



**REQUEST FOR PROPOSAL THE
TOWNSHIP OF WAINFLEET FIRE STATION
REPLACEMENT**

TOWNSHIP OF WAINFLEET
31940 HIGHWAY No. 3, WAINFLEET,
ONTARIO L0S 1V0

Closing: July 11th, 2018



Introduction

The Township of Wainfleet is seeking proposals for a Design-Builder of fire station #3 from a qualified, experienced firm to meet the township's needs. The contractor must demonstrate proven success in working with staff, council to develop a design and build that will suit our community.

The Township of Wainfleet is a rural township found on the northern shore of Lake Erie, in the southern Niagara Region of Ontario. The Township has a population of 6300 residents and is approximately 217.40 square kilometers in size. It is best known for its traditional agricultural production and attractive Lakeshore area.

The Township intends to award the contract based on the proposal that offers the best design, functionality, conforms to the budget and responds to the overall objectives.

It is the intention of the Township of Wainfleet to construct a new fire station at the existing Burnaby fire station located at 11603 Lakeshore Road that houses our **volunteer** firefighters.

This structure is to replace the existing facility in the respective rural area. The existing facility will be removed and will be decommissioned (**Separate Price**), and part of this assignment. **It is the Township intention to utilize the existing fire hall during construction of the new building.**

The Burnaby Fire Station will include a three bay apparatus room, with sufficient depth for bunker gear storage. The truck bays will have front overhead doors.

It is the requirement of the Design-Builder and its design consultants to estimate the necessary servicing requirements (i.e. sanitary, water, power etc.) for the entire build and to ensure that they are provided for in the design and construction of this work.

The Design-Builder shall indicate in their proposal a conceptual layout of this building; both from a building design view point and a traffic and site management capacity. **The New Building Must Meet Post Disaster Standards.**

The Township has included conceptual drawings to be utilized and minor changes may be considered.

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DEFINITIONS

The following definitions shall apply to the RFP documents.

Authorized Signing Officer - Any individual officer(s), partner(s), employee(s) or designate(s) of the individual, firm, partnership, company, corporation or joint venture, that has the signing authority to commit the individual, firm, partnership, company, corporation or joint venture into a legally binding contract with the Township.

Contract – An agreement between the Township and the Design-Builder including all documentation attached thereto.

Design-Builder – Any firm/company receiving this invitation to submit a proposal in response to this RFP. The term Design-Builder means the Design-Builder or the Design- Builder’s authorized representative as designated to the Owner in writing.

Equivalent – means a product or method submitted by the Design-Builder as an alternate to the specified product or method accepted by Township and Project Manager upon review of supporting documentation to confirm equivalency, noting that the Township's decision is final.

Owner – means the Corporation of the Township of Wainfleet.

Project Manager – is the person, firm or corporation, if any, appointed by the Township for the purposes of contract administration of the Work. The Project Manager for this project is to be determined.

Proposal Response – Any document received by the Township from a firm, partnership, company, corporation or joint venture in response to this RFP for the supply of goods, equipment, materials, commodities or services issued by the Township.

Responsive Bidder – A Design-Builder that follows the requirements of the RFP, includes all documentation, is of timely submission, and has the appropriate authorized signatures as required on each document.

Successful Design-Builder – The Design-Builder whose submission has been approved by the Township and its respective authoritative bodies for the proposed Works.

Testing Engineer – means the qualified person, firm or corporation, if any, appointed for purposes of testing to be paid under the Cash Allowances.

Township - means the Corporation of the Township of Wainfleet or its authorized agent(s) or representative(s) as designated to the Design-Builder.

Township Staff Representative – person representing Township of Wainfleet for this project shall be:

Mr. Richard Nan
31940 Highway 3, Wainfleet, Ontario L0S 1V0
Tel: 905-899-3463 Ext: 234
Fax 905-899-2340
[Email: rnan@wainfleet.ca](mailto:rnan@wainfleet.ca)

Work/Works – means the total construction and related services required in order to complete the design and construction of the Fire Station located at the existing Burnaby Fire Station in the Township of Wainfleet, Ontario.

Working Day – means any Day except Saturdays, Sundays and statutory holidays observed in the Province of Ontario.

List of abbreviations used in this document:

AFF	Above Finished Floor
CB	Carpet Base
CONC	Concrete
CT	Ceramic Tile
DEO	Double Electrical Outlet
DW	Drywall
GFI	Ground Fault Interceptor
HD	Heavy Duty
N/A	Not Applicable
OBC	Ontario Building Code
PA	Public Address
PC	Personal Computer (with networkable connection)
PTD	Painted
RB	Rubber Base
SC	Sealed Concrete
VCT	Vinyl Composite Tile

END OF SECTION 00100

**TOWNSHIP OF WAINFLEET
REPLACEMENT OF FIRE STATION**

**SECTION 00150
LIST OF DRAWINGS**

Description	Drawing Date
Station 3 Site Plan (PDF and CAD)	October 17, 2016
Station 3 Topographic Survey (PDF and CAD)	September 23, 2016
Station 3 1968 Site Plan (PDF)	August 23, 1968
Station 3 Aerial Photo	2018
Station #3 Conceptual Drawings	

END OF SECTION 00150

These Instructions define your obligations and limit your rights. Read carefully.

ARTICLE 1: SUBMISSION

All bidders shall consult the Contract Documents refer to Section 00300 for more information on submission requirements. The Contract Documents will consist of the following:

1. Every Bid shall be typewritten, printed or in legible writing (in ink) and be:
 - a) signed by the Bidder;
 - b) submitted in a sealed, opaque envelope; and
 - c) marked and delivered in accordance with subsection (2).

Bids submitted by fax, e-mail, telex or other telegraphic means shall not be accepted.

2. A Bid shall be submitted in two separate sealed envelopes marked with the title of the RFP, and addressed and delivered to:

Township of Wainfleet
Attention – Township Clerk
31940 Highway 3
Wainfleet, Ontario L0S 1V0

**not later than 2:00pm
on Tuesday, July 11th, 2017**

No proposal response will be received after this time.

Bids will be received (only at that Office) up to and including the closing time and date specified in the RFP Notice or as subsequently amended by Addendum.

3. Bidders should submit seven (7) of copies of the submission with one being marked as the “ORIGINAL” and others marked as copies. The original submission MUST contain a completed original Bidders Covenant Form.
4. Technical requirements are to be submitted in Envelope #1. All pricing information must be submitted in Envelope #2. Failure to comply with this requirement will result in the proposal being rejected and disqualified from the evaluation process.
5. Submissions should include an index and page numbers and follow the format of the evaluation criteria as outlined in this document.
6. Subject to subsection (4), time is of the essence with respect to the submission of Bids. It is the sole responsibility of each Bidder to make sure that its Bid is delivered to the correct address no later than the closing date and time for the RFP

7. A Bid that is not submitted in a sealed envelope shall not be considered for the award of the contract, but the Township shall not be under any obligation to return an unsealed Bid to the Bidder, nor to notify the Bidder that the envelope was not sealed.
1. Bids shall be deemed to have been submitted only when actually stamped as received by the Township's Clerk.
2. It is the exclusive responsibility of each Bidder to submit a complete bid in accordance with these Instructions, the Form of Proposal, the RFP Notice, the Specifications and the Special Provisions and the Description of Project.
3. All documents prepared and work carried out by a Bidder in preparing its Bid, and all oral presentations to the Township in connection with a Bid, shall be without cost to the Township, and neither the Township's publication of a Request for Proposal nor the submission of a Bid shall be construed to oblige the Township to award a Contract.
4. The following criteria will be used in selection of a preferred Design-Builder. Envelope 1 is to contain the Mandatory Submission Requirements (TAB1) and the Evaluation Criteria (TAB2-TAB5). Envelope 2 shall contain the fees in the 'Form of Proposal' and will be evaluated in accordance with the Evaluation Section of this document.

1. The Procurement Schedule is as follows:

Activity	Date
Issue Request For Proposal	June 12th, 2018
Mandatory Site Meeting	June 25th, 2018
Deadline for Questions	July 6th, 2018
Submission Deadline of Request For Proposal	July 11th, 2018
Notify Successful Proponent	August 15th, 2018
Submission of Site Plans	September 7th, 2018
Anticipated Construction Start	September , 2018
Enclosed Building Envelope	November 15, 2018
Completion	May 1, 2019
Demolition of Old Fire Hall	May 2, 2019
Completed Site Restoration	July 1, 2019

ARTICLE 2: FORMAT OF PROPOSAL

1. Every Bid shall be submitted on the Township's prescribed Form of Proposal, and shall,
 - a) be completed without interlineation, alteration or erasure of or with respect to:
 - i. any of the pre-printed text provided by the Township; or
 - ii. information included on that Form by the Bidder, unless the effect thereof is clear and unambiguous as is the assent of the Bidder to that interlineation, alteration or erasure (e.g., by initialling);
 - b) include all material, services, appliances and labour, required to complete the work;
 - c) where printed or typed, be set out in print no smaller than 10-point Times Roman; and
 - d) bear the original signature of the Bidder (or, in the case of a Bid submitted by a corporation, an authorized signing officer of the corporation), inscribed in the space provided.

2. All blank spaces provided on the Form of Proposal shall be filled in, including alternate, separate, additional or Factor Prices and for start and completion dates.
 1. All words and phrases forming part of the Bid must be written out in full, and abbreviations must not be used. Where an abbreviation is used contrary to this requirement, any ambiguity or other uncertainty shall be construed against the Bidder.
 2. So far as practical, all material included with a Bid must be enclosed in the sealed envelope containing the Bid. The Bidder bears the risk of loss where this requirement is not followed.
 3. Except where otherwise directed, all printed material should be reduced to American standard letter size (8 inch by 11 inch) or legal size (8 inch by 14 inch) paper.

ARTICLE 3: CONFIDENTIALITY

4. The Township shall make every effort to safeguard the confidentiality of each submission.
5. Township policy is to disclose only such information as is required by law. Please note that all submissions are subject to the provisions of the Municipal Freedom of Information and Protection of Privacy Act.
6. In addition, certain contractual information must be disclosed to Council, and accordingly may become part of the public record.
7. Bidders may mark any part of their submission as confidential except the Total Contract Price and their name. A watermark or rubber stamp imprint is suitable for this purpose. The Township will use its best efforts not to disclose any information so marked, but shall not be liable to a Bidder where information is disclosed by virtue of an order of the Privacy Commissioner or otherwise as required by law.

