



**SPH ENGINEERING INC**  
Real World Engineering Solutions

1-65 Springbank Avenue North  
Woodstock, Ontario N4S 8V8

**TENDER SPECIFICATIONS  
WOODSTOCK TRANSIT BUILDING  
CONTRACT # 11048  
BUS SHELTER/STORAGE FACILITY  
EXPANSION  
WOODSTOCK, ONTARIO**



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**PART 1 General**

**1.1 BID CALL**

- .1 Offers signed under seal, executed, and dated will be received by the Owner via Electronic Proposal only
  - .1 Electronic Proposal submissions through the City's Bid and Tenders webpage at <http://cityofwoodstock.bidsandtenders.ca> hereafter called the "**Bidding System**"
  - .2 Before 2:00 pm local time on the 1st day of October 2021.
- .2 Late bids will not be accepted by the Owner's Bidding System.
- .3 Hard-Copy bid submissions shall NOT be accepted.
- .4 To ensure receipt of the latest information and updates via email regarding this bid or if a bidder has obtained this Tender Document from a third party, the onus is on the Bidder to create a Bidding System Vendor account at <http://cityofwoodstock.bidsandtenders.ca> and register as a Plan Taker for the bid opportunity.
- .5 Bidders are cautioned that the timing of their Bid Submission is based on when the Bid is received by the bidding system, not when a Bid is submitted by a bidder, as bid transmission can be delayed due to file transfer size, transmission speed, etc. The onus is on the bidder to leave sufficient time to account for these unpredictable possibilities to ensure the bid is received through the Bidding System prior to the closing time.

**1.2 BID INTENT**

- .1 The intent of this bid call is to obtain an offer to perform work to complete construction of an expansion to an existing bus shelter for use by the City of Woodstock's Transit Department.
- .2 Perform the Work within the time stated in Section 01100.

**1.3 CONTRACT DOCUMENTS IDENTIFICATION**

- .1 The Contract Documents are identified as Contract 11048 and SPH Engineering Project number 20162 as prepared by the Consultant, SPH Engineering Inc. located at 65 Springbank Ave North, Woodstock, Ontario.

**1.4 BID AND CONTRACT DOCUMENT DEFINITIONS**

- .1 Contract Documents: Defined in CCDC 2 - Stipulated Price - 2008 Edition, Definitions.
- .2 Bid Documents: Contract Documents supplemented with Instructions to Bidders, Soils Investigation Data, Bid Form, Bid Securities and Bid Supplementary Forms identified herein.
- .3 Bid, Offer, or Bidding: act of submitting an offer under seal.
- .4 Bid Price: Monetary sum identified by the Bidder in the Bid Form.

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**1.5 DOCUMENT AVAILABILITY**

- .1 Tender documents are available on-line from the City of Woodstock web-site under Bids and Tenders. Please follow instructions. Tender takers must register on-line and addendums are also sent to them on-line. Contractors wishing to submit a tender for this project must obtain the official tender documents from the City of Woodstock as noted above.
- .2 Bid Documents are made available only for the purpose of obtaining offers for this project. Their use does not confer a license or grant for other purposes.

**1.6 DOCUMENT EXAMINATION**

- .1 Upon receipt of Bid Documents verify that documents are complete; notify Consultant should the documents be incomplete.
- .2 Immediately notify the Consultant upon finding discrepancies or omissions in the Bid Documents.

**1.7 QUERIES/ADDENDA**

- .1 Addenda are issued through registered plan takers through the City of Woodstock.
- .2 Addenda may be issued during the bidding period. All addenda become part of the Contract Documents. Include costs in the Bid Price.
- .3 Addenda will only be issued to general contractors registered with the City of Woodstock
- .4 Verbal answers are only binding when confirmed by written addenda.
- .5 Clarifications requested by bidders must be in writing not less than five (5) days before date set for receipt of bids. The reply will be in the form of an addendum, a copy of which will be forwarded to known general contract bidders.

**1.8 PRODUCT/SYSTEM OPTIONS**

- .1 Where the Bid Documents stipulate a particular product, alternatives will be considered by the Owner up to five (5) days before receipt of bids.
- .2 When a request to substitute a product is made, the Consultant or Owner may approve the substitution and will issue an Addendum to known bidders.
- .3 In submission of alternatives to products specified, bidders shall include in their bid, any changes required in the Work to accommodate such alternatives. A later claim by the bidder for an addition to the Contract Price because of changes in work necessitated by use of alternatives shall not be considered.

**1.9 SITE EXAMINATION**

Site examination meeting will be held

At 10:00 am local time on the 21<sup>st</sup> day of September 2021

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**1.10 CONTRACTOR QUALIFICATION**

- .1 Submit one copy of CCDC 11 – 2018 “Contractor’s Qualification Statement”
- .2 Submit project descriptions of related construction projects and experience
- .3 Submit resumes of key management personnel
- .4 Submit contractors Health and Safety Policy for review by owner
- .5 Submit most recent CAD7 as issued by WSIB
- .6 Other relevant information to assist owner in determine qualifications and experience of bidder for this project.

**1.11 SUBCONTRACTORS**

- .1 The Owner (as further described in the General Conditions) reserves the right to reject a proposed subcontractor for reasonable cause.
- .2 Refer to CCDC 2, Article GC 3.7 of General Conditions.

**1.12 BID INELIGIBILITY**

- .1 Bids that are unsigned, improperly signed or sealed, conditional, illegible, obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind, may, at the discretion of the Owner, be declared informal.
- .2 Bid Forms and enclosures which are improperly prepared may, at the discretion of the Owner, be declared informal.
- .3 Failure to provide security deposit, bonding or insurance requirements may, at the discretion of the Owner, be declared informal.

**1.13 BID SUBMISSIONS**

- .1 Bidders shall be solely responsible for the delivery of their bids in the manner and time prescribed.
- .2 Electronic submission only. Hard copy delivery will not be accepted. Refer to 1.1.1 Bid Call for additional information

**1.14 SECURITY DEPOSIT**

- .1 Bids shall be accompanied by a security deposit as follows:
  - .1 Bid bond or certified cheque in the amount of not less than ten (10) % of the bid price
  - .2 Endorse the Bid Bond or certified cheque in the name of the Owner as obligee, signed and sealed by the principal (Contractor) and surety.

- .2 The security deposit will be returned after delivery to the Owner of the required Performance and Labour and Materials Payment Bonds by the accepted bidder.
- .3 If no contract is awarded, all security deposits will be returned.

#### **1.15 AGREEMENT TO BOND**

- .1 Submit with the Bid Form and Bid Bond or certified cheque, an Agreement to Bond, stating that the surety providing the Bid Bond is willing to supply the Performance and Labour and Materials Bond required.

#### **1.16 PERFORMANCE ASSURANCE**

- .1 The accepted bidder shall provide a Performance and Labour and Materials Payment bond as described in the Supplementary Conditions.

#### **1.17 INSURANCE**

- .1 Provide a signed "Undertaking of Insurance" on a standard form provided by the insurance company stating their intention to provide insurance to the bidder in accordance with the insurance requirements of the Contract Documents.

#### **1.18 BID FORM REQUIREMENTS**

- .1 The bidder, in submitting an offer, agrees to complete the Work by the date indicated in the Contract.
- .2 The Owner requires that under the work of this contract be completed as quickly as possible and consideration will be given to time of completion when reviewing the submitted bids.

#### **1.19 FEES FOR CHANGES IN THE WORK**

- .1 Include in the Bid Form, the overhead and profit fees applicable for changes in the Work, whether additions to or deductions from the Work on which the Bid Price is based.
- .2 Include in the Bid Form, the fees proposed for subcontract work for changes (both additions and deductions) in the Work. The Contractor shall apply fees as noted, to the subcontractor's gross (net plus fee) costs on additional work.

#### **1.20 BID SIGNING**

- .1 The Bid Form shall be signed under seal by the bidder.
- .2 Sole Proprietorship: Signature of sole proprietor in the presence of a witness who will also sign. Insert the words "Sole Proprietor" under the signature. Affix seal.
- .3 Partnership: Signature of all partners in the presence of a witness who will also sign. Insert the word "Partner" under each signature. Affix seal to each signature.
- .4 Limited Company: Signature of a duly authorized signing officer(s) in their normal signatures. Insert the officer's capacity in which the signing officer acts, under each signature. Affix the corporate seal. If the bid is signed by officials other than the



President and Secretary of the company, or the President-Secretary-Treasurer of the company, a copy of the by-law resolution of the Board of Directors authorizing them to do so, must also be submitted with the Bid in the Bid envelope.

- .5 Joint Venture: Each party of the joint venture shall execute the Bid under their respective seals in a manner appropriate to such party as described above, similar to the requirements of a Partnership.

#### **1.21 APPENDICES TO THE BID FORM**

- .1 Appendix 'A' - Contract Documents: Drawings and Specifications prepared by SPH Engineering Inc.
- .2 Appendix 'B' - Subcontractors: Include the names of all Subcontractors and the portion(s) of the Work the Bidder will perform.
- .3 Appendix 'C' - Unit Prices: Include a listing of any unit prices specifically requested by the Owner
- .4 Appendix 'D' - Alternatives: Include the cost variation to the Bid Price applicable to the work described in Section 01200.
- .5 Appendix 'E' - Separate Prices: Include a listing of separate prices as specifically requested in the Contract Documents.

#### **1.22 DURATION OF OFFER**

- .1 Bids shall remain open to acceptance and shall be irrevocable for a period of sixty (60) days after the bid closing date.

#### **1.23 ACCEPTANCE OF OFFER**

- .1 The Owner reserves the right to accept or reject any or all offers.
- .2 After acceptance by the Owner, the Owner or the Consultant on behalf of the Owner will issue to the successful bidder, a written notice to proceed
- .3 After a bid has been accepted, all rejected bids will be returned to the respective bidders with submitted bid securities.

END OF DOCUMENT

Date: \_\_\_\_\_  
Submitted by: \_\_\_\_\_  
(name) \_\_\_\_\_  
(address) \_\_\_\_\_  
\_\_\_\_\_

To: City of Woodstock  
500 Dundas Street  
Woodstock, Ontario

Project: City of Woodstock – Woodstock Transit Building – Bus Shelter Expansion

**PART 1 Bid Form**

**1.1 OFFER**

- .1 Having examined the Place of The Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by SPH Engineering Inc. for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the as shown:

Project Cost \$ \_\_\_\_\_

Federal Tax (HST) \$ \_\_\_\_\_

**PROJECT TOTAL** \$ \_\_\_\_\_

\_\_\_\_\_ dollars, in lawful money of Canada.

- .2 We have included herewith, the required security (Bid Bond or Certified Cheque) as required by the Instruction to Bidders.
- .3 All applicable federal taxes are included and provincial taxes are included in the Bid Price.
- .4 All Cash and Contingency allowances described in Section 01200 are included in the Bid Price.

**1.2 ACCEPTANCE**

- .1 This offer shall be open to acceptance and is irrevocable for sixty (60) days from the Bid closing date.
- .2 If this Bid is accepted by the Owner within the time period stated above, we will:
- .1 Execute the 'Agreement' within seven days of receipt of the form of execution.
- .2 Furnish the required bonds within seven days of receipt of the Agreement in the form described in the Supplementary Conditions.
- .3 Commence construction work on site after written notification of acceptance of this bid April 1, 2022

- .4 Complete the Work six (6) months from start date.
- .3 If this Bid is accepted within the time stated herein, and we fail to commence the Work or we fail to provide the required Bond(s), the security deposit shall be forfeited as damages to the Owner by reason of our failure, limited in amount to the lesser of the face value of the deposit or the difference between this Bid and the Bid which the Contract is signed.
- .4 In the event our Bid is not accepted within the time stated above, the required security deposit shall be returned to the undersigned, in accordance with the provisions in the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.

**1.3 APPENDICES**

- .1 A list of the Contract Documents is appended hereto and identified as 'Appendix A'.
- .2 A list of Subcontractors is appended hereto and identified as 'Appendix B'.
- .3 A list of Unit Prices is appended hereto and identified as 'Appendix C'.
- .4 A list of Alternatives is appended hereto and identified as 'Appendix D'.
- .5 A list of Separate Prices is appended hereto and identified as 'Appendix E'.

**1.4 ADDENDA**

- .1 The following Addenda have been received. The modifications to the Contract Documents noted therein have been considered and all costs thereto are included in the Bid Price.  
Addendum # \_\_\_\_\_ Dated \_\_\_\_\_  
Addendum # \_\_\_\_\_ Dated \_\_\_\_\_  
Addendum # \_\_\_\_\_ Dated \_\_\_\_\_

**1.5 CHANGES**

- .1 When the Owner establishes that the method of valuation for Changes in the Work will be net cost plus a percentage fee in accordance with CCDC 2 - Article GC 12.1 of the General Conditions, our percentage fee will be:
- .2 (\_\_\_\_\_)% overhead and profit on the net cost of our own work; (\_\_\_\_\_)% on the cost of work done by any subcontractor.
- .3 On work deleted from the Contract, our credit to the Owner shall be the Owner approved net cost plus 1/2 of the overhead and profit percentage noted above.

**1.6 BID FORM SIGNATURE(S)**

The Corporate Seal of

\_\_\_\_\_  
(Bidder - please print)  
was hereunto affixed in the presence of:

\_\_\_\_\_  
Authorized signing officer  
(Seal)

\_\_\_\_\_  
Title

\_\_\_\_\_  
Authorized signing officer

\_\_\_\_\_  
Title

If the Bid is a joint venture or partnership, add additional forms of execution for each member of the joint venture in the appropriate form or forms as above.

Appendix A: The following is the list of Contract Documents referred to in Article 1.3 of the Bid Form submitted by:

(Bidder) \_\_\_\_\_  
(Owner) \_\_\_\_\_ dated \_\_\_\_\_  
\_\_\_\_\_ and which is an integral part of the Bid Form.

Drawings prepared by SPH Engineering Inc.:

- C1.1 Cover Page, Key Plan & Building Code Matrix
- D1 Demolition Plan
- P1 Site Plan
- P2 Grading Plan
- P3 Servicing Plan
- P4 Details
- A1.1 Floor Plan
- A2.1 Exterior Elevations
- A3.1 Building Sections
- A4.1 Architectural Schedules & Details
- G0.1 Foundation Schedules & Typical Details
- G1.0 Demolition Existing Foundation Plan
- G1.1 Foundation Plan
- G2.1 Foundation Sections
- S1.0 Demolition Existing Roof Framing Plan
- S1.1 Roof Framing Plan
- S2.1 Structural Elevations
- M0.1 Mechanical Specifications
- M0.2 Mechanical Legends, Notes & Schedules
- MD1 Existing / Demo HVAC Layout
- MD2 Existing Sanitary Layout
- M1 New Mechanical Layout
- M2 New Sanitary Layout
- E0.1 Electrical Specifications
- E0.2 Electrical Legend & Schedules
- ED1 Existing / Demo Electrical Layout
- E1 New Electrical Power Layout
- E2 New Electrical Lighting Layout

Specifications as contained in the Table of Contents and on the drawings.





Appendix D: The following is the list of Alternatives referred to in Article 1.3 of the Bid Form submitted by:

(Bidder) \_\_\_\_\_  
(Owner) \_\_\_\_\_

dated \_\_\_\_\_ and which is an integral part of the Bid Form.

Refer to Section 01200 - Price and Payment Procedures (Alternatives):

Alternative # 1(Add) (Deduct) \$ \_\_\_\_\_

Alternative # 2(add) (Deduct) \$ \_\_\_\_\_



Appendix E: The following is the list of Separate Prices referred to in Article 1.3 of the Bid Form submitted by:

(Bidder) \_\_\_\_\_

(Owner) \_\_\_\_\_

dated \_\_\_\_\_ and which is an integral part of the Bid Form.

**Separate price # 1:**

None

Separate Price #1

\$ \_\_\_\_\_

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END OF DOCUMENT

**PART 1      General**

**1.1            AGREEMENT AND DEFINITIONS**

.1            DECLARATION

- .1            CCDC 2 -2008 Edition of the Stipulated Price Contract as may be amended, forms the basis of Agreement between the Owner and Contractor including the Definitions of specific words and terms.

**1.2            Definitions**

.1            Add a new Definition as follows:

- .1            Bid Documents: Consist of the Contract Documents, Instructions to Bidders, Soils Investigation Report (for bidders information only), Bid Form, and other information issued for the benefit of bidders.

END OF DOCUMENT

**PART 1      General Conditions**

- .1      CCDC 2 - 2008 The General Conditions of the Stipulated Price Contract - is the General Conditions between the Owner and Contractor.

**PART 2      Supplementary Conditions**

- .1      Refer to Document 00805 - Supplementary Conditions for amendments to these General Conditions.

END OF DOCUMENT

**PART 1       Supplements to General Conditions**

**1.1           GC 11.2 Bonds: Add the following paragraphs:**

11.2.4       The Contractor shall also provide, at the request of the owner, a Performance and Labour and Material Payment Bond in the name of the Owner for fifty (50) percent of the Contract Price, to assume faithful payment of monies to parties in contract with the Contract; on Labour and Material Payment Bond Form CCDC 222. Cost of bond to be included as a separate price.

**1.2           Supplementary Conditions to CCDC 2,2008 and CCDC41**

.1       GC11.1 Insurance

.1       Add the word “additional” to the first sentence of paragraph 11.1.1.1 as follows:.....the *Owner* and the *Consultant* as “additional” insureds.....Transit Building Bus Shelter Expansion, Woodstock, ON; SPH Project No. 20162

.2       Delete the first sentence of paragraph 11.1.1.4 and replace with the following: “Broad form” property insurance in the name of the *Contractor*, with the *Owner* and *Consultant* included as additional insureds. Broad form property insurance shall include flood coverage.

3.       Delete the first sentence of paragraph 11.1.1.5 and replace with the following: Boiler and machinery insurance in the name of the *Contractor*, with the *Owner* and *Consultant* included as additional insureds.

4.       Delete 11.1.3 in its entirety.

5.       Add new paragraphs as follows:

11.1.9 The *Contractor* shall provide and maintain in full force and effect, a Wrap Up Liability Insurance policy:

.1       Including the *Owner*, *Consultant* and all *Subcontractors* as additional insureds and which shall extend to cover the employees of the insureds hereunder, containing a clause to provide that the inclusion of more than one insured shall in no way effect the rights of any insured with respect to any claim, demand, suit or judgement made against any other insured. Each party shall receive a certified copy of this policy.

.2       Providing for a combined single limit of five millions dollars (\$5,000,000.00) for each occurrence of accident.

.3       Providing coverage for damage due to bodily injury, including death at any time resulting therefrom, sustained by any person or persons or because of injury to, or destruction of property caused by an occurrence of accident arising out of any operations in connection with this *Contract*, subject to all exclusions set forth in the said policy.

.4       Including coverage for tortuous liability, Owners or Contractor’s Protective Liability, Products or Completed Operations Liability, Contractual Liability and

- Employers Liability.
- .5 Providing for extension of such coverage to non-owned licensed motor vehicles used in connection with the *Work*. Such coverage may be provided by separate policies.
  - .6 Providing for coverage during the period of these Contractual Documents including a maintenance period of 24 months.

11.1.10 Insurance policies shall be primary coverage pursuant to which the insurer is acting as first loss insurer against the risk covered and not excess to any other insurance available to the additional named insureds.

### 1.3 GC 1.1.9 Priority of Documents

- .1 If there is a conflict within *Contract Documents* :
  - .1 the order of priority of documents, from highest to lowest, shall be:
    - The Agreement between the *Owner* and the *Contractor*,
    - The Definitions,
    - Supplementary Conditions
    - The General Conditions,
    - Division 1 of the specifications,
    - The drawings
    - Divisions 2 through 16 of the specifications,
    - Material and finishing schedules.

