_____
9.	Water Services				
	.1 19mm dia. PEX (same side)	EA	3	_____	_____
	.2 19mm dia. PEX (opposite side)	EA	4	_____	_____
10.	Remove and Replace Unsuitable Material	m ³	30	_____	_____
11.	Reinstatement	LS	1	_____	_____
12.	Contingency	LS	1	<u>\$10,000</u>	<u>\$10,000</u>

TENDER SUMMARY

ESTIMATED CONTRACT PRICE (Excluding HST) \$ _____

HST (15% of the Estimated Contract Price) \$ _____

TOTAL AMOUNT PAYABLE (HST Included) \$ _____

.1 TENDERER'S HST REGISTRATION NO. _____

3. SCHEDULE

3.1 COMPLETION TIME

- .1 Tenderer agrees to start on-site construction by _____, 2026, and achieve Substantial Completion of the work by _____, 2026.
- .2 Tenderers shall attach a project schedule to the tender submission.

Town of North Rustico
Pond Street Water Line
Replacement
Contract No. 262649.00

Tender Form – Unit Rate

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4. SIGNATURES*

DATED THIS _____ DAY OF _____ OF 202____.

[SEAL]

Name of Firm Tendering

Witness

Signature of Signing Officer

Name and Title (Printed)

Witness

Signature of Signing Officer

Name and Title (Printed)

Company Address

Telephone No.

Fax No.

*NOTE: Tenders submitted by or on behalf of any Corporation must be **signed and sealed** in the name of such Corporation by a duly authorized officer or agent.

END OF SECTION. 00 41 43

Town of North Rustico
Pond Street Water Line
Replacement
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CCDC 18-2023 Form of
Agreement - Civil Works Contract

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Civil Works Contract

CCDC 18 — 2023

Name of the Work

Apply a CCDC 18 copyright seal here.

The application of the seal demonstrates the intention of the party proposing the use of this document that it be an accurate and unamended form of CCDC 18 — 2023 except to the extent that any alterations, additions or modifications are set forth in supplementary conditions.

CCDC 18 CIVIL WORKS CONTRACT

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CCDC 18 is the product of a consensus-building process aimed at balancing the interests of all parties on the construction project. It reflects recommended industry practices. The CCDC and its constituent member organizations do not accept any responsibility or liability for loss or damage which may be suffered as a result of the use or interpretation of CCDC 18.

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AGREEMENT BETWEEN OWNER AND CONTRACTOR

This Agreement made on day of in the year .
by and between the parties

hereinafter called the “*Owner*”

and

hereinafter called the “*Contractor*”

The *Owner* and the *Contractor* agree as follows:

ARTICLE A-1 THE WORK

The *Contractor* shall:

1.1 perform the *Work* required by the *Contract Documents* for *(insert below the description or title of the Work)*

located at *(insert below the Place of the Work)*

for which the Agreement has been signed by the parties, and for which *(insert below the name of the Consultant)*

is acting as and is hereinafter called the “*Consultant*” and

1.2 do and fulfill everything indicated by the *Contract Documents*, and

1.3 commence the *Work* by the day of in the year and, subject to adjustment in *Contract Time* as provided for in the *Contract Documents*, attain *Ready-for-Takeover*, by the day of in the year .

ARTICLE A-2 AGREEMENTS AND AMENDMENTS

2.1 The *Contract* supersedes all prior negotiations, representations or agreements, either written or oral, relating in any manner to the *Work*, including the bid documents that are not expressly listed in Article A-3 of the Agreement – CONTRACT DOCUMENTS.

2.2 The *Contract* may be amended only as provided in the *Contract Documents*.

ARTICLE A-3 CONTRACT DOCUMENTS

3.1 The following are the *Contract Documents* referred to in Article A-1 of the Agreement – THE WORK:

- Agreement between *Owner* and *Contractor*
- Definitions
- General Conditions

*

* (Insert here, attaching additional pages if required, a list identifying all other Contract Documents e.g. supplementary conditions; Schedule of Prices; Division 01 of the Specifications – GENERAL REQUIREMENTS; Project information that the Contractor may rely upon; technical Specifications, giving a list of contents with section numbers and titles, number of pages and date; material finishing schedules; Drawings, giving drawing number, title, date, revision date or mark; addenda, giving title, number, date; time schedule)

ARTICLE A-4 CONTRACT PRICE

4.1 * *Unit Prices* form the basis for payment of the *Contract Price*. Quantities in the *Schedule of Prices* are estimated. The estimated *Contract Price*, which is the total extended amount indicated in the *Schedule of Prices*, is:

OR

* A lump sum stipulated price forms the basis for payment of the *Contract Price*. The *Contract Price* is:

/100 dollars \$

* *Strike out inapplicable paragraph.*

4.2 These amounts shall be subject to adjustments as provided in the *Contract Documents*.

4.3 All amounts are in Canadian funds and exclude *Value Added Taxes*.

ARTICLE A-5 PAYMENT

5.1 Subject to the provisions of the *Contract Documents* and *Payment Legislation*, and in accordance with legislation and statutory regulations respecting holdback percentages, the *Owner* shall:

- .1 make progress payments to the *Contractor* on account of the *Contract Price* when due in the amount certified by the *Consultant* unless otherwise prescribed by *Payment Legislation* together with such *Value Added Taxes* as may be applicable to such payments,
- .2 upon *Substantial Performance of the Work*, pay to the *Contractor* the unpaid balance of the holdback amount when due together with such *Value Added Taxes* as may be applicable to such payment, and
- .3 upon the issuance of the final certificate for payment, pay to the *Contractor* the unpaid balance of the *Contract Price* when due together with such *Value Added Taxes* as may be applicable to such payment.

5.2 Interest

- .1 Should either party fail to make payments as they become due under the terms of the *Contract* or in an award by adjudication, arbitration or court, interest at the following rates on such unpaid amounts shall also become due and payable until payment:
 - (1) 2% per annum above the prime rate for the first 60 days.
 - (2) 4% per annum above the prime rate after the first 60 days.

Such interest shall be compounded on a monthly basis. The prime rate shall be the rate of interest quoted by
(Insert name of chartered lending institution whose prime rate is to be used)

for prime business loans as it may change from time to time.

- .2 Interest shall apply at the rate and in the manner prescribed by paragraph 5.2.1 of this Article on the settlement amount of any claim in dispute that is resolved either pursuant to Part 8 of the General Conditions – DISPUTE RESOLUTION or otherwise, from the date the amount would have been due and payable under the *Contract*, had it not been in dispute, until the date it is paid.

ARTICLE A-6 RECEIPT OF AND ADDRESSES FOR NOTICES IN WRITING

6.1 *Notices in Writing* will be addressed to the recipient at the address set out below.

6.2 The delivery of a *Notice in Writing* will be by hand, by courier, by prepaid first class mail, or by other form of electronic communication during the transmission of which no indication of failure of receipt is communicated to the sender.

6.3 A *Notice in Writing* delivered by one party in accordance with this *Contract* will be deemed to have been received by the other party on the date of delivery if delivered by hand or courier, or if sent by mail it will be deemed to have been received five calendar days after the date on which it was mailed, provided that if either such day is not a *Working Day*, then the *Notice in Writing* will be deemed to have been received on the *Working Day* next following such day.

6.4 A *Notice in Writing* sent by any form of electronic communication will be deemed to have been received on the date of its transmission provided that if such day is not a *Working Day* or if it is received after the end of normal business hours on the date of its transmission at the place of receipt, then it will be deemed to have been received at the opening of business at the place of receipt on the first *Working Day* next following the transmission thereof.

6.5 An address for a party may be changed by *Notice in Writing* to the other party setting out the new address in accordance with this Article.

Owner

*name of Owner**

address

email address

Contractor

*name of Contractor**

address

email address

Consultant

*name of Consultant**

address

email address

** If it is intended that a specific individual must receive the notice, that individual's name shall be indicated.*

ARTICLE A-7 LANGUAGE OF THE CONTRACT

- 7.1 When the *Contract Documents* are prepared in both the English and French languages, it is agreed that in the event of any apparent discrepancy between the English and French versions, the English / French # language shall prevail.
Complete this statement by striking out inapplicable term.
- 7.2 This Agreement is drawn in English at the request of the parties hereto. La présente convention est rédigée en anglais à la demande des parties.

ARTICLE A-8 SUCCESSION

- 8.1 The *Contract* shall enure to the benefit of and be binding upon the parties hereto, their respective heirs, legal representatives, successors, and assigns.

In witness whereof the parties hereto have executed this Agreement by the hands of their duly authorized representatives.

SIGNED AND DELIVERED
in the presence of:

WITNESS

OWNER

name of Owner

signature

signature

name of person signing

name and title of person signing

WITNESS

CONTRACTOR

name of Contractor

signature

signature

name of person signing

name and title of person signing

N.B. Where legal jurisdiction, local practice or Owner or Contractor requirement calls for:
(a) proof of authority to execute this document, attach such proof of authority in the form of a certified copy of a resolution naming the representative(s) authorized to sign the Agreement for and on behalf of the corporation or partnership; or
(b) the affixing of a corporate seal, this Agreement should be properly sealed.

Town of North Rustico
Pond Street Water Line
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CCDC 18-2023 Definitions

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DEFINITIONS

The following Definitions shall apply to all *Contract Documents*.

Change Directive

A *Change Directive* is a written instruction prepared by the *Consultant* and signed by the *Owner* directing the *Contractor* to proceed with a change in the *Work* within the general scope of the *Contract Documents* prior to the *Owner* and the *Contractor* agreeing upon adjustments in the *Contract Price* and the *Contract Time*.

Change Order

A *Change Order* is a written amendment to the *Contract* prepared by the *Consultant* and signed by the *Owner* and the *Contractor* stating their agreement upon:

- a change in the *Work*;
- the method of adjustment or the amount of the adjustment in the *Contract Price*, if any; and
- the extent of the adjustment in the *Contract Time*, if any.

Construction Equipment

Construction Equipment means all machinery and equipment, either operated or not operated, that is required for preparing, fabricating, conveying, erecting, or otherwise performing the *Work* but is not incorporated into the *Work*.

Consultant

The *Consultant* is the person or entity engaged by the *Owner* and identified as such in the Agreement. The *Consultant* is the Architect, the Engineer or entity licensed to practise in the province or territory of the *Place of the Work*.

Contract

The *Contract* is the undertaking by the parties to perform their respective duties, responsibilities and obligations as prescribed in the *Contract Documents* and represents the entire agreement between the parties.

Contract Documents

The *Contract Documents* consist of those documents listed in Article A-3 of the Agreement – CONTRACT DOCUMENTS and amendments agreed upon between the parties.

Contract Price

When *Unit Prices* form the basis of payment, the *Contract Price* is the sum of the products of the actual final quantities that are incorporated in or made necessary by the *Work*, multiplied by the appropriate *Unit Prices* stated in the *Schedule of Prices*, plus lump sums and allowances, if any. When a lump sum stipulated price forms the basis of payment, the *Contract Price* is the amount stipulated in Article A-4 of the Agreement – CONTRACT PRICE.

Contract Time

The *Contract Time* is the time from commencement of the *Work* to the date of *Ready-for-Takeover* as stipulated in paragraph 1.3 of Article A-1 of the Agreement – THE WORK .

Contractor

The *Contractor* is the person or entity identified as such in the Agreement.

Drawings

The *Drawings* are the graphic and pictorial portions of the *Contract Documents*, wherever located and whenever issued, showing the design, location and dimensions of the *Work*, generally including plans, schedules, elevations, sections, details, and diagrams.

Notice in Writing

A *Notice in Writing*, where identified in the *Contract Documents*, is a written communication between the parties or between them and the *Consultant* that is transmitted in accordance with the provisions of Article A-6 of the Agreement – RECEIPT OF AND ADDRESSES FOR NOTICES IN WRITING.

Owner

The *Owner* is the person or entity identified as such in the Agreement.

Other Contractor

Other Contractor means a contractor, other than the *Contractor* or a *Subcontractor*, engaged by the *Owner* for the *Project*.

Payment Legislation

Payment Legislation means such legislation, if any, in effect at the *Place of the Work* which governs payment under construction contracts.

Place of the Work

The *Place of the Work* is the designated site or location of the *Work* identified in the *Contract Documents*.

Product

Product or *Products* means material, machinery, equipment, and fixtures forming part of the *Work*, but does not include *Construction Equipment*.

Project

The *Project* means the total construction contemplated of which the *Work* may be the whole or a part.

Ready-for-Takeover

Ready-for-Takeover shall have been attained when the conditions set out in paragraph 12.1.1 of GC 12.1 – READY-FOR-TAKEOVER have been met, as verified by the *Consultant* pursuant to paragraph 12.1.4.2 of GC 12.1 – READY-FOR-TAKEOVER.

Schedule of Prices

The *Schedule of Prices* is the schedule listed in Article A-3 – CONTRACT DOCUMENTS identifying items of work, units of measure, estimated quantities, and *Unit Prices*.

Shop Drawings

Shop Drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures, *Product* data, and other data which the *Contractor* provides to illustrate details of portions of the *Work*.

Specifications

The *Specifications* are that portion of the *Contract Documents*, wherever located and whenever issued, consisting of the written requirements and standards for *Products*, systems, workmanship, quality, and the services necessary for the performance of the *Work*.

Subcontractor

A *Subcontractor* is a person or entity having a direct contract with the *Contractor* to perform a part or parts of the *Work* at the *Place of the Work*.

Substantial Performance of the Work

Substantial Performance of the Work is as defined in the lien legislation applicable to the *Place of the Work*.

Supplemental Instruction

A *Supplemental Instruction* is an instruction, not involving adjustment in the *Contract Price* or *Contract Time*, in the form of *Specifications*, *Drawings*, schedules, samples, models, or written instructions, consistent with the intent of the *Contract Documents*. It is to be issued by the *Consultant* to supplement the *Contract Documents* as required for the performance of the *Work*.

Supplier

A *Supplier* is a person or entity having a direct contract with the *Contractor* to supply *Products*.

Temporary Work

Temporary Work means temporary supports, structures, facilities, services, and other temporary items, excluding *Construction Equipment*, required for the execution of the *Work* but not incorporated into the *Work*.

Unit Price

A *Unit Price* is the amount payable for a single unit of *Work* as stated in the *Schedule of Prices*.

Value Added Taxes

Value Added Taxes means such sum as shall be levied upon the *Contract Price* by the Federal or any Provincial or Territorial Government and is computed as a percentage of the *Contract Price* and includes the Goods and Services Tax, the Quebec Sales Tax, the Harmonized Sales Tax, and any similar tax, the collection and payment of which have been imposed on the *Contractor* by tax legislation.

Work

The *Work* means the total construction and related services required by the *Contract Documents*.

Working Day

Working Day means a day other than a Saturday, Sunday, statutory holiday, or statutory vacation day that is observed by the construction industry in the area of the *Place of the Work*.

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GENERAL CONDITIONS

PART 1 GENERAL PROVISIONS

GC 1.1 CONTRACT DOCUMENTS

- 1.1.1 The intent of the *Contract Documents* is to include the labour, *Products* and services necessary for the performance of the *Work* by the *Contractor* in accordance with these documents. It is not intended, however, that the *Contractor* shall supply products or perform work not consistent with, not covered by, or not properly inferable from the *Contract Documents*.
- 1.1.2 The *Contract Documents* are complementary, and what is required by one shall be as binding as if required by all. Performance by the *Contractor* shall be required only to the extent consistent with the *Contract Documents*.
- 1.1.3 The *Contractor* shall review the *Contract Documents* for the purpose of facilitating co-ordination and execution of the *Work* by the *Contractor*.
- 1.1.4 The *Contractor* is not responsible for errors, omissions or inconsistencies in the *Contract Documents*. If there are perceived errors, omissions or inconsistencies discovered by or made known to the *Contractor*, the *Contractor* shall promptly report to the *Consultant* and shall not proceed with the work affected until the *Contractor* has received corrected or additional information from the *Consultant*.
- 1.1.5 If there is a conflict within the *Contract Documents*:
- .1 the order of priority of documents, from highest to lowest, shall be
 - the Agreement between *Owner* and *Contractor*,
 - the Definitions,
 - Supplementary Conditions,
 - the General Conditions,
 - Division 01 of the *Specifications*,
 - technical *Specifications*,
 - material and finishing schedules,
 - the *Drawings*.
 - .2 *Drawings* of larger scale shall govern over those of smaller scale of the same date.
 - .3 dimensions shown on *Drawings* shall govern over dimensions scaled from *Drawings*.
 - .4 amended or later dated documents shall govern over earlier documents of the same type.
 - .5 noted materials and annotations shall govern over graphic indications.
- 1.1.6 Nothing contained in the *Contract Documents* shall create any contractual relationship between:
- .1 the *Owner* and a *Subcontractor*, a *Supplier*, or their agent, employee, or other person performing any portion of the *Work*.
 - .2 the *Consultant* and the *Contractor*, a *Subcontractor*, a *Supplier*, or their agent, employee, or other person performing any portion of the *Work*.
- 1.1.7 Words and abbreviations which have well known technical or trade meanings are used in the *Contract Documents* in accordance with such recognized meanings.
- 1.1.8 References in the *Contract Documents* to the singular shall be considered to include the plural as the context requires.
- 1.1.9 Neither the organization of the *Specifications* nor the arrangement of *Drawings* shall control the *Contractor* in dividing the work among *Subcontractors* and *Suppliers*.
- 1.1.10 *Specifications*, *Drawings*, models, and copies thereof furnished by the *Consultant* are and shall remain the *Consultant*'s property, with the exception of the signed *Contract* sets, which shall belong to each party to the *Contract*. All *Specifications*, *Drawings* and models furnished by the *Consultant* are to be used only with respect to the *Work* and are not to be used on other work. These *Specifications*, *Drawings* and models are not to be copied or altered in any manner without the written authorization of the *Consultant*.
- 1.1.11 Physical models furnished by the *Contractor* at the *Owner*'s expense are the property of the *Owner*.

GC 1.2 LAW OF THE CONTRACT

- 1.2.1 The law of the *Place of the Work* shall govern the interpretation of the *Contract*.

GC 1.3 RIGHTS AND REMEDIES

- 1.3.1 Except as expressly provided in the *Contract Documents*, the duties and obligations imposed by the *Contract Documents* and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights, and remedies otherwise imposed or available by law.
- 1.3.2 No action or failure to act by the *Owner*, the *Consultant* or the *Contractor* shall constitute a waiver of any right or duty afforded any of them under the *Contract*, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

GC 1.4 ASSIGNMENT

- 1.4.1 Neither party to the *Contract* shall assign the *Contract* or a portion thereof without the written consent of the other, which consent shall not be unreasonably withheld.

PART 2 ADMINISTRATION OF THE CONTRACT

GC 2.1 AUTHORITY OF THE CONSULTANT

- 2.1.1 The *Consultant* will have authority to act on behalf of the *Owner* only to the extent provided in the *Contract Documents*, unless otherwise modified by written agreement as provided in paragraph 2.1.2.
- 2.1.2 The duties, responsibilities and limitations of authority of the *Consultant* as set forth in the *Contract Documents* shall be modified or extended only with the written consent of the *Owner*, the *Consultant* and the *Contractor*.

GC 2.2 ROLE OF THE CONSULTANT

- 2.2.1 The *Consultant* will provide administration of the *Contract* as described in the *Contract Documents*.
- 2.2.2 The *Consultant* will visit the *Place of the Work* at intervals appropriate to the progress of construction to:
- .1 become familiar with the progress and quality of the *Work*,
 - .2 determine if the *Work* is proceeding in general conformity with the *Contract Documents*,
 - .3 verify quantities of *Work* performed under a *Schedule of Prices* where *Unit Prices* form the basis for payment, and
 - .4 verify amounts claimed under schedule of values where lump sum stipulated price forms the basis for payment of the *Contract Price*.
- 2.2.3 If the *Owner* and the *Consultant* agree, the *Consultant* will provide at the *Place of the Work*, one or more project representatives to assist in carrying out the *Consultant's* responsibilities. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in writing to the *Contractor*.
- 2.2.4 Based on the *Consultant's* observations and evaluation of the *Contractor's* applications for payment, the *Consultant* will determine the amounts owing to the *Contractor* under the *Contract* and will issue certificates for payment as provided in Article A-5 of the Agreement – PAYMENT, GC 5.5 – PAYMENT and GC 5.7 – FINAL PAYMENT.
- 2.2.5 The *Consultant* will not be responsible for and will not have control, charge or supervision of construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs required in connection with the *Work* in accordance with the applicable construction safety legislation, other regulations or general construction practice. The *Consultant* will not be responsible for the *Contractor's* failure to perform the *Work* in accordance with the *Contract Documents*.
- 2.2.6 Except with respect to GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER, the *Consultant* will be, in the first instance, the interpreter of the requirements of the *Contract Documents*.
- 2.2.7 Matters in question relating to the performance of the *Work* or the interpretation of the *Contract Documents* shall be initially referred in writing to the *Consultant* by the party raising the question for interpretations and findings and copied to the other party.
- 2.2.8 Interpretations and findings of the *Consultant* shall be consistent with the intent of the *Contract Documents*. In making such interpretations and findings the *Consultant* will not show partiality to either the *Owner* or the *Contractor*.
- 2.2.9 The *Consultant's* interpretations and findings will be given in writing to the parties within a reasonable time.
- 2.2.10 With respect to claims for a change in *Contract Price*, the *Consultant* will make findings as set out in GC 6.6 – CLAIMS FOR A CHANGE IN CONTRACT PRICE.

- 2.2.11 The *Consultant* will have authority to reject work which in the *Consultant's* opinion does not conform to the requirements of the *Contract Documents*. Whenever the *Consultant* considers it necessary or advisable, the *Consultant* will have authority to require inspection or testing of work, whether or not such work is fabricated, installed or completed. However, neither the authority of the *Consultant* to act nor any decision either to exercise or not to exercise such authority shall give rise to any duty or responsibility of the *Consultant* to the *Contractor*, *Subcontractors*, *Suppliers*, or their agents, employees, or other persons performing any of the *Work*.
- 2.2.12 During the progress of the *Work* the *Consultant* will furnish *Supplemental Instructions* to the *Contractor* with reasonable promptness or in accordance with a schedule for such instructions agreed to by the *Consultant* and the *Contractor*.
- 2.2.13 The *Consultant* will review and take appropriate action upon *Shop Drawings*, samples and other submittals by the *Contractor*, in accordance with the *Contract Documents*.
- 2.2.14 The *Consultant* will prepare *Change Orders* and *Change Directives* as provided in GC 6.2 – CHANGE ORDER and GC 6.3 – CHANGE DIRECTIVE.
- 2.2.15 The *Consultant* will conduct reviews of the *Work* to determine the date of *Substantial Performance of the Work* and verify that *Ready-for-Takeover* has been attained.
- 2.2.16 All certificates issued by the *Consultant* will be to the best of the *Consultant's* knowledge, information and belief. By issuing any certificate, the *Consultant* does not guarantee the *Work* is correct or complete.
- 2.2.17 The *Consultant* will receive and review written warranties and related documents required by the *Contract* and provided by the *Contractor* and will forward such warranties and documents to the *Owner* for the *Owner's* acceptance.
- 2.2.18 If the *Consultant's* engagement is terminated, the *Owner* shall immediately engage a *Consultant* against whom the *Contractor* makes no reasonable objection and whose duties and responsibilities under the *Contract Documents* will be that of the former *Consultant*.

GC 2.3 REVIEW AND INSPECTION OF THE WORK

- 2.3.1 The *Owner* and the *Consultant* shall have access to the *Work* at all times. The *Contractor* shall provide sufficient, safe and proper facilities at all times for the review of the *Work* by the *Consultant* and the inspection of the *Work* by authorized agencies. If parts of the *Work* are in preparation at locations other than the *Place of the Work*, the *Owner* and the *Consultant* shall be given access to such work whenever it is in progress.
- 2.3.2 If work is designated for measurement for payment, tests, inspections or approvals in the *Contract Documents*, by the *Consultant's* instructions, or by the laws or ordinances of the *Place of the Work*, the *Contractor* shall give the *Consultant* reasonable notification of when the work will be ready for measurements, tests, inspections, and approvals. The *Contractor* shall arrange for and shall give the *Consultant* reasonable notification of the date and time of inspections by other authorities.
- 2.3.3 The *Contractor* shall furnish promptly to the *Consultant* two copies of certificates and inspection reports relating to the *Work*.
- 2.3.4 If the *Contractor* covers, or permits to be covered, work that has been designated for measurement for payment, special tests, inspections, or approvals before such measurements, special tests, inspections, or approvals are made, given or completed, the *Contractor* shall, if so directed, uncover such work, have the measurements, special tests, inspections, and approvals satisfactorily completed, and make good covering work at the *Contractor's* expense.
- 2.3.5 The *Consultant* may order any portion or portions of the *Work* to be examined to confirm that such work is in accordance with the requirements of the *Contract Documents*. If the work is not in accordance with the requirements of the *Contract Documents*, the *Contractor* shall correct the work and pay the cost of examination and correction. If the work is in accordance with the requirements of the *Contract Documents*, the *Owner* shall pay the cost of examination and restoration.
- 2.3.6 The *Contractor* shall pay the cost of making any test or inspection, including the cost of samples required for such test or inspection, if such test or inspection is designated in the *Contract Documents* to be performed by the *Contractor* or is required by the laws or ordinances applicable to the *Place of the Work*.
- 2.3.7 The *Contractor* shall pay the cost of samples required for any test or inspection to be performed by others if such test or inspection is designated in the *Contract Documents*.

GC 2.4 DEFECTIVE WORK

- 2.4.1 The *Contractor* shall promptly correct defective work that has been rejected by the *Consultant* as failing to conform to the *Contract Documents* whether or not the defective work was incorporated in the *Work* or the defect is the result of poor workmanship, use of defective products or damage through carelessness or other act or omission of the *Contractor*.
- 2.4.2 The *Contractor* shall make good promptly *Other Contractors'* work destroyed or damaged by such corrections at the *Contractor's* expense.
- 2.4.3 If in the opinion of the *Consultant* it is not expedient to correct defective work or work not performed as provided in the *Contract Documents*, the *Owner* may deduct from the amount otherwise due to the *Contractor* the difference in value between the work as performed and that called for by the *Contract Documents*. If the *Owner* and the *Contractor* do not agree on the difference in value, they shall refer the matter to the *Consultant* for a finding.

PART 3 EXECUTION OF THE WORK

GC 3.1 CONTROL OF THE WORK

- 3.1.1 The *Contractor* shall have total control of the *Work* and shall effectively direct and supervise the *Work* so as to ensure conformity with the *Contract Documents*.
- 3.1.2 The *Contractor* shall be solely responsible for construction means, methods, techniques, sequences, and procedures and for co-ordinating the various parts of the *Work* under the *Contract*.

GC 3.2 CONSTRUCTION BY THE OWNER OR OTHER CONTRACTORS

- 3.2.1 The *Owner* reserves the right to award separate contracts in connection with other parts of the *Project* to *Other Contractors* and to perform work with own forces.
- 3.2.2 When separate contracts are awarded for other parts of the *Project*, or when work is performed by the *Owner's* own forces, the *Owner* shall:
- .1 provide for the co-ordination of the activities and work of *Other Contractors* and the *Owner's* own forces with the *Work* of the *Contract*;
 - .2 enter into separate contracts with *Other Contractors* under conditions of contract which are compatible with the conditions of the *Contract*;
 - .3 ensure that insurance coverage is provided to the same requirements as are called for in GC 11.1 – INSURANCE and co-ordinate such insurance with the insurance coverage of the *Contractor* as it affects the *Work*; and
 - .4 take all reasonable precautions to avoid labour disputes or other disputes on the *Project* arising from the work of *Other Contractors* or the *Owner's* own forces.
- 3.2.3 When separate contracts are awarded for other parts of the *Project*, or when work is performed by the *Owner's* own forces, the *Contractor* shall:
- .1 afford the *Owner* and *Other Contractors* reasonable opportunity to store their products and execute their work;
 - .2 co-ordinate and schedule the *Work* with the work of *Other Contractors* or the *Owner's* own forces that are identified in the *Contract Documents*;
 - .3 participate with *Other Contractors* and the *Owner* in reviewing their construction schedules when directed to do so; and
 - .4 report promptly to the *Consultant* in writing any apparent deficiencies in the work of *Other Contractors* or of the *Owner's* own forces, where such work affects the proper execution of any portion of the *Work*, prior to proceeding with that portion of the *Work*.
- 3.2.4 Where a change in the *Work* is required as a result of the co-ordination and integration of the work of *Other Contractors* or *Owner's* own forces with the *Work*, the changes shall be authorized and valued as provided in GC 6.1 – OWNER'S RIGHT TO MAKE CHANGES, GC 6.2 – CHANGE ORDER and GC 6.3 – CHANGE DIRECTIVE.
- 3.2.5 Disputes and other matters in question between the *Contractor* and *Other Contractors* shall be dealt with as provided in Part 8 of the General Conditions – DISPUTE RESOLUTION provided the *Other Contractors* have reciprocal obligations. The *Contractor* shall be deemed to have consented to arbitration of any dispute with any *Other Contractor* whose contract with the *Owner* contains a similar agreement to arbitrate. In the absence of *Other Contractors* having reciprocal obligations, disputes and other matters in question initiated by the *Contractor* against *Other Contractors* will be considered disputes and other matters in question between the *Contractor* and the *Owner*.
- 3.2.6 Should the *Owner*, the *Consultant*, *Other Contractors*, or anyone employed by them directly or indirectly be responsible for ill-timed work necessitating cutting or remedial work to be performed, the cost of such cutting or remedial work shall be valued as provided in GC 6.1 – OWNER'S RIGHT TO MAKE CHANGES, GC 6.2 – CHANGE ORDER and GC 6.3 – CHANGE DIRECTIVE.

GC 3.3 TEMPORARY WORK

- 3.3.1 The *Contractor* shall have the sole responsibility for the design, erection, operation, maintenance, and removal of *Temporary Work* unless otherwise specified in the *Contract Documents*.
- 3.3.2 The *Contractor* shall engage and pay for registered professional engineering personnel skilled in the appropriate disciplines to perform those functions referred to in paragraph 3.3.1 where required by law or by the *Contract Documents* and in all cases where such *Temporary Work* is of such a nature that professional engineering skill is required to produce safe and satisfactory results.
- 3.3.3 Notwithstanding the provisions of GC 3.1 – CONTROL OF THE WORK, paragraphs 3.3.1 and 3.3.2 or provisions to the contrary elsewhere in the *Contract Documents* where such *Contract Documents* include designs for *Temporary Work* or specify a method of construction in whole or in part, such designs or methods of construction shall be considered to be part of the design of the *Work* and the *Contractor* shall not be held responsible for that part of the design or the specified method of construction. The *Contractor* shall, however, be responsible for the execution of such design or specified method of construction in the same manner as for the execution of the *Work*.

GC 3.4 CONSTRUCTION SCHEDULE

- 3.4.1 The *Contractor* shall:
- .1 prepare and submit to the *Owner* and the *Consultant* prior to the first application for payment, a construction schedule that indicates the timing of the major activities of the *Work* and provides sufficient detail of the critical events and their inter-relationship to demonstrate the *Work* will be performed in conformity with the *Contract Time*;
 - .2 monitor the progress of the *Work* relative to the construction schedule and update the schedule on a monthly basis or as stipulated by the *Contract Documents*; and
 - .3 advise the *Consultant* of any revisions required to the schedule as the result of extensions of the *Contract Time* as provided in Part 6 of the General Conditions – CHANGES IN THE WORK.

