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# **WALKER PROJECTS**

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Consulting Engineers • Project Managers

Contract Documents & Specifications

**RM of Sherwood No. 159**

**Sherwood Industrial Park**

**Water Main Extension – Phase 2**

**Set #:**

**WPI File #20160145**

## INVITATION TO TENDER

### RM OF SHERWOOD NO. 159 SHERWOOD INDUSTRIAL PARK WATER MAIN EXTENSION – PHASE 2

SEALED TENDERS, marked for the Construction of "RM of Sherwood No. 159 – Sherwood Industrial Park - Water Main Extension – Phase 2", will be received at the **Office of the Owner** up to **2:00 PM, C.S.T., Tuesday, May 2<sup>nd</sup> 2017**, followed by a public opening shortly thereafter.

The work includes the following approximate quantities:

- |                                   |        |
|-----------------------------------|--------|
| • 400 mm dia PVC Water Mains      | 20 m   |
| • 350 mm dia PVC Water Mains      | 2160 m |
| • 300 mm dia PVC Water Mains      | 70 m   |
| • 150 mm dia PVC Water Mains      | 110 m  |
| • Fire Hydrants and Appurtenances |        |

Plans and Specifications may be obtained from the office of the Engineer upon deposit of \$200.00 cheque made payable to the Engineer. Such deposit will be refunded upon return of the Plans and Specifications, in good condition, to the office of the Engineer, within 14 days of the closing of Tenders. Plans and Specifications are also shown on Sask Tenders.

Tenders must be accompanied by a Letter of Consent issued by a duly licensed Surety Company AND a Bid Bond OR Certified Cheque in the amount of Ten Percent of the Total Tender Price made payable to the RM of Sherwood No. 159.

The lowest or any Tender will not necessarily be accepted.

Engineer:  
Walker Projects Inc.  
124B, 1621 Albert Street  
Regina, SK S4P 2S5  
  
Ph: (306) 522-9434  
Fax: (306) 522-2409  
Email: [bfry@walkerprojects.com](mailto:bfry@walkerprojects.com)

Owner:  
RM of Sherwood No. 159  
4400 Campbell Street  
P.O. Box 40029 Grasslands PO  
Regina, SK S4W 0L3  
  
Ph: (306) 525-5237  
Fax: (306) 352-1760

RM OF SHERWOOD NO. 159  
SHERWOOD INDUSTRIAL PARK  
WATER MAIN EXTENSION – PHASE 2

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INSTRUCTIONS TO TENDERERS

PROJECT: RM OF SHERWOOD NO. 159  
SHERWOOD INDUSTRIAL PARK  
WATER MAIN EXTENSION – PHASE 2

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## INSTRUCTIONS TO TENDERERS

### 1. SUBMISSION OF TENDERS

All Tenders shall be sealed and clearly marked on the outside of the envelope as to its contents and shall be forwarded as described in the "Invitation for Tender".

### 2. ACCEPTABILITY OF TENDERS

Tenders must be submitted on the Tender Form provided. Tenders that are unsigned, incomplete, conditional, illegible, unbalanced, obscure, that contain additions not called for, reservations, erasures, alterations, or other irregularities may be rejected as being informal. The Owner reserves the right to waive any irregularity.

The Tender Form must contain the Tenderer's business address and his legal status must be disclosed and must be signed by a duly authorized official and be sealed with the corporate seal in the case of a corporation.

The Tender must be received before the time specified in the "Invitation to Tender" in order to be considered.

The Tender shall be open for acceptance without change for 60 days from the date of closing of Tenders.

The lowest or any Tender will not necessarily be accepted.

The Tenders will be compared on the basis of the Estimated Schedule of Quantities which, while not guaranteed, is believed to be approximately correct. If there is a discrepancy between the Unit Price and the total or extension, the Unit Price shall be considered as representing the intention of the Tenderer.

### 3. CONTRACT DOCUMENTS

The Contract Documents consist of all parts listed in the Index of the Contract Documents. They shall be returned to the Engineer within two weeks of the closing of Tenders. If they are returned in an undamaged condition, the deposit will be refunded.

### 4. TENDERER'S QUALIFICATIONS

The Tenderer must state, in the Tender Form, the list of the Tenderer's experience in similar work completed in order that the Owner and the Engineer may assess the Tenderer's ability to fulfil the requirements of the Contract Documents.

## INSTRUCTIONS TO TENDERERS

### 5. SITE CONDITIONS

The Tenderer must examine the Place of the Work before submitting his Tender, either personally or through a representative and satisfy himself as to the nature and location of the Work, local conditions, soil structure and topography at the Place of the Work, the nature and quality of the materials to be used, the equipment and facilities needed preliminary to and during the Work. The Tenderer is fully responsible for obtaining all information required for the preparation of his Tender and for the execution of the Work. The Tenderer is not entitled to rely on any data or information included in the Tender Documents as to site or subsurface conditions or test results indicating the suitability or quantity or otherwise of site or subsurface materials for use in carrying out the Work.

### 6. DISCREPANCIES AND/OR OMISSIONS

Should a Tenderer find discrepancies in, or omissions from, the Drawings or Documents, or should he be in doubt as to their intent or meaning, he should at once notify the Engineer who may send a written instruction to all Tenderers. No verbal agreement or conversation with the Owner or the Engineer will affect or modify any of the terms or obligations herein stated.

### 7. TENDER DEPOSIT

The Tender must be accompanied by a Consent of Surety from a bonafide Surety Company,

and: A Certified Cheque OR Bid Bond, made payable to the Owner, in the amount of Ten Percent of the total sum tendered for the Work (hereinafter called the Tender Price).

The Consent of Surety shall bind the Surety Company to provide the required bonding and securities if the contract is awarded to the Tenderer.

The Bid Bond or Certified Cheque deposited by the unsuccessful Tenderers will be returned to them upon signing of the Contract with the successful Tenderer.

The successful Tenderer's Certified Cheque or Bid Bond will be returned upon receipt by the Owner, of the required Bonding, Certificates of Insurance and the Contract, duly executed.

### 8. BONDS

The successful Tenderer shall provide a Performance Guarantee and Maintenance Bond in an amount equal to 50% of the Tender Price and a Labour and Materials Payment Bond in an amount equal to 50% of the Tender Price. Both Bonds shall be with the same Surety Company and the costs shall be borne by the Contractor.

## INSTRUCTIONS TO TENDERERS

### 9. SUBCONTRACTORS AND EQUIPMENT

The Tenderer must state in the Tender Form, the names of the Subcontractors (and their business addresses) and the equipment intended to be used on the Project (and capacities of each machine). The words, "as required", or similar wording will not be sufficient description. There must be no change after the Contract has been awarded, unless permission is obtained from the Engineer in writing.

### 10. ALTERNATIVES

Requests by Tenderers for alternatives or equivalent materials or methods to those specified must be in the form described in Section 01100 - Alternatives of the General Requirements.

### 11. FACSIMILE AND EMAIL TRANSMITTER MODIFICATION

Tenders submitted by facsimile or email transmitter will not be considered. Facsimile or email pdf format transmitter modifications to previously submitted Tenders will be considered only if received prior to closing time of Tenders.

Facsimile or email transmitter modifications to previously submitted Tenders will be considered only if delivered to the place where Tenders are to be submitted and only if received 15 minutes prior to the closing time of Tenders. Emailed modifications shall be submitted to the projects manager as indicated in the Invitation to Tender.

### 12. TAXES

The Unit Price(s) and Tender Price as bid by the Tenderer in the Tender Form shall exclude the Goods and Services Tax (GST), and the Saskatchewan Provincial Sales Tax (PST). The Progress Payment Certificate(s), as prepared by the Engineer, will not include the GST and the PST. The Contractor shall invoice the Owner in accordance with the amounts shown on the Progress Payment Certificate(s) and show the GST and the PST as separate line items on the invoice to the Owner. The Contractor shall determine the applicability of the GST and remit the PST to the Ministry of Finance. The PST is 6% of the Total Now Due Contractor.

### 13. EXTRA TENDER FORMS

One extra copy of the Tender Form is provided for the Tenderer's records. The Tenderer shall utilize the Tender Form bound herein for the submission of the Tender.



TENDER FORM

FOR THE CONSTRUCTION OF:

PROJECT: RM of Sherwood No. 159  
Sherwood Industrial Park  
Water Main Extension – Phase 2

LOCATION: Sherwood Industrial Park East, Regina, SK

TENDER OF: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
(Address)

to furnish and deliver all materials, to provide all necessary equipment and to do and perform all the Work in accordance with the Contract Documents for the above named project.

TO: Reeve & Council  
RM of Sherwood No. 159  
4400 Campbell Street, Regina, SK, S4W 0L3

The undersigned Tenderer has carefully examined the Invitation to Tender, the Addenda numbered \*\_\_\_\_\_, the Tender Form, the Instructions to Tenderers, the General Conditions of the Contract, the General Requirements, the Detailed Specifications, and the Drawings, prepared for the above named Project.

The undersigned Tenderer has carefully examined the site and hereby offers to provide all necessary equipment, do all the Work and furnish all Products called for by the Contract Documents in the manner prescribed therein, for the sums in accordance with the Unit Price Schedules as listed in the Tender Form.

This Tender is irrevocable and open for 60 days from the date in which the Tenders are opened and if accepted within 60 days, the undersigned will undertake to enter into a Contract in accordance with these Contract Documents.

\* NOTE: To be filled in by the Tenderer.

## TENDER FORM

The undersigned Tenderer also understands and agrees as follows:

1. Where quantities are included in the Tender and Unit Prices are requested, it is understood that:
  - a) The estimate of quantities shown in the Unit Price Schedule which are an integral part of this Tender Form are approximate only and for the sole purpose of comparing Tenders.
  - b) The actual quantities involved in carrying out the Work may be greater or less than the said estimates of quantities set forth in this Tender Form.
  - c) Payment for Work carried out on a Unit Price basis will be made on the basis of actual quantities as determined by the Engineer at the Unit Prices set forth in this Tender Form for each respective item of Unit Price Work, which shall be full compensation for such Work notwithstanding variations between actual and estimated quantities.
  - d) No claim will be made on account of any loss of anticipated profits, for delays in the completion of the Work or any portion of the Work or for any other matter or thing arising from or related, directly or indirectly, to any variation between the estimated quantities set forth in this Tender Form and the actual quantities as determined by the Engineer.
  - e) In arriving at the Unit Prices set forth in this Tender Form the Tenderer has made his own estimates of the respective quantities involved and has not relied upon the estimates shown in the Unit Price Schedules.
2. Within ten days from the date of the Notice of Acceptance of this Tender, the Tenderer will execute a Contract and upon execution of the Contract, will furnish the Owner with the Bonds and such policies of insurance as may be required under the Contract Documents.
3. To commence the Work on the \_\_\_\_\_ day of \_\_\_\_\_, 2017 and to attain Substantial Performance of the Work in \_\_\_\_ working days subject to the General Conditions of the Contract.
4. That no person, firm or corporation other than the Tenderer has any interest in this Tender or in the proposed Contract for which this Tender is made and to which it relates.
5. That this Tender is made by the Tenderer without any connection, knowledge of comparison figures or arrangement with any other person or persons making a Tender for the same Contract and in all respects fair and without collusion or fraud.

TENDER FORM

- 6. Should the Tenderer fail to enter into a Contract and provide the bonding in accordance with the terms of this Tender, whether any other Tender has previously been accepted or not, the Certified Cheque shall be forfeited to the Owner or a claim made on the full amount of the Bid Bond, as the case may be, in lieu of any damages to which the Owner may be entitled by reason of the Tenderer's failure or refusal to enter into such Contract and provide such bonding.
- 7. Communication to the Tenderer of the Notice of Acceptance by delivery, telex, or posting by prepaid mail shall constitute acceptance of the Tender. If sent by mail acceptance will be effective from the date of posting.

Accompanying this Tender is a Consent of Surety signed by a Surety Company and a Certified Cheque OR Bid Bond in the amount of \$\_\_\_\_\_OR 10% of Total Tender Price.

WHICH

is to be forfeited as liquidated damages in the event that the undersigned Tenderer fails to comply with the provision thereof; otherwise such cheque or bond shall be returned to the undersigned in accordance with the Instructions to Tenderers.

Dated at \_\_\_\_\_

This \_\_\_\_ day of \_\_\_\_\_, A.D. 2017

Signed:

\_\_\_\_\_  
Name of Company

Per \_\_\_\_\_  
Authorized Signing Officer

\_\_\_\_\_  
Title of Signing Officer

(SEAL)

\_\_\_\_\_  
Address

TENDER FORM

LIST OF EQUIPMENT

The undersigned states that the equipment listed here will be available for the work specified.

<u>UNIT DESCRIPTION</u>	<u>CAPACITY OR SIZE</u>	<u>CONDITION</u>	<u>AGE</u>	<u>HOURLY RATE INCL. OPERATOR</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

LIST OF SUBCONTRACTORS

<u>TRADE</u>	<u>NAMES AND ADDRESSES</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

TENDER FORM

TENDERER'S EXPERIENCE IN SIMILAR WORK COMPLETED

We are providing the following list of our experience in work of a similar nature to that being tendered, which we have successfully completed, in order that the Owner may judge our ability to fulfil the Contract requirements.

	<u>YEAR COMPLETED</u>	<u>DESCRIPTION OF CONTRACT</u>	<u>FOR WHOM WORK PERFORMED</u>	<u>VALUE</u>
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____

TENDER FORM

SCHEDULE OF QUANTITIES AND UNIT PRICES

The Tenderer's attention is directed by the Instructions to Tenderers information regarding the completion of Schedules.

The Section Numbers shown in the Tender Form refer to the Specifications covering measurement and payment for that Item.

UNIT PRICE SCHEDULE "A" – WATER MAINS

ITEM NO.	SECTION NO.	DESCRIPTION	APPROX. QUANTITY	UNIT PRICE	EXTENSION
1.	02221 02713	Supply and Install PVC Water Mains trenched with General Backfill			
		a) 400 mm dia	20 m	\$ _____	\$ _____
		b) 350 mm dia	2,118 m	\$ _____	\$ _____
		c) 300 mm dia	112 m	\$ _____	\$ _____
		d) 150 mm dia	105 m	\$ _____	\$ _____
2.	02221 02713	Supply and Install Bored and Steel Cased Water Main Crossing			
		a) 350 mm dia Water Main	22 m	\$ _____	\$ _____
3.	02221 02713	Supply and Install all Fittings			
		a) 400 mm x 350 mm Tee	1 unit	\$ _____	\$ _____
		b) 400 mm x 150 mm Tee	1 unit	\$ _____	\$ _____
		c) 400 mm dia Plug	2 units	\$ _____	\$ _____
		d) 350 mm x 300 mm Tee	3 units	\$ _____	\$ _____
		e) 350 mm x 150 mm Tee	13 units	\$ _____	\$ _____
		f) 350 mm x 350 mm Cross	1 unit	\$ _____	\$ _____
		g) 350 mm x 300 mm Reducer	2 units	\$ _____	\$ _____
		h) 350 mm dia Plug	3 units	\$ _____	\$ _____
		i) 350 mm dia x 11 ¼ Bend	1 unit	\$ _____	\$ _____
		j) 300 mm dia Plug	4 units	\$ _____	\$ _____
		k) 300 mm dia x 90 Bend	1 unit	\$ _____	\$ _____
4.	02221 02713	Supply and Install Gate Valves and Boxes			
		a) 400 mm dia	1 unit	\$ _____	\$ _____
		b) 350 mm dia	17 units	\$ _____	\$ _____
		c) 300 mm dia	4 units	\$ _____	\$ _____
		d) 150 mm dia	14 units	\$ _____	\$ _____

TENDER FORM

SCHEDULE OF QUANTITIES AND UNIT PRICES

UNIT PRICE SCHEDULE "A" – WATER MAINS

<u>ITEM NO.</u>	<u>SECTION NO.</u>	<u>DESCRIPTION</u>	<u>APPROX. QUANTITY</u>	<u>UNIT PRICE</u>	<u>EXTENSION</u>
5.	02221 02713	Supply and Install Fire Hydrants	14 units	\$ _____	\$ _____
6.	02221 02713	Supply and Install Mechanical Couplings, PVC to HDPE			
		a) 350 mm dia	1 unit	\$ _____	\$ _____
		b) 300 mm dia	1 unit	\$ _____	\$ _____
7.	02221 02713	Connect to Existing Water Main			
		a) 350 mm dia	1 unit	\$ _____	\$ _____
		b) 300 mm dia	1 unit	\$ _____	\$ _____
8.	03310	Supply and Install reinforced concrete pad and bollards at Fire Hydrants	4 units	\$ _____	\$ _____
TOTAL UNIT PRICE SCHEDULE "A"					\$ _____

TENDER FORM

SCHEDULE OF QUANTITIES AND UNIT PRICES

UNIT PRICE SCHEDULE "B" – MISCELLANEOUS

<u>ITEM NO.</u>	<u>SECTION NO.</u>	<u>DESCRIPTION</u>	<u>APPROX. QUANTITY</u>	<u>UNIT PRICE</u>	<u>EXTENSION</u>
1.	02221	Rock Excavation	1 m <sup>3</sup>	\$ _____	\$ _____
2.	02221	General Backfill with Compaction	167.5 m	\$ _____	\$ _____
3.	02221	Granular Backfill with Compaction	10 m	\$ _____	\$ _____
4.	02221	Base Stabilized Material	10 m <sup>3</sup>	\$ _____	\$ _____
5.	02601	Traffic Gravel	50 m <sup>3</sup>	\$ _____	\$ _____
6.	DRWGS 02435	Approach Replacement, Supply and Install 500 mm dia Culvert	115 m	\$ _____	\$ _____
7.	DRWGS	Asphalt Approach and Road Replacement with Compaction and 100 mm HMAc	45 m <sup>2</sup>	\$ _____	\$ _____
8.	DRWGS	Asphalt Approach and Road Replacement with Compaction and 200 mm Base	115 m <sup>2</sup>	\$ _____	\$ _____
9.	DRWGS	Gravelled Approach and Road Replacement with Compaction and 300 mm Base	130 m <sup>2</sup>	\$ _____	\$ _____
10.	02822	Reestablish Ditch Drainage and Seed to Grass	6,500 m <sup>2</sup>	\$ _____	\$ _____
TOTAL UNIT PRICE SCHEDULE "B"					\$ _____

DRWGS – Denotes on Drawings



TENDER FORM

SCHEDULE SUMMARY

UNIT PRICE SCHEDULE "A" – WATER MAINS	\$ _____
UNIT PRICE SCHEDULE "B" – MISCELLANEOUS	\$ _____
CASH ALLOWANCE	\$ _____ 10,000.00
TOTAL TENDER PRICE	\$ _____

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
Signature of Tenderer

\_\_\_\_\_  
Address

(SEAL)

\_\_\_\_\_  
Date

AGREEMENT

THIS AGREEMENT made in triplicate this \_\_\_\_\_ day of \_\_\_\_\_ in the year TWO THOUSAND SEVENTEEN

BY AND BETWEEN:

RM OF SHERWOOD NO. 159 (hereinafter called the "OWNER")

AND:

(hereinafter called the "CONTRACTOR")

WHEREAS the Owner intends to engage the services of the Contractor in connection with the Project as hereinafter described.