END OF DOCUMENT

**PART 1      General**

**1.1            REQUIREMENTS INCLUDED**

- .1      Contract description.
- .2      Project - Work covered by contract documents.
- .3      Work by Owner
- .4      Owner supplied products.
- .5      Site safety
- .6      Contractor use of site and premises.
- .7      Work Sequence and schedule
- .8      Contract Description
- .9      Definitions.
- .10     Complementary Documents
- .11     Precedence of documents.

**1.2            CONTRACT DESCRIPTION**

- .1      Contract Type: Stipulated Price as described in the Agreement.

**1.3            PROJECT - WORK COVERED BY CONTRACT DOCUMENTS**

- .1      Work under this contract comprises construction of a pre-engineered steel building expansion of approximate footprint of 4,000 square feet. The building interior will be fully open with Overhead doors on the west face. North & South building faces are fire-separated wall assemblies.
- .2      The building permit for this project is the responsibility of the owner.

**1.4            WORK BY OWNER**

- .1      None

- .2 The general contractor is to coordinate with the owner for the items under 1.4.1

## **1.5 OWNER SUPPLIED PRODUCTS**

### **.1 Owner's Responsibilities:**

- .1 Arrange for and deliver Owner reviewed Shop Drawings, Product Data, and Samples, to Contractor.
- .2 Arrange and pay for Product delivery to site.
- .3 On delivery, inspect Products jointly with Contractor.
- .4 Submit claims for transportation damage and replace damaged, defective, or deficient items.
- .5 Arrange for manufacturers' warranties, inspections, and service.

### **.2 Contractor's Responsibilities:**

- .1 Review Owner reviewed Shop Drawings, Product Data, and Samples.
- .2 Receive and unload Products at site; inspect for completeness or damage jointly with Owner.
- .3 Handle, store, install and finish Products.
- .4 Repair or replace items damaged after receipt.

### **.3 Items supplied by Owner for installation by Contractor:**

- .1 None

## **1.6 SITE SAFETY**

- .1 Construction health and safety within the working areas is of utmost importance and is the full responsibility of the Contractor. The Contractor's attention is drawn to the respective clauses of the General Conditions of Contract which deal with health and safety and which form part and parcel of this contract.
- .2 The Contractor must familiarize himself with the City of Woodstock's Occupational Health and Safety policies and their latest revisions, which, together with the most current relevant legislation, form the minimum requirements of this contract. A copy of the Health & Safety policies which the Contractor proposes to use must be prominently posted at the work site throughout the duration of this contract.
- .3 At the time of contract award, the successful tenderer must sign and abide by the Policy

on Contractor Safety and Certificate of Compliance, a copy of which is included herein with the Form of Agreement.

- .4 The City of Woodstock Occupational Health and Safety policies are available for viewing both at the Administrative Services Office and at the City Engineer's Office.

## **1.7 CONTRACTOR USE OF SITE AND PREMISES**

- .1 Construction area will be completely under the control and responsibility of the general contractor. Contractor to provide and install appropriate safety fencing to completely separate the construction site for the duration of the project.
- .2 Construction Operations: The entire site will be turned over to the contractor
- .3 Time Restrictions for Performing Work: All work shown on the contract documents must be completed by 6 months from start date.

## **1.8 WORK SEQUENCE and SCHEDULE**

- .1 Contractors are to arrange their work for the dates shown:
  - .1 Tender submission:
    - .1 October 1<sup>st</sup>, 2021
  - .2 Tender Award:
    - .1 October 25<sup>th</sup>, 2021
  - .3 Construction start:
    - .1 April 1<sup>st</sup>, 2022
    - .2 It is expected that the contractors use the period between tender award and construction start to finalize all items of contractor supply and any required shop drawing approvals.
  - .4 Construction completion of the new addition and renovation
    - .1 Six (6) months from construction start date.
- .2 The general contractor is to provide a schedule of construction within five (5) days of receipt of notification to proceed.
- .3 Time is of the essence in completion of the construction work. The site is available for construction work at all times. The general contractor is expected to arrange resources to complete the work by the date referred to in 1.8.1.4



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## **1.9 Contract Description**

- .1 Division 1 - General Requirements
- .2 Provide all work identified in the project documents.

## **1.10 DEFINITIONS**

- .1 The following Definitions supplement the Contract Definitions and apply to all Contract Documents.
  - .1 Consultant: Means the licensed design professional of record, identified as the author of the Contract Documents.
  - .2 Supply: Means to acquire or purchase, ship or transport to the site, unload, remove packaging to permit inspection for damage, re-package, replace damaged items, and safely store on-site.
  - .3 Install: Means to remove from site storage, move or transport to intended location, install in position, connect to utilities, repair site caused damage or replace, and make ready for use.
  - .4 Provide: Means to supply and install.
  - .5 Quality Assurance: Planned or systematic actions necessary to provide adequate confidence that a product, process, or service will conform to establish requirements.
  - .6 Quality Control: Inspection, testing, evaluation, or other necessary action to verify that a product, process, or service conforms to established requirements and specifications.

## **1.11 COMPLEMENTARY DOCUMENTS**

- .1 Drawings, specifications, and schedules are complementary each to the other and what is called for by one to be binding as if called for by all. Should any discrepancy appear between documents, which leave doubt as to the intent or meaning, obtain direction from the Consultant.
- .2 Drawings indicate general location and route of conduit and wire/conductors. Install conduit or wiring/conductors and plumbing piping not shown or indicated diagrammatically in schematic or riser diagrams to provide an operational assembly or system.

- .3 Install components to physically conserve headroom, to minimize furring spaces, or obstructions.
- .4 Locate devices with primary regard for convenience of operation and usage.
- .5 Examine all discipline drawings, specifications, and schedules and related Work to ensure that Work can be satisfactorily executed. Conflicts or additional work beyond work described to be brought to attention of Consultant.

#### **1.12 PRECEDENCE OF DOCUMENTS**

- .1 In the event of conflict within and between the Contract Documents, the order of priority within specifications and drawings are - from highest to lowest:
  - .1 Agreement - Between Owner and Contractor,
  - .2 Supplementary Conditions (if any),
  - .3 General Conditions of the Contract,
  - .4 Sections of Division 1 of the specifications,
  - .5 Drawings:
    - .1 Drawings of larger scale shall govern over those of smaller scale of the same date, then
    - .2 Dimensions shown on drawings shall govern over dimensions scaled from drawings, then
    - .3 Location of utility outlets indicated on architectural detail drawings takes precedence over positions or mounting heights located on mechanical or electrical drawings.
  - .6 Schedules and keynotes:
    - .1 Schedules on drawings, then
    - .2 Schedules within the specifications.
  - .7 Specifications:
    - .1 Specifications specifically indicated on drawings, and
    - .2 Sections of Divisions 2 through 8 of the specifications.
  - .8 Later dated documents shall govern over earlier documents of the same type.
- .2 In the event of conflict between documents, the decision of the Consultant shall be final.

**PART 2      Products**

.1      Not Used.

**PART 3      Execution**

.1      Not Used.

END OF SECTION

**PART 1        General**

**1.1            REQUIREMENTS INCLUDED**

- .1      Cash Allowances
- .2      Inspecting and testing allowances.
- .3      Application for payment.
- .4      Change procedures.
- .5      Defect assessment.
- .6      Measurement and payment - unit prices.
- .7      Substitutions.
- .8      Alternatives.
- .9      Separate prices.

**1.2            RELATED REQUIREMENTS**

- .1      Section 01600 - Product Requirements: Product substitutions and options.

**1.3            CASH ALLOWANCES**

- .1      Costs Included in Cash Allowances: Cost of Product to Contractor or subcontractors, less applicable trade discounts; delivery to site, and applicable taxes.
- .2      If a Cash Allowance item described in the Allowances Schedule below indicates the inclusion of installation, include in the Cash Allowance amount, provision for Product handling at the site, including unloading, uncrating, storage, protection of Products from elements and from damage, labour for installation and finishing, insurance, labour costs, taxes, bonding if applicable, equipment rental, overhead and profit.
- .3      If a Cash Allowance item described in the Allowances Schedule below indicates supply only, include in the Contract Price costs not included in Cash Allowances but included in the Contract Price: Product handling at the site including unloading, uncrating, storage, protection of Products from elements and from damage, labour for installation and finishing, insurance, labour costs, taxes, bonding if applicable, equipment rental, overhead and profit.
- .4      Consultant Responsibilities:
  - .1      Consult with Contractor for consideration and selection of Products, suppliers, and installers.
  - .2      Owner and Consultant to select Products.
  - .3      Prepare Change Order.

- .5 Contractor Responsibilities:
  - .1 Assist Consultant in selection of Products, suppliers and installers.
  - .2 Obtain proposals from suppliers and installers and offer recommendations.
  - .3 On notification of selection by Consultant or Owner, execute purchase agreement with designated supplier and installer.
  - .4 Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
  - .5 Promptly inspect Products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.
- .6 Differences in costs will be adjusted by Change Order.
- .7 Allowances Schedule:
  - .1 Include the stipulated sum of \$1,000 for purchase, delivery, and installation of all door hardware.

#### **1.4 INSPECTING AND TESTING ALLOWANCES**

- .1 Costs Included in Inspecting and Testing Allowances: Cost of engaging an inspecting or testing agency; execution of inspecting and tests; and reporting results.
  - .1 Testing agency to provide testing procedure outlining tests, testing frequency, any quantities and procedures to Owner and Consultant.
- .2 Costs Not Included in the Inspecting and Testing Allowance But Included in the Contract Price:
  - .1 Costs of incidental labour and facilities required to assist inspecting or testing agency.
  - .2 Costs of testing services used by Contractor separate from Contract Document requirements.
  - .3 Costs of retesting upon failure of previous tests as determined by Consultant.
- .3 Payment Procedures:
  - .1 Submit one copy of the inspecting or testing firm's invoice with next application for payment.
  - .2 Pay invoice on approval by Consultant.
- .4 Inspecting and Testing Allowances Schedule:
  - .1 Include the sum of \$4,000 for miscellaneous testing that may be required.
- .5 Differences in cost will be adjusted by Change Order.

#### **1.5 APPLICATIONS FOR PAYMENT**

- .1 Submit three copies of each application on Contractor's electronic media driven form.
- .2 Include copies of invoices for amounts drawn on allowances.

- .3 Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- .4 Payment Period: 30 days.
- .5 Include an updated construction progress schedule, statutory declaration and current WSIB Clearance Certificate for all trades.

## **1.6 CHANGE PROCEDURES**

- .1 The Consultant will advise of minor changes in the Work not involving an adjustment to Contract Price or Contract Time as authorized by issuing supplemental instructions.
- .2 The Consultant may issue a Notice of Change which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change. Contractor will prepare and submit an estimate within three (3) days.
- .3 The Contractor may propose changes by submitting a request for change to the Consultant, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Price and Contract Time with full documentation. Document any requested substitutions.
- .4 Stipulated Price Change Order: Based on Proposal Request or Notice of Change and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by Consultant.
- .5 Change Order Forms: CCDC 24 Change Order.
- .6 Execution of Change Orders: Consultant will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

## **1.7 DEFECT ASSESSMENT**

- .1 Replace the Work, or portions of the Work, not conforming to specified requirements.
- .2 If, in the opinion of the Owner, it is not practical to remove and replace the Work, the Owner will direct an appropriate remedy or adjust payment.

## **1.8 SUBSTITUTIONS**

- .1 Consultant will consider requests for Substitutions only within five (5) days after date of Owner-Contractor Agreement.
- .2 Substitutions will not be considered when a Product becomes unavailable through no fault of the Contractor.
- .3 Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- .4 A request constitutes a representation that the Bidder or Contractor:
  - .1 Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.

- .2 Will provide the same warranty for the Substitution as for the specified Product.
  - .3 Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
  - .4 Waives claims for additional costs or time extension which may subsequently become apparent.
  - .5 Will reimburse Owner and Consultant for review or redesign services associated with re-approval by authorities.
- .5 Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- .6 Substitution Submittal Procedure:
- .1 Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
  - .2 Submit shop drawings, product data, and certified test results attesting to the proposed Product equivalence. Burden of proof is on proposer.
  - .3 The Consultant will notify Contractor in writing of decision to accept or reject request.

## **1.9 ALTERNATIVES**

- .1 Accepted Alternatives will be identified in Owner-Contractor Agreement.
- .2 Submit alternatives identifying the effect on adjacent or related components.
- .3 Alternatives quoted on Bid Forms will be reviewed and accepted or rejected at the Owner's option. Accepted alternatives will be identified in the Owner-Contractor Agreement.
- .4 Coordinate related work and modify surrounding work to integrate the Work of each alternative.

## **1.10 SEPARATE PRICES**

- .1 Separate Price items do NOT replace or substitute items already in the Bid Documents. Accepted Separate Prices will be:
  - .1 identified in the Construction Agreement as an increase to the Bid Price, or
  - .2 in a subsequent Change Order.
- .2 Submit Separate Prices to identify items that may be added to the Contract, at the Owner's option. Include in the quoted Separate Price, overhead and profit, the effect on adjacent or related components already in the Work described in the Bid Documents.
- .3 Coordinate related Work and modify surrounding Work to integrate the work of each Separate Price.

Schedule of Separate Prices: Refer to Bid Form.

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**PART 2      Products**

.1      Not Used

**PART 3      Execution**

.1      Not Used

END OF SECTION



**PART 1      General**

**1.1            REQUIREMENTS INCLUDED**

- .1      Submittal procedures.
- .2      Construction progress schedules.
- .3      Proposed Products list.
- .4      Product data.
- .5      Shop Drawings.
- .6      Samples.
- .7      Design data.
- .8      Test reports.
- .9      Certificates.
- .10     Manufacturer's instructions.
- .11     Manufacturer's field reports.
- .12     Erection drawings.
- .13     Construction photographs.

**1.2            RELATED REQUIREMENTS**

- .1      Section 01400 - Quality Requirements: Manufacturers' field services and reports.
- .2      Section 01700 - Execution Requirements: Contract, warranties, and closeout submittals.

**1.3            SUBMITTAL PROCEDURES**

- .1      Transmit each submittal with accepted form.
- .2      Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate.
- .3      Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- .4      Schedule submittals to expedite the Project, and deliver to Owner at stated address. Coordinate submission of related items.
- .5      For each submittal for review, allow ten (10) days excluding delivery time to and from the contractor.

- .6 Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- .7 Provide space for Contractor and Consultant review stamps.
- .8 When revised for resubmission, identify all changes made since previous submission.**
- .9 Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- .10 Submittals not requested will not be recognized or processed.

#### **1.4 CONSTRUCTION PROGRESS SCHEDULES**

- .1 Submit initial schedule in duplicate within five (5) days after date established in Notice to Proceed.
- .2 Revise and resubmit as required.
- .3 Submit revised schedules with each Application for Payment, identifying changes since previous version.
- .4 Submit a computer generated horizontal bar chart with separate line for each section of Work, identifying first work day of each week.
- .5 Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- .6 Indicate estimated percentage of completion for each item of Work at each submission.
- .7 Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner and required by Allowances.

#### **1.5 PROPOSED PRODUCTS LIST**

- .1 Within (5) five days after date of Notice to Proceed, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- .2 For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

#### **1.6 PRODUCT DATA**

- .1 Product Data For Review:
  - .1 Submitted to Consultant for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
  - .2 After review, provide copies and distribute in accordance with Submittal Procedures article above and for record documents purposes described in Section 01700.

- .2 Product Data For Information:
  - .1 Submitted for the Consultant's knowledge as contract administrator or for the Owner.
- .3 Product Data For Project Close-out:
  - .1 Submitted for the Owner's benefit during and after project completion.
- .4 Submit the number of copies which the Contractor requires, plus two copies which will be retained by the Consultant.
- .5 Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- .6 Indicate Product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- .7 After review distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01700.

## **1.7 SHOP DRAWINGS**

- .1 Shop Drawings For Review:
  - .1 Submitted to Consultant for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
  - .2 After review, produce copies and distribute in accordance with Submittal Procedures article above and for record documents purposes described in Section 01700.
- .2 Shop Drawings For Information:
  - .1 Submitted for the Consultant's knowledge as contract administrator or for the Owner.
- .3 Shop Drawings For Project Close-out:
  - .1 Submitted for the Owner's benefit during and after project completion.
- .4 Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- .5 Submit (1) electronic copy and (5) complete copies in the form of opaque reproduction.

## **1.8 SAMPLES**

- .1 Samples For Review:
  - .1 Submitted to Consultant for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
  - .2 After review, produce duplicates and distribute in accordance with Submittal Procedures article above and for record documents purposes described in Section 01700.
- .2 Samples For Information:

- .1 Submitted for the Consultant's knowledge as contract administrator or for the Owner.
- .3 Samples For Selection:
  - .1 Submitted to Consultant for aesthetic, colour, or finish selection.
  - .2 After review, produce duplicates and distribute in accordance with Submittal Procedures article above and for record documents purposes described in Section 01700.
- .4 Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- .5 Include identification on each sample, with full Project information.
- .6 Submit the number of samples specified in individual specification sections; one of which will be retained by Consultant.
- .7 Reviewed samples which may be used in the Work are indicated in individual specification sections.
- .8 Samples will not be used for testing purposes unless specifically stated in the specification section.

## **1.9 DESIGN DATA**

- .1 Submit for the Consultant's knowledge as contract administrator or for the Owner.
- .2 Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

## **1.10 TEST REPORTS**

- .1 Submit for the Consultant's knowledge as contract administrator or for the Owner.
- .2 Submit test reports for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

## **1.11 CERTIFICATES**

- .1 When specified in individual specification sections, submit certification by the manufacturer, installation/application subcontractor, or the Contractor to Consultant, in quantities specified for Product Data.
- .2 Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- .3 Certificates may be recent or previous test results on material or Product, but must be acceptable to Consultant.

**1.12 MANUFACTURER'S INSTRUCTIONS**

- .1 When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Consultant for delivery to owner in quantities specified for Product Data.
- .2 Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- .3 Refer to Section 01400, Manufacturers' Field Services article.

**1.13 MANUFACTURER'S FIELD REPORTS**

- .1 Submit reports for the Consultant's benefit as contract administrator or for the Owner.
- .2 Submit report within (10) ten days of observation to Consultant for information.
- .3 Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

**1.14 ERECTION DRAWINGS**

- .1 Submit drawings for the Consultant's benefit as contract administrator or for the Owner.
- .2 Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
- .3 Data indicating inappropriate or unacceptable Work may be subject to action by the Consultant or Owner.

**1.15 CONSTRUCTION PHOTOGRAPHS**

- .1 Each month submit photographs with Application for Payment.
- .2 Photographs: One print; colour, matte; 4 x 5 inch size; mounted on 8-1/2 x 11 inch soft card stock, with left edge binding margin for three hole punch.
- .3 Take photographs from differing directions indicating the relative progress of the Work, three days maximum prior to submitting.
- .4 Identify photographs with date, time, orientation, and project identification.

**PART 2 Products**

- .1 Not Used

**PART 3 Execution**

- .1 Not Used

END OF SECTION

**PART 1      General**

**1.1            REQUIREMENTS INCLUDED**

- .1      Quality assurance - control of installation.
- .2      Coordination and project conditions.
- .3      Tolerances
- .4      References and standards.
- .5      Testing services.
- .6      Inspection services.
- .7      Pre-construction meeting.
- .8      Progress meetings.
- .9      Manufacturers' field services.