GC 3.5 SUPERVISION

- 3.5.1 The *Contractor* shall provide all necessary supervision and appoint a competent representative who shall be in attendance at the *Place of the Work* while the *Work* is being performed. The appointed representative shall not be changed except for valid reason.
- 3.5.2 The appointed representative shall represent the *Contractor* at the *Place of the Work*. Information and instructions provided by the *Consultant* to the *Contractor's* appointed representative shall be deemed to have been received by the *Contractor*, except with respect to Article A-6 of the Agreement – RECEIPT OF AND ADDRESSES FOR NOTICES IN WRITING.

GC 3.6 LAYOUT OF THE WORK

- 3.6.1 The *Owner* shall, in consultation with the *Consultant* and the *Contractor*, establish reference points for construction which are necessary for the *Contractor* to proceed with the *Work*.
- 3.6.2 The *Contractor* shall be responsible for laying out the *Work*, shall preserve and protect the established reference points, and shall not change or relocate the established reference points without the approval of the *Consultant*.
- 3.6.3 The *Contractor* shall advise the *Consultant* whenever any established reference point is lost, destroyed, damaged, or requires relocation as a result of the *Contractor's* operations. The cost to reestablish any reference point that is lost, destroyed, damaged, or requires relocation as a result of the *Contractor's* operations, shall be at the *Contractor's* expense.

GC 3.7 SUBCONTRACTORS AND SUPPLIERS

- 3.7.1 The *Contractor* shall preserve and protect the rights of the parties under the *Contract* with respect to work to be performed under subcontract, and shall:
- .1 enter into contracts or written agreements with *Subcontractors* and *Suppliers* to require them to perform their work as provided in the *Contract Documents*;
 - .2 incorporate the applicable terms and conditions of the *Contract Documents* into all contracts or written agreements with *Subcontractors* and *Suppliers*; and
 - .3 be as fully responsible to the *Owner* for acts and omissions of *Subcontractors*, *Suppliers* and any persons directly or indirectly employed by them as for acts and omissions of persons directly employed by the *Contractor*.
- 3.7.2 The *Contractor* shall indicate in writing, if requested by the *Owner*, those *Subcontractors* or *Suppliers* whose bids have been received by the *Contractor* which the *Contractor* would be prepared to accept for the performance of a portion of the *Work*. Should the *Owner* not object before signing the *Contract*, the *Contractor* shall employ those *Subcontractors* or *Suppliers* so identified by the *Contractor* in writing for the performance of that portion of the *Work* to which their bid applies.

- 3.7.3 The *Owner* may, for reasonable cause, at any time before the *Owner* has signed the *Contract*, object to the use of a proposed *Subcontractor* or *Supplier* and require the *Contractor* to employ one of the other subcontract bidders.
- 3.7.4 If the *Owner* requires the *Contractor* to change a proposed *Subcontractor* or *Supplier*, the *Contract Price* and *Contract Time* shall be adjusted by the difference occasioned by such required change.
- 3.7.5 The *Contractor* shall not be required to employ as a *Subcontractor* or *Supplier*, a person or firm to which the *Contractor* may reasonably object.
- 3.7.6 The *Owner*, through the *Consultant*, may provide to a *Subcontractor* or *Supplier* information as to the percentage of the *Subcontractor's* or *Supplier's* work which has been certified for payment.

GC 3.8 LABOUR AND PRODUCTS

- 3.8.1 The *Contractor* shall maintain good order and discipline among the *Contractor's* employees engaged on the *Work* and employ only workers that are skilled in the tasks assigned.
- 3.8.2 The *Contractor* shall provide and pay for labour, *Products*, tools, *Construction Equipment*, water, heat, light, power, transportation, and other facilities and services necessary for the performance of the *Work* in accordance with the *Contract*.
- 3.8.3 Unless otherwise specified in the *Contract Documents*, *Products* provided shall be new. *Products* which are not specified shall be of a quality consistent with those specified and their use acceptable to the *Consultant*.

GC 3.9 SHOP DRAWINGS

- 3.9.1 The *Contractor* shall provide *Shop Drawings* as required in the *Contract Documents*.
- 3.9.2 The *Contractor* shall provide *Shop Drawings* to the *Consultant* to review in accordance with an agreed schedule, or in the absence of an agreed schedule, in orderly sequence and sufficiently in advance so as to cause no delay in the *Work* or in the work of *Other Contractors* or the *Owner's* own forces.
- 3.9.3 The *Contractor* shall review all *Shop Drawings* before providing them to the *Consultant*. The *Contractor* represents by this review that:
- 1 the *Contractor* has determined and verified all applicable field measurements, field construction conditions, *Product* requirements, catalogue numbers and similar data, or will do so, and
 - 2 the *Contractor* has checked and co-ordinated each *Shop Drawing* with the requirements of the *Work* and of the *Contract Documents*.
- 3.9.4 The *Consultant's* review is for conformity to the design concept and for general arrangement only.
- 3.9.5 At the time of providing *Shop Drawings*, the *Contractor* shall expressly advise the *Consultant* in writing of any deviations in a *Shop Drawing* from the requirements of the *Contract Documents*. The *Consultant* shall indicate the acceptance or rejection of such deviation expressly in writing.
- 3.9.6 The *Consultant's* review shall not relieve the *Contractor* of responsibility for errors or omissions in the *Shop Drawings* or for meeting all requirements of the *Contract Documents*.
- 3.9.7 The *Consultant* will review and return *Shop Drawings* in accordance with the schedule agreed upon, or, in the absence of such schedule, with reasonable promptness so as to cause no delay in the performance of the *Work*.

PART 4 ALLOWANCES

GC 4.1 CASH ALLOWANCES

- 4.1.1 The *Contract Price* includes the cash allowances, if any, stated in the *Contract Documents*. The scope of the *Work* or costs included in such cash allowances shall be as described in the *Contract Documents*.
- 4.1.2 The *Contract Price*, and not the cash allowances, includes the *Contractor's* overhead and profit in connection with such cash allowances.
- 4.1.3 Expenditures under cash allowances shall be authorized by the *Owner* through the *Consultant*.
- 4.1.4 Where the actual cost of the *Work* under any cash allowance exceeds the amount of the allowance, any unexpended amounts from other cash allowances shall be reallocated, at the *Consultant's* direction, to cover the shortfall, and, in that case, there shall be no additional amount added to the *Contract Price* for overhead and profit. Only where the actual cost of the *Work* under all cash allowances exceeds the total amount of all cash allowances shall the *Contractor* be compensated for the excess incurred and substantiated, plus an amount for overhead and profit on the excess only, as set out in the *Contract Documents*.

- 4.1.5 The net amount of any unexpended cash allowances, after providing for any reallocations as contemplated in paragraph 4.1.4, shall be deducted from the *Contract Price* by *Change Order* without any adjustment for the *Contractor's* overhead and profit on such amount.
- 4.1.6 The value of the *Work* performed under a cash allowance is eligible to be included in progress payments.
- 4.1.7 The *Contractor* and the *Consultant* shall jointly prepare a schedule that shows when the items called for under cash allowances must be ordered to avoid delaying the progress of the *Work*.

GC 4.2 CONTINGENCY ALLOWANCE

- 4.2.1 The *Contract Price* includes the contingency allowance, if any, stated in the *Contract Documents*.
- 4.2.2 The contingency allowance includes the *Contractor's* overhead and profit in connection with such contingency allowance.
- 4.2.3 Expenditures under the contingency allowance shall be authorized and valued as provided in GC 6.1 – OWNER'S RIGHT TO MAKE CHANGES, GC 6.2 – CHANGE ORDER and GC 6.3 – CHANGE DIRECTIVE.
- 4.2.4 The *Contract Price* shall be adjusted by *Change Order* to provide for any difference between the expenditures authorized under paragraph 4.2.3 and the contingency allowance.

PART 5 PAYMENT

GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER

- 5.1.1 The *Owner* shall, at the request of the *Contractor*, before signing the *Contract*, and promptly from time to time thereafter, furnish to the *Contractor* reasonable evidence that financial arrangements have been made to fulfill the *Owner's* obligations under the *Contract*.
- 5.1.2 The *Owner* shall give the *Contractor Notice in Writing* of any material change in the *Owner's* financial arrangements to fulfill the *Owner's* obligations under the *Contract* during the performance of the *Contract*.

GC 5.2 BASIS OF PAYMENT FOR UNIT PRICE WORK

- 5.2.1 Payment for *Unit Price Work* shall be based on the *Unit Prices* in the *Contract*.
- 5.2.2 The *Contractor* shall measure the *Work* and the *Consultant* will verify such measurements to determine payment to the *Contractor* in accordance with the measurement provisions of the *Contract Documents*.

GC 5.3 BASIS OF PAYMENT FOR LUMP SUM WORK

- 5.3.1 Payment for lump sum *Work* shall be based on the stipulated price(s) in the *Contract*.

GC 5.4 APPLICATIONS FOR PAYMENT

- 5.4.1 Applications for payment on account as provided in Article A-5 of the Agreement – PAYMENT shall be submitted monthly to the *Owner* and the *Consultant* simultaneously as the *Work* progresses.
- 5.4.2 Applications for payment shall be dated the last day of each payment period, which is the last day of the month or an alternative day of the month agreed in writing by the parties.
- 5.4.3 Where the basis of payment of the *Contract Price* is *Unit Prices*, applications for payment shall include quantity measurements and any other data requested by the *Consultant* to assist the *Consultant* in evaluating the application and verifying quantity measurements.
- 5.4.4 Where the basis of payment of the *Contract Price* is a lump sum stipulated price:
- .1 the *Contractor* shall submit to the *Consultant*, at least 15 calendar days before the first application for payment, a schedule of values for the parts of the *Work*, aggregating the total amount of the *Contract Price*, so as to facilitate evaluation of applications for payment;
 - .2 the schedule of values shall be made out in such form as specified in the *Contract* and supported by such evidence as the *Consultant* may reasonably require;
 - .3 applications for payment shall be based on the schedule of values accepted by the *Consultant*, and
 - .4 the amount claimed shall be for the value, proportionate to the amount of the *Contract*, of *Work* performed and *Products* delivered to the *Place of the Work* as of the last day of the payment period.
- 5.4.5 Applications for payment shall comply with the provisions of *Payment Legislation*.

- 5.4.6 Each application for payment shall include evidence of compliance with workers' compensation legislation at the *Place of the Work* and after the first payment, a declaration by the *Contractor* as to the distribution made of the amounts previously received using document CCDC 9A 'Statutory Declaration'.
- 5.4.7 Applications for payment for *Products* delivered to the *Place of the Work* but not yet incorporated into the *Work* shall be supported by such evidence as the *Consultant* may reasonably require to establish the value and delivery of the *Products*.

GC 5.5 PAYMENT

- 5.5.1 After receipt by the *Consultant* and the *Owner* of an application for payment submitted by the *Contractor* in accordance with GC 5.4 – APPLICATIONS FOR PAYMENT:
- .1 The *Consultant* will issue to the *Owner* and copy to the *Contractor*, no later than 10 calendar days after the receipt of the application for payment, a certificate for payment in the amount applied for, or in such other amount as the *Consultant* determines to be properly due. If the *Consultant* certifies a different amount, or rejects the application or part thereof, the *Owner* shall promptly issue a written notice to the *Contractor* giving reasons for the revision or rejection, such written notice to be in compliance with *Payment Legislation*,
 - .2 The *Owner* shall make payment to the *Contractor* on account as provided in Article A-5 of the Agreement – PAYMENT on or before 28 calendar days after the receipt by the *Owner* and the *Consultant* of the application for payment, and in any event, in compliance with *Payment Legislation*.
- 5.5.2 Where the basis of payment for an item is by *Unit Price*, quantities in progress payments shall be considered estimate until all *Work* required by that *Unit Price* item is complete.

GC 5.6 SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK

- 5.6.1 The *Consultant* will review the *Work* to certify or verify the validity of the application for *Substantial Performance of the Work* and will promptly, and in any event, no later than 20 calendar days after receipt of the *Contractor's* application:
- .1 advise the *Contractor* in writing that the *Work* or the designated portion of the *Work* is not substantially performed and give reasons why, or
 - .2 state the date of *Substantial Performance of the Work* or a designated portion of the *Work* in a certificate and issue a copy of that certificate to each of the *Owner* and the *Contractor*.
- 5.6.2 Where the holdback amount required by the applicable lien legislation has not been placed in a separate lien holdback account, the *Owner* shall, no later than 10 calendar days prior to the expiry of the holdback period stipulated in the lien legislation applicable to the *Place of the Work*, place the holdback amount in a bank account in the joint names of the *Owner* and the *Contractor*.
- 5.6.3 Subject to the requirements of any *Payment Legislation*, all holdback amount prescribed by the applicable lien legislation for the *Work* shall become due and payable to the *Contractor* no later than 10 *Working Days* following the expiration of the holdback period stipulated in the lien legislation applicable to the *Place of the Work*.
- 5.6.4 The *Contractor* shall submit an application for payment of the lien holdback amount in accordance with GC 5.5 –PAYMENT.
- 5.6.5 Where legislation permits progressive release of the holdback for a portion of the *Work* and the *Consultant* has certified or verified that the part of the *Work* has been performed prior to *Substantial Performance of the Work*, the *Owner* hereby agrees to release, and shall release, such portion to the *Contractor* in accordance with such legislation.
- 5.6.6 Notwithstanding any progressive release of the holdback, the *Contractor* shall ensure that such parts of the *Work* are protected pending the issuance of a final certificate for payment and be responsible for the correction of defects or work not performed regardless of whether or not such was apparent when the holdback was released.

GC 5.7 FINAL PAYMENT

- 5.7.1 When the *Contractor* considers that the *Work* is completed, the *Contractor* shall submit an application for final payment.
- 5.7.2 The *Consultant* will, no later than 10 calendar days after the receipt of an application from the *Contractor* for final payment, review the *Work* to verify the validity of the application and when the *Consultant* finds the *Contractor's* application for final payment valid, the *Consultant* will promptly issue a final certificate for payment to the *Owner*, with a copy to the *Contractor*.
- 5.7.3 If the *Consultant* rejects the application or part thereof, the *Owner* will promptly issue a written notice to the *Contractor* giving reasons for the revision or rejection, such written notice to be in compliance with *Payment Legislation*.

- 5.7.4 Subject to the provision of paragraph 10.4.1 of GC 10.4 – WORKERS’ COMPENSATION, and any legislation applicable to the *Place of the Work*, the *Owner* shall, no later than 5 calendar days after the issuance of a final certificate for payment, pay the *Contractor* as provided in Article A-5 of the Agreement – PAYMENT and in any event, in compliance with *Payment Legislation*.

GC 5.8 DEFERRED WORK

- 5.8.1 If because of climatic or other conditions reasonably beyond the control of the *Contractor*, or if the *Owner* and the *Contractor* agree that, there are items of work that must be deferred, payment in full for that portion of the *Work* which has been performed as certified by the *Consultant* shall not be withheld or delayed by the *Owner* on account thereof, but the *Owner* may withhold, until the remaining portion of the *Work* is finished, only such an amount that the *Consultant* determines is sufficient and reasonable to cover the cost of performing such deferred *Work*.

GC 5.9 NON-CONFORMING WORK

- 5.9.1 No payment by the *Owner* under the *Contract* nor partial or entire use or occupancy of the *Work* by the *Owner* shall constitute an acceptance of any portion of the *Work* or *Products* which are not in accordance with the requirements of the *Contract Documents*.

PART 6 CHANGES IN THE WORK

GC 6.1 OWNER’S RIGHT TO MAKE CHANGES

- 6.1.1 The *Owner*, through the *Consultant*, without invalidating the *Contract*, may make:
- .1 changes in the *Work* consisting of additions, deletions or other revisions to the *Work* by *Change Order* or *Change Directive*, and
 - .2 changes to the *Contract Time* for the *Work*, or any part thereof, by *Change Order*.
- 6.1.2 The *Contractor* shall not perform a change in the *Work* without a *Change Order* or a *Change Directive*.

GC 6.2 CHANGE ORDER

- 6.2.1 When a change in the *Work* is proposed or required, the *Consultant* will provide the *Contractor* with a written description of the proposed change in the *Work*. The *Contractor* shall promptly present to the *Consultant*, in a form that can be reasonably evaluated, a method of adjustment or an amount of adjustment for the *Contract Price*, if any, and the adjustment in the *Contract Time*, if any, for the proposed change in the *Work*.
- 6.2.2 The method of adjustment of the *Contract Price* presented by the *Contractor* may be:
- .1 *Unit Prices* listed in the *Schedule of Prices* that are applicable to the change in the *Work* or, if *Unit Prices* listed in the *Schedule of Prices* are not directly applicable, by unit prices deduced or extrapolated from such *Unit Prices*,
 - .2 a lump sum or unit price quotation, or
 - .3 the cost plus method.
- 6.2.3 When the *Owner* and the *Contractor* agree to the adjustments in the *Contract Price* and *Contract Time* or to the method to be used to determine the adjustments, such agreement shall be effective immediately and shall be recorded in a *Change Order*. The value of the work performed as the result of a *Change Order* shall be included in the applications for progress payment.

GC 6.3 CHANGE DIRECTIVE

- 6.3.1 If the *Owner* requires the *Contractor* to proceed with a change in the *Work* prior to the *Owner* and the *Contractor* agreeing upon the corresponding adjustment in *Contract Price* and *Contract Time*, the *Owner*, through the *Consultant*, shall issue a *Change Directive*.
- 6.3.2 A *Change Directive* shall only be used to direct a change in the *Work* which is within the general scope of the *Contract Documents*.
- 6.3.3 A *Change Directive* shall not be used to direct a change in the *Contract Time* only.
- 6.3.4 Upon receipt of a *Change Directive*, the *Contractor* shall proceed promptly with the change in the *Work*.
- 6.3.5 For the purpose of valuing *Change Directives*, changes in the *Work* that are not substitutions or otherwise related to each other shall not be grouped together in the same *Change Directive*.

- 6.3.6 The adjustment in the *Contract Price* for a change carried out by way of a *Change Directive* shall be determined on the basis of the cost of the *Contractor's* actual expenditures and savings attributable to the *Change Directive*, valued in accordance with paragraph 6.3.7 and as follows:
- .1 If the change results in a net increase in the *Contractor's* cost, the *Contract Price* shall be increased by the amount of the net increase in the *Contractor's* cost, plus the *Contractor's* percentage fee on such net increase.
 - .2 If the change results in a net decrease in the *Contractor's* cost, the *Contract Price* shall be decreased by the amount of the net decrease in the *Contractor's* cost, without adjustment for the *Contractor's* percentage fee.
 - .3 The *Contractor's* fee shall be as specified in the *Contract Documents* or as otherwise agreed by the parties.
- 6.3.7 The cost of performing the work attributable to the *Change Directive* shall be limited to the actual cost of the following in as much as it contributes directly to the implementation of the *Change Directive*:

Labour

- .1 rates that are listed in the schedule or as agreed by the *Owner* and the *Contractor* including wages, benefits, compensation, contributions, assessments, or taxes incurred for such items as employment insurance, provincial or territorial health insurance, workers' compensation, and Canada or Quebec Pension Plan for:
 - (1) trade labour in the direct employ of the *Contractor*;
 - (2) the *Contractor's* personnel when stationed at the field office;
 - (3) the *Contractor's* personnel engaged at shops or on the road, in expediting the production or transportation of materials or equipment; and
 - (4) the *Contractor's* office personnel engaged in a technical capacity, or other personnel identified in Article A-3 of the Agreement – CONTRACT DOCUMENTS for the time spent in the performance of the *Work*.

Products, Construction Equipment and Temporary Work

- .2 cost of all *Products* including cost of transportation thereof;
- .3 in the absence of agreed rates, cost less salvage value of *Construction Equipment*, *Temporary Work* and tools, exclusive of hand tools under \$1,000 owned by the *Contractor*;
- .4 rental cost of *Construction Equipment*, *Temporary Work* and tools, exclusive of hand tools under \$1,000;
- .5 cost of all equipment and services required for the *Contractor's* field office;

Subcontract

- .6 subcontract amounts of *Subcontractor* with pricing mechanism approved by the *Owner*;

Others

- .7 travel and subsistence expenses of the *Contractor's* personnel described in paragraph 6.3.7.1;
- .8 deposits lost provided that they are not caused by negligent acts or omissions of the *Contractor*;
- .9 cost of quality assurance such as independent inspection and testing services;
- .10 charges levied by authorities having jurisdiction at the *Place of the Work*;
- .11 royalties, patent license fees, and damages for infringement of patents and cost of defending suits therefor subject always to the *Contractor's* obligations to indemnify the *Owner* as provided in paragraph 10.3.1 of GC 10.3 – PATENT FEES;
- .12 premium for all contract securities and insurance for which the *Contractor* is required, by the *Contract Documents*, to provide, maintain and pay in relation to the performance of the *Work*;
- .13 losses and expenses sustained by the *Contractor* for matters which are the subject of insurance under the policies prescribed in GC 11.1 – INSURANCE when such losses and expenses are not recoverable because the amounts are in excess of collectible amounts or within the deductible amounts;
- .14 taxes and duties, other than *Value Added Taxes*, income, capital, or property taxes, relating to the *Work* for which the *Contractor* is liable;
- .15 charges for voice and data communications, courier services, expressage, transmittal and reproduction of documents, and petty cash items;
- .16 cost for removal and disposal of waste products and debris;
- .17 legal costs, incurred by the *Contractor*, in relation to the performance of the *Work* provided that they are not:
 - (1) relating to a dispute between the *Owner* and the *Contractor* unless such costs are part of a settlement or awarded by arbitration or court,
 - (2) the result of the negligent acts or omissions of the *Contractor*, or
 - (3) the result of a breach of this *Contract* by the *Contractor*;
- .18 cost of auditing when requested by the *Owner*; and
- .19 cost of *Project* specific information technology in accordance with the method determined by the parties.

- 6.3.8 Notwithstanding any other provisions contained in the General Conditions of the *Contract*, it is the intention of the parties that the cost of any item under any cost element referred to in paragraph 6.3.7 shall cover and include any and all costs or liabilities attributable to the *Change Directive* other than those which are the result of or occasioned by any failure on the part of the *Contractor* to exercise reasonable care and diligence in the *Contractor's* attention to the *Work*. Any cost due to failure on the part of the *Contractor* to exercise reasonable care and diligence in the *Contractor's* performance of the *Work* attributable to the *Change Directive* shall be borne by the *Contractor*.
- 6.3.9 The *Contractor* shall keep full and detailed accounts and records necessary for the documentation of the cost of performing the *Work* attributable to the *Change Directive* and shall provide the *Consultant* with copies thereof.
- 6.3.10 For the purpose of valuing *Change Directives*, the *Owner* shall be afforded reasonable access to all of the *Contractor's* pertinent documents related to the cost of performing the *Work* attributable to the *Change Directive*.
- 6.3.11 Pending determination of the final amount of a *Change Directive*, the undisputed value of the *Work* performed as the result of a *Change Directive* is eligible to be included in progress payments.
- 6.3.12 If the *Owner* and the *Contractor* do not agree on the proposed adjustment in the *Contract Time* attributable to the change in the *Work*, or the method of determining it, the adjustment shall be referred to the *Consultant* for a finding.
- 6.3.13 When the *Owner* and the *Contractor* reach agreement on the adjustment to the *Contract Price* and to the *Contract Time*, this agreement shall be recorded in a *Change Order*.

GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

- 6.4.1 If the *Owner* or the *Contractor* discover conditions at the *Place of the Work* which are:
- .1 subsurface or otherwise concealed physical conditions which existed before the commencement of the *Work* and differ materially from those indicated in the *Contract Documents*; or
 - .2 physical conditions, other than conditions due to weather, that are of a nature which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the *Contract Documents*,
- then the observing party shall give *Notice in Writing* to the other party of such conditions before they are disturbed and in no event later than 5 *Working Days* after first observance of the conditions.
- 6.4.2 The *Consultant* will promptly investigate such conditions and make a finding. If the finding is that the conditions differ materially and this would cause an increase or decrease in the *Contractor's* cost or time to perform the *Work*, the *Owner*, through the *Consultant*, shall issue appropriate instructions for a change in the *Work* as provided in GC 6.2 – CHANGE ORDER or GC 6.3 – CHANGE DIRECTIVE.
- 6.4.3 If the *Consultant* finds that the conditions at the *Place of the Work* are not materially different or that no change in the *Contract Price* or the *Contract Time* is justified, the *Consultant* will promptly inform the *Owner* and the *Contractor* in writing.
- 6.4.4 The *Contractor* shall not be entitled to an adjustment in the *Contract Price* or the *Contract Time* if such conditions were reasonably apparent prior to the time of bid closing.

GC 6.5 DELAYS

- 6.5.1 If the *Contractor* is delayed in the performance of the *Work* by the *Owner*, the *Consultant*, or anyone employed or engaged by them directly or indirectly, contrary to the provisions of the *Contract Documents*, then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor*. The *Contractor* shall be reimbursed by the *Owner* for reasonable costs incurred by the *Contractor* as the result of such delay.
- 6.5.2 If the *Contractor* is delayed in the performance of the *Work* by a stop work order issued by a court or other public authority and providing that such order was not issued as the result of an act or fault of the *Contractor* or any person employed or engaged by the *Contractor* directly or indirectly, resulting in the failure of the *Contractor* to attain *Ready-for-Takeover* by the date stipulated in Article A-1 of the Agreement – THE WORK, then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor*. The *Contractor* shall be reimbursed by the *Owner* for reasonable costs incurred by the *Contractor* as the result of such delay.
- 6.5.3 If the *Contractor* is delayed in the performance of the *Work* by:
- .1 labour disputes, strikes, lock-outs (including lock-outs decreed or recommended for its members by a recognized contractors' association, of which the *Contractor* is a member or to which the *Contractor* is otherwise bound),
 - .2 fire, unusual delay by common carriers or unavoidable casualties,
 - .3 abnormally adverse weather conditions, or

.4 any cause beyond the *Contractor's* control other than one resulting from a default or breach of *Contract* by the *Contractor*, then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor*. The extension of time shall not be less than the time lost as the result of the event causing the delay, unless the *Contractor* agrees to a shorter extension. The *Contractor* shall not be entitled to payment for costs incurred by such delays unless such delays result from actions by the *Owner*, the *Consultant* or anyone employed or engaged by them directly or indirectly.

6.5.4 No extension shall be made for delay unless *Notice in Writing* of the cause of delay is given to the *Consultant* not later than 10 *Working Days* after the commencement of the delay. In the case of a continuing cause of delay only one *Notice in Writing* shall be necessary.

6.5.5 If no schedule is made under paragraph 2.2.12 of GC 2.2 – ROLE OF THE CONSULTANT, then no request for extension shall be made because of failure of the *Consultant* to furnish instructions until 10 *Working Days* after demand for such instructions has been made.

GC 6.6 CLAIMS FOR A CHANGE IN CONTRACT PRICE

6.6.1 If the *Contractor* intends to make a claim for an increase to the *Contract Price*, or if the *Owner* intends to make a claim against the *Contractor* for a credit to the *Contract Price*, the party that intends to make the claim shall give timely *Notice in Writing* of intent to claim to the other party and to the *Consultant* but no later than 10 *Working Days* after commencement of the event or series of events giving rise to the claim. Failure to provide such *Notice in Writing* shall invalidate the claim.

6.6.2 Upon commencement of the event or series of events giving rise to a claim, the party intending to make the claim shall:

- .1 take all reasonable measures to mitigate any loss or expense which may be incurred as a result of such event or series of events, and
- .2 keep such records as may be necessary to support the claim.

6.6.3 Within 30 *Working Days* after commencement of the event or series of events giving rise to the claim, or such other reasonable time as may be agreed by the *Consultant*, the party making the claim shall submit to the *Consultant* a detailed account of the amount claimed and the grounds upon which the claim is based and the *Consultant* will make a finding upon such claim.

6.6.4 Where the event or series of events giving rise to the claim has a continuing effect, the detailed account submitted under paragraph 6.6.3 shall be considered to be an interim account and the party making the claim shall, at such intervals as the *Consultant* may reasonably require, submit further interim accounts giving the accumulated amount of the claim and any further grounds upon which it is based. The party making the claim shall submit a final account after the end of the effects resulting from the event or series of events.

6.6.5 The *Consultant's* findings, with respect to a claim made by either party, will be given by *Notice in Writing* to both parties within 30 *Working Days* after receipt of the claim by the *Consultant*, or within such other time period as may be agreed by the parties.

6.6.6 If such finding is not acceptable to either party, the claim shall be settled in accordance with Part 8 of the General Conditions – DISPUTE RESOLUTION.

GC 6.7 QUANTITY VARIATIONS

6.7.1 The *Owner* or the *Contractor* may request an adjustment to a *Unit Price* contained in the *Schedule of Prices* provided that the actual quantity of the item in the *Schedule of Prices* exceeds or falls short of the estimated quantity by more than 15%.

6.7.2 Where the actual quantity exceeds the estimated quantity by more than 15%, a *Unit Price* adjusted pursuant to paragraph 6.7.1 shall apply only to the quantity that exceeds 115% of the estimated quantity.

6.7.3 Where the actual quantity falls short of the estimated quantity by more than 15%, a *Unit Price* adjusted pursuant to paragraph 6.7.1 shall not exceed the *Unit Price* that would cause the extended amount to equal the original extended amount derived from the original *Unit Price* and estimated quantity.

6.7.4 If either party requests adjustment of a *Unit Price*, both parties shall make all reasonable efforts to agree on a revised *Unit Price*. The agreed revised *Unit Price* shall be recorded in a *Change Order*.

6.7.5 If agreement on a revised *Unit Price* is not reached, the matter shall be subject to final determination in accordance with Part 8 of the General Conditions – DISPUTE RESOLUTION. Pending determination of the revised *Unit Price*, payment for the *Work* performed shall be included in progress payments based on the unrevised *Unit Price*.