NOW THEREFORE the Owner and the Contractor undertake and agree as follows:

ARTICLE 1: CONTRACT DOCUMENTS

That the following documents together with this Agreement constitute the Contract and forms the Contract Documents:

- ADDENDA (if none, state none) \_\_\_\_\_
- INVITATION TO TENDER
- INSTRUCTIONS TO TENDERERS
- TENDER FORM (SCHEDULES) A & B
- GENERAL CONDITIONS OF THE CONTRACT
- SUPPLEMENTARY GENERAL CONDITIONS (if any)
- SPECIAL CONDITIONS (if any)
- GENERAL REQUIREMENTS
- DETAILED SPECIFICATIONS AND DRAWINGS - as listed in the Index to Contract Documents.

ARTICLE 2: THE WORK

The Contractor undertakes and agrees:

- 2.1 To furnish all labour, materials and equipment unless otherwise indicated together with all Work incidental thereto necessary and required to perform all the Work described in the Contract Documents and shown on the Drawings, for the Project entitled:

\_\_\_\_\_

RM of Sherwood No. 159

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Sherwood Industrial Park – Water Main Extension – Phase 2

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and which were prepared by WALKER PROJECTS INC., acting as and hereinafter called the "Engineer".

- 2.2 To commence the Work no later than \_\_\_\_\_, 2017 and attain Substantial Performance of the Work as certified by the Engineer within \_\_\_\_\_ working days, after which the Contractor will be liable for liquidated damages as provided for in the Contract Documents.
- 2.3 To provide and herein deposit with the Owner the approved Bond(s) with the expressed understanding that the same shall be held and retained by the Owner as security for due and faithful performance by the Contractor and such policies of insurance, as stipulated in the Contract Documents.
- 2.4 To maintain the Work, with respect to the defects which are caused by omissions and faulty material or workmanship, in complete repair for One (1) Year from the date of certification of Substantial Performance of the Work.

### ARTICLE 3: CONTRACT PRICE

- 3.1 The quantities shown in the Tender Form Unit Price Schedules are estimated. The Contract Price shall be the final sum of the products of the actual quantities that are incorporated in, or made necessary by the Work, as confirmed by count and measurement, and the appropriate Tender Form Unit Prices, together with any adjustments that are made in accordance with the provisions of the Contract Documents.

### ARTICLE 4: PAYMENT

The Owner undertakes and agrees:

- 4.1 To pay the Contractor in Canadian funds for the performance of the Contract, in accordance with the amount stipulated in the Tender Form, subject to the adjustments, additions, deletions and deductions as provided for in the Contract Documents.
- 4.2 To make payment to the Contractor on account of the Work performed as certified by the Engineer in accordance with the Contract Documents.
- 4.3 Upon attaining Substantial Performance of the Work, as certified by the Engineer and after all lien rights have expired, pay to the Contractor the unpaid balance owing under the Contract providing that:
  - (a) The Contractor has filed with the Engineer a current Statutory Declaration verifying that all materials, labour, equipment and subcontract claims incurred, directly or indirectly, on account of the Work have been fully paid by the Contractor except holdback monies properly retained, and that no lien has been filed against the Contractor or on the premises or materials stated herein for the Work performed or furnished under or by virtue of the Contract.

- (b) The Contractor has filed with the Engineer a Letter of Clearance from the Workers' Compensation Board verifying that all assessment due by the Contractor has been fully paid.
- (c) The Contractor has filed with the Engineer a statement verifying that all claims and demands for Changes in the Work or otherwise under or in connection with this Contract have been presented, in writing, to the Engineer.
- (d) The Contractor has filed with the Engineer a Letter of Clearance as provided by Saskatchewan Finance, Revenue Division verifying payment of Provincial Sales Tax to the Ministry of Finance.

ARTICLE 5: SUCCESSION

5.1 The Contractor and the Owner for themselves, their successors, administrators and assigns, hereby undertake and agree to the full performance of their respective obligations under the Contract, and further undertake and agree that the provisions of this Contract shall mutatis mutandis, apply to any extension of this Contract.

ARTICLE 6: RIGHTS AND REMEDIES

- 6.1 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.
- 6.2 No action or failure to act by the Owner, Engineer or 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.

ARTICLE 7: RECEIPT OF AND ADDRESSES OF NOTICE

7.1 Communications in writing between the parties or between them and the Engineer shall be considered to have been received by the addressee on the date of delivery if delivered by hand to the individual or to a member of the firm or to an officer of the corporation for whom they are intended or if sent by post or by telegram, to have been delivered within five (5) working days of the date of mailing, dispatch or of delivery to the telegraph company when addressed as follows:

Owner at : PO Box 40029 Grasslands PO, Regina Saskatchewan, S4W 0L3

Contractor at :

Engineer at : 124B, 1621 Albert Street, Regina, Saskatchewan, S4P 2S5

IN WITNESS whereof the parties have caused to be hereto affixed their respective Corporate  
Seals attested by the signature of their duly authorized signing officers as of the date which is  
indicated first herein.

SIGNED, SEALED AND DELIVERED in the presence of:

RM OF SHERWOOD NO. 159  
Owner

\_\_\_\_\_  
Witness

per: \_\_\_\_\_

\_\_\_\_\_  
Title

(SEAL)

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
Witness

per: \_\_\_\_\_

\_\_\_\_\_  
Title

(SEAL)

**GENERAL CONDITIONS OF THE CONTRACT**  
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# THE GENERAL CONDITIONS OF THE CONTRACT

## GC1 DEFINITIONS

### 1.1 The Contract

The Contract Documents form the 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. The Contract supersedes all prior negotiations, representations or agreements, either written or oral, including the bidding documents. The Contract may be amended only as provided in the General Conditions of the Contract.

### 1.2 The Contract Documents

The Contract Documents consist of the executed Agreement between the Owner and Contractor, the General Conditions of the Contract, Supplementary General Conditions, if any, Specifications, Drawings, and such other documents as are listed in Article 1 of the Agreement, including all amendments thereto incorporated before their execution and subsequent amendments thereto made pursuant to the provisions of the Contract or agreed upon between the parties. Wherever the singular number and masculine gender occur, plural number and feminine gender apply where the facts or contents so require.

### 1.3 Owner, Contractor, Engineer

The Owner, Contractor and Engineer are the persons, firms or corporations identified as such in the Agreement and referred to throughout the Contract Documents as if singular in number and masculine in gender. References to number and gender shall include the plural and the feminine as the facts or content so require. The term Owner, Contractor and Engineer means the Owner, Contractor and Engineer, or their authorized representative as designated to each party in writing.

### 1.4 Subcontractor

A Subcontractor is a person, firm, or corporation having a direct contract with the Contractor to perform a part or parts of the Work included in the Contract, or to supply products worked to a special design according to the Contract Documents.

### 1.5 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part.

### 1.6 The Work

The Work means the total construction required by the Contract Documents and includes all labour, products and services.



## 1.7 Products

Products means all material, machinery, equipment and fixtures forming the completed Work as required by the Contract Documents, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work and normally referred to as construction machinery and equipment.

## 1.8 Other Contractor

Other Contractor means any person, firm or corporation employed by or having a separate contract directly or indirectly with the Owner or with another subcontractor for work other than that required by the Contract Documents.

## 1.9 Place of the Work

The Place of the Work is the designated site or location of the Project of which the Work may be the whole or a part.

## 1.10 Time

- A. The Contract Time is the time stipulated in the Agreement for Substantial Performance of the Work.
- B. The date of Substantial Performance of the Work is the date certified as such by the Engineer.
- C. The term day as used in the Contract Documents means the calendar day.
- D. The term working day as used in the Contract Documents means days other than Saturdays, Sundays and holidays which are observed by the construction industry in the area or Place of the Work.

## 1.11 Substantial Performance of The Work

Substantial Performance of the Work is as defined in the Builders' Lien Act applicable to the Place of the Work. If such legislation is not or does not contain such definition, Substantial Performance of the Work shall have been attained when the Work is ready for use or is being used for the purpose intended and is so certified by the Engineer.

## 1.12 Total Performance of The Work

Total Performance of the Work means when the entire Work has been performed to the requirements of the Contract Documents and the maintenance period has expired and is so certified by the Engineer.

## **GC2 DOCUMENTS**

2.1 The Contract Documents shall be signed in triplicate by the Owner and the Contractor.

2.2 The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all.

2.3 The intent of the Contract Documents is to include all labour, products, and services reasonably necessary to perform the Work in accordance with these documents. It is not intended, however, that the Contractor supply any products or perform work not consistent with, covered by or properly inferable from the Contract Documents.

- 2.4 Words and abbreviations, which have well known technical or trade meanings, are used in the Contract Documents in accordance with such recognized meanings.
- 2.5 In the event of conflicts between Contract Documents the following shall apply:
- A. figured dimensions shown on a drawing shall govern even though they may differ from dimensions scaled on the same drawing;
  - B. drawings of larger scale shall govern over those of smaller scale of the same date;
  - C. specifications shall govern over drawings;
  - D. the General Conditions shall govern over specifications;
  - E. Supplementary Conditions shall govern over the General Conditions, and;
  - F. the executed Agreement between the Owner and Contractor shall govern over all documents.

Notwithstanding the foregoing, documents of later date shall always govern.

- 2.6 The apparent generality of the specifications and drawings as to any detail or the apparent omission from them of a detailed description shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the first quality are to be used.
- 2.7 The Contractor will be provided without charge, with as many copies of the Contract Documents or parts thereof as are reasonably necessary for the performance of the Work.
- 2.8 The Contractor shall keep one copy of all current Contract Documents, manuals, record and shop drawings at the Place of the Work, in good order and available to the Engineer and his representatives. This requirement shall not be deemed to include the executed Contract Documents.
- 2.9 All Contract Documents and copies thereof, and all models furnished by the Engineer are and shall remain his property and are not be used on other work. Such documents are not to be copied or revised in any manner without the written authorization of the Engineer.
- 2.10 Models furnished by the Contractor at the Owner's expense are the property of the Owner.

### **GC3 ADDITIONAL INSTRUCTIONS**

- 3.1 During the progress of the Work the Engineer shall furnish to the Contractor such additional instructions as may be necessary to supplement the Contract Documents. All such instructions shall be consistent with the intent of the Contract Documents.
- 3.2 Additional instructions may include minor changes to the Work, which affect neither the Contract Price nor the Contract Time.
- 3.3 Additional instructions may be in the form of drawings, samples, models or written instructions.
- 3.4 Additional instructions will be issued by the Engineer with reasonable promptness and in accordance with any schedule agreed upon.

## **GC4 ENGINEER**

- 4.1 The Engineer will provide administration of this Contract as described in the Contract Documents.
- 4.2 The Engineer will be the Owner's representative during construction and until completion of any correction of defects under the provisions of **GC30 - WARRANTY**, paragraph 2, or until the issuance of the Certificate of Total Performance of the Work, whichever is later. The Owner's instructions to the Contractor shall be forwarded through the Engineer. The Engineer 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 in accordance with **GC4.13**.
- 4.3 The Engineer will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs required for the Work, in accordance with the applicable construction safety legislation, other regulations or general construction practice. The Engineer will not be responsible for or have control or charge over the acts or omissions of the Contractor, his Subcontractor or their agents, employees or other persons performing any of the Work.
- 4.4 The Engineer will visit the Place of the Work at intervals appropriate to the progress of construction to familiarize himself with the progress and quality of the Work and to record the data necessary to establish the pay quantities under the Tender Form Unit Price Schedule.
- 4.5 Based on the Engineer's observations and his evaluation of the Contractor's applications for payment, the Engineer will determine the amounts owing to the Contractor under the Contract and will issue certificates for payment in such amounts, as provided in Agreement Article 4 - PAYMENT and **GC20 - CERTIFICATES AND PAYMENTS**.
- 4.6 The Engineer will be, in the first instance, the interpreter of the requirements of the Contract Documents and the judge of the performance thereunder by both parties to the Contract. Interpretations and decisions of the Engineer shall be consistent with the intent of the Contract Documents and in making his decisions he will not show partiality to either party.
- 4.7 Claims, disputes and other matters in question relating to the performance of the Work or the interpretation of the Contract Documents shall be referred initially to the Engineer in writing for decision which he will give in writing within a reasonable time.
- 4.8 The Engineer will have authority to reject work which in his opinion does not conform to the requirements of the Contract Documents. Whenever he considers it necessary or advisable he will have authority to require a special review or testing of work whether or not such work be then fabricated, installed or completed. However, neither the Engineer's authority to act nor any decision made by him either to exercise or not to exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, his Subcontractors, or their agents, employees or other persons performing any of the Work.
- 4.9 The Engineer will review and take appropriate action upon the Contractor's submittals such as shop drawings, product data, and samples, in accordance with the requirements of the Contract Documents.
- 4.10 The Engineer will prepare change order requests in accordance with the requirements of **GC17 - CHANGES IN THE WORK**.

- 4.11 The Engineer will conduct a review to determine the date of Substantial Performance of the Work and may conduct an inspection to determine the date of Total Performance of the Work in accordance with the requirements of **GC20 - CERTIFICATES AND PAYMENTS**. He 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 his acceptance.
- 4.12 The duties, responsibilities and limitations of authority of the Engineer as set forth in the Contract Documents will not be modified or extended without the written consent of the Owner, the Contractor and the Engineer.
- 4.13 In the event of the termination of the employment of the Engineer, the Owner shall immediately appoint an Engineer to whom the Contractor makes no reasonable objection and whose status under the Contract shall be that of the former Engineer.
- 4.14 Nothing contained in the Contract Documents shall create any contractual relationship between the Engineer and the Contractor, his Subcontractors, his suppliers, or their agents, employees or other persons performing any of the Work.

#### **GC5 DELAYS**

- 5.1 If the Contractor is delayed in the performance of the Work by any act or neglect of the Owner, Engineer, or any Other Contractor or any employee of any one of them, then the Contract Time shall be extended for such reasonable time as the Engineer may decide in consultation with the Contractor, and the Contractor shall be reimbursed for any costs incurred by him as a result of such delay.
- 5.2 If the Contractor is delayed in the performance of the Work by a stop work order issued by any court or other public authority and providing that such order was not issued as the result of any act or fault of the Contractor or of any one employed by him directly or indirectly, then the Contract Time shall be extended for such reasonable time as the Engineer and the Contractor may agree that the Work was delayed, and the Contractor shall be reimbursed for any costs incurred by him as the result of such delay.
- 5.3 If the Contractor is delayed in the performance of the Work by 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), fire, unusual delay by common carriers or unavoidable casualties, or without limit to any of the foregoing, by any cause of any kind whatsoever beyond the Contractor's control, then the Contract Time shall be extended for such reasonable time as may be mutually decided by the Engineer and Contractor, but in no case shall the extension of time be less than the time lost as the result of the event causing the delay, unless such shorter extension of time be agreed to by the Contractor.
- 5.4 In addition and without limit to the foregoing the Contract Time may be extended for any cause within the Contractor's control which the Engineer shall decide as justifying a delay for such reasonable time as the Engineer may decide.
- 5.5 No extension shall be made for delay unless written notice of claim is given to the Engineer within fourteen (14) days of its commencement providing that in the case of a continuing cause of delay only one claim shall be necessary.

5.6 The Engineer shall not, except by written notice to the Contractor, or as provided in **GC12 - EMERGENCIES**, stop or delay any part of the Work pending instructions or proposed changes in the Work.

#### **GC6 OWNER'S RIGHT TO PERFORM WORK**

6.1 If the Contractor should neglect to prosecute the Work properly or fail to perform any provisions of the Contract, the Owner may notify the Contractor in writing that he is in default of his contractual obligations and instruct him to correct the default within five (5) working days of receiving the notice.

6.2 If the correction of the default cannot be completed within the five (5) working days specified, the Contractor shall be considered to be in compliance with the Owner's instruction if he:

- A. commences the correction of the default within the specified time, and;
- B. provides the Owner with an acceptable schedule for such correction, and;
- C. completes the correction in accordance with such schedule.

6.3 If the Contractor fails to comply with the provisions of **GC6.1** and **GC6.2** the Owner may, without prejudice to any other right or remedy he may have, correct such default and may deduct the cost thereof from the payment then or thereafter due the Contractor provided, however, that the Engineer shall review the action and approve the amount subsequently charged to the Contractor

#### **GC7 OWNER'S RIGHT TO STOP THE WORK OR TERMINATE CONTRACT**

7.1 If the Contractor should be adjudged bankrupt or makes a general assignment for the benefit of creditors or if a receiver is appointed on account of his insolvency, the Owner may, without prejudice to any other right or remedy he may have, by giving the Contractor written notice, terminate the Contract.