ARTICLE 4: PRICES

8. Total Contract Prices shall be evaluated on the basis of their respective total contract price, provided that the Township may make appropriate allowances for extended warranty coverage, lower maintenance cost, higher trade-in value, longer life expectancy and other factors relevant to determining the full life-time cost of the Bid. Preference may be given to a Bid that offsets cost with related savings, so as to provide for no or minimal net tax increases and maximum benefits to the Township. For the purposes of determining net present value, the discount rate and any escalation factor shall be uniformly applied to all Bids, but otherwise shall be in the discretion of the Township.
9. The Township shall not be required to cause prices to be read out publicly on the opening of Bids or at any other time.
10. Only the Bidders names and receipt of documents will be acknowledged.
11. Once the contract has been awarded, only the Total Contract Price on which the award of the contract is based will be disclosed. Component or Factor Prices will not be disclosed. Official notification will only be given to the Successful Bidder; however, persons who submitted a bid may obtain the Total Contract Prices for all Bidders upon request to the Manager of Operations designated as the contact person for the RFP. Where the award of

the Contract is based on a scoring method using evaluation criteria, only the total score and Total Contract Price of the Successful Bidder will be disclosed. Award information will be made available on the Township Website at:

<http://www.wainfleet.ca/opportunities/Tenders>

ARTICLE 5: EVALUATION

1. Refer to Section 00300

ARTICLE 6: AWARD

12. The Township may enter into negotiations with the preferred Bidder if the price bid is over the budgeted amount for the project. Should the Township be unable to reach an agreement with the preferred Bidder, the Township reserves the right to cancel the bid opportunity, present a report to Council, initiate negotiations with the second preferred Bidder, cancel the bid document and/or reissue in its original or revised format; or take such action that is deemed to be in the best interest of the Township.
12. All awards in full or in part are conditional upon budget approval and Council approval as required by the Township of Wainfleet Procurement Policy.
13. The lowest bid proposal will not necessarily be accepted as evaluations are based upon the Evaluation Criteria and the proponent with the most amount of points will be the successful bidder.

ARTICLE 7: VARIATION IN BID PRICES

14. No variation in Bid Price shall be permitted after the closing date and time except:
 - a) in the instance of variation due solely to an increase or decrease in the rate of applicable taxes beyond the control of the Bidder, occurring after the time and date of submission of its Bid, in which case the variation shall alter the price of the Bid only to the extent of the tax increase or decrease; or
 - b) where the Township exercises its discretion to correct a patent computational or other mathematical error evident on the face of the Bid.

5. In the event that a tax increase or decrease occurs after the submission of its Bid, the Bidder must prove to the satisfaction of the Township that the Bidder will not benefit in any way by reason of the increase.

1. Where Bidders are instructed to price the Project on a unit or component basis, the Township shall consider only the Bid Price per unit or component for the respective materials to be supplied or items of work or services to be performed, but may at its discretion correct obvious mathematical errors on the part of the Bidder in computing:
 - c) total prices derived from estimated quantities and their related Factor Prices;
 - a) total quantities;
 - b) summaries of the Factor Prices stated on the face of the bid into a Total Contract Price;
 - c) stated percentages of amounts stated in the Bid; or
 - d) any combination of the foregoing.

ARTICLE 8: PRICES AND PAYMENTS

2. Unless expressly agreed in writing by the Township, the Total Contract Price shall be deemed to have been quoted on an all-in basis, and the Successful Bidder shall accept the Total Contract Price as full payment for furnishing all necessary labour, goods, materials, services, tools, equipment, supplies, light, power, water and other incidentals, and for performing all the work and providing all services contemplated under the Contract.

3. Progress payments for the work done by the Successful Bidder shall be made only where expressly agreed in writing by the Township.

4. A claim for a progress payment made by the Successful Bidder shall not include Goods stored but not yet delivered to the Township, nor any Service not yet performed, but may include Goods delivered to the Township but not yet built-in or installed, provided that the Township is specifically notified of this fact.

5. If any work or item under the Contract is included by the Successful Bidder in its Progress Claims as partially or fully completed, but it is not completed in accordance with drawings or specifications, or is not completed to the Township's satisfaction, the Township may withhold from payment such part or the total cost of those items until they are completed or corrected to its full satisfaction, and the Township shall notify the Successful Bidder in writing of its action and the reason for same.

6. The Township reserves up to 10 Business Days from the date of the receipt of the Successful Bidders invoice for checking, inspecting and confirming the receipt and performance of any Goods or the completion of any Services in accordance with the Contract Documents.

ARTICLE 9: CONFLICT OF INTEREST

16. No employee of the Township shall personally sell goods or services to the Township, nor have a direct or indirect interest in a company that sells goods or services to the Township.
15. The Township may reject any Bid submitted, or cancel any contract awarded, in contravention of subsection (1).
16. Each Bidder respectively shall be deemed to have warranted that it has not employed or retained any person, other than a bona fide employee, agent or broker working for the Bidder, to solicit or secure the proposed contract, and that it has not paid or agreed to pay any person, other than a bona fide employee, agent or broker working solely for the Bidder, any fee, commission, percentage, gift or other consideration contingent upon or resulting from the award of that proposed contract, or as an inducement to be awarded that contract. Without prejudice to any of its other rights, the Township reserves the right to annul any contract or other arrangement entered into with a Bidder where there is a breach of this warranty.

ARTICLE 10: WITHDRAWAL OF BIDS BY BIDDER

17. Withdrawal of a sealed Bid after its submission to the Township's Clerk is permitted only prior to the time and date of the closing of the RFP.
18. A Bidder may withdraw a Bid at any time prior to the closing date and time for the RFP by delivering a written request to that effect to the address specified for the deposit of bids, but no such request received after that closing date and time shall be effective.
19. A Bidder who withdraws a Bid prior to the closing time and date for the submission of Bids may submit a revised written, signed and sealed Bid at any time prior to that closing date and time, but otherwise no amendment may be made to a Bid after it has been submitted, and in particular no amendment may be made to a Bid orally, or by fax, telex, telegram, email, or otherwise than by a sealed document.
20. A withdrawal request shall be effective only where made in writing, on company letterhead, and actually received by the Township's Clerk. A faxed withdrawal may be accepted where its authenticity appears genuine in the absolute discretion of the Township's Clerk.

ARTICLE 11: EXPERTISE AND EXPERIENCE

1. Design-Builders submitting Bids and all the subcontractors they propose to use on or in connection with the Project shall be actively engaged and thoroughly experienced in the lines of work required by Contract Documents and shall be able to refer to previous work of a similar nature satisfactorily performed by them.

ARTICLE 12: BIDS OPEN FOR ACCEPTANCE & IRREVOCABLE, ETC.

1. Bids shall not be opened until after the date and time specified for the closing of the RFP, and so far as practicable, all Bids shall be opened at one time.
2. Unless otherwise provided in Special Provisions, a bid shall be irrevocable (i.e., open for acceptance by the Township) for a period of 90 days following the closing date for the RFP.
3. Where there is a conflict between any provision included in a Bid and any provision in any of the following Contract Documents:
 - a) these Instructions;
 - b) the standard text of the Form of Proposal as prescribed by the Township;
 - c) the RFP Notice;
 - d) any Addendum;
 - e) the Description of Project;
 - f) any Special Provisions, including any contract drawings, detail drawings, or shop drawings;
 - g) the Contract for Work; and
 - h) any Specifications for the Project not included within any of the foregoing,
4. the provision in those Contract Documents shall prevail, unless the Township otherwise expressly agrees thereto in writing.
5. The Township may require a successful Bidder to enter into a Contract for Work in such form and on such terms as may be approved by the Township Solicitor, but those terms shall be consistent with these Instructions, all Addenda, the Special Provisions (if any), the RFP Notice and the Description of Project for the RFP, and the Specifications (if any).
6. In lieu of requiring a Contract for Work, the issue of a letter with the intent to purchase by the Township gives rise to a Contract between the Township and the Successful Bidder in accordance with the terms and conditions set out in these Instructions, the Description of Project, the Specifications, any applicable Addenda and any other related documents.
7. The price of all options and alternatives shall be separately stated. Where options or alternatives are requested in the RFP Notice; an Addendum; or in the Special Provisions, the Township shall not be obliged to purchase those options or alternatives when accepting a Bid, but may at its discretion elect to purchase all, some or none of the options or alternatives offered, but the Successful Bidder shall be obliged to adhere to the Total

Contract Price quoted in its Bid.

ARTICLE 13: BIDDER'S RESPONSIBILITY

1. The Bidder shall be responsible for examining all drawings and details, and also the Specifications and all other Contract Documents, including all cost implications relating thereto in the Total Contract Price.
2. A mandatory site meeting for all Bidders has been arranged for **June 25th, 2018 at 10:00 am** to review the site and prepare any questions which will require an answer by addendum.
3. Address all queries to:

Township of Wainfleet
31940 Highway 3, P. O. Box 40
Wainfleet, Ontario L0S 1V0
Telephone: 1-905-899-3463 x 274
[Email: rnan@wainfleet.ca](mailto:rnan@wainfleet.ca)
ATTENTION: Richard Nan, Manager of Operations

Questions must be received by the end of the business day of **June 22nd, 2018** or the questions may not be responded to. Addenda will be posted no later than 5 calendar days before the bid closing date.

Addenda will be posted to the Township of Wainfleet website, Bid Opportunities web page and available for viewing and download by Bidders. It is the **Bidders** **responsibility** to check the website to obtain issued Addenda.

4. Unless otherwise stated in the Description of Project; the special Provisions; or an Addendum, the Successful Bidder shall be required at its own cost to:
 - d) apply for and obtain and pay for fees or charges for all Permits, and licences;
 - e) pay inspection fees or charges for inspections other than those stipulated to be paid out of any inspection fee allowance provided for in the Contract Documents;
 - f) pay all applicable taxes and all other charges other than Goods and Services Tax, Provincial Sales Tax, Harmonized Tax or other applicable sales or value added taxes, imposed under the laws of Ontario and the laws of Canada applicable therein; and
 - g) provide all materials and services necessary to complete the Project so that it is finished, serviced and ready for use and operation.
5. Unless otherwise expressly agreed by the Township in writing, where technical information or details form part of the Description of Project; the Specifications; RFP Notice; or Special Provisions (including any quantity estimates, soil condition reports, ground water or drainage reports or geophysical data, archaeological, samples, or other documents of a similar kind or nature as may be provided together with the Contract Documents or

incorporated by reference therein):

- i) the Township shall exercise reasonable care in the preparation of those estimates, but shall not be taken to warrant their accuracy and shall not be liable for any inaccuracy therein;
 - a) estimates, reports, data, or details shall be deemed to have been provided only as a guide for potential Bidders;
 - b) Bidders are required to examine carefully that information and the responsibility for verification of the information so provided shall rest with each Bidder.
6. Where the Project is to be carried out on Township occupied or owned property, Bidders shall be responsible for visiting the job site and no allowance shall be made by the Township for failure by the Bidder to examine carefully all conditions relating to the site or work.
1. Where clarification of any document, fact or opinion is required, it shall be obtained by the Bidder before submitting a Bid.
 2. The Successful Bidder shall enter into a Contract for Work (where required by the Township) within 10 Business Days of being notified of the acceptance of its Bid.
 3. It shall be the Design-Builders responsibility to coordinate, control and check work of its own forces and of all its subcontractors and to ascertain that all work is done in accordance with all Contract Documents, governing regulations and the general standards of good commercial practice and professionalism as understood in Ontario, assuring only first class workmanship, and using only proper materials and methods are suited to the function or performance intended.
 4. The Successful Bidder shall be responsible for faithful and proper performance of all aspects of the Contract.
 5. Neither the Township nor any Project Manager shall be construed to have any contractual relationship with any of the Design-Builders employees, subcontractors, or material suppliers or their employees or supplier.
 6. All persons submitting Bids and all their subcontractors, shall be held to have thoroughly examined all drawings, specifications and all other Contract Documents and to have visited and inspected the site on which the Project or Work is to be carried out, or the Supply is to be made, and to have thoroughly familiarized themselves with all pertinent conditions before delivery of their respective Bids, and no allowance shall be subsequently given by the Township for or by reason of any error or omission on the part of any Bidder or subcontractor with respect thereto. The Township shall not be liable for any costs associated with any site inspection.
 7. A Bidder shall be deemed to have included in the Total Contract Price quoted in its Bid, the entire cost of:
 - a) all items that the Successful Bidder is responsible for under these Instructions or