PART 7 DEFAULT NOTICE

GC 7.1 OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK OR TERMINATE THE CONTRACT

- 7.1.1 If the *Contractor* is adjudged bankrupt, or makes a general assignment for the benefit of creditors because of the *Contractor's* insolvency, or if a receiver is appointed because of the *Contractor's* insolvency, the *Owner* may, without prejudice to any other right or remedy the *Owner* may have, terminate the *Contractor's* right to continue with the *Work*, by giving the *Contractor* or receiver or trustee in bankruptcy *Notice in Writing* to that effect.
- 7.1.2 If the *Contractor* neglects to perform the *Work* properly or otherwise fails to comply with the requirements of the *Contract* to a substantial degree and if the *Consultant* has given a written statement to the *Owner* and *Contractor* which provides the detail of such neglect to perform the *Work* properly or such failure to comply with the requirements of the *Contract* to a substantial degree, the *Owner* may, without prejudice to any other right or remedy the *Owner* may have, give the *Contractor Notice in Writing*, containing particulars of the default including references to applicable provisions of the *Contract*, that the *Contractor* is in default of the *Contractor's* contractual obligations and instruct the *Contractor* to correct the default in the 5 *Working Days* immediately following the receipt of such *Notice in Writing*.
- 7.1.3 If the default cannot be corrected in the 5 *Working Days* specified or in such other time period as may be subsequently agreed in writing by the parties, the *Contractor* shall be in compliance with the *Owner's* instructions if the *Contractor*:
- .1 commences the correction of the default within the specified time,
 - .2 provides the *Owner* with an acceptable schedule for such correction, and
 - .3 corrects the default in accordance with the *Contract* terms and with such schedule.
- 7.1.4 If the *Contractor* fails to correct the default in the time specified or in such other time period as may be subsequently agreed in writing by the parties, without prejudice to any other right or remedy the *Owner* may have, the *Owner* may by giving *Notice in Writing*:
- .1 correct such default and deduct the cost thereof from any payment then or thereafter due the *Contractor* for the *Work* provided the *Consultant* has certified such cost to the *Owner* and the *Contractor*, or
 - .2 terminate the *Contractor's* right to continue with the *Work* in whole or in part or terminate the *Contract*.
- 7.1.5 If the *Owner* terminates the *Contractor's* right to continue with the *Work* as provided in paragraphs 7.1.1 and 7.1.4, the *Owner* shall be entitled to:
- .1 take possession of the *Work* and *Products* at the *Place of the Work*; subject to the rights of third parties, utilize the *Construction Equipment* at the *Place of the Work*; finish the *Work* by whatever method the *Owner* may consider expedient, but without undue delay or expense,
 - .2 withhold further payment to the *Contractor* until a final certificate for payment is issued,
 - .3 charge the *Contractor* the amount by which the full cost of finishing the *Work* as certified by the *Consultant*, including compensation to the *Consultant* for the *Consultant's* additional services and a reasonable allowance as determined by the *Consultant* to cover the cost of corrections to work performed by the *Contractor* that may be required under GC 12.3 – WARRANTY, exceeds the unpaid balance of the *Contract Price*; however, if such cost of finishing the *Work* is less than the unpaid balance of the *Contract Price*, the *Owner* shall pay the *Contractor* the difference, and
 - .4 on expiry of the warranty period, charge the *Contractor* the amount by which the cost of corrections to the *Contractor's* work under GC 12.3 – WARRANTY exceeds the allowance provided for such corrections, or if the cost of such corrections is less than the allowance, pay the *Contractor* the difference.
- 7.1.6 The *Contractor's* obligation under the *Contract* as to quality, correction and warranty of the work performed by the *Contractor* up to the time of termination shall continue in force after such termination of the *Contract*.

GC 7.2 CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT

- 7.2.1 If the *Owner* is adjudged bankrupt, or makes a general assignment for the benefit of creditors because of the *Owner's* insolvency, or if a receiver is appointed because of the *Owner's* insolvency, the *Contractor* may, without prejudice to any other right or remedy the *Contractor* may have, terminate the *Contract* by giving the *Owner* or receiver or trustee in bankruptcy *Notice in Writing* to that effect.
- 7.2.2 If the *Work* is suspended or otherwise delayed for a period of 20 *Working Days* or more under an order of a court or other public authority and providing that such order was not issued as the result of an act or fault of the *Contractor* or of anyone directly or indirectly employed or engaged by the *Contractor*, the *Contractor* may, without prejudice to any other right or remedy the *Contractor* may have, terminate the *Contract* by giving the *Owner Notice in Writing* to that effect.

- 7.2.3 The *Contractor* may give *Notice in Writing* to the *Owner*, with a copy to the *Consultant*, that the *Owner* is in default of the *Owner's* contractual obligations if:
- .1 the *Owner* fails to furnish, when so requested by the *Contractor*, reasonable evidence that financial arrangements have been made to fulfill the *Owner's* obligations under the *Contract*,
 - .2 the *Consultant* fails to issue a certificate as provided in Part 5 of the General Conditions – PAYMENT,
 - .3 the *Owner* fails to pay the *Contractor* when due the amounts certified by the *Consultant* or awarded by adjudication, arbitration or court, or
 - .4 the *Owner* fails to comply with the requirements of the *Contract* to a substantial degree and the *Consultant*, except for GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER, gives a written statement to the *Owner* and the *Contractor* that provides detail of such failure to comply with the requirements of the *Contract* to a substantial degree.
- 7.2.4 The *Contractor's* *Notice in Writing* to the *Owner* provided under paragraph 7.2.3 shall advise that if the default is not corrected within 5 *Working Days* following the receipt of the *Notice in Writing*, the *Contractor* may, without prejudice to any other right or remedy the *Contractor* may have, suspend the *Work* or terminate the *Contract*.
- 7.2.5 If the *Contractor* terminates the *Contract* by giving a *Notice in Writing* to the *Owner* under the conditions set out above, the *Contractor* shall be entitled to be paid for all work performed including reasonable profit, for loss sustained upon *Products* and *Construction Equipment*, and such other damages as the *Contractor* may have sustained as a result of the termination of the *Contract*.

PART 8 DISPUTE RESOLUTION

GC 8.1 AUTHORITY OF THE CONSULTANT

- 8.1.1 Differences between the parties to the *Contract* as to the interpretation, application or administration of the *Contract* or any failure to agree where agreement between the parties is called for, herein collectively called disputes, which are not resolved in the first instance by findings of the *Consultant* as provided in GC 2.2 – ROLE OF THE CONSULTANT, shall be settled in accordance with the requirements of Part 8 of the General Conditions – DISPUTE RESOLUTION.
- 8.1.2 If a dispute arises under the *Contract* in respect of a matter in which the *Consultant* has no authority under the *Contract* to make a finding, the procedures set out in paragraph 8.1.3 and paragraphs 8.3.3 to 8.3.8 of GC 8.3 – NEGOTIATION, MEDIATION AND ARBITRATION, and in GC 8.4 – RETENTION OF RIGHTS apply to that dispute with the necessary changes to detail as may be required.
- 8.1.3 If a dispute is not resolved promptly, the *Consultant* will give such instructions as in the *Consultant's* opinion are necessary for the proper performance of the *Work* and to prevent delays pending settlement of the dispute. The parties shall act immediately according to such instructions, it being understood that by so doing neither party will jeopardize any claim the party may have. If it is subsequently determined that such instructions were in error or at variance with the *Contract Documents*, the *Owner* shall pay the *Contractor* costs incurred by the *Contractor* in carrying out such instructions which the *Contractor* was required to do beyond what the *Contract Documents* correctly understood and interpreted would have required, including costs resulting from interruption of the *Work*.

GC 8.2 ADJUDICATION

- 8.2.1 Nothing in this *Contract* shall be deemed to affect the rights of the parties to resolve any dispute by adjudication as may be prescribed by applicable legislation.

GC 8.3 NEGOTIATION, MEDIATION AND ARBITRATION

- 8.3.1 In accordance with the rules for mediation as provided in CCDC 40 'Rules for Mediation and Arbitration of Construction Industry Disputes' in effect at the time of bid closing, the parties shall appoint a Project Mediator
- .1 within 20 *Working Days* after the *Contract* was awarded, or
 - .2 if the parties neglected to make an appointment within the 20 *Working Days*, within 10 *Working Days* after either party by *Notice in Writing* requests that the Project Mediator be appointed.
- 8.3.2 A party shall be conclusively deemed to have accepted a finding of the *Consultant* under GC 2.2 – ROLE OF THE CONSULTANT and to have expressly waived and released the other party from any claims in respect of the particular matter dealt with in that finding unless, within 15 *Working Days* after receipt of that finding, the party sends a *Notice in Writing* of dispute to the other party and to the *Consultant*, which contains the particulars of the matter in dispute and the relevant provisions of the *Contract Documents*. The responding party shall send a *Notice in Writing* of reply to the dispute within 10 *Working Days* after receipt of such *Notice in Writing* setting out particulars of this response and any relevant provisions of the *Contract Documents*.

- 8.3.3 The parties shall make all reasonable efforts to resolve their dispute by amicable negotiations and agree to provide, without prejudice, frank, candid and timely disclosure of relevant facts, information and documents to facilitate these negotiations.
- 8.3.4 After a period of 10 *Working Days* following receipt of a responding party's *Notice in Writing* of reply under paragraph 8.3.2, the parties shall request the Project Mediator to assist the parties to reach agreement on any unresolved dispute. The mediated negotiations shall be conducted in accordance with the rules for mediation as provided in CCDC 40 in effect at the time of bid closing.
- 8.3.5 If the dispute has not been resolved at the mediation or within such further period as is agreed by the parties, the Project Mediator will terminate the mediated negotiations by giving *Notice in Writing* to the *Owner*, the *Contractor* and the *Consultant*.
- 8.3.6 By giving a *Notice in Writing* to the other party and the *Consultant*, not later than 10 *Working Days* after the date of termination of the mediated negotiations under paragraph 8.3.5, either party may refer the dispute to be finally resolved by arbitration under the rules of arbitration as provided in CCDC 40 in effect at the time of bid closing. The arbitration shall be conducted in the jurisdiction of the *Place of the Work*.
- 8.3.7 On expiration of the 10 *Working Days*, the arbitration agreement under paragraph 8.3.6 is not binding on the parties and, if a *Notice in Writing* is not given under paragraph 8.3.6 within the required time, the parties may refer the unresolved dispute to the courts or to any other form of dispute resolution, including arbitration, which they have agreed to use.
- 8.3.8 If neither party, by *Notice in Writing*, given within 10 *Working Days* of the date of *Notice in Writing* requesting arbitration in paragraph 8.3.6, requires that a dispute be arbitrated immediately, all disputes referred to arbitration as provided in paragraph 8.3.6 shall be:
- .1 held in abeyance until:
 - (1) *Ready-for-Takeover*,
 - (2) the *Contract* has been terminated, or
 - (3) the *Contractor* has abandoned the *Work*,
 whichever is earlier; and
 - .2 consolidated into a single arbitration under the rules governing the arbitration under paragraph 8.3.6.

GC 8.4 RETENTION OF RIGHTS

- 8.4.1 It is agreed that no act by either party shall be construed as a renunciation or waiver of any rights or recourses, provided the party has given the *Notice in Writing* required under Part 8 of the General Conditions – DISPUTE RESOLUTION and has carried out the instructions as provided in paragraph 8.1.3 of GC 8.1 – AUTHORITY OF THE CONSULTANT.
- 8.4.2 Nothing in Part 8 of the General Conditions – DISPUTE RESOLUTION shall be construed in any way to limit a party from asserting any statutory right to a lien under applicable lien legislation of the jurisdiction of the *Place of the Work* and the assertion of such right by initiating judicial proceedings is not to be construed as a waiver of any right that party may have under paragraph 8.3.6 of GC 8.3 – NEGOTIATION, MEDIATION AND ARBITRATION to proceed by way of arbitration to adjudicate the merits of the claim upon which such a lien is based.

PART 9 PROTECTION OF PERSONS AND PROPERTY

GC 9.1 PROTECTION OF WORK AND PROPERTY

- 9.1.1 The *Contractor* shall protect the *Work*, the *Owner's* property and property adjacent to the *Place of the Work* from damage which may arise as the result of the *Contractor's* operations under the *Contract*, and shall be responsible for such damage, except damage which occurs as the result of:
- .1 errors or omissions in the *Contract Documents*; or
 - .2 acts or omissions by the *Owner*, the *Consultant*, *Other Contractors*, or their agents and employees.
- 9.1.2 Before commencing any work, the *Contractor* shall determine the location of all underground utilities and structures indicated in the *Contract Documents* or that are reasonably apparent in an inspection of the *Place of the Work*.
- 9.1.3 Should the *Contractor* in the performance of the *Contract* damage the *Work*, the *Owner's* property or property adjacent to the *Place of the Work*, the *Contractor* shall be responsible for making good such damage at the *Contractor's* expense.
- 9.1.4 Should damage occur to the *Work* or the *Owner's* property for which the *Contractor* is not responsible, as provided in paragraph 9.1.1, the *Contractor* shall make good such damage to the *Work* and, if the *Owner* so directs, to the *Owner's* property. The *Contract Price* and *Contract Time* shall be adjusted as provided in GC 6.1 – OWNER'S RIGHT TO MAKE CHANGES, GC 6.2 – CHANGE ORDER and GC 6.3 – CHANGE DIRECTIVE.

GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES

- 9.2.1 For the purposes of applicable legislation related to toxic and hazardous substances, the *Owner* shall be deemed to have control and management of the *Place of the Work* with respect to existing conditions.
- 9.2.2 Prior to the *Contractor* commencing the *Work*, the *Owner* shall,
- .1 take all reasonable steps to determine whether any toxic or hazardous substances are present at the *Place of the Work*, and
 - .2 provide the *Consultant* and the *Contractor* with a written list of any such substances that are known to exist and their locations.
- 9.2.3 The *Owner* shall take all reasonable steps to ensure that no person's exposure to any toxic or hazardous substance exceeds the time weighted levels prescribed by applicable legislation at the *Place of the Work* and that no property is damaged or destroyed as a result of exposure to, or the presence of, toxic or hazardous substances which were at the *Place of the Work* prior to the *Contractor* commencing the *Work*.
- 9.2.4 Unless the *Contract* expressly provides otherwise, the *Owner* shall be responsible for taking all necessary steps, in accordance with applicable legislation in force at the *Place of the Work*, to dispose of, store or otherwise render harmless any toxic or hazardous substance which was present at the *Place of the Work* prior to the *Contractor* commencing the *Work*.
- 9.2.5 If the *Contractor*
- .1 encounters toxic or hazardous substances at the *Place of the Work*, or
 - .2 has reasonable grounds to believe that toxic or hazardous substances are present at the *Place of the Work*, which were not brought to the *Place of the Work* by the *Contractor* or anyone for whom the *Contractor* is responsible and which were not disclosed by the *Owner* or which were disclosed but have not been dealt with as required under paragraph 9.2.4, the *Contractor* shall
 - .3 take all reasonable steps, including stopping the *Work*, to ensure that no person's exposure to any toxic or hazardous substance exceeds any applicable time weighted levels prescribed by applicable legislation at the *Place of the Work*, and
 - .4 immediately report the circumstances to the *Consultant* and the *Owner* in writing.
- 9.2.6 If the *Owner* and the *Contractor* do not agree on the existence, significance of, or whether the toxic or hazardous substances were brought onto the *Place of the Work* by the *Contractor* or anyone for whom the *Contractor* is responsible, the *Owner* shall retain and pay for an independent qualified expert to investigate and determine such matters. The expert's report shall be delivered to the *Owner* and the *Contractor*.
- 9.2.7 If the *Owner* and the *Contractor* agree or if the expert referred to in paragraph 9.2.6 determines that the toxic or hazardous substances were not brought onto the *Place of the Work* by the *Contractor* or anyone for whom the *Contractor* is responsible, the *Owner* shall promptly at the *Owner's* own expense:
- .1 take all steps as required under paragraph 9.2.4;
 - .2 reimburse the *Contractor* for the costs of all steps taken pursuant to paragraph 9.2.5;
 - .3 extend the *Contract Time* for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor* and the expert referred to in paragraph 9.2.6 and reimburse the *Contractor* for reasonable costs incurred as a result of the delay; and
 - .4 indemnify the *Contractor* as required by GC 13.1 – INDEMNIFICATION.
- 9.2.8 If the *Owner* and the *Contractor* agree or if the expert referred to in paragraph 9.2.6 determines that the toxic or hazardous substances were brought onto the *Place of the Work* by the *Contractor* or anyone for whom the *Contractor* is responsible, the *Contractor* shall promptly at the *Contractor's* own expense:
- .1 take all necessary steps, in accordance with applicable legislation in force at the *Place of the Work*, to safely remove and dispose the toxic or hazardous substances;
 - .2 make good any damage to the *Work*, the *Owner's* property or property adjacent to the *Place of the Work* as provided in paragraph 9.1.3 of GC 9.1 – PROTECTION OF WORK AND PROPERTY;
 - .3 reimburse the *Owner* for reasonable costs incurred under paragraph 9.2.6; and
 - .4 indemnify the *Owner* as required by GC 13.1 – INDEMNIFICATION.
- 9.2.9 If either party does not accept the expert's findings under paragraph 9.2.6, the disagreement shall be settled in accordance with Part 8 of the General Conditions – DISPUTE RESOLUTION. If such disagreement is not resolved promptly, the parties shall act immediately in accordance with the expert's determination and take the steps required by paragraph 9.2.7 or 9.2.8 it being understood that by so doing, neither party will jeopardize any claim that party may have to be reimbursed as provided by GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES.

GC 9.3 ARTIFACTS AND FOSSILS

- 9.3.1 Fossils, coins, articles of value or antiquity, structures and other remains or things of scientific or historic interest discovered at the *Place of the Work* shall, as between the *Owner* and the *Contractor*, be deemed to be the absolute property of the *Owner*.
- 9.3.2 The *Contractor* shall take all reasonable precautions to prevent removal or damage to discoveries as identified in paragraph 9.3.1, and shall advise the *Consultant* upon discovery of such items.
- 9.3.3 The *Consultant* will investigate the impact on the *Work* of the discoveries identified in paragraph 9.3.1. If conditions are found that would cause an increase or decrease in the *Contractor*'s cost or time to perform the *Work*, the *Owner*, through the *Consultant*, shall issue appropriate instructions for a change in the *Work* as provided in GC 6.2 – CHANGE ORDER or GC 6.3 – CHANGE DIRECTIVE.

GC 9.4 CONSTRUCTION SAFETY

- 9.4.1 The *Contractor* shall be responsible for establishing, initiating, maintaining, and supervising all health and safety precautions and programs in connection with the performance of the *Work* in accordance with the applicable health and safety legislation.
- 9.4.2 The *Owner* and the *Contractor* shall comply with all health and safety precautions and programs established at the *Place of the Work*.
- 9.4.3 The *Owner* and the *Contractor* shall comply with the rules, regulations and practices required by the applicable health and safety legislation.
- 9.4.4 The *Owner* shall cause the *Consultant*, *Other Contractors* and the *Owner*'s own forces to comply with all health and safety precautions and programs established by the *Contractor* at the *Place of the Work*.
- 9.4.5 Nothing in this Contract shall affect the determination of liability under the applicable health and safety legislation.

GC 9.5 MOULD

- 9.5.1 If the *Contractor* or the *Owner* observes or reasonably suspects the presence of mould at the *Place of the Work*, the remediation of which is not expressly part of the *Work*,
- .1 the observing party shall promptly report the circumstances to the other party in writing,
 - .2 the *Contractor* shall promptly take all reasonable steps, including stopping the *Work* if necessary, to ensure that no person suffers injury, sickness or death and that no property is damaged as a result of exposure to or the presence of the mould, and
 - .3 if the *Owner* and the *Contractor* do not agree on the existence, significance or cause of the mould or as to what steps need be taken to deal with it, the *Owner* shall retain and pay for an independent qualified expert to investigate and determine such matters. The expert's report shall be delivered to the *Owner* and the *Contractor*.
- 9.5.2 If the *Owner* and the *Contractor* agree, or if the expert referred to in paragraph 9.5.1.3 determines that the presence of mould was caused by the *Contractor*'s operations under the *Contract*, the *Contractor* shall promptly, at the *Contractor*'s own expense:
- .1 take all reasonable and necessary steps to safely remediate or dispose of the mould,
 - .2 make good any damage to the *Work*, the *Owner*'s property or property adjacent to the *Place of the Work* as provided in paragraph 9.1.3 of GC 9.1 – PROTECTION OF WORK AND PROPERTY,
 - .3 reimburse the *Owner* for reasonable costs incurred under paragraph 9.5.1.3, and
 - .4 indemnify the *Owner* as required by GC 13.1 – INDEMNIFICATION.
- 9.5.3 If the *Owner* and the *Contractor* agree, or if the expert referred to in paragraph 9.5.1.3 determines that the presence of mould was not caused by the *Contractor*'s operations under the *Contract*, the *Owner* shall promptly, at the *Owner*'s own expense:
- .1 take all reasonable and necessary steps to safely remediate or dispose of the mould,
 - .2 reimburse the *Contractor* for the cost of taking the steps under paragraph 9.5.1.2 and making good any damage to the *Work* as provided in paragraph 9.1.4 of GC 9.1 – PROTECTION OF WORK AND PROPERTY,
 - .3 extend the *Contract Time* for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor* and the expert referred to in paragraph 9.5.1.3 and reimburse the *Contractor* for reasonable costs incurred as a result of the delay, and
 - .4 indemnify the *Contractor* as required by GC 13.1 – INDEMNIFICATION.
- 9.5.4 If either party does not accept the expert's finding under paragraph 9.5.1.3, the disagreement shall be settled in accordance with Part 8 of the General Conditions – DISPUTE RESOLUTION. If such disagreement is not resolved promptly, the parties shall act immediately in accordance with the expert's determination and take the steps required by paragraphs 9.5.2 or 9.5.3, it being understood that by so doing neither party will jeopardize any claim the party may have to be reimbursed as provided by GC 9.5 – MOULD.

PART 10 GOVERNING REGULATIONS

GC 10.1 TAXES AND DUTIES

- 10.1.1 The *Contract Price* shall include all taxes and customs duties in effect at the time of the bid closing except for *Value Added Taxes* payable by the *Owner* to the *Contractor* as stipulated in Article A-4 of the Agreement – CONTRACT PRICE.
- 10.1.2 Any increase or decrease in costs to the *Contractor* due to changes in taxes and duties after the time of the bid closing shall increase or decrease the *Contract Price* accordingly.

GC 10.2 LAWS, NOTICES, PERMITS, AND FEES

- 10.2.1 The laws of the *Place of the Work* shall govern the *Work*.
- 10.2.2 The *Owner* shall obtain and pay for development approvals, building permit, permanent easements, rights of servitude, and all other necessary approvals and permits, except for the permits and fees referred to in paragraph 10.2.3 or for which the *Contract Documents* specify as the responsibility of the *Contractor*.
- 10.2.3 The *Contractor* shall be responsible for the procurement of permits, licences, inspections, and certificates, which are necessary for the performance of the *Work* and customarily obtained by contractors in the jurisdiction of the *Place of the Work* after the issuance of the building permit. The *Contract Price* includes the cost of these permits, licences, inspections, and certificates, and their procurement.
- 10.2.4 The *Contractor* shall give the required notices and comply with the laws, ordinances, rules, regulations, or codes which are or become in force during the performance of the *Work* and which relate to the *Work*, to the preservation of the public health, and to construction safety.
- 10.2.5 The *Contractor* shall not be responsible for verifying that the *Contract Documents* are in compliance with the applicable laws, ordinances, rules, regulations, or codes relating to the *Work*. If the *Contract Documents* are at variance therewith, or if, subsequent to the time of bid closing, changes are made to the applicable laws, ordinances, rules, regulations, or codes which require modification to the *Contract Documents*, the *Contractor* shall advise the *Consultant* in writing requesting direction immediately upon such variance or change becoming known. The *Consultant* will issue the changes required to the *Contract Documents* as provided in GC 6.1 – OWNER’S RIGHT TO MAKE CHANGES, GC 6.2 – CHANGE ORDER and GC 6.3 – CHANGE DIRECTIVE.
- 10.2.6 If the *Contractor* fails to advise the *Consultant* in writing; fails to obtain direction as required in paragraph 10.2.5; and performs work knowing it to be contrary to any laws, ordinances, rules, regulations, or codes; the *Contractor* shall be responsible for and shall correct the violations thereof; and shall bear the costs, expenses and damages attributable to the failure to comply with the provisions of such laws, ordinances, rules, regulations, or codes.
- 10.2.7 If, subsequent to the time of bid closing, changes are made to applicable laws, ordinances, rules, regulations, or codes of authorities having jurisdiction which affect the cost of the *Work*, either party may submit a claim in accordance with the requirements of GC 6.6 – CLAIMS FOR A CHANGE IN CONTRACT PRICE.

GC 10.3 PATENT FEES

- 10.3.1 The *Contractor* shall pay the royalties and patent licence fees required for the performance of the *Contract*. The *Contractor* shall hold the *Owner* harmless from and against claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of the *Contractor*’s performance of the *Contract* which are attributable to an infringement or an alleged infringement of a patent of invention by the *Contractor* or anyone for whose acts the *Contractor* may be liable.
- 10.3.2 The *Owner* shall hold the *Contractor* harmless against claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of the *Contractor*’s performance of the *Contract* which are attributable to an infringement or an alleged infringement of a patent of invention in executing anything for the purpose of the *Contract*, the physical model, plan or design of which was supplied to the *Contractor* as part of the *Contract*.

GC 10.4 WORKERS’ COMPENSATION

- 10.4.1 Prior to commencing the *Work*, and again with the *Contractor*’s applications for payment, the *Contractor* shall provide evidence of compliance with workers’ compensation legislation at the *Place of the Work*.

PART 11 INSURANCE

GC 11.1 INSURANCE

- 11.1.1 Without restricting the generality of GC 13.1 – INDEMNIFICATION, the *Contractor* shall provide, maintain and pay for the following insurance coverages, the requirements of which are specified in CCDC 41 ‘CCDC Insurance Requirements’ in effect at the time of bid closing except as hereinafter provided:
- .1 General liability insurance in the name of the *Contractor* and include, or in the case of a single, blanket policy, be endorsed to name, the *Owner* and the *Consultant* as insureds but only with respect to liability, other than legal liability arising out of their sole negligence, arising out of the operations of the *Contractor* with regard to the *Work*. General liability insurance shall be maintained from the date of commencement of the *Work* until one year from the date of *Ready-for-Takeover*. Liability coverage shall be provided for completed operations hazards from the date of *Ready-for-Takeover*, as set out in the certificate of *Ready-for-Takeover*, on an ongoing basis for a period of 6 years following *Ready-for-Takeover*.
 - .2 Automobile Liability Insurance from the date of commencement of the *Work* until one year after the date of *Ready-for-Takeover*.
 - .3 Unmanned aerial vehicle aircraft, manned aircraft or watercraft Liability Insurance when owned or non-owned manned or unmanned aircraft or watercraft are used directly or indirectly in the performance of the *Work*.
 - .4 “Broad form” property insurance in the joint names of the *Contractor*, the *Owner* and the *Consultant*. The policy shall include as insureds all *Subcontractors*. The “Broad form” property insurance shall be provided from the date of commencement of the *Work* until the earliest of:
 - (1) 10 calendar days after the date of *Ready-for-Takeover*;
 - (2) on the commencement of use or occupancy of any part or section of the *Work* unless such use or occupancy is for construction purposes, habitational, office, banking, convenience store under 465 square metres in area, or parking purposes, or for the installation, testing and commissioning of equipment forming part of the *Work*; and
 - (3) when left unattended for more than 30 consecutive calendar days or when construction activity has ceased for more than 30 consecutive calendar days.
 - .5 Boiler and machinery insurance in the joint names of the *Contractor*, the *Owner* and the *Consultant*. The policy shall include as insureds all *Subcontractors*. The coverage shall be maintained continuously from commencement of use or operation of the boiler and machinery objects insured by the policy and until 10 calendar days after the date of *Ready-for-Takeover*.
 - .6 The “Broad form” property and boiler and machinery policies shall provide that, in the case of a loss or damage, payment shall be made to the *Owner* and the *Contractor* as their respective interests may appear. In the event of loss or damage:
 - (1) the *Contractor* shall act on behalf of the *Owner* for the purpose of adjusting the amount of such loss or damage payment with the insurers. When the extent of the loss or damage is determined, the *Contractor* shall proceed to restore the *Work*. Loss or damage shall not affect the rights and obligations of either party under the *Contract* except that the *Contractor* shall be entitled to such reasonable extension of *Contract Time* relative to the extent of the loss or damage as the *Consultant* may recommend in consultation with the *Contractor*;
 - (2) the *Contractor* shall be entitled to receive from the *Owner*, in addition to the amount due under the *Contract*, the amount which the *Owner*’s interest in restoration of the *Work* has been appraised, such amount to be paid as the restoration of the *Work* proceeds in accordance with the progress payment provisions. In addition the *Contractor* shall be entitled to receive from the payments made by the insurer the amount of the *Contractor*’s interest in the restoration of the *Work*; and
 - (3) to the *Work* arising from the work of the *Owner*, the *Owner*’s own forces or *Other Contractors*, the *Owner* shall, in accordance with the *Owner*’s obligations under the provisions relating to construction by the *Owner* or *Other Contractors*, pay the *Contractor* the cost of restoring the *Work* as the restoration of the *Work* proceeds and as in accordance with the progress payment provisions.
 - .7 *Contractors*’ Equipment Insurance from the date of commencement of the *Work* until one year after the date of *Ready-for-Takeover*.
 - .8 *Contractors*’ Pollution Liability Insurance from the date of commencement of the *Work* until one year after the date of *Ready-for-Takeover*.
- 11.1.2 Prior to commencement of the *Work* and upon the placement, renewal, amendment, or extension of all or any part of the insurance, the *Contractor* shall promptly provide the *Owner* with confirmation of coverage and, if required, a certified true copy of the policies certified by an authorized representative of the insurer together with copies of any amending endorsements applicable to the *Work*.
- 11.1.3 The parties shall pay their share of the deductible amounts in direct proportion to their responsibility in regards to any loss for which the above policies are required to pay, except where such amounts may be excluded by the terms of the *Contract*.

- 11.1.4 If the *Contractor* fails to provide or maintain insurance as required by the *Contract Documents*, then the *Owner* shall have the right to provide and maintain such insurance and give evidence to the *Contractor* and the *Consultant*. The *Contractor* shall pay the cost thereof to the *Owner* on demand or the *Owner* may deduct the cost from the amount which is due or may become due to the *Contractor*.
- 11.1.5 All required insurance policies shall be with insurers licensed to underwrite insurance in the jurisdiction of the *Place of the Work*.
- 11.1.6 If a revised version of CCDC 41 is published, which specifies reduced insurance requirements, the parties shall address such reduction, prior to the *Contractor*'s insurance policy becoming due for renewal, and record any agreement in a *Change Order*.
- 11.1.7 If a revised version of CCDC 41 is published, which specifies increased insurance requirements, the *Owner* may request the increased coverage from the *Contractor* by way of a *Change Order*.
- 11.1.8 A *Change Directive* shall not be used to direct a change in the insurance requirements in response to the revision of CCDC 41.