**1.2            RELATED REQUIREMENTS**

- .1      Section 01300 - Administrative Requirements: Submission of manufacturers' instructions and certificates.
- .2      Section 01400 - Quality Requirements:
- .3      Section 01700 - Execution Requirements: Starting of Systems.

**1.3            COORDINATION AND PROJECT CONDITIONS**

- .1      Coordinate scheduling, submittals, and Work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- .2      Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- .3      Coordinate space requirements, supports, and installation of mechanical and electrical Work, which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- .4      In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

- .5 Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy.
- .6 After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

#### **1.4 QUALITY ASSURANCE - CONTROL OF INSTALLATION**

- .1 Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- .2 Comply with manufacturers' instructions, including each step in sequence.
- .3 Should manufacturers' instructions conflict with Contract Documents, request clarification from Consultant before proceeding.
- .4 Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- .5 Perform Work by persons qualified to produce required and specified quality.
- .6 Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- .7 Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

#### **1.5 TOLERANCES**

- .1 Monitor fabrication and installation tolerance control of Products to produce acceptable Work. Do not permit tolerances to accumulate.
- .2 Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Consultant before proceeding.
- .3 Adjust Products to appropriate dimensions; position before securing Products in place.

#### **1.6 REFERENCES AND STANDARDS**

- .1 For Products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- .2 Conform to reference standard by date of issue current on date of Contract Documents, except where a specific date is established by code.
- .3 Obtain copies of standards where required by product specification sections.

- .4 Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Consultant shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

## **1.7 TESTING SERVICES**

- .1 Owner will appoint and employ services of an independent firm to perform testing. Contractor shall pay for services from cash allowance(s) specified in Section 01200.
- .2 The independent firm will perform tests and other services specified in individual specification sections and as required by the Consultant or Owner.
- .3 Testing and source quality control may occur on or off the project site. Perform off-site testing as required by the Consultant or the Owner.
- .4 Reports will be submitted by the independent firm to the Consultant and Contractor, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
- .5 Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labour as requested.
  - .1 Notify Consultant and independent firm 24 hours prior to expected time for operations requiring services.
  - .2 Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- .6 Testing does not relieve Contractor to perform Work to contract requirements.
- .7 Re-testing required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Consultant. Payment for re-testing will be charged to the Contractor by deducting testing charges from the Contract Sum/Price.

## **1.8 INSPECTION SERVICES**

- .1 Owner will appoint and employ services of an independent firm to perform inspection. Contractor shall pay for services from cash allowance(s) specified in Section 01200.
- .2 The independent firm will perform inspections and other services specified in individual specification sections and as required by the Consultant or Owner.
- .3 Inspecting may occur on or off the project site. Perform off-site inspecting as required by the Consultant or the Owner.
- .4 Reports will be submitted by the independent firm to the Consultant and Contractor, in duplicate, indicating inspection observations and indicating compliance or non-compliance with Contract Documents.
- .5 Cooperate with independent firm; furnish safe access and assistance by incidental labour as requested.
  - .1 Notify Consultant and independent firm 24 hours prior to expected time for operations requiring services.



- .6 Inspecting does not relieve Contractor to perform Work to contract requirements.

### **1.9 PRECONSTRUCTION MEETING**

- .1 Owner will schedule a meeting after Notice of Award.
- .2 Attendance Required: Owner, Consultant, and Contractor.
- .3 Agenda:
  - .1 Execution of Owner-Contractor Agreement.
  - .2 Submission of executed bonds and insurance certificates.
  - .3 Distribution of Contract Documents.
  - .4 Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
  - .5 Designation of personnel representing the parties in Contract, Owner and the Consultant.
  - .6 Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
  - .7 Scheduling.
- .4 Record minutes and distribute copies within two days after meeting to participants, with one copy to Consultant, Owner, participants, and those affected by decisions made.

### **1.10 SITE MOBILIZATION MEETING**

- .1 Owner will schedule a meeting at the Project site prior to Contractor occupancy.
- .2 Attendance Required: Owner, Consultant, Contractor, Contractor's Superintendent, and major Subcontractors.
- .3 Agenda:
  - .1 Use of premises by Owner and Contractor.
  - .2 Owner's requirements and occupancy.
  - .3 Construction facilities and controls provided by Owner.
  - .4 Temporary utilities provided by Owner.
  - .5 Security and housekeeping procedures.
  - .6 Schedules.
  - .7 Application for payment procedures.
  - .8 Procedures for testing.
  - .9 Procedures for maintaining record documents.
  - .10 Requirements for start-up of equipment.
  - .11 Inspection and acceptance of equipment put into service during construction period.
- .4 Record minutes and distribute copies within two days after meeting to participants, with one copy to Consultant, Owner, participants, and those affected by decisions made.

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**1.11 PROGRESS MEETINGS**

- .1 Schedule and administer meetings throughout progress of the Work at maximum bi-weekly intervals.
- .2 Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- .3 Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Consultant, as appropriate to agenda topics for each meeting.
- .4 Agenda:
  - .1 Review minutes of previous meetings.
  - .2 Review of Work progress.
  - .3 Field observations, problems, and decisions.
  - .4 Identification of problems which impede planned progress.
  - .5 Review of submittals schedule and status of submittals.
  - .6 Review of off-site fabrication and delivery schedules.
  - .7 Maintenance of progress schedule.
  - .8 Corrective measures to regain projected schedules.
  - .9 Planned progress during succeeding work period.
  - .10 Coordination of projected progress.
  - .11 Maintenance of quality and work standards.
  - .12 Effect of proposed changes on progress schedule and coordination.
  - .13 Other business relating to Work.
- .5 Record minutes and distribute copies within two days after meeting to participants, with one copy to Consultant, Owner, participants, and those affected by decisions made.

**1.12 MANUFACTURERS' FIELD SERVICES**

- .1 When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, and to initiate instructions when necessary.
- .2 Submit qualifications of observer to Consultant (10) ten days in advance of required observations.
- .3 Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

**PART 2 Products**

- .1 Not Used

**PART 3      Execution**

.1      Not Used.

END OF SECTION

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**PART 1      General**

**1.1            REQUIREMENTS INCLUDED**

- .1      Temporary Utilities: Electricity, heating, cooling, ventilation, telephone service, facsimile and internet service, water service, and sanitary facilities.
- .2      Temporary Controls: Barriers, fencing, water control, exterior enclosures, and protection of installed work.
- .3      Construction Facilities: Access roads, parking, progress cleaning and waste removal, field offices and sheds, removal of utilities, facilities, and controls, security program, entry control, and restrictions.

**1.2            RELATED REQUIREMENTS**

- .1      Section 01700 - Execution Requirements: Final cleaning.

**1.3            TEMPORARY ELECTRICITY**

- .1      Cost: By Contractor; provide and pay for power service required from utility.
- .2      Provide power outlets for construction operations, with branch wiring and distribution boxes located as required. Provide flexible power cords as required.
- .3      Permanent convenience receptacles may be utilized during construction.

**1.4            TEMPORARY HEATING**

- .1      Provide and pay for heating devices and heat as needed to maintain appropriate conditions for construction operations. Project delays by contractor shall not incur additional temporary heating costs for the owner.
- .2      Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.

**1.5            TEMPORARY COOLING**

- .1      Provide and pay for cooling devices and cooling as needed to maintain appropriate conditions for construction operations. Project delays by contractor shall not incur additional temporary heating costs for the owner.
- .2      Prior to operation of permanent equipment for temporary cooling purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.

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**1.6 TEMPORARY VENTILATION**

- .1 Ventilate enclosed areas to achieve curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapours, or gases.
- .2 Utilize existing ventilation equipment. Extend and supplement equipment with temporary fan units as required to maintain clean air for construction operations.

**1.7 TELEPHONE SERVICE**

- .1 Provide, maintain, and pay for telephone service to field office at time of project mobilization.

**1.8 FACSIMILE AND INTERNET SERVICE**

- .1 Provide, maintain and pay for facsimile and internet service to field office at time of project mobilization.

**1.9 TEMPORARY WATER SERVICE**

- .1 Provide, maintain and pay for suitable quality water service required for construction operations at time of project mobilization.

**1.10 TEMPORARY SANITARY FACILITIES**

- .1 Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

**1.11 BARRIERS**

- .1 Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
- .2 Provide barricades and covered walkways required by governing authorities for public rights-of-way.
- .3 Provide protection for plants designated to remain. Replace damaged plants.
- .4 Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

**1.12 FENCING**

- .1 Style of Fence Construction: Steel Wire Fence
- .2 Provide 1800 mm high fence around construction site; equip with vehicular and pedestrian gates with locks.

**1.13 WATER CONTROL**

- .1 Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

- .2 Protect site from puddling or running water. Provide water barriers as required to protect site and adjacent sites.

#### **1.14 EXTERIOR ENCLOSURES**

- .1 Provide temporary weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

#### **1.15 PROTECTION OF INSTALLED WORK**

- .1 Protect installed Work and provide special protection where specified in individual specification sections.
- .2 Provide temporary and removable protection for installed Products. Control activity in immediate work area to prevent damage.
- .3 Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- .4 Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- .5 Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- .6 Prohibit traffic from landscaped areas.

#### **1.16 ACCESS ROADS**

- .1 Construct and maintain temporary roads in accordance with any recommendations contained in the soils report accessing public thoroughfares to serve construction area.
- .2 Extend and relocate as Work progress requires. Provide detours necessary for unimpeded traffic flow.
- .3 Provide and maintain access to fire hydrants, free of obstructions.
- .4 Provide means of removing mud from vehicle wheels before entering streets.

#### **1.17 PARKING**

- .1 Provide temporary parking areas to accommodate construction personnel.
- .2 When site space is not adequate, provide additional off-site parking.

#### **1.18 PROGRESS CLEANING AND WASTE REMOVAL**

- .1 Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

- .2 Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- .3 Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- .4 Collect and remove waste materials, debris, and rubbish from site periodically and dispose off-site.
- .5 Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

**1.19 FIELD OFFICES AND SHEDS**

- .1 Office: Contractor field office permitted by owner and to be supplied by contractor if required.
- .2 Provide appropriate facilities for workers. Construction workers will not be permitted to use any of the facilities in the plant for any reason.
- .3 Locate offices and sheds a minimum distance of 9.0 m from existing and new structures.

**1.20 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS**

- .1 Remove temporary utilities, equipment, facilities, materials, and prior to Substantial Completion inspection.
- .2 Remove underground installations to a minimum depth of 600 mm. Grade site as indicated.
- .3 Clean and repair damage caused by installation or use of temporary work.

**1.21 SECURITY PROGRAM**

- .1 Protect Work from theft, vandalism, and unauthorized entry.

**1.22 ENTRY CONTROL**

- .1 Restrict entrance of persons and vehicles into Project site.
- .2 Allow entrance only to authorized persons with proper identification.

**1.23 RESTRICTIONS**

- .1 Do not allow cameras on site or photographs taken except by written approval of Owner.

**PART 2 Products**

- .1 Not Used

**PART 3      Execution**

.1      Not Used

END OF SECTION



**PART 1      General**

**1.1            REQUIREMENTS INCLUDED**

- .1      Products.
- .2      Product options.

**1.2            RELATED REQUIREMENTS**

- .1      Document 00205 - Instructions to Bidders: Product options and substitution procedures.
- .2      Section 01400 - Quality Requirements: Product quality monitoring.

**1.3            PRODUCTS**

- .1      Do not use materials, Products, or equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- .2      Provide interchangeable components of the same manufacture for components being replaced with permission of owner and consultant.

**1.4            PRODUCT OPTIONS**

- .1      Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.
- .2      Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
- .3      Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not listed along with all relevant data.

**PART 2      Products**

- .1      Not Used

**PART 3      Execution**

- .1      Not Used

END OF SECTION

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**PART 1      General**

**1.1            REQUIREMENTS INCLUDED**

- .1      Examination.
- .2      Preparation.
- .3      Field engineering.
- .4      Cutting and patching.
- .5      Transportation and handling.
- .6      Storage and protection.
- .7      Closeout procedures.
- .8      Final cleaning.
- .9      Adjusting.
- .10     Project record documents.
- .11     Operation and maintenance data.
- .12     Spare parts and maintenance Products.
- .13     Warranties.
- .14     Maintenance service.
- .15     Starting systems.
- .16     Demonstration and instructions.
- .17     Testing, adjusting, and balancing.

**1.2            RELATED REQUIREMENTS**

- .1      Section 01400 - Quality Requirements: Manufacturers field reports.
- .2      Section 01500 - Temporary Facilities and Controls: Progress cleaning.
- .3      Section 01700 - Execution Requirements: System start-up, testing, adjusting, and balancing; system operation and maintenance data and extra materials.

**1.3            EXAMINATION**

- .1      Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

- .2 Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
- .3 Examine and verify specific conditions described in individual specification sections.
- .4 Verify that utility services are available, of the correct characteristics, and in the correct locations.

#### **1.4 PREPARATION**

- .1 Clean substrate surfaces prior to applying next material or substance.
- .2 Seal cracks or openings of substrate prior to applying next material or substance.
- .3 Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

#### **1.5 FIELD ENGINEERING**

- .1 Employ a Land Surveyor registered in the Province of Owner and acceptable to Owner.
- .2 Contractor shall locate and protect survey control and reference points.
- .3 Control datum for survey is that shown on Drawings.
- .4 Verify set-backs and easements; confirm drawing dimensions and elevations.
- .5 Provide field engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.
- .6 Submit a copy of site drawing signed by the Land Surveyor that the elevations and locations of the Work are in conformance with the Contract Documents.

#### **1.6 CUTTING AND PATCHING**

- .1 Employ skilled and experienced installer to perform cutting and patching.
- .2 Submit written request in advance of cutting or altering elements which affect:
  - .1 Structural integrity of element.
  - .2 Integrity of weather-exposed or moisture-resistant elements.
  - .3 Efficiency, maintenance, or safety of element.
  - .4 Visual qualities of sight exposed elements.
  - .5 Work of Owner or separate contractor.
- .3 Execute cutting, fitting, and patching, including excavation and fill, to complete Work, and to:
  - .1 Fit the several parts together, to integrate with other Work.
  - .2 Uncover Work to install or correct ill-timed Work.
  - .3 Remove and replace defective and non-conforming Work.
  - .4 Remove samples of installed Work for testing.

- .5 Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- .4 Execute work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .5 Cut masonry and concrete materials using masonry saw or core drill.
- .6 Restore Work with new Products in accordance with requirements of Contract Documents.
- .7 Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- .8 Maintain integrity of wall, ceiling, or floor construction; completely seal voids.
- .9 Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.
- .10 Identify hazardous substances or conditions exposed during the Work to the Consultant for decision or remedy.

#### **1.7 TRANSPORTATION AND HANDLING**

- .1 Transport and handle Products in accordance with manufacturer's instructions.
- .2 Promptly inspect shipments to ensure that Products comply with requirements, quantities are correct, and Products are undamaged.
- .3 Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

#### **1.8 STORAGE AND PROTECTION**

- .1 Store and protect Products in accordance with manufacturers' instructions.
- .2 Store with seals and labels intact and legible.
- .3 Store sensitive Products in weather tight, climate controlled, enclosures in an environment favourable to Product.
- .4 For exterior storage of fabricated Products, place on sloped supports above ground.
- .5 Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of Products.
- .6 Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- .7 Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.
- .8 Arrange storage of Products to permit access for inspection. Periodically inspect to verify Products are undamaged and are maintained in acceptable condition.

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**1.9 CLOSEOUT PROCEDURES**

- .1 Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Consultant's review.
- .2 Provide submittals to Owner that are required by governing or other authorities.
- .3 Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

**1.10 FINAL CLEANING**

- .1 Execute final cleaning prior to final project assessment.
- .2 Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- .3 Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- .4 Replace filters of operating equipment.
- .5 Clean debris from roofs, gutters, downspouts, and drainage systems.
- .6 Clean site; sweep paved areas, rake clean landscaped surfaces.
- .7 Remove waste and surplus materials, rubbish, and construction facilities from the site.

**1.11 ADJUSTING**

- .1 Adjust operating Products and equipment to ensure smooth and unhindered operation.

**1.12 PROJECT RECORD DOCUMENTS**

- .1 Maintain on site one set of the following record documents; record actual revisions to the Work:
  - .1 Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Change Orders and other modifications to the Contract.
  - .5 Reviewed Shop Drawings, Product Data, and Samples.
  - .6 Manufacturer's instruction for assembly, installation, and adjusting.
- .2 Ensure entries are complete and accurate, enabling future reference by Owner.
- .3 Store record documents separate from documents used for construction.
- .4 Record information concurrent with construction progress.

- .5 Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
  - .1 Manufacturer's name and product model and number.
  - .2 Product substitutions or alternates utilized.
  - .3 Changes made by Addenda and modifications.
- .6 Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
  - .1 Measured depths of foundations in relation to finish [first] [main] floor datum.
  - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - .3 Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
  - .4 Field changes of dimension and detail.
  - .5 Details not on original Contract drawings.
- .7 Submit documents to Owner with claim for final Application for Payment.

### **1.13 OPERATION AND MAINTENANCE DATA**

- .1 Submit data bound in 8-1/2 x 11 inch text pages, three D side ring binders with durable plastic covers.
- .2 Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project.
- .3 Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- .4 Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, typed on 20 pound white paper, in three parts as follows:
  - .1 Part 1: Directory, listing names, addresses, and telephone numbers of Consultant, Contractor, Subcontractors, and major equipment suppliers.
  - .2 Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
    - .1 Significant design criteria.
    - .2 List of equipment.
    - .3 Parts list for each component.
    - .4 Operating instructions.
    - .5 Maintenance instructions for equipment and systems.
    - .6 Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
  - .3 Part 3: Project documents and certificates, including the following:
    - .1 Shop drawings and product data.

- .2 Air and water balance reports.
  - .3 Certificates.
  - .4 Originals of warranties and bonds.
  - .5 As-Built drawings in electronic and paper format.
- .5 Submit 1 draft copy of completed volumes ten days prior to final inspection. This copy will be reviewed and returned, with owner comments. Revise content of all document sets as required prior to final submission.
- .6 Submit two sets of revised final volumes, within 10 days after final inspection.

**1.14 SPARE PARTS AND MAINTENANCE PRODUCTS**

- .1 Provide spare parts, maintenance, and extra Products in quantities specified in individual specification sections.
- .2 Deliver to Project site and place in location as directed; obtain receipt prior to final payment.

**1.15 WARRANTIES**

- .1 Provide duplicate notarized copies.
- .2 Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.
- .3 Provide Table of Contents and assemble in three D side ring binder with durable plastic cover.
- .4 Submit prior to final Application for Payment.
- .5 For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

**1.16 MAINTENANCE SERVICE**

- .1 Furnish service and maintenance of components indicated in specification sections for one year from date of Substantial Completion.
- .2 Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- .3 Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- .4 Maintenance service shall not be assigned or transferred to any agent or Subcontractor without prior written consent of the Owner.

**1.17 STARTING SYSTEMS**

- .1 Coordinate schedule for start-up of various equipment and systems.

- .2 Notify Owner seven days prior to start-up of each item.
- .3 Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.
- .4 Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- .5 Verify that wiring and support components for equipment are complete and tested.
- .6 Execute start-up under supervision of applicable manufacturer's representative and Contractors' personnel in accordance with manufacturers' instructions.
- .7 When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- .8 Submit a written report in accordance with Section 01300 that equipment or system has been properly installed and is functioning correctly.

**1.18 DEMONSTRATION AND INSTRUCTIONS**

- .1 Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of final inspection.