7.2 Subject to the Engineer verifying that sufficient cause exists, the Owner may notify the Contractor in writing that he is in default of his contractual obligations, if the Contractor:

- A. refuses or fails to supply sufficient properly skilled workmen or proper workmanship, products, or construction machinery and equipment for the scheduled performance of the Work within five (5) working days of receiving written notice, except in those cases provided in **GC5 - DELAYS**; or,
- B. fails to make payments due to his Subcontractors, his suppliers or his workmen; or,
- C. persistently disregards laws or ordinances, or the Engineer's instructions; or,
- D. otherwise violates the provisions of the Contract. Such written notice by the Owner shall instruct the Contractor to correct the default within five (5) working days from the receipt of the written notice.

7.3 If the correction of the default cannot be completed within the five (5) working days specified, the Contractor shall be considered to be in compliance with the Owner's instructions if he:

- A. commences the correction of the default within the specified time; and,
- B. provides the Owner with an acceptable schedule for such correction; and,
- C. completes the correction in accordance with such schedule.

7.4 If the Contractor fails to correct the default within the time specified or subsequently agreed upon, the Owner may, without prejudice to any other right or remedy he may have, stop the Work or terminate the Contract.

- 7.5 If the Owner terminates the Contract under the conditions set out above, he is entitled to:
- A. take possession of the premises and products and utilize the construction machinery and equipment, the whole subject to the right of third parties, and to finish the Work by whatever method he may deem expedient but without undue delay or expense;
  - B. withhold any further payment to the Contractor until the Work is finished;
  - C. upon Total Performance of the Work, charge the Contractor the amount by which the full cost of finishing the work as certified by the Engineer, including compensation to the Engineer to cover the cost of any correction required by **GC30 - WARRANTY**, exceeds the unpaid balance of the Contract Price; or if such cost of finishing the Work is less than the unpaid balance on the Contract Price, pay the Contractor the difference.
  - D. on expiry of the warranty period, charge the Contractor the amount by which the cost of corrections under **GC30 - 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.

#### **GC8 CONTRACTOR'S RIGHT TO STOP THE WORK OR TERMINATE CONTRACT**

- 8.1 If the Owner should be adjudged bankrupt, or makes a general assignment for the benefit of creditors or if a receiver is appointed on account of his insolvency, the Contractor may, without prejudice to any other right or remedy he may have, by giving the Owner written notice, terminate the Contract.
- 8.2 If the Work should be stopped or otherwise delayed for a period of thirty (30) days or more under an order of any court, or other public authority, and providing that such order was not issued as the result of any act or fault of the Contractor or of any one directly or indirectly employed by him the Contractor may, without prejudice to any other right or remedy he may have, by giving the Owner written notice, terminate the Contract.
- 8.3 The Contractor may notify the Owner in writing, with a copy to the Engineer, that the Owner is in default of his contractual obligations if:
- A. the Engineer fails to issue a certificate in accordance with **GC20 - CERTIFICATE AND PAYMENTS**;
  - B. the Owner fails to pay the Contractor when due any amount certified by the Engineer or awarded by arbitrators. Such written notice shall advise the Owner that if such default is not corrected within five (5) working days from the receipt of the written notice the Contractor may, without prejudice to any other right or remedy he may have, stop the Work and/or terminate the Contract.
- 8.4 If the Contractor terminates the Contract under the conditions set above, he shall be entitled to be paid for all work performed and for loss sustained upon products and construction machinery and equipment with reasonable profit and damages.

## **GC9 OTHER CONTRACTORS**

- 9.1 The Owner reserves the right to let separate contracts in connection with the Project of which the Work is part, or do certain work by his own forces.
- 9.2 The Owner shall coordinate the work and insurance coverages of Other Contractors as it affects the Contractor and the Work of this Contract.
- 9.3 The Contractor shall coordinate his work with the of Other Contractors and connect as required or shown in the Contract Documents.
- 9.4 The Contractor shall report to the Engineer any apparent deficiencies in Other Contractor's work which would affect the Work of this Contract immediately they come to his attention and shall confirm such report in writing. Failure by the Contractor to so report shall invalidate any claims against the Owner by reason of the deficiencies of Other Contractor's work except as to those of which he was not reasonably aware.

## **GC10 ASSIGNMENT**

- 10.1 Neither party to the Contract shall assign the Contract or any portion without the written consent of the other.

## **GC11 SUBCONTRACTORS**

- 11.1 The Contractor agrees to preserve and protect the rights of the parties under the Contract with respect to any work to be performed under subcontract. He therefore agrees to:
- A. require his Subcontractors to perform their work in accordance with and subject to the terms and conditions of the Contract Documents; and,
  - B. be as fully responsible to the Owner for acts and omissions of his subcontractors and of persons directly or indirectly employed by them as for acts and omissions of persons directly employed by him. The Contractor therefore agrees that he will incorporate all the terms and conditions of the Contract Documents into all Subcontract Agreements he enters into with this Subcontractors.
- 11.2 The Contractor agrees to employ those Subcontractors proposed by him in writing and accepted by the Owner prior to the signing of the Contract for such portions of the Work as may be designated in the Tender Form.
- 11.3 The Owner, may for reasonable cause, object to the use of a proposed Subcontractor and require the Contractor to employ one of the other subcontractor bidders.
- 11.4 In the event that the Owner requires a change from any proposed Subcontractor, the Contract Price shall be adjusted by the difference in cost occasioned by such required change.
- 11.5 The Contractor shall not be required to employ as a Subcontractor any person or firm to whom he may reasonably object.
- 11.6 The Engineer may, upon reasonable request and at his discretion, provide to a Subcontractor information as to the percentage of the Subcontractor's work which has been certified for payment.

- 11.7 Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor and the Owner.

## **GC12 EMERGENCIES**

- 12.1 The Engineer has authority in an emergency to stop the progress of the Work whenever in his opinion such stoppage may be necessary to ensure the safety of life, or the Work, or adjacent property. This includes authority to make changes in the Work, and to order, assess and award the cost of such work, extra to the Contract or otherwise, as may in his opinion be necessary. The Engineer shall within two (2) working days confirm in writing any such instructions. In such a case if work has been performed under direct order of the Engineer, the Contractor shall keep his right to claim the value of such work.

## **GC13 SETTLEMENT OF DISPUTES**

- 13.1 In the case of any dispute arising between the Owner and the Contractor as to their respective rights and obligations under the Contract, either party hereto shall be entitled to give to the other notice of such dispute. In the event that the parties have agreed to submit such disputes to arbitration pursuant to a General Condition to the Contract, or by subsequent agreement, either party may thereupon request arbitration pursuant to such provisions. In the event that no provision or agreement is made for arbitration, then either party may seek recourse in such judicial tribunal as the circumstances may require.
- 13.2 Arbitration proceedings or legal proceedings shall not take place until after the performance or alleged performance of the disputed work except:
- A. when the dispute concerns a certificate for payment;
  - B. where either party can show that the matter in dispute requires immediate consideration while evidence is available;
  - C. in the case of legal proceedings, where the action may become prescribed by reason of delay.

## **GC14 INDEMNIFICATION**

- 14.1 Except as provided in **GC14.2** and **GC14.3**, the Contractor shall indemnify and hold harmless the Owner and the Engineer, their agents and employees from and against all claims, demands, losses, costs, damages, actions, suits or proceedings arising out of or attributable to the Contractor's performance of the Contract, providing that any such claims, damages, loss or expense is:
- A. attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property; and,
  - B. cause by a negligent act or omission of the Contractor or anyone for whose acts he may be liable.
- 14.2 The obligations of the Contractor under this General Condition shall not extend to the liability of the Owner and the Engineer, their agents and employees where the primary cause of the injury or damage arises out of:
- A. the use of maps, drawings, reports, surveys, change orders, designs or specifications provided by the Owner, the Engineer, their agents and employees; or,
  - B. the giving of or the failure to give decisions or instructions by the Owner, the Engineer, their agents and employees.



- 14.3 The Owner shall indemnify and hold harmless the Contractor from and against all claims, demands, losses, costs, damages, actions, suits or proceedings arising out of the Contractor's performance of the Contract which are attributable to lack of or a defect in title or an alleged lack of or defect in title to the Place of the Work.

#### **GC15 CONTINGENCY ALLOWANCE**

- 15.1 The Contract Price includes the contingency allowance, if any, stated in the Contract Documents.
- 15.2 The contingency allowance is specified to provide for change orders authorized under **GC17 - CHANGES IN THE WORK**, and evaluated under **GC18 - VALUATION AND CERTIFICATE OF CHANGES IN THE WORK**.

#### **GC16 CASH ALLOWANCE**

- 16.1 The Contract Price includes the cash allowance stated in the Contract Documents.
- 16.2 Cash allowance unless otherwise specified, covers the net cost to the Contractor of all services, products, construction machinery and equipment, freight, unloading, handling, storage, installation and other authorized expenses incurred in performing the work stipulated under the cash allowance.
- 16.3 The Contract Price, and not the cash allowance, includes the Contractor's overhead and profit in connection with such cash allowance.
- 16.4 Where costs under a cash allowance exceed the amount of the allowance, the Contractor will be compensated for any excess incurred and substantiated plus an allowance for overhead and profit as set out in the Contract Documents.
- 16.5 The Contract Price shall be adjusted by written order to provide for any excess or deficit to each cash allowance.
- 16.6 Progress payments on account of authorized purchases under cash allowance shall be as certified by the Engineer's certificates for payment.
- 16.7 A schedule shall be prepared jointly by the Engineer and the Contractor to show when items called for under cash allowance must be authorized by the Engineer for ordering purposes so that the progress of the Work will not be delayed.

#### **GC17 CHANGES IN THE WORK**

- 17.1 The Owner through the Engineer, without invalidating the Contract, may make changes by altering, adding to, or deducting from the Work, with the Contract Price and the Contract Time being adjusted accordingly.
- 17.2 Except as provided in **GC12 - EMERGENCIES**, no change shall be made without a written order from the Engineer and no claim for an addition or deduction to the Contract Price or change in the Contract Time shall be valid unless so ordered and at the same time valued or agreed to be valued as provided in **GC18 - VALUATION AND CERTIFICATION OF CHANGES IN THE WORK**.

## **GC18 VALUATION AND CERTIFICATION OF CHANGES IN THE WORK**

- 18.1 The value of any change shall be determined in one or more of the following methods:
- A. by estimate and acceptance in a lump sum,
  - B. by unit price set out in the Contract or subsequently agreed upon,
  - C. by cost plus on a force account basis.
- 18.2 When a Change in the Work is proposed or required, the Contractor shall present to the Engineer for approval his claim for any changes in the Contract Price and/or change in Contract Time. The Engineer shall satisfy himself as to the correctness of such claim and, when approved by him, shall issue a written order to the Contractor to proceed with the change. The value of work performed in the change shall be included for payment with the regular certificates for payment.
- 18.3 In the case of Changes in the Work to be paid for under method **GC18.1.B**, in the form of presentation of costs and methods of measurement shall be agreed to by the Engineer and Contractor before proceeding with the change.
- 18.4 In the case of Changes in the Work to be paid for under method **GC18.1.C**, compensation will be made in accordance with the following:
- A. Labour - all labour will be paid for at the unit prices tendered or mutually agreed upon for Foreman and Labourer. The unit prices will include board allowance, transportation, fringe benefits, insurance and profit.
  - B. Equipment - all equipment will be paid for at the rates listed in the most recent rate schedule published by an authoritative agency mutually acceptable to the Owner and Contractor or at rates previously agreed to should no such schedule be available.
  - C. Materials - materials supplied by the Contractor will be paid for at the supplier's invoice price plus fifteen percent (15%) for handling and indirect overhead cost.
  - D. On subcontract work, the allowance to the Contractor will be five percent (5%) of the Subcontractor's invoice.
  - E. The Contractor shall submit, for the Engineer's approval the cost of the Work done on force account on each succeeding day after force account work is carried out.
- 18.5 If the method of valuation, measurement and the change in Contract Price and/or change in Contract Time cannot be promptly agreed upon, and the change is required to be proceeded with then the Engineer shall determine the method of valuation, measurement and the change in Contract Price and/or Contract Time subject to final determination in the manner set out in **GC13 - SETTLEMENT OF DISPUTES**. In this case the Engineer shall issue a written authorization for the change setting out the method of valuation and if by lump sum his valuation for the change in Contract Price and/or Contract Time.
- 18.6 In the case of a dispute in the valuation of a change authorized in the Work and pending final determination of such value, the Engineer shall certify the value of work performed and include the amount with the regular certificates for payment.

18.7 It is intended in all matters referred to above that both the Engineer and Contractor shall act promptly.

#### **GC19 APPLICATION FOR PAYMENT**

19.1 Applications for payment on account may be made monthly as the Work progresses. Applications for payment shall be dated the last day of the agreed monthly payment period.

19.2 Claims for Products delivered to the Place of the Work may be considered by the Owner, upon receipt of a written request from the Contractor. Claims for Products delivered to the Place of the Work but not yet incorporated into the Work shall be supported by such evidence as the Engineer may reasonably require to establish the value and delivery of the Products.

19.3 Statutory holdback monies shall be ten percent (10%) of the Contract Price.

19.4 Applications for release of holdback monies following the Substantial Performance of the Work and the application for final payment shall be made at the time and in the manner set forth in **GC20 - CERTIFICATES AND PAYMENTS**.

#### **GC20 CERTIFICATES AND PAYMENTS**

20.1 The Engineer shall within ten (10) days of receipt of a request for an application for payment from the Contractor, submitted in accordance with **GC19 - APPLICATION FOR PAYMENT**, issue a Progress Payment Certificate covering payment for the Work completed to the end of the progress period. The Engineer shall submit the Progress Payment Certificate to the Contractor for his review and approval. If the Contractor is in agreement, he shall submit the Progress Payment Certificate along with his invoice for the same amount directly to the Owner for payment. If the Contractor is not in agreement with the Engineer's quantities he shall notify the Engineer immediately.

20.2 The Owner shall within thirty (30) days of issuance of a Progress Payment Certificate by the Engineer, make payment to the Contractor on account in accordance with the provisions of Article 4 of the Agreement subject to receipt by the Owner of a Claim of Lien and/or a Written Notice of Lien from a lien claimant as stipulated in the Builders' Lien Act.

20.3 Notwithstanding any other provisions of this Contract, if on account of climatic or other conditions reasonably beyond the control of the Contractor there are items of work that cannot be performed, or have been identified as uncompleted work, the payment in full for work which has been performed as certified by the Engineer shall not be withheld or delayed by the Owner on account thereof, but the Owner may withhold from the Contract Price until the uncompleted work is satisfactorily performed only such monies as the Engineer shall determine are sufficient and reasonable to cover the cost of performing such uncompleted work and to adequately protect the Owner from claims.

- 20.4 Application for certification of Substantial Performance of the Work by the Contractor or Subcontractor shall be submitted to the Engineer in writing on Form C.1 or Form C respectively as stipulated in the Builders' Lien Act. The Engineer shall, within seven (7) days of receipt of an application from the Contractor or Subcontractor for certification of Substantial Performance of the Work, conduct a review and assessment of the Work to verify the validity of the application. The Engineer shall within seven (7) days of the review notify the Contractor or Subcontractor of his approval or the reasons for his disapproval of the application. When the Engineer finds the Work to be Substantially Performed he shall certify Substantial Performance of the Work by signing the certificate in the prescribed form and forward the certificate to the Contractor or Subcontractor. The date of this certification by the Engineer shall be the date of Substantial Performance of the Work. When the Work has been certified to be Substantially Performed, the Engineer shall, within seven (7) days of signing the certificate forward a copy of the certificate to the Owner, Contractor and Subcontractor.
- 20.5 Immediately following the issuance of the certificate of Substantial Performance of the Work and upon receipt from the Contractor of all documentation called for in the Contract Documents, the Engineer shall issue a certificate for payment of holdback monies, less any monies duly retained for uncompleted work. The release of holdback monies authorized by this certificate shall become due and payable following the expiration of the statutory limitation period stipulated in the Builders' Lien Act applicable to the Place of the Work, or where such legislation does not exist or apply in accordance with such other legislation, regulations governing privileges, industry practice or such other provisions which may be agreed to between the parties, providing that no Claim of Lien or Written Notice of Lien against the Work exist and the Contractor has submitted to the Owner a sworn statement that all accounts for labour, subcontracts, products, construction machinery and equipment and any other indebtedness which may have been incurred by the Contractor in the Substantial Performance of the Work and for which the Owner might in any way be held responsible have been paid in full except holdback monies properly retained. Upon substantial performance of any uncompleted work, the Engineer shall issue a certificate for payment of monies duly retained.
- 20.6 The Engineer shall within ten (10) days of receipt of an application from the Contractor for payment upon Total Performance of the Work, conduct a review and assessment of the work to verify the validity of the application. The Engineer shall within seven (7) days of his review notify the Contractor of his approval or reasons for his disapproval of the application. When the Engineer finds the Work to be totally performed to his satisfaction he shall certify Total Performance of the Work and issue for payment the remaining monies due to the Contractor under the Contract less any holdback monies which are required to be retained. The date of this certificate shall be the date of Total Performance of the Work. The Owner shall within thirty (30) days of issuance of such certificate, make payment to the Contractor in accordance with the provisions of Article 4 of the Agreement.
- 20.7 The release of any remaining holdback monies shall become due and payable following the expiration of the statutory limitation period stipulated in the Builders' Lien Act applicable to the Place of the Work or where such other legislation, regulations governing privileges, industry practice or such other provisions which may be agreed to between the parties, provided that no claims against the Work exist and the Contractor has submitted to the Owner a sworn statement that all accounts for labour, subcontracts, products, construction machinery and equipment and any other indebtedness which may have been incurred by the Contractor in the Total Performance of the Work and for which the Owner might in any way be held responsible have been paid in full except holdback monies properly retained.
- 20.8 No certificate for payment, or any payment made thereunder by the Owner, nor any partial or entire use or occupancy of the Work by the Owner shall constitute an acceptance of any work or products which are not in accordance with the Contract Documents.