- any of the other Contract Documents, except where otherwise provided;
- b) where the Project so requires, providing water, utility and sewer connections;
 - l) preparing and submitting such drawings as may be required by the Township; and
 - m) such warranty and maintenance requirements as may be specified by the Township, and in default of any such specification with respect to the Contract, a three year warranty and maintenance requirement.
14. Without limiting the generality of any other provision of these Instructions, unless otherwise provided in the Description of Project or the Special Provisions, the Design-Builder shall be required to provide and pay for:
- n) all material, labour and service costs, charges for use of tools and equipment whether owned or rented, and where any work is to be carried out or services are to be rendered on property owned or occupied by the Township, all protective and safety provisions, site signs and site conveniences, together with all cranes, scaffolding and shoring, freight costs, and material-handling and storing, and all services and incidentals whether shown or specified or required by good practice;
 - o) all bonds or other accepted forms of bid, performance, and labour and material payment security, insurance, permits and inspections; all applicable taxes, workers compensation and all other applicable labour-compensation charges necessary to carry out the Project, make the Supply and complete all Work in accordance with the Contract Documents; and,
 - p) all services and materials required to carry out the Project, do all of the Work and make the Supply, in accordance with all Contract Documents and all instructions given by the Township thereunder, in accordance with governing regulations and codes and in compliance with good industrial and commercial practice for first class workmanship, which in all instances, unless otherwise stipulated, shall be deemed to require work that has a finished appearance, is ready for use or use and operation, and includes the installation of all linkages, interfaces, protocols, computer cards, computer memory, software, peripherals, housing, sheathing, insulation, and mechanical, electrical and other systems and connections required for proper functionality.
15. No subcontracting by the Successful Bidder shall relieve the Successful Bidder of any responsibility for the full performance of all obligations of the Successful Bidder under the Contract, but despite the approval of any subcontractor by the Township, the Successful Bidder shall be fully responsible for every subcontractor's activities, works and acts and shall either, in person or through an accredited agent, receive all notices, communications, orders, instructions or legal services as if the Successful Bidder were performing the subcontracted portion of the Project with its own resources.

ARTICLE 14: BID SECURITY

1. Unless otherwise specified in the Description of Project, the Special Provisions; or an Addendum, each Bidder shall submit together with its Bid, a bid security in the form of:

- d) a certified cheque, bank draft or money order drawn on a financial institution in Canada satisfactory to the Township; or
- h) a Bid Bond or an Irrevocable Letter of Credit,

in the **amount of 10 per cent of the offered Total Contract Price including applicable taxes**, or such other amount or percentage as may be specified in the RFP Notice or Special Provisions.

2. A bid security shall include such terms, and be in a form and provided by an issuer as are satisfactory to the Township in its reasonable discretion.
14. The term of the bid security shall be for a minimum period of 90 days after the closing date set for the RFP.
 1. A Bid submitted without a required Bid security shall be rejected.
 2. In the event of default or failure of the Successful Bidder to execute the contract as prescribed or to commence the Project following the issue of a purchase order or notice to proceed, the Township shall declare the bid security forfeited and the Bidder will be held responsible for any increased costs or damages incurred by the Township.
 3. Each Bidder that submits a Bid will be deemed to have acknowledged and agreed that the amount of the bid security required with respect to a Bid constitutes a genuine pre-estimation on the part of the Township of the damages that will be suffered by the Township as a result of a failure or refusal on the part of the Bidder to provide such performance or other security as may be contemplated in the RFP Notice, or enter into a Contract for Work, as the case may be, but the amount payable under that bid security shall not prevent the Township from recovering the excess of its provable damages over and above the amount of that bid security, whether by way of any legal proceeding or otherwise.
 4. Where a contract is not offered to a Bidder, any bid security will be returned to the Bidder, upon the expiration of the time allowed for the acceptance of its Bid.

ARTICLE 15: PERFORMANCE AND OTHER SECURITY

1. Where required in the RFP Notice, Special Provisions or an Addendum, every Bidder entering into a contract with the Township shall furnish such security as the Township may prescribe for:
 - q) the performance of the contract (a performance bond or other performance security); and
 - c) the payment of all necessary services and materials required to complete the Contract in a satisfactory manner (a labour and material payment bond or other payment security);

in such amount as the Township may require, and the Bidder shall submit with its Bid such evidence as the Township may reasonably require of the Bidder's ability to furnish such security.

2. Submit with RFP an Agreement to Bond of a bonding company to ensure that it will issue a Performance Bond and Labour and Material Payment Bond to the Bidder for the Project.
 - a) A Performance Bond equal to 50% of the Contract Amount shall be included in the Stipulated Price. Within 7 days of notification of award of contract submit said bond to the Owner.
 - b) A Labour and Material Bond equal to 50% of the Contract Amount shall be included in the Stipulated Price. Within 7 days of notification of award of contract submit said bond to the Owner.
3. Where a performance security or payment security is required under subsection (1), each Bidder shall submit with its Bid an original commitment letter issued by a bank or other issuer satisfactory to the Township stating that it will provide the required security if the Bidder is awarded the contract, and the Township reserves the right to reject any Bid that does not comply with this requirement.
4. A failure to provide any security described in subsection (1) shall constitute a breach of the requirements of the Bid and shall entitle the Township to claim under any bid security described in section 12.
5. Unless the Description of Project or the Special Provisions otherwise direct, the Successful Bidder shall furnish a performance security to the Township, prior to the execution of the Contract for Work or within 15 Business Days of being notified that its Bid has been accepted (whichever is earlier), securing at least 25 per cent of the Total Contract Price set out in the Bid, or such other percentage or amount as may be provided in the Special Provisions.

ARTICLE 16: PERFORMANCE REVIEW

19. Where the Township's Manager of Operations or Designate so directs, the Township and the Successful Bidder shall carry out a periodic performance review in accordance with this section concerning the provision of services by the Successful Bidder.
 1. Performance under the Contract shall be assessed by reference to the following criteria:
 - e) general responsiveness of the work relationship;
 - d) conformity of the provision of services with the Description of Project;
 - e) general dependability of the Goods or Services supplied;

- h) general conformity with the reasonable expectations of the Township under the terms of the Contract in their entirety;

- e) turnaround time on the placement of orders (to the extent applicable); and
 - s) accuracy of carrying out instructions.
3. The respective representatives of the Township and Successful Bidder shall meet at mutually agreeable times within 10 Business Days of the end of each consecutive six month period of the provision of services under this Agreement.
8. Where a performance review is conducted under subsection (3), each of the agreed aspects of the Successful Bidders performance shall be ranked by the Township at one of the following standards:
- t) Excellent (performance well above general standard of Township suppliers).
 - u) Good (performance above general standard of Township suppliers).
 - v) Satisfactory (performance in accordance of general standard of Township suppliers).
 - w) Poor (performance below the general standard of Township suppliers).
 - x) Unacceptable (performance well below the general standard of Township suppliers).
9. At any performance review under this section, the Successful Bidder shall be entitled to identify any aspect of the Township's operations that is undermining the Successful Bidders ability to deliver at least a satisfactory level of performance with respect to some criteria of assessment, and where the Township concludes that this is in fact the case, in its sole and unfettered jurisdiction, the ranking given to the Successful Bidder with respect to that criteria of assessment shall be adjusted accordingly.
10. Where at a performance review, one or more criteria of assessment are ranked as satisfactory, poor or unacceptable:
- y) the parties shall agree at the time of the conduct of the review or within 10 Business Days thereafter, on the measures to be taken by the Successful Bidder during the ensuing contract review period to improve its performance to at least a good standard; and
 - z) within 10 Business Days of agreeing on those measures, the Successful Bidder shall confirm in writing that the measures in question have been implemented.
11. Where the Successful Bidder fails or refuses to implement measures as provided in subsection (6), it shall be deemed to be in default under the Contract, and the Township may take such remedies as provided for in the Contract Documents or are otherwise available at law or in equity.
12. In addition to the regular performance review provided for under subsections (2) through (7), where in the opinion of the Township's Manager of Operations or designate, in his or her sole and unfettered discretion, the performance of the Successful Bidder is not satisfactory, then in addition to such other rights and remedies to which the Township may be entitled to by law or under the terms of any of the Contract Documents, the Township may:

- aa) issue an oral warning to the Supplier, identifying the non-compliance with the Specifications or other grounds of unsatisfactory performance, and requiring the Successful Bidder to correct the same;
 - bb) issue a written notice, setting a time period for the Successful Bidder to correct the unsatisfactory performance, and warning that the Contract shall be liable to be terminated without further warning if the unsatisfactory performance is not corrected within the time allowed;
 - cc) and until the Township is satisfied that the unsatisfactory performance has been corrected, the Township may hold back from any payment an amount sufficient to rectify the unsatisfactory performance until its requirements have been met.
9. Where the unsatisfactory performance of a supplier is not corrected within the time allowed under subsection (8) the Township may:
- dd) apply any holdback retained under that subsection towards the correction of the unsatisfactory performance and may thereupon cancel the Contract with the Successful Bidder without further warning; and
 - ee) take that failure into account with respect to the award of any future Contract.
21. Nothing in subsections (8) or (9) shall restrict the right of the Township to terminate the Contract at any time under any other provision of the Contract Documents or under any rule of law, but any such right may be exercised by the Township in its absolute discretion.

ARTICLE 17: PERMITS, LICENCES AND APPROVALS

23. Unless otherwise expressly agreed by the Township in writing, the Successful Bidder shall be responsible for obtaining and maintaining (at its own cost) all necessary permits, licences and approvals relating to the Project.
22. The Successful Bidder shall ensure that all persons supplying services or materials to the Project hold all valid and current licences required by law with respect to the services or materials to be supplied by them respectively.

ARTICLE 18: TAXES

23. As various parts of a Project may or may not be exempt from Federal or Provincial sales tax, Bidders are required to refer to the Special Provisions for details respecting payment exemptions, rebates and taxes.
24. All prices shall be quoted exclusive of Goods and Services Tax, Provincial Sales Tax, Harmonized Tax or other applicable sales or value added taxes, imposed under the laws of Ontario and the laws of Canada applicable therein, and the Township may adjust any price quoted contrary to this requirement.