**1.19 TESTING, ADJUSTING, AND BALANCING**

- .1 Refer to drawings for requirements

**PART 2 Products**

- .1 Not Used

**PART 3 Execution**

- .1 Not Used

END OF SECTION



**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Subsoil materials.
- .2      Topsoil materials.

**1.2            RELATED SECTIONS**

- .1      Section 01200 - Price and Payment Procedures: Requirements applicable to unit prices for the work of this section.
- .2      Section 01400 - Quality Requirements: Testing soil fill materials.
- .3      Section 02060 - Aggregate Materials.
- .4      Section 02311 - Rough Grading.
- .5      Section 02317 - Trenching.
- .6      Section 02320 - Backfilling.

**1.3            REFERENCES**

- .1      AASHTO T180 - Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and an 457 mm (18 inch) Drop.
- .2      ASTM D698 - Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN/m<sup>3</sup> (12,400 ft - lb/ft<sup>3</sup>)).
- .3      ASTM D1556 - Test Method for Density and Weight Unit of Soil in Place by the Sand-Cone Method.
- .4      ASTM D1557 - Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort ( 2,700 kN - m/m<sup>3</sup> (56,000 ft - lb/ft<sup>3</sup>)).
- .5      ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- .6      ASTM D2487 - Classification of Soils for Engineering Purposes (Unified Soil Classification System).
- .7      ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- .8      ASTM D3017 - Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

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**1.4 SUBMITTALS FOR INFORMATION**

- .1 Section 01300: Submission procedures.
- .2 Materials Source: Submit name of imported materials source.

**1.3 QUALITY ASSURANCE**

- .1 Perform work in accordance with City of Woodstock and County of Oxford Standards.

**PART 2 Products**

**2.1 SUBSOIL MATERIALS**

- .1 NOT USED

**2.2 SOURCE QUALITY CONTROL**

- .1 NOT USED

**PART 3 Execution**

**3.1 SOIL REMOVAL**

- .1 Remove lumped soil, boulders, and rock.
- .2 Excavated material to be stored on Owner's property.

**3.2 STOCKPILING**

- .1 Stockpile materials on site at locations designated by Owner.
- .2 Stockpile in sufficient quantities to meet Project schedule and requirements.
- .3 Separate differing materials with dividers or stockpile apart to prevent mixing.
- .4 Prevent intermixing of soil types or contamination.
- .5 Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

**3.3 STOCKPILE CLEANUP**

- .1 Remove stockpile, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.
- .2 If a borrow area is indicated, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Aggregate materials.

**1.2            RELATED SECTIONS**

- .1      Document 00320 - Subsurface Investigation Report: Geotechnical report; bore hole locations and findings of subsurface materials.
- .2      Section 01200 - Price and Payment Procedures: Requirements applicable to unit prices for the work of this section.
- .3      Section 01400 - Quality Requirements: Testing aggregate fill materials.
- .4      Section 02055 - Soil Materials.
- .5      Section 02317 - Trenching.
- .6      Section 02320 - Backfilling.
- .7      Section 02631 - Site Storm Sewerage.
- .8      Section 02715 - Aggregate Base Course.

**1.3            REFERENCES**

- .1      AASHTO - M147 - Materials for Aggregate and Soil-Aggregate.
- .2      AASHTO T180 - Moisture-Density Relations of Soils Using a <4.54 kg> <<10 lb>> Rammer and an <457 mm> <<18 inch>> Drop.
- .3      ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.
- .4      ASTM D698 - Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN/m<sup>3</sup> (12,400 ft - lb/ft<sup>3</sup>)).
- .5      ASTM D1557 - Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (2,700 kN - m/m<sup>3</sup> (56,000 ft - lb/ft<sup>3</sup>)).
- .6      ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- .7      ASTM D2487 - Classification of Soils for Engineering Purposes (Unified Soil Classification System).
- .8      ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- .9      ASTM D3017 - Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

- .10 ASTM D4318 - Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

#### **1.4 SUBMITTALS FOR INFORMATION**

- .1 Section 01300: Submission procedures.
- .2 Materials Source: Submit name of imported materials suppliers.

#### **1.5 QUALITY ASSURANCE**

- .1 Perform Work in accordance with Province of Ontario Ministry of Transport standards, City of Woodstock and County of Oxford Standards.

### **PART 2 Products**

#### **2.1 AGGREGATE MATERIALS**

- .1 Coarse Aggregate Type Granular 'B' Conforming to Province of Ontario Ministry of Transport standards.
- .2 Coarse Aggregate Type Granular 'A' Conforming to Province of Ontario Ministry of Transport standards.

#### **2.2 SOURCE QUALITY CONTROL**

- .1 Section 01400: Source testing and analysis of aggregate material.
- .2 Fine Aggregate Material - Testing and Analysis: Perform in accordance with applicable standards.
- .3 If tests indicate materials do not meet specified requirements, change material or material source and retest.
- .4 Provide materials of each type from same source throughout the Work.

### **PART 3 Execution**

#### **3.1 STOCKPILING**

- .1 Stockpile materials on site at locations indicated designated by Owner.
- .2 Stockpile in sufficient quantities to meet Project schedule and requirements.
- .3 Separate differing materials with dividers or stockpile apart to prevent mixing.
- .4 Direct surface water away from stockpile site so as to prevent erosion or deterioration of materials.

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**3.2 STOCKPILE CLEANUP**

- .1 Remove stockpile, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.
- .2 If a borrow area is indicated, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Removal of surface debris.
- .2      Removal of paving, curbs, and concrete.
- .3      Removal of trees, shrubs, and other plant life.

**1.2            RELATED SECTIONS**

- .1      Section 01950 - Demolition.

**1.3            REGULATORY REQUIREMENTS**

- .1      Conform to applicable codes for environmental requirements and disposal of debris.
- .2      Coordinate clearing Work with utility companies.

**PART 2      Execution**

**2.1            PREPARATION**

- .1      Identify a salvage area for placing removed materials.

**2.2            PROTECTION**

- .1      Locate, identify, and protect utilities that remain, from damage.
- .2      Protect bench marks, survey control points, and existing structures from damage or displacement.

**2.3            CLEARING**

- .1      Clear areas required for access to site and execution of Work.

**2.4            REMOVAL**

- .1      Partially remove paving, curbs, and concrete as indicated. Neatly saw cut edges at right angle to surface.

END OF SECTION

**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Removal of topsoil and subsoil.
- .2      Cutting, grading, filling, rough contouring, and compacting, the site for new road construction.

**1.2            RELATED SECTIONS**

- .1      Section 01200 - Price and Payment Procedures: Requirements applicable to unit prices for the work of this section.
- .2      Section 01400 - Quality Requirements: Testing fill compaction.
- .3      Section 02055 - Soil Materials.
- .4      Section 02060- Aggregate Materials.
- .5      Section 02231 - Site Clearing.
- .6      Section 02316 - Excavating: Building excavation.
- .7      Section 02317 - Trenching: Trenching and backfilling for utilities.
- .8      Section 02320 - Backfilling: General building area backfilling.

**1.3            REFERENCES**

- .1      AASHTO T180 - Moisture-Density Relations of Soils Using a 4.54 kg Rammer and a 457 mm Drop.
- .2      ASTM C136 - Method For Sieve Analysis of Fine and Coarse Aggregates.
- .3      ASTM D698 - Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN/m<sup>3</sup> (12,400 ft - lb/ft<sup>3</sup>)).
- .4      ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- .5      ASTM D1557 - Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (2,700 kN - m/m<sup>3</sup> (56,000 ft - lb/ft<sup>3</sup>)).
- .6      ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- .7      ASTM D2419 - Test Method For Sand Equivalent Value of Soils and Fine Aggregate.
- .8      ASTM D2434 - Test Method For Permeability of Granular Soils (Constant Head).
- .9      ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

- .10 ASTM D3017 - Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

#### **1.4 QUALITY ASSURANCE**

- .1 Perform work in accordance with City of Woodstock and County of Oxford Standards.

#### **1.5 PROJECT RECORD DOCUMENTS**

- .1 Section 01700: Submission procedures.
- .2 Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

### **PART 2 Products**

#### **2.1 EXAMINATION**

- .1 Section 01700: Verify site conditions.
- .2 Verify that survey bench mark and intended elevations for the Work are as indicated.

#### **2.2 PREPARATION**

- .1 Identify required lines, levels, contours, and datum.
- .2 Stake and flag locations of known utilities.
- .3 Locate, identify, and protect utilities that remain, from damage.
- .4 Notify utility company to remove and relocate utilities.
- .5 Protect above and below grade utilities that remain.
- .6 Protect plant life, lawns and other features remaining as a portion of final landscaping.
- .7 Protect bench marks, survey control point, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

#### **2.3 SUBSOIL EXCAVATION**

- .1 Excavate subsoil from areas to be further excavated, re-landscaped, or re-graded.
- .2 Do not excavate wet subsoil without approval from consultant.
- .3 When excavating through roots, perform work by hand and cut roots with sharp axe.
- .4 Stockpile in area designated on site to depth not exceeding 8 feet and protect from erosion. Remove from site, subsoil not being reused.
- .5 Benching Slopes: Horizontally bench existing slopes greater than 1:3 to key placed fill material to slope to provide firm bearing.



- .6 Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

## **2.4 FILLING**

- .1 Install Work in accordance with Municipality of Central Elgin guidelines or recommendations of soil consultant, whichever is more stringent.
- .2 Fill areas to contours and elevations with unfrozen materials.
- .3 Place fill material on continuous layers and compact in accordance with the recommendations of the soils report.
- .4 Maintain optimum moisture content of fill materials to attain required compaction density.
- .5 Slope grade away from building as per site grading plan.
- .6 Make grade changes gradual. Blend slope into level areas.
- .7 Remove surplus fill materials from site.

## **2.5 TOLERANCES**

- .1 Top Surface of Subgrade: Plus or minus 1 inch from required elevation.

## **2.6 FIELD QUALITY CONTROL**

- .1 Section 01400: Field inspection and testing.
- .2 Testing: In accordance with inspection firm recommended practice.
- .3 If tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- .4 Frequency of Tests: As directed by soils consultant

END OF SECTION

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**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Final grade topsoil for finish landscaping.

**1.2            RELATED SECTIONS**

- .1      Section 01200 - Price and Payment Procedures: Requirements applicable to unit prices for the work of this Section.
- .2      Section 01400 - Quality Requirements: Testing fill compaction.
- .3      Section 02055 - Soil Materials.
- .4      Section 02311 - Rough Grading: Site contouring.
- .5      Section 02317 - Trenching: Backfilling trenches.
- .6      Section 02320 - Backfilling: Backfilling at building areas.
- .7      Section 02922 - Seeding Finish ground cover.

**PART 2      Products**

**2.1            MATERIAL**

- .1      Topsoil: As specified in Section 02055

**PART 3      Execution**

**3.1            EXAMINATION**

- .1      Verify building and trench backfilling have been inspected.
- .2      Verify substrate base has been contoured and compacted.

**3.2            SUBSTRATE PREPARATION**

- .1      Eliminate uneven areas and low spots.
- .2      Remove debris, roots, branches, stones, in excess of 25mm in size. Remove subsoil contaminated with petroleum products.
- .3      Scarify surface to depth of 75mm where topsoil is scheduled. Scarify in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

**3.3            PLACING TOPSOIL**

- .1      Place topsoil in areas where seeding is required. Place topsoil during dry weather.

- .2 Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of subgrade.
- .3 Remove roots, weeds, rocks, and foreign material while spreading.
- .4 Manually spread topsoil close to retaining wall to prevent damage.
- .5 Lightly compact placed topsoil.
- .6 Remove surplus subsoil and topsoil from site.
- .7 Leave stockpile area and site clean and raked, ready to receive landscaping.

**3.4 TOLERANCES**

- .1 Top of Topsoil: Plus or minus 13mm.

**3.5 PROTECTION**

- .1 Protect landscaping and other features remaining as final work.
- .2 Protect existing structures, fences, sidewalks, utilities, paving and curbs.

**3.6 SCHEDULES**

- .1 Seeded Grass: 150mm.

END OF SECTION

**PART 1 General**

**1.1 SECTION INCLUDES**

- .1 Excavating for slabs-on-grade, and press foundation.

**1.2 RELATED SECTIONS**

- .1 Document 00320 - Subsurface Investigation Report: Geotechnical report; bore hole locations and findings of subsurface materials.
- .2 Section 01200 - Price and payment Procedures: Requirements applicable to unit prices for the work of this Section.
- .3 Section 01400 - Quality Requirements: Inspection of bearing surfaces.
- .4 Section 01500 - Construction Facilities and Temporary Controls: Dewatering of excavations and water control.
- .5 Section 02320 - Backfilling.

**1.3 FIELD MEASUREMENTS**

- .1 Verify that survey bench mark and intended elevations for the Work are as indicated.

**PART 2 Products**  
Not Used.

**PART 3 Execution**

**3.1 PREPARATION**

- .1 Identify required lines, levels, contours, and datum locations.
- .2 Protect bench marks, survey control points, existing structures, fences, from excavating equipment and vehicular traffic.

**3.2 EXCAVATING**

- .1 Excavate subsoil to accommodate press foundations and slabs-on-grade.
- .2 Compact disturbed load bearing soil in direct contact with foundations to original bearing capacity; perform compaction in accordance with Section 02320.
- .3 Do not interfere with 45 degree bearing splay of foundations.
- .4 Hand trim excavation. Remove loose matter.
- .5 Notify Consultant of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

.6 Correct areas over excavated in accordance with Section 02320.

.7 Remove excavated material from site.

**3.3 FIELD QUALITY CONTROL**

.1 Section 01400 - Quality Requirements: Field inspection and testing.

.2 Provide for visual inspection of bearing surfaces.

**3.4 PROTECTION**

.1 Prevent displacement or loose soil from falling into excavation; maintain soil stability.

.2 Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

END OF SECTION

**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Excavating trenches for utilities from five [5] feet outside building to main lines or for municipal utilities.
- .2      Compacted fill from top of utility bedding to subgrade elevations.
- .3      Backfilling and compaction.

**1.2            RELATED SECTIONS**

- .1      Section 01400 - Quality Requirements: Testing fill compaction.
- .2      Section 01500 - Temporary Facilities and Controls: Water control in excavations.
- .3      Section 02055 - Soil Materials.
- .4      Section 02060 - Aggregate Materials.
- .5      Section 02311 - Rough Grading: Topsoil and subsoil removal from site surface.
- .6      Section 02320 - Backfilling: General backfilling.

**1.3            REFERENCES**

- .1      AASHTO T180 - Moisture-Density Relations of Soils Using a 4.54 kg Rammer and a 457 mm Drop.
- .2      ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.
- .3      ASTM D698 - Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN/m<sup>3</sup> (12,400 ft - lb/ft<sup>3</sup>)).
- .4      ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- .5      ASTM D1557 - Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (2,700 kN - m/m<sup>3</sup> (56,000 ft - lb/ft<sup>3</sup>)).
- .6      ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- .7      ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- .8      ASTM D3017 - Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

## **1.4 DEFINITIONS**

- .1 Utility: Any buried pipe, duct, conduit, or cable.

## **1.5 FIELD MEASUREMENTS**

- .1 Verify that survey bench mark, control point, and intended elevations for the Work are as shown on drawings.

## **1.6 COORDINATION**

- .1 Coordinate work to Section 01300.
- .2 Verify work associated with lower elevation utilities is complete before placing higher elevation utilities.

## **PART 2 Products**

### **2.1 FILL MATERIALS**

- .1 Fill Type Granular 'B'.
- .2 Structural Fill Type Granular 'A'.
- .3 Concrete: Lean concrete with a compressive strength of 10 MPa.

### **2.2 ACCESSORIES**

- .1 Geotextile Fabric: Non-biodegradable, woven.
- .2 Filter Fabric: Non-biodegradable, woven.

## **PART 3 Execution**

### **3.1 PREPARATION**

- .1 Identify required lines, levels, contours, and datum locations.
- .2 Protect plant life, lawns and other features remaining as a portion of final landscaping.
- .3 Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- .4 Maintain and protect above and below grade utilities which are to remain.
- .5 Identify areas of subgrade not capable of compaction in place using procedure in the soils investigation report. Follow procedure for required subexcavation called for in the soils investigation report.

### **3.2 EXCAVATING**

- .1 Excavate subsoil required for utilities to municipal utilities.
- .2 Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
- .3 Do not interfere with 45 degree bearing splay of foundations.
- .4 Hand trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- .5 Remove lumped subsoil, boulders, and rock.
- .6 Correct areas over excavated in accordance with Section 02320.
- .7 Stockpile excavated material in area designated on site and remove excess material not being used.

### **3.3 BACKFILLING**

- .1 Backfill trenches to contours and elevations with unfrozen fill materials.
- .2 Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- .3 Granular Fill: Place and compact materials in equal continuous layers not exceeding 12 inches compacted depth.
- .4 Employ a placement method that does not disturb or damage utilities in trench.
- .5 Maintain optimum moisture content of fill materials to attain required compaction density.
- .6 Remove surplus fill materials from site.
- .7 Leave fill material stockpile areas completely free of excess fill materials.

### **3.4 TOLERANCES**

- .1 Top Surface of Backfilling under Paved Areas 25 mm from required elevations.
- .2 Top Surface of General Backfilling: Plus or minus 1inch from required elevations.

### **3.5 FIELD QUALITY CONTROL**

- .1 Section 01400 - Quality Requirements: Field inspection and testing.
- .2 Compaction testing will be performed in accordance with ASTM D1556



- .3 If tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.
- .4 Frequency of Tests: By Inspection Company

**3.6 PROTECTION OF FINISHED WORK**

- .1 Protect finished Work to Section 01300.
- .2 Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION

**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Building perimeter and site structure backfilling to subgrade elevations.
- .2      Site filling and backfilling.
- .3      Fill under slabs-on-grade.
- .4      Consolidation and compaction as scheduled.

**1.2            RELATED SECTIONS**

- .1      Document 00320 - Subsurface Investigation Report: Geotechnical report; bore hole locations and findings of subsurface materials.
- .2      Section 01200 - Price and Payment Procedures: Requirements applicable to unit prices for the work of this section.
- .3      Section 01400 - Quality Requirements: Compaction testing.
- .4      Section 02316 - Excavating.
- .5      Section 02317 - Trenching: Backfilling of utility trenches.
- .6      Section 03300 - Cast-in-Place Concrete: Concrete materials.

**1.3            REFERENCES**

- .1      AASHTO T180 - Moisture-Density Relations of Soils Using a 10 lb Rammer and an 18 inch Drop.
- .2      ASTM D698 - Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft - lb/ft<sup>3</sup>).
- .3      ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- .4      ASTM D1557 - Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft - lb/ft<sup>3</sup>).
- .5      ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- .6      ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- .7      ASTM D3017 - Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

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**PART 2 Products**

**2.1 FILL MATERIALS**

- .1 Fill Type Granular 'B'.
- .2 Structural Fill Type Granular 'A'.
- .3 Concrete: Lean concrete conforming to Section 03300 with a compressive strength of 10 MPa.

**PART 3 Execution**

**3.1 EXAMINATION**

- .1 Verify subdrainage, dampproofing, or waterproofing installation has been inspected.
- .2 Verify underground tanks are anchored to their own foundations to avoid flotation after backfilling.
- .3 Verify structural ability of unsupported walls to support imposed loads by the fill.

**3.2 PREPARATION**

- .1 Compact subgrade to density requirements for subsequent backfill materials.
- .2 Cut out soft areas of subgrade not capable of compaction in place. Backfill with Type Granular 'B' fill and compact to density equal to or greater than requirements for subsequent fill material.
- .3 Scarify and proof roll subgrade surface to a depth of 12 inches to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.