20.9 The issuance of the certificate of Total Performance of the Work or of the payment due thereunder shall constitute a waiver of all claims by the Contractor against the Owner except those made in writing prior to his application for payment upon Total Performance of the Work and still unsettled.

## **GC21 TAXES AND DUTIES**

21.1 Unless otherwise stated elsewhere in the Contract Documents the Contractor shall pay all government sales taxes, customs duties and excise taxes with respect to the Contract.

21.2 The Contractor shall exclude taxes in the Contract Price in accordance with Item 12 - TAXES of the Instructions to Tenderers of the Contract Documents.

21.3 Excepting the Federal Goods and Services Tax (GST), any increase or decrease in costs to the Contractor due to changes in such taxes and duties after the date of the Agreement, shall increase or decrease the Contract Price accordingly. Any increase or decrease in costs to the Contractor due to changes in such taxes and duties after the date of the Agreement, shall increase or decrease the Contract Price accordingly.

21.4 In addition to and without limiting the foregoing, where the Contract Documents state that the Federal GST and the Provincial Sales Tax (PST) shall be excluded in the Contract Price, then the Contractor shall bid accordingly and therefore shall be responsible for contacting the Governmental authority for the appropriate procedure for claiming a rebate or refund of the Taxes applicable to the Contract. All applicable tax rebates or refunds shall accrue to the Contractor. The Contractor shall be responsible for all carrying charges incurred for the period that his tax rebate or refund is outstanding.

## **GC22 LAWS, NOTICES, PERMITS AND FEES**

22.1 The laws of the Place of the Work shall govern the Work.

22.2 The Contractor shall obtain all permits, licences and certificates and pay all 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 servitude.

22.3 The Contractor shall give all required notices and comply with all laws, ordinances, rules, regulations, codes and order of all authorities having jurisdiction relating to the Work, to the preservation of the public health and construction safety which are or become in force during the performance of the Work.

22.4 The Contractor shall not be responsible for verifying that the Contract Documents are in compliance with the applicable laws, ordinances, rules, regulations and codes relating to the Work. If the Contract Documents are at variance therewith, or changes which require modification to the Contract Documents are made to any of the laws, ordinances, rules regulations and codes by the authorities having jurisdiction subsequent to the date of tender closing, any resulting change in the cost shall constitute a corresponding change in the Contract Price. The Contractor shall notify the Engineer in writing requesting direction immediately any such variance or change is observed by him.

22.5 If the Contractor fails to notify the Engineer in writing and obtain his direction as required in **GC22.4** and performs any work contrary to any laws, ordinances, rules, regulations, codes and orders of any authority having jurisdiction, he shall be responsible for and shall correct any violations thereof and shall bear all costs, expenses and damages attributable to his failure to comply with the provisions of such laws, ordinances, rules, regulations, codes and orders.

### **GC23 PATENTS AND ROYALTIES**

- 23.1 The Contractor shall pay all royalties and patent licence fees required for the performance of the Contract. The Contractor shall hold the Owner and the Engineer harmless from and against all 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 any patent of invention by the Contractor or anyone for whose acts he may be liable.
- 23.2 The Owner shall hold the Contractor harmless against all 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 any patent of invention in executing anything for the purpose of the Contract, the model, plan or design of which was supplied to the Contractor by the Owner.
- 23.3 Unless otherwise stated elsewhere in the Contract Documents, the Contractor shall pay all royalties, rent and other payments or compensation for obtaining all granular and earth material or other materials required for the Work.

### **GC24 WORKING CONDITIONS**

- 24.1 Prior to commencing the Work and prior to receiving payment on Substantial and Total Performance of the Work, the Contractor shall provide evidence of compliance with all requirements of the Province of the Place of the Work with respect to Occupational Health and Safety Regulations and any regulations thereunder and to Workers' Compensation including payment of all assessments due thereunder.
- 24.2 At any time during the term of the Contract, when requested by the Engineer, the Contractor shall provide to the Owner such evidence of compliance by himself and any or all of his Subcontractors.

### **GC25 LIABILITY INSURANCE**

- 25.1 Comprehensive General Liability Insurance:
- A. without restricting the generality of **GC14 - INDEMNIFICATION**, the Contractor shall provide and maintain, either by way of a separate policy or by an endorsement of his existing policy, Comprehensive General Liability Insurance acceptable to the Owner and subject to limits of not less than two million dollars inclusive per occurrence for bodily injury, death, and damage to property including loss of use thereof.
  - B. the insurance shall be in the joint names of the Contractor, the Owner and the Engineer, and shall also cover as Unnamed Insureds all Subcontractors and anyone employed directly or indirectly by the Contractor or his Subcontractors to perform a part or parts of the Work but excluding suppliers whose only function is to supply and/or transport products to the Place of the Work.
  - C. The insurance shall also include as Unnamed Insureds the architectural and engineering consultants of the Owner and the Engineer.
  - D. The insurance shall preclude subrogation claims by the Insurer against anyone insured thereunder.

- E. The Comprehensive General Liability Insurance shall include coverage for:
1. premises and operation liability
  2. products or completed operations liability
  3. blanket contractual liability
  4. cross liability
  5. elevator and hoist liability
  6. contingent employer's liability
  7. personal injury liability arising out of false arrest, detention or imprisonment or malicious prosecution; libel, slander or defamation of character; invasion of privacy, wrongful eviction or wrongful entry.
  8. shoring, blasting, excavation, underpinning, demolition, pile driving and caisson work, work below ground surface, tunnelling and grading, as applicable.
  9. liability with respect to non-owned licensed vehicles.

25.2 Automobile Liability Insurance:

The Contractor shall provide and maintain liability insurance in respect of owned licensed vehicles subject to limits of not less than two million dollars inclusive.

25.3 Aircraft and/or Watercraft Liability Insurance:

The Contractor shall provide and maintain liability insurance with respect to owned or non-owned aircraft and watercraft, as may be applicable, subject to limits of not less than two million dollars inclusive. Such insurance shall be in the joint names of the Contractor, the Owner, the Engineer and those parties defined in **GC25.1.B** and **GC25.1.C**, where they have an interest in the use and operation of such aircraft or watercraft. The insurance shall preclude subrogation claims by the Insurer against anyone insured thereunder.

25.4 All liability insurance shall be maintained continuously from commencement of the Work until twelve (12) months following the date of Substantial Performance of the Work, as set out in the said certificate, or until the certificate of Total Performance of the Work is issued, whichever is the later. The Contractor shall provide the Owner with evidence of all liability insurance prior to the commencement of the Work and shall promptly provide the Owner with a certified true copy of each insurance policy.

25.5 All liability insurance policies shall contain an endorsement of all Named Insureds with prior notice of changes and cancellations. Such endorsement shall be in the following form: "It is understood and agreed that the coverage provided by this policy will not be changed or amended in any way nor cancelled until thirty (30) days after written notice of such change or cancellation shall have been given to all Named Insureds".

## **GC26 PROPERTY INSURANCE**

26.1 The Contractor\* shall provide and maintain property insurance, acceptable to the Owner, insuring the full value of the Work in the amount of the Contract Price and the full value as stated of products that are specified to be provided by the Owner for incorporation into the Work\*\*. The insurance shall be in the joint names of the Contractor and the Owner and shall include the interests of the Contractor, the Owner, the Subcontractors and all others having an insurable interest in the Work. The policies shall preclude subrogation claims by the insurer against anyone insured thereunder.

26.2 Such coverage shall be provided for by EITHER an All Risks Builders' Risk Policy OR by a combination of a standard Builders' Risk Fire Policy including extended Coverage and malicious Damage Endorsements and a Builders' Risk Difference in Conditions Policy providing equivalent coverage.

- 26.3 The policies shall insure against all risks of direct loss or damage subject to the exclusion specified in the Supplementary General Conditions (SGC)<sup>\*\*\*</sup>. Such coverage shall apply to:
- A. all products, labour and supplies of any nature whatsoever, the property of the Insureds or of others for which the Insureds may have assumed responsibility, to be used in or pertaining to the site preparations, demolition of existing structures, erection and/or fabrication and/or reconstruction and/or repair of the insured project, while at the Place of the Work or in transit, subject to the exclusion of the property specified<sup>\*\*\*</sup>.
  - B. the installation, testing and any subsequent use of machinery and equipment including boilers, pressure vessels or vessels under vacuum.
  - C. Damage to the Work caused by an accident to and/or the explosion of any boiler(s) or pressure vessel(s) forming part of the Work.

Such coverage shall exclude construction machinery, equipment, temporary structural and other temporary facilities, tools and supplies used in the construction of the Work and which are not expendable under the Contract.

- 26.4 The Contractor shall provide the Owner with evidence of all insurance prior to commencement of the Work and shall promptly provide the Owner with a certified true copy of each insurance policy. Policies provided shall contain an endorsement to provide all Named Insureds with prior notice of changes and cancellations. Such endorsement shall be in the following form: "It is understood and agreed that the coverage provided by this policy will not be changed or amended in any way nor cancelled until thirty (30) days after written notice of such change or cancellation shall have been given to all Named Insureds".
- 26.5 All such insurance shall be maintained continuously until ten (10) days after the date of Total Performance of the Work, as set out in the said certificate. All such insurance shall provide for the Owner to take occupancy of the Work or any part thereof during the term of the insurance. Any increase in the cost of this insurance arising out of such occupancy shall be at the Owner's expense.
- 26.6 The policies shall provide that, in the event of a loss, payment for damage to the Work shall be made to the Owner and the Contractor as their respective interests may appear. The Contractor shall act on behalf of the Owner and himself for the purpose of adjusting the amount of such loss with the Insurers. On the determination of the extent of the loss, the Contractor shall immediately proceed to restore the Work and shall be entitled to receive from the Owner (in addition to any sum due under the Contract) the amount at which the Owner's interest in the restoration work has been appraised, such amount to be paid as the work of the restoration proceeds and in accordance with the Engineer's certificates for Payment. 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 time for Substantial and Total Performance of the Work as the Engineer may decide.
- 26.7 The Contractor and/or his Subcontractors as may be applicable shall be responsible for any deductible amounts under the policies for providing such additional insurance as may be required to protect the Insureds against loss on items excluded from the policies.
- If the Owner decides to insure, interchange the words "Owner" and "Contractor" where appropriate and state any deductible amounts in the Supplementary General Conditions (SGC's).
  - If Products are to be supplied by the Owner for incorporation in the Work, state the value of the products in the SGC's.
  - If specific exclusions are specified, define in the SGC's.



## **GC27 PROTECTION OF WORK AND PROPERTY**

- 27.1 The Contractor shall protect the property adjacent to the Place of the Work from damage as the result of his operations under the Contract.
- 27.2 The Contractor shall protect the Work and the Owner's property from damage and shall be responsible for any damage which may arise as the result of his operations under the Contract.
- 27.3 Should any damage occur to the Work and/or Owner's property for which the Contractor is responsible he shall make good such damage at his own expense or pay all costs incurred by others in making good such damage.
- 27.4 Should any damage occur to the Work and/or Owner's property for which the Contractor is not responsible as provided in **GC27.2**, he shall make good such damage to the Work and, if the Owner so directs to the Owner's property, and the Contract Price and Contract Time shall be adjusted in accordance with **GC17 CHANGES IN THE WORK**.

## **GC28 DAMAGES AND MUTUAL RESPONSIBILITY**

- 28.1 If either party to this Contract should suffer damage in any manner because of any wrongful act or neglect of the other party or anyone employed by him, then he shall be reimbursed by the other party for such damage. The party reimbursing the other party shall be subrogated to the rights of the other party in respect of such wrongful act or neglect if it be that of a third party.
- 28.2 Claims under this **GC** shall be in writing to the party liable within reasonable time after the first observance of such damage and not later than the time limits stipulated in **GC 20.1 CERTIFICATES AND PAYMENTS**, and may be adjusted by agreement or in the manner set out in **GC13 SETTLEMENT OF DISPUTES**.
- 28.3 If the Contractor has caused damage to any Other Contractor on the Work, the Contractor agrees upon due notice to settle with such Other Contractor by agreement or arbitration, if he will so settle. If such Other Contractor sues the Owner on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor and may require the Contractor to defend the action at the Contractor's expense. If any final order or judgement against the Owner arises therefrom the Contractor shall pay or satisfy it and pay all costs incurred by the Owner.
- 28.4 If the Contractor becomes liable to pay or satisfy any final order, judgement or award against the Owner then the Contractor, upon undertaking to indemnify the Owner against any and all liability for costs, shall have the right to appeal in the name of the Owner such final order or judgement to any and all courts of competent jurisdiction.

## **GC29 BONDS**

- 29.1 The Owner shall have the right during the period stated in the Tender Form for acceptance of the tender to require the Contractor to provide to the Owner and maintain in good standing until the fulfilment of the Contract a Performance Guarantee and Maintenance Bond covering the faithful performance of the Contract including the requirements of the Warranty and a Labour and Materials Payment Bond, covering the payment for all labour and material used or reasonably required in the performance of the Contract and provided for in **GC30 WARRANTY**, and the payment of all obligations arising under the Contract.
- 29.2 All such bonds shall be issued by a duly licensed Surety Company approved by the Owner and authorized to transact a business of suretyship in the Province of the Place of the Work. The form of such bonds shall be in accordance with the latest edition of the CCDC approved forms.

- 29.3 If bonds are called for in the Instruction to Tenderers, the Tender Form and/or the Agreement, the costs attributable to providing such bonds shall be included in the tender price.
- 29.4 Should the Owner require the provisions of a bond or bonds by the Contractor after the receipt of tenders for the Work, the Contract Price shall be increased by all costs attributable to providing such bonds.
- 29.5 The Contractor shall promptly provide the Owner, through the Engineer, with any bonds that are required.

### **GC30 WARRANTY**

- 30.1 The Contractor shall correct at his own expense any defects in the Work due to faulty products and/or workmanship appearing within a period of one year from the date of Substantial Performance of the Work as set out in the said certificate or longer periods as may be specified for certain products or work.
- 30.2 The Contractor shall correct and/or pay for any damage to other work resulting from any corrections required under **GC30.1**.
- 30.3 Neither the issuance of any performance certificate nor payment thereunder shall relieve the Contractor from his responsibility hereunder.
- 30.4 The Owner, through the Engineer shall give the Contractor written notice of observed defects promptly.
- 30.5 The Contractor shall be liable for the proper performance of the Work only to the extent that careful workmanship and proper implementation of the Contract Documents will permit and any warranty given respecting the Work and performance shall only be valid so far as the design will permit such performance.
- 30.6 Nothing in this **GC** shall be deemed to restrict any liability of the Contractor arising out of any law of the Place of the Work.

### **GC31 CONTRACTOR'S RESPONSIBILITIES AND CONTROL OF THE WORK**

- 31.1 The Contractor shall have complete control of the Work except as provided in **GC12 EMERGENCIES**. He shall effectively direct and supervise the Work using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures for coordinating all parts of the Work under the Contract. At all times, the Contractor shall be responsible for carrying out and completing the Work in accordance with the Contract Documents and such responsibility shall not be relieved even though the Engineer may not observe any defects or deficiencies in the Work.
- 31.2 The Contractor shall have the sole responsibility for the design, erection, operation, maintenance and removal of temporary structural and other temporary facilities and the design and execution of construction methods required in their use. The Contractor shall engage and pay for registered professional engineering personnel skilled in the appropriate discipline to perform these functions where required by law or by the Contract Documents and in all cases where such temporary facilities and their method of construction are of such a nature that professional engineering skill is required to produce safe and satisfactory results.

- 31.3 Notwithstanding the provisions of **GC31.1** and **GC31.2**, or any provisions to the contrary elsewhere in the Contract Documents where such Contract Documents include designs for temporary structural and other temporary facilities or specify a method of construction in whole or in part, such facilities and methods shall be deemed to comprise part of the overall 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 that he is responsible for the execution of the Work.
- 31.4 The Contractor shall carefully examine the Contract Documents and shall promptly report to the Engineer any error, inconsistency or omission he may discover.

#### **GC32 SUPERINTENDENCE**

- 32.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Place of the Work at all times while the Work is being performed.
- 32.2 The superintendent shall be satisfactory to the Engineer and shall not be changed except for good reason and only then after consultation with and agreement by the Engineer.
- 32.3 The superintendent shall represent the Contractor at the Place of the Work and instruction given to him by the Engineer shall be held to have been given to the Contractor. All instructions, unless otherwise requested by the Contractor, shall be confirmed to the Contractor in writing.

#### **GC33 LABOUR AND PRODUCTS**

- 33.1 Unless otherwise stipulated elsewhere in the Contract Documents, the Contractor shall provide and pay for all labour, products, tools, construction equipment and machinery, water, heat, light, power, transportation and other facilities and services necessary for the proper performance of the Work.
- 33.2 All products provided shall be new unless otherwise specified in the Contract Documents. Any products which are not specified shall be of a quality best suited to the purpose required and their use subject to the approval of the Engineer.
- 33.3 The Contractor shall at all times maintain good order and discipline among his employees engaged on the Work and shall not employ on the Work any unfit person nor anyone not skilled in tasks assigned him.

#### **GC34 USE OF PREMISES**

- 34.1 The Contractor shall confine his construction machinery and equipment, the storage of products, and the operation of his workmen to limits indicated by laws, ordinances, permits, property lines, easements or by instructions of the Engineer and shall not unreasonably encumber the premises with his products.
- 34.2 The Contractor shall not load or permit to be loaded any part of the Work with a weight that will endanger its safety.
- 34.3 The Contractor shall enforce the Owner's, landowner's, governmental authority and the Engineer's instructions regarding signs, detours, advertisements, fires and smoking.