PART 12 OWNER TAKEOVER

GC 12.1 READY-FOR-TAKEOVER

- 12.1.1 The prerequisites to attaining *Ready-for-Takeover* of the *Work* are limited to the following:
- .1 The *Consultant* has certified or verified the *Substantial Performance of the Work*.
 - .2 Evidence of compliance with the requirements for occupancy or occupancy permit as prescribed by the authorities having jurisdiction.
 - .3 Final cleaning and waste removal at the time of applying for *Ready-for-Takeover*, as required by the *Contract Documents*.
 - .4 The delivery to the *Owner* of such operations and maintenance documents reasonably necessary for immediate operation and maintenance, as required by the *Contract Documents*.
 - .5 Make available a copy of the as-built drawings completed to date on site.
 - .6 Startup, testing required for immediate occupancy, as required by the *Contract Documents*.
 - .7 Ability to secure access to the *Work* has been provided to the *Owner*, if required by the *Contract Documents*.
 - .8 Demonstration and training, as required by the *Contract Documents*, is scheduled by the *Contractor* acting reasonably.
- 12.1.2 If any prerequisites set forth in paragraphs 12.1.1.3 to 12.1.1.6 must be deferred because of conditions reasonably beyond the control of the *Contractor*, or by agreement between the *Owner* and the *Contractor* to do so, *Ready-for-Takeover* shall not be delayed.
- 12.1.3 When the *Contractor* considers that the *Work* is *Ready-for-Takeover*, the *Contractor* shall deliver to the *Consultant* and to the *Owner* a comprehensive list of items to be completed or corrected, together with a written application for *Ready-for-Takeover* for review. Failure to include an item on the list does not alter the responsibility of the *Contractor* to complete the *Contract*.
- 12.1.4 The *Consultant* will review the *Work* to verify the validity of the application and will promptly, and in any event, no later than 10 calendar days after receipt of the *Contractor*'s list and application:
- .1 advise the *Contractor* in writing that the *Work* is not *Ready-for-Takeover* and give reasons why, or
 - .2 confirm the date of *Ready-for-Takeover* in writing to each of the *Owner* and the *Contractor*.
- 12.1.5 Immediately following the confirmation of the date of *Ready-for-Takeover*, the *Contractor*, in consultation with the *Consultant*, shall establish a reasonable date for finishing the *Work*.
- 12.1.6 The provision of GC 12.1 – READY-FOR-TAKEOVER shall be subject to GC 12.2 – EARLY OCCUPANCY BY THE OWNER.

GC 12.2 EARLY OCCUPANCY BY THE OWNER

- 12.2.1 The *Owner* may take occupancy of a part or the entirety of the *Work* before *Ready-for-Takeover* has been attained only as agreed by the *Contractor* which agreement shall not be unreasonably withheld.
- 12.2.2 The *Owner* shall not occupy a part or the entirety of the *Work* without prior approval by authorities having jurisdiction.
- 12.2.3 If the *Owner* takes occupancy of a part of the *Work* before *Ready-for-Takeover* has been attained:
- .1 The part of the *Work* which is occupied shall be deemed to have been taken over by the *Owner* as from the date on which it is occupied.
 - .2 The *Contractor* shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the *Owner*.
 - .3 The warranty period specified in paragraph 12.3.1 of GC 12.3 – WARRANTY for that part of the *Work* shall start from the date on which it is occupied.

- 12.2.4 If the *Owner* takes occupancy of the entirety of the *Work* before all the prerequisites are met as described in paragraph 12.1.1 of GC 12.1 – READY-FOR-TAKEOVER, the *Work* shall, subject to the requirements of the applicable lien legislation, be deemed to achieve *Ready-for-Takeover*. This shall not relieve the *Contractor*'s responsibility to complete the *Work* in a timely manner.

GC 12.3 WARRANTY

- 12.3.1 Except for extended warranties as described in paragraph 12.3.6, the warranty period under the *Contract* is one year from the date when *Ready-for-Takeover* has been attained.
- 12.3.2 The *Contractor* shall be responsible for the proper performance of the *Work* to the extent that the design and *Contract Documents* permit such performance.
- 12.3.3 The *Owner*, through the *Consultant*, shall promptly give the *Contractor Notice in Writing* of observed defects and deficiencies which occur during the one year warranty period.
- 12.3.4 Subject to paragraph 12.3.2, the *Contractor* shall correct promptly, at the *Contractor*'s expense, defects or deficiencies in the *Work* which appear prior to and during the one year warranty period.
- 12.3.5 The *Contractor* shall correct or pay for damage resulting from corrections made under the requirements of paragraph 12.3.4.
- 12.3.6 Any extended warranties required beyond the one year warranty period as described in paragraph 12.3.1, shall be as specified in the *Contract Documents*. Extended warranties shall be issued by the warrantor to the benefit of the *Owner*. The *Contractor*'s responsibility with respect to extended warranties shall be limited to obtaining any such extended warranties from the warrantor. The obligations under such extended warranties are solely the responsibilities of the warrantor.

PART 13 INDEMNIFICATION AND WAIVER

GC 13.1 INDEMNIFICATION

- 13.1.1 Without restricting the parties' obligation to indemnify respecting toxic and hazardous substances, patent fees and defect in title claims all as described in paragraphs 13.1.4 and 13.1.5, the *Owner* and the *Contractor* shall each indemnify and hold harmless the other from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings whether in respect to losses suffered by them or in respect to claims by third parties that arise out of, or are attributable in any respect to their involvement as parties to this *Contract*, provided such claims are:
- .1 caused by:
 - (1) the negligent acts or omissions of the party from whom indemnification is sought or anyone for whose negligent acts or omissions that party is liable, or
 - (2) a failure of the party to the *Contract* from whom indemnification is sought to fulfill its terms or conditions; and
 - .2 made by *Notice in Writing* within a period of 6 years from the *Ready-for-Takeover* date or within such shorter period as may be prescribed by any limitation statute of the Province or Territory of the *Place of the Work*.
- The parties expressly waive the right to indemnity for claims other than those provided for in this *Contract*.
- 13.1.2 The obligation of either party to indemnify as set forth in paragraph 13.1.1 shall be limited as follows:
- .1 In respect to losses suffered by the *Owner* and the *Contractor* for which insurance is to be provided by either party pursuant to GC 11.1 – INSURANCE, the minimum liability insurance limit for one occurrence, of the applicable insurance policy, as referred to in CCDC 41 in effect at the time of bid closing.
 - .2 In respect to losses suffered by the *Owner* and the *Contractor* for which insurance is not required to be provided by either party in accordance with GC 11.1 – INSURANCE, the greater of the *Contract Price* as recorded in Article A-4 – CONTRACT PRICE or \$2,000,000, but in no event shall the sum be greater than \$20,000,000.
 - .3 In respect to indemnification by a party against the other with respect to losses suffered by them, such obligation shall be restricted to direct loss and damage, and neither party shall have any liability to the other for indirect, consequential, punitive or exemplary damages.
 - .4 In respect to indemnification respecting claims by third parties, the obligation to indemnify is without limit.
- 13.1.3 The obligation of either party to indemnify the other as set forth in paragraphs 13.1.1 and 13.1.2 shall be inclusive of interest and all legal costs.
- 13.1.4 The *Owner* and the *Contractor* shall indemnify and hold harmless the other from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of their obligations described in GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES.
- 13.1.5 The *Owner* shall indemnify and hold harmless the *Contractor* from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings:
- .1 as described in paragraph 10.3.2 of GC 10.3 – PATENT FEES, and

- .2 arising out of the *Contractor's* performance of the *Contract* which are attributable to a lack of or defect in title or an alleged lack of or defect in title to the *Place of the Work*.
- 13.1.6 In respect to any claim for indemnity or to be held harmless by the *Owner* or the *Contractor*:
 - .1 *Notice in Writing* of such claim shall be given within a reasonable time after the facts upon which such claim is based become known; and
 - .2 should any party be required as a result of its obligation to indemnify another to pay or satisfy a final order, judgment or award made against the party entitled by this contract to be indemnified, then the indemnifying party upon assuming all liability for any costs that might result shall have the right to appeal in the name of the party against whom such final order or judgment has been made until such rights of appeal have been exhausted.

GC 13.2 WAIVER OF CLAIMS

- 13.2.1 Subject to any lien legislation applicable to the *Place of the Work*, the *Contractor* waives and releases the *Owner* from all claims which the *Contractor* has or reasonably ought to have knowledge of that could be advanced by the *Contractor* against the *Owner* under the *Contract*, including, without limitation, those arising from negligence or breach of contract in respect to which the cause of action is based upon acts or omissions which occurred prior to or on the *Ready-for-Takeover* date, except as follows:
 - .1 claims arising prior to or on the *Ready-for-Takeover* date for which *Notice in Writing* of claim has been received by the *Owner* from the *Contractor* no later than 5 calendar days before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work* or 20 calendar days following the *Ready-for-Takeover* date, whichever is later;
 - .2 indemnification for claims advanced against the *Contractor* by third parties for which a right of indemnification may be asserted by the *Contractor* against the *Owner* pursuant to the provisions of this *Contract*;
 - .3 claims respecting toxic and hazardous substances, patent fees and defect in title matters for which a right of indemnity could be asserted by the *Contractor* pursuant to the provisions of paragraphs 13.1.4 or 13.1.5 of GC 13.1 – INDEMNIFICATION; and
 - .4 claims resulting from acts or omissions which occur after the *Ready-for-Takeover* date.
- 13.2.2 The *Contractor* waives and releases the *Owner* from all claims resulting from acts or omissions which occurred after the *Ready-for-Takeover* date except for:
 - .1 indemnification respecting third party claims, and claims respecting toxic and hazardous substances, patent fees and defect in title matters, all as referred in paragraphs 13.2.1.2 and 13.2.1.3; and
 - .2 claims for which *Notice in Writing* of claim has been received by the *Owner* from the *Contractor* within 395 calendar days following the *Ready-for-Takeover* date.
- 13.2.3 Subject to any lien legislation applicable to the *Place of the Work*, the *Owner* waives and releases the *Contractor* from all claims which the *Owner* has or reasonably ought to have knowledge of that could be advanced by the *Owner* against the *Contractor* under the *Contract*, including, without limitation, those arising from negligence or breach of contract in respect to which the cause of action is based upon acts or omissions which occurred prior to or on the *Ready-for-Takeover* date, except as follows:
 - .1 claims arising prior to or on the *Ready-for-Takeover* date for which *Notice in Writing* of claim has been received by the *Contractor* from the *Owner* no later than 20 calendar days following the *Ready-for-Takeover* date;
 - .2 indemnification for claims advanced against the *Owner* by third parties for which a right of indemnification may be asserted by the *Owner* against the *Contractor* pursuant to the provisions of this *Contract*;
 - .3 claims respecting toxic and hazardous substances for which a right of indemnity could be asserted by the *Owner* against the *Contractor* pursuant to the provisions of paragraph 13.1.4 of GC 13.1 – INDEMNIFICATION;
 - .4 damages arising from the *Contractor's* actions which result in substantial defects or deficiencies in the *Work*. “Substantial defects or deficiencies” mean those defects or deficiencies in the *Work* which affect the *Work* to such an extent or in such a manner that a significant part or the whole of the *Work* is unfit for the purpose intended by the *Contract Documents*;
 - .5 claims arising pursuant to GC 12.3 – WARRANTY; and
 - .6 claims arising from acts or omissions which occur after the *Ready-for-Takeover* date.
- 13.2.4 Respecting claims arising upon substantial defects and deficiencies in the *Work*, as referenced in paragraph 13.2.3.4, and notwithstanding paragraph 13.2.3.5, the *Owner* waives and releases the *Contractor* from all claims except claims for which *Notice in Writing* of claim has been received by the *Contractor* from the *Owner* within a period of six years from the *Ready-for-Takeover* date, provided that any limitation statute of the Province or Territory of the *Place of the Work* permit such agreement. If the applicable limitation statute does not permit such agreement, the time within which any such claim may be brought shall be such shorter period as may be prescribed by any limitation statute of the Province or Territory of the *Place of the Work*.
- 13.2.5 The *Owner* waives and releases the *Contractor* from all claims arising from acts or omissions which occur after the *Ready-for-Takeover* date, except for:
 - .1 indemnification for claims advanced against the *Owner* by third parties, as referenced in paragraph 13.2.3.2;
 - .2 claims respecting toxic and hazardous substances for which a right of indemnity could be asserted by the *Owner* against the *Contractor*, as referenced in paragraph 13.2.3.3;
 - .3 claims arising under GC 12.3 – WARRANTY; and

- .4 claims for which *Notice in Writing* has been received by the *Contractor* from the *Owner* within 395 calendar days following the *Ready-for-Takeover* date.
- 13.2.6 “*Notice in Writing* of claim” as provided for in GC 13.2 – WAIVER OF CLAIMS to preserve a claim or right of action which would otherwise, by the provisions of GC 13.2 – WAIVER OF CLAIMS, be deemed to be waived, must include the following:
- .1 a clear and unequivocal statement of an intention to claim;
 - .2 a statement as to the nature of the claim and the grounds upon which the claim is based; and
 - .3 a statement of the estimated quantum of the claim.
- 13.2.7 A claim for lien asserted under the lien legislation prevailing at the *Place of the Work* shall qualify as notice of claim for the purposes of this *Contract*.
- 13.2.8 The party giving the *Notice in Writing* of claim as provided for in GC 13.2 – WAIVER OF CLAIMS shall submit within a reasonable time a detailed account of the amount claimed.
- 13.2.9 Where the event or series of events giving rise to a claim made under paragraphs 13.2.1 or 13.2.3 has a continuing effect, the detailed account submitted under paragraph 13.2.8 shall be considered to be an interim account and the party making the claim shall submit further interim accounts, at reasonable intervals, giving the accumulated amount of the claim and any further grounds upon which such claim is based. The party making the claim shall submit a final account after the end of the effects resulting from the event or series of events.
- 13.2.10 Nothing in GC 13.2 – WAIVER OF CLAIMS shall be deemed to affect the rights of the parties under any lien legislation or limitations legislation prevailing at the *Place of the Work*.

Town of North Rustico
Pond Street Water Line
Replacement
Contract No. 262649.00

CCDC-41 Insurance Requirements

Section 00 72 10
Page 1
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Cover Page

CCDC 41
CCDC INSURANCE REQUIREMENTS

PUBLICATION DATE: December 14, 2020

1. General liability insurance shall be with limits of not less than \$10,000,000 per occurrence, an aggregate limit of not less than \$10,000,000 within any policy year with respect to completed operations, and a deductible not exceeding \$10,000. The insurance coverage shall not be less than the insurance provided by IBC Form 2100 (including an extension for a standard provincial and territorial form of non-owned automobile liability policy) and IBC Form 2320. To achieve the desired limit, umbrella or excess liability insurance may be used. Subject to satisfactory proof of financial capability by the *Contractor*, the *Owner* may agree to increase the deductible amounts.
2. Automobile liability insurance in respect of vehicles that are required by law to be insured under a contract by a Motor Vehicle Liability Policy, shall have limits of not less than \$10,000,000 inclusive per occurrence for bodily injury, death and damage to property, covering all vehicles owned or leased by the *Contractor*. Where the policy has been issued pursuant to a government-operated automobile insurance system, the *Contractor* shall provide the *Owner* with confirmation of automobile insurance coverage for all automobiles registered in the name of the *Contractor*.
3. Manned Aircraft and watercraft liability insurance with respect to owned or non-owned aircraft and watercraft (if used directly or indirectly in the performance of the *Work*), including use of additional premises, shall have limits of not less than \$10,000,000 inclusive per occurrence for bodily injury, death and damage to property including loss of use thereof and limits of not less than \$10,000,000 for aircraft passenger hazard. Such insurance shall be in a form acceptable to the *Owner*.
4. Unmanned aerial vehicle liability insurance with respect to owned or non-owned aircraft (if used directly or indirectly in the performance of the *Work*), shall have limits of not less than \$5,000,000 per occurrence or accident for bodily injury, death and damage to property or such amounts as required by any applicable law or regulation.
5. "Broad form" property insurance shall have limits of not less than the sum of 1.1 times *Contract Price* and the full value, as stated in the *Contract*, of *Products* and design services that are specified to be provided by the *Owner* for incorporation into the *Work*, with a deductible not exceeding \$10,000. The insurance coverage shall not be less than the insurance provided by IBC Forms 4042 and 4047 or their equivalent replacement. Subject to satisfactory proof of financial capability by the *Contractor*, the *Owner* may agree to increase the deductible amounts.
6. Boiler and machinery insurance shall have limits of not less than the replacement value of the permanent or temporary boilers and pressure vessels, and other insurable objects forming part of the *Work*. The insurance coverage shall not be less than the insurance provided by a comprehensive boiler and machinery policy including hot testing and commissioning.
7. Contractors' equipment insurance coverage written on an "all risks" basis covering *Construction Equipment* used by the *Contractor* for the performance of the *Work*, shall be in a form acceptable to the *Owner* and shall not allow subrogation claims by the insurer against the *Owner*. Subject to satisfactory proof of financial capability by the *Contractor* for self-insurance, the *Owner* may agree to waive the equipment insurance requirement.
8. Contractors' Pollution liability insurance shall have limits of not less than \$5,000,000 per occurrence for bodily injury, death and damage to property.

Association of
Canadian
Engineering
Companies

Canadian
Construction
Association

Construction
Specifications Canada

The Royal Architectural
Institute of Canada

These Supplementary Conditions amend the Civil Work Contract – CCDC 18 – 2023. Where a portion of the Contract is modified or deleted by these Supplementary General Conditions, the unaltered portions of the Contract shall remain in effect.

AGREEMENT BETWEEN OWNER AND CONTRACTOR

ARTICLE A-4 CONTRACT PRICE

Page 4, delete the first bullet point within Article 4.1 and replace with the following:

*Unit Prices form the basis for payment of the Contract Price. Quantities in the Schedule of Quantities and Unit Prices within Section 00 41 43 - Tender Form – Unit Rate are estimated. The estimated Contract Price, which is the total extended amount indicated in the Schedule of Quantities and Unit Prices within Section 00 41 43 - Tender Form – Unit Rate, exclusive of taxes is:

NEW ARTICLES A-9 AND A-10

Page 4, after Article A-8 insert the following new Articles A-9 and A-10:

ARTICLE A-9 SEVERABILITY

9.1 Each and every paragraph, section, clause, sub-clause, or other component of the *Contract* is severable one from the other. Should it be found by a court of competent jurisdiction that any one or more paragraphs or parts thereof are null and void, the validity of the remaining paragraphs or parts thereof shall not be affected.

ARTICLE A-10 TIME OF THE ESSENCE

10.1 Time shall be deemed to be of the essence of the *Contract*.

DEFINITIONS

PAGE 6-7, ADD THE FOLLOWING NEW DEFINITIONS:

Approved or Approval

Approved or *Approval* means acceptance by the *Consultant* in accordance with the *Consultant's* responsibilities described in Clause GC 2.2 ROLE OF THE *CONSULTANT*.

Period of Delay

The period of time from *Ready-for-Takeover* date specified in Article A-1, subclause 1.3, and the actual *Ready-for-Takeover* date; if any.

Site

The *Site* means the geographical location of the *Work* identified in the *Contract Documents*.

Total Amount Payable

Total Amount Payable means the sum of the Contract Price as stipulated in Article A-4, subclause 4.3 subject to adjustments made in accordance with the provisions of the Contract Documents plus the amount of *Value Added Taxes*.

Substantial Performance of the Work

Delete as written and replace with: *Substantial Performance of the Work* means "Completion of the Contract" as defined in the Provincial Lien Legislation applicable to the Place of Work. For the purpose of this Contract "Completion of the Contract" shall have been reached when the *Work* is ready for use or is being used for the purpose intended and is so certified by the *Consultant* as outlined in the Ready-for-Takeover process in Part 12 of this contract.

Reasonable Time

Reasonable time means seven (7) *Working days* unless expressed to be otherwise.

Subcontractor's Subcontractor

A *Subcontractor's Subcontractor* is a person or entity having a direct contract with a *Subcontractor* to perform a part or parts of the *Work* at the *Place of Work*.

Total Performance of the Work

Total Performance of the Work means the date when the prerequisites to *Total Performance of the Work* required by the *Contract* are fulfilled and the entire Work, except those items arising from the warranty provisions of the Contract, has been performed to the requirements of the Contract Documents and is so verified and declared in writing by the Consultant and agreed to as well as signed by the *Owner*.

GENERAL CONDITIONS OF THE CIVIL WORKS CONTRACT

GC2.2 ROLE OF THE CONSULTANT

Page 10, delete paragraph 2.2.15 its entirety and replace with the following:

2.2.15 The Consultant will conduct reviews of the Work to determine the date of Substantial Performance of the Work following the completion and attainment of Ready- for-Takeover.

PART 2 – ADMINISTRATION OF THE CONTRACT

GC 2.3 REVIEW AND INSPECTION OF THE WORK

Page 10, delete clause 2.3.3 and replace with the following:

2.3.3 The *Contractor* shall furnish promptly to the *Consultant* one (1) electronic file, in pdf file format, of certificates and inspection reports related to the *Work*. The *Contractor* will provide hard copies, in the quantity required, only upon request of the *Consultant* or *Owner*.

Page 10, within clause 2.3.5, add the following sentence at the end of the clause:

“If the *Consultant’s* determination is not accepted by either party, then the matter shall be settled in accordance with the requirements of Part 8 of the General Conditions – DISPUTE RESOLUTION.”

PART 3 – EXECUTION OF THE WORK

GC 3.4 CONSTRUCTION SCHEDULE

Page 12, in Clause 3.4.1.1, delete “prior to the first application for payment” and replace with “not later than two (2) weeks after receipt of the notice of award”.

Page 12, add new clause 3.4.2 as follows:

3.4.2 If, at any time, it should appear to the *Owner* or the *Consultant* that the actual progress of the *Work* is behind schedule or is likely to become behind schedule, or if the *Contractor* has given notice of such to the *Owner* or the *Consultant* pursuant to clause 3.4.1.3, the *Contractor* shall take appropriate steps to cause the actual progress of the *Work* to conform to the schedule or minimize the resulting delay and shall produce and present to the *Owner* and the *Consultant* a recovery plan demonstrating how the *Contractor* will achieve the recovery of the schedule. If the *Contractor* intends to apply for a change in the *Contract Price* in relation to a schedule recovery plan, then the *Contractor* shall proceed in accordance with General Condition 6.6 – CLAIMS FOR A CHANGE IN CONTRACT PRICE.

GC 3.5 SUPERVISION

Page 12, add new clause 3.5.3 as follows:

3.5.3 The *Owner* may, at any time during the course of the *Work*, request the replacement of the appointed representative(s), where the grounds for the request involve conduct which jeopardizes the safety and security of the Site or the *Owner’s*

operations. Immediately upon receipt of the request, the *Contractor* shall make arrangements to appoint a replacement acceptable to the *Owner* and *Consultant*.

GC 3.6 LAYOUT OF THE WORK

Page 12, delete clause 3.6.1 in its entirety and replace with the following:

3.6.1 *The Contractor* shall have all bench marks/reference points established on site by a licensed surveyor, at the *Place of the Work*, at no additional cost to the *Owner*.

GC 3.8 LABOUR AND PRODUCTS

Page 13, delete clause 3.8.2 and replace with the following:

3.8.2 *The Contractor* shall provide and pay for labour, *Products*, tools, *Construction Equipment*, transportation, and other facilities and services necessary for the performance of the *Work* in accordance with the *Contract*. Water, heat, light, and power will be provided by the party identified in Division 01 of these *Specifications*.

GC 3.9 SHOP DRAWINGS

Page 13, delete clause 3.9.2 and replace with the following:

3.9.2 *The Contractor* shall prepare and submit to the *Consultant* for review, a schedule of the dates for provision, review and return of *Shop Drawings*. Provide this submission a minimum of two (2) working days prior to the project start-up meeting.

PART 4 - ALLOWANCES

GC 4.1 CASH ALLOWANCES

Page 14, delete clause 4.1.7 and replace with the following:

4.1.7 *The Contractor* shall prepare a schedule, acceptable to the *Consultant*, that shows when the *Consultant* and *Owner* must authorize ordering of items called for under cash allowances to avoid delaying the progress of the *Work*.

Page 14, add new clause 4.1.8 as follows:

4.1.8 *The Owner* reserves the right to call, or to have the *Contractor* call, for competitive bids for portions of the *Work*, to be paid for from cash allowances.

PART 5 - PAYMENT

GC 5.5 PAYMENT

Page 15, delete clause 5.5.1.2 its entirety and replace with the following:

5.5.1.2 The *Owner* shall make payment to the *Contractor* on account as provided in Article A-5 of the Agreement – PAYMENT on or before twenty-eight (28) calendar days after the later of:

- .1 receipt by the Consultant of the application for payment; or
- .2 the last day of the monthly payment period covered by the application for payment.

Page 15, after clause 5.5.1.2 add the following new clauses 5.5.1.3 and 5.5.1.4:

5.5.1.3 The *Contractor* shall agree to interim quantities with the *Consultant* for the purposes of progress payment claims, prior to submission of progress payment application.

5.5.1.4 The *Contractor* shall pay promptly any and all accounts for labour, services and materials used for the purpose of the fulfillment of this Contract as and when such accounts become due and payable and shall furnish the *Consultant* with proof of payment of such accounts in such form and as often as the *Consultant* may request.

GC 5.6 SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK

Page 15, delete first paragraph of clause 5.6.1 in its entirety and replace with the following:

5.6.1 Once Ready-for-Takeover, as identified under General Condition 12.1, has been attained, the *Consultant* will review the Work to certify or verify the validity of the application for Substantial Performance of the Work and will promptly, and in any event, no later than 28 calendar days after receipt of the *Contractor's* application:

Page 15, delete Clause 5.6.3 and replace with the following:

5.6.3 Subject to the requirements of the Payment Legislation of the Place of the Work, all holdback prescribed by the applicable lien legislation for completed Work shall become due and payable to the *Contractor* no later than ten (10) Working Days following the expiration of the sixty (60) calendar days holdback period. If, within sixty (60) calendar days after the issue of the certificate of Substantial Performance of Work, the *Contractor* has not corrected all the documented deficiencies, the *Owner* shall retain sufficient monies, as determined by the Consultant, to cover the cost of completing said deficiencies. These monies shall be

held in addition to holdback monies retained in accordance with the provisions of the Contract and subject to the terms of the lien legislation in the Place of the Work.

Page 15, add delete clauses 5.6.4 and replace with the following:

5.6.4 The *Contractor* shall submit an application for payment of the lien holdback amount in accordance with GC 5.5-PAYMENT no later than five (5) days before the expiration of the holdback period.

5.6.4.1 Submit a certificate by lien search to the *Owner* by a solicitor licensed to practice law in the Province of the *Place of the Work*, certifying that no lien associated with the Work has been registered against the *Owner's* property or *Work*;

5.6.4.2 Submit a clearance letter from the Workers' Compensation Board or provincially equivalent regulatory body;

5.6.4.3 All such documents shall be dated not earlier than the expiry of the lien period as stipulated by the lien legislation in the *Place of the Work*; and

5.6.4.4 If the *Contractor* has not corrected all the documented deficiencies before the expiration of the holdback period as determined by the lien legislation in the Place of Work the *Owner* shall retain sufficient monies, as determined by the Consultant, to cover the cost of completing said deficiencies. These monies shall be held in addition to holdback monies retained in accordance with the provisions of the Contract and subject to the terms of the lien legislation in the Place of Work.

Page 15, delete clause 5.6.5

Page 15, delete clause 5.6.6

Page 15, add a new paragraph 5.6.5 as follows:

5.6.5 Occupancy or use of the premises prior to Substantial Performance of the *Work* shall not be a factor in determining the date of Substantial Performance of the *Work*.

GC 5.7 FINAL PAYMENT

Page 16, clause 5.7.4, in line 2, change "5 calendar days" to "28 calendar days".

GC 5.9 NON-CONFORMING WORK

Page 16, within clause 5.9.1, add a new sentence as follows:

Occupancy or use of the premises prior to either the dates of Substantial Performance of the Work or Total Performance of the Work shall not be a factor in determining either of those dates.

Add a new clause 5.9.2 as follows:

5.9.2 Notwithstanding GC 5.6.1, prior to *Ready-for-Takeover* of the Work, at the direction of the *Owner*, the Consultant, will work with the *Contractor* to establish deficiency holdback amounts on non-conforming work. The *Contractor* will be advised of those portions of work which are included in this deficiency holdback amount. This funding amount will be held back until all deficiencies have been completed. The determined deficiency amounts will be carried on the *Contractor's* monthly progress bills leading up to *Substantial Performance of the Work*.

PART 6 - CHANGES IN THE WORK

GC 6.1 OWNER'S RIGHT TO MAKE CHANGES

Page 16, add new clause 6.1.1.3 as follows:

6.1.1.3 Changes that do not affect the Contract Price and time by Supplemental Instruction.

GC 6.2 CHANGE ORDER

Page 16, within clause 6.2.2.1 after "the Work" add "to the limits set forth in GC 6.7 – Quantity Variations".

Page 16, after clause 6.2.3, add the following:

6.2.4 The mark-up on agreed upon changes are as follows:

- .1 Work performed by the *Contractor's* own forces will be the cost of the Work plus ten (10%) percent overhead and profit.
- .2 Work performed by the *Subcontractor's* force will be the cost of Work plus 15% overhead and profit. Where the Work can be done by the *Contractor's* forces, as solely determined by the *Consultant*, but is done by the *Subcontractor's* forces, the mark-up for overhead and profit will be limited to ten (10%) percent.

6.2.5 Before the approval of any change order over \$1,000 in value the *Consultant* is entitled to receive, upon request, at a minimum, the following breakdown of cost associated with such change order:

- .1 Labour rates, excluding operators.
- .2 Equipment rates including operators.
- .3 Supervisory staff rates.
- .4 *Subcontractor* and material or equipment invoices where applicable.
- .5 Overhead costs including worker's compensation, site trailer cost as applicable, insurance, bonding, small tool expenses, CPP, and EI contributions.

6.2.6 No compensation for extra *Work* or material shall be allowed unless the *Consultant* issues a *Notice in Writing* authorizing such *Work* or material to be ordered in the form of a *Change Order*, *Change Directive*, or *Supplemental Instruction*.

6.2.7 No compensation will be allowed for the cost of repairs to Construction Equipment of any kind on the Site except as directed by the *Consultant* in writing.

6.2.8 The price applicable to any *Work* deleted from the Contract, shall be deducted from the Contract Price and shall be mutually agreed upon by the *Contractor* and the *Consultant*. The price shall be comparable to prices quoted on *Work* of similar nature.

GC 6.3 CHANGE DIRECTIVE

Page 18, in clause 6.3.12, add the following sentence at the end of the paragraph:

If such determination by the *Consultant* is not accepted by either party, then the decision shall be made in accordance with Part 8 of the General Conditions – DISPUTE RESOLUTION.

GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

Page 18, add new clauses 6.4.5 and 6.4.6 as follows:

6.4.5 If the *Contractor* was given access to the *Place of the Work* and/or professional reports relating thereto (including, without limitation, environmental, geotechnical, and structural reports) prior to the submission of the bid on which the *Contract* was awarded, then the *Contractor* confirms that they have investigated the *Place of the Work* and, in doing so, applied to that investigation the degree of care and skill required. In those circumstances, notwithstanding the provisions of clause 6.4.1, the *Contractor* is not entitled to an adjustment to the *Contract Price* or to an extension of the *Contract Time* for conditions which could reasonably have been ascertained by the *Contractor* by such investigation, or which could have been reasonably inferred from the material provided with the *Contract Documents*. In those circumstances, should a claim arise, the *Contractor* will have the burden of establishing that it could not have discovered the materially different conditions from an investigation because of restrictions placed on its access or inferred the existence of the conditions from the material provided with the *Contract Documents*.

6.4.6 If such concealed or unknown conditions relate to toxic and hazardous substances and materials, artifacts and fossils, or mould, the parties will be governed by the provisions of GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES, GC 9.3 – ARTIFACTS AND FOSSILS, and GC 9.5 – MOULD.

GC 6.5 DELAYS

Page 18, clause 6.5.2, delete last sentence of paragraph and replace with the following sentence:

The *Contractor* will not be reimbursed by the *Owner* for costs incurred by the *Contractor* as a result of such delay.