**3.3 BACKFILLING**

- .1 Backfill areas to contours and elevations with unfrozen materials.
- .2 Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- .3 Granular Fill: Place and compact materials in equal continuous layers not exceeding 12 inches compacted depth.
- .4 Employ a placement method that does not disturb or damage other work.
- .5 Maintain optimum moisture content of backfill materials to attain required compaction density.
- .6 Backfill simultaneously on each side of unsupported foundation walls until supports are in place.
- .7 Make gradual grade changes. Blend slope into level areas.

- .8 Remove surplus backfill materials from site.
- .9 Leave fill material stockpile areas free of excess fill materials.

**3.4 TOLERANCES**

- .1 Top Surface of Backfilling: Plus or minus ½ inch from required elevations.
- .2 Top Surface of General Backfilling: Plus or minus ½ inch from required elevations.

**3.5 FIELD QUALITY CONTROL**

- .1 Section 01400 - Quality Requirements: Field inspection and testing.
- .2 Compaction testing will be performed in accordance with ASTM D1556
- .3 If tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- .4 Proof roll compacted fill surfaces under slabs-on-grade, and press foundation

**3.6 PROTECTION OF FINISHED WORK**

- .1 Protect finished Work to Section 01300.
- .2 Reshape and re-compact fills subjected to vehicular traffic.

END OF SECTION

**PART 1 General**

**1.1 SECTION INCLUDES**

- .1 Modular precast concrete manhole sections with tongue-and-groove joints, covers, anchorage, and accessories.

**1.2 RELATED SECTIONS**

- .1 Section 02316 - Excavating: Excavating for manholes and base pads.
- .2 Section 02320 - Backfilling: Backfilling after manhole installation.
- .3 Section 03300 - Cast-In-Place Concrete.
- .4 Section 04060 - Mortar and Masonry Grout: Mortar and grout.

**1.3 REFERENCES**

- .1 ASTM A48/A48M - Gray Iron Castings.
- .2 ASTM C55 - Concrete Brick.
- .3 ASTM C62 - Building Brick (Solid Masonry Units Made From Clay or Shale).
- .4 ASTM C478 - Precast Reinforced Concrete Manhole Sections.
- .5 ASTM C923/C923M - Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals.
- .6 ASTM D3753 - Glass-Fibre-Reinforced Polyester Manholes and Wetwells.
- .7 IMIAC (International Masonry Industry All-Weather Council) - Recommended Practices and Guide Specification for Cold Weather Masonry Construction.

**1.4 QUALIFICATIONS**

- .1 Manufacturer: Company specializing in manufacturing products specified in this section with minimum three (3) years experience.

**1.5 ENVIRONMENTAL REQUIREMENTS**

- .1 Cold Weather Requirements: IMIAC - Recommended Practices and Specifications for Cold Weather Masonry Construction.

**PART 2 Products**

**2.1 MATERIALS**

- .1 Manufacturers:

- .1 Coldstream Concrete Limited.
  - .2 Con Cast Pipe.
  - .3 Forterra Pipe and Precast.
  - .4 Substitutions: Refer to Section 01600.
- .2 Manhole Sections: Reinforced precast concrete in accordance with OPSS 701.010 with gaskets in accordance with ASTM C923.
  - .3 Mortar and Grout: As specified in Section 04060.

## **2.2 COMPONENTS**

- .1 Lid and Frame: Cast iron construction, machined flat bearing surface, removable lid, closed checkerboard grille.
- .2 Manhole Steps: Formed aluminum rungs; 19 mm diameter. Formed integral with manhole sections.

## **2.3 CONFIGURATION**

- .1 As indicated on drawings.
- .2 Steps: As required by code.

## **PART 3 Execution**

### **3.1 EXAMINATION**

- .1 Section 01700: Verify items provided by other sections of Work are properly sized and located.
- .2 Verify that built-in items are in proper location, and ready for roughing into Work.
- .3 Verify excavation for manholes is correct.

### **3.2 PREPARATION**

- .1 Coordinate placement of inlet and outlet pipe or duct sleeves required by other sections.

### **3.3 PLACING MANHOLE SECTIONS**

- .1 Place manhole sections plumb and level, trim to correct elevations, anchor to base pad.
- .2 Cut and fit for pipe and trench drain openings.
- .3 Grout base of shaft sections to achieve slope to exit piping. Trowel smooth. Contour as required.
- .4 Set cover frames and covers level without tipping, to correct elevations.
- .5 Coordinate with other sections of work to provide correct size, shape, and location.

**3.4 SCHEDULES**

- .1 Sanitary Manholes: as indicated on site servicing drawings.
- .2 Storm Manholes and catch basins: as indicated on site servicing drawings.

END OF SECTION

**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Aggregate base course.

**1.2            RELATED SECTIONS**

- .1      Section 01400 - Quality Requirements: Inspection of bearing surfaces.
- .2      Section 02060 - Aggregate Materials.
- .3      Section 02311 - Rough Grading: Preparation of site for base course.
- .4      Section 02314 - Landscape Grading: Topsoil fill at areas adjacent to aggregate base course.
- .5      Section 02317 - Trenching: Compacted fill under base course.
- .6      Section 02320 - Backfilling: Compacted fill under base course.
- .7      Section 02741 - Asphalt Concrete Paving: Binder and finish asphalt courses.

**1.3            REFERENCES**

- .1      AASHTO T180 - Moisture-Density Relations of Soils Using a 10 lb Rammer and an 18 inch Drop.
- .2      ASTM D698 - Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN/m<sup>3</sup> (12,400 ft - lb/ft<sup>3</sup>)).
- .3      ASTM D1557 - Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (2,700 kN - m/m<sup>3</sup> (56,000 ft - lb/ft<sup>3</sup>)).
- .4      ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- .5      ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- .6      ASTM D3017 - Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

**PART 2      Products**

**2.1            MATERIALS**

- .1      in accordance with site servicing drawings.



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**PART 3 Execution**

**3.1 EXAMINATION**

- .1 Verify substrate has been inspected, gradients and elevations are correct, and is dry.

**3.2 PREPARATION**

- .1 Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- .2 Do not place fill on soft, muddy, or frozen surfaces.

**3.3 AGGREGATE PLACEMENT**

- .1 Spread aggregate over prepared substrate to a total compacted thickness as per subsurface investigation report
- .2 Place aggregate as per subsurface investigation report
- .3 Level and contour surfaces to elevations and gradients indicated.
- .4 Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.
- .5 Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- .6 Use mechanical tamping equipment in areas inaccessible to compaction equipment.

**3.4 TOLERANCES**

- .1 Flatness: Maximum variation of ¼ inch measured 10 foot straight edge.
- .2 Scheduled Compacted Thickness: Within ¼ inch.
- .3 Variation from Design Elevation: Within ½ inch.

**3.5 FIELD QUALITY CONTROL**

- .1 Section 01400: Field inspection.
- .2 Compaction testing will be performed in accordance with ASTM D1556
- .3 If tests indicate Work does not meet specified requirements, remove Work, replace and retest.

**3.6 SCHEDULES**

- .1 Compact placed aggregate materials to achieve compaction per subsurface investigation report

END OF SECTION

**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Asphaltic concrete paving, wearing binder or base course.
- .2      Surface sealer.
- .3      Aggregate base courses.

**1.2            RELATED SECTIONS**

- .1      Section 02311 - Rough Grading: Preparation of site for paving and base.
- .2      Section 02320 - Backfilling: Compacted subbase for paving.
- .3      Section 02635 - Manholes and Covers:
- .4      Section 02715 - Aggregate Base Course.

**1.3            REFERENCES**

- .1      ASTM D946 - Penetration-Graded Asphalt Cement for Use in Pavement Construction.
- .2      TAI - (The Asphalt Institute) - MS-2 Mix Design Methods for Asphalt.
- .3      TAI - (The Asphalt Institute) - MS-3 Asphalt Plant Manual.
- .4      TAI - (The Asphalt Institute) - MS-8 Asphalt Paving Manual.
- .5      TAI - (The Asphalt Institute) - MS-19 Basic Asphalt Emulsion Manual.

**1.4            PERFORMANCE REQUIREMENTS**

- .1      Paving: Designed for movement of trucks up to 120,000 lbs.

**1.5            QUALITY ASSURANCE**

- .1      Perform Work in accordance with appropriate standards.
- .2      Mixing Plant: Conform to Province of Ontario Ministry of Transport standard.
- .3      Obtain materials from same source throughout.

**1.6            ENVIRONMENTAL REQUIREMENTS**

- .1      Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen.

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**PART 2      Products**

**2.1            ASPHALT PAVING MIX**

- .1      Use dry material to avoid foaming. Mix uniformly.
- .2      Asphalt designs as shown on drawings.

**PART 3      Execution**

**3.1            EXAMINATION**

- .1      Verify base conditions to Section 01700.
- .2      Verify that compacted granular base is dry and ready to support paving and imposed loads.
- .3      Verify gradients and elevations of base are correct.

**3.2            SUBBASE**

- .1      Section 02715: Aggregate base course forms the base construction for work of this section.

**3.3            PLACING ASPHALT PAVEMENT - DOUBLE COURSE**

- .1      Place binder course to thickness identified on drawings.
- .2      Place wearing course to thickness identified on drawings.
- .3      Compact pavement by rolling to specified density. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.
- .4      Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

**3.4            TOLERANCES**

- .1      Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.
- .2      Scheduled Compacted Thickness: Within 1/4 inch.
- .3      Variation from True Elevation: Within 1/2 inch.

**3.5            FIELD QUALITY CONTROL**

- .1      Section 01400: Provide field inspection and testing.

**3.6            PROTECTION**

- .1      Immediately after placement, protect pavement from mechanical injury for 1 day or until surface temperature is less than <60 degrees C> << 140 degrees F>>.

**3.7 SCHEDULES**

- .1 Pave in areas as shown on drawings.

END OF SECTION

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**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Preparation of subsoil.
- .2      Placing topsoil.
- .3      Hydroseeding, mulching and fertilizing.
- .4      Maintenance.

**1.2            RELATED SECTIONS**

- .1      Section 02055 - Soil Materials: Topsoil material.
- .2      Section 02314 - Landscape Grading: Preparation of subsoil and placement of topsoil in preparation for the work of this section.
- .3      Section 02317 - Trenching: Rough grading over cut.
- .4      Section 02320 - Backfilling: Rough grading of site.

**1.3            DEFINITIONS**

- .1      Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

**1.4            SUBMITTALS AT PROJECT CLOSEOUT**

- .1      Section 01700 - Execution Requirements: Procedures for submittals.
- .2      Maintenance Data: Include maintenance instructions, cutting method and maximum grass height.

**1.5            QUALITY ASSURANCE**

- .1      Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

**1.6            REGULATORY REQUIREMENTS**

- .1      Comply with regulatory agencies for fertilizer and herbicide composition.
- .2      Provide certificate of compliance from authority having jurisdiction indicating approval of seed mixture.

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**1.7 DELIVERY, STORAGE, AND PROTECTION**

- .1 Section 01600 - Product Requirements: Transport, handle, store, and protect products.
- .2 Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- .3 Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

**1.8 MAINTENANCE SERVICE**

- .1 Section 01700 - Execution Requirements.
- .2 Maintain seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition for two cuttings.

**PART 2 Products**

**2.1 SEED MIXTURE**

- .1 Seed Mixture:
  - .1 40% Kentucky Bluegrass/40% Creeping Red Fescue/20% Perennial Ryegrass
  - .2 Seeding rate to be 250 kg/ha.
  - .3 Seed with nurse crop of Annual Rye at 22-25 kg/ha.

**2.2 SOIL MATERIALS**

- .1 Topsoil: As specified in Section 02055.

**2.3 ACCESSORIES**

- .1 Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.
- .2 Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.
- .3 Erosion Fabric: Jute matting, open weave.
- .4 Herbicide.
- .5 Stakes: Softwood lumber, chisel pointed.
- .6 String: Inorganic fibre.

**PART 3 Execution**

**3.1 EXAMINATION**

- .1 Verify that prepared soil base is ready to receive the work of this section.

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### **3.2 PLACING TOPSOIL**

- .1 Spread topsoil to a minimum depth of 50 mm over area to be seeded. Rake until smooth.
- .2 Place topsoil during dry weather and on dry unfrozen subgrade.
- .3 Remove vegetable matter and foreign non-organic material from topsoil while spreading.
- .4 Grade topsoil to eliminate rough, low or soft areas, and to ensure positive drainage.
- .5 Install edging at periphery of seeded areas in straight lines to consistent depth.
- .6 Coordinate with installation of underground sprinkler system piping and watering heads.

### **3.3 HYDROSEEDING**

- .1 Apply seeded slurry with a hydraulic seeder evenly in two intersecting directions.
- .2 Do not hydroseed area in excess of that which can be mulched on same day.
- .3 Immediately following seeding, apply mulch to a thickness of 3 mm. Maintain clear of shrubs and trees.
- .4 Apply water with a fine spray immediately after each area has been mulched. Saturate to 100 mm of soil.

### **3.4 SEED PROTECTION**

- .1 Identify seeded areas with stakes and string around area periphery.
- .2 Cover seeded slopes where grade is 1:3 or greater with erosion fabric. Roll fabric onto slopes without stretching or pulling.
- .3 Lay fabric smoothly on surface, bury top end of each section in 150 mm deep excavated topsoil trench. Provide 300 mm overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.
- .4 Secure outside edges and overlaps at 900 mm intervals with stakes.
- .5 Lightly dress slopes with topsoil to ensure close contact between fabric and soil.
- .6 At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 150 mm.

### **3.5 MAINTENANCE**

- .1 Mow grass at regular intervals to maintain at a maximum height of 65 mm. Do not cut more than 1/3 of grass blade at any one mowing.
- .2 Neatly trim edges and hand clip where necessary.
- .3 Immediately remove clippings after mowing and trimming.
- .4 Water to prevent grass and soil from drying out.



- .5 Roll surface to remove minor depressions or irregularities.
- .6 Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides.
- .7 Immediately reseed areas which show bare spots.
- .8 Protect seeded areas with warning signs during maintenance period.

**3.6 SCHEDULE**

- .1 Grass areas noted on site plan.

END OF SECTION

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**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Formwork for cast-in place concrete, with shoring, bracing and anchorage.
- .2      Openings for other work.
- .3      Form accessories.
- .4      Form stripping.

**1.2            RELATED SECTIONS**

- .1      Section 03200 - Concrete Reinforcement.
- .2      Section 03300 - Cast-in-Place Concrete: Supply of concrete accessories for placement by this section.
- .3      Section 05500 - Metal Fabrications: Supply of metal fabrications for placement by this section.

**1.3            REFERENCES**

- .1      ACI 301 - Structural Concrete.
- .2      ACI 318 - Building Code Requirements for Structural Concrete and Commentary.
- .3      ACI 347 - Guide to Formwork for Concrete.
- .4      CAN/CSA-A23.1 - Concrete Materials and Methods of Concrete Construction.
- .5      CAN/CSA-O86.1 - Engineering Design in Wood (Limit States Design).
- .6      CSA O151 - Canadian Softwood Plywood.
- .7      CAN/CSA O188.0 - Standard Test Methods for Mat-Formed Wood Particleboards and Waferboard.
- .8      CSA O437 Series - Standards on OSB and Waferboard.
- .9      CSA S269.1 - Falsework for Construction Purposes.
- .10     CAN/CSA-S269.3 - Concrete Formwork.
- .11     COFI (Council of Forest Industries of British Columbia) - Exterior Plywood for Concrete Formwork.
- .12     PS 1 - Construction and Industrial Plywood.

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## **1.4 DESIGN REQUIREMENTS**

- .1 Design, engineer and construct formwork, shoring and bracing to conform to code requirements; resultant concrete to conform to required shape, line and dimension.
- .2 Conform to CSA S269.1.

## **1.5 QUALITY ASSURANCE**

- .1 Perform Work in accordance with CAN/CSA-O86.1 standards.

## **1.6 DELIVERY, STORAGE, AND PROTECTION**

- .1 Transport, handle, store, and protect products.
- .2 Deliver void forms and installation instructions in manufacturer's packaging.
- .3 Store off ground in ventilated and protected manner to prevent deterioration from moisture.

## **PART 2 Products**

### **2.1 WOOD FORM MATERIALS**

- .1 Form Materials: At the discretion of the Contractor.

### **2.2 FORMWORK ACCESSORIES**

- .1 Form Ties: Snap-off type, galvanized metal, adjustable length, cone type, with waterproofing washer, free of defects that could leave holes larger than 1 inch in concrete surface.
- .2 Form Release Agent:
  - .1 Colourless mineral oil which will not stain concrete, or absorb moisture.
  - .2 Non-toxic, biodegradable, low VOC.
- .3 Form Stripping Agent: Colourless mineral oil, non-toxic, biodegradable, low VOC, free of kerosene.
- .4 Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.
- .5 Waterstops: Preformed mineral colloid strips, 3/8 thick, moisture expanding.

## **PART 3 Execution**

### **3.1 EXAMINATION**

- .1 Verify lines, levels and centres before proceeding with formwork.
- .2 Ensure that dimensions agree with drawings.

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### **3.2 EARTH FORMS**

- .1 Earth forms are not permitted.

### **3.3 ERECTION - FORMWORK**

- .1 Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.
- .2 Fabricate and erect false work in accordance with CSA S269.1.
- .3 Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.
- .4 Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.
- .5 Align joints and make watertight. Keep form joints to a minimum.
- .6 Obtain approval before framing openings in structural members which are not indicated on Drawings.
- .7 Install void forms in accordance with manufacturer's recommendations. Protect forms from moisture or crushing.
- .8 Coordinate this section with other sections of work which require attachment of components to formwork.
- .9 If formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement before proceeding, request instructions from Consultant.

### **3.4 APPLICATION - FORM RELEASE AGENT**

- .1 Apply form release agent on formwork in accordance with manufacturer's recommendations.
- .2 Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- .3 Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings which are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

### **3.5 INSERTS, EMBEDDED PARTS, AND OPENINGS**

- .1 Provide formed openings where required for items to be embedded in passing through concrete work.
- .2 Locate and set in place items which will be cast directly into concrete.
- .3 Coordinate with work of other sections in forming and placing openings, slots, recesses, sleeves, bolts, anchors, other inserts, and components of other Work.

- .4 Install accessories in accordance with manufacturer's instructions, straight, level, and plumb. Ensure items are not disturbed during concrete placement.
- .5 Install waterstops in accordance with manufacturer's instructions continuous without displacing reinforcement. Heat seal joints watertight.
- .6 Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.
- .7 Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.

### **3.6 FORM CLEANING**

- .1 Clean forms as erection proceeds, to remove foreign matter within forms.
- .2 Clean formed cavities of debris prior to placing concrete.
- .3 Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.

### **3.7 FORMWORK TOLERANCES**

- .1 Construct formwork to maintain tolerances required by ACI 301.

### **3.8 FIELD QUALITY CONTROL**

- .1 Section 01400: Field inspection and testing.
- .2 Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.

### **3.9 FORM REMOVAL**

- .1 Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
- .2 Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
- .3 Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

END OF SECTION

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**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Reinforcing steel bars, wire fabric and accessories for cast-in-place concrete.

**1.2            RELATED SECTIONS**

- .1      Section 03100 - Concrete Forms.
- .2      Section 03300 - Cast-in-Place Concrete.
- .3      Section 03355 - Concrete Floor Finishing: Reinforcement for concrete floor toppings.