#### **GC35 CLEAN UP AND FINAL CLEANING OF THE WORK**

- 35.1 The Contractor shall maintain the Work in a tidy condition and free from the accumulation of waste products and debris, other than that caused by the Owner, Other Contractors or their employees.

- 35.2 Upon attaining Substantial Performance of the Work the Contractor shall remove all his surplus products, tools, construction machinery and equipment not required for the performance of the remaining work. He shall also remove any waste products and debris and leave the Work clean and suitable for occupancy by the Owner.
- 35.3 Total Performance of the Work shall not be attained until the Contractor has removed all of his products, tools, construction machinery and equipment. He shall also have removed any waste products and debris, other than that caused by the Owner, Other Contractors or their employees.

#### **GC36 CUTTING AND REMEDIAL WORK**

- 36.1 The Contractor shall do all cutting, fitting and remedial work that may be required to make the several parts of the Work come together properly, and to coordinate the Work with the Work
- 36.2 The Contractor shall coordinate the schedule of the Work to ensure that cutting, fitting and remedial work is kept to a minimum.
- 36.3 Should the Owner or anyone employed by him be responsible for ill-timed work necessitating cutting and/or remedial work to be performed, the cost of such cutting and/or remedial work shall be valued as provided in **GC18 VALUATION AND CERTIFICATE OF CHANGES IN THE WORK** and added to the Contract Price.
- 36.4 Cutting, fitting and remedial work shall be performed by specialists familiar with the materials affected and shall be performed in a manner to neither damage nor endanger the Work or the Work by others.

#### **GC37 REVIEW OF THE WORK**

- 37.1 The Owner and the Engineer and their authorized representatives shall have access to the Work for review and wherever it is in preparation or progress. The Contractor shall cooperate to provide reasonable facilities for such access.
- 37.2 If special tests, review or approvals are required by the Contract Documents, the Engineer's instructions or the laws or ordinances of the Place of the Work, the Contractor shall give the Engineer timely notice requesting the review. Review by the Engineer shall be made promptly. The Contractor shall arrange review by other authorities and shall notify the Engineer of the date and time.
- 37.3 If the Contractor covers or permits to be covered any of the Work that is subject to review or before any special tests and approvals are completed without the approval of the Engineer, the Contractor shall uncover the Work, have the review satisfactorily completed and make good the Work at his own expense.
- 37.4 Examination of any questioned Work may be ordered by the Engineer. If such Work be found in accordance with the Contract, the Owner shall pay the cost of examination and replacement. If such Work be found not in accordance with the Contract, through the fault of the Contractor, the Contractor shall pay such cost.
- 37.5 The Contractor shall furnish promptly to the Engineer two (2) copies of all certificates and review reports relating to the Work.

37.6 No obligation shall arise on the Owner or on the Engineer, by reason of any testing, review or approval made as provided under this **GC**, nor shall any failure to test, review or approve relieve the Contractor of responsibility for the Work.

#### **GC38 REJECTED WORK**

38.1 Defective Work whether the result of poor workmanship, use of defective products or damage through carelessness or other act or omission of the Contractor, and whether incorporated in the Work or not, which has been identified as rejected by the Engineer as condemned or not acceptable, thereby failing to conform to the Contract Documents shall be removed promptly from the premises by the Contractor and replaced and/or re-executed promptly in accordance with the Contract Documents at the Contractor's expense.

38.2 Other Contractor's Work destroyed or damaged by such removals or replacements shall be made good promptly at the Contractor's expense.

38.3 If in the opinion of the Engineer it is not expedient to correct defective work not done in accordance with the Contract Documents, the Owner may deduct from the Contract Price the difference in value between the Work as performed and that called for by the Contract Documents the amount of which shall be determined in the first instance by the Engineer.

#### **GC39 SHOP DRAWINGS**

39.1 Shop drawings mean drawings, diagrams, illustrations, schedules, performance curves, test data and results, brochures and other data which are to be provided by the Contractor to illustrate details of a portion of the Work.

39.2 The Contractor shall arrange for the preparation of clearly identified shop drawings as called for by the Contract Documents or as the Engineer may reasonably request.

39.3 Prior to submission to the Engineer, the Contractor and Subcontractors shall review all shop drawings. By this review, the Contractor represents that he has determined and verified all field measurements, field construction criteria, materials, catalogue numbers and similar data or will do so and that he has checked and coordinated each shop drawing with the requirements of the Work and of the Contract Documents. The Contractor's and Subcontractor's review of each shop drawing shall be indicated by stamp, date and signature of person representing same.

39.4 The Contractor shall submit the shop drawings to the Engineer for review with reasonable promptness and in orderly sequence so as to cause no delay in the Work or in the Work of Other Contractors. If either the Contractor or the Engineer so requests they shall jointly prepare a schedule fixing the dates for submission and return of shop drawings. Shop drawings shall be submitted in the form of a reproducible transparency or prints as the Engineer may direct. At the time of submission the Contractor shall notify the Engineer in writing of any deviations in the shop drawings from the requirements of the Contract Documents unless a deviation on the shop drawings has been approved in writing by the Engineer.

39.5 The Engineer will review the shop drawings and submit the shop drawings to the Contractor with reasonable promptness. The review by the Engineer is for the sole purpose of ascertaining conformance with the general design concept of the Project and with the information given in the Contract Documents.

- 39.6 The Contractor and Subcontractor and/or Supplier shall make any corrections in shop drawings which the Engineer may require and resubmit unless otherwise directed by the Engineer. When resubmitting, the Contractor shall notify the Engineer in writing of any revisions other than those requested by the Engineer.
- 39.7 The Engineer's review of shop drawings shall not relieve the Contractor of responsibility of any deviation from the requirements of the Contract Documents unless the Contractor has informed the Engineer in writing of such deviation as provided in **GC39.4**. The Engineer's review and such approval shall not relieve the Contractor from responsibility for errors or omissions in the shop drawings.
- 39.8 No portion of the Work requiring a shop drawing submission shall be commenced until the submission has been reviewed by the Engineer as herein provided.

#### **GC40 SAMPLES, TESTS AND MIX DESIGNS**

- 40.1 The Contractor shall submit for the Engineer's approval such standard manufacturer's samples as the Engineer may reasonably require or as required by the Contract Documents. Samples shall be labelled as to origin and intended use in the Work and shall conform to the requirements of the Contract Documents.
- 40.2 The Contractor shall provide samples of special products, assemblies or components when so specified. The cost of such samples not specified shall be authorized as an addition to the Contract Price as provided in **GC17 CHANGES IN THE WORK**.
- 40.3 The Contractor shall furnish to the Engineer test results and mix designs as may be requested.
- 40.4 The cost of tests and mix designs beyond those called for in the Contract Documents or beyond those required by laws, ordinances, rules and regulations relating to the Work and the preservation of public health, shall be authorized as an addition to the Contract Price as provided in **GC17 CHANGES IN THE WORK**.
- 40.5 No portion of the Work requiring Samples, Tests and Mix Designs submission shall be commenced by the Contractor until the provisions of **GC40.1** to **GC40.4** inclusive have been reviewed and accepted by the Engineer as provided herein.

#### **GC41 NOTICE TO PROCEED**

- 41.1 Written Notice to Proceed with the Work shall be given to the Contractor by the Owner. The Contractor shall commence the Work within seven (7) days of the Notice to Proceed and shall execute the Work regularly and uninterruptedly thereafter, unless otherwise directed in writing by the Engineer or Owner, in such a manner as to attain Substantial Performance of the Work contracted for within the time stated in the Agreement. Time shall be of the essence in the Contract.

Section 01010	Scope of the Work
Section 01015	Drawings
Section 01040	Coordination of the Work
Section 01100	Alternatives
Section 01200	Project Meetings
Section 01220	General Instructions
Section 01260	Construction Program
Section 01300	Submittals
Section 01350	Late Completion
Section 01400	Quality Control
Section 01410	Surveys
Section 01415	Lines and Levels
Section 01420	Warning Signs and Barricades
Section 01430	Public Safety and Convenience
Section 01440	Holidays
Section 01450	Night Work
Section 01500	Temporary Facilities
Section 01530	Protection of Existing Surface and Underground Structures
Section 01540	Lands By Owner
Section 01550	Lands by Contractor
Section 01555	Fair Wages
Section 01565	First Aid
Section 01570	Explosives
Section 01575	Salvaged Utilities
Section 01580	Restoration of Existing Features
Section 01585	Access to Private Property
Section 01605	Manufacturer's Instructions
Section 01610	Products Furnished By Contractor
Section 01615	Products Furnished by Owner
Section 01620	Maintenance Manuals and Record Drawings
Section 01625	Storage of Products
Section 01630	Testing and Start Up
Section 01640	Maintenance Period
Section 01650	Clean Up
Section 01700	Project Closeout

SECTION 01010 - Scope of the Work

The Work consists of the supply of all labour, supervision, equipment, and materials except as may be otherwise specified herein, for the construction of the Project, as shown on the Drawings and as specified in the Contract Documents.

SECTION 01015 - Drawings

The Drawings are listed in the Index to Contract Document and form part of these Contract Documents.

The Drawings show the approximate dimensions and general requirements of the principal features of the Work. Where necessary, as determined by the Owner, additional Drawings showing further details or alterations, will be furnished to the Contractor by the Engineer during the process of the Work.

Any discrepancies found between the Drawings and the Specifications and site conditions or any errors or omissions in the Drawings or Specifications shall be immediately reported to the Engineer, who shall promptly correct such error or omission in writing. Any work done by the Contractor after his discovery of such discrepancies, errors or omissions shall be done at the Contractor's cost.

Where any work of the Contractor is affected by finish dimensions, these shall be determined by the Contractor at the Place of the Work and he shall assume the responsibility therefore. The Contractor shall verify all data, quantities and details shown on the Drawings, Supplementary Drawings, Schedules, or other data received from the Engineer, and shall notify him of all errors, omissions, conflicts, and discrepancies found therein.

Failure to discover or correct errors, conflicts or discrepancies shall not relieve the Contractor of full responsibility for unsatisfactory work, faulty construction or improper operation resulting there from, nor from rectifying such conditions at his own expense. The Contractor will not be allowed to gain from of any errors or omissions, as full instructions will be furnished to the Contractor by the Engineer.

SECTION 01040 - Coordination of the Work

The Contractor shall be responsible for the coordination of all aspects of the Work.

The Contractor shall confine his plant and equipment, the storage of materials and the operations of his workers to limits indicated by law, ordinances, permits or directions of the Engineer and shall not unreasonably encumber the Place of the Work with his materials.

The Contractor shall permit full use, without charge therefore, by the Owner and/or other Contractors of any facilities usable jointly by the Contractor, Owner or other Contractors, as are available for such use without additional cost to the Owner.

Work at or in the vicinity of the Place of the Work may be performed by the Owner and/or Other Contractors during the period covered by the Contract under these Specifications. The Contractor shall cooperate with and coordinate his activities with Other Contractors at the Place of the Work so that the Work of all Contractors concerned will proceed with efficiency and dispatch. No claims for additional payment will be considered on account of delays, changes in construction schedules or any other reason whatsoever due to the fact that Other Contractors are operating at the Place of the Work.



SECTION 01100 - Alternatives

Quality - In order to establish standards of quality, the Engineer has, in the Specifications, referred to the Products by name. This procedure is not to be construed as eliminating from competition other products of equivalent or better quality. The Engineer will be the sole judge as to the acceptability of equivalent Products.

Procedure - Submit requests for the use of equivalent Products, in writing, directly to the Engineer at least five (5) working days prior to the date of Tender closing. Each application for approval shall fully describe the proposed alternative and be complete with two (2) copies of full and complete technical data such as catalogue sheets, illustrations, performance curves, etc., and all other information required by the Engineer to evaluate the proposed alternative. Submissions solely 'referenced' to catalogues will not be considered. Where the alternative requires corrections, modifications or installation costs in addition to those required by the specified products, include details thereof.

The Engineer will advise in writing as to the acceptability of the requested equivalency or alternative, prior to Tender closing.

SECTION 01200 - Project Meetings

Immediately following the award of the Contract, all parties to the Contract shall meet to discuss and resolve administrative procedures and responsibilities. Senior representatives of the Owner, the Engineer, the Contractor, major Sub-contractors, all field reviewers, and supervisors should be in attendance.

After award of the Contract, arrange meetings at regular intervals at time and locations approved by the Engineer. Notify all parties concerned to attend, to ensure proper coordination of the Project.

Maintain and distribute copies of meeting notes and minutes.

SECTION 01220 - General Instructions

Prior to commencing the Work, the Contractor shall re-examine the site conditions to obtain actual data and information required to ensure correct fabrication and execution of the Work, and notify the Engineer in writing, of all matters which could prejudice proper execution of the Work. Commencement of the Work shall constitute acceptance of existing conditions, and verification of the data and information.

Where work of this Contract involves breaking into or connecting to existing services, or utilities, carry out the Work at the times as may be directed by governing authorities, with a minimum of disturbance to the Work and/or building occupants.

SECTION 01260 - Construction Program

The Contractor's construction operations shall be subject to the review of the Engineer. The sequence of operations and methods of operation shall be such as to ensure Substantial Performance of the Work within the Contract Time.

Within seven (7) days after the Contractor has been advised in writing of the acceptance of this tender, he shall furnish the Engineer with his proposed construction program. The Contractor shall immediately advise the Engineer of any proposed changes to his construction program. Should the Contractor's work fail to progress according to the applicable progress schedules, and if in the opinion of the Engineer the Work cannot be completed within the Contract Time or such extension therefor as may have been granted, the Contractor shall work such additional time (including Sundays and Statutory Holidays), over and above the normal hours worked by the applicable trades, as may be required to meet the scheduled completion, without additional cost to the Owner.

The Contractor's attention is directed to the fact that connections to any existing building and systems shall be scheduled to provide the least possible interruption of service in the system and shall be subject to the following:

- (a) The operation of the existing system shall at all times be under the direct supervision of the Owner and the Contractor shall under no circumstances operate any valves, pumps or other equipment which are a part of the existing system:
- (b) The Owner will arrange to isolate and shut off portions of the existing system at a time convenient for both the Owner and the Contractor. This may include operations outside of day time working hours for which no additional cost shall be borne by the Owner. Only then shall the existing system be disconnected to enable the Contractor to make the specified connections:
- (c) The Contractor shall prepare all materials, pipework, etc., such that a minimum amount of interruption of service will be required and the dates of such interruption shall be confirmed with the Engineer at least twenty-four (24) hours prior:
- (d) The Work shall be carried out in a manner so as not to contaminate the system(s).
- (e) In the event of emergency, the Engineer has the authority to suspend the Contractor's work and to return the system to normal service.

#### SECTION 01300 - Submittals

Refer to the General Conditions of the Contract, GC39 Shop Drawings and Section 01620 – Maintenance Manuals and Records Drawings.

The Contractor shall prepare clearly identified shop drawings as called for by the Contract Documents and for such other items as the Engineer may reasonably request. Submit all shop drawings in the quantity which is required to be returned (maximum of six), one (1) copy of which will be retained by the Engineer, upon review. Submit pre-printed data sheets where such Products may be normally described.

The Contractor shall completely identify each submittal by showing the name of the Project and specification section and drawing number to which the submittal applies.

Unless otherwise specifically permitted by the Engineer, make all submittals in groups containing all associated items; the Engineer may reject partial submittals as not complying with the provisions of the Contract Documents.

The Contractor shall provide samples of particular selected materials, assemblies or components when so specified.

Upon attaining Substantial Performance of the Work, submit three (3) copies of manufacturer's operating and maintenance instructions for each Product provided for the Project.

The Contractor shall maintain project 'as-built' or 'record drawings' and record accurately any significant deviations from Contract Documents caused by site conditions or Changes in the Work. Upon attaining Substantial Performance of the Work, submit all record drawings to the Engineer.

#### SECTION 01350 - Late Completion

Should the Contractor fail to meet the stipulated Contract Time, the Owner shall be entitled to make deductions from payments due the Contractor as compensation for costs incurred by the Owner as a result of late completion. If the

Owner grants an extension of the Contract Time, as requested by the Contractor, the Owner will advise the Contractor if deductions for extra costs incurred are to be made.

#### SECTION 01400 - Quality Control

If the Contractor covers or permits to be covered any part of the Work that is subject to inspection or before any special tests and approvals are completed without the approval of the Engineer, the Contractor will uncover the Work, have the inspections satisfactorily completed and make good the Work at his expense.

The Contractor shall furnish to the Engineer test results and mix designs as may be requested. Testing shall be carried out by an independent certified testing firm approved by the Engineer and paid for by the Contractor. The Contractor will be paid for the net costs of testing undertaken on the Project under a cash allowance. Extra tests required to establish compliance of the Work with the minimum requirements for materials and workmanship, will be paid for by the Contractor.

#### SECTION 01410 - Surveys

For all projects requiring survey and staking, the Contractor shall provide at least two (2) working days' notice to the Engineer prior to commencing with the work.

The Contractor shall provide the Engineer with all stakes and other materials, with the exception of technical instruments, required by the Engineer to establish all horizontal and vertical control for the Work.

The Contractor shall also supply the Engineer with reasonable assistance and with assistants as required for establishing or checking line and grade as well as measuring quantities.

The Contractor shall have the responsibility to carefully preserve bench marks, reference lines, stakes, grade marks, monuments, legal survey pins, and all data pertaining to horizontal and vertical control, and in the case of destruction thereof by the Contractor or resulting from his negligence, the Contractor shall be charged with the expense and damage resulting there from and shall be responsible for any mistakes that may be caused by the unnecessary loss or disturbance of any horizontal and vertical control. Survey fees charged by the Engineer for re-surveying stakes, grade marks, reference lines, bench marks, etc. damaged by the Contractor may be deducted from the contract value.