3. Bidders shall expressly disclose any other applicable sales, customs or excise tax or duty, including a levy or duty imposed as a Special Import Measure pursuant to the Special Import Measures Act, as may be amended from time to time, to which any work or supply of services or materials may be subject that is outside the scope of subsection (2).

ARTICLE 19: NOMINATION OF SUBCONTRACTORS

1. Where required in the Form of Proposal or the Special Provisions, the Bidder shall indicate the names and addresses of all nominated subcontractors that it proposes to use:
 - i) on the Project; or
 - c) in connection with the provision of any supply of goods or an intended fixture.
2. The Township reserves the right to reject any subcontractor so nominated.
3. No change shall be made to the list of nominated subcontractors after the closing of the RFP without the prior written approval of the Township's Project Manager or the Township's Manager of Operations in all other cases.

ARTICLE 20: SEPARATION OF SPECIFICATIONS

1. The separation of the Project described in the Specifications into customary or other trade divisions, sections and subsections shall not qualify the obligations of the Successful Bidder under any Contract awarded under the RFP, but shall be deemed to have been done solely for ease of reference.

ARTICLE 21: INTERPRETATION, CLARIFICATION AND ADDENDA

1. The Township reserves the right at any time prior to the award of the Contract:
 - d) to withdraw or cancel the RFP;
 - e) to extend the time for the submission of Bids;
 - f) to modify these Instructions, the RFP Notice; the Form of Proposal; the Specifications; the Special Provisions or the Description of the Project; or
 - g) to change the Project or Contract Documents;

by the publication of an Addendum or other notice, and the Township shall not be liable for any expense, cost, loss or damage incurred or suffered by any Bidder (or any other person) as a result of its so doing.

2. Any Addendum or other notice within the scope of subsection (1) is sufficiently served upon any prospective Bidder if sent by fax, e-mail or prepaid ordinary mail or courier to that Bidder at its address provided when the RFP package was obtained from the Township.
3. Where an Addendum or notice within the scope of subsection (1) is published, every Bid shall be deemed conclusively to have included an appropriate allowance for the change made by the Addendum or notice in the price or prices set out in the Bid.
4. All addenda advised under subsection (1) shall become part of the Contract Documents and shall be allowed for in determining the Total Contract Price.
5. Any request for clarification of these Instructions, the RFP Notice; the Form of Proposal; the Description of the Project; or any of the Contract Documents shall be submitted in writing in accordance with subsection (6). Any questions directed to the Township prior to Bid submission shall allow sufficient time for a written clarification to be issued by and received from the Township should it consider it necessary to issue such clarification. Ordinarily, any question submitted within 72 hours of the closing of the RFP will not be answered.
6. All communication from a Bidder to the Township shall be set down in writing and directed to the designated Manager of Operations in the RFP Notice (including requests for information, instructions or clarification). Written answers or clarifications shall be shared with all Bidders and issued in the form of an addendum. The Township shall not be bound by any oral:
 - f) instruction;
 - i) amendment or clarification of these Instructions or any of the Contract Documents;
 - j) information; or
 - k) advice or suggestion;from any member of the Township's staff or Project Manager to the Township concerning this RFP the proposed Contract to which it relates, or the Project.
7. The submission of such questions or other queries and the failure of the Township to answer before the closing date and time for the submission of Bids shall not necessarily cause the time for the submission of Bids to be extended.
8. If questions or requests from a Bidder relate to a request for the approval of substitutes and the substitutes are not approved through the subsequent publication of an Addendum, it shall mean that the substitutes asked for have not been approved.
9. Where a Bid has been received by the Township prior to the publication of an Addendum or notice within the contemplation of subsection (1), the Township shall allow the Bidder concerned to submit a revised Bid prior to the closing date and time or to send a written acknowledgement (which may be fax) that the original Bid still stands.

ARTICLE 22: OBSERVANCE OF LAWS, STATUES AND REGULATIONS

1. In performing any Service or carrying out any Work and otherwise in performing the Contract, the Successful Bidder shall comply with all applicable statutes, law, by-laws, regulations, ordinances, notices and orders of the Federal, or Provincial government, or the Township, from time to time in effect during the currency of the Contract, and where the attention of the Successful Bidder is called to any violation thereof by the Township or Project Manager, the Successful Bidder shall immediately desist from and remedy that violation.

ARTICLE 23: INSURANCE REQUIREMENTS

1. Throughout the term of the Contract (including any renewal thereof), the Successful Bidder shall obtain and maintain at its own expense, including the cost of any applicable deductible, the following policies of insurance (Note to Bidders: Be sure to refer to the Special Provisions to determine whether any further or substitute insurance requirements apply):
 - ff) Commercial General Liability Insurance** (in all cases), written on IBC Form 2100 or its equivalent, including but not limited to bodily and personal injury liability, property damage, products liability, completed operations liability, owners & contractors protective liability, blanket contractual liability, premises liability, and contingent employers liability coverage, having an inclusive limit of not less than \$5,000,000 per occurrence.
 - gg) Standard Form Automobile Liability Insurance** (where the Description of the Project provides for or contemplates the use of a motor vehicle, including where any Good is to be delivered by the Successful Bidder to the Township, or where work or services are to be provided on property owned or occupied by the Township) that complies with all requirements of the current legislation of the

Province of Ontario, having an inclusive limit of not less than:

- i. \$1,000,000 per occurrence (subject to paragraphs (ii) and (iii));
- ii. \$2,000,000 per occurrence (where the Contract will involve the use of one or more automobiles or any combination of automobiles and towed vehicles having in any case a combined aggregate weight of five tonnes or more before loading); and

for Third Party Liability, or such greater amount as the Township may from time to time request in respect of the use or operation of vehicles owned, operated or leased by the Successful Bidder for the provision of services;

- c) **Non-Owned Automobile Liability Insurance** (in all cases) in standard form having an inclusive limit of not less than \$1,000,000 per occurrence or such greater amount as the Township may from time to time request, in respect of vehicles not owned by the Successful Bidder, that are used or operated on its behalf for the provision of services under the Contract.

- o) **Property Installation Floater All Risks Insurance** (where the Description of Project provides for or contemplates the supply and installation of fixtures, equipment, machinery, apparatus, etc., or other work such as minor renovations amounting to an improvement within the meaning of the Construction Lien Act only) meeting the following requirements:

- i. Coverage shall be for the full amount of the Total Contract Price plus the full value of any optional features or other options that the Township elects to order (but the Township may require insurance up to the amount of the replacement cost of any building in structure in, on, or upon which any Work is to be done under the Contract, where in the reasonable opinion of the Township's Manager of Operations there is a sufficient risk of damage to the same).
- ii. Coverage shall apply to:
 - I. all risks of direct loss or damage, but subject to any exclusions and limitations in the Special Conditions and the actual policy form;
 - II. all products, labour, equipment and supplies of every nature, the property of the Township or Successful Bidder or for which the Township or Successful Bidder may have assumed responsibility (whether on site or in transit), that is to be used in or pertaining to site preparation, and the erection, fabrication, construction, reconstruction, remodelling or repair of any building, structure, other fixture or thing;
 - III. the installation, testing and any subsequent use of machinery and equipment, including boilers, pressure vessels or vessels under vacuum; and
 - IV. damage to the Work caused by an accident to or the explosion of any boiler or other pressure vessel or equipment forming part of the Work.

- f) **Professional Errors & Omissions Liability Insurance** (where the Description of the Project provides for or contemplates the provision of professional or consulting services where there is potential that a negligent act may cause damage/loss involving physical things, which in turn may cause damage/loss or injury to property or persons, e.g., architectural or engineering services, legal services, accounting services, appraisal services, brokerage services, etc.) having no aggregate limit and an inclusive limit of not less than \$2,000,000 per claim or such greater amount as the Township may from time to time request.

 - hh) **Hook Liability Coverage** (where performance of the Contract requires the use of a hoist or crane to lift equipment or materials into place), including Transit coverage if applicable, in an amount equal to the maximum replacement cost value of the property to be lifted at any one time, in the performance of the Contract, but in no event less than \$10,000 (there shall be no restrictions in coverage for overload or sinking in soft soil).

 - ii) **Abuse and Sexual Misconduct Liability Coverage**, (where the Contract relates to the provision of care and charge to minors or other persons under a disability) in an amount of not less than \$2,000,000 per occurrence.

 - jj) **Comprehensive Crime Insurance**, (where performance of any aspect of the Contract entails the access by the Design-Builder, its employees, agents or subcontractors to funds or property of the Township under circumstances in which they will not be subject to direct supervision by Township employees, e.g., in the case of custodial, cleaning, courier contracts, security, and similar service arrangements, or where the Design-Builder or its employees, agents or subcontractors are required to attend inside the premises of a Township customer) broad form coverage to adequately protect the Township against loss of monies, securities or other properties, including property of the Township while such property is in the Successful Bidders care, custody, and control; for dishonesty, disappearance and destruction; and to protect against incidents arising out of but not limited to theft, robbery or burglary, having a limit of not less than \$50,000 for Employee Dishonesty (Commercial Blanket Form A), Loss inside the Premises, and Loss outside the Premises.
3. The Successful Bidder shall maintain Property Insurance, as may be applicable, with respect to loss or damage (including fire, theft, burglary, etc.) of its own property and property in its care, custody and control, including its equipment, tools, stock, used in connection with the Contract.
27. All policies of insurance within the scope of subsection (1) shall:
- a) include coverage as unnamed insured, for any architect, engineer or other Project Manager employed or retained by the Township, all Subcontractors and the employees of the Successful Bidder and those persons, provided that the Township reserves the right to require the Successful Bidder to add further parties as additional unnamed insured persons (except in the case of automobile liability

- insurance, non-owned automobile liability insurance, professional errors & omissions liability insurance, and medical malpractice liability insurance);
- b) be recorded as being a primary policy and shall be in a form and issued by an insurance company satisfactory to the Township, an insurance company that is licensed to carry on business in Ontario;
 - p) be maintained continuously during the course of carrying out the Project; or for such period of time as may be required after completion of the Project, as deemed necessary by the Township;
 - f) provide for a deductible amount of no greater than \$10,000;
 - g) include the Township named as an additional insured, to the extent of the Successful Bidders obligations to the Township under the Contract Documents; (except in the case of automobile liability insurance, non-owned automobile liability insurance, professional errors & omissions liability insurance, and medical malpractice liability insurance)
 - h) contain cross-liability and severability of interest provisions, as may be applicable;
 - i) preclude subrogation claims against the Township and any other person insured under the policy; and
 - j) provide that at least 20 Business Days prior written notice (15 days, in the case of automobile liability insurance, and 10 days in the event of non-payment of premiums) shall be given to the Township by the Insurer before the Insurer or Successful Bidder take any steps to cancel, terminate, fail to renew, amend or otherwise change or modify the insurance or any part thereof.
4. The Township reserves the right to require the Successful Bidder to purchase such additional insurance coverage as the Township may reasonably require. The Township reserves the right to request such higher limits of insurance or otherwise alter the types of coverage requirements (taking into consideration such matters as the nature of the work, contract value, industry standards, and availability of insurance) as the Township may reasonably require from time to time.
28. Any insurance coverage acquired under the Contract shall in no manner discharge, restrict or limit the liabilities assumed by the Successful Bidder under the Contract. The dollar limit of insurance coverage shall not be limited by the dollar amount of the Contract.
25. The policies shall name Township of Wainfleet, Region of Niagara as additionally insured. The policy shall be extended to include the to be named Project Manager for Construction and Contract Administration.
26. The Successful Bidder shall pay all premiums on the policies as they become due; provided that the Township may pay premiums as they become due and deduct the amount thereof from moneys due from the Township to the Successful Bidder should the Successful Bidder fail to do so.