Page 19, after Clause 6.5.5, add the following new clauses:

6.5.6 Should the *Contractor* fail to attain *Ready-for-Takeover* for the Work by the date indicated in Article A-1, Clause 1.3 in the AGREEMENT BETWEEN OWNER AND CONTRACTOR, the period of time from this agreed date to the actual date when the Consultant confirms the Work is *Ready-for-Takeover*, shall be termed the Period of Delay.

6.5.7 In the event there is a Period of Delay, the *Contractor* shall be liable for and shall pay to the *Owner* the cost of continuance of supervision during the Period of Delay, and all additional fees, disbursements and costs incurred by the *Owner* as a result of the Period of Delay, such charges hereby termed as Delay Charges. The *Owner* may deduct the amount of such Delay Charges from further progress payments.

GC 6.6 CLAIMS FOR A CHANGE IN CONTRACT PRICE

Page 19, add the following new clause as 6.6.6 and renumber the final subsequent clause:

6.6.6 The *Owner* may make claims arising out of the costs incurred for additional services provided by the *Consultant* resulting from the *Contractor's* failure to reasonably perform the Work in accordance with the terms and conditions of the Contract, including the *Contractor's* issuance of unnecessary Requests for Information (RFI's). The *Consultant* will notify the *Owner* and *Contractor* where it has been determined that additional services will be required or have been provided in order not to cause a delay. The *Owner* shall make claims based on the *Consultant's* invoices.

PART 9 - PROTECTION OF PERSONS AND PROPERTY

GC 9.4 CONSTRUCTION SAFETY

Page 24, after GC 9.4.5, add the following new clause 9.4.6:

9.4.6 The *Contractor* shall indemnify and save harmless the *Owner*, its agents, officers, directors, employees, *Consultants*, successors, appointees and assigns from and against the consequences of any and all safety infractions committed by the *Contractor* under the applicable occupational health and safety legislation in the *Place of the Work*, including the payment of legal fees and disbursements on a

solicitor and client basis. Such indemnity shall apply to the extent to which the *Owner* is not covered by insurance, provided that the indemnity contained in this clause shall be limited to costs and damages resulting directly from such infractions and shall not extend to any consequential, indirect, or special damages.

PART 10 - GOVERNING REGULATIONS

GC 10.1 TAXES AND DUTIES

Page 25, after Clause 10.1.2, add new Clauses 10.1.3 and 10.1.4 as follows:

10.1.3 The *Contractor* shall indicate on each application for payment as a separate amount, the appropriate *Value Added Tax* the *Owner* is legally obliged to pay. This amount will be paid to the *Contractor* in addition to the amount certified for payment under the *Contract*.

10.1.4 The *Contractor* shall in the event that any new tariffs, taxes or trade restrictions are imposed or revoked by either the Canadian or US government on materials, goods or services related to this project after the date of bid closing, that affect the cost or availability of goods and services necessary for the performance of the work under this Agreement, the parties agree to negotiate in good faith an adjustment to the schedule and contract price resulting solely and directly from such changes. The *Contractor* shall provide written notice to the Client within five (5) days of the imposition or revocation of such tariffs, outlining the associated specific cost increase in the case of imposition, or decrease in the case of revocation, and schedule impacts to the project.

GC 10.2 LAWS, NOTICES, PERMITS AND FEES

Page 25, add the following to clause 10.2.3 after the first sentence:

Various jurisdictions have requirements for posting non-refundable fees before excavations are carried out within public rights-of-way. The *Contractor* is responsible for the determination of the requirement for each specific project and for any required deposits. The *Contractor* shall obtain all permits, such as those from the Department of Highways; licenses; letters of approval and certificates and pay the fees required for the performance of the Work which are in force at the date of tender closing, but this shall not include the obtaining of permanent easements or rights-of-way.

PART 12 – OWNER TAKEOVER

GC 12.1 READY-FOR-TAKEOVER

Page 27, delete clause 12.1.1.1 and replace with the following:

12.1.1.1 The requirements of GC 12.1 – *Ready-For-Takeover* must be satisfied and completed prior to issuance of *Substantial Performance of the Work*.

Page 27, add new clause 12.1.1.9 and 12.1.1.10 as follows:

12.1.1.10 Any other documentation identified as a closeout or Ready-for-Takeover document as specified in Section 01 78 00 - Closeout Submittals.

GC 12.3 WARRANTY

Page 28, within clause 12.3.1 delete “Ready-for-Takeover” and replace with “Substantial Performance of the Work”

Page 28, add new clause 12.3.5 as follows and renumber subsequent clauses:

12.3.5 All *Work* of repair or replacement carried out during the warranty period shall be maintained for a period of one (1) year from the date of the *Consultant’s* acceptance of the *Work* of repair or replacement notwithstanding that the warranty period expires before the expiration of the said year. This clause shall not apply to normal operation maintenance, which shall be carried out by the *Owner*.

Page 28, add new clause 12.3.7 and 12.3.8 as follows:

12.3.7 When a part of the *Work* is occupied by the *Owner*, for the use intended, prior to the date of *Substantial Performance of the Work*, the warranty for the *Work* directly related to construction and normal operation of that part of the *Work* shall start on the date of occupancy.

12.3.8 The *Contractor* shall ensure that their *Subcontractors* are bound to the requirements of GC 12.3 insofar as their *Work* is concerned.

PART 13 – INDEMNIFICATION AND WAIVER

GC 13.1 INDEMNIFICATION

Page 28, Clause 13.1.1, in line 2, after “hold harmless the other” replace with “hold harmless the other and the Consultant”.

Page 30, add new Part 14 – Contract Security as follows:

PART 14 – CONTRACT SECURITY

GC 14.1 CONTRACT SECURITY

14.1.1 The *Contractor* shall, prior to commencement of the *Work*, provide to the *Owner* a Performance Bond and a Labour and Materials Bond, each in the amount

of 50% of the Total Amount Payable or an Irrevocable Letter of Credit in the amount of 20% of the Total Amount Payable. The Irrevocable Letter of Credit shall be issued by a certified financial institution for a period of no less than twelve (12) months after the issue of Substantial Performance Certificate. Include the cost of providing the Irrevocable Letter of Credit in Contract Price. Should it become apparent that the final cost of the project will exceed the Total Amount Payable by more than 10%, the *Contractor* shall arrange to have their bonds or Irrevocable Letter of Credit reissued, based on the projected final cost. The contract security will be retained until the expiration of the warranty period.

GC 14.2 LIQUIDATED DAMAGES

14.2.1 Time shall be construed as being of the essence of the Contract.

14.2.2 Should the *Contractor* fail to complete the works by the Date for Completion, the period of time from the Date for Completion to the Date of Substantial Performance of the Works as determined by the *Owner/Owner's* Representative, shall be termed the Period of Delay.

14.2.3 In the event of there being a Period of Delay, the *Contractor* shall be liable for and shall pay to the *Owner* the cost of continuance of supervision during the Period of Delay, and all additional fees, disbursements and costs incurred by the *Owner* by reason of there being such period of delay for each and every day that the work or works shall remain unfinished after the time so specified. The said sum or sums in view of the difficulty of ascertaining the losses which the *Owner* may suffer by reason of delay in the performance of the said Works, is hereby agreed upon, fixed and determined by the parties hereto as liquidated damages that the *Owner* will suffer by reason of said delay and default and not as penalty. The *Owner* may deduct the amount of such liquidated damages from each progress payment following the event until the project reaches Substantial Performance as certified by the *Owner*.

14.2.4 The *Contractor* shall pay the *Owner* forthwith upon demand, all liquidated damages resulting out of failure to meet the time for Completion of the Contract as specified in the General Conditions. **Such liquidated damages shall NOT exceed \$ 1400 per day, plus taxes.**

END OF SECTION 00 73 00

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- .1 The work to be done and list of contract drawings are set forth in Section 00 21 10 - Description Of Work And List Of Drawings.

1.2 FAMILIARIZATION WITH SITE

- .1 Before submitting a bid, it is recommended that bidders visit the site to review and verify the form, nature and extent of the work, materials needed, the means of access and the temporary facilities required to perform the Work.

1.3 CODES AND STANDARDS

- .1 Perform work in accordance with the latest edition of the National Building Code (NBC), National Fire Code (NFC), National Plumbing Code (NPC) and any other code of provincial or local application, including all amendments up to bid closing date, provided that in any case of conflict or discrepancy, the more stringent requirement shall apply.
- .2 Perform work in accordance with Code of Practice of the Department of Labour as it pertains to the Temporary Workplace Traffic Control Manual (Department of Transportation and Infrastructure) and any other code of federal, provincial or local application provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.
- .3 Materials and workmanship must conform to or exceed applicable standards of Canadian General Standards Board (CGSB), Canadian Standards Association (CSA), American Society for Testing and Materials (ASTM) and other requirements of specified standards, codes and referenced documents.
- .4 Conform to latest revision of any referenced standard as re-affirmed or revised to date of specification. Standards or codes not dated shall be deemed editions in force on date of tender advertisement.

1.4 INTERPRETATION OF DOCUMENTS

- .1 Supplementary to the Order of Precedence article of the General Conditions of the Contract, the Division 01 sections take precedence over the technical specification sections in other Divisions of the Specification Manual.

1.5 TERM ENGINEER OR OWNER'S REPRESENTATIVE

- .1 Unless specifically stated otherwise, the term Engineer or Owner's Representative where used in the Specifications and on the Drawings shall mean the Consultant as defined in the General Conditions of the Contract.

1.6 SETTING OUT WORK

- .1 The Contractor will set stakes to define location, alignment and elevations of work, and measurement of the work.
- .2 Supply such devices as straight edges and templates required to facilitate Owner's Representatives inspection of work.
- .3 Supply stakes and other survey markers required for laying out work.

1.7 MEASUREMENT FOR PAYMENT

- .1 Notify Owner's Representative sufficiently in advance of operations to permit required measurements for payment.

1.8 MAINTENANCE OF WORK DURING CONSTRUCTION

- .1 Maintain work during construction. Undertake continuous and effective maintenance work day by day, with adequate equipment and forces so that the roadway or structures are continuously kept in a condition satisfactory to Owner's Representative.

1.9 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy each of following:
 - .1 Contract drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Reviewed drawings.
 - .5 Change orders.
 - .6 Other modifications to Contract.
 - .7 Copy of approved work schedule.
 - .8 Health & Safety Plan and related documents.
 - .9 Environmental Management Plan (EMP) & related documents.

1.10 SITE CONDITIONS

- .1 The Contractor will be responsible to visit the site and review existing site conditions.

1.11 CONSULTANT

- .1 Consultant can be contacted at:
 - CBCL Limited
 - 135 St. Peters Road, Suite 201
 - Charlottetown, PEI C1A 5P3

Telephone: (902) 892-0303
Facsimile: (902) 368-3444

1.12 WORK SCHEDULE

- .1 Provide to the Owner's Representative in writing and within 5 working days after Contract award, a detailed construction schedule and traffic control plan. The schedule shall show proposed work to be undertaken and anticipated completion dates for each category of work in the Unit Price Table.
- .2 After receiving the Contractor's plan and prior to start of construction, a pre-construction meeting involving Contractor and Owner's Representative will be held at a place and time to be determined by the Owner's Representative. This meeting will review implications of the contract, design, schedule of work, methods of construction, environment protection methods and traffic control.
- .3 Interim reviews of work progress based on work schedule will be conducted as decided by Owner's Representative and schedule updated by Contractor in conjunction with and to approval of Owner's Representative.
- .4 No work will begin until the pre-construction meeting is held.
- .5 Following the pre-construction meeting and approval of the schedule and traffic control plan, the work will be so scheduled to meet the time restraints and have the project completed on time.

1.13 SANITARY SERVICES

- .1 The Contractor shall provide and maintain sanitary facilities for the use of workers at locations specified by the Owner's Representative. Provision of sanitary facilities shall meet requirements of provincial government and municipal statutes and authorities.

1.14 CONTRACTOR'S USE OF SITE

- .1 Use of site: for execution of work within roadway right of way and those areas specified by the Owner's Representative.

1.15 PROJECT MEETINGS

- .1 Consultant will arrange project meetings and assume responsibility for setting times and recording and distributing minutes.

1.16 EXISTING SERVICES

- .1 Carry out work at times directed by authorities having jurisdiction, with minimum of disturbance to pedestrian and vehicular traffic.
- .2 Before commencing work, establish location and extent of service lines in area of work and notify Owner's Representative of findings.

- .3 Submit schedule to and obtain approval from Owner's Representative for any shut down or closure of active service or facility. Adhere to approved schedule and provide notice to affected parties.
- .4 Where unknown services are encountered, immediately advise Owner's Representative and confirm findings in writing.
- .5 Record locations of maintained, re routed and abandoned service lines.
- .6 Ensure that at least one lane of traffic is maintained at construction sites at all times.
- .7 Ensure pedestrian and other traffic is not unduly impeded, interrupted or endangered by execution or existence of work or plant.
- .8 Maintain existing signs at all times. When it is necessary to temporarily remove a sign, it shall be dismantled and re-established on a temporary post or stand set back from construction area. The work is considered to be incidental and no separate payment will be made for maintaining or moving signs.
- .9 Verify locations of any underground utilities.

1.17 ADDITIONAL DRAWINGS

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

1.18 RELICS, ANTIQUES AND WILDLIFE HABITAT

- .1 Protect relics, antiquities, wildlife habitat, items of historical or scientific interest such as cornerstones and contents, animal nesting sites, commemorative plaques, inscribed tablets, and similar objects found during course of work.
- .2 Give immediate notice to Owner's Representative and await Owner's Representative's written instructions before proceeding with work in this area.
- .3 Relics, antiquities and items of historical or scientific interest remain his Majesty's property.

1.19 MEASUREMENT OF QUANTITIES

- .1 Linear: Items which are measured by metre (m) or kilometre (km), such as pavement markings will be measured along centreline of installation unless otherwise shown on plans.
- .2 Area:
 - .1 Longitudinal and transverse measurements for areas to be measured horizontally in metres (m).
 - .2 Longitudinal and transverse measurements for such items as topsoil and hydroseeding to be made on actual flat or sloped surface seeded or sodded.

- .3 Volume:
 - .1 In computing volumes of excavation, average end area method will be used unless otherwise directed by Owner's Representative in writing.
 - .2 Term: cubic metres, C.M. or m³
 - .3 All volume measurements refer to in place measure unless specified elsewhere in specification.
- .4 Mass:
 - .1 Term "tonne" shall mean 1000 kg.
 - .2 Materials which are specified for measurement by mass shall be weighed on scales approved by and at locations designated by Owner's Representative. Units used to haul material being paid for by mass shall bear legible identification numbers plainly visible to scale person as it approaches and leaves scale-house.
- .5 Time:
 - .1 Unless otherwise provided for elsewhere or by written authority of Owner's Representative, hourly rental of equipment will be measured in actual working time and necessary travelling time of equipment within limits of project at an all-inclusive rate. Equip each unit of mobile equipment with an approved device to register hours of operation. Devices which only measure hours of running of motor will not be accepted. Cost for operator of equipment will be included in the hourly rate.

1.20 PERMITS/ AUTHORITIES

- .1 The Contractor shall obtain, and pay for, permits from authorities as required for all operations and construction. The Contractor shall also comply with all pertinent regulations of all authorities having jurisdiction over the work. The Contractor shall provide copies of all permits to the Owner prior to starting the work. The Contractor shall be responsible for obtaining all applicable permits, inspections and approvals required and shall pay all charges in connection therewith.

1.21 EQUIPMENT RENTAL RATES

- .1 Upon written request, the Contractor will supply the Owner's Representative with a list of the rental equipment to be used on work beyond the scope of bid items. Equipment rental rates will be in accordance with current rates published by the PEI Department of Transportation and Infrastructure.

1.22 CONSTRUCTION RESTRICTIONS

- .1 This sub-section identifies restrictions that may impact the scheduling or execution of the Work. This does not purport to identify all potential disruptions, but rather it is meant to assist the Contractor to understand the project.

- .2 Be fully aware that the Owner will occupy premises periodically during the entire construction period for execution of normal operations. Co-operate with Owner in scheduling work to minimize conflict and to facilitate Owner's operation and maintenance activities.
- .3 In general the site must remain functional throughout all stages of Work. From time to time, pre-planned disruptions to operations will be permitted to accommodate tie-ins and other critical stages of the Work during dry weather for hours.

1.23 RECORD INFORMATION

- .1 Record Drawings:
 - .1 After award of Contract, Consultant will provide a set of drawings for purpose of maintaining record drawings. Accurately and neatly record deviations from Contract Documents caused by site conditions and changes ordered by the Consultant.
 - .2 Identify drawings as "Project Record Copy". Maintain in new condition and make available for inspection on site by Owner's Representative.
 - .3 On completion of Work and prior to final inspection, submit as-built documents to the Consultant for review.

END OF SECTION 01 10 10

PART 1 - GENERAL

1.1 DEFINITION

- .1 In this Section "Substitution" means a Product, a manufacturer, or both, not originally specified in Contract Documents by proprietary name but proposed for use by Contractor in place of a Product, a manufacturer, or both, specified by proprietary name.

1.2 EQUIVALENTS AND ALTERNATES

- .1 Where any particular brand of manufactured article is described or specified, it is to be regarded as a standard of acceptance but another brand of equivalent quality and function may be accepted at the discretion of the Owner's Representative.
- .2 When the Owner is prepared to permit the use of a non-equivalent brand of manufactured article as an alternative to any specified brand of manufactured article, it may be used at the discretion of the Owner's Representative but only after price adjustments have been negotiated and approved by the Owner's Representative. No extra fees will be charged for approved equivalents.
- .3 If the suggested alternative requires modifications, adjustments or additions to the specified Works, submit to the Owner's Representative, drawings and specifications for these modifications, adjustments or additions in the same detail as presented in the Contract. Approval in principle by the Owner's Representative of these modifications, adjustments or additions in no way relieves the Contractor of obligations or liabilities under the Contract to provide for finished piece of Work complete and operational in all essentials.
- .4 No change or substitution can be made without the written consent of the Owner's Representative.
- .5 The Owner's Representative will record the time required to evaluate equivalents and alternates proposed by the Contractor including making changes to the Contract Documents occasioned thereby. Whether or not the Owner's Representative accepts a proposed substitute, reimburse the Owner for the charges of the Owner's Representative for evaluating any proposed substitute.

1.3 SUBSTITUTION PROCEDURES – TENDER PHASE

- .1 No change in the specification will be made prior to the acceptance of the tenders.

1.4 SUBSTITUTION PROCEDURES – CONSTRUCTION PHASE

- .1 Contractor may propose a Substitution wherever a Product or manufacturer is specified by proprietary name(s), unless there is accompanying language indicating that Substitutions will not be considered.

- .2 Contractor may propose a Substitution wherever a Product or manufacturer is specified by proprietary name(s) and accompanied by language such as "or equal", "or approved equal", or other similar words. Do not construe such language as an invitation to unilaterally provide a Substitution without Owner's Representative's prior acceptance in writing. Do not order or install any Substitution without a Supplemental Instruction or Change Order.
- .3 Provided a proposed Substitution submission includes all of the information specified in this Section under Submission Requirements For Proposed Substitutions, Owner's Representative will promptly review and accept or reject the proposed Substitution.
- .4 Owner's Representative may accept a Substitution if satisfied that:
 - .1 the proposed substitute Product is the same type as, is capable of performing the same functions as, interfaces with adjacent Work the same as, and meets or exceeds the standard of quality, performance and, if applicable, appearance and maintenance considerations, of the specified Product,
 - .2 the proposed substitute manufacturer has capabilities comparable to the specified manufacturer, and
 - .3 the Substitution provides a benefit to Owner.
- .5 If Contractor fails to order a specified Product or order a Product by a specified manufacturer in adequate time to meet Contractor's construction schedule, Owner's Representative will not consider that a valid reason to accept a Substitution.
- .6 If Owner's Representative accepts a Substitution and subject to Owner's agreement, the change in the Work will be documented in the form of either a Supplemental Instruction or Change Order.
- .7 If a Substitution is accepted in the form of a Supplemental Instruction or Change Order, Contractor shall not revert to an originally specified Product or manufacturer without Owner's Representative's prior written acceptance.

1.5 SUBMISSION REQUIREMENTS FOR PROPOSED SUBSTITUTIONS

- .1 Include with each proposed Substitution the following information:
 - .1 Identification of the Substitution, including product name and manufacturer's name, address, telephone numbers, and website.
 - .2 Reason(s) for proposing the Substitution.
 - .3 A statement verifying that the Substitution will not affect the Contract Price and Contract Time or, if applicable, the amount and extent of a proposed increase or decrease in Contract Price and Contract Time on account of the Substitution.
 - .4 A statement verifying that the Substitution will not affect the performance or warranty of other parts of the Work.

- .5 Manufacturer's Product literature for the Substitution, including material descriptions, compliance with applicable codes and reference standards, performance and test data, compatibility with contiguous materials and systems, and environmental considerations.
- .6 Product samples as applicable.
- .7 A summarized comparison of the physical properties and performance characteristics of the specified Product and the Substitution, with any significant variations clearly highlighted.
- .8 Availability of maintenance services and sources of replacement materials and parts for the Substitution, as applicable, including associated costs and time frames.
- .9 If applicable, estimated life cycle cost savings resulting from the Substitution.
- .10 Details of other projects and applications where the Substitution has been used.
- .11 Identification of any consequential changes in the Work to accommodate the Substitution and any consequential effects on the performance of the Work as a whole. A later claim for an increase to the Contract Price or Contract Time for other changes in the Work attributable to the Substitution will not be considered.

PART 2 – PRODUCTS

2.1 NOT USED

PART 3 – EXECUTION

3.1 NOT USED

END OF SECTION 01 25 00

PART 1 - GENERAL

1.1 MEASUREMENT

- .1 The method of measurement shall be as stated hereinafter for the individual items.
- .2 Provisional items are included in the Contract to establish a unit rate and an amount to do particular work. Include unit price and amount as tendered in Tender Price. The Owner reserves the right to delete all or portions of this item from the total Contract Price.

1.2 PAY ITEMS

- .1 General Mobilization and Demobilization:
 - .1 Unit of Measurement: LUMP SUM (LS)
 - .2 This item includes: full compensation for the mobilization and demobilization of all equipment, material, and labour to and from the site, including land negotiations for storage areas as well as any negotiations with utilities. This item also includes the provision of parking areas for equipment and vehicle parking including any land negotiations for such. This item also includes the supply, placement, and removal from site any earth materials and associated environmental controls required as part of mobilization and demobilization.
- .2 Locate and Accommodate Existing Infrastructure:
 - .1 The unit of measurement will be the LUMP SUM (LS).
 - .2 This item includes: locating and accommodating all existing infrastructure, for all costs to liaise with all utilities (Maritime Electric, Bell Aliant, Eastlink and North Rustico Sewer and Water Utility Corporation) to locate the existing systems, protect, relocate and accommodate them during construction and maintain service to customers, and return systems all to the satisfaction of the Utility. The price shall include for having the proper utility remove, replace and/or accommodate utility poles, guys and anchors during construction and trace existing buried cables and pipelines. The price shall include all labour and equipment, and the supply and installation of any repair sleeves, fittings, make-up pieces, and/or other appurtenances required to connect to existing systems. The price shall include all costs associated with reinstatement of areas disturbed by accommodating the existing systems. Also included shall be all costs to excavate test pits to locate infrastructure in plan and profile at crossing points with the proposed works.

.3 Traffic Control:

- .1 Unit of Measurement: LUMP SUM (LS)
- .2 This item includes: the preparation of a traffic control plan prepared by a certified traffic control manager in accordance with the latest edition of the Prince Edward Island Temporary Workplace Traffic Control Manual. The contractor shall maintain a certified traffic control manager as well as certified traffic control personnel during working hours when the work takes place within the public right of way. This item also includes the supply, fabrication, secure placement on site, replacement, periodic maintenance/repositioning/keeping upright, handling, repositioning prior to and after any vehicle entry/exit to/from the site, repositioning between Phases, and final removal from site of all temporary traffic control condition devices such as but not limited to delineators, warning, guidance, protection, etc. The road is to be reinstated to two lane two way traffic at the end of each day and made safe for the travelling public. This item also includes the provision of traffic control measures for pedestrians to prevent pedestrians from entering the work site.

.4 Environmental Protection:

- .1 Unit of Measurement: LUMP SUM (LS)
- .2 This item includes: construct and maintain sediment control barriers, check dams and silt fence in the locations indicated or as directed by the Owner's Representative. The costs shall also include for the removal and disposal of silt build up from the environmental controls, pond barriers and their removal when grass has been re-established and prior to the completion of the warranty period.

.5 Demolition and Removals:

- .1 The unit of measurement will be the LUMP SUM (LS).
- .2 This item includes: the complete removal and off-site disposal (unless noted otherwise) of all structures indicated. The price includes removal of sidewalks, asphalt, storm piping and culverts, and surplus topsoil and any other infrastructure required to complete the work. The price includes all labour, equipment, materials, and payment of all fees required to complete the work.

.6 Water Main and Fittings:

- .1 The unit of Measurement: LINEAL METER (m).
- .2 Method of Measurement: along centerline of pipe through fittings, valves and valve chambers.
- .3 This item includes: connecting to existing infrastructure, including repair of any existing infrastructure, excavating, trucking, sheeting and shoring, trench box, pumping and draining, backfilling, compaction, maintenance of surface

level, disposal of surplus and unsuitable material, pipe, thrust blocking, insulation, marking tape, polyethylene wrap, geotextile fabric, excavation, bedding, backfilling, embanking and reinstatement, metal detector conductor, and fittings (including tees, tapped couplings, bends, caps and sleeves) supplying and placing of bedding material, lowering into the trench; boring as required and indicated on the Drawings, bringing the pipe into alignment; jointing, thrust blocks, testing, disinfection and all other work necessary for a complete installation.

.7 Tapping Tee and Gate Valve:

- .1 Unit of Measurement: EACH (EA).
- .2 Method of Measurement: number of installed valves.
- .3 This item includes: connecting to existing infrastructure, including repair of any existing infrastructure, excavating, trucking, sheeting and shoring, trench box, pumping and draining, backfilling, compaction, maintenance of surface level, disposal of surplus and unsuitable material, valves, tapping tees, marking tape, valve boxes, polyethylene wrap, geotextile fabric, excavation, bedding, backfilling, embanking and reinstatement, supplying and placing of bedding material, lowering into the trench; bringing the pipe into alignment; jointing, thrust blocks, testing, disinfection and all other work necessary for a complete installation.

.8 Fire Hydrant and Valve:

- .1 Unit of Measurement: EACH (EA).
- .2 This item includes: excavating, trucking, sheeting and shoring, trench box, pumping and draining, backfilling, compaction, maintenance of surface level, disposal of surplus and unsuitable material, hydrant (including marker tee, valve, valve box, piping, thrust blocking, insulation, marking tape, polyethylene wrap, geotextile fabric, excavation, bedding, backfilling, embanking and reinstatement, hydrant depth of bury changes up to 150 mm from depth shown on the drawings will be considered incidental to the cost of work), metal detector conductor, supplying and placing of bedding material, lowering into the trench; bringing the pipe into alignment; jointing, thrust blocks, testing, disinfection and all other work necessary for a complete installation.

.9 Water Services

- .1 Unit of Measurement: EACH (EA)
- .2 Method of measurement: shall be the number of water services installed by number and diameter counted as either same side or opposite side services.
- .3 This item includes: excavating, trucking, sheeting and shoring, trench box, pumping and draining, backfilling, compaction, maintenance of surplus level, disposal of surplus and unsuitable material, pipe, valves, insulation, geotextile fabric, excavation, bedding, backfilling, embanking and

reinstatement, and fittings (including curb stops, main stops) supplying and placing of bedding material, lowering into the trench; bringing the pipe into alignment; jointing, thrust blocks, testing, disinfection and all other work necessary for a complete installation.

.10 Remove and Replace Unsuitable Material:

- .1 Unit of Measurement: CUBIC METRE (m³)
- .2 Method of Measurement: Average end area method of volume of unsuitable material and the exposure of suitable material as confirmed by a topographic survey.
- .3 This item includes: excavation and off-site disposal of unsuitable material and supply and placement of select borrow material as directed by the Owner's Representative. No payment unless approved by the Owner's Representative prior to excavation.

.11 Reinstatement:

- .1 Unit of Measurement: LUMP SUM (LS)
- .2 This item includes: select borrow, granular base course material, prepare edges of existing pavement, curbing, sidewalk, signage, striping, overlapping of asphalt joints including milling, place, spread and roll asphalt to the compacted thickness indicated on the Drawings. The price shall also include reinstatement of all grass, shoulder surfaces and any other disturbed areas to a condition equal to or better than that which existed before construction.

.12 General Contingency Allowance:

- .1 Unit of Measurement: ALLOWANCE (ALLOW)
- .2 Expenditures under this allowance shall be authorized in accordance with CCDC, GC 4.2. Any portion of the allowance remaining upon completion of the contract shall be credited to the Owner. No payment will be made under this item unless authorized by the Consultant.

PART 2 - PRODUCTS

2.1 PRODUCTS

- .1 Not Applicable

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PART 3 - EXECUTION

3.1 EXECUTION

.1 Not Applicable

END OF SECTION 01 29 00

PART 1 - GENERAL

1.1 RELATED SECTIONS

- .1 Section 01 78 00 - Closeout Submittals.

1.2 SUBMITTAL

- .1 Submit to Owner's Representative for review requested submittals specified in various sections of the specifications, including shop drawings, samples, permits, compliance certificates, test reports, work management plans and other data required as part of the work.
- .2 Submit with reasonable promptness and in orderly sequence so as to allow for Owner's Representative's review and not cause delay in Work. Failure to submit in ample time will not be considered sufficient reason for an extension of Contract time and no claim for extension by reason of such default will be allowed.
- .3 Do not proceed with work until relevant submissions have been reviewed.
- .4 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .5 Where items or information is not produced in SI Metric units, provide soft converted values.
- .6 Review submittals prior to submission. Ensure that necessary requirements have been determined and verified and that each submittal has been checked and coordinated with requirements of Work and Contract Documents.
 - .1 Submittals not stamped, signed, dated and identified as to specific project will be returned unexamined by Owner's Representative and considered rejected.
- .7 Verify field measurements and affected adjacent Work are coordinated.
- .8 Notify Owner's Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .9 Contractor's responsibility for errors, omissions or deviations in submission from requirements of Contract Documents is not relieved by Owner's Representative's review.
- .10 Submittal format: clear and fully legible photocopies of originals or alternatively paper originals. Facsimiles are not acceptable, except in special circumstances pre-approved by Owner's Representative. Poorly printed non-legible photocopies or facsimiles will not be accepted and will be returned for resubmission.
- .11 Make changes or revision to submissions which Owner's Representative may require, consistent with Contract Documents and resubmit as directed by Owner's Representative. When resubmitting, identify in writing of any revisions other than those requested.

- .12 Keep one reviewed copy of each submittal document on site for duration of Work.