All legal survey pins or monuments destroyed by the Contractor's work must be replaced by a Registered Land Surveyor. The Contractor shall bear the cost of replacement of the said survey pins or monuments.

#### SECTION 01415 - Lines and Levels

The Engineer will set a bench mark and reference point, or base line to be used as datum for all elevations and reference for the location of the Work.

The Contractor shall establish all remaining elevations and lines as he may require, using the Engineer's bench mark and datum lines as reference. The Contractor shall be responsible for the correctness of elevations and dimensions from such references.

The Contractor shall exercise care in the preservation of bench marks and datum lines set for his use. If bench marks and/or datum are displaced or removed, the Contractor shall bear any cost for resetting same.

#### SECTION 01420 - Warning Signs and Barricades

The Contractor shall provide adequate signs, barricades, warning lights, and watchmen and take all necessary

precautions for the protection of the Work and the safety of the public. All barricades and obstructions shall be protected at night by signal lights or flares which shall be kept illuminated from sunset to sunrise. Barricades shall be of substantial construction and shall be painted to increase their visibility at night. Suitable warning signs shall be so placed and illuminated at night as to show in advance where construction, barricades or detours exist. All detours and control of traffic shall be in accordance with the regulations and requirements of the Provincial Highways and Health and Safety authorities.

#### SECTION 01430 - Public Safety and Convenience

The Contractor shall at all times so conduct his work as to ensure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the Work and to ensure the protection of persons and property. No road or street shall be closed to the public except with the permission of the Engineer and proper authorities. Fire Hydrants on or adjacent to the Work shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the Contractor to ensure the use of sidewalks, access to business and the proper functioning of all gutters, sewers and ditches which shall not be obstructed except as approved by the Engineer.

The Contractor shall provide evidence in the form of a Certificate of Recognition (COR) of compliance with the latest Occupational Health and Safety Act and Regulations, governed by the Saskatchewan Ministry Labour Relations and Workplace Safety.

#### SECTION 01440 - Holidays

The Contractor shall not work on any Sunday or on any other day normally observed as a holiday without the Owner's written approval.

#### SECTION 01450 - Night Work

No night work shall take place unless authorized in writing by the Engineer. When night work is authorized, the Contractor shall supply at his own cost, a sufficient number of electric or other approved and effective lights, to enable the Work to be performed in an effective, safe and satisfactory manner.

#### SECTION 01500 - Temporary Facilities

The Contractor shall install and maintain wiring, poles, panels, gas and piping to provide temporary electrical power lighting and heat for the Work.

The utility charges shall be paid for by the Contractor until such time as Substantial Performance of the Work is attained. The Contractor will arrange for necessary metering, switching and account transfer to the Owner as required.

The Contractor shall provide sanitary and water facilities for the work force in accordance with the governing Provincial regulations and acts.

The Contractor shall provide fire extinguishing equipment as required by the National Building Code.

The Contractor shall provide temporary enclosures and heating equipment and attendants as may be required to heat materials and fully protect the Work. All heated areas shall be properly ventilated.

The Contractor shall provide all site transportation, scaffolding and temporary scaffolding structures required.

The Contractor shall remove all temporary facilities from the Place of the Work upon attaining Substantial Performance of the Work.

SECTION 01530 - Protection of Existing Surface and Underground Structures

The Contractor shall take all necessary measures to protect any existing structures from damage and shall substantially and sufficiently support all structures that may be endangered by the Work or other operations carried out as part of the Contract.

The existence and location of underground utilities and mains shown on the Drawings are not guaranteed, and notwithstanding any other provision in the Contract and without limiting the generality of the foregoing, sewer, water and gas mains or lines, electric light, power or telephone conduits, or other such structures of utilities must be located by the Contractor, and failure to locate the same does not negate the Contractor's responsibility thereto. The Contractor shall pay any charges to the Utility Companies in this regard. The Contractor shall make arrangements with the Owner of any underground structure to be present to supervise the work adjacent to the structure. Should any structures(s) be damaged by the aforementioned operations, they shall be restored at the expense of the Contractor.

SECTION 01540 - Lands By Owner

The Owner shall provide the lands shown on the Drawings upon which the Work under the Contract is to be performed and to be used for rights-of-way for access. Any delay in furnishing these lands by the Owner shall be deemed proper cause for adjustment in the Contract Price and the Contract Time.

SECTION 01550 - Lands By Contractor

The Contractor shall confine his apparatus and storage of materials and operation of his workers to those areas described in the Drawings and Specifications. Any additional land and access thereto not shown on the Drawings that may be required for temporary construction facilities, construction operations or for storage of Products shall be provided by the Contractor, with no liability and no cost to the Owner.

SECTION 01555 - Fair Wages

The Contractor shall, in carrying out the Contract, pay fair wages and comply with and fix working conditions, with respect to each worker or class of workers, not less favourable than the wages and working conditions established by Provincial regulations or the Contractor's Industry Association.

SECTION 01565 - First Aid

The Contractor shall provide at the Place of the Work such equipment and medical facilities as are necessary to supply first aid services to anyone who may be injured in connection with the Work.

SECTION 01570 - Explosives

Should explosives be necessary, the Contractor shall be responsible for the handling, storage and transportation in accordance with applicable laws and/or ordinances.

Blasting for excavating will be permitted only after securing the approval of the Engineer and only when proper precautions are taken for the protection of persons and property. The hours of blasting will be fixed by the Engineer. Any damage caused by blasting shall be repaired by the Contractor at his expense. The Contractor's methods of procedure in blasting shall conform to applicable laws and/or ordinances.

SECTION 01575 - Salvaged Utilities

All existing utility material such as pumps, motor, switchgear, valves, pipes, etc., that is removed from the Place of the Work shall remain the property of the Owner and shall be stockpiled as directed by the Engineer. All materials not claimed by the Owner, shall be disposed of by the Contractor.

SECTION 01580 - Restoration of Existing Features

No trees or tree branches shall be cut down or cut off without the written permission of the Engineer. Trees, shrubbery, fences, poles and all other private property and surface structures shall be protected unless their removal is shown on the Drawings or authorized by the Engineer.

All existing sidewalks, ditches, culverts, gravel surfaces, and other surface features affected by the Contractor's construction operations shall be restored to as nearly as possible to its condition prior to the installation, upon completion of the Work. Restoration work will be the responsibility of the Contractor and no additional compensation will be paid unless otherwise stipulated in the Contract Documents.

SECTION 01585 - Access to Private Property

The Contractor shall provide and maintain reasonable access to all private property and places of business. When actual construction operations prohibit provision of such access the Contractor shall notify, well in advance, any persons to be affected by the closure or detour and make suitable arrangements accordingly.

SECTION 01605 - Manufacturer's Instructions

The Contractor shall be responsible for the correct and accurate installation and assembly of all Products. The Contractor shall carefully read and rigidly adhere to the manufacturer's instructions in the installation of all Products. Any damage resulting from either a failure to observe the manufacturer's instructions or as a result of proceeding with the work without complete knowledge of how a particular Work is to be done, will be the Contractor's responsibility and he shall make good any loss or damage resulting from same.

SECTION 01610 - Products Furnished by the Contractor

All Products used in the Work shall meet the requirements of the respective Specifications. All Products not otherwise specifically indicated shall be furnished by the Contractor.

SECTION 01615 - Products Furnished by the Owner

Products specifically indicated shall be furnished by the Owner. The fact that the Owner is to furnish Products is conclusive evidence of its acceptability for the purpose intended, and the Contractor may continue to use it until otherwise directed. If the Contractor discovers any defect in Products furnished by the Owner, he shall notify the Engineer. Unless otherwise noted or specifically stated, Products furnished by the Owner, which are not of local occurrence, are considered to be f.o.b. the nearest Transport Depot. The Contractor shall be prepared to unload and properly protect all such Product from damage or loss. The Contractor shall be responsible for Product loss or damage after receipt of Product at the point of delivery. The Contractor shall be responsible for maintaining such Products in good order as provided for in Section 01640 - Maintenance Period.

### SECTION 01620 – Maintenance Manuals and Record Drawings

The Contractor shall maintain at the job site one set of Working Drawings and indicate thereon each field change as it occurs indicating the work as actually installed on the project and as specified under those divisions of the specifications.

Upon the completion of the Work, furnish to the Engineer one set of "as-built" drawings with all changes and control dimensions made in the field indicated neatly in pen.

Furnish to the Engineer three neatly bound three-ring binders with project title containing indexed and numbered tabbed sections for the connection and control diagrams, installation, operating and maintenance instructions, list of all mechanical and electrical equipment and fixtures as installed including catalogue numbers or parts lists and identification of manufacturers and suppliers.

The Owner is not required to takeover the systems thereby activating the start of the warranty period until all of these documents have been suitably processed, reviewed and approved by the Engineer.

### SECTION 01625 - Storage of Products

All Products shall be so stored as to ensure the preservation of their quality and fitness for the Work. Stored Products shall be located so as to facilitate prompt inspection. Private property shall not be used for storage purposes without the written permission of the Owner or the Leasee. Products stored at the Place of Work may not be considered for progress payment until successfully installed for their intended purpose.

### SECTION 01630 - Testing and Start Up

'Testing Period' or testing, is that period in the construction program when the equipment, piping and material is installed and the Work is substantially performed to allow thorough examination.

During the testing period the Contractor shall test the various pieces of equipment for proper installation, wiring, piping, connections, etc., under the review of the Engineer. If required, any phase, stage, unit pipe or assembly can be tested individually to achieve complete testing of the Work ready for start up.

'Start Up Period' or start up, is defined as that period in the Work when the equipment, controls, valves, switches, and other equipment can be energized, initiated, filled, primed, flushed or otherwise readied for operation including adjustments and calibration of equipment and controls. The system shall be completed, calibrated and fully operating prior to the Contractor requesting Substantial Performance of the Work.

The Contractor shall retain the services of factory trained personnel of the equipment manufacturer or supplier to undertake start up, and testing of the electrical and control systems. During start up, the electrical and control instrumentation shall be energized, electric motors shall be "kicked over" to confirm rotation, piping and control lines shall be filled and readied for operation. Each component, unit or system is to be started up one at a time. As each unit or system is started up, the Contractor shall obtain a written statement from each equipment manufacturer's representative stating satisfaction with the installation, operation and that the equipment is ready for use and remains eligible for full warranty.

The Contractor shall arrange and pay for the factory trained personnel of the equipment manufacturer or supplier spend sufficient time, with the operator to familiarize him with the operation and maintenance of each piece of equipment.

After Final Inspection, the Contractor shall retain a regular foreman on the jobsite continuously until all deficiencies are completed and approved, including those of subtrades and suppliers. The work site must be kept secure by the Contractor until any alternative arrangement is cleared and approved by the Engineer.

SECTION 01640 - Maintenance Period

The Contractor shall maintain the Work, equipment and structures supplied and installed by him, for a period of one (1) year after the effective date of the certificate of Substantial Performance of the Work. Any faulty workmanship or equipment shall be replaced by the Contractor during this period, at his expense. The Contractor's maintenance shall not include normal scheduled maintenance.

SECTION 01650 - Clean Up

The Contractor shall at all times keep the Place of Work free from accumulation of general rubbish and upon attaining Substantial Performance of the Work, shall remove all rubbish and surplus material and clean up the Place of the Work for landscaping or other work or return to its original cross section and grade.

The Contractor shall, upon attaining Substantial Performance of the Work, leave the entire Work completely clean and ready for use.

All surplus materials such as excavated material, trees, brush, pieces of pipe, concrete and pavement shall be disposed of at the Contractor's expense and at locations approved by the Engineer.

SECTION 01700 - Project Closeout

The Contractor and his Subcontractors shall conduct an inspection of the Work and correct all deficiencies. The Contractor shall notify the Engineer, in writing, of satisfactory completion of the Contractor's inspection and request an Engineer's review. The Engineer's review shall consist of the Engineer and the Contractor. During the Engineer's review a list of all deficiencies shall be forwarded to the Contractor by the Engineer. When the Contractor is satisfied that all deficiencies have been corrected, the Contractor shall submit to the Engineer an Application for certification of Substantial Performance of the Work. The Substantial Performance review team may consist of the Owner, Engineer and the Contractor.

When it is mutually agreed by the review team that the Work is Substantially Performed, the Contractor shall certify the same in accordance with the Contract Documents.

The Engineer may at any time before certifying the Certificate of Substantial Performance of the work, describe the portions of the Work not completed to his satisfaction and all items which must be performed by the Contractor before Substantial Performance of the Work is certified.

All remaining deficiencies, which do not affect issuing the Certificate of Substantial Performance will be considered as Uncompleted Work. The Engineer will assign a cost for the Uncompleted Work, which will be deducted from the Final amount owing to the Contractor. The cost of the Uncompleted Work will be released, as certified by the Engineer, upon successful completion of the Uncompleted Work.

Immediately prior to expiration of the Warranty Period, the Contractor shall request in writing, a joint review of the Work, by the Engineer. The Engineer may thereafter, on being satisfied that all necessary maintenance has been completed, certify Total Performance of the Work.



PART 1 GENERAL

## 1.01 DESCRIPTION

## A. Work Included:

Trench Excavation, Bedding & Backfill necessary for this Work includes, but is not necessarily limited to, the provision of all labour, supervision, equipment, and materials for:

1. trench excavation;
2. bedding;
3. backfill; and
4. all other items as shown on the Drawings, specified herein, or needed for a complete and proper installation of underground pipe, conduit and appurtenances in accordance with all pertinent codes and regulations.

## B. Related Work Described Elsewhere:

1. Water Mains & Appurtenances : Section 02713
2. Concrete : Section 03310

## C. Definitions:

1. Trench excavation shall be the removal of all materials encountered which is not classified as rock excavation.
2. Rock excavation shall be the removal of all boulders, pieces of concrete or masonry exceeding 1 m.<sup>3</sup> in volume or solid ledge rock, concrete or masonry which requires for its removal drilling, wedging, sledging, or barring or breaking up with a power-operated hand tool. No soft or disintegrating rock, concrete or masonry which can be removed with power-operated excavator and no loose, shaken or previously blasted rock will be included as rock excavation.
3. The pipe zone shall be the portion of the trench which extends from the bottom of the pipe bedding to 300 mm. above the top of the installed pipe.
4. Initial backfill shall be material placed in the pipe zone immediately above the bedding.

## 1.02 QUALITY ASSURANCE

## A. Qualifications of Installers:

Provide at least one person who shall be thoroughly trained and experienced in the skills required, who shall be completely familiar with the referenced standards and the requirements of this work, and who shall personally direct all installation performed under this Section of these Specifications.

B. Codes and Standards:

1. Without limiting the generality of the following, comply with all pertinent codes and regulations, including the Occupation Health and Safety Act.
2. Where provisions of pertinent codes and standards conflict with this Specification, the more stringent provisions shall govern.
3. The complete work under this Specification shall be governed by the dictates of good practice in all details of materials and methods even if not minutely specified. The work shall be properly coordinated with the requirements of other units of work specified in other Specifications.

1.03 EXAMINATION

It shall be the Contractor's responsibility to examine all other Drawings and Specifications that may have an effect on the work of this Specification.

PART 2 PRODUCTS

2.01 MATERIALS

A. Bedding Material

1. Bedding material shall be clean, hard, uncoated granular material having characteristics as specified hereinafter.
2. Gradation shall be within specified limits when tested to ASTM C136/C136M and ASTM C117 (AASHTO T11 and T27) and give a smooth curve without sharp breaks and plotted on a semi-log grading chart.
3. Sand:
  - a) Natural sand or crushed rock screenings conforming to the following grading requirements:

<u>SIEVE DESIGNATION</u>	<u>PERCENT PASSING BY WEIGHT</u>
10 mm. (3/8)	100
5 mm.	50 - 100
2 mm.	30 - 90
400 um.	10 - 50
63 um. (No. 200)	0 - 10

- b) Liquid Limit shall be 25 maximum when tested to ASTM D4318 (AASHTO T89).
- c) Plasticity Index shall be 6 maximum when tested to ASTM D4318 (AASHTO T90).

**B. Backfill Material**

1. Granular backfill material shall be clean, hard, durable uncoated particles, free from clay lumps, cementation, organic, and other objectionable materials.
2. Initial backfill material shall consist of selected native material excluding rock in excess of 25 mm. in diameter and shall meet the approval of the Engineer.
3. General Backfill material shall consist of native material excavated from the trench, free from boulders larger than 200 mm. in diameter, stumps, trees, topsoil, cinders, ashes, or other unsuitable materials.
4. Imported granular backfill materials shall consist of a fine granular material composed of sand or well-graded gravel, with a maximum size of 20 mm. and not more than ten percent (10%) passing the 160 micron Sieve. Sand shall have Liquid Limit no greater than 25 and Plasticity Index no greater than 6.
5. Base stabilized material shall be 25 mm. minus crushed gravel, with no more than ten percent (10%) passing the 160 micron sieve, or 25 mm. minus washed rock, as instructed and approved by the Engineer.

**2.02 OTHER MATERIALS**

All other materials, not specifically described but required for a complete and proper installation of the work of this Specification, shall be new, first quality of their respective kinds, and subject to approval of the Engineer.

**PART 3 EXECUTION****3.01 PREPARATION****A. Surface Conditions**

1. Inspection:
  - a) Prior to all work of this Specification, carefully inspect the site.
  - b) Verify that the work of this Specification may be completed in strict accordance with all pertinent codes and regulations, the original design, Drawings, and the Specifications.
2. Discrepancies
  - a) In the event of discrepancy, immediately notify the Engineer.
  - b) Do not proceed in areas of discrepancy until all such discrepancies have been fully resolved.

**B. Existing Structures**

Be responsible for locating and protecting from damage all underground and surface structures, utility pipelines, overhead lines, water and sewer mains, building services, cables, culverts, telephone and power lines, and other obstructions encountered in the progress of the work. Repair any damage at no extra cost to the Owner, as instructed by the Engineer.