ARTICLE 24: PROOF OF INSURANCE AND CLAIMS PROTOCOL

1. The Successful Bidder shall deposit with the Township such evidence of its insurance as provided in or required under the provisions of these Instructions, an Addendum or the Special Provisions:

- kk) at the time of execution of the Contract for Work (if any); or
- ll) in any event prior to commencing the Project.

Thereafter during the term of the Contract, no later than 20 Business Days prior to the renewal date of each applicable policy, the Successful Bidder shall deposit with the Township's [Clerk] an original Certificate of Insurance originally signed by an authorized insurance representative, confirming thereon relevant coverage information, including but not limited to, name and description of Township contract; name of Insurer; name of Broker; name of Insured; name of Additional Insured(s) as may be applicable; commencement and expiry dates of coverage; dollar limits of coverage; deductible levels as may be applicable; cancellation or termination provisions; or (at the Township's election) a certified copy of the insurance policy or policies required under section 22.

2. The Successful Bidder shall not do or omit to do anything that would impair or invalidate the insurance policies.
3. Delivery to and examination or approval by the Township of any certificates of insurance or policies of insurance or other evidence of insurance shall not relieve the Successful Bidder of any of its indemnification or insurance obligations under the Contract. The Township shall be under no duty either to ascertain the existence of or to examine such certificates of insurance or policies of insurance or to advise the Successful Bidder in the event such insurance coverage is not in compliance with the requirements set out in the Contract.
4. Claims reported to the Successful Bidder by a third party or by the Township shall be promptly investigated by the Successful Bidder. The Successful Bidder shall make contact with the Claimant within 48 hours of receipt of notice of a claim. The Successful Bidder shall initiate an investigation of the claim immediately upon notice, and advise the Claimant by letter of its position regarding resolution of the claim within 20 Business Days of the notice. The Successful Bidder shall include in its letter of resolution the reasons for its position. Failing acceptance of the proposed resolution by the Claimant, the Successful Bidder agrees to report the claim to its Insurer for further review and response to the Claimant. Failure to follow this procedure shall permit the Township to investigate and resolve any claims and offset the resultant costs against any monies due, from time to time, under the Contract.

ARTICLE 25: WSIB

1. Prior to the execution of the Contract for Work or before commencing the Project where there is no Contract for Work, the Successful Bidder:
- a) shall submit to the Township an original Clearance Certificate from the Ontario

Workplace Safety and Insurance Board and shall provide additional certificates with respect to such coverage as often as the Township deems necessary during the term of the Contract to ensure continued good standing with the Workplace Safety and Insurance Board; or

- b) furnish proof in a form satisfactory to the Township from the Workplace Safety and

Insurance Board that the Successful Bidder does not require Workplace Safety and Insurance Board insurance, but in such a case if the Successful Bidder changes its status during the term of the Contract so that such coverage is required, the Successful Bidder shall immediately provide the Township with the certificate required under clause (a).

2. Where a substantial portion of the work to be done under the Contract is to be carried out by a subcontractor, the Township may require the Successful Bidder to furnish the same evidence as provided under subsection (1).

ARTICLE 26: INDEMNIFICATION

1. The Successful Bidder shall indemnify and shall defend and save the Township, its elected officials, officers, and employees harmless from and against any claims, proceedings, fines, penalties, expenses and costs (including legal costs on a solicitor and client basis) that are incurred by, or made or instituted against, any of them or to which any of them may be liable by reason of:

mm) the Successful Bidder carrying out or failing to carry out any obligation to which it is subject, or exercising any right to which it is entitled, under the Contract except to the extent that the same are caused by the negligence or deliberate wrongdoing of the Township or other person entitled to indemnification under this section; or

nn) any patent, trademark, copyright infringement or other breach of any intellectual property right of any person, for which the Successful Bidder or any subcontractor to the Successful Bidder is responsible.

13. The right of indemnification granted to the Township or other person entitled to indemnification under subsection (1) shall extend to any amount paid by that person in the settlement of any claim against it, and in entering into any such settlement, that person may exercise its reasonable discretion as to the amount to be paid, but that person shall serve prior notice of any intended settlement on the Successful Bidder, at least five Business Days prior to agreeing to any such settlement.

2. The Township may enforce the rights of indemnity conferred on the elected officials, officers, and employees of the Township under subsection (1) on their behalf and to the same extent as if they were parties to the Contract.

3. The rights to indemnity provided for in this section shall be deemed to be in addition to any rights with respect to insurance in favour of the Township, its elected officials, officers and employees provided under the Contract Documents.

5. The rights to indemnity provided for in this section shall survive the expiration or any termination of the Contract.

ARTICLE 27: PATENTS AND COPYRIGHTS

31. The Successful Bidder shall defend, indemnify and save harmless the Township from all and every claim for damages, royalties, or fees for the infringement of any patented invention or copyright occasioned by them in connection with work done or material furnished by them under the Contract.
14. No black market or grey market Goods shall be supplied to the Township, and every person supplying Goods or Goods and Services to the Township shall be deemed to have warranted that they are genuine and lawfully supplied.

ARTICLE 28: SUCCESSFUL BIDDERS RESPONSIBILITY FOR LOSSES AND DAMAGES

15. The Successful Bidder shall itself, and shall cause its agents and all workers and persons employed by them, or under its control, or employed by, or under the control of subcontractors, to use due care that no person(s) or property is injured or damaged in the course of performing its obligations under the Contract, and the Successful Bidder shall be solely responsible for all damages by whomsoever claimed in respect of any such injury.
16. The Successful Bidder shall at its own expense make such temporary arrangements as may be necessary to ensure the avoidance of any such damages or injury and to prevent the interruption of or danger to the traffic on any railway or any public or private road.
17. All loss or damage occasioned to the work or arising out of the nature of the work to be done, or from the normal action of the elements or from any reasonably foreseeable circumstances in the prosecution of the same, or from any normal obstruction or normal difficulties which may be encountered in the prosecution of the work having regard to the nature thereof, shall be sustained and borne by the Successful Bidder at its own expense, and all material required to replace any defective or rejected work, or to restore any failure shall be at the expense of the Successful Bidder.

ARTICLE 29: WARRANTIES OF THE SUCCESSFUL BIDDER

1. The Successful Bidder shall be deemed to have expressly warranted upon the selection of its Bid as follows:
 - a) The Bidder
 - iii. if a corporation is a duly incorporated, organized and subsisting corporation;
 - i. if other than a corporation, is duly registered as a business under all applicable legislation;

and as such has all requisite powers, capacities, licences and permissions under its governing legislation and the other laws applicable to it, and under the articles of

incorporation or other instrument by-laws under which it is organized to:

- v. carry on all businesses in which the Bidder is engaged;
- iii. enter into, exercise its rights and perform and comply with its obligations under the Contract Documents;

and that all actions, conditions and things have been done, taken or fulfilled with respect thereto, that are required by law, contract or otherwise.

- c) The Bidder and its subcontractors and the respective workforce of each are fully qualified to carry out the Work and perform the Contract and hold all requisite licences, franchises and other authorization required by law with respect thereto.
- oo) The Bidder is not a party to any agreement under the terms of which the Bidder is prohibited or restricted from entering into any of the obligations assumed, liabilities imposed, or restrictions accepted by the Bidder under the Contract Documents.
- pp) To the best of the Bidders information and belief and after making diligent inquiries:
 - iii. the information concerning the business, affairs and financial and other condition of the Bidder that are contained in all documents, memoranda, records, statements made sent or given by the Bidder to the Township during the course of the negotiation of the Contract, and in its current regulatory filings, are true and accurate in all material respects; and
 - iii. the Bidder is not aware of any material facts or circumstances having a bearing upon its ability to perform its obligations under any of the Contract Documents which have not been disclosed to the Township in writing.

ARTICLE 30: COVENANT OF EACH BIDDER

1. In addition to its other obligations under the Contract Documents, the Successful Bidder shall be deemed to have expressly covenanted upon the selection of its Bid as follows:

- qq) The Bidder shall carry out all work and perform all of its obligations under the Contract Documents in a good and professional manner, according to the best standards of practice of the industry, profession or trade in which the Bidder carries on business (including any applicable standards of professional conduct).
- rr) The Bidder shall employ properly qualified and experienced workers to carry out all work required in connection with the Contract, and shall cause its subcontractors and their suppliers to do the same.
- ss) The Bidder shall use only new, first class materials, and shall cause its subcontractors and their suppliers to do the same.
- tt) The Bidder shall have an adequate workforce with proper equipment in good working condition, and shall have ready access to all materials, equipment and accessories required to perform its obligations under the Contract Documents, and

- shall cause its subcontractors and their suppliers to do the same.
- e) Where the Bidder is not a resident of Ontario:
 - v. unless it has previously done so, it shall immediately after receiving the Township's order to commence work, obtain from the Ontario Retail Sales Tax Branch, a certificate showing that the Bidder has registered with that Branch, and shall submit that certificate to the owner; and
 - i. it shall not commence work or order any materials or equipment for the Contract until it has registered as provided in sub-paragraph (i).
 - f) The Bidder shall ensure that all subcontractors who are employed by it in connection with the performance of the Contract, and who are not resident in Ontario, are registered with the Ontario Retail Sales Tax Branch, before permitting them to commence any work under the Contract.

ARTICLE 31: TIME FOR PERFORMANCE AND COMPLETION

1. Time is of the essence and it is imperative that all interior Work be Completed no later than **May 1, 2019** and Enclosed building envelope work by **November 15, 2018**.
2. Subject to any Addendum, the occurrence of any Force Majeure or the written agreement by the Township to the contrary, the Successful Bidder shall:
 - uu) commence work or the supply of materials by the start date specified, or within the time provided in the Contract Documents, and
 - vv) finally complete that work or supply within a reasonable time thereafter or by the date specified in the Contract Documents or otherwise stipulated by the Township.
5. Where a Force Majeure occurs, the Township shall determine in its reasonable discretion the number of days (if any) to be allowed by reason thereof in accordance with section 50, paragraph (I). The Successful Bidder may propose a number of days to be allowed for this purpose. Where the Township rejects the proposal made by the Successful Bidder, it shall provide a written explanation for so doing,
6. The Successful Bidder shall prepare and submit to the Township a work or supply schedule that indicates the timing of the major activities relating to the Project, and provides sufficient detail of the critical events and their interrelationship to demonstrate the same will be performed in conformity within the time provided in subsection (1).

ARTICLE 32: QUALITY OF MATERIALS

1. Unless the Description of Project otherwise provides, all materials supplied by the Successful Bidder shall be new and shall conform to the requirements of the Specifications but on the request of the Successful Bidder, the Township reserves the right to approve alternatives in writing prior to their supply.