1.3 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means fabrication drawings, erection drawings, diagrams, illustrations, schedules, performance charts, technical product data, brochures, specifications, test reports, installation instructions and other data which are to be provided by Contractor to illustrate compliance with specified materials and details of a portion of work.
- .2 The review of Shop Drawings by the Consultant is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that the Consultant approves the detailed design inherent in the Shop Drawings, responsibility for which remains with the Contractor submitting them, and such a review does not relieve the Contractor of responsibility for errors or omissions in Shop Drawings or of responsibility for meeting all requirements of the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation, and for co-ordination of the Work of all sub-trades.
- .3 Adjustments made on shop drawings by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.

1.4 EQUIVALENTS AND ALTERNATES

- .1 Where any particular brand of manufactured article is described or specified, it is to be regarded as a standard, but another brand equally as good may be accepted, at the discretion of the Consultant and Owner. No change in the Specification will be made prior to the acceptance of the tenders. If the Contractor wishes to make a substitution after the Contract has been awarded, make application, in writing, otherwise the Contractor will be held to the terms of the Specifications. No extra cost will be allowed for approved equivalents.
- .2 When the Owner is prepared to permit the use of a brand of manufactured article as an alternative to any specified brand of manufactured article even though such alternative may not be equivalent to that specified, it may be used at the discretion of the Consultant and Owner but only after price adjustments have been negotiated and Approved by the Consultant.
- .3 If the alternative requires modifications, adjustments or additions to the specified works, submit to the Consultant, drawings and specifications for these modifications, adjustments or additions in the same detail as presented in the Contract. Approval in principle by the Consultant of these modifications, adjustments or additions in no way relieves the Contractor of obligations or liabilities under the Contract to provide for finished piece of work complete and operational in all essentials.

- .4 No change or substitution can be made without the written consent of the Consultant.
- .5 The Consultant will record the time required to evaluate equivalents and alternates proposed by the Contractor including making changes to the Contract Documents occasioned thereby. Whether or not the Consultant accepts a proposed substitute, reimburse the Owner for the charges of the Consultant for evaluating any proposed substitute.

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION 01 33 00

PART 1 - GENERAL

1.1 SUBMITTALS

- .1 Submit to Owner's Representative copies of the following documents, including updates:
 - .1 Site Specific Health and Safety Plan.
 - .2 Name and qualifications of person to be retained full time as H&S Co-Ordinator.

1.2 COMPLIANCE REQUIREMENTS

- .1 Comply with the Occupational Health and Safety Act for the Province of Prince Edward Island, and the Occupational Health and Safety Act Regulations made pursuant to the Act.
- .2 Comply with Canada Labour Code Part II, and the Canada Occupational Safety and Health Regulations made under Part II of the Canada Labour Code.
- .3 Observe and enforce construction safety measures required by:
 - .1 National Building Code of Canada;
 - .2 Provincial Worker's Compensation Board;
 - .3 Municipal statutes and ordinances.
- .4 In event of conflict between any provisions of above authorities the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, Owner's Representative will advise on the course of action to be followed.
- .5 Maintain Workers Compensation Coverage for duration of Contract. Submit Letter of Good Standing to Owner's Representative upon request.

1.3 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, of property and for protection of persons and public circulating adjacent to work operations to extent that they may be affected by conduct of the Work.
- .2 Enforce compliance by all workers, sub-contractors and other persons granted access to work site with safety requirements of Contract Documents, applicable Federal, Provincial, and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.4 SITE CONTROL AND ACCESS

- .1 Control work site and entry points to construction areas.

- .1 Delineate and isolate construction areas from other areas of site by use of appropriate means.
- .2 Post notices and signage at entry points and at other strategic locations identifying entrance onto site to be restricted to authorized persons only.
- .3 Signage must be professionally made, bilingual in both official languages or display internationally understood graphic symbols.
- .2 Approve and grant access to site only to workers and authorized persons.
 - .1 Immediately stop non-authorized persons from circulating in construction areas and remove from site.
 - .2 Provide site safety orientation to all persons before granting access. Advise of site conditions, hazards and mandatory safety rules to be observed on site.
- .3 Secure site at nighttime to extent required to protect against unauthorized entry.
- .4 Ensure persons granted access to site wear appropriate personal protective equipment (PPE) suitable to work and site conditions.
 - .1 Provide such PPE to authorized persons who require access to perform inspections or other approved purposes.

1.5 PROTECTION

- .1 Carry out work placing emphasis on health and safety of the Public, Facility personnel, construction workers and protection of the environment.
- .2 Erect safety barricades, lights and signage on site to effectively delineate work areas, protect pedestrian and vehicular traffic around and adjacent to work and to create a safe working environment.
- .3 Should unforeseen or peculiar safety related hazard or condition become evident during performance of work, immediately take measures to rectify the situation and prevent damage or harm. Advise Owner's Representative verbally and in writing.

1.6 FILING OF NOTICE

- .1 File Notice of Project and other Notices with Provincial authorities prior to commencement of Work.

1.7 PERMITS

- .1 Post on site permits, licenses, compliance certificates specified in Section 01 10 10 - General Instructions.
- .2 Where particular permit or compliance certificate cannot be obtained at the required stage of work, notify Owner's Representative in writing and obtain his/her approval to proceed before carrying out that portion of work.

1.8 HAZARD ASSESSMENTS

- .1 Conduct site specific health and safety hazard assessment before commencing project and during course of the work. Identify risks and hazards resulting from site conditions, weather conditions and work operations.
 - .1 Also, conduct assessment when the scope of work has been changed by Change Order and when potential hazard or weakness in current health and safety practices are identified by Owner's Representative or by an authorized safety Representative.
- .2 Record results in writing and address in Health and Safety Plan.
- .3 Keep copy of all assessments on site.

1.9 PROJECT/SITE CONDITION

- .1 The following are known or potential project related health, environmental and safety hazards at site which must be properly managed if encountered during course of work:
 - .1 Existing hazards:
 - .1 Petroleum products and fuels for equipment.
 - .2 Overhead utilities.
 - .3 Underground utilities.
 - .4 Utility poles near excavations.
 - .5 Working near vehicular traffic.
 - .6 Working near pedestrian traffic.
 - .2 Above list shall not be construed as being complete and inclusive of potential health, and safety hazards encountered during work. Include above items into hazard assessment process.

1.10 HEALTH AND SAFETY MEETINGS

- .1 Conduct a pre-construction health and safety meeting. Have following persons in attendance:
 - .1 Site Superintendent.
 - .2 Health & Safety Site Coordinator.
 - .3 Owner's Representative.

1.11 SAFETY SUPERVISION AND INSPECTIONS

- .1 Designate one person to be present on site at all times, responsible for supervising health and safety of the Work.
 - .1 Person to be competent in Occupational Health and Construction Safety as defined in the Provincial Occupational Health and Safety Act.

- .2 Assign responsibility, obligation and authority to such designated person to stop work as deemed necessary for reasons of health and safety.
- .3 Conduct regularly scheduled informal safety inspections of work site on a minimum bi-weekly basis.
 - .1 Note deficiencies and remedial action taken in a log book or diary.
- .4 Keep inspection reports on site.

1.12 TRAINING

- .1 Ensure that all workers and other persons granted access to site are competently trained and knowledgeable on:
 - .1 Safe use of tools and equipment.
 - .2 How to wear and use personal protective equipment (PPE).
 - .3 Safe work practices and procedures to be followed in carrying out work.
 - .4 Site conditions and minimum safety rules to be observed on site, as given at site orientation session.

1.13 MINIMUM SITE SAFETY RULES

- .1 Notwithstanding the requirement to abide by federal and provincial health and safety regulations, the following safety rules shall be considered minimum requirements to be obeyed by all persons granted site access:
 - .1 Wear personnel protective equipment (PPE) appropriate to function and task on site; the minimum requirements being hard hat, safety footwear and eye protection.
 - .2 Immediately report unsafe activity or condition at site, near-miss accident, injury and damage.
 - .3 Maintain site in tidy condition.
 - .4 Obey warning signs and safety tags.
- .2 Brief workers on site safety rules.

1.14 ACCIDENT REPORTING

- .1 Investigate and report the following incidents and accidents:
 - .1 Those as required by Provincial Occupational Safety and Health Act and Regulations.
 - .2 Injury requiring medical aid as defined in the Canadian Dictionary of Safety Terms-1987, published by the Canadian Society of Safety Engineers (C.S.S.E) as follows:

- .1 Medical Aid Injury: any minor injury for which medical treatment was provided and the cost of which is covered by Workers' Compensation Board of the province in which the injury was incurred.
 - .2 Those which require notification to Workers Compensation Board or other regulatory agencies as stipulated by applicable law or regulations.
- .2 Send written report to Owner's Representative for all above cases.

1.15 TOOLS AND EQUIPMENT SAFETY

- .1 Routinely check and maintain tools, equipment and machinery for safe operation.
- .2 Conduct checks as part of site safety inspections. When requested, submit proof that checks and maintenance have been carried out.
- .3 Tag and immediately remove from site items found faulty or defective.

1.16 HAZARDOUS PRODUCTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS).
- .2 Keep Safety Data Sheets (SDS) for all products delivered to site. Post on site. Submit copy to Owner's Representative upon receipt.

1.17 CONFINED SPACES

- .1 Carry out work in confined spaces in compliance with:
 - .1 Provincial Occupational Safety and Health Regulations and;
 - .2 Canada Occupational Safety and Health Regulations (COSH) made under the Canada Labour Code - Part II.
- .2 Conduct hazard assessment and address in Safety Plan before entering confined space.

1.18 POSTING OF DOCUMENTS

- .1 Post on site safety documentation as stipulated by Authorities having jurisdiction and as specified herein. Place in a common visible location.

1.19 SITE RECORDS

- .1 Maintain on site a copy of all health and safety documentation and reports specified to be produced as part of the work and received from authorities having jurisdiction.
- .2 Upon request, make available to Owner's Representative and to other authorized safety representative for review. Provide copy when directed by Owner's Representative.

1.20 NON-COMPLIANCE AND DISCIPLINARY MEASURES

- .1 Immediately address and correct health and safety violations and non-compliance issues.

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION 01 35 28

PART 1 - GENERAL

1.1 REFERENCES

- .1 WHMIS: Workplace Hazardous Materials Information System, Health Canada.
- .2 Transportation of Dangerous Goods Act. Transport Canada, 1992, last amended 2019-08-28.
- .3 MBCA: Migratory Birds Convention Act, Environment Canada, 1994, last amended 2024-11-27.
- .4 Canadian Coast Guard Regulations, Department of Fisheries and Oceans Canada.
- .5 Canadian Shipping Act, Transport Canada, 2001, last amended 2023-06-22.
- .6 AWWA: American Wood Preserver Association.

1.2 DEFINITIONS

- .1 Hazardous Material: Product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to the environment or adversely affect health of persons, animals, or plant life when released into the environment.
- .2 Wetlands: land where the water table is at, near or above the surface or which is saturated for a long enough period to promote such features as wet-altered soils and water tolerant vegetation. Wetlands include organic wetlands or "peatlands," and mineral wetlands or mineral soil areas that are influenced by excess water but produce little or no peat.
- .3 Watercourse: refers to the bed and shore of a river, stream, lake, creek, pond, marsh, estuary or salt-water body that contains water for at least part of each year.
- .4 Alien species: refers to a species or subspecies introduced outside its normal distribution whose establishment and spread threaten ecosystems, habitats, or species with economic or environmental harm.
- .5 Buffer zone: a vegetated land that protects watercourses from adjacent land uses. It refers to the land adjacent to watercourses, such as streams, rivers, lakes, ponds, oceans, and wetlands, including the floodplain and the transitional lands between the watercourse and the drier upland areas.

1.3 TRANSPORTATION

- .1 Transport hazardous materials and hazardous waste in compliance with Federal Transportation of Dangerous Goods Act.
- .2 Do not overload trucks when hauling material. Secure contents against spillage.
- .3 Maintain trucks clean and free of mud, dirt and other foreign matter.

- .4 Avoid potential release of contents and of any foreign matter onto highways, roads and access routes used for the Work. Take extra care when hauling dredged material and other hazardous materials. Immediately clean any spillage and soils.

1.4 HAZARDOUS MATERIAL HANDLING

- .1 Handle and store hazardous materials on site in accordance with WHMIS procedures and requirements.
- .2 Store all hazardous liquids in location and manner to prevent their spillage into the environment.
- .3 Maintain written inventory of all hazardous materials kept on site. List product name, quantity and storage date.
- .4 Keep SDS on site for all items.

1.5 PETROLEUM, OIL AND LUBRICANTS

- .1 Comply with Federal and Provincial laws, regulations, codes and guidelines for the storage of fuel and petroleum products on site.
- .2 No fuel or petroleum products shall be stored on site. Do not fuel or lubricate equipment within this 30 metre buffer zone. Obtain approval from Owner's Representative of acceptable location on site for fuel storage and equipment service.
- .3 Do not dump petroleum products or any other deleterious substances on ground or in the water.
- .4 Be diligent and take all necessary precautions to avoid spills and contaminate the soil and water (both surface and subsurface) when handling petroleum products on site and during fuelling and servicing of vehicles and equipment.
- .5 Maintain on site appropriate emergency spill response equipment consisting of at least one 250-litre (55 gallon) overpack spill kit for containment and cleanup of spills.
- .6 Maintain vehicles and equipment in good working order to prevent leaks on site.
- .7 In the event of a petroleum spill, immediately notify the Owner's Representative and the PEI Department of Environment. Perform clean-up in accordance with all regulations and procedures stipulated by authority having jurisdiction.

1.6 DISPOSAL OF WASTES

- .1 Do not bury rubbish, demolition debris and waste materials on site.
- .2 Dispose and recycle demolition debris and waste materials.

- .3 Do not dispose of hazardous waste, volatile materials (such as mineral spirits, paints, thinners etc.) and petroleum products into waterways, storm or sanitary sewers or in waste landfill sites.
- .4 Dispose of hazardous waste in accordance with applicable federal and provincial laws, regulations, codes and guidelines.
- .5 Any construction, contaminated soil or demolition debris shall be disposed of in a Provincially approved manner (either a permit or receipts for tippage must be submitted to the Owner's representative to verify that the material was disposed of in a provincially approved manner).

1.7 VEGETATION

- .1 Work should be scheduled to avoid periods of heavy precipitation. Short-term erosion and sediment control measures (i.e. silt fence, straw bales, temporary matting, geotextile filter fabric) must be installed to prevent runoff from entering any adjacent waterway. These structures will remain in place until natural vegetation has been established.
- .2 Fill material used in construction must be clean and non-toxic (free from fuel, oil, grease and/or contaminants).
- .3 Any exposed soil area must be minimized by limiting the area that is exposed at one time and by limiting the time that any one area is exposed. All stockpiled material must be covered and/or dyked to prevent erosion or silty runoff from leaving the site. Exposed soil should be replanted or sodded to ensure soil stabilization.
- .4 Avoid disturbance of vegetation and natural features where possible. All work is to be confined to the site limits delineated and/or directed by the Owner's Representative.
- .5 Restore disturbed areas as close as possible to natural conditions. Backfill excavate, grade and contour soil, replace topsoil, fertilize and reseed or sod with approved products.
- .6 No staging of materials/equipment will take place on any environmentally sensitive area. All staging area sites, if required, will be determined by the Owner's Representative.
- .7 If materials of potential historical or cultural interest are encountered, work will cease at that location and the Owner's Representative will be notified.

1.8 SOCIOECONOMIC RESTRICTIONS

- .1 Abide by municipal and provincial regulations for any restrictions on work performed during the night time and on flood lighting of the site. Obtain applicable permits.
- .2 Place flood lights in opposite direction of adjacent residential and business areas.

- .3 Equip equipment and machinery with purposely designed mufflers to reduce noise on site to lowest possible level. Maintain mufflers in good operating condition at all times.
- .4 Adequate signage and safety measures must be supplied during transportation of materials and equipment to the site.

1.9 WATER QUALITY

- .1 Maintenance of equipment must be carried out on a regular basis.
- .2 The construction material must be clean and non-toxic (free of fuel, oil, grease, and/or any contaminants).
- .3 Remove any accidental release of concrete on site prior to solidification.
- .4 Ensure concrete trucks are clean and will not release any material during transport to the site.
- .5 Do not discharge residual or rejected concrete on site. Do not wash and clean concrete vehicles on site. Carryout all dumping and cleaning operations at the concrete plant according to all provincially approved practices/regulations.
- .6 Contractor to prepare and submit a sediment and erosion control plan and an emergency response plan incorporating all pertinent provincial and federal permitting regulations and submit to the Owner's Representative for review.

1.10 BIRD AND BIRD HABITAT

- .1 Abide by the Migratory Birds Convention Act (MBCA) in regards to the protection of migratory birds, their eggs, nests and their young encountered on site and in the vicinity.
- .2 Minimize disturbance to all birds on site and adjacent areas during the entire course of the Work.
- .3 During night time work, position flood lights in opposite direction of nearby bird nesting habitat.
- .4 Do not use natural previously undisturbed areas of the site to conduct work.
- .5 Ensure that food scraps and garbage are not left at the work site.

1.11 AIR QUALITY

- .1 Keep airborne dust and dirt resulting from the work on site to an absolute minimum.
- .2 Apply dust control measures to roads, parking lots and work areas.
- .3 Spray surfaces with water or other environmentally approved product. Use purposely suited equipment or machinery and apply in sufficient quantity and frequency to provide effective result and continued dust control during the entire course of the work.

- .4 Do not use oil or any other petroleum products for dust control.
- .5 All construction equipment must be fitted with standard and well-maintained noise suppression devices. Construction activities must respect appropriate time restriction and use smaller, less disturbing equipment where possible.

1.12 FIRES

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

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION 01 35 44

PART 1 - GENERAL

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.

1.2 INSPECTION

- .1 Give timely notice requesting inspection of Work designated for special tests, inspections or approvals by Owner's Representative or by inspection authorities having jurisdiction.
- .2 In accordance with the General Conditions, Owner's Representative may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents.
- .3 If Contractor covers or permits to be covered Work designated for special tests, inspections or approvals before such is made, uncover Work until particular inspections or tests have been fully and satisfactorily completed and until such time as Owner's Representative gives permission to proceed.
- .4 Pay costs to uncover and make good work disturbed by inspections and tests.

1.3 TESTING

- .1 The Contractor shall retain a Geotechnical Engineer to carry out the required testing as outlined in the specification.
- .2 Tests on materials, as specified in various sections of the Specifications is the responsibility of the Contractor except where stipulated otherwise.
 - .1 Provide all necessary instruments, equipment and qualified personnel to perform tests.
- .3 At completion of tests, turn over 2 sets of fully documented tests reports to the Owner's Representative. Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Obtain additional copies for inclusion of a complete set in each of the maintenance manuals specified in Section 01 78 00 - Closeout Submittals.
- .4 Unspecified tests may also be made by Owner's Representative, at the discretion of the Owner's Representative. The costs of these tests will be paid for by the Owner's Representative.
- .5 Where tests or inspections reveal work not in accordance with contract requirements, Contractor shall pay costs for additional tests and inspections incurred by Owner's Representative as required to verify acceptability of corrected work.

1.4 INDEPENDENT INSPECTION AGENCIES

- .1 When specified or directed, submit Representative samples of materials, in required quantities, to Testing Agency for testing purposes. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.
- .2 Provide labour and facilities to obtain, handle and deliver samples.
- .3 Provide sufficient space on site for Testing Agency's exclusive use to store equipment and cure test samples.

1.5 ACCESS TO WORK

- .1 Facilitate Owner's Representative's access to Work. If part of Work is being fabricated at locations other than construction site, make preparations to allow access to such Work whenever it is in progress.
- .2 Furnish labour and facility to provide access to the work being inspected and tested.
- .3 Co-operate to facilitate such inspections and tests.

1.6 REJECTED WORK

- .1 Remove and replace defective Work, whether result of poor workmanship, use of defective or damaged products and whether incorporated in Work or not, which has been identified by Owner's Representative as failing to conform to Contract Documents.
- .2 Make good damages to new construction and finishes resulting from removal or replacement of defective work.

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION 01 45 00

PART 1 - GENERAL

1.1 DESCRIPTION

- .1 This section is to provide traffic control pursuant to Section 6 of the Provincial Roads Act as stipulated in the PEI Temporary Workplace Traffic Control Manual (TWTCM).

1.2 RELATED WORK

- .1 Section 01 10 10 - General Instructions.
- .2 Section 01 35 28 - Health And Safety Requirements.

1.3 REFERENCE STANDARD

- .1 Regulate traffic in accordance with the Roads Act (Prince Edward Island) as stipulated in the TWTCM distributed by the Prince Edward Island Department of Transportation and Infrastructure.
- .2 The Owner's Representative reserves the right to direct the contractor to reduce either the number or length of traffic control work areas during peak traffic volumes or when cumulative delays exceed the specified maximum.

1.4 PROTECTION OF PUBLIC TRAFFIC

- .1 Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out work or haul materials or equipment.
- .2 When working on travelled way:
 - .1 Place equipment in position to present minimum of interference and hazard to travelling public.
 - .2 Keep equipment units as close together as working conditions will permit and preferably on same side of travelled way.
 - .3 Do not leave equipment on travelled way overnight.
- .3 Do not close any lanes of roadway without approval of Owner's Representative. Before rerouting traffic, erect suitable signs and devices in accordance with instructions contained in the TWTCM. Provide sufficient crushed gravel to ensure a smooth riding surface during work.
- .4 Keep travelled way well graded, free of pot holes and of sufficient width that required number of lanes of traffic may pass.
- .5 Limit construction to maintain at least one lane of traffic at all times.
- .6 When directed by Owner's Representative, provide well graded, detours or temporary roads to facilitate passage of traffic around restricted construction area. Provide and maintain signs and lights and maintain roadway.

- .7 Provide and maintain reasonable road access and egress to property fronting along or in vicinity of work under Contract unless approved otherwise by Owner's Representative.
- .8 Contractor must make provisions to transport cyclists and their bicycles thru activity work zones while pilot vehicle operations are in place.

PART 2 - PRODUCTS

2.1 INFORMATIONAL & WARNING DEVICES

- .1 Provide and maintain signs and other devices required to indicate construction activities or other temporary and unusual conditions resulting from project work which may require road user response.
- .2 All traffic signs are to be bilingual or symbolic and shall be Level 1 reflectivity.
- .3 Supply and erect signs, delineators, barricades and miscellaneous warning devices as specified in TWTCM.
- .4 Place signs and other devices in locations recommended in the TWTCM.
- .5 The contractor shall provide an Accredited Sign Supervisor, who has successfully completed the Temporary Workplace Traffic Control Training Course, to be on site at all times when active construction is taking place. The Accredited Traffic Control Sign Supervisor will be responsible to supervise the placement and dismantling of all temporary condition signs and devices that indicate to the road user that highway construction activity exist and also to ensure that proper traffic control procedures are carried out in accordance with the TWTCM. The Accredited Sign Supervisor is considered part of the contractors supervision and administration staff and compensation the provision of this individual is considered incidental to the work.
- .6 A traffic control plan must be approved by the Owner's Representative prior to commencing any work.
- .7 Continually maintain traffic control devices in use by:
 - .1 Checking signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
 - .2 Removing or covering signs which do not apply to conditions existing from day to day.

PART 3 - EXECUTION

3.1 CONTROL OF PUBLIC TRAFFIC

- .1 Provide traffic control personnel who have a valid provincial license and trained in accordance with and properly equipped as specified in the TWTCM, in following situations:
 - .1 When public traffic is required to pass working vehicles or equipment which may 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 workers 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.
- .2 All Traffic Control Personnel shall be equipped with portable radios of sufficient range to ensure continuous communication within the traffic control zone.
- .3 All construction vehicles shall operate in accordance with and are subject to traffic control restrictions and operations in place on the project.

3.2 TRAFFIC MANAGEMENT PLAN REQUIREMENT

- .1 Contractor to provide a detailed traffic management plan, prior to construction.
- .2 Traffic control measures are summarized as follows:
 - .1 Single lane traffic will be maintained at all times and will be a contract obligation.
 - .2 Complete road closures will not be permitted, unless some exceptional circumstances arise.
 - .3 Radio communications and one-way traffic controls will be used.

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- .3 The required traffic measures will be included in the construction contract. A detailed construction sequencing and Traffic Management Plan will be required prior to construction. On-going information and communications will be maintained throughout the construction period.

END OF SECTION 01 55 26

PART 1 - GENERAL

1.1 SECTION INCLUDES

- .1 Administrative procedures preceding inspection and acceptance of Work by Owner's Representative.

1.2 RELATED SECTIONS

- .1 Section 01 78 00 - Closeout Submittals.

1.3 INSPECTION AND DECLARATION

- .1 Contractor's Inspection: Coordinate and perform, in concert with subcontractors, an inspection and check of all Work. Identify and correct deficiencies, defects, repairs and perform outstanding items as required to complete work in conformance with Contract Documents.
 - .1 Notify Owner's Representative in writing when deficiencies from Contractor's inspection have been rectified and that Work is deemed to be complete and ready for Owner's Representative's inspection of the completed work.
- .2 Owner's Representative's Inspection: Accompany Owner's Representative during all substantial and final inspections of the Work.
 - .1 Address defects, faults and outstanding items of work identified by such inspections.
 - .2 Advise Owner's Representative when all deficiencies identified have been rectified.
- .3 Note that Owner's Representative will not issue a Certificate of Substantial Performance of the work until such time that Contractor performs following work and turns over the specified documents as applicable:
 - .1 Compliance certificates from applicable authorities.
 - .2 Reports resulting from designated tests.
 - .3 Operation and Maintenance manuals.
- .4 Correct all discrepancies before Owner's Representative will issue the Certificate of Completion.

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not Used.

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Closeout Procedures

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PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION 01 77 00

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Consultant, five final copies of operating and maintenance manuals in English.
- .3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
- .4 Provide evidence, if requested, for type, source and quality of products supplied.

1.3 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings.
 - .1 Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab.
 - .1 Bind in with text; fold larger drawings to size of text pages.

1.4 CONTENTS - PROJECT RECORD DOCUMENTS

- .1 Table of Contents for Each Volume, provide:
 - .1 Title of project.
 - .2 Date of submission; names.
 - .3 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.

- .4 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
 - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data:
 - .1 Mark each sheet to identify specific products and component parts, and data applicable to installation.
 - .2 Delete inapplicable information.
- .4 Drawings: supplement product data to:
 - .1 Illustrate relations of component parts of equipment and systems., to show control and flow diagrams.
 - .2 Show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data.
 - .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

1.5 EQUIPMENT AND SYSTEMS

- .1 For each item of equipment and each system include description of unit or system, and component parts.
 - .1 Give function, normal operation characteristics and limiting conditions.
 - .2 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
 - .1 Include regulation, control, stopping, shut-down, and emergency instructions.
 - .2 Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.

- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and for review by Consultant.

1.7 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Consultant approval.
- .3 Warranty management plan to include required actions and documents to assure that Owner and Consultant receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
 - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
 - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.

- .4 Verify that documents are in proper form, contain full information, and are notarized.
- .5 Co-execute submittals when required.
- .6 Retain warranties and bonds until time specified for submittal.
- .6 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .7 Conduct joint 11 month warranty inspection, measured from time of acceptance, by Consultant.
- .8 Include information contained in warranty management plan as follows:
 - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
 - .2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include pumps, motors, transformers, and commissioned systems.
 - .3 Provide list for each warranted equipment, item, feature of construction or system indicating:
 - .1 Name of item.
 - .2 Model and serial numbers.
 - .3 Location where installed.
 - .4 Name and phone numbers of manufacturers or suppliers.
 - .5 Names, addresses and telephone numbers of sources of spare parts.
 - .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
 - .7 Cross-reference to warranty certificates as applicable.
 - .8 Starting point and duration of warranty period.
 - .9 Summary of maintenance procedures required to continue warranty in force.
 - .10 Cross-Reference to specific pertinent Operation and Maintenance manuals.
 - .11 Organization, names and phone numbers of persons to call for warranty service.
 - .12 Typical response time and repair time expected for various warranted equipment.
 - .4 Contractor's plans for attendance at 9 month post-construction warranty inspections.
 - .5 Procedure and status of tagging of equipment covered by extended warranties.

- .6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .9 Respond in timely manner to oral or written notification of required construction warranty repair work.
- .10 Written verification to follow oral instructions.
 - .1 Failure to respond will be cause for the Owner's Representative to proceed with action against Contractor.

1.8 WARRANTY TAGS

- .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Consultant.
- .2 Attach tags with copper wire and spray with waterproof silicone coating.
- .3 Leave date of acceptance until project is accepted for occupancy.
- .4 Indicate following information on tag:
 - .1 Type of product/material.
 - .2 Model number.
 - .3 Serial number.
 - .4 Contract number.
 - .5 Warranty period.
 - .6 Inspector's signature.
 - .7 Construction Contractor.

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

- .1 Not Used.

END OF SECTION 01 78 00

PART 1 - GENERAL

1.1 WORK INCLUDED

- .1 This section specifies the requirements for furnishing all materials, labour, tools and equipment and performing all operations necessary to complete the removals of all existing sidewalks, asphalt, and underlying materials as indicated on the drawings, contract documents, and as required to complete the work.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA).
 - .1 CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.
- .2 National Building Code of Canada-2020, Division B, Part 8.
- .3 General Provisions and Contract Specifications for Highway & Bridge Construction PEI, Department of Transportation and Infrastructure.

1.3 EXISTING CONDITIONS

- .1 Items to be demolished or removed are to be based on their existing conditions.

1.4 PROTECTION

- .1 Prevent movement, settlement or damage of adjacent structures and services. Provide bracing and shoring as required. Repair damage caused by demolition as directed by Owner's Representative.
- .2 Support affected structures and, if safety of structure being demolished or adjacent structures or services appears to be endangered, cease operations and notify Owner's Representative.
- .3 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 the Owner's Representative and at no cost to Owner.
- .4 Keep noise, dust and inconvenience to occupants and neighbors to a minimum.
- .5 Provide temporary dust screens, covers and other protection as required.
- .6 Prevent debris from blocking surface drainage, process, mechanical and electrical systems which must remain in operation.
- .7 Do not allow demolition work to adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution. If demolition affects above areas in the opinion of the Owner's Representative, the Contractor is to remediate affected areas at no cost to the Contract.

- .8 Fires and burning of waste or materials is not permitted on site.
- .9 Do not bury waste or materials on site.
- .10 Prevent extraneous materials from contaminating air beyond application area, by providing temporary enclosures during demolition work.
- .11 Cover or wet down dry materials and waste to prevent blowing dust and debris.
- .12 Protect trees, plants and foliage on site and adjacent properties.

1.5 REGULATORY REQUIREMENTS

- .1 Perform demolition work in compliance with applicable Federal, Provincial and Municipal Regulations.

PART 2 - PRODUCTS

2.1 NOT USED

- .1 Not applicable.

PART 3 - EXECUTION

3.1 PREPARATION

- .1 Inspect site with Owner's Representative and verify extent and location of items designated for removal, disposal, recycling, salvage, relocation and items to remain.
- .2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.
- .3 Maintain wiring to existing equipment designated to remain.
- .4 Where partitions or support structures are to be removed, disconnect equipment and electrical services to items on the partition and make wiring safe. Where pipe work, conduit or wiring passes through partitions to be removed, maintain the service to all devices to remain by extending piping and wiring or re-routing as necessary. Relocate equipment and electrical devices found where partitions or support structures are to be removed and the components are designated to remain.
- .5 Notify and obtain approval of utility companies before starting removals.
- .6 Include any and all charges associated with coordinating the work by Maritime Electric Company Ltd. or any utility affected by the Work in the Contract Price.
- .7 In locations of pipe removals at slabs and walls where not specifically indicated on drawings, cut pipe flush at both ends, infill with non-shrink grout, grind smooth

where required, and finish such surfaces to match existing coating system of adjacent areas.