The hydro-vacuum method shall be used to locate all utilities, mains, pipelines and fibreoptic lines prior to crossing.

**C. Setting Out Work**

1. The Engineer will set such stakes as are necessary to mark the location, alignment, elevation and grades of all proposed underground piping.
2. The Contractor shall be responsible for and employ competent persons who will establish detailed dimensions and elevations from baselines and grade stakes provided by the Engineer. No deviations from the authorized lines and grades shall be made without the written approval of the Engineer.

**D. Stripping and Replacing Topsoil**

1. Strip all trench areas of topsoil prior to commencing trenching operations. Stockpile the material in areas designated by the Engineer.
2. Replace topsoil in the areas previously stripped after trench backfilling and trim neatly.

**3.02 INSTALLATION/APPLICATION/PERFORMANCE****A. Excavation**

Excavate so as to provide a uniform and continuous support for the pipe and fittings or pipe bedding on solid undisturbed ground. Make proper allowances for bells, valves and couplings to permit jointing and to prevent the pipe from resting on the pipe and appurtenances.

**B. Over-Excavation**

Any over-excavation by the Contractor, below the required grade, shall be backfilled at his expense with an approved compacted granular material.

**C. Excavated Material**

Pile all excavated material alongside the trench in a manner that will not endanger the work and that will avoid obstructing other work or structures.

**D. Trench Width**

1. Where a single pipe in trench is indicated, the minimum width of trench below the crown of the pipe shall be not less than the nominal diameter of the pipe plus 300 mm.
2. When the maximum trench width is exceeded, the Contractor shall, at his own expense, provide special bedding or other precautions as instructed by the Engineer.

**E. Rock Excavation**

Rock excavation shall be piled adjacent to the work for measurement by the Engineer. The Contractor shall then dispose of all rock at the designated areas.

**F. Shoring and Bracing**

1. In order to comply with the provisions of the Workers' Compensation Board, where the sides of the trench or excavation need to be sheathed, shored or braced to prevent caving to protect life, property, the work, structures adjacent to the work or to maintain trench widths, the contractor shall supply and place all material needed to brace the trench or excavation.
2. Locate trench sheathing and bracing no closer than 150 mm. to the widest section of any installed pipe or appurtenances.
3. All material used for sheathing, shoring and bracing shall be left in place in the trench until such time that it can be removed without causing damage to the completed work or adjacent structures and only when approved by the Engineer.

**G. Dewatering Excavations**

1. Control ground and surface water encountered or entering the trench so that the trench is maintained in a condition so as to allow pipe installation to proceed as specified.
2. Dewatering pumps shall be discharged away from the site to drains, sewer or natural drainage channels.
3. Do not permit trench water to enter the pipe during installation.

**H. Unstable Subgrade**

1. Where, in the judgment of the Engineer, the subgrade of the trench is unstable or will not properly support the pipe, or where it contains material harmful to the pipe, excavate such materials to the width, depth and length as instructed by the Engineer and dispose of the material as directed.
2. Backfill up to the subgrade with an approved base stabilized material and compact.
3. Shape finished subgrade by hand tools to provide a uniform and continuous support for the pipe.

4. Where, in the judgment of the Engineer, the subgrade cannot be made to properly support the pipe by replacing unsound material with compacted base stabilized material, construct a foundation for the pipe in accordance with the Drawings prepared at the time by the Engineer.

Work under this Specification will be paid for separately in accordance with GC17 and GC18.

I. Bedding

Bed the pipe in accordance with the following classification:

After the trench has been excavated, place a layer of the granular bedding material and compact below the pipe to a depth of not less than 100 mm. over the full width of the trench. After the pipe is laid, place bedding material and compact on both sides to mid-diameter of the pipe.

J. Backfilling

Backfill trenches in accordance with the following, and as close to the pipe laying operation as conditions permit:

1. The initial backfill shall be placed in accordance with the following:
  - a) hand place select native material as initial backfill and compact for the full width of the trench up to a level of not less than 300 mm. above the top of the pipe.
2. General backfill shall be carried out upon completion and approval of the initial backfill stage. Place general backfill material with the use of a tractor dozer or as directed by the Engineer.
3. General backfill with compaction may be required at the direction of the Engineer. When compaction is specified, place material in 150 mm. layers for the full width of the trench and compact.
4. Imported granular backfill with compaction, where required, as directed by the Engineer shall be placed in 150 mm. layers and compacted.

K. Crossing Existing Mains and Utilities

1. Locate in the field, the exact depth and location of all existing mains or service connections at least 30 m. prior to crossing, in the presence of the Engineer. The Engineer will determine the elevations of the existing mains and set the grade of the proposed main to ensure that the proposed main passes in accordance with the following:
  - a) locations where the proposed main crosses over top of the existing mains, a minimum of 300 mm. separation is required; and

- b) locations where the proposed main crosses underneath existing mains or services, a minimum of 300 mm. separation is required. Also backfill trench using approved imported granular backfill and compact 1 m. either side of the pipe being crossed for the full width of the trench and 300 mm. above the top of the pipe being crossed. All compacted sections shall have slopes of minimum 1-½:1 from finished elevation to the top of the initial backfill zone.
  2. Exercise caution in locating and uncovering the existing pipe to ensure that no damage occurs. Any damage caused shall be repaired at the Contractor's expense.
  3. The hydro-vacuum method shall be used to locate all existing water mains and utilities prior to excavation, crossing and connection.
- L. Crossing Existing Paved Approachs and Streets
1. Mechanical Augering

All mains shall be machine augered or bored, cased and jointed under existing paved approaches and streets as shown on the Drawings and as specified herein.

The alignment, depth, and grade of the holes will be staked by the Engineer. The hole shall be of sufficient diameter to permit the casing pipe to be installed to the required grades.
  2. Open Cut

Crossing and constructing on the existing approaches shall be done in accordance with the following:

    - a) Carry out trenching operation on the gravelled road portions of the work such that a minimum of the road is destroyed.
    - b) Cutting the existing pavement shall be approved by the Engineer, prior to commencement of any work and done using approved cutting methods.
    - c) Backfill all trenches across existing pavement, curbs, sidewalks as directed by the Engineer using either general backfill with compaction or imported granular backfill with compaction. Compacted backfill shall extend a minimum of 1 m. outside the proposed curb line. All compacted sections shall have slopes of a minimum 1-½:1 from finished elevation to the top of the initial backfill zone.
    - d) Repair trench crossing as instructed by the Engineer in accordance with Section 02601 - Traffic Gravel.
    - e) Where the trench crosses existing asphalt approach, care shall be taken so as little asphalt is destroyed as possible. Saw cut asphalt, remove and dispose of to a designated area.

M. Gravelled Approachs

1. Backfill excavation made on gravelled approaches as directed by the Engineer using either general backfill with compaction and base and subbase as specified.
2. Re-grade the existing approaches to the original grade and cross section.
3. Replace any gravel removed from the roadway as a result of the construction in accordance with Section 02601 - Traffic Gravel.

N. Backfill When Testing Required

1. When a pressure test is to be conducted, carry out initial backfilling in the pipe zone as specified above except that joints, valves and fittings shall be left exposed, unless directed otherwise by the Engineer.
2. After testing is complete, complete initial backfilling in the pipe zones by thoroughly tamping approved material around the joints, valves and fittings. After joints, valves and fittings have been covered to a depth of 300 mm. complete general backfill.

O. Compaction

Compaction, where called for, shall be carried out by means of suitable modern equipment. Compact all material to 95%, unless otherwise specified, of the maximum dry density of the material as determined by the method of test specified in ASTM D698-66T (Standard Proctor).

P. Frost Removal

If burning is required for frost removal, comply with the bylaws and fire regulations of the place of construction. The Contractor shall be responsible for the cost of frost removal, if any, and no additional payment will be allowed therefor.

Q. Disposal of Excess Excavated Material

Dispose of all excess excavated materials at disposal areas designated by the Owner, within the municipal limits.

R. Fences and Gates

Re-install all fences and gates removed or damaged during the course of construction. This shall be at the Contractor's expense.

S. Cleaning Up

All existing streets, ditches, culverts, boulevards and lanes which are disturbed as a result of the trenching operation shall be cleaned up and restored to their original grade and cross section and shall be left in a neat and presentable condition.



PART 4 MEASUREMENT AND PAYMENT

## 4.01 TRENCH EXCAVATION, BEDDING &amp; BACKFILL

## A. Stripping and Replacing Topsoil

Payment for Stripping and Replacing Topsoil will not be made directly, but will be considered a subsidiary obligation of the Contractor, included in the appropriate Unit Price in the Tender Form for installation of underground pipe.

## B. Trench Excavation and Backfill

Payment for Trench Excavation, Bedding & Backfill will not be made directly, but will be included in the appropriate Unit Price in the Tender Form for installation of underground pipe.

## C. Base Stabilized Material

Measurement of Base Stabilized Material will be in cubic metres based on truck load quantities.

Payment for Base Stabilized Material will be at the Unit Price in the Tender Form and shall be considered full compensation for the supplying, hauling, compacting, and placing of base stabilized material as directed in writing by the Engineer.

## D. Rock Excavation

Measurement of Rock Excavation will be in cubic metres. Volumes shall be computed on the basis of linear measurements of length, width and depth as measured by the Engineer.

Payment for Rock Excavation will be at the Unit Price in the Tender Form and shall be considered full compensation for the supply of all labour, supervision, equipment, and materials necessary for excavating, blasting, loading, hauling, dumping, burying, or otherwise disposing of all rock.

## E. Crossing Existing Mains and Utilities

Payment for Crossing Existing Mains and Utilities will not be made directly but will be included in the appropriate Unit Price in the Tender Form for installation of underground pipe.

## F. General Backfill with Compaction

Measurement of General Backfill with Compaction for Mains will be in metres, measured horizontally along the centre line of the main trench.

Payment for General Backfill with Compaction will be at the Unit Price in the Tender Form and shall be considered full compensation for the supply of all labour, supervision, equipment, and materials necessary for the placing and compacting general backfill over the full width of the trench and vertically from the top of the pipe zone up to the finished elevations, as directed by the Engineer.

G. Imported Granular Backfill with Compaction

Measurement of Imported Granular Backfill with Compaction will be made in cubic metres, based on in-place measurements.

Payment for Imported Granular Backfill with Compaction will be at the Unit Price in the Tender Form and shall be considered full compensation for the supplying, hauling, placing and compacting of Imported Granular Backfill as directed in writing by the Engineer.

H. Mechanical Augering or Boring

Measurement of Mechanical Augering will be in metres, measured horizontally along the centre line of the pipe and casing installed.

Payment for Mechanical Augering will be at the Unit Price in the Tender Form and shall be considered full compensation for supply of all labour, supervision, equipment, and materials necessary for augering, casing, strapping and supports, complete supply, installation and jointing of the main through the casing.

PART 1 GENERAL

## 1.01 SCOPE

This Specification refers to the supply and installation of pipe culverts in roadways and approaches.

## 1.02 WORK INCLUDED

The Work shall consist of corrugated steel pipe culverts installed at locations and in conformity with the lines and grades shown on the Drawings. The work shall include all types and sizes of culverts.

Furnish all labour, materials, equipment, and supervision necessary for the completion of the work according to the Specifications.

PART 2 PRODUCTS

## 2.01 MATERIALS

All culvert material shall be supplied by the Contractor and shall be as follows:

- A. Corrugated steel pipe (CSP) shall conform to the latest AASHTO Specifications & CSA-G401-14, 2.0mm wall and dimple band wedge type couplers.

PART 3 EXECUTION

## 3.01 INSTALLATION/APPLICATION/PERFORMANCE

## A. INSTALLATION

1. The location, elevation and execution for the culvert will be staked by the Engineer. The excavation for the culvert and the culvert bed, including subcut, if required, shall be in accordance with the requirements of Earth Excavation.
2. If the foundation is unsuitable, the bottom of the bed shall be subcut to the dimensions indicated by the Engineer. The subcut shall be backfilled in accordance with the requirements for embankments or as instructed by the Engineer.
3. The bedding line shall be shaped to fit the culvert.
4. Corrugated steel pipe culverts shall be placed with the inside circumferential laps pointing downstream and the longitudinal laps at the side.
5. Earth backfill under the haunches of the culverts shall be compacted with mechanical impact tampers. The earth material above the bedding line shall be placed uniformly in lifts on each side of the culvert.
6. Provide rip rapped aprons as shown on the Drawings.

**PART 4 MEASUREMENT AND PAYMENT****4.01 DRAINAGE CULVERTS**

Measurement of Drainage Culverts will be in metres measured along the centreline of the installed culvert.

Payment for Drainage Culverts will be at the Unit Price in the Tender Form and shall be considered full compensation for storing, handling and hauling culvert materials, excavation, backfill and supply of material including supply and placing of rip rap in accordance with the Drawings and these Specifications.

PART 1 GENERAL

1.01 SCOPE

This Specification refers to Traffic Gravel.

1.02 WORK INCLUDED

Furnish all labour, supervision, equipment, and materials necessary for the application of Traffic Gravel on streets and approaches with gravelled or other surfaces prior to this Contract.

PART 2 PRODUCTS

2.01 MATERIALS

A. Traffic Gravel

Traffic Gravel shall be composed of fragments of durable rock, free from undesirable quantities of soft or flaky particles, loam, or other deleterious material and comply with the following gradation requirements:

Standard ASTM Sieve	22.6 mm.	5 mm.	2 mm.	400 :m.
Percent Passing	100	40-70	20-45	0-20

PART 3 EXECUTION

3.01 INSTALLATION/APPLICATION/PERFORMANCE

A. Traffic Gravel

1. Gravel shall be dumped on all roadway surfaces or approaches with respect to areas affected by the Contractor's trenching and backfilling operations and as directed by the Engineer.
2. Gravel shall be spread uniformly over the surface to be gravelled with a motor grader to a minimum thickness of 50 mm.
3. Gravel surfaces unnecessarily damaged by the Contractor's operations shall be restored at the Contractor's expense.

PART 4 MEASUREMENT AND PAYMENT

## 4.01 TRAFFIC GRAVEL

## A. Traffic Gravel

Measurement of Traffic Gravel will be in cubic metres at the point of delivery. Measurement will be on a truckload basis using the water level capacity of the box calculated to the nearest one-tenth (0.1) cubic metre, from measurements taken by the Engineer. The Contractor shall level any loads that are to be measured. No measurement will be made for material heaped above the water level capacity and deductions will be made in one-tenth (0.1) cubic metre units for loads which do not contain full measures.

Payment for Traffic Gravel will be at the Unit Price in the Tender Form and shall be considered full compensation for the supply of all labour, supervision, equipment, and materials necessary to complete the work in accordance with the Drawings and these Specifications.

PART 1 GENERAL

## 1.01 SCOPE

This Specification refers to the installation of water main piping, appurtenances and connection to the existing water mains.

## 1.02 WORK INCLUDED

Furnish all labour, supervision, equipment, and materials necessary for the installation of all water mains, fittings, valves, and other appurtenances specified and to connect the new mains to the existing mains.

## 1.03 PRODUCT DELIVERY, STORAGE AND HANDLING

Materials shall be delivered and stored on the jobsite in such a manner that no damage will be done to the materials or private property. The Contractor shall be responsible for unloading, handling and stringing the pipe on the Place of the Work.

## 1.04 EXAMINATION

It shall be the Contractor's responsibility to examine all other Drawings and Specifications that may have an affect on the work of this Specification.

PART 2 PRODUCTS

## 2.01 MATERIALS

## A. Pipe

1. Polyvinyl Chloride (PVC) pressure pipe shall be Pressure Class 235, DR18, conforming to CSA-B137.0-93 & B137.3-93 and AWWA Standard C900-07 and AWWA Standard C905-10 including, ASTM D2122 and ASTM D1784 (Type 12454B) and shall be equipped in cast iron (C.I.) equivalent outside diameters with integral bells and gaskets. All Bells shall have the same wall thickness as the pipe.

All pipe shall bear the product inspection and requested specification markings on the pipe, identifying all items listed in the latest edition of Uni-Bell PVC Pipe Association, "Handbook of PVC Pipe Design and Construction".

## B. Pipe Couplings

Pipe Couplings shall be of the design suited to the pipe being used and shall conform to AWWA Standard C907-12 and CSA-B137.0-93 and CSA-B137.2-93.

## C. Fittings

1. 100 to 300 mm. dia. tees and elbows shall be PR 235 (DR 18) PVC injection molded, C.I. O.D. with bell ends and gaskets suitable for the pipe O.D. specified and conforming to AWWA Standard C907-12 and CSA-B137.2-93. Crosses shall be cast iron as specified in C. 2.

2. 350 mm. dia. and Larger - fittings shall be cast iron with ends and gaskets suitable for the pipe specified and conforming to AWWA Standard C110. Fluid-Tite and Ring-Tite fittings shall be in accordance with AWWA Standard C110, Class 250, Long Body.

D. Valves

Valves 100 to 300 mm shall be of ductile iron body (thick walled) and meet or exceed performance requirements of AWWA Standard C509-09 (Resilient-Seated Gate). Valves 350 mm and larger shall be of ductile iron body and meet or exceed performance requirements of AWWA Standard C515-10 (Resilient-Seated Gate). Valves shall be fully bronze-mounted, double disc, parallel seat gate type, or Bronze and S.S. fitted, half gate with Buna-N valve rubber, epoxy coated R.S. Gate type. All valves shall have non-rising spindle with a 50 mm. square operating nut. All valves shall have end connections to accept adjacent pipework.

E. Valve Boxes

Valve boxes shall be cast iron cap and upper section, adjustable type, PVC lower section with stem extension and flanged operating nut, adjustable to minimum 2.5 m of bury.