**1.3            REFERENCES**

- .1      ACI 301 - Structural Concrete.
- .2      ACI 318 - Building Code Requirements For Structural Concrete and Commentary.
- .3      ACI SP-66 - American Concrete Institute - Detailing Manual.
- .4      ASTM A82 - Steel Wire, Plain, for Concrete Reinforcement.
- .5      ASTM A184/A184M - Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
- .6      ASTM A185 - Steel Welded Wire Reinforcement, Plain, for Concrete.
- .7      ASTM A496 - Steel Wire, Deformed, for Concrete Reinforcement.
- .8      ASTM A497 - Steel Welded Wire Reinforcement, Deformed, for Concrete.
- .9      ASTM A615/A615M - Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
- .10     ASTM A704/A704M - Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.
- .11     ASTM A706 - Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
- .12     ASTM A767/A767M - Zinc-Coated (Galvanized) Bars for Concrete Reinforcement.
- .13     ASTM A775/A775M - Epoxy-Coated Reinforcing Steel Bars.
- .14     ASTM D3963D3963M - Fabrication and jobsite handling of Epoxy-Coated Steel Reinforcing Bars.
- .15     AWS (American Welding Society) D1.1 - Structural Welding Code -Steel.
- .16     AWS (American Welding Society) D12.1 - Welding Reinforcement Steel, Metal Inserts and Connections in Reinforced Concrete Construction.
- .17     CRSI - Concrete Reinforcing Steel Institute - Manual of Practice.

**1.4 CRSI 63 - Recommended Practice For Placing Reinforcing Bars.**

- .1 CRSI 65 - Recommended Practice For Placing Bar Supports, Specifications and Nomenclature.
- .2 CAN/CSA-A23.1 - Concrete Materials and Methods of Concrete Construction.
- .3 CAN3-A23.3 - Design of Concrete Structures.
- .4 CSA G30.3 - Cold-Drawn Steel Wire for Concrete Reinforcement.
- .5 CSA G30.5 - Welded Steel Wire Fabric for Concrete Reinforcement.
- .6 CSA G30.14 - Deformed Steel Wire for Concrete Reinforcement.
- .7 CSA G30.15 - Welded Deformed Steel Wire Fabric for Concrete Reinforcement.
- .8 CAN/CSA-G30.18 - Billet-Steel Bars for Concrete Reinforcement.
- .9 CAN/CSA-G40.21 - Structural Quality Steels.
- .10 CAN/CSA-G164 - Hot Dip Galvanizing of Irregularly Shaped Articles.
- .11 CSA W186 - Welding of Reinforcing Bars in Reinforced Concrete Construction.
- .12 RSIC (Reinforcing Steel Institute of Canada) - Reinforcing Steel Manual of Standard Practice.

**1.5 SUBMITTALS FOR REVIEW**

- .1 Section 01300: Procedures for submittals.
- .2 Shop Drawings: Indicate bar sizes, spacings, locations, and quantities of reinforcing steel and wire fabric, bending and cutting schedules, and supporting and spacing devices.
- .3 Prepare reinforcement drawings in accordance with Reinforcing Steel Manual of Standard Practice - by Reinforcing Steel Institute of Canada.
- .4 Detail lap lengths and bar development lengths to CAN3-A23.3.

## **1.6 SUBMITTALS FOR INFORMATION**

- .1 Section 01300: Procedures for submittals.
- .2 Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- .3 Submit certified copies of mill test report of reinforcement materials analysis.

## **1.7 QUALITY ASSURANCE**

- .1 Perform Work in accordance with CRSI 63, 65 and Manual of Practice

## **PART 2 Products**

### **2.1 REINFORCEMENT**

- .1 Reinforcing Steel: CAN/CSA-G30.18, billet steel, Grade 400, deformed bars, weldable low alloy bars, unfinished.
- .2 Welded Steel Wire Fabric: CSA G30.14 - Deformed steel wire, CSA G30.15 - Welded deformed steel wire.

### **2.2 ACCESSORIES**

- .1 Tie Wire: Minimum 16 gauge annealed type.
- .2 Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions including load bearing pad on bottom to prevent vapour barrier puncture.
- .3 Special Chairs, Bolsters, Bar Supports, Spacers Adjacent to Weather Exposed Concrete Surfaces: Plastic coated steel type; size and shape as required.

### **2.3 FABRICATION**

- .1 Fabricate concrete reinforcing in accordance with:
  - .1 CAN/CSA-A23.1.
  - .2 RSIC - Reinforcing Steel Manual of Standard Practice.
- .2 Locate reinforcing splices not indicated on drawings, at point of minimum stress.



**PART 3 Execution**

**3.1 PLACEMENT**

- .1 Place, support and secure reinforcement against displacement. Do not deviate from required position to CAN/CSA A23.1.
- .2 Do not displace or damage vapour barrier.
- .3 Accommodate placement of formed openings.
  - .1 Maintain concrete cover around reinforcing as per drawings.

**3.2 FIELD QUALITY CONTROL**

- .1 Section 01400: Field inspection and testing.
- .2 Inspect for acceptability.

END OF SECTION

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**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Cast-in-place concrete floors, foundation walls.
- .2      Floors and slabs on grade.
- .3      Control, expansion and contraction joint devices associated with concrete work.

**1.2            RELATED SECTIONS**

- .1      Section 03100 - Concrete Formwork: Formwork and accessories.
- .2      Section 03200 - Concrete Reinforcement.
- .3      Section 03355 - Concrete Floor Finishing.
- .4      Section 03390 - Concrete Curing.

**1.3            REFERENCES**

- .1      ACI 211.1 - Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
- .2      ACI 211.2 - Selecting Proportions for Structural Lightweight Concrete.
- .3      ACI 301 - Structural Concrete.
- .4      ACI 302 - Guide for Concrete Floor and Slab Construction.
- .5      ACI 304 - Guide for Measuring, Mixing, Transporting and Placing Concrete.
- .6      ACI 305R - Hot Weather Concreting.
- .7      ACI 306R - Cold Weather Concreting.
- .8      ACI 308 - Guide to Curing Concrete.
- .9      ACI 318 - Building Code Requirements for Structural Concrete and Commentary.
- .10     ASTM B221/B221M - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- .11     ASTM C33 - Concrete Aggregates.
- .12     ASTM C94/C94M - Ready-Mix Concrete.
- .13     ASTM C150 - Portland Cement.
- .14     ASTM C260 - Air Entraining Admixtures for Concrete.
- .15     ASTM C330 - Light Weight Aggregates For Structural Concrete.

- .16 ASTM C332 - Lightweight Aggregates For Insulating Concrete.
- .17 ASTM C494/C494M - Chemical Admixtures for Concrete.
- .18 ASTM C618 - Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
- .19 ASTM C827 - Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures.
- .20 ASTM C948 - Test Method for Dry and Wet Bulk Density, Water Absorption and Apparent Porosity of Thin Sections of Glass-Fiber-Reinforced Concrete.
- .21 ASTM D412 -Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers-Tension.
- .22 ASTM D624 - Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomer.
- .23 ASTM D994 - Preformed Expansion Joint Filler for Concrete (Bituminous Type).
- .24 ASTM D1190 - Concrete Joint Sealer, Hot-Poured Elastic Type.
- .25 ASTM D1751 - Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).
- .26 ASTM D1752 - Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
- .27 CAN/CSA A5 - Portland Cement.
- .28 CAN/CSA A23.1 - Concrete Materials and Methods of Concrete Construction.
- .29 CAN/CSA A23.2 - Methods of Test for Concrete.
- .30 CAN/CSA A23.5 - Cementitious Materials Compendium.
- .31 CAN/CSA A363 - Cementitious Materials Compendium.

#### **1.4 SUBMITTALS FOR INFORMATION**

- .1 Section 01300: Procedures for submittals.
- .2 Manufacturer's Installation Instructions: Indicate installation procedures and interface required with adjacent Work.

#### **1.5 SUBMITTALS AT PROJECT CLOSEOUT**

- .1 Section 01700: Procedures for submittals.
- .2 Accurately record actual locations of embedded utilities and components which are concealed from view.

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**1.6 QUALITY ASSURANCE**

- .1 Perform Work in accordance with ACI 301.
- .2 Acquire cement and aggregate from same source for all work.
- .3 Conform to ACI 305R when concreting during hot weather.
- .4 Conform to ACI 306R when concreting during cold weather.

**PART 2 Products**

**2.1 CONCRETE MATERIALS**

- .1 Portland Cement: CAN/CSA-A5, Type III, Natural colour.
- .2 Portland Cement: ASTM C150, Type III - High Early Strength Natural colour.
- .3 Fine and Coarse Aggregates: CAN/CSA-A23.1
- .4 Water: CAN/CSA-A23.1, clean and not detrimental to concrete.

**2.2 ADMIXTURES**

- .1 Air Entrainment: ASTM C260.

**2.3 ACCESSORIES**

- .1 Shrinkage Compensating Grout: Premixed compound consisting of metallic non-metallic aggregate, Portland cement, water reducing and plasticizing agents.
  - .1 Compressive strength: 48 MPa at 28 days.
  - .2 Consistency:
    - .1 Fluid: to ASTM C827. Time of efflux through flow cone (ASTM C939), under 30 s.
    - .2 Flowable: to ASTM C827. Flow table, 5 drops in 3 s, (ASTM C109, applicable portion) 125 to 145%.
    - .3 Plastic: to ASTM C827. Flow table, 5 drops in 3 s, (ASTM C109, applicable portions) 100 to 125 %.
    - .4 Dry pack to manufacturer's requirements.
  - .3 Net shrinkage at 28 days: maximum 1 %.
- .2 Non-Premixed Dry Pack Grout: Composition of non metallic aggregate, Portland cement with sufficient water for mixture to retain its shape when made into a ball by hand and capable of developing compressive strength of 48 MPa when measured at 28 days.
- .3 Non-Shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 17 MPa in 48 hours and 48 MPa in 28 days.
- .4 Vapour Retarder: 6 mil thick clear polyethylene film fabric reinforced plastic film type recommended for below grade application.

- .1 Vapour retarder to be 10 mil thick PERMINATOR as manufactured by W.R. Meadows.

## **2.4 JOINT DEVICES AND FILLER MATERIALS**

- .1 Joint Filler Type A: ASTM D1752; Closed cell polyvinyl chloride foam, resiliency recovery of 95 percent if not compressed more than 50 percent of original thickness.
- .2 Sawcut Joint Filler: Euco QWIKjoint 200 semi-rigid, polyurea prepared and installed in accordance with manufacturer's instructions.
- .3 Ribbed Water Stops: Extruded PVC, Arctic Grade:
  - .1 Tensile Strength: ASTM D412, Method A, Die "C", minimum 13.94 MPa.
  - .2 Elongation: ASTM D412, Method A, Die "C", minimum 275%.
  - .3 Tear Resistance: ASTM D624, Method A, Die "B", minimum 14.6 kN/m.
- .4 Sealant: Cold applied.

## **2.5 CONCRETE MIX**

- .1 Mix and deliver concrete in accordance with CAN/CSA-A23.1.
- .2 Mix and deliver concrete in accordance with ASTM C94, Alternative No. 2.
- .3 Use accelerating admixtures in cold weather only when approved by Consultant. Use of admixtures will not relax cold weather placement requirements.
- .4 Use calcium chloride only when approved by Consultant.
- .5 Use set retarding admixtures during hot weather only when approved by Consultant.
- .6 Add air entraining agent to normal weight concrete mix for work exposed to exterior.

## **PART 3 Execution**

### **3.1 EXAMINATION**

- .1 Verify site conditions to Section 01700.
- .2 Verify requirements for concrete cover over reinforcement.
- .3 Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.

### **3.2 PREPARATION**

- .1 Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
- .2 In locations where new concrete is dowelled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

- .3 Coordinate the placement of joint devices with erection of concrete formwork and placement of form accessories.

### **3.3 PLACING CONCRETE**

- .1 Place concrete in accordance with CAN/CSA-A23.1.
- .2 Notify Consultant minimum 24 hours prior to commencement of operations.
- .3 Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints are not disturbed during concrete placement.
- .4 Install vapour retarder under interior slabs on grade. Lap joints minimum 6 inches and seal watertight by sealant applied between overlapping edges and ends.
- .5 Repair vapour retarder damaged during placement of concrete reinforcing. Repair with vapour retarder material; lap over damaged areas minimum 6 and seal watertight.
- .6 Water Stops.
  - .1 Install water stops to provide continuous water seal.
  - .2 Do not distort or pierce water stop in such a way as to hamper performance.
  - .3 Do not displace reinforcement when installing water stops.
  - .4 Use equipment to manufacturer's requirements to field splice water stops.
  - .5 Tie water stops rigidly in place.
  - .6 Use only straight heat sealed butt joints in field.
  - .7 Use factory welded corners and intersections.
- .7 Separate slabs on grade from vertical surfaces with ½ inch thick joint filler.
- .8 Extend joint filler from bottom of slab to within 1/8 inch of finished slab surface. Conform to Section 07900 for finish joint sealer requirements.
- .9 Apply sealants in joint devices in accordance with Section 07900.
- .10 Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- .11 Place concrete continuously between predetermined expansion, control, and construction joints.
- .12 Do not interrupt successive placement; do not permit cold joints to occur.
- .13 Place floor slabs in pattern indicated.
- .14 Saw cut joints within 24 hours after placing. Use 3/16 inch thick blade, cut into ¼ depth of slab thickness.
- .15 Screed floors and slabs on grade level, maintaining surface flatness of maximum 1/8 inch in 10 feet.

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**3.4 CONCRETE FINISHING**

- .1 Provide formed concrete surfaces to be left exposed with smooth rubbed finish.
- .2 Finish concrete floor surfaces to requirements of Section 03355.
- .3 Wood float surfaces which will receive ceramic tile with full bed setting system.
- .4 Steel trowel surfaces which will receive carpeting and thin set ceramic
- .5 Steel trowel surfaces which are scheduled to be exposed.
- .6 In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains as indicated on drawings.

**3.5 CURING AND PROTECTION**

- .1 Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- .2 Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- .3 Cure concrete floor surfaces to requirements of Section 03390.

**3.6 FIELD QUALITY CONTROL**

- .1 Section 01400 - Quality Requirement: Field inspection and testing.
- .2 Provide free access to Work and cooperate with appointed firm.
- .3 Submit proposed mix design to inspection and testing firm for review prior to commencement of Work.
- .4 Tests of cement and aggregates may be performed to ensure conformance with specified requirements.
- .5 Three concrete test cylinders will be taken for every 76 or less cu m of concrete placed.
- .6 One additional test cylinder will be taken during cold weather concreting, cured on job site under same conditions as concrete it represents.
- .7 One slump test will be taken for each set of test cylinders taken.

**3.7 PATCHING**

- .1 Allow Consultant to inspect concrete surfaces immediately upon removal of forms.
- .2 Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Consultant upon discovery.
- .3 Patch imperfections as directed.

**3.8 DEFECTIVE CONCRETE**

- .1 Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- .2 Repair or replacement of defective concrete will be determined by the Consultant.
- .3 Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Consultant for each individual area.

END OF SECTION



**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Finishing slabs-on-grade and monolithic floor slab and separate floor toppings.
- .2      Surface treatment with concrete densifier.

**1.2            RELATED SECTIONS**

- .1      Section 03300 - Cast-in-Place Concrete:
- .2      Section 03390 - Concrete Curing.

**1.3            REFERENCES**

- .1      ACI 301 - Structural Concrete.
- .2      ACI 302 - Guide for Concrete Floor and Slab Construction.
- .3      ASTM E1155/E1155M - Determining Floor Flatness and Floor Levelness Numbers.

**1.4            SUBMITTALS**

- .1      Section 01300: Submission procedures.
- .2      Product Data: Provide data on concrete hardener and sealer compatibilities and limitations.

**1.5            MAINTENANCE DATA**

- .1      Section 01700: Submission procedures.
- .2      Maintenance Data: Provide data on maintenance renewal of applied coatings

**1.6            QUALITY ASSURANCE**

- .1      Perform Work in accordance with ACI 301.

**1.7            DELIVERY, STORAGE, AND HANDLING**

- .1      Deliver, store, protect, and handle products to site.
- .2      Deliver materials in manufacturer's packaging including application instructions.

**1.8            ENVIRONMENTAL REQUIREMENTS**

- .1      Temporary Heat: Ambient temperature of 10 degrees C minimum.
- .2      Ventilation: Sufficient to prevent injurious gases from temporary heat or other sources affecting concrete.

**1.9 COORDINATION**

- .1 Section 01300: Coordinate work.
- .2 Coordinate the work with concrete floor placement and concrete floor curing.

**PART 2 Products**

**2.1 COMPOUNDS - HARDENERS AND SEALERS**

- .1 Densifier: EUCO Diamond Hard.

**PART 3 Execution**

**3.1 EXAMINATION**

- .1 Section 01700: Verify site conditions.
- .2 Verify that floor surfaces are acceptable to receive the work of this section.

**3.2 FLOOR FINISHING**

- .1 Finish concrete floor surfaces in accordance with CSA A23.1 and ACI 301.
- .2 Wood float surfaces which will receive ceramic tile with full bed setting system.
- .3 Steel trowel surfaces which will receive carpeting and thin set ceramic tile.
- .4 Steel trowel surfaces which are scheduled to be exposed.
- .5 In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains as indicated on drawings.

**3.3 FLOOR SURFACE TREATMENT**

- .1 Apply densifier to manufacturer's instructions on floor surfaces.

**3.4 TOLERANCES**

- .1 Slabs-on-grade: slab flatness tolerances in accordance with CSA A23.1, Table 22, Class C: FF=50 and FL=33 minimum local. Levelness tolerances (FL) do not apply to inclined surfaces. Refer to CSA-A23.1 Clause 7.5.1.3.
- .2 Correct defects in the defined traffic floor by grinding or removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

END OF SECTION

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**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Initial and final curing of horizontal and vertical concrete surfaces.

**1.2            RELATED SECTIONS**

- .1      Section 03300 - Cast-In-Place Concrete.
- .2      Section 03355 - Concrete Floor Finishing.

**1.3            REFERENCES**

- .1      ACI 301 - Structural Concrete.
- .2      ACI 302 - Recommended Practice for Concrete Floor and Slab Construction.
- .3      ACI 308 - Guide to Curing Concrete.
- .4      ASTM C171 - Sheet Materials for Curing Concrete.
- .5      ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete.
- .6      ASTM D2103 - Polyethylene Film and Sheeting.

**1.4            SUBMITTALS**

- .1      Submit to Section 01300.
- .2      Product Data: Provide data on curing compounds compatibilities, and limitations.

**1.5            QUALITY ASSURANCE**

- .1      Perform Work in accordance with ACI 301.

**1.6            DELIVERY, STORAGE, AND HANDLING**

- .1      Deliver, store, protect, and handle products.
- .2      Deliver curing materials in manufacturer's packaging including application instructions.

**PART 2      Products**

**2.1            MATERIALS**

- .1      Water: Potable, not detrimental to concrete.

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**PART 3 Execution**

**3.1 EXAMINATION**

- .1 Verify substrate conditions to Section 01300.
- .2 Verify that substrate surfaces are ready to be cured.

**3.2 EXECUTION - HORIZONTAL SURFACES**

- .1 All concrete floor areas outside the maintenance shop and cooler/freezer to have EUCO DIAMOND HARD densifier and sealer. Apply KUREZ DR VOX curing compound for concrete curing prior to application of DIAMOND HARD.
- .2 EUCO DIAMOND HARD and KUREZ DR VOX to be applied in strict accordance with manufacturer's instructions.

**3.3 EXECUTION - VERTICAL SURFACES**

- .1 Cure surfaces in accordance with ACI 308.

**3.4 PROTECTION OF FINISHED WORK**

- .1 Protect finished Work to Section 01500.
- .2 Do not permit traffic over unprotected floor surface.

END OF SECTION

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**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Insulation in exterior wall and roof construction.

**1.2            RELATED SECTIONS**

- .1      Section 07260 - Vapour Retarders: Vapour retarder materials to adjacent insulation.