3.2 SAFETY CODE

- .1 Observe construction safety measures of Provincial Government, including but not limited to the Occupational Health and Safety Act, provided that in any case of conflict or discrepancy the more stringent requirement will apply.
- .2 Store volatile waste in closed containers and remove from premises daily.
- .3 WHMIS:
 - .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of safety data sheets acceptable to Labour Canada and Health Canada.
- .4 Exercise pollution and environmental control measures as specified and as required during the Work.
- .5 At the end of each day's work, leave work in safe and stable condition.

3.3 REMOVAL FROM SITE

- .1 Stockpiling of demolition debris is permitted on a temporary basis as approved by the Owner's Representative.
- .2 Removal of temporary stockpiled material will be required, if it is deemed by the Owner's Representative, to interfere with operations of Owner.
- .3 Complete demolition in a manner to minimize dust. Keep materials wetted as directed by the Owner's Representative.

3.4 SITEWORK ITEMS

- .1 Remove items as indicated. Do not disturb items designated to remain in place.

3.5 SALVAGE AND DISPOSAL OF MATERIALS

- .1 Items not designated for reuse or relocation shall be disposed off site at authorized facilities.
- .2 Confirm with the Owner prior to disposal, in case the Owner wishes to retain said items for spare parts.
- .3 Pay all costs and fees associated with the removal from site and disposal.

3.6 RESTORATION

- .1 Restore areas and existing works outside areas of demolition to match condition of adjacent, undisturbed areas.

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3.7 CLEANUP

- .1 Upon completion of work, remove debris, trim surfaces and leave work site clean.

END OF SECTION 02 41 10

PART 1 - GENERAL

1.1 WORK INCLUDED

- .1 This section specifies requirements for providing temporary erosion and sedimentation control measures.

1.2 RELATED REQUIREMENTS

- .1 Section 31 22 13 - Site Grading And Finishing.
- .2 Section 31 23 10 - Excavating, Trenching And Backfilling.
- .3 Section 32 91 23 - Topsoil And Sod.

1.3 REFERENCE STANDARDS

- .1 Prince Edward Island Department of Transportation, Infrastructure and Energy General Provisions and Contract Specifications for Highway Construction (Latest Edition).
- .2 Prince Edward Island Department of Transportation, Infrastructure and Energy Environmental Protection Plan.

PART 2 - PRODUCTS

2.1 SEDIMENT CONTROL FENCE

- .1 Pre-assembled sediment control fence with industrial woven geotextile fabric, with 20 - 30 micron effective opening size; pre-stapled to pre-weathered oak posts spaced as indicated.
- .2 Acceptable product: Envirofence as manufactured by Mirafi Inc., Terrafence as manufactured by Terrafix.
- .3 Provide Type 1 Silt Fence in accordance with PEI DTI EPP Section 7.1.3.

PART 3 - EXECUTION

3.1 GENERAL

- .1 Adhere to all Federal and Provincial legislation and any environmental permits issued for the project.
- .2 Provide erosion and sedimentation control features where required or as directed, prior to construction. Co-ordinate locations with Owner's Representative.

- .3 Provide and maintain temporary sediment control features installed under this Contract. Do not remove control features until authorized by the Owner's Representative.
- .4 Fires and burning of rubbish on site is not permitted.

3.2 SEDIMENT CONTROL FENCE

- .1 Install sediment control fence in the locations directed.
- .2 Install extra 50 x 75 x 1200 mm long posts midpoints between supplied posts. Attach fence with roofing nails and roofing tins. Provide wood strapping along top of fence as shown.
- .3 Excavate 150 x 150 mm trench along length of fence as indicated. Lay fabric bottom in trench and backfill with selected backfill material.

3.3 TEMPORARY SOIL COVERS

- .1 Hay mulch is to be installed using mechanical means if areas is too large for hand application.
- .2 Hay mulch shall be spread evenly and uniformly over the designated areas with a minimum coverage rate of 95% as deemed acceptable by the Owner's Representative.
- .3 Where blown hay mulch is used to protect new seeding, control the thickness of the application to avoid smothering of the seed. If used in lieu of environmental blanket, uniformly apply straw and hay blown onto the seeded areas. Thickness depends on site conditions, seed mix, slope, and soil type.

3.4 MAINTENANCE

- .1 Maintain sedimentation control features throughout the construction period. Repair damage to original condition.
- .2 Remove accumulated sediment from behind sediment control fence, berms, and any other sediment containment areas as required and as directed by the Owner's Representative.
- .3 Maintain vertical alignment of sediment control fence such that it is always plumb and straight.
- .4 Remove sedimentation control features when directed by the Owner's Representative. Take care to avoid causing turbidity, and excessive re-suspension of particles when removing sediment control features.
- .5 Remove accumulated sediment from sediment containment areas at the end of construction before site de-mobilization.

3.5 DISPOSAL OF WASTES

- .1 Dispose of rubbish and waste materials at authorized off-site location.
- .2 Do not dispose of waste, volatile or deleterious materials into waterways, storm or sanitary sewers.

3.6 DEWATERING

- .1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
- .2 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
 - .1 Control disposal or runoff of water containing suspended materials or other harmful substances with use of sediment control fences, berms, check dams, silt booms and the like, all in accordance with required environmental regulations, permits and approval.
- .3 Have in place all necessary permits and approvals related to the discharge of excavation water prior to starting excavation.
- .4 Maintain all siltation prevention and control measures until discharge of excavation waters is completed and sufficient settling of suspended solids has occurred.

3.7 TREE AND PLANT PROTECTION

- .1 Protect trees and plants on site and adjacent properties outside designated limits, using method approved by the Owner's Representative.
- .2 Protect roots of trees outside designated limits during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .3 Restrict tree removal to areas indicated or designated by the Owner's Representative.

3.8 POLLUTION CONTROL

- .1 Maintain temporary erosion and pollution control devices installed under this Contract.
- .2 Control emissions from equipment to requirement of authority having jurisdiction.
- .3 Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.
- .5 Keep paved surfaces clean. Control dust by application of water, or calcium chloride after obtaining permission from the Owner's Representative.

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3.9 FUEL SPILL CONTAINMENT

- .1 Take precautions to avoid contamination of the site from fuel. Keep and maintain hydrocarbon containment and clean up materials on site for the duration of construction activities. Train all personnel in the proper use of such materials.

END OF SECTION 31 15 53

PART 1 - GENERAL

1.1 WORK INCLUDED

- .1 This Section specifies requirements for general site grading and providing borrow materials required to bring the site to finished elevations shown on Drawings.

1.2 RELATED REQUIREMENTS

- .1 Section 01 35 44 - Environmental Protection Procedures.
- .2 Section 31 23 10 - Excavating, Trenching And Backfilling.
- .3 Section 32 91 23 - Topsoil And Sod.

1.3 REFERENCE STANDARDS

- .1 ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN m/m³)); 2012, with Editorial Revision (2015).

1.4 PROTECTION

- .1 Prevent damage to existing fencing, trees, natural features, bench marks, existing pavement, and surface or underground utility lines which are to remain. Repair damage caused during construction, at no extra cost to the Contract.

1.5 SITE CONDITIONS

- .1 Known underground and surface utility lines and buried objects are indicated on the plans. Locations are to be considered as approximate. Verify in field prior to commencing excavation.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Common borrow as per Section 31 23 10 - Excavating, Trenching And Backfilling.
- .2 Select borrow as per section 31 23 10 - Excavating, Trenching And Backfilling.
- .3 Granular base as per Section 31 23 10 - Excavating, Trenching And Backfilling.
- .4 Sodding as per Section 32 91 23 - Topsoil And Sod.

PART 3 - EXECUTION

3.1 EXCAVATING

- .1 The contractor will be responsible to excavate to the elevations shown on the drawings. All slopes are to match construction drawings and are to be confirmed by the contractor's surveyor.
- .2 Advise Owner's Representative sufficiently in advance of excavation operations for initial cross- sections to be taken.
- .3 Maintain crowns and cross slopes to provide good surface drainage.
- .4 Notify Owner's Representative whenever unsuitable materials are encountered and remove unsuitable materials to depth and extent directed.
- .5 Excavate in all kinds of material encountered on the site and make own computations of amount and nature of excavation required.
- .6 Perform all excavation within +/- 25 mm of the lines, grades and dimensions shown on the Drawings or as established by the Owner's Representative. During the progress of the Work, the Owner's Representative may vary the lines, grades and dimensions of the excavations from those specified in this Section.
- .7 Take necessary precautions to preserve the material below and beyond the lines of all excavation in the soundest possible condition.
- .8 Do not obstruct existing drainage ditches and natural watercourses unless indicated on the Drawings.
- .9 During construction direct surface runoff to sediment control facilities installed and maintained to the requirements of Section 01 35 44 - Environmental Protection Procedures.

3.2 EMBANKMENTS

- .1 Do not place material which is frozen or place material on frozen surfaces.
- .2 Maintain a crowned surface during construction to ensure ready run-off of surface water.
- .3 Place and compact selected excavated material to full width in uniform layers not exceeding 200 mm loose thickness. Owner's Representative may authorize thicker lifts if specified compaction can be achieved.
- .4 The footprint below the embankment must first be cleared of vegetation (grubbed) and any loose, soft, or otherwise unsuitable foundation soil removed, exposing the surface of the in-situ material.
- .5 The downstream slopes of the new embankment are to be at 3H: 1V and the upstream slopes are 4H: 1V.

- .6 Embankment fill to be compacted to 98% of the Modified Proctor dry density as determined by Test Method ASTM D1557 . The minimum density, the moisture content of the fill must be controlled within $\pm 1\%$ of the optimum moisture content that corresponds to the maximum dry density.

3.3 FINISHING

- .1 Remove soft or other unstable material that will not compact properly and fill resulting depressions with approved material.
- .2 Shape and compact entire subgrade to within 25 mm of design elevations but not uniformly high or low.
- .3 Do scarifying, blading, compacting or other methods of work as necessary to provide a thoroughly compacted site shaped to grades indicated or directed.
- .4 Finish side slopes to a neat condition, true to lines and grades indicated.
- .1 Remove boulders encountered and fill resulting cavities.
- .2 Hand finish slopes that cannot be finished satisfactorily by use of machine.
- .5 Dispose of surplus approved embankment material not required for placement in fills and material unsuitable for grading or landscaping off-site.

3.4 COMPACTION TESTING

- .1 Contractor to arrange for and pay for independent compaction testing of all materials used in site grading and finishing.
- .2 Compaction testing to be performed by an accredited soils testing company to the approval of the Owner's Representative.

3.5 GRASS SURFACES

- .1 Place topsoil and sod in accordance with Section 32 91 23 - Topsoil And Sod.

3.6 MAINTENANCE

- .1 Maintain finished surfaces in a condition conforming to this section until final acceptance.

END OF SECTION 31 22 13

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- .1 This Section specifies requirements for furnishing all materials, labour, tools and equipment and performing all operations necessary to strip topsoil from areas designated, complete excavation of all types of material encountered, placing of excavated material as backfill in trenches and embankments, disposal of unsuitable material, spreading of suitable surplus material, and furnishing backfill material as specified below, all as shown on the Drawings and as specified.
- .2 The work generally includes, but is not necessarily limited to, the following items:
 - .1 Trench excavation and backfilling for structures, pipelines, conduit and appurtenances.
 - .2 Control of water by dewatering.
 - .3 Providing borrow material when required.
 - .4 Removal and disposal of unsuitable material.
 - .5 Spreading suitable surplus material as shown on the Drawings.
 - .6 Sheet piling, shoring, trench box and bracing to support trench walls, sides of excavations, existing structures or utilities.
 - .7 Stripping, stockpiling and replacing topsoil.

1.2 RELATED REQUIREMENTS

- .1 Section 32 91 23 - Topsoil and Sod
- .2 Section 33 11 00 - Watermains.
- .3 Section 32 98 00 - Reinstatement.

1.3 REFERENCE STANDARDS

- .1 ASTM C117-23. Test Method for Material Finer Than 0.075 mm Sieve in Mineral Aggregates by Washing.
- .2 ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2025.
- .3 ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)); 2012 (Reapproved 2021).

1.4 DEFINITIONS

- .1 Excavation: excavation of materials of whatever nature including dense tills, hardpan, frozen materials, boulders, bedrock, debris and all other materials encountered on the site.

- .2 Select Backfill: excavated on-site material suitable for grading work.

1.5 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. Carry out test digs as required to locate services, etc.

1.6 SHORING AND BRACING

- .1 Comply with Section 01 35 28 - Health And Safety Requirements and applicable local regulations.
- .2 Provide shoring and bracing as required to prevent movement, failure or settlement, to safeguard and maintain integrity of structures, utilities, earth, benchmarks, services and adjacent grades.
- .3 Engage services of qualified Professional Engineer registered in the Province of Prince Edward Island to inspect and approve shoring equipment required for work.

1.7 SAMPLES

- .1 When requested submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 At least 2 weeks prior to commencing work, inform Consultant of proposed source of bedding, backfill or cover materials and provide access for sampling.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Common Borrow: where material additional to that obtained from excavation on site is required to complete trench backfilling the Contractor will provide this material from their own sources as an extra to the Contract. Material shall be as per DTI requirements Division 206.
- .2 Select Backfill Material: approved material from site excavation or borrow pits. Such material shall be free from stumps, trees, roots, sod, muck or other deleterious material, and shall not contain rock, boulders or masonry larger than 150 mm diameter. The material shall be free from frost, and shall not be placed on frozen ground or in water. It must have a moisture content that will allow compaction to the specified densities.
- .3 Gravel Bedding: shall be as per DTI requirements for Class A, Division 401.

- .4 Sand bedding material: hard, granular, sharp material, well graded from coarse to fine, free from impurities, chemicals or organic matter, chloride content to be less than 250 ppm and graded as follows:
- | Sieve Square Opening | % Passing (by weight) |
|----------------------|-----------------------|
| 4.75 mm | 100 |
| 2.00 mm | 90-96 |
| 0.85 mm | 75-94 |
| 0.425 mm | 45-82 |
| 0.250 mm | 18-40 |
| 0.150 mm | 10-17 |
| 0.075 mm | 0-5 |
- .5 Select Borrow: shall be as per DTI requirements Division 206.
- .6 Geotextile fabric: non woven geotextile Terrafix 270R or equivalent.
- .7 Rip-Rap: Class 1 as per PEI DTI Specification 213 for R-25 random Rip-Rap.
- .8 Clear stone: Hard durable clear stone 6 mm to 19 mm, crushed and screened, free from clay and organic matter.
- .9 Rigid Insulation: Rigid board insulation extruded polystyrene, type 3, Thickness 50mm.

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 in accordance with PEI DTI and Department of Environment.
- .2 Inspect, repair and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 SITE PREPARATION

- .1 Remove obstructions from surfaces to be excavated within limits indicated.
- .2 Cut pavement or sidewalk neatly along limits of proposed excavation in order that surface may break evenly and cleanly.

3.3 STOCKPILING

- .1 Stockpile fill materials in areas designated by Owner's Representative. Stockpile granular materials in manner to prevent segregation.
- .2 Protect fill materials from contamination.

3.4 STRIPPING OF TOPSOIL

- .1 Strip all superficial vegetation, rootmat and topsoil. Do not mix topsoil.

3.5 PREPARATION/PROTECTION

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

3.6 SHORING AND BRACING

- .1 Construct temporary works to depths, heights and locations as indicated or directed by the Professional Engineer responsible for the design of the shoring or bracing.
- .2 During backfill operation:
 - .1 Unless otherwise indicated or as directed by Owner's Representative, remove sheeting and shoring from excavations.
 - .2 Do not remove bracing until backfilling has reached that specified by the Professional Engineer responsible for the design of the shoring or bracing.
 - .3 Pull sheeting in increments that will ensure compacted backfill is maintained at an elevation at least 500 mm above toe of sheeting.
- .3 When sheeting is required to remain in place, cut off tops at elevations as directed by Owner's Representative.
- .4 Upon completion of substructure construction:
 - .1 Remove shoring and bracing.
 - .2 Remove excess materials from site and restore conditions indicated or as directed by Owner's Representative.

3.7 DEWATERING

- .1 Conduct dewatering operations in accordance with Section 01 35 44 - Environmental Protection Procedures.
- .2 Keep all excavations and trenches free of water at all times. Control excavations to prevent surface water running into excavated areas.

- .3 Do all work in connection with dewatering and supply and maintain on the work site, pumps, in number and capacity sufficient to keep bottom of all excavations dry and free from water at all times so placing of pipe and concrete will be done in the dry. Operate all equipment for as long as necessary.
- .4 Dispose of water removed from excavations in a manner that will prevent injuries to public health or private property or to any operation of the work completed or under construction. Pumping of water containing silt or other material in suspension into streams or drainage courses is prohibited.
- .5 Ensure that all sub-drains, sump holes, wells or the like required for dewatering shall not endanger the stability of the Works. On completion of the work completely backfill and consolidate excavations.
- .6 Excavate, remove or thaw out frozen ground as necessary.

3.8 EXCAVATION

- .1 Carry out excavations and removals. Excavate to lines, grades, elevations and dimensions as indicated.
- .2 Remove rubble and other obstructions encountered during excavation.
- .3 For trench excavation, unless otherwise authorized by Owner's Representative in writing, do not excavate more than 30 meter of trench in advance of installation operations.
- .4 Dispose of surplus and unsuitable excavated material in approved location off site in accordance with PEI Department of Environment regulations.
- .5 Do not obstruct flow of surface drainage.
- .6 Earth bottoms of excavations to be solid undisturbed soil, level, free from loose, soft or organic matter.
- .7 Notify Owner's Representative when soil at bottom of excavation appears unsuitable and proceed as directed by Owner's Representative.
- .8 Obtain Owner's Representative's approval of completed excavation.
- .9 Remove unsuitable material from trench bottom to extent and depth as directed by Owner's Representative.
- .10 Where required due to unauthorized over excavation, correct as follows:
 - .1 Fill under bearing surfaces and footings with approved structure fill compacted to 100% Standard Proctor Dry Density.
 - .2 Fill under other areas compacted to a minimum of 95% Maximum Dry Density.
- .11 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.

- .12 Obtain excavation permit prior to starting any on-site excavations.

3.9 FILL TYPES AND COMPACTION

- .1 Use fill of types as indicated or specified below. Compaction densities are percentages of maximum densities obtained from ASTM D698.
- .2 Within trenches:
- .1 For pipes, cables, ducts, fittings and appurtenances, install bedding as follows: Provide min. 150 mm bedding layer of bedding sand under pipes, cables, ducts, fittings and appurtenances. Compact to 95% of Maximum Dry Density. Side fill to top of utility or service manually with beddings and in uniform lifts not exceeding 150 mm. Hand tamp only.
- .3 Backfill: provide min. 300 mm protective backfill cover over bedding cover, hand-place. Compact to 95% of Maximum Dry Density. For remainder of trench backfill to underside of sub-base course or of surface restoration in lifts not to exceed 200 mm. Compact to 95% of Maximum Dry Density.
- .4 Notify Owner's Representative four hours prior to backfilling of trenches.

3.10 BACKFILLING

- .1 Do not proceed with backfilling operations until Owner's Representative has inspected and approved installation.
- .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 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.
- .5 Place layers simultaneously on both sides of installed work to equalize loading. Difference not to exceed 225 mm.
- .6 Where earth pressures are liable to develop permit concrete to cure for minimum 28 days to withstand earth and compaction pressures. Do not install earth or backfill until concrete has cured completely.
- .7 Place protective material layer under, around and over minor installations until 600 mm of cover is provided. Dumping material directly on installations will not be permitted.
- .8 Place backfill materials of earth fill around structure in uniform layers not exceeding 200 mm compacted thickness up to finish grade. Compact each layer replacing succeeded layer.

- .9 Where new services cross under existing services, compact bedding for existing service pipe to 150 mm below bottom of pipe and provide a cast-in-place cradle for length of unsupported pipe.

3.11 INSPECTION AND TESTING

- .1 The Contractor shall submit gradation curves for proposed materials to demonstrate compliance with specifications. Pay all costs for gradation curves.
- .2 Have an independent testing laboratory carry out testing of materials and compaction. Frequency of tests will be determined by Owner's Representative.
- .3 Where tests or inspections by designated testing laboratory reveal work not in accordance with contract requirements, Contractor shall pay costs for additional tests or inspections as Owner's Representative may require to verify acceptability of corrected work.

3.12 RESTORATION

- .1 Upon completion of work, remove surplus materials and debris, trim slopes, and correct defects noted by Owner's Representative.
- .2 Clean and reinstate areas affected by work as directed by Owner's Representative.

END OF SECTION 31 23 10

PART 1 - GENERAL

1.1 REFERENCE STANDARDS

- .1 CGSB 15-GP-1M-80, Calcium Chloride.

1.2 MEASUREMENT FOR PAYMENT

- .1 Supply and application of water for dust control is incidental to the work, to be included in overall tendered price.

1.3 DELIVERY, STORAGE AND HANDLING

- .1 Supply water in quantities and at times as directed by Owner's Representative.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Water: potable to Owner's Representative's approval.

PART 3 - EXECUTION

3.1 APPLICATION

- .1 Apply water with equipment approved by Owner's Representative at rate of 0.5 to 5.0 l/m² as appropriate when directed by Owner's Representative.
- .2 Apply water with distributors equipped with spray system to ensure uniform application and with means of shut-off.

END OF SECTION 32 15 60

PART 1 - GENERAL

1.1 WORK INCLUDED

- .1 This section specifies requirements for providing topsoil and sod as specified.
- .2 Additional topsoil to be obtained from an off-site source as approved by the Owner's Representative.

1.2 RELATED REQUIREMENTS

- .1 Section 31 22 13 - Site Grading And Finishing.

1.3 REFERENCE STANDARDS

- .1 Fertilizers Act (R.S.C., 1985, c. F-10).
- .2 Fertilizers Regulations (C.R.C., c. 666).

1.4 SOURCE QUALITY CONTROL

- .1 Obtain approval from the Owner's Representative of sod at source.
- .2 When proposed source of sod is approved, use no other source without written authorization.
- .3 Advise the Owner's Representative of source of topsoil to be used 7 days in advance of starting work.
- .4 Contractor is responsible for soil analysis requirement for amendments to topsoil as specified.

1.5 SCHEDULING

- .1 Schedule sod laying to coincide with preparation of soil surface.
- .2 Schedule sod installation after frost has left ground and before June 30 or between August 15 and September 30.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Topsoil:
 - .1 Friable loam, neither heavy clay nor of very light sandy nature, containing minimum 4% organic matter for clay loam, and 2% for sandy loam, to maximum 20% by volume.
 - .2 Containing no toxic elements or growth inhibiting materials.

- .3 Free from debris, subsoil, vegetation, and stones and roots over 50 mm diameter.
- .2 Soil amendments:
 - .1 Peatmoss:
 - .1 Derived from partially decomposed species of Sphagnum Mosses.
 - .2 Elastic and homogeneous, brown in colour.
 - .3 Free of wood and deleterious material which could prohibit growth.
 - .4 Shredded particle minimum size: 5mm.
 - .2 Limestone:
 - .1 Ground agricultural limestone containing minimum calcium carbonate equivalent of 85%.
 - .2 Gradation requirements: percentage passing by weight, 90% passing 1.0mm sieve, 50% passing 0.125mm sieve.
- .3 Fertilizer:
 - .1 Complete, commercial, with 35% soluble nitrogen.
 - .2 Number One Turfgrass Nursery Sod: Sod that has been especially sown and cultivated in nursery fields as turfgrass crop.
 - .1 Turfgrass Nursery Sod: Number One Kentucky Bluegrass Sod - Fescue Sod grown solely from seed mixture of cultivars of Kentucky Bluegrass and Chewing Fescue or Creeping Red Fescue, containing not less than 40% Kentucky Bluegrass cultivars and 30% Chewing Fescue or Creeping Red Fescue cultivar(s).
 - .2 Turfgrass Nursery Sod quality:
 - .1 Not more than 2 broadleaf weeds or 10 other weeds/40 m2.
 - .2 Density of sod sufficient so that no soil is visible from height of 1500 mm when mown to height of 40 mm.
 - .3 Mowing height limit: 35mm to 6mm.
 - .4 Soil portion of sod: 9 to 15mm in thickness.
- .4 Water: potable, free of impurities.
- .5 Fertilizer:
 - .1 To Canada "Fertilizers Act" and "Fertilizers Regulations".
 - .2 Complete, synthetic, slow release with 65% of nitrogen content in water-insoluble form.

PART 3 - EXECUTION

3.1 PREPARATION OF EXISTING GRADE

- .1 Verify that grades are correct. If discrepancies occur, notify the Owner's Representative and do not commence work until instructed by the Owner's Representative.
- .2 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.
- .3 Remove debris, roots, branches, stones in excess of 50 mm diameter and other deleterious materials. Remove soil contaminated with calcium chloride, toxic materials and petroleum products. Remove debris which protrudes more than 75 mm above surface. Dispose of removed material off site.
- .4 Course cultivate entire area which is to receive topsoil to depth of 100 mm. Cross cultivate those areas where equipment used for hauling and spreading has compacted soil.

3.2 PLACING AND SPREADING OF TOPSOIL

- .1 Place topsoil after the Owner's Representative has accepted subgrade.
- .2 Spread topsoil in uniform layers not exceeding 100 mm, over unfrozen subgrade free of standing water.
- .3 For sodded areas keep topsoil 15 mm below finished grade.

3.3 SOIL AMENDMENTS

- .1 Apply and thoroughly mix soil amendments and fertilizer into full specified depth of topsoil as determined by soil analysis.

3.4 FINISH GRADING

- .1 Grade to eliminate rough spots and low areas and ensure positive drainage. Prepare loose friable bed by means of cultivation and subsequent raking.
- .2 Consolidate topsoil to required bulk density using equipment approved by the Owner's Representative. Leave surfaces smooth, uniform and firm against deep footprinting.

3.5 ACCEPTANCE OF TOPSOIL

- .1 The Owner's Representative will inspect and test topsoil in place and determine acceptance of material, depth of topsoil and finish grading. Approval of topsoil material subject to soil testing and analysis.
- .2 All costs for soil testing and analysis to be borne by Contractor.

3.6 PREPARATION FOR SODDING

- .1 Do not perform work under adverse field conditions such as frozen soil, excessively wet or dry soil or soil covered with snow, ice, or standing water.
- .2 Fine grade surface free of humps and hollows to smooth, even grade, elevations indicated, to tolerance of plus or minus 9 mm for Turfgrass Nursery Sod, surface to drain naturally.
- .3 Remove and dispose of weeds; debris; stones 50 mm in diameter and larger; soil contaminated by oil, gasoline and other deleterious materials; off site.
- .4 Cultivate fine grade approved by the Owner's Representative to 25 mm depth immediately prior to sodding.

3.7 SOD PLACEMENT

- .1 Lay sod within 36 hours of being lifted.
- .2 Lay sod sections in rows, longitudinally, along contours of slopes, joints staggered. Butt sections closely without overlapping or leaving gaps between sections. Cut out irregular or thin sections with sharp implements.
- .3 Roll sod as directed by the Owner's Representative. Provide close contact between sod and soil by light rolling. Use of heavy roller to correct irregularities in grade is not permitted.

3.8 FERTILIZING PROGRAM

- .1 Fertilize during establishment and period of maintenance to following program:

Date	Rate	Ratio
May	70 kg/ha	3:0:0
July	70 kg/ha	3:1:3
September	25 kg/ha	1:2:3

3.9 MAINTENANCE DURING ESTABLISHMENT PERIOD

- .1 Perform following maintenance operations from time of installation until acceptance:
 - .1 Water sodded areas in sufficient quantities and at frequency required to maintain optimum soil moisture condition to depth of 75 to 100 mm.
 - .2 Cut grass to 40 mm when it reaches height of 65 mm. Remove clippings which will smother grass.
 - .3 Maintain sodded areas weed free.
 - .4 Fertilize areas in accordance with fertilizing program. Spread half of required amount of fertilizer in one (1) direction and remainder at right angles and water in well.

3.10 ACCEPTANCE

- .1 Turfgrass Nursery Sod areas will be accepted provided that:
 - .1 Sodded areas are properly established.
 - .2 Sod is free of bare and dead spots and without weeds.
 - .3 No surface soil is visible from height of 1500 mm when grass has been cut to height of 40 mm.
 - .4 Sodded areas have been cut minimum 3 times, and within 24 hours prior to acceptance.
 - .5 Fertilizing in accordance with fertilizer program has been carried out at least once.
- .2 Areas sodded in fall will be accepted in following spring one month after start of growing season provided acceptance conditions are fulfilled.

3.11 MAINTENANCE DURING WARRANTY PERIOD

- .1 Perform following operations from time of acceptance until end of maintenance period:
 - .1 Lime, fertilize and mow sodded areas in Spring after acceptance.
 - .2 Repair and resod dead or bare spots to approval of the Owner's Representative.
- .2 Grass warranty period shall be 12 months from acceptance.

END OF SECTION 32 91 23

PART 1 - GENERAL

1.1 SCOPE OF WORK

- .1 The work to be done under this Section consists of furnishing all materials, labour, tools and equipment and performing all operations necessary for the complete reinstatement of surfaces and structures disturbed by work of this Contract.
- .2 Repair damage or disturbance to surfaces, properties and structures, within limits of the Site or elsewhere on other properties occupied, traversed or otherwise used by the Contractor during the Contract period to a condition equal to or better than that before work began, at no additional cost to the Contract.

1.2 RELATED REQUIREMENTS

- .1 Section 31 23 10 - Excavating, Trenching And Backfilling.
- .2 Section 32 91 23 - Topsoil And Sod.

1.3 REFERENCE STANDARDS

- .1 ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)); 2012 (Reapproved 2021).
- .2 CSA A23.1/A23.2 - Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete; 2024.
- .3 PEI Department of Transportation and Infrastructure General Provisions and Contract Specifications of Highway and Bridge Construction, latest edition.

1.4 MAINTENANCE

- .1 Contractor shall take care and maintain all reinstated areas until final acceptance of the work.
- .2 Repair damaged areas to the approval of the Owner's Representative.

1.5 TRAFFIC PROVISIONS

- .1 Provide and maintain roadways, walkways and detours, for vehicular and pedestrian traffic, and access to fire hydrants, private property, alarms and emergency telephones.