4. Where required by the Township, the Successful Bidder shall furnish a complete written statement of the origin, composition and manufacture of all materials to be supplied by them, and shall furnish samples thereof for testing purposes, if so instructed by the Township.
36. The Township's approval of changed materials shall not be considered as waiver of objection to the work or materials at any subsequent time due to their failure to conform with the specifications.
27. The Successful Bidder shall furnish for the Township's approval such material tests, mix designs and tests of any goods or intended fixtures that are to be supplied as the Township may require.

ARTICLE 33: DEFECTIVE WORK, MATERIALS, ETC.

28. The Successful Bidder shall correct or replace any defective work or material supplied by it, at its own expense, upon the direction of the Township.
29. Where the Successful Bidder refuses or neglects to remove any defective work or material supplied by it in accordance with a written notice by the Township, such work or material may be removed by order of the Township at the Successful Bidders expense, and in addition to any other remedies available to the Township to recover the cost and expense of such removal the Township may deduct the cost and expense of such removal from any moneys due to or to become due to the Successful Bidder on any account.
30. Where at any time the quality of the Project or Work carried out or the Goods or Services supplied by the Successful Bidder is not of a satisfactory standard:
 - ww) the Township may issue a verbal warning to the Successful Bidder, outlining the deficiency in supply or other aspects of performance and requiring the Successful Bidder to correct those deficiencies within such period of time as may be stated; or
 - xx) if the deficiency is not corrected within the time specified, or having been corrected, there is a further instance of deficient performance, the Township may

issue a written notice to the Design-Builder, identifying the deficiency in performance and setting a final date or time period for its correction, and advising that if corrective steps are not taken by that date or within that time, the Township may terminate the contract and take corrective action itself.

4. Where a verbal warning is given under clause (3)(a) or a written notice is given under clause (3)(b), the Township may hold back until the requirements have been met such portion of any amount payable to the Successful Bidder as in the opinion of the Township is reasonably required to secure correction of the deficiency.
21. Where clause (3)(b) applies, the Township may deduct from any payment owing to the Successful Bidder an amount equal to the cost the Township has incurred in correcting the deficiency.
1. Unless the Township otherwise agrees in writing, the failure or refusal by the Successful Bidder to deliver a Good or Service within the time specified, or within a reasonable time where no time has been specified, or to promptly supply a replacement for a Good or Service within a reasonable time after being requested to do so, when that originally supplied is rejected as unsatisfactory, shall be deemed to constitute an authority for the Township to purchase on the open market to replace the Good or Service in question. In the case of any such purchase, the Successful Bidder shall reimburse the Township for the extra costs incurred by reason of that purchase. Where in the opinion of the Township the public interest so requires, the Township may require the Successful Bidder to furnish Goods or Services below the standard of those provided for in the Contract, subject to an adjustment in price to be determined by the Township.

ARTICLE 34: MODIFICATIONS OF METHODS AND EQUIPMENT

1. The Successful Bidder shall make such alterations in its method, equipment and working forces, as the Township in writing directs, if at any time the method or equipment or working force are found by the Township to be unsafe or inadequate to ensure the protection, safety, or quality of the work or to ensure rate of progress sufficient in the reasonable opinion of the Township to complete the work within the time limited therefore under the Contract.

ARTICLE 35: USE OF TOWNSHIP PROPERTY AND CHARACTER AND CONDUCT OF EMPLOYEES

1. Where any part of the Project is to be carried out on property owned or occupied by the Township, the Successful Bidder shall:
 - yy) use that property and require its employees and subcontractors to use that property, only for such purposes as fall fairly within the scope of the Contract Documents;
 - zz) refrain from committing waste on that property and use reasonable care to avoid causing any damage to any person or thing on that property or any neighboring property;
 - aaa) employ only orderly, experienced and competent persons to do the work; and

- d) comply, and cause its agents, directors, officers, employees and subcontractors to comply, with the Township's zero tolerance of violence policy.

Serious violations of the above requirements shall constitute grounds for the termination of the Contract.

- 2. The Successful Bidder shall neither bring onto nor allow the introduction or use of tobacco, alcohol or illegal narcotics or controlled substances (including marijuana, hashish and all derivatives thereof) upon any Township property.

ARTICLE 36: ASSIGNMENT AND SUBCONTRACTING

- 1. Neither the use of one or more subcontractors to carry out part of the Project nor the assignment of the whole or any part of the Contract shall relieve the Successful Bidder of its obligations and liability to the Township.

ARTICLE 37: LIENS TO BE DISCHARGED

- 1. The Successful Bidder shall pay punctually all amounts owing to its suppliers in respect of all services and materials supplied by them with respect to the Contract, including any applicable interest, taxes, costs and other charges, and shall forthwith cause every lien preserved or perfected by any person with respect to the Contract or the subject matter of the Contract to be vacated or discharged, and as between the Successful Bidder and Township all costs relating thereto shall be paid by the Successful Bidder and shall be for its account.

ARTICLE 38: OWNERSHIP OF DOCUMENTS, USE OF DESIGNS, ETC.

- 1. All maps, drawings, plans, specifications, computer disks and documents:
 - 2. v) provided by the Township to a Bidder shall remain the property of the Township and shall be returned by the Bidder upon demand by the Township for their return, whether or not the Bidder submits a Bid; or
 - i) prepared by the Bidder as part of its Bid or otherwise in connection with carrying out the Project or Works or making the Supply contemplated under the Contract shall be the property of the Township and may be disposed of by the Township as it considers fit.
- 3. Unless the Township otherwise agrees in writing, where any plan, drawing or design is provided in connection with a RFP then:
 - j) the submission of a Bid by a Bidder shall be deemed to constitute a license by that Bidder to construct one sample model of the work or project contemplated based upon that plan, drawing or design, where such a sample is required in order to make an informed decision concerning the attractiveness, functionality or other merit of the plan, drawing or design in question; and
 - k) upon the award of the Contract to the Successful Bidder, the Successful Bidder shall be deemed to have licensed the Township to construct such number of examples of the work or project contemplated based upon that plan, drawing or

design that are contemplated under the Contract Documents; but the licence conferred under clauses (a) and (b) shall not be deemed to constitute an assignment of any patent, copyright, trade mark or other intellectual property of the Bidder.

ARTICLE 39: DEVIATION FROM CONTRACT DOCUMENTS AND “GOOD PRACTICE”

23. The Successful Bidder shall not deviate from the Contract Documents without the consent of the Township in writing.
2. The Successful Bidder shall ensure that all its subcontractors inspect all parts, items or surfaces affecting or involving their work and inform the Successful Bidder immediately, in writing, (copy to the Township), of all deviations from drawings, specifications or accepted good practice and standards involving or affecting their work, and not to proceed with their work if these deviations will influence or affect the appearance or quality of their work until they are corrected by the Successful Bidder, but nothing herein shall alter or derogate from the responsibility of the Successful Bidder under the Contract.

ARTICLE 40: SUCCESSFUL BIDDERS DEFAULT AND TOWNSHIP’S REMEDY

3. The provisions of this section are in addition to any other rights to which the Township is entitled by law.
4. The following shall constitute acts or events of default by the Successful Bidder:
 - bbb) where the Successful Bidder fails or neglects to commence or to proceed with the Project diligently and at a rate of progress that in the opinion of the Township, in its sole and unfettered discretion, will ensure entire completion within the time provided for in the Contract Documents;
 - ccc) where the Township determines reasonably that the Successful Bidder has abandoned the work or failed to observe and perform any of the provisions of the Contract, the determination of which the Township shall be the sole judge;
 - ddd) where the Successful Bidder is adjudged bankrupt or becomes insolvent, or a petition in bankruptcy is filed against the Successful Bidder, or where the Successful Bidder makes an assignment for the general benefit of creditors or applies for relief under the Companies Creditors Arrangement Act, or where proceedings of any type are instituted in any jurisdiction in respect of the alleged insolvency or bankruptcy of the Successful Bidder;
 - eee) where any formal or informal proceeding for the dissolution of, liquidation of, or winding up of, the affairs of the Successful Bidder is instituted by or against the Successful Bidder, or where a resolution is passed or any other act undertaken for the winding up of the Successful Bidder;
 - fff) where the Successful Bidder ceases or threatens to cease to carry on its business, or where the Successful Bidder makes or agrees to make a bulk sale of its assets;

- f) where a receiver, manager or trustee is appointed in respect of the business or assets of the Successful Bidder, or any part of thereof, by a court of competent jurisdiction, or under an agreement;
 - z) where the Successful Bidder defaults in payment of any indebtedness or liability to a bank or other lending institution, whether secured or not;
 - aa) where the Successful Bidder defaults in the completion of the work within the time limit under the contract or within the Township-extended time limit;
 - bb) where the Successful Bidder fails or refuses to remedy any unsatisfactory or defective work or to remove any unsatisfactory or condemned material when so ordered by the Township in writing; and
 - cc) where the Successful Bidder persists in any course in violation of any of the provisions of the Contract Documents after receiving written notice from the Township to correct that violation.
3. Where an act or event of default by the Successful Bidder occurs, the Township may terminate the Contract by giving written notice to that effect to the Successful Bidder and enforce any performance bond, letter of credit or other performance security provided by the Successful Bidder.
41. Where there is a default by the Successful Bidder under the Contract, the Township may waive that default by written notice to that effect, whether given before or after the default, and where the Township so waives the default, the position of the parties and the status of any security provided by the Successful Bidder to the Township, shall be as if the default had not occurred.
31. A waiver of a default shall not extend to, or be taken in any manner whatsoever to affect the rights of the Township with respect to any subsequent default whether similar or not.
32. The remedies provided in these Instructions are in addition to all other legal, equitable or statutory remedies to which the Township is otherwise entitled, and the taking of any one remedy shall not preclude the taking of any other remedy.