F. Fire Hydrants

Fire hydrants shall be ductile or cast iron body, epoxy coated elbow, rubber mounted, stainless steel rod, compression type in accordance with AWWA C502-14, ULC and FM listed with one 100 mm. pump nozzle and two 60 mm. hose connections. Hydrants shall be flanged at the ground line and have a suitable drip valve. The inside diameter of the hydrant and bottom elbow connection shall be 150 mm. The minimum opening shall be 133 mm. with bury of 2.75 to 2.9 m. Hose connections shall be threaded to conform to S.M.A. Thread and the make and model of hydrant shall be the same as those which exist in the community or unless otherwise instructed. All external bolts and nuts below ground shall be 316 stainless steel.

G. Thrust Blocking

1. Thrust blocking concrete shall be a concrete mix having not less than one part cement, two and one half parts sand, and five part stone, having a specified 28 day compressive strength of 20 MPa., Type HS High, Sulphate Resistant.
2. No wood blocking will be permitted where the blocking is of a permanent nature.
3. Joint restraint devices may be provided in lieu of concrete thrust blocking. Uni-flange or approved equivalent.

H. Mechanical Couplings

1. Mechanical couplings shall be type suitable for the pipes being joined. Robar Style 1506 nylon coated, stainless nuts and bolts, or TPS Hymax 2000 Series coupling.



## I. Protective Tape Coating

Petrolatum primer and cold applied petrolatum tape shall conform to AWWA Standard C217-04, and shall consist of Denso paste primer and Densyl tape or approved equivalent.

PART 3 EXECUTION

## 3.01 PREPARATION

## A. Lines, Grades and Locations

Water mains shall be laid to the lines and grades with fittings and valves and other appurtenances, located as shown on the Drawings and as established in the field by the Engineer. Where the water main must cross the sewer main, provision shall be made to ensure that the water main will not interfere with the sewer main grade.

## 3.02 INSTALLATION/APPLICATION/PERFORMANCE

## A. Water Mains

1. Pipe bedding shall be in accordance with Section 02221 - Trench Excavation, Bedding & Backfill.
2. No pipe shall be laid in water or on frozen trench bottom or when the trench conditions or the weather are unsuitable for such work.
3. Interior of pipes and collars shall be kept free from dirt and foreign matter during lowering into trench, installation and joining.
4. Pipe shall be joined in accordance with the manufacturer's instructions.
5. Cutting pipe shall be in accordance with the manufacturer's instructions.
6. Gasket lubricants shall be non-petroleum based lubricants.
7. Pipes shall have a minimum of 300 mm. vertical separation where they intersect and cross in accordance with Section 02221 - Trench Excavation, Bedding & Backfill.
8. Where deflections are necessary, long radius curves are permitted, the amount of deflection allowed shall not exceed the manufacturer's recommendations, or that required for satisfactory joining.
9. When laying operations are not in progress, the open ends of the pipe shall be closed with a water-tight plug.
10. Any pipe which has floated shall be removed from the trench and relaid.
11. Fittings and mechanical couplings shall be installed in accordance with the foregoing and in accordance with the manufacturer's instructions.

12. The exterior of all cast iron fittings and mechanical couplings shall receive the protective tape coating.
  13. All pipe and fitting shall be installed to a depth providing a minimum cover of 2.75 m. as measured from the future finished ground surface to the crown of the pipe.
  14. Inaccuracies in pipe joining causing stress to be imposed on the equipment or fittings will not be permitted.
  15. Backfilling shall be carried out in accordance with Section 02221 - Trench Excavation, Bedding & Backfill.
- B. Valves and Valve Boxes
1. Valves shall be set on a 150 mm. thick concrete pad so as to reduce the transmission of undesirable load or stress on the adjoining pipe.
  2. A valve box shall be provided for every valve.
  3. The valve box shall be centred and plumb over the operating nut, and shall not transmit shock or strain to the valve.
  4. The valve box shall be set at the original ground level or as directed by the Engineer.
  5. Wherever possible, valves shall be installed accurately, at the extension of street property lines and marked with a 50 mm. x 100 mm. x 1,200 mm. timber treated stake driven in the ground, exposed end painted.
- C. Fire Hydrants
1. Hydrants shall be set on a concrete pad at least 150 mm. thick and shall be blocked and anchored into position by an approved means.
  2. Adequate concrete thrust blocking shall be provided where necessary.
  3. All hydrants shall be set plumb and shall have their nozzles parallel with the curb or roadway with the pumper nozzle facing the curb or roadway. Nozzles shall be at least 300 mm. above the curb or established street grade.
  4. Hydrants shall be set so that the "ground line" mark on the hydrant barrel is at the established grade or as instructed by the Engineer.
  5. Provide reinforced concrete pad at the Fire hydrants locations as shown on the Drawings

D. Thrust Blocking

1. Thrust blocking shall be provided at valves, tees, plugs, caps and bends, and where changes in pipe diameter occur, at reducers and fittings.
2. Thrust blocking shall be placed between undisturbed soil and the fittings, and such that the pipe and fitting joints will be accessible for repair.
3. The area of thrust block bearing shall be as shown on the Drawings.
4. Approved joint restraint devices may be provided in lieu of thrust blocking.

E. Disinfection

1. The Contractor shall comply with Waterwork Start-up Protocol and Managing Wastes published by Water Security Agency and follow-up required by the Environmental Project Officer (EPO) in accordance with the appended Permit to Construct and compliance on behalf of the Owner.
2. At the Contractor's expense, and before placing into service, all potable water mains, fittings and appurtenances shall be thoroughly disinfected. Methods used must be approved by the health authorities having jurisdiction and the Engineer, and disinfection must be made in the presence of the Engineer. A free chlorine residual of at least 10 ppm shall be obtained throughout the system and maintained for at least 24 hours. The system shall then be thoroughly flushed with replacement water. The total and residual chlorine concentration at the point of discharge to a watercourse shall be less than 1.5 ppm.
3. At the Contractor's expense, a coliform bacteria test shall be performed once thorough flushing of the main has been completed. The water samples must be collected in approved containers provided by and transported to the Saskatchewan Provincial Health Laboratory for testing. The results must conform to the Provincial Water Quality Standards and be forwarded to the Water Security Agency EPO and the Engineer for approval before the new water main can be placed into service.

F. Connection to Existing Water Mains

1. Connections to the existing water mains shall be at locations shown on the Drawings, or as instructed by the Engineer.
2. Caution shall be exercised in locating and uncovering existing pipe to ensure that no damage occurs.
3. This work shall be scheduled such that the existing mains will not be out of service for a period greater than eight hours. Persons affected by the interruption of service shall be notified accordingly.
4. Field cutting the existing mains shall be made using an approved cutting device.
5. Disinfect pipe and fittings at the connection in accordance with 3.02, E.

6. All excess trench water shall be removed prior to installing the pipe, fittings and valves.
7. Mechanical couplings may be used on "cut-ins" on existing water mains.

### 3.03 SYSTEM TESTING

#### A. General

The following tests shall be performed at the Contractor's expense and in the presence of the Engineer. Prior to testing, the mains and appurtenances shall be filled with water at a flow velocity not exceeding 0.6 m./s. and preferably at 0.3 m./s. Expel all air from the system.

#### B. Pressure Test

1. All water mains shall be subjected to a pressure test as follows:
  - a) The test section of pipe shall be filled slowly taking care to expel all air from the line. The section of main to be tested shall be subjected to a gauge pressure of double the operating pressure at the lowest elevation of the system or the pressure rating designation of the pipe, 150 psi (1034kPa) whichever is less. The duration of the test shall be two hours.
  - b) During the pressure test, examine the pipe and fittings and repair all detected leaks. The pressure test shall be repeated until all defects are repaired satisfactorily and have been inspected by the Engineer.

#### C. Leakage Test

1. Perform a leakage test at the completion of installation. Duration of the leakage test shall be two hours and the pressure used shall be as stipulated in the pressure test. The allowable leakage for PVC pipe shall be as specified in AWWA Manual M23 and calculated as follows:

$$L = \frac{ND \times \text{Square Root of } P}{128,650}$$

WHERE: L = allowable leakage in litres per hour  
 N = number of joints in section tested  
 D = nominal diameter of pipe in millimetres (mm.)  
 P = average test pressure during test in kilopascals (kPa.)

2. Should any test disclose leakage greater than that specified in the aforementioned, the Contractor shall, at his own expense, locate and repair the defect.
3. The warranty period shall not commence until after the conclusion of a satisfactory leakage test.

PART 4 MEASUREMENT AND PAYMENT

## 4.01 WATER MAINS &amp; APPURTENANCES

## A. Water Mains

Measurement of Water Mains will be in metres measured from centre to centre of fittings parallel to the centre line of the pipe installed with no deduction for valves and fittings.

Payment for Water Mains will be at the Unit Price in the Tender Form and shall be considered full compensation for supplying all labour, supervision, equipment, and materials necessary for the installation and joining of the pipe in the trench including stripping and stockpiling topsoil, trenching, locating existing mains and services, bedding, initial and general backfill, disinfection, filling, pressure and leakage tests, removal of excess backfill material, replacement of previously stripped topsoil, and clean up in accordance with the Drawings and these Specifications.

## B. Fittings

Measurement of Fittings will be by a count of each unit installed.

Payment for Fittings will be at the Unit Price in the Tender Form and shall be considered full compensation for the supply of all labour, supervision, equipment, and materials necessary for joining to the pipe, thrust blocking, backfilling, and clean up in accordance with the Drawings and these Specifications.

## C. Valves and Valve Boxes

Measurement of Valves and Valve Boxes will be by a count of each unit installed.

Payment for Valves and Valve Boxes will be at the Unit Price in the Tender Form and shall be considered full compensation for the supply of all labour, supervision, equipment, and materials necessary for joining to the pipe, thrust blocking, marker posts and clean up in accordance with the Drawings and these Specifications.

## D. Fire Hydrants

Measurement of Fire Hydrants will be by a count of each unit installed.

Payment for Fire Hydrants will be at the Unit Price in the Tender Form and shall be considered full compensation for the supply of all labour, supervision, equipment, and materials necessary to install the fire hydrants in accordance with the Drawings and these Specifications. (Tee, Valve, Box, and Pipe not included.)

## E. Connection to Existing Water Mains

Measurement of Connection to Existing Water Mains will be by a count of each unit installed.

Payment for Connection to Existing Water Mains will be at the Unit Price in the Tender Form and shall be considered full compensation for the supply of all labour, supervision, equipment, and materials necessary to remove existing plugs and caps, and/or cut existing mains, remove excess water from the trench, disinfection and connecting the water main to the existing system in accordance with the Drawings and these Specifications.

Payment for valves, fittings and mechanical couplings used for the connection will be made separately at the appropriate Unit Price in the Tender Form.

PART 1 GENERAL

## 1.01 DESCRIPTION

## A. Work Included

This Specification refers to Landscape Restoration of the grassed areas and ditch drainage disturbed by construction.

## 1.02 PRODUCT HANDLING

## A. Delivery/Storage

1. Deliver grass seed in original container showing analysis of seed mixture, percentage of pure seed, year of production, net weight, date of packaging and location of packaging.
2. Supply Canada No. 1 seed as set forth in the Canada Seed Act, that is fresh, clean and of a new crop.

PART 2 PRODUCTS

## 2.01 MATERIALS

## A. Topsoil

Topsoil shall be hauled from the stockpile of previously stripped material, or imported topsoil.

## B. Seed

Seed proportioning shall conform to the following:

Brome Grass	50 %
Crested Wheat Grass	50 %

## 2.02 OTHER MATERIALS

All other materials, not specifically described but required for a complete and proper installation of the work of this Specification, shall be new, first quality of their respective kinds, and subject to approval of the Engineer.

PART 3 EXECUTION

## 3.01 APPLICATION/INSTALLATION/PERFORMANCE

## A. Preparation

1. The area to be seeded including the existing ditch, shall be smooth and uniform, and shall conform to the cross section required.

## B. Sowing of Seed

1. Upon completion of all other work, and at a time suitable for seeding, seed the areas behind the curb disturbed by construction.
2. No seeding shall be done during windy days, when the ground is wet, or otherwise non-tillable and if conditions or time of seeding will be adverse to satisfactory germination.
3. Sow at rate of 100 kg./ha., unless otherwise specified.
4. Cover grass seed using a flexible-toothed weeder or other suitable equipment, by stirring the ground not deeper than 10 mm.

PART 4 MEASUREMENT AND PAYMENT

## 4.01 LANDSCAPE RESTORATION

Measurement of Landscape Restoration, will be in square metres, measured horizontally along the length and width of the area seeded.

Payment for Landscape Restoration will be at the Unit Price in the Tender Form and shall be considered full compensation for all labour, material and supervision to obtain the desired growth in accordance with the Drawings and these Specifications.



PART 1 GENERAL

## 1.01 DESCRIPTION

## A. Work Included

Supply, place and finish all concrete accessories, formwork, reinforcement and cast-in-place concrete required for this Work as indicated on the Drawings and including, but not necessarily limited to:

1. Concrete slabs-on-grade.

## B. Related Work Described Elsewhere

1. Trench Excavation, Bedding & Backfill : Section 02221

## 1.02 QUALITY ASSURANCE

## A. Qualifications

1. Provide at least one person who shall be present at all times during the execution of this portion of the Work and who shall be thoroughly trained and experienced in placing the types of concrete specified and who shall direct all Work performed under this Specification.
2. For finishing of exposed surfaces of the concrete, use only thoroughly trained and experienced concrete finishers.

## B. Codes and Standards

1. In addition to complying with all pertinent codes and regulations, comply with all pertinent recommendations of CSA A23.1/A23.2-14 and CSA A3000-13.
2. Where provisions of pertinent codes and standards conflict with this specification, the more stringent provisions shall govern.

## C. Inspection Testing

1. Inspection and testing of concrete work will be carried out by an independent certified materials testing firm appointed by the Contractor and approved by the Engineer and paid for by the Owner under a cash allowance.
2. Three test cylinders will be taken in accordance with CSA 23.1/A23.2-14 from each 60m<sup>3</sup> or less of concrete placed. Provide sufficient concrete as directed to laboratory for testing.
3. One additional test cylinder will be taken during cold weather concreting. Cure cylinder on jobsite under same conditions as concrete it represents.
4. At least one slump test and air content test will be taken in accordance with CSA A23.1/A23.2-14 for each set of test cylinders taken.

5. The contractor shall be responsible for storage, arranging and bearing the cost of transporting the concrete test cylinders, as required, to the testing firm, prior to the required date of testing.

D. Additional Testing

1. Supply any additional testing required as a result of the original tests failing to meet the requirements of CSA A23.1/A23.2-14.

1.02 SUBMITTALS

1. Submit reinforcing steel Shop Drawings to the Engineer for review prior to delivery of any materials to the job site.
2. Submit proposed mix design to Engineer for approval prior to commencement of Work.

PART 2 PRODUCTS

2.01 MATERIALS

A. Concrete Accessories

1. Bollards: 150 mm dia, standard wall steel pipe, exposed and painted.

B. Form Work

1. Formwork Materials: conforming to CSA A23.1/A23.2-14 and CSA S269.3, plain re-usable pre-coated plywood sheets or formed steel sections.

C. Concrete Reinforcement

1. Reinforcing Bars: billet steel, Grade 400 deformed bars conforming to CSA G30.18.

D. Cast-in-Place Concrete

1. Cement: Portland, conforming to CSA A3000-13.
2. Water, Fine Aggregate, Coarse Aggregates: conforming to CSA A266.1.
3. Air Entraining Admixtures: conforming to CSA A23.1/A23.2-14.
4. Chemical Admixtures: conforming to CSA A266.2.
5. Pozzolans: conforming to CSA A266.6.

## E. Concrete Mix

Type HS High Sulphate Resistant Portland cement

Compressive strength at 28 days	30 MPa
Aggregate, Nominal	25 mm.
Air Entrainment $\pm 1$ %	6 %
Maximum Water/Cement Ratio	0.5
Maximum Slump	75 mm.

## 2.02 OTHER MATERIALS

All other materials, not specifically described but required for a complete and proper installation of cast-in-place concrete shall be as selected by the Contractor subject to the approval of the Engineer.

PART 3 EXECUTION

## 3.01 INSTALLATION/APPLICATION/PERFORMANCE

## A. Concrete Accessories

1. Install bollards at the depth and location as shown on the drawings.
2. Bollards shall be concrete filled with domed tip finish.

## B. Formwork

1. Construct forms and falsework to produce finished concrete conforming to the shape, dimensions and locations shown on the Drawings and in accordance with CSA A23.1/A23.2-14 and CSA S269.3.

## C. Concrete Reinforcement

1. Detail, fabricate, and place all concrete reinforcement as detailed on the Drawings in accordance with CSA A23.1/A23.2-14.
2. Submit reinforcing steel Shop Drawings to the Engineer for review.

## D. Cast-In-Place Concrete

1. Maintain accurate records of poured concrete items. Record date, time, location of pour quality, air temperatures, test samples taken and method of placing.
2. Ensure that reinforcement, inserts, or accessories are not disturbed during concrete placement.
3. Conform cold weather concreting to CSA A23.1/A23.2-14.
4. Conform hot weather concreting to CSA A23.1/A23.2-14.

5. Do not place concrete when, in the opinion of the Engineer, the weather is not suitable.
6. Advise the Engineer to inspect formwork and reinforcement prior to placing concrete.
7. Place and consolidate all concrete in accordance with CSA A23.1/A23.2-14.
8. Cure all concrete in accordance with CSA A23.1/A23.2-14.
9. Finish all backfill formed surfaces by removing all ties, bolts and metal to a depth of 25 mm. and filling all holes with non-shrink grout.
10. Excessive honeycomb or embedded debris in any concrete shall be deemed defective. Remove and replace defective concrete.

#### PART 4 MEASUREMENT AND PAYMENT

##### 4.01 CONCRETE

Payment for Concrete will not be made directly but will be included in the appropriate Unit Price for Concrete Pad and Bollards in the Tender Form and shall be considered full compensation for the supply of all labour, supervision, equipment and materials necessary to complete the Work in accordance with the Drawings and these Specifications.