1.6 PROTECTION

- .1 Prevent damage to structures, fencing, trees, natural features, bench marks, existing pavement, or surface or underground utility lines which are to remain. Make good any damage.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Roadways
 - .1 Select Borrow material in accordance with PEI DTI Standard Specifications Division 206 and the requirements of Section 31 23 10 - Excavating, Trenching And Backfilling.
 - .2 Granular material: in accordance with PEI DTI Standard Specifications Division 401 and the requirements of Section 31 23 10 - Excavating, Trenching And Backfilling.
 - .3 Asphalt material: in accordance with PEI DTI Standard Specifications Division 603.
 - .1 Base course asphalt shall be Mix Type A.
 - .2 Seal course asphalt shall be Mix Type B.
- .2 Asphalt Surfaces: in accordance with PEI DTI Standard Specifications Division 600.
- .3 Storm Sewer: Materials to match existing and in accordance with PEI DTI Standard Specifications Division 301.
- .4 Granular material: in accordance with PEI DTI Standard Specifications Division 401 and the requirements of Section 31 23 10 - Excavating, Trenching And Backfilling.
- .5 Grass surface materials: as specified in Section 32 91 23 - Topsoil And Sod.

PART 3 - EXECUTION

3.1 GENERAL

- .1 Maintain surfaces to be reinstated level with adjoining existing surfaces gravel until final reinstatement.
- .2 Perform reinstatement work in accordance with the PEI DTI Standard Specifications and Contract Documents in all instances.

3.2 ROADWAYS AND ASPHALT TRAILS

- .1 General
 - .1 Carry out grading operations involving the subgrade during dry periods only.
 - .2 Place the select borrow subbase over the subgrade immediately.
 - .3 Direct surface water away from exposed areas.
 - .4 Have a geotechnical engineer carry out the Department of Transportation and Infrastructure construction control testing requirements and ensure compliance with the general provisions and contract specifications for highway construction. Costs for geotechnical engineer shall be paid by the contractor and all test reports including witnessing of proof rolling shall be submitted to the Owner's Representative.
 - .5 Mill existing asphalt that is to be removed and dispose off site.
 - .6 Do not place material which is frozen or place material on frozen surfaces.
 - .7 Compact roadway sub-base and base materials to a density of not less than 100% Standard Proctor density.
- .2 Final reinstatement
 - .1 Cut back broken edges of original pavement to full depth, in straight lines. Cut back 300 mm minimum from edge of excavation to eliminate tension cracks. Clean contact surfaces and apply tack coat before placing asphalt concrete.
 - .2 Before placing final surface material, remove existing gravel to a depth indicated over disturbed area, grade and recompact. Add gravel to compacted depths indicated. Compact to not less than 100% Maximum Corrected Dry density.
 - .3 Supply, place, roll and compact asphalt mixture in accordance with PEI DTI Standard Specifications.
 - .4 Compact asphalt concrete in lifts not exceeding 50 mm in thickness.
 - .5 Ensure finished surface is even, dense and matches grade of existing road or surface, as approved by the Owner's Representative.
- .3 Finish Tolerances
 - .1 Asphalt pavement finish tolerances to PEI DTI Standard Specifications Division 603.

3.3 ASPHALT SURFACES

- .1 Keep surface of asphalt paved roads and surfaces in good condition by repairing settlement of trench backfilling as described in Section 31 23 10 - Excavating, Trenching And Backfilling.
- .2 Carry out final reinstatement of asphalt surfaces as follows:

- .1 Cut back broken edges of original pavement to full depth, in straight lines. Cut back 300mm minimum from edge of excavation to eliminate tension cracks. Clean contact surfaces and apply tack coat before placing asphalt concrete.
- .2 Before placing final surface material, remove existing gravel to a depth indicated over disturbed area, grade and recompact. Add gravel to compacted depths indicated. Compact to not less than 100% Maximum Corrected Dry density.
- .3 Supply, place, roll and compact asphalt mixture in accordance with PEI Department of Transportation and Infrastructure General Provisions and Contract Specifications of Highway and Bridge Construction, latest edition.
- .4 Compact asphalt concrete in lifts not exceeding 50mm in thickness.
- .5 Ensure finished surface is even, dense and matches grade of existing road or surface, as approved by the Owner's Representative.

3.4 GRAVEL SURFACES

- .1 Reinstatement gravel surfaces by placing 200mm compacted thickness of gravel at an elevation such that gravel surface is smooth and even with adjacent surfaces.
- .2 Place and compact gravel for surfaces in accordance with the requirements of PEI Department of Transportation and Infrastructure Standard Specifications.

3.5 GRASS SURFACES

- .1 Sodding: to Section 32 91 23 - Topsoil And Sod.
- .2 Topsoil placement and grading: to Section 32 91 23 - Topsoil And Sod.
- .3 Fine grade areas to be reinstated to smooth surface. Grade to allow for topsoil and sod to be placed so finish grade is smooth and even with existing surfaces.

3.6 STORM SEWER

- .1 Trenching
 - .1 Do trenching work in accordance with Section 31 23 10 - Excavating, Trenching And Backfilling.
 - .2 Obtain Owner's Representative's approval of trench line and depth prior to placing bedding material or pipe.
- .2 Bedding
 - .1 Dewater excavation, as necessary, to allow placement of bedding in the dry.
 - .2 Place minimum thickness of 150 mm of approved granular material on bottom of excavation and compact to minimum 98% maximum density to .

- .3 Shape bedding to fit lower segment of pipe exterior so that width of at least 25% of pipe diameter is in close contact with bedding as indicated or as directed by Owner's Representative, free from sags or high points.
- .4 Place bedding in unfrozen condition.
- .3 Backfilling
 - .1 Place approved backfill material in 150 mm layers to full width, alternately on each side of the pipe, so as not to displace it laterally or vertically.
 - .2 Compact each layer to 98% maximum density to ASTM D698 taking special care to obtain required density under haunches.
 - .3 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.

END OF SECTION 32 98 00

PART 1 - GENERAL

1.1 WORK INCLUDED

- .1 This section specifies the requirements for constructing water mains and service connections. Work includes supply, installation and testing of pipe, fittings, and related appurtenances.

1.2 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 31 23 10 - Excavating, Trenching And Backfilling.
- .3 Section 32 98 00 - Reinstatement.

1.3 REFERENCE STANDARDS

- .1 American National Standards Institute/American Water Works Association (ANSI/AWWA)
- .2 AWWA C104/A21.4 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings; 2022.
- .3 AWWA C909 - Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe, 4 In. Through 24 In. (100 mm Through 600 mm) for Water, Wastewater, and Reclaimed Water Service; 2016.
 - .1 ANSI/AWWA B300-24, Standard for Hypochlorites.
 - .2 ANSI/AWWA B301-24, Standard for Liquid Chlorine.
 - .3 ANSI/AWWA C110/A21.10-21, American National Standard for Ductile-Iron and Gray Iron Fittings for Water.
 - .4 ANSI/AWWA C111/A21.11-23, American National Standard for Rubber-Gasket Joints for Ductile-Iron and Fittings.
 - .5 ANSI/AWWA C153/A21.53-19, Standard for Ductile-Iron Compact Fittings.
 - .6 ANSI/AWWA C500-19, Standard for Metal-Seated Gate Valves for Water Supply Service.
 - .7 ANSI/AWWA C502-24, Standard for Dry-Barrel Fire Hydrants.
 - .8 AWWA C509-23, Standard for Resilient Seated Gate Valves for Water Supply Services.
 - .9 AWWA C510-17, Standard for Double Check Valve Backflow Prevention Assembly
 - .10 ANSI/AWWA C600-23], Standard for Installation of Ductile-Iron Water Mains, and Their Appurtenances.
 - .11 ANSI/AWWA C651-23, Standard for Disinfecting Water Mains.

- .12 ANSI/AWWA C655-18, Standard for Field Dechlorination.
- .13 ANSI/AWWA C800-21, Standard for Underground Service Line Valves and Fittings.
- .14 ANSI/AWWA C900-22, Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution.
- .15 ANSI/AWWA C904-22, Standard for Cross-Linked Polyethylene (PEY) Pressure Pipe, 1/2 in. through 3 in. (13 mm through 76 mm) for Water Services
- .16 ANSI/AWWA C909-22, Standard for Molecularly Oriented Polyvinyl Chloride (PVCO) pressure pipe, 4 in. and larger.
- .17 AWWA C907-23, Standard for Injection Molded Polyvinyl Chloride (PVC) Pressure Fittings, 4 in. through 12 in. (100 mm through 300 mm)
- .4 ASTM International
 - .1 ASTM A307-21, Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
 - .2 ASTM B88-22, Standard Specification for Seamless Copper Water Tube.
- .5 Canadian Standards Association
 - .1 CSA B137 Series 20, Thermoplastic Pressure Piping Compendium.

1.4 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures for all pipe, fittings, valves and all other items necessary for a complete water main installation.
- .2 Provide details of proposed temporary water system in the form of a temporary water plan including shop drawings of proposed materials. The plan shall show how the temporary water system is to be installed; the material that will be used, the locations of connections, the location of backflow preventers, locations and details of sampling taps, any road crossings, etc.

1.5 CERTIFICATES

- .1 Submit manufacturer's test data and certification that products and materials meet requirements of this Section in accordance with Section 01 33 00 - Submittal Procedures.

1.6 HANDLING AND STORAGE

- .1 Handle and store pipe, valves and fittings, in such manner as to avoid shock and damage. Do not use chains or cables passing through pipe bore. Do not damage coatings or linings.

- .2 Store gaskets in cool location, out of direct sunlight, and away from petroleum products.
- .3 Store hydrants and valves to prevent retention of water and damage by freezing.
- .4 Handle and store temporary water system pipe, valves, and fittings in the same manner as outlined above.

PART 2 - PRODUCTS

2.1 POLYVINYL CHLORIDE PIPE

- .1 Polyvinyl chloride pressure pipe: to AWWA C900
- .2 Molecularly Orientated Polyvinyl Chloride Pressure Pipe: to AWWA C909, Class 235 and CSA B137 Series 3. Push on joint with continuous rubber-moulded lining gasket to AWWA C111/A21.11.

2.2 FITTINGS

- .1 Fittings can be PVC or DI.
- .2 AWWA C153, cement mortar lined to AWWA C104/A21.4 and coated outside with standard coatings. Lead tipped gasket not permitted.
- .3 PVC conforming to AWWA C907 certified to CSA Standard B137.3.

2.3 HYDRANTS

- .1 Dry barrel type: to AWWA C502 and as follows:
 - .1 Depth of bury: as per drawings.
- .2 Barrel: two-piece with safety break-away flange stem.
- .3 Main valve: compression type, 134mm minimum diameter.
- .4 Inlet connection: mechanical joint, 150mm diameter.
- .5 Nozzles: two hoses and one pumper to North Rustico Standard.
- .6 Direction of opening: counterclockwise.
- .7 Operating nut: 19mm pentagon.
- .8 Acceptable products:
 - .1 McAvity Brigadier 'M67'.
- .9 Hydrant marker: fabricate from 40mm O.D. polyethylene pipe, with ductile iron base plate. Pipe shall be fluorescent orange in colour and have an overall height of 1.8m.

2.4 GATE VALVES

- .1 Standard buried type: to AWWA C509 up to and including 300mm, minimum working pressure rating 1380kPa and as follows:
 - .1 Body: cast-iron with mechanical joint ends.
 - .2 Mechanism: solid resilient wedge, epoxy coated, bonnet, S.S., packing gland nuts and bolts, non-rising spindle, and O-ring seals.
 - .3 Direction to close: clockwise.
 - .4 Operating nut: 50mm square.
 - .5 Acceptable products:
 - .1 Clow McAvity F-6100 Resilient Seat Valve.
 - .2 Mueller A2360-23 Resilient Wedge Valve.
 - .3 AVK Series 25/00 Resilient Seat.
- .2 Epoxy coat all gate valves with minimum 150 microns coating.

2.5 VALVE BOXES

- .1 To AWWA C500 and as follows:
 - .1 Two piece sliding type with cover and centering disc, adjustable for depth of pipe below finished grade.
 - .2 Covers marked "Water".
 - .3 Lugged to prevent turning and rolling of cover, and cover notched to suit.
 - .4 Have clear opening of 135mm.
 - .5 Bonnet on the bottom section which is capable of enclosing the packing gland section of the gate valve.
 - .6 Valve Box debris plug, closed cell friction fit to tight seal, waterproof material, complete with polypropylene 350lb test handle and hand plastic top.
 - .1 Mud plug by Infact Corporation or Equal
 - .7 Acceptable products:
 - .1 Mueller MVB composite valve box.

2.6 BOLTS FOR BURIED SERVICE

- .1 T-head bolts and nuts:
 - .1 Low alloy Corten steel.

2.7 SERVICE PIPE AND FITTINGS

- .1 Service connections 100mm and larger refer to pipe specifications subsection 2.1.
- .2 Domestic services 50mm and smaller:

- .1 Cross-Linked Polyethylene (PEX) tubing to: CSA B137, AWWA C904, NSF 14, NSF 61, ASTM F876
- .2 Joints: compression type, minimum pressure rating 1035kPa.
- .3 Corporation stop: brass to ASTM B62, compression type, inlet threads to AWWA C800, minimum pressure rating of 1035kPa.
 - .1 Acceptable products:
 - .1 19-50mm Mueller H15008.
- .4 Curb stop and drain: brass to ASTM B62, compression type joints. Minimum pressure rating of 1035kPa.
 - .1 Acceptable products:
 - .1 19-50mm Mueller H15219 (Oriseal).
- .5 Tapped coupling: PVC conforming to AWWA C907 and certified to CSA Standard B137.3.
- .6 Service Box: adjustable type, cast iron bottom section, stainless steel operating rod and cotter pin, cast iron lid with recessed pentagon nut and internal stem to suit depth of bury. Service boxes are to be magnetized to facilitate future locates. Service box to have appropriate foot piece.
 - .1 Acceptable products:
 - .1 Mueller 726 (19 and 25mm dia.).

2.8 COUPLINGS

- .1 Mechanical joint sleeve type: to AWWA C110; use on new ductile iron pipe. Provide spacer ring between pipe ends. Where gap between pipe ends is less than 10mm, spacer not required.

2.9 THRUST RESTRAINT

- .1 Thrust blocks and anchors: Minimum 25 MPa compressive strength.
- .2 Joint restraint device: 100mm to 600mm joint restraint device to AWWA C111 and C153 for mechanical or push-on joints with multiple wedge or gripper ring restraining mechanism, minimum working pressure rating 2410KPa and minimum safety factor of 2:1. No special tools shall be required for installation.
 - .1 Acceptable products:
 - .1 Ebaa Iron Megalug.
 - .2 Clow.
 - .3 Sigma.
 - .4 Uni-Flange.

2.10 PROTECTIVE COATINGS

- .1 Anti-corrosion petrolatum paste, tape and mastic.

- .1 Acceptable manufacturers
 - .1 Winn & Coales (Denso) Ltd.
 - .2 Trenton
 - .3 Petro
 - .4 STAC

2.11 DISINFECTANT

- .1 Sodium hypochlorite or calcium hypochlorite: to AWWA B300.
- .2 Liquid chlorine: to AWWA B301.

2.12 REDUCING AGENT

- .1 Calcium Thiosulphate (CaS_2O_3) to AWWA 655.
- .2 Hydrogen peroxide, 35% by mass commercial grade.

2.13 INSULATION

- .1 Rigid polystyrene insulation to CGSB-51.20, type 4, minimum compressive strength 41.5KPG (60psi). Standard of Acceptance: HI60 by Dow Chemical Canada.

2.14 MARKER STAKE

- .1 Timber marker stake - 40mm x 90mm painted blue. Must be installed as location marker for end of service at property line.

2.15 GEOTEXTILE

- .1 Synthetic fibre, rot proof, unaffected by action of oil or salt water and not subject to attack by insects or rodents. Non-woven construction, with minimum thickness of 2mm and minimum density of 200g/m².

2.16 MARKER TAPE

- .1 Underground warning tape: minimum 75mm wide, metal detector tape, clearly marked "Caution - Buried Waterline", Colour Blue.

2.17 PIPE BEDDING MATERIAL

- .1 Sand Bedding: as per Section 31 23 10 - Excavating, Trenching And Backfilling.
- .2 Clear stone bedding materials: as per Section 31 23 10 - Excavating, Trenching And Backfilling.

PART 3 - EXECUTION

3.1 PREPARATION

- .1 Handle and install pipe, fittings, valves and appurtenances in accordance with manufacturer's instructions. Ensure such instructions are issued at time of shop drawing issue, and are available on site when required.
- .2 Clean pipes, fittings, valves, hydrants and appurtenances of accumulated debris and water before installation. Carefully inspect materials for defects. Remove defective materials from site.
- .3 Provide proper implements, tools and facilities approved by the Owner's Representative, for the safe and convenient execution of the work. Take every precaution to prevent foreign material from entering the pipe.

3.2 TRENCHING, BEDDING AND BACKFILLING

- .1 Provide trenching, bedding and backfilling in accordance to Section 31 23 10 - Excavating, Trenching And Backfilling.
- .2 Use sand bedding for pipe bedding and protection unless otherwise specified.
- .3 Clear stone may be used in wet or freezing conditions only where specified or with the prior approval of the engineer.
- .4 Where clear stone bedding is used, install geotextile fabric before placing overtopping materials.

3.3 BURIED PIPE INSTALLATION

- .1 Lay and join pipe, fittings, and valves, as specified herein and according to manufacturer's published instructions.
- .2 Do not lay pipe and fittings when trench bottom is frozen, under water or when trench conditions or weather are unsuitable.
- .3 Lay pipe and fittings on prepared bed, true to line and grade indicated, within the following tolerances:
 - .1 Horizontal Alignment: 150mm
 - .2 Vertical Alignment: 75mm
- .4 Face bell ends in direction of laying. On grades of 5% or greater, lay pipe up grade. For grades exceeding 16%, install appropriately designed gradient thrust restraint.
- .5 Prevent entry of bedding material, water or other foreign matter into pipe. Use temporary watertight bulkheads when pipe laying is not in progress.
- .6 Do not use excessive force to join pipe sections.

- .7 Install gaskets in accordance with manufacturer's published instructions. Use only lubricant approved for potable water. During cold weather, store gaskets in heated area to assure that gaskets remain flexible.
- .8 Align pipes carefully before joining.
- .9 Support pipes as required to assure concentricity until joint is properly completed.
- .10 Keep pipe joints free from mud, silt, gravel or other foreign materials.
- .11 Avoid displacing gasket or contaminating with dirt, or other foreign material. Remove, clean, re-install and lubricate gaskets so disturbed. Do not reuse a gasket that has been contaminated with petroleum products.
- .12 Complete each joint before laying next length of pipe.
- .13 Where deflection at joints is permitted by the Owner's Representative, deflect only after spigot is fully inserted in bell. Do not exceed 50% of joint deflection recommended by manufacturer.
- .14 At structures, provide flexible joint not more than 300mm from outside face of structure. Support pipe between structure wall and first joint with 20MPa concrete.
- .15 Cut pipe as required for fittings or closure pieces, square to centerline, and as recommended by manufacturer. Do not damage pipe lining or coating. Leave smooth beveled edge.
- .16 Install petrolatum mastic and tape to all mechanical joint bolts and flanges using manufacturers recommended procedure.

3.4 HYDRANT INSTALLATION

- .1 Install hydrants at locations indicated or where directed.
- .2 Install 150mm gate valve and valve box on hydrant anchor tee, as indicated.
- .3 Set hydrant plumb, with hose outlets parallel to roadway, pumper connection facing roadway and breakaway flange.
- .4 Provide mechanical joint restraint on all joints from the hydrant tee to the hydrant. In addition to joint restraint, provide concrete thrust blocks on all hydrants. Do not obstruct drain holes.
- .5 Install Anode on hydrant as recommended by manufacturer.
- .6 Provide drainage not less than 0.5m³ in volume and backfill with clear stone to a level 150mm above top of hydrant lead from hydrant to main.
- .7 Place geosynthetic over clear stone from hydrant to main.
- .8 Where water table is above drain holes, notify Owner's Representative. Where hydrant cannot be appropriately relocated, plug drain holes and advise Owner's Representative.

3.5 VALVES AND VALVE BOXES

- .1 Install valves at locations indicated. Joints and bedding as specified for pipe and fittings.
- .2 Install Anode on valves as recommended by manufacturer.
- .3 On direct buried valves, install valve boxes plumb and centered over operating nut, and true to line and grade.
- .4 Place select backfill material, maximum size 50mm around valve box to subgrade.
- .5 When valves are installed with cover in excess of 2.0m, provide a valve stem extension.

3.6 THRUST RESTRAINT

- .1 Provide formed thrust blocks to undisturbed ground on all tees, bends, reducers, plugs and caps. Keep joints and couplings free of concrete and construct, so as to avoid conflict with manholes in dual pipe trenches.
- .2 Backfill over thrust blocks when concrete has sufficient strength and can withstand earth pressure.
- .3 Provide mechanical joint restraint devices where specified.
- .4 Place double polyethylene on bend before pouring concrete thrust block.

3.7 SPRINKLER AND SERVICE LATERAL CONNECTIONS

- .1 General:
 - .1 Services shall not be installed in driveways or parking areas.
 - .2 Service pipe shall be continuous from corporation stop to curb stop. No couplings shall be permitted unless the service exceeds the standard coils length.
 - .3 Water services to maintain 1.5m horizontal separation from electrical conduit, communications, steam or hot water piping, transformer pads, utility poles, gas lines, or other utilities.
 - .4 Water services to maintain 1.0m separation from sanitary and storm structures and parallel linear sanitary and storm infrastructure.
 - .5 Maintain minimum of 1.8m ground cover on service connections. Maximum depth of bury shall not exceed 2.4m.
 - .6 Lay service pipe in a smooth trench bottom with sand bedding 150mm below the pipe and a minimum 300 mm over the pipe.
 - .7 Backfill with well graded Select Backfill.
 - .8 Install service box over curb stop, set plumb with the top of service box flush with finished grade. Where grade has not been finalized or established, leave the top of service box 150mm above top of curb or edge of asphalt.

Place select backfill material, maximum size 50mm, around the service box to subgrade.

- .9 Leave corporation stop fully open. Operate curb stop to ensure flow, then close curb stop and leave closed.
- .10 Place temporary marker stake at end of each service lateral to vacant lots, extending from pipe end at pipe level to 600mm above grade. Paint exposed portion of stake blue.
- .11 Tapped couplings are to be used for service connections to the new watermain.
 - .1 Follow manufacturer's instructions including installing to recommended torque. Check torque for each installation.
 - .2 Maintain minimum 1000mm between adjacent service coupling, fitting or pipe joint. Roll coupling so that corporation stop is orientated at the 2:00 o'clock or 10:00 o'clock position.
 - .3 Leave corporation stop fully open.

3.8 COMMISSIONING PLAN

- .1 The Contractor shall provide a Water System Commissioning Plan outlining the measures that will be taken for the hydrostatic testing, chlorination and disinfection of the water system. This plan is to indicate the areas to be tested, the sequence of testing and the sample locations for bacteriological tests. Also include the plan for connecting the existing services to the new water service. This plan shall follow all requirements set forth in this specification and be provided to and approved by the Owner's Representative prior to any testing taking place. Unless otherwise approved, the maximum length of water main that can be tested shall be limited to 450m.

3.9 LEAKAGE TESTING

- .1 Provide labour, equipment and materials required to perform hydrostatic test.
- .2 The operation of any existing valve not part of the new construction, shall be by Utility staff. 24 hours notice is required by the Utility for all filling, flushing or chlorination operations for new construction.
- .3 All services, hydrants, mains and other appurtenances shall be included in the system test.
- .4 Perform tests in presence of the Owner's representative.
- .5 All valves must be pressure tested, including hydrant valves.
- .6 Where hydrant extensions are required, install extensions prior to testing.
- .7 Open all valves in test section.

- .8 Expel air from main by slowly filling with potable water. Install corporation stops at high points where no air-vacuum release valves are installed.

3.10 PIPEWORK

- .1 Test pipework after backfilling.
- .2 Ensure all air release valves on section being tested are installed and operational before testing. Fill watermain, for testing. Pipeline to remain filled for not less than 24 hours prior to pressure test. Ensure all air is purged before starting pressure and leakage tests.
- .3 Gradually increase water pressure inside pipe until it reaches 1035kPa at the lowest location under test. Maintain pressure test for two hours.
- .4 Measured leakage of water as measured by a water meter approved by the Owner's Representative.

$$Q_m = (LDP^{1/2})/795,000$$

Where: Q_m = allowable leakage, in litres/hr.

L = length of pipeline in metres

D = diameter of pipe in millimetres

P = average test pressure in kilopascals

- .5 The allowable leakage shall not be exceeded between adjacent valves.
- .6 Replace, at no cost to Contract, all pipes, valves, fittings and couplings which are defective. Perform test at no cost to Contract until pipeline is approved by Owner's Representative.

3.11 TESTS TO BE REPEATED

- .1 Should tests disclose leakage, locate and repair defective pipes, or joints, to approval of Owner's Representative.
- .2 Tests to be carried out, at Contractor's expense to determine success or otherwise of remedial measures applied to pipework. These tests to be repeated at Contractor's expense until results show that remedial measures have been successful.
- .3 Following acceptance of field tests, should the Owner's Representative suspect the watermain, for any reason, no longer complies with requirement of the test, he may order a second test and should the length of pipeline prove defective, Contractor shall repair or make good defect at his own expense.
- .4 Cost of this second test to be borne by Contractor if test proves a defect. However, if this second test shows pipe to be satisfactory, cost of second test will be borne by Authority.

3.12 FLUSHING AND DISINFECTION

- .1 Chlorination of any water system can proceed only after system has been successfully pressure tested. The chlorination test is to be witnessed by the Owner's representative.
- .2 Flush and disinfect water mains to AWWA C651 and as herein specified. Notify the Owner's representative 24 hours in advance of flushing and disinfection.
- .3 Flush water mains with potable water through available outlets until foreign materials have been removed and water is clear. The size and number of taps should conform to Table 3 of AWWA C651.

Pipe Diameter (mm)	Flow required to produce 0.91 m/s (approx.) velocity in main (L/s)	Size of Tap (mm)			Number of 64mm hydrant outlets
		25	38	51	
		Number of taps on pipe			
100	7.4	1	-	-	1
150	16.7	-	1	-	1
200	29.7	-	2	-	1
250	46.3	-	3	2	1
300	66.7	-	-	3	2
400	118.6	-	-	5	2

Per AWWA C651 Table 3.

- .4 Slowly open and close valves and hydrants to ensure thorough flushing.
- .5 If satisfactory results cannot be achieved by flushing, swab pipe by approved methods and re-flush.
- .6 Disinfect water main upon completion of flushing using chlorine solution distributed throughout entire system.
- .7 Inject 1% chlorine solution through a corporation stop in the top of newly laid pipe, at point close to where main is being filled and at rate proportioned to filling rate. Prepare stock chlorine with concentration of 1% free chlorine by volume as follows:

Product	Amount of Compound	Quantity of Water (litre)
High test calcium hypochlorite (67-70% Cl)	1.0 kg	60 litres
Liquid laundry bleach (5.25% Cl)	1.0 litre	3.5 litres
Liquid bleach (10.5% Cl)	1.0 litre	7.0 litres

- .8 Calcium hypochlorite is not to be used when water temperature is less than 5°C.
- .9 The following table indicates the quantity of 1% chlorine stock solution required per 100 metre length of pipe.

Pipe Diameter (mm)	1% Chlorine Solution (litres)
100	2.0
150	4.5
200	8.2
250	12.8
300	17.7
400	32.1

- .10 Operate valves, hydrants, and appurtenances while main contains chlorine solution.
- .11 Take water samples at all hydrants and termination points, in suitable sequence, to test chlorine residual. When tests indicate minimum chlorine residual of 50mg/L, leave system charged with disinfectant solution for 24 hours. At the end of this 24-hour period, the treated water in all portions of the main shall have a residual of not less than 25mg/L. If the residual has fallen below 25 mg/L the system shall be rechlorinated.
- .12 Flush disinfectant solution from line after 24 hours. Under no circumstances shall disinfectant solution remain in the line longer than 48 hours. Add reducing agent to the disinfectant solution at point of discharge or within a retention facility such that the solution is disposed to the environment with a total chlorine residual no greater than 0.0 mg/L in accordance with the requirements of the Department of Environment. Check chlorine residuals before disposal and at regular intervals during disposal to ensure compliance. This de-chlorination requirement can only be excluded with the written consent of the Department of Environment, Labour and Justice.
- .13 Neutralize the chlorinated water using Calcium Thiosulphate as outlined in AWWA C655.
- .14 Dispose of de-chlorinated disinfectant solution. Where disposing to the environment, disposal of the de-chlorinated solution must be at least 100 meters from the nearest watercourse.
- .15 Where disinfectant solution is de-chlorinated at point of discharge, inject stock reducing agent at a rate proportioned to discharge rate. Injection and discharge rates must be monitored continuously to ensure proper proportioning.
- .16 Prepare stock reducing agent with concentration of 1% Hydrogen Peroxide (H₂O₂) by volume, as follows:

Liquid Reducing Agent	Amount of Agent (litres)	Quantity of Water (litres)
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Hydrogen Peroxide (25% H ₂ O ₂ by mass)	1.0	34.0
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- .17 The following table indicates quantity of 1% Hydrogen Peroxide required to reduce total chlorine residual of disinfectant solution contained per 100 metre length of pipe, from 50 mg/L to 0.0 mg/L.

Pipe Diameter (mm)	1% Hydrogen Peroxide Stock Solution (litres)
100	4.5
150	10.2
200	18.1
250	28.2
300	40.6
350	55.3
400	72.3

- .18 Where total chlorine residual of disinfectant solution exceeds 50mg/L, quantity of stock reducing agent for de- chlorination can be increased in direct proportion to the quantity indicated in the above table.
- .19 After disinfectant solution is flushed from water main, assist Owner's Representative in obtaining two water samples on each of two consecutive days (at least 24 hours apart) for bacteriological tests. Hydrants shall not be used as sampling points. Repeat disinfection procedure if bacteriological tests fail.
- .20 Bacteriological samples are to be obtained from a test sampling tap or a copper service lateral if available. Sampling shall take place from every 366m (1200ft) of new water main, plus one set from the end of the line and from every branch (see AWWA C651, Section 5.1). Coliform tests must indicate 0 on two consecutive days combined with background count of less than 150.
- .21 Should any of the test results be positive, repeat disinfection, flushing, sampling and analysis.
- .22 After testing and submission of the written results for the passing of the bacteriological tests, remove corporation stops and install plugs. Check visually for leakage after plugs are installed with water main under normal operating pressure.

3.13 CONNECTIONS TO EXISTING MAIN

- .1 Connect new mains to existing mains as indicated.
- .2 Do not make a connection to an existing main within 1.0m of a fitting, pipe joint or another service.
- .3 The Utility does not guarantee leak tight operation of existing valves.

- .4 No work will be performed on existing main until all items required to complete the connection are on site and the outside diameter and type of pipe have been confirmed.
- .5 The Utility will operate valves in the existing system.
- .6 When a connection is made to an existing main (ie. inserting a new tee) an inspection of the joints for leakage must be made by the Utility, while the main is under operating pressure, prior to backfilling.

3.14 CONNECTIONS TO EXISTING SERVICE LATERALS

- .1 Connect new service laterals to existing services as indicated on the Drawings.
- .2 Connections of the new service laterals to existing service laterals shall not proceed until the new water system has been fully commissioned and approval is received from the Consultant.
- .3 Use new, clean pipe for connection of the new service lateral to the existing service lateral pipe.
- .4 Service lateral connection pipe length shall be minimized but in no case shall the length of pipe exceed 5m.

END OF SECTION 33 11 00