ARTICLE 41: RESERVED PRIVILEGES OF THE TOWNSHIP

1. The Township shall have the following reserved privileges, which may be exercised or waived in its absolute discretion:
- dd) the Township may reject any Bid, the lowest Bid or all Bids, or may cancel the RFP Notice and require the submission of new Bids for any reason within its absolute discretion;
 - ee) in addition to considering Bid prices, when evaluating Bids and awarding the Contract, the Township may exercise reasonable commercial judgment taking into account with respect to its decision:
 - i. the full lifetime cost implications to the Township with respect to each Bid, including life-expectancy; the inclusion or exclusion of alternate or optional

- equipment or configurations and the price implications thereof; training or retraining costs; length and scope of warranty coverage; and long-term maintenance requirements;
- ii. the need to achieve economies of scale in supply;
 - ii. the need to diversify sources of supply;
 - iii. compatibility with existing equipment, including battery systems and battery chargers, such compatibility to be determined by tests conducted either by the Township or by an independent testing agency satisfactory to the Township, at the Township's sole and unfettered discretion;
 - iv. compatibility with existing computer software and hardware, and capability to generate reports suitable to the Township's existing reporting requirements; such compatibility and capability to be determined by tests conducted either by the Township or by an independent testing agency satisfactory to the Township, at the Township's sole and unfettered discretion;
 - v. any extraordinary or unjustified disparity between the lowest Bid and the other Bids received by the Township;
 - vi. the amount of any trade-in allowance that is offered;
 - vii. the need to secure timely and reliable sources of supply;
 - viii. the need to discontinue reliance on obsolete technology and methods;
 - ix. the need to provide state-of-the-art service to the residents of the Township, or to integrate any aspect of Township operations with those of its neighbors;
 - x. the need to avoid the use of unproven technology and methodologies;
 - xi. the need to minimize risk to the Township;
 - xii. the proximity of any service center of a Bidder to the Township;
 - xiii. the benefit in employing suppliers who have a proven track record of successful delivery and good reputation within the business community for integrity and competence;
 - xiv. the prior record of the Bidder as a supplier to the Township;
 - xv. whether, in the opinion of the Township or its professional advisors, the Bidder possesses the experience, or financial, technical, personnel or other resources that may reasonably be expected to be necessary in order to carry out the obligations that the Bidder proposes to assume under the terms of its Bid, in the sole and unfettered discretion of the Township or its professional advisors; and
 - xvi. such other considerations as would influence the decision of a reasonable and prudent purchaser in the particular circumstances of the Township at the time when the Contract is awarded;

- c) in awarding the contract, the Township may take into account the adherence or non-adherence of a particular Bidder to the social, economic or labour relations policies of the Township;
- d) the Township may waive compliance with any minor requirement governing the submission of Bids, including (but not limited to) any requirement to:
 - xvi. attend any meeting;
 - xvii. inspect any site or thing;
- e) the Township may:
 - xviii. divide the final Contract and award on an individual commodity, component or factor basis;
 - xix. divide the final Contract and award by groups of commodities, components or factors; or
 - xx. award the Contract to one or more Bidders, where each submits an identical Bid (or to require the submission of a final and best offer, in lieu thereof);as the Township may in its sole and unfettered discretion consider to be in its best interest;
- f) where in the view of the Township, an insufficient number of Bids have been received in response to a Request for Proposal, the Township may publish a further such request (on the same or revised terms from the original request);
- g) the Township may accept any Bid conditionally;
- h) where the lowest Bid price exceeds the budget approved by the Township, or where during the course of the RFP it is determined by the Township that it would not be reasonable in the circumstances for the Township, in its sole and unfettered discretion, to select its supplier solely by reference to price, the Township reserves the right to identify a shortlist of one or more potential suppliers with whom it will seek to negotiate bilaterally a contract for the Project in question;
- i) where the contract is awarded to the lowest qualifying Bidder, the Township may negotiate amendments to the Contract or to the work to be done or Goods or Services or materials to be supplied under the contract and no other Bidder shall have any right to object that its Bid would have been lower had the negotiated amendments been included in the original Request for Proposal or RFP Notice.

ARTICLE 42: OBLIGATION OF SUPPLIERS TO DEAL IN GOOD FAITH AND TO TREAT THE TOWNSHIP AS ITS MOST FAVOURED CUSTOMER

44. Each Bidder is required to deal with the Township in utmost good faith both with respect to the submission of its Bid and with respect to the performance of any Contract awarded by the Township upon the acceptance of that Bid.

45. Throughout the term of the Contract, the Successful Bidder shall treat the Township as its most favoured customer, so that:

ggg) the Total Contract Price offered by the Successful Bidder to the Township shall be no less favourable than the corresponding price offered by the Successful Bidder to any other Customer; and

hhh) the bundle of Goods and Services offered by the Successful Bidder to the Township at the Total Contract Price shall be at least as complete as that offered to any other Customer of the Successful Bidder at the same price;

within the 30 Business Day period immediately preceding and following the date of the submission of the Bid; and:

iii) where during the course of any Contract awarded to the Successful Bidder under this RFP, the price for any Goods or Services to which this RFP relates is lowered below the Factor Price incorporated into the Total Contract Price in respect of that Good or Service, the Successful Bidder shall so notify the Township and that lower price shall be passed along to the Township, and the Total Contract Price payable by the Township shall be adjusted accordingly,

provided that this subsection shall apply only with respect to sales or supply made by the Successful Bidder to customers who are at arm's length to the Successful Bidder within the meaning of the *Income Tax Act*, and where the sale or supply relates to Goods or Services of comparable quantity and quality as those sold or supplied to the Township.

2. Where through inadvertence, a Contract is awarded to a Bidder who has made an unauthorized amendment to the Township's Form of Proposal, then upon the Township discovering that unauthorized amendment, the Township may:

jjj) cancel the Contract without compensation to the Bidder by giving written notice to that effect to the Bidder;

kkk) recover from the Bidder any amount paid to the Bidder in excess of what would have been paid had that amendment not been made, and

lll) ban the Bidder from competing for Township contracts for a period of up to 10 years, where in the reasonable opinion of the Township's CAO, the change was made by the Bidder as part of a deliberate attempt to deceive.

4. Where in the reasonable opinion of the Township's Manager of Operations or designate it is determined that:

a) on any one or more occasions a Bidder has:

iii. intimidated, harassed, or otherwise interfered with an attempt by any other prospective supplier to bid for a Township contract or to perform any Contract awarded by the Township to that supplier;

xxi. assaulted or committed battery against any Township employee in the performance of his or her duty; or

xxii. deliberately retained a known over-payment, or has knowingly failed to notify the Township of an over-payment or duplicate payment; or

- b) a Bidder has committed any one or more of the following acts:
 - vi. over-billing;
 - ii. charging for items not supplied;
 - iv. charging for items of one grade, while supplying items of an inferior grade;
 - vii. misrepresentation as to the quality or origin of Goods, their functionality or suitability for a purpose, or their performance characteristics; or
 - viii. any other form of sharp practice;
- c) the Township may ban the Bidder, and any person with whom the Bidder is not at arm's length within the meaning of the *Income Tax Act* (Canada), from competing for Township contracts for a period of up to 10 years.

ARTICLE 43: RECORD AND REPUTATION

1. At the election of the Township, whether or not a Bid or Bidder otherwise satisfies the requirements of a RFP, the Township may reject summarily any Bid received from:
 - ff) a corporation or other person which has been involved in litigation with the Township within the five (5) year period immediately preceding the date on which the Request for Proposal was published;
 - gg) any person against whom the Township, has made a claim under a Bid bond, a performance bond or a warranty bond within the five (5) year period immediately preceding the date on which the Request for Proposal was published;
 - hh) any corporation that is an affiliate of or successor to any person or corporation described in clauses (a) or (b); and
 - ii) any person with whom, in the opinion of the Council of the Township or its staff, there are reasonable grounds to believe that it would not be in the best interests of the Township to enter into a contract, including (without limiting the foregoing) the conviction of that person or any person with whom that person is not at arm's length within the meaning of the *Income Tax Act* (Canada) of an offence:
 - ix. under any taxation statute in Canada;
 - x. of moral turpitude, whether in Canada or elsewhere;
 - xi. under the Environmental Protection Act, or the corresponding legislation of any other province or any member of the European Union or the United States of America, where the circumstances of that conviction evidence a gross disregard of the part of that person for the environmental well-being of the communities in which it carries on business;

- iv. relating to product liability or occupational health or safety, whether of Canada or elsewhere, where the circumstances of that conviction evidence a gross disregard on the part of that person for the health and safety of its workers or customers;
- xii. under the Securities Act or the corresponding legislation of any other province or any member of the European Union or the United States of America or any state thereof.

ARTICLE 44: NON-DISCLOSURE AND NO COMMENT

- 46. No Successful Bidder shall disclose details relating to the Contract, or the Project to any outside person not engaged in work relating thereto, and shall restrain its employees from giving unauthorized information with respect thereto.
- 33. After the Contract is awarded, the Successful Bidder shall refer all inquiries from all third parties who are not involved in carrying out the Contract, but that relate to the Contract or the Project to be undertaken within the scope of the Contract to the Township's Clerk.
- 34. Prior to the award of the Contract, no Bidder shall contact any elected official of the Township or member of Township staff with respect to the proposed Contract, except the Manager of Operations, or other person designated for that purpose in the RFP documents.

ARTICLE 45: REVIEW OF BIDS

- 35. At the close of the RFP, all apparently eligible Bids will be examined by staff to confirm that they are compliant and otherwise complete.
- 36. At its sole and unfettered discretion, the Township may clarify any aspect of any Bid received in respect of the Bid with any Bidder at any time, and may clarify any aspect of the price Bid by the Bidder; and:
 - 1 .
 - mmm) the purpose of such clarification may be:
 - a)
 - xiii. to enable the Township to determine whether the Bid to which it relates complies with the RFP;
 - xiv. to resolve any ambiguity in the language used, or any other vague or uncertain aspect of the Bid;
 - b) no such clarification shall alter the Bid or constitute negotiation or renegotiation of the price or any aspect thereof, or the nature or quality of the goods or services to be supplied or performed as set out in the Bid at the close of the RFP, and all correspondence with a Bidder for the purposes of such clarification shall be conducted through the Manager of Operations.
 - 3. Without limiting subsection (2), the Township's right to clarify shall include the right to request additional or missing information relating to the Goods or Services that are to be supplied or the manner in which the Project or Work is to be carried out.

5. The right of clarification provided under this section is within the sole, complete and unfettered discretion of the Township and is for its exclusive benefit, and may or may not be exercised by the Township at any time and in respect to any or all Bids.

51. The right to clarify shall not impose upon the Township a requirement to clarify with the Bidder any part of a Bid, and where in the opinion of the Township the Bid is ambiguous, incomplete, deficient, or otherwise not acceptable in any aspect, the Township may reject a Bid either before or after seeking a clarification under this section.

18. Neither the review of its submission with any Bidder, nor the seeking of clarification under this section, shall oblige the Township to enter into a Contract with that Bidder, and shall not constitute an acceptance of that Bid or any other Bid.

19. All clarifications under this section shall be in writing, in a form satisfactory for inclusion in the Contract and satisfactory to the Township.

20. Any Bidder may be required to meet with officials of the Township within 20 Business Days of being so requested to explain details of the submission, at a place specified by the Township, and transportation to and from the meeting for the Bidders representatives, as well as the hourly or per diem costs of the meeting itself for any such representative, shall be at the expense of the Bidder.

ARTICLE 46: REJECTION OF BIDS BY TOWNSHIP

4. At its discretion, the Township may (but shall not be obliged to) reject any Bid that does not:
 - jj) comply with these Instructions; or
 - kk) contain in full all information required on the Form of Proposal, these Instructions, the Description of Project and the Special Provisions.

5. The Township may reject any Bid submitted by a Bidder or cancel any contract awarded to that Bidder without penalty where any information provided by the Bidder in its Bid or as part of any pre-qualification procedure is determined to be false or otherwise misleading in any material respect.