**1.3            REFERENCES**

- .1      ASTM C665 - Mineral-Fibre Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- .2      ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
- .3      NFPA 255 - Test of Surface Burning Characteristics of Building Materials.
- .4      UL 723 - Tests for Surface Burning Characteristics of Building Materials.

**1.4            SYSTEM DESCRIPTION**

- .1      Materials of This Section: Provide continuity of thermal barrier at building enclosure elements.
- .2      Materials of This Section: Provide thermal protection to vapour retarder in conjunction with vapour retarder materials in Section 07260.

**1.5            SUBMITTALS**

- .1      Section 01300: Submission procedures.
- .2      Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

**1.6            COORDINATION**

- .1      Section 01300: Coordinate work.
- .2      Coordinate the work with Section 07260 for installation of vapour retarder.

**PART 2      Products**

**2.1            MANUFACTURERS - INSULATION MATERIALS**

- .1      Owens Corning fibreglass insulation or equal
- .2      Substitutions: Permitted on approval.

## **2.2 MATERIALS**

- .1 Batt Insulation: ASTM C665; preformed glass fibre roll, conforming to the following:
  - .1 Thermal Resistance: R of 21 (minimum; see drawings)
  - .2 Batt Size: 16 and 24 inch width.
  - .3 Facing: Unfaced.
  - .4 Flame/Smoke Properties: UL 723.
- .2 Sheet Vapour Retarder: Polyethylene film for above grade application, 6 mil thick; manufactured by Lamtec.
- .3 Tape: Polyethylene self-adhering type, mesh reinforced, 2 inches wide.

## **PART 3 Execution**

### **3.1 EXAMINATION**

- .1 Section 01700: Verify site conditions.
- .2 Verify that substrate, adjacent materials, and insulation are dry and ready to receive insulation.

### **3.2 INSTALLATION**

- .1 Install insulation and vapour retarder in accordance with manufacturer's instructions.
- .2 Install in exterior wall spaces without gaps or voids. Do not compress insulation.
- .3 Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- .4 Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within the plane of insulation.
- .5 Install with factory applied vapour retarder membrane facing warm side of building spaces. Lap ends and side flanges of membrane over framing members.
- .6 Tape seal butt ends, lapped flanges, and tears or cuts in membrane.
- .7 Wood Framing: Place vapour retarder on warm side of insulation by stapling 6 on centre. Lap and seal sheet retarder joints over member face.
- .8 Metal Framing: Place vapour retarder on warm side of insulation; lap and seal sheet retarder joints over member face.
- .9 Tape seal tears or cuts in vapour retarder.
- .10 Extend vapour retarder tight to full perimeter of adjacent window and door frames and other items interrupting the plane of membrane. Tape seal in place.

- .11 Coordinate work of this section with construction of vapour retarder specified in Section 07260.

### **3.3 SCHEDULES**

- .1 Provide insulation as shown on Drawings.

END OF SECTION

**PART 1        General**

**1.1            SECTION INCLUDES**

- .1        Preparing substrate surfaces.
- .2        Sealant and joint backing.

**1.2            RELATED SECTIONS**

- .1        Section03300: Sealants required in conjunction with cast-in-place concrete.
- .2        Section 04810: Sealants required in conjunction with masonry.
- .3        Section 07840 Firestopping: Sealants required in conjunction with firestopping.
- .4        Section 07511: Sealants required in conjunction with roofing.
- .5        Section 07620: Sealants required in conjunction with metal flashings.
- .6        Section 08111: Sealants required in conjunction with door frames.
- .7        Section 08800 Glazing: Sealants required in conjunction with glazing methods.
- .8        Section 09306: Sealants required in conjunction with floor and base finish.
- .9        Section 13038: sealants required in conjunction with Cold Storage rooms.

**1.3            REFERENCES**

- .1        ASTM C1193 - Standard Guide for Use of Joint Sealants.
- .2        ASTM C834 - Latex Sealants.
- .3        ASTM C919 - Use of Sealants in Acoustical Applications.
- .4        ASTM C920 - Elastomeric Joint Sealants.
- .5        ASTM D1056 - Flexible Cellular Materials - Sponge or Expanded Rubber.
- .6        SWRI (Sealant, Waterproofing and Restoration Institute) - Sealant and Caulking Guide Specification.

**1.4            QUALITY ASSURANCE**

- .1        Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- .2        Perform acoustical sealant application work in accordance with ASTM C919.



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**1.5 QUALIFICATIONS**

- .1 Manufacturer: Company specializing in manufacturing the Products specified in this section.
- .2 Applicator: Company specializing in performing the work of this section approved by manufacturer.

**1.6 ENVIRONMENTAL REQUIREMENTS**

- .1 Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

**1.7 COORDINATION**

- .1 Section 01300: Coordinate work.
- .2 Coordinate the work with all sections referencing this section.

**1.8 WARRANTY**

- .1 Section 01700: Provide five year warranty.
- .2 Warranty: Include coverage for installed sealants and accessories which fail to achieve air or water tight seal, exhibit loss of adhesion or cohesion, or do not cure.

**PART 2 Products**

**2.1 SEALANTS**

- .1 Manufacturers:
  - .1 GE Silicone
  - .2 Tremco Silicone.

**2.2 ACCESSORIES**

- .1 Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- .2 Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- .3 Joint Backing: ASTM D1056; round, closed cell polyethylene foam rod; oversized 30 to 50 percent larger than joint width.
- .4 Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

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**PART 3 Execution**

**3.1 EXAMINATION**

- .1 Verify that substrate surfaces and joint openings are ready to receive work.
- .2 Verify that joint backing and release tapes are compatible with sealant.

**3.2 PREPARATION**

- .1 Remove loose materials and foreign matter which might impair adhesion of sealant.
- .2 Clean and prime joints in accordance with manufacturer's instructions.
- .3 Perform preparation in accordance with manufacturer's instructions.
- .4 Protect elements surrounding the work of this section from damage or disfiguration.

**3.3 INSTALLATION**

- .1 Install sealant in accordance with manufacturer's instructions.
- .2 Measure joint dimensions and size materials to achieve required width/depth ratios.
- .3 Install joint backing to achieve a neck dimension no greater than 1/3 of the joint width.
- .4 Install bond breaker where joint backing is not used.
- .5 Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- .6 Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- .7 Tool joints concave.

**3.4 CLEANING**

- .1 Clean adjacent soiled surfaces.

**3.5 PROTECTION OF FINISHED WORK**

- .1 Section 01700: Protect finished installation.
- .2 Protect sealants until cured.

END OF SECTION

**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Non-rated and fire rated thermally insulated steel frames for doors and windows.
- .2      Interior and exterior glazed light frames.

**1.2            RELATED SECTIONS**

- .1      Section 08112 - Standard Steel Doors.
- .2      Section 08710 - Door Hardware: Hardware, weatherstripping.
- .3      Section 08800 - Glazing.
- .4      Section 09910 - Paint and Coatings: Field painting of doors.

**1.3            REFERENCES**

- .1      ANSI A117.1 - Accessible and Usable Buildings and Facilities.
- .2      ASTM A653/A653M - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .3      ASTM E2074- Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side-Hinged and Pivoted Swinging Door Assemblies.
- .4      CSDFMA (Canadian Steel Door and Frame Manufacturers Association).
- .5      DHI - Door Hardware Institute: The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.
- .6      NFPA 80 - Fire Door, Fire Windows.
- .7      NFPA 252 - Fire Tests for Door Assemblies.
- .8      SDI-100 - Standard Steel Doors and Frames.
- .9      UL 10B - Fire Tests of Door Assemblies.

**1.4            SUBMITTALS FOR REVIEW**

- .1      Section 01300: Submission procedures.
- .2      Product Data: Indicate frame configuration and finishes.
- .3      Shop Drawings: Indicate frame elevations, reinforcement, anchor types and spacings, location of cut-outs for hardware, and finish.

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**1.5 SUBMITTALS FOR INFORMATION**

- .1 Submit shop drawings in accordance with Section 01300: Submission procedures.
- .2 Clearly indicate each type of frame, elevation, material, material thicknesses, mortises, reinforcements, anchor types and spacing, finish, reinforcement and special features.
- .3 Reference frames to door schedule. Indicate door numbers and construction where applicable.

**1.6 QUALITY ASSURANCE**

- .1 Manufacture fire door and frame components and assemblies to ULC/ULI/WARNOCK HERSHEY/FACTORY MUTUAL requirements.
- .2 Hollow Metal Trades Association - Canadian Manufacturing Standards for Metal Doors and Frames.

**1.7 REGULATORY REQUIREMENTS**

- .1 Fire Rated Frame Construction: Conform to ASTM E2074, NFPA 252 and UL 10B.
- .2 Installed Frame Assembly: Conform to NFPA 80 for fire rated class same as fire door.
- .3 Door assemblies to be fire rated based on results of tests to CAN4-S104-M and as required by the Ontario Building Code.

**1.8 DELIVERY, STORAGE, AND PROTECTION**

- .1 Section 01600: Transport, handle, store, and protect products.
- .2 Accept frames on site in manufacturer's packaging. Inspect for damage.

**1.9 PROJECT CONDITIONS**

- .1 Section 01300: Coordination and meetings.
- .2 Coordinate the work with frame opening construction, door, and hardware installation.
- .3 Sequence installation to ensure wire connections are achieved in an orderly and expeditious manner.

**PART 2 Products**

**2.1 FRAME MANUFACTURERS**

- .1 Daybar.
- .2 All Steel Doors.
- .3 Artek Doors.

## 2.2 FRAMES

- .1 Frames: 1.6 mm, commercial quality steel cold rolled to ASTM A653M-96; standard wipe coat finish; 2.0 mm for frames with opening width in excess of 1200 mm. Note Underwriters thickness requirements for labeled frames.
- .2 Accessories: Glazing stops, floor anchors, channel spreaders, 1.6 mm tee anchors, 1.2 mm wall stud anchors, zinc coated to ASTM A653M-96, standard wipe coat finish. Corrugate tee anchors for masonry bond. Drill stud anchors for wire tie to studs. Lag bolts, shields and bushing for existing or concrete openings.
- .3 Guard Boxes: 0.50 mm steel, ZF075 coating designation zinc finish to ASTM A653M-96.
- .4 Door Bumpers: black neoprene.
- .5 Reinforcement for Hardware: carbon steel, prime painted, to the following thicknesses:

Hinge & Pivot reinforcements	30 mm x 250 mm	3.5 mm
Strike reinforcements		1.6 mm
Flush Bolt reinforcements		1.6 mm
Closer reinforcements		2.5 mm
Surface hardware reinforcements		2.5 mm
- .6 Door Jamb Reinforcement: 100 mm x 40 mm structural steel channel to CAN3-G40.21-92.

## 2.3 ACCESSORIES

- .1 Weatherstripping: Resilient rubber set in aluminum frame.

## 2.4 FABRICATION

- .1 Fabricate frames in accordance with details and approved shop drawings to Underwriters requirements and provide Underwriters labels. Provide 100 mm head section where detailed.
- .2 Mortise, reinforce, drill and tap frames and reinforcements to receive hardware using templates provided. Locate mortising to National Builders Hardware Association Standards.
- .3 Install 2 double stud bumpers on strike jamb of frame for each single door and 2 bumpers at head of double door frames.
- .4 Protect strike, hinge [and overhead concealed door closer] reinforcement completely by guard boxes welded to frame.
- .5 Weld in 50 mm channel spreaders to frame; ensure proper frame alignment.
- .6 Where frames terminate at finished floor, provide floor plates for anchorage to floor structure.
- .7 Cut mitres accurately and secure bent tabs on inside of frame profile.

- .8 Grind welded corners to a flat plane, fill with metallic paste filler and sand to a uniform smooth finish.
- .9 Fill surface depressions and butted joints with metallic paste filler and sand to a uniform smooth finish.
- .10 Touch-up frames by priming areas where galvanizing is damaged.
- .11 Reinforce head of frames wider than 1200 mm with 2.5 mm formed steel channel welded in place, flush with top of frame.
- .12 Provide three jamb anchors per jamb for frames up to 2130 mm high and one additional for each 600 mm over 2130 mm high.
- .13 Minimum depth of stop: 15 mm. Glazing stops, butt, miter, joints, channel shape 15 mm wide with counter screws.
- .14 Cut-off hospital stops at 45 deg. to height same as adjacent base finish; weld, fill, grind smooth and apply primer finish.
- .15 Reinforce head section at junction with removable mullion.
- .16 Reinforce both jambs where door openings occur in screens. Install reinforcing continuous structure to structure.

### **PART 3 Execution**

#### **3.1 EXAMINATION**

- .1 Section 01700: Verification of existing conditions before starting work.
- .2 Verify that opening sizes and tolerances are acceptable.

#### **3.2 INSTALLATION**

- .1 Set frames in plumb and square at correct elevation. Limit of acceptable frame distortion - 2 mm out of plumb measured on face of frame, maximum twist corner to corner of 3 mm.
- .2 Secure anchorages and connections to adjacent construction. Anchor door jamb reinforcement securely to structure.
- .3 Brace frames solidly to maintain in position while being built-in. Erect knocked down frames in accordance with fabricator's instructions.
- .4 Install a temporary horizontal wood spreader at mid-height of door opening to maintain frame width until building work completed.
- .5 For frames over 1200 mm in width, provide vertical support at the centre of head.
- .6 Remove temporary spreaders only after completion of adjacent work.

- .7 Co-ordinate grouting of all frames solid to adjacent construction.
- .8 Provide formed metal drip section full width of frame opening for exterior doors.

END OF SECTION

**PART 1 General**

**1.1 SECTION INCLUDES**

- .1 Non-rated and fire rated, thermally insulated and acoustic steel doors.
- .2 Louvres, glass and glazing.

**1.2 RELATED SECTIONS**

- .1 Section 08111 - Standard Steel Frames.
- .2 Section 08710 - Door Hardware.
- .3 Section 08800 - Glazing: Glass for doors.
- .4 Section 09910 - Paint and Coatings: Field painting of doors.

**1.3 REFERENCES**

- .1 ANSI A117.1 - Accessible and Usable Buildings and Facilities.
- .2 ASTM A653/A653M - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .3 ASTM C1363 - Method for Thermal Performance of Building Assemblies by Means of a Hot-Box Apparatus.
- .4 ASTM E2074 - Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side-Hinged and Pivoted Swinging Door Assemblies.
- .5 ASTM E413 - Classification for Rating of Sound Insulation.
- .6 CSDFMA (Canadian Steel Door and Frame Manufacturers Association).
- .7 DHI (Door Hardware Institute) - The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.
- .8 NFPA 80 - Fire Doors, Fire Windows.
- .9 NFPA 252 - Fire Tests for Door Assemblies.
- .10 SDI-100 - Standard Steel Doors and Frames.
- .11 UL 10B - Fire Tests of Door Assemblies.

**1.4 SUBMITTALS FOR REVIEW**

- .1 Section 01300: Submission procedures.
- .2 Product Data: Indicate door configurations, location of cut-outs for hardware reinforcement.



- .3 Shop Drawings: Indicate door elevations, internal reinforcement, closure method, and cut-outs for glazing, louvres and finishes.

## **1.5 SUBMITTALS FOR INFORMATION**

- .1 Section 01300: Submission procedures.
- .2 Manufacturer's Installation Instructions: Indicate special installation instructions.
- .3 Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

## **1.6 QUALITY ASSURANCE**

- .1 Conform to requirements of CSDFMA and SDI-100.
- .2 Manufacturer: Company specializing in manufacturing the Products specified in this section.

## **1.7 REGULATORY REQUIREMENTS**

- .1 Fire Rated Door Construction: Conform to ASTM E2074, NFPA 252 and UL 10B.
- .2 Door assemblies to be fire rated based on results of tests to CAN4-S104-M and as required by the Ontario Building Code.

## **1.8 DELIVERY, STORAGE, AND PROTECTION**

- .1 Section 01600: Transport, handle, store, and protect products.
- .2 Accept doors on site in manufacturer's packaging. Inspect for damage.
- .3 Break seal on site to permit ventilation.

## **1.9 PROJECT CONDITIONS**

- .1 Section 01300: Coordination and meetings.
- .2 Coordinate frame installation with size, location, and installation of service utilities.
- .3 Coordinate the work with door opening construction, door frame, and door hardware installation.
- .4 Sequence installation to ensure wire connections are achieved in an orderly and expeditious manner.

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**PART 2      Products**

**2.1            MATERIALS**

- .1      Sheet Steel: to ASTM A653M-96 commercial quality steel, cold rolled, zinc coated to ZF075 coating designation.
- .2      Honeycomb core material: rigid pre-expanded resin impregnated kraft paper having maximum 25 mm hexagonal shaped cells.
- .3      Reinforcement for Hardware: carbon steel, welded in place, prime painted, to the following thicknesses:
  - .1      Hinge, pivot and panic bar reinforcements:    3.5 mm
  - .2      Lock face, flush bolts, concealed bolts:       2.5 mm
  - .3      Concealed or surface closer reinforcements:    2.5 mm
  - .4      Other surface hardware reinforcements:        2.5 mm
- .4      Glazing stops: 1.0 mm steel, primed, butt, miter joints, counter sink for screws.

**2.2            FABRICATION**

- .1      Hollow metal doors shall be of seamless construction with no visible seams or joints on faces at vertical edges.
- .2      Steel face sheet thickness:
  - .1      Interior doors: 1.2 mm.
  - .2      Exterior doors: 1.6 mm.
- .3      Core Construction shall be one of the following:
  - .1      Internally steel stiffened with continuous vertical steel stiffeners at 150 mm O.C. spot welded to both face sheets; fill voids with glass fibre insulation.
  - .2      Composite construction consisting of honeycomb core with steel face sheets pressure laminated to core.
- .4      Refer to door schedule for required classes and ratings of fire doors, glazing or other requirements.
- .5      Mortise, reinforce, drill and tap doors and reinforcements to receive hardware using templates provided.
- .6      Join door faces at intersecting edges with continuous welds, fill and grind smooth. Finish door faces flush without visible joints or distortion.

- .7 Close top and bottom edges of door with recessed 1.2 mm steel channel, full width welded. Provide closure channel at top edge of exterior doors. Provide weep holes in exterior door bottom channel.
- .8 Make provisions for glass, provide glazing stops. Weld stops to door on security side.
- .9 Touch-up doors by priming areas where zinc coating is damaged.
- .10 Provide astragals for pairs of doors in accordance with Underwriters requirements.
- .11 Profile edge of doors as follows: Single acting swing doors - Bevel 3 mm in 50 mm  
Double acting swing doors - Radius of 54 mm.

**PART 3 Execution**

**3.1 EXAMINATION**

- .1 Section 01700: Verification of existing conditions before starting work.
- .2 Verify that opening sizes and tolerances are acceptable.

**3.2 INSTALLATION**

- .1 Install doors and hardware in accordance with templates and manufacturer's instructions. Maximum permissible warp of 3 mm measured diagonally across door.
- .2 Adjust operable parts for correct function.
- .3 Apply hardware to Class 'A' fire rated doors prior to delivery.

**3.3 ADJUSTING**

- .1 Section 01700: Adjusting installed work.
- .2 Adjust door for smooth and balanced door movement.

END OF SECTION

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**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Hardware for hollow steel doors.
- .2      Thresholds.
- .3      Weatherstripping, seals, and door gaskets.

**1.2            RELATED SECTIONS**

- .1      Section 08111 - Standard Steel Frames.
- .2      Section 08112 - Standard Steel Doors.

**1.3            ALLOWANCES**

- .1      Section 01200: Cash allowances affecting this section.

**1.4            REFERENCES**

- .1      AWMAC (Architectural Woodwork Manufacturers Association of Canada) - Quality Standards.
- .2      BHMA (Builders Hardware Manufacturers Association) - A156 series.
- .3      CSDFMA (Canadian Steel Door and Frame Manufacturers Association).
- .4      DHI (Door Hardware Institute) - A115 series.
- .5      DHI (Door Hardware Institute) - WDHS.3 - Hardware Locations for Wood Flush Doors.
- .6      NFPA 80 - Fire Doors, Fire Windows.
- .7      NFPA 101 - Life Safety Code.
- .8      NFPA 252 - Fire Tests of Door Assemblies.
- .9      UL 10B - Fire Tests of Door Assemblies.
- .10     UL 305 - Panic Hardware.

**1.5            SUBMITTALS FOR REVIEW**

- .1      Section 01300: Submission procedures.
- .2      Shop Drawings:
  - .1      Indicate locations and mounting heights of each type of hardware, schedules and catalogue cuts.
  - .2      Submit manufacturer's parts lists and templates.

- .3 Samples:
  - .1 Submit 1 sample of hinge, latchset, lockset and closer illustrating style, colour, and finish.
  - .2 Samples will be returned to supplier.

## **1.6 SUBMITTALS FOR INFORMATION**

- .1 Section 01300: Submission procedures.
- .2 Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.

## **1.7 SUBMITTALS AT PROJECT CLOSEOUT**

- .1 Section 01700: Submission procedures.
- .2 Project Record Documents: Record actual locations of installed cylinders and their key code.
- .3 Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
- .4 Keys: Deliver with identifying tags to Owner by security shipment direct from hardware supplier.
- .5 Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

## **1.8 QUALITY ASSURANCE**

- .1 Perform Work in accordance with the following requirements:
  - .1 AWI.
  - .2 BHMA A156 series.
  - .3 CSDFMA. DHI - A115 series.
  - .4 NFPA 80.
  - .5 NFPA 101.
  - .6 NFPA 252.
  - .7 UL 10B.
  - .8 UL 305.
- .2 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section.

## **1.9 DELIVERY, STORAGE, AND PROTECTION**

- .1 Section 01600: Transport, handle, store, and protect products.
- .2 Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

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**1.10 PROJECT CONDITIONS**

- .1 Section 01300: Coordination and meetings.
- .2 Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware and recessed items.
- .3 Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.
- .4 Coordinate Owner's keying requirements during the course of the Work.

**1.11 WARRANTY**

- .1 Section 01700: Warranties.
- .2 Provide five year manufacturer warranty for door closers.

**1.12 MAINTENANCE PRODUCTS**

- .1 Section 01700: Operation and maintenance data.
- .2 Provide special wrenches and tools applicable to each different or special hardware component.
- .3 Provide maintenance tools and accessories supplied by hardware component manufacturer.

**1.13 EXTRA MATERIALS**

- .1 Section 01700: Extra materials.
- .2 Provide ten extra key lock cylinders for each master keyed group.

**PART 2 Products**

**2.1 SUPPLIERS**

- .1 General contractor to provide hinges, latchsets, locksets, pivots, push/pulls, cylinder locks, exit devices, gasketing, protection plates and closers and all other hardware on all doors in conjunction with owner's requirements and the drawings.

**2.2 MANUFACTURERS**

- .1 In accordance with allowance for hardware and owner's requirements.

**2.3 KEYING**

- .1 Door Locks: Key according to owner's requirements and the city of Woodstock master keying scheme.
- .2 Two copies of keys to be turned over to owner at completion of project.

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**2.4 FINISHES**

- .1 Finishes: Identified in Schedule at end of section.

**PART 3 Execution**

**3.1 EXAMINATION**

- .1 Section 01700: Verification of existing conditions before starting work.
- .2 Verify that doors and frames are ready to receive work and dimensions are as instructed by the manufacturer.
- .3 Verify that electric power is available to power operated devices and is of the correct characteristics.

**3.2 INSTALLATION**

- .1 Install hardware in accordance with manufacturer's instructions.
- .2 Use templates provided by hardware item manufacturer.
- .3 Mounting heights for hardware from finished floor to centre line of hardware item, refer to:
  - .1 Section 08112.
  - .2 Section 08115.
  - .3 CSDFMA; DHI WDMS.3.

**3.3 FIELD QUALITY CONTROL**

- .1 Section 01400: Field inspection, testing, and adjusting.

**3.4 ADJUSTING**

- .1 Section 01700: Adjusting installed work.
- .2 Adjust hardware for smooth operation.

**3.5 PROTECTION OF FINISHED WORK**

- .1 Section 01700: Protecting installed work.
- .2 Do not permit adjacent work to damage hardware or finish.

END OF SECTION

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**PART 1      General**

**1.1            SECTION INCLUDES**

- .1      Glass and glazing for hollow metal work, windows and doors.

**1.2            RELATED SECTIONS**

- .1      Section 07260 - Vapour Retarders.
- .2      Section 07900 - Joint Sealers: Sealant and back-up material.
- .3      Section 08112 - Standard Steel Doors: Glazed doors.
- .4      Section 08411 – Aluminum Entrances and Storefronts
- .5      Section 08520 – Aluminum Windows

**1.3            REFERENCES**

- .1      CAN/CSA A440 - Windows
- .2      ANSI Z97.1 - Safety Performance Specifications and Methods of Test for Glazing Materials Used in Buildings.
- .3      ASTM C542 - Specification for Lock-Strip Gaskets.
- .4      ASTM C864 - Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
- .5      ASTM C920 - Elastomeric Joint Sealants.
- .6      ASTM C1036 - Flat Glass.
- .7      ASTM C1048 - Heat-Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass.
- .8      ASTM C1172 - Laminated Architectural Flat Glass.
- .9      ASTM C1193 - Use of Joint Sealants.
- .10     ASTM D412 -Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers - Tension.
- .11     ASTM D1149 - Test Method for Rubber Deterioration - Surface Ozone Cracking in a Chamber.
- .12     ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
- .13     ASTM E283 - Test Method For Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen.



- .14 ASTM E330 - Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- .15 ASTM E546 - Test Method For Frost Point of Sealed Insulating Glass Units.
- .16 ASTM E576 - Method For Frost Point of Sealed Insulating Glass Units in the Vertical Position.
- .17 ASTM E773 - Test Method for Accelerated Weathering of Sealed Insulating Glass Units.
- .18 ASTM E774 - Classification of the Durability of Sealed Insulating Glass Units.
- .19 GANA (Glass Association of North America) - Glazing Manual.
- .20 GANA (Glass Association of North America) - Sealant Manual.
- .21 GANA (Glass Association of North America) - Laminated Glass Design Guide.
- .22 IGMAC (Insulating Glass Manufacturers Association of Canada) - Sealed Insulating Glass: Glass to Elastomer Edge, Glass to Mastic Edge, Special Glasses.
- .23 SIGMA - Sealed Insulated Glass Manufacturers Association.
- .24 Laminators Safety Glass Association - Standards Manual.

#### **1.4 PERFORMANCE REQUIREMENTS**

- .1 Size of Glass: Design and size components to withstand dead loads and live loads caused by positive and negative wind loads acting normal to plane of wall as calculated in accordance with Ontario Building Code and other applicable standards. Design and shop drawings are required to the same degree and detail for the components in which the glazing is to be installed.
- .2 Limit glass deflection to 1/200 or flexure limit of glass with full recovery of glazing materials, whichever is less.

#### **1.5 SUBMITTALS FOR INFORMATION**

- .1 Section 01300: Submission procedures.
- .2 Certificates: Certify that Products meet or exceed specified requirements.
- .3 Manufacturer's Certificate: Certify that glass meets or exceeds specified requirements.

#### **1.6 QUALITY ASSURANCE**

- .1 Perform Work in accordance with CAN/CSA 440 and any other applicable standards.

### **PART 2 Products**

- .1 Safety Glass (Type FG-B):
  - .1 Clear,

- .2 fully tempered with horizontal tempering
- .3 conform to ANSI Z97.1
- .4 6 mm minimum thick for interior doors.
  
- .2 Sealed Insulating Glass:
  - .1 Insulating Glass Units (Standard):
    - .1 Conform to CAN/CGSB-12.8, double unit,
      - .1 Glass to CAN/CGSB-12.1; safety glass
      - .2 Glass thickness: 6mm each light
      - .3 Inter-cavity space: 12.5mm between lights with low conductivity spacers
      - .4 Glass coating: surface number 3; Low "E"
      - .5 Cavity: argon filled
      - .6 Colour:
        - .1 Exterior Pane: Selected by owner
        - .2 Interior Pane: CLEAR

## **PART 3 Execution**

### **3.1 EXAMINATION**

- .1 Section 01700: Verification of existing conditions before starting work.
- .2 Verify that openings for glazing are correctly sized and within tolerance.
- .3 Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

### **3.2 PREPARATION**

- .1 Clean contact surfaces with solvent and wipe dry.
- .2 Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- .3 Prime surfaces scheduled to receive sealant.
- .4 Install sealant in accordance with manufacturer's instructions.

### **3.3 INSTALLATION - INTERIOR WET METHOD (COMPOUND AND COMPOUND)**

- .1 Install glazing resting on setting blocks. Install applied stop and centre pane by use of spacer shims at minimum of 24 inch centres, kept 1/4 inch below sight line.
- .2 Locate and secure glazing pane using glazers' clips.
- .3 Fill gaps between glazing and stops with glazing compound until flush with sight line. Tool surface to straight line.

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**3.4 FIELD QUALITY CONTROL**

- .1 Section 01400: Field inspection, testing.
- .2 Inspection will monitor quality of glazing.

**3.5 CLEANING**

- .1 Section 01700: Cleaning installed work.
- .2 Remove glazing materials from finish surfaces.
- .3 Remove labels after Work is complete.
- .4 Clean glass and adjacent surfaces.

**3.6 PROTECTION OF FINISHED WORK**

- .1 Section 01700: Protecting installed work.
- .2 After installation, mark pane with an 'X' by using removable plastic tape or paste. Do not mark heat absorbing or reflective glass units.

END OF SECTION

**THE CORPORATION OF THE CITY OF WOODSTOCK**

**POLICY ON CONTRACTOR SAFETY  
AND  
CERTIFICATE OF COMPLIANCE**

**POLICY STATEMENT**

All contractors or land developers working on municipal projects are required to work in compliance with The Ontario Occupational Health and Safety Act and Regulations. In this respect, the Occupation Health and Safety Policies used in the works by the Contractor, must equal or exceed the policies contained in the City of Woodstock Occupation health and Safety Policy Manual. All contractors working on city streets and roads are also required to work in compliance with the Ministry of Transportation - Traffic Control Manual for Roadway Work Operations.

Failure to comply will be considered a breach of contract and may result in work stoppage, Ministry of Labour involvement and termination of the contract.

**CONTRACTOR SAFETY DEFICIENCIES WILL BE ADDRESSED BY THE CITY IN THE FOLLOWING PROGRESSIVE STEPS:**

1. The Contractor will be informed of the problem verbally by the site inspector, the intent being that the Contractor will act upon the problem immediately.
2. If the problem is not resolved within a reasonable length of time, as determined by the site inspector, the Contractor will be informed of the problem verbally and in writing, with a copy sent to the Contractor's head office.
3. If the problem remains unresolved the Ministry of Labour will be notified of the violation and, if necessary, after written notification has been sent by the Engineer, the work may be stopped until the problem is corrected.
4. The contract may be terminated by the City.

## **CERTIFICATE OF COMPLIANCE**

The undersigned agrees to comply with the Ontario Occupational Health and Safety Act and Regulations, the City of Woodstock Occupational Health and Safety Policies as a minimum and the Ministry of Transportation - Traffic Control Manual for Roadway Work Operations and acknowledges understanding the actions the City of Woodstock will take to ensure compliance.

Name of Firm:

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Signature of Firm Official:

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Date Signed:

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## WOODSTOCK TRANSIT BUILDING

### Bus Shelter Expansion

Contract # 11048

Notes to Tenderers

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Before submitting a tender, the following should be noted:

1. Has your tender been signed, sealed and witnessed?
2. A certified cheque, cash deposit or bid bond in the amount of not less than 10% of the bid price must accompany the tender.
3. Have you enclosed letters affirming the availability of
  - a) 50% performance bond
  - b) 50% labour and material bond
4. Have you completed all schedules and prices in the bid Form?
5. Have you indicated the number of addenda included in the tender form?
6. Have you reviewed the schedule for completion of work?
7. Are the documents complete?
8. Submitting general contractors must attend at least one mandatory site visit on September 21, 2021 at 10 am.
- 9. Tenders will be received until 2:00 pm local time, October 1, 2021.**
- 10. AGREEMENT** Following the award of the tender by the Owner and before an agreement can be signed, the tenderer must provide:
  - Proof of insurance (certificate of insurance)
  - Evidence of good standing with the Workplace Safety & Insurance Board
  - Furnish the performance bond and labour and material bond.

# ENG 2021-11048 - Bus Shelter / Storage Facility Expansion

Opening Date: September 16, 2021 4:00 PM

Closing Date: October 1, 2021 2:00 PM

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**Specifications**

**Form of Tender: Senior Supervisory Personnel**

Line Item	NAME	POSITION	EXPERIENCE
1			
2			
3			
4			

**Form of Tender: Health & Safety Checklist - Contractor Information**

Line Item	Description	Contractor Information *	Comments
1	Contractor Company Name		
2	Contractor Phone Number		
3	On-site Cell Phone Number		
4	Maximum Number of Workers on Site		
5	Site Supervisor Name		
6	Alternative Site Supervisor Name		

**Form of Tender: Health & Safety Checklist - Documentation**

Line Item	Documentation	City Required	Contractor Response *	Comments
1	WSIB Clearance Certificate	Yes	<input type="radio"/> Yes <input type="radio"/> No	
2	Liability Insurance Certificate	Yes	<input type="radio"/> Yes <input type="radio"/> No	
3	Health & Safety Policy	Yes	<input type="radio"/> Yes <input type="radio"/> No	
4	Health & Safety Committee	Yes	<input type="radio"/> Yes <input type="radio"/> No	
5	Health & Safety Representatives	Yes	<input type="radio"/> Yes <input type="radio"/> No	

**Form of Tender: Health & Safety Checklist - Procedure**

Line Item	Procedures	City Required	Contractor Response *	Comments
1	Emergency	Yes	<input type="radio"/> Yes <input type="radio"/> No	
2	Traffic Control	Yes	<input type="radio"/> Yes <input type="radio"/> No	
3	Excavation & Trenching	Yes	<input type="radio"/> Yes <input type="radio"/> No	
4	Confined Space	Yes	<input type="radio"/> Yes <input type="radio"/> No	

**References**

All references stated shall be for the same or similar scope as the one described in this Bid.

**Form of Tender: Contractor's Experience in Similar Work**

Line Item	Contract Year	Contract Description	Contract Value	Company Name	Contact Person	Email Address	Phone Number
1							
2							
3							
4							
5							



## Documents

Ensure your bid submission document(s) conforms to the following:

1. Documents should be in PDF format and be compatible with Adobe version 5 or higher. Documents may also be submitted in Microsoft Word or Microsoft Excel format (version 2010 or 2013). Vendors should only submit these file types unless specifically requested to submit other file types that may be required for a specific proposal. If the City requires video or audio files do NOT upload video or audio files here. You may state a web address link in your bid submission or upload a document stating the web link for the City of Woodstock staff to view and/or listen to.
2. Documents should NOT have a security password, as the City of Woodstock staff may not be able to open the file.
3. The maximum file upload size is 500MB. To reduce the document size, Proponents may zip/compress files for upload. Also, if a vendor requires to upload more than one (1) document, the vendor may combine the documents into one zipped/compressed file, as per the instructions below. Zipped files must be named accordingly for the submission and must not be password protected.
4. When uploading a file please ensure each document is named, in relation to the submission format item responding to, for example, if responding to the Previous Experience category save the document as "Previous Experience".
5. It is the vendor's sole responsibility to ensure that their uploaded document(s) are not either defective, corrupted or blank and that the documents can be opened and viewed by the City of Woodstock staff. The City of Woodstock may reject any Bid where any document(s) cannot be opened and viewed by City staff.
  - List of Proposed Construction Equipment \* (mandatory)
  - Bus Shelter / Storage Facility Expansion - Tender Submission \* (mandatory)
  - Additional Documentation (if applicable) (optional)

## BONDING AND BID DEPOSIT UPLOAD SECTION

Refer to the bid document for the bonding and bid deposit requirements.

**A digital bid bond/deposit provided shall be uploaded in the appropriate field. A paper-based scanned document will not be accepted and your bid will be forfeited.**

- Performance and Labour & Material Payment Bond \* (mandatory)

## Addenda, Terms and Conditions

The Bidder hereby acknowledges and agrees:

1. To provide all goods, services and construction, as more specifically set out and in accordance with the Owner's Bid Call Document, including but not limited to the scope of work, specifications, drawings, Addenda (if issued by the Owner), the terms and conditions, etc. stated therein, which are expressly acknowledged and made part of this Contract.
2. This Bid is made without any connections, knowledge, comparison of figures or arrangements with any other company, firm or person making a Bid for the same Work and is in all respects fair and without collusion or fraud.
3. I/WE do hereby Bid and offer to enter into a Contract to do all the Work as specified in the Bid Call Document(s) which shall include all costs but not limited to; freight, duty, currency, etc. in accordance with the prices and terms as submitted by the Bidder herein.
4. If I/WE withdraw this Bid before the formal Contract is executed by the Awarded Bidder for the said Work or Ninety (90) Calendar Days, whichever event first occurs, the amount of the Bid Deposit accompanying this Bid (if applicable to this bid) shall be forfeited to the Owner.
5. If the Bid is accepted, I/WE agree to furnish all required documentation, as required by the Bid Call Document(s) within Ten (10) Calendar Days after notification of Award.
6. I/We acknowledge and agree that any issued Addendum/Addenda forms part of the Bid Call Document.
7. I/We, certify that we are in full compliance with Section 6 of Ontario Regulation 429/07, Accessibility Standards for Customer Service, made under the Accessibility for Ontarians with Disabilities Act, 2005. If requested, we are able to provide written proof that all employees have been trained as required under the act. I/We shall be aware and sensitive to accessibility and disability issues.
8. I/WE (including any related or affiliated entities and any principal thereof) have no unresolved litigation with the Owner.
9. All tender and quotation documents shall be available to the public unless the party submitting the tender or quotation indicates that the tender or quotation is submitted in confidence, that the documents submitted contain a trade secret or scientific, technical, commercial, financial or labour relations information, and that disclosure of the documents could reasonably be expected to result in harm as specified in subsection 10 (1) of the Municipal Freedom of Information and Protection of Privacy Act.

If you do not want your documents to be made available **please indicate that they are submitted in confidence**, what the nature of the documents is and what harm will result from their release.

Be aware that name and price shall always be made public.

All tender, quotations and proposals are subject to the Municipal Freedom of Information and Protection of Privacy Act and may be subject to release pursuant to that Act notwithstanding the request of those submitting tenders, quotations or proposals to keep them confidential.

I/WE agree to be bound by the terms and conditions contained in the Bid Document and any applicable Addenda, and the person named below has the authority to submit this bid on behalf of the Bidder.

The bidder shall declare any potential conflict of interest that could arise from bidding on this bid.

Yes  No

### Electronic Bid Submission

The Bidder acknowledges and agrees that the addendum/addenda below form part of the Bid Document.

Please check the box in the column "**I have reviewed this addendum**" below to acknowledge each of the addenda.

File Name	I have reviewed the below addendum and attachments (if applicable)	Pages
There have not been any addenda issued for this bid.		