ARTICLE 47: GUIDELINES REGARDING BID IRREGULARITIES

1. As a guide to prospective Bidders, but without qualifying any rights and privileges reserved to the Township, the following are indicative of the manner in which a discretion reserved by the Township is likely to be exercised with respect to irregular or non-compliant Bids:
 - ll) late Bids will not be accepted and may be returned to the Bidder;
 - mm) Bids that are not completed, or are not typewritten, printed or in legible writing (in ink) will be rejected;

- c) partial Bids (i.e., a Bid for less than all of the items required to be included in a Bid) will be rejected, unless the Bid documents specifically permit partial Bids;
 - nnn) qualified or conditional Bids (i.e., Bids which are submitted subject to a caveat added to the Form of Proposal or under a covering letter or alterations to the Form of Proposal) will be rejected unless the Bid documents specifically permit such a qualification or condition;
 - ooo) unsigned Bids will be rejected;
 - ppp) Bids not complying with these Instructions, the RFP Notice, an Addendum or the Special Provisions will be rejected;

 - qqq) Bids not completed in the proper form, or received on a document other than the original document supplied by the Township in the Bid package or a true photocopy of the original documents supplied by the Township may be rejected by the Township at its discretion;
 - rrr) the Township may at its discretion reject any Bid where the Form of Proposal or related document contains any erasure, change, over-writing, white-out, cross-out or strike out, where the same has not been initialled by the Bidder, or where (in the absolute discretion of the staff the effect of that amendment is ambiguous or otherwise unclear;
 - sss) where a Bidder is required to provide a Bid security and no such security is provided, or the amount of Bid security provided by a Bidder is insufficient, or the security does not name the Township correctly as the obligee, or is otherwise not in compliance with the terms and conditions of the RFP, the Bid will be rejected;
 - ttt) where under the terms and conditions of a RFP, a Bidder is required to provide an agreement to bond with respect to the performance of work under the contract, warranty work, or the payment of labour and material suppliers, and the Bidder provides no such agreement, or the bonding company is not licensed to carry on the business of a bonding company in the Province of Ontario, or the amount of the bond commitment is less than the amount reasonably required, the Township will reject the Bid (this provision shall apply with the necessary modifications to letters of credit);
 - uuu) where an Addendum is not acknowledged in the Form of Proposal, the Township will reject the Bid where the Addendum has a bearing upon the prices quoted in the Bid, unless it is clear that the Addendum has been factored into the prices quoted, in the Township's sole and unfettered discretion; in other cases, the Township will require the Bidder to confirm in writing that the Addendum has been received and taken into account in preparing the Bid, before the Township will consider the Bid;
- but the Township shall not be liable to any Bidder or other person where it elects to exercise a discretion or reserved privilege or right in a manner different from that above indicated.

ARTICLE 48: GOVERNING LAW

55. This RFP and any Contract arising therefrom shall be subject to and shall be construed in accordance with the laws of Ontario.
37. Unless the Township otherwise agrees in writing, any action or other legal proceeding arising under the Contract or any of the other Contract Documents (including any motion or other interlocutory proceeding) shall be brought in the Superior Court of Ontario sitting in Welland, Ontario.

ARTICLE 49: SEVERANCE WHERE PROVISION ILLEGAL, ETC.

1. Where one or more provisions of any of the Contract Documents are found to be invalid, unenforceable or void by any Court or tribunal of competent jurisdiction, the remaining terms and provisions of the Contract Documents shall be deemed to be severable from the part so found and shall remain in full force and effect, but this provision shall apply only insofar as the effect of that severance is not to change the fundamental nature of the obligations assumed respectively by each of the Township and Successful Bidder respectively.

ARTICLE 50: NON-MERGER

38. Except where otherwise expressly agreed, these Instructions shall not merge upon the execution of the Contract for Work, but the provisions of the Instructions shall be deemed to remain in effect throughout that Contract and warranty.
39. These Instructions shall define and limit the scope of any contractual or other legal rights in favour of any Bidder or subcontractor flowing from the Request for Proposal or the submission or acceptance of any Bid.

ARTICLE 51: STANDARD TERMS AND CONDITIONS

A SAMPLES AND DEMONSTRATION

1. The Township may request the provision of sample of any goods or work that are to be supplied.
2. Any samples within the scope of subsection (1) shall be delivered to the Township no later than seven (7) Business Days after formal request is made, unless requested prior to the submission of a Bid, in which case the sample shall be delivered to the Township together with the Bid.
3. The Township shall not be charged for any sample provided under this provision, nor for the cost of delivering the sample to the Township.
4. Where not used or damaged during testing, any sample provided to the Township will, upon the Bidders written request made within twenty (20) Business Days of the award of the Contract, be returned to the Bidder at the Bidders expense.

5. The Township may require a full demonstration at a place of the Township's choosing of any unit that is to be supplied prior to awarding of the Contract, and all costs associated with that demonstration shall be for the account of the Bidder.

B BRAND NAME

63. Any reference to the trade name, brand name or catalogue number of a particular manufacturer shall be understood to have been made solely for the purpose of establishing and describing general performance and quality levels of the item to be supplied, unless otherwise expressly provided in the RFP Notice; Description of Project; the Special Provisions; or an Addendum.
7. No reference to the trade name, brand name or catalogue number of a particular manufacturer shall be construed to restrict Bidders to that manufacturer, but Bids shall be deemed to be invited for generic no-name equals and comparable equipment of any manufacturer, unless otherwise specified.
8. Despite subsection (2), if an item other than the one specified is proposed, it is the Bidders responsibility to demonstrate that the proposed item meets the specifications, and the Bidder shall submit brochures and samples upon request and provide full specifications in detail concerning the item(s) proposed. The Township shall be the sole judge (in its absolute and unfettered discretion) as to whether an item proposed meets its specifications.

C STANDARD WARRANTY

40. The Successful Bidder shall promptly repair or replace, at no cost to the Township, all defects in materials or workmanship of which the Successful Bidder has been properly notified within a period of three (3) years from date of completion of the Project.
41. This warranty shall not apply where a different warranty is specified in the Special Provisions; Description of Project; or an Addendum.

D SECURITY CLEARANCE

42. Where the RFP involves the performance of work in secure, sensitive or similarly restricted areas, or with respect to computer data or other information that relates to matters of public security, tax records or records relating to investigations carried out with a view to prosecution under any Federal or Provincial Act or Regulation or under any Township Bylaw, each Bidder and its executive officers, and all employees (including supervisors) directly involved in the performance of that work must consent to a security clearance check and report thereon performed by the Township's Police Department or other appropriate Federal, Provincial or Township security vetting agency.
43. Where subsection (1) applies, any award of a contract to a Bidder will be subject to the receipt of a satisfactory security report, the sufficiency of which shall be at the sole discretion of the Township.

4. Where a Consent to Disclosure of Personal Information Form is included with the package of documents provided by the Township to Bidders, that Form must be completed and returned to the Township by the time stated in order to:
 - nn) obtain admission to any mandatory or other site visit at any secure, sensitive or similarly restricted site; and
 - oo) permit due consideration to be given to any Bid submitted by the Bidder;

21. In the event that a satisfactory security clearance is denied to an applicant employee or subcontractor of the Bidder, the Township will entertain the submission of applications from alternate applicants, but subject to the same security clearance requirements.

22. Any significant change in the security clearance or classification of a Bidder over the life of the Contract may afford grounds for cancellation of the Contract, that decision to be at the sole discretion of the Township.

E CONTRACT NON EXCLUSIVE

1. Unless otherwise expressly provided in the RFP, Description of Project; the Special Provisions; or an Addendum, no Contract for the supply of goods, services, the supply and installation of fixtures, or any combination thereof shall be deemed or construed to confer upon the Successful Bidder an exclusive right to supply those items, nor an exclusive obligation on the Successful Bidder to provide those items only to the Township.

F TERM OF THE CONTRACT

1. Unless otherwise expressly provided in the RFP Notice; Description of Project; the Special Provisions; or an Addendum:
 - pp) the Contract shall be deemed to be for a term of one year only, and the Successful Bidder shall have no right to the award of a further contract, nor any preference in the award of any subsequent contract; and
 - qq) the term of the Contract will commence with the issue of a purchase order, notice to proceed or the execution of the Contract for Work, as the case may be.

3. Where the RFP Notice; Description of Project; the Special Provisions; or an Addendum provide that a Contract may be renewed at the end of its term, the following rules apply:
 - a) each renewal shall be deemed to be for a period of one year only;

- b) renewal shall be only on the mutual consent of the parties evidenced in writing, and where not so evidenced, any continuation of supply after the expiration of the term of the Contract shall be deemed to be subject to the same terms and conditions as supplies under the Contract, subject to the following provisos:
 - i. the Township may at any time discontinue placing any further order for supply, or may terminate the relationship between the parties by written notice to that effect, but no such discontinuation or notice shall affect the obligation of
 - I. the Township to receive delivery and pay for any items or services previously ordered; and
 - II. the Successful Bidder to fill any order previously placed and accepted by it;
 - ii. the Successful Bidder may at any time discontinue receiving any further order for supply, or may terminate the relationship between the parties by written notice to that effect, but no such discontinuation or notice shall affect the obligation of:
 - III. the Township to receive delivery and pay for any items or services previously ordered; and
 - IV. the Successful Bidder to fill any order previously placed and accepted by it;
- c) either party may withhold its consent to the proposed renewal of the Contract for any reason whatever within its absolute discretion;
- d) where a price adjustment is contemplated in the Special Provisions upon the renewal of the Contract, all prices payable under the Contract during the term of the renewal shall be deemed to be adjusted to reflect the average annual increase in the Consumer Price Index as published by Statistics Canada over the twelve (12) month period immediately preceding the date of renewal; and
- e) where more than one renewal is contemplated in the RFP Notice; Description of Project; the Special Provisions; or an Addendum, each such renewal shall be subject independently to clauses (a) to (d).

G ORIENTATION SESSION

- 70. The Township may require the Successful Bidder (and those employees of the Successful Bidder who will be employed in performing the Contract) to attend a training and orientation session to be conducted by the Township at such place in the Township as the Township may direct.
- 23. The session may last for up to one full working day, unless otherwise expressly provided in the RFP Notice; Description of Project; the Special Provisions; or an Addendum.
- 24. No amount shall be payable by the Township in respect of that session.

H EXCESSIVE CLAIMS

73. The Township may review and disallow an invoice, or reduce the amount of an invoice, submitted for hourly labour costs, or for material supplied, where the Township's Manager of Operations or designate concludes on reasonable grounds that the amount of that invoice is excessive, taking into account the time and materials that would ordinarily be required by a competent professional or tradesman to carry out the work or project to which the invoice relates.
44. Prior to disallowing or reducing an invoice under subsection (1), the Township shall notify the Successful Bidder in writing of its intention to review the invoice in question, and shall allow the Successful Bidder to make written or oral representations to the Township's Manager of Operations or designate as to whether the amount invoiced is excessive. The Manager of Operations or designate shall take those representations and all other relevant facts into account before reaching any conclusion under subsection (1). Any decision made by the Manager of Operations or designate under this section is final and conclusive between the parties.
45. No invoice shall be disallowed under this section where the billing to which it relates is in strict accord with the terms of the Contract Documents.

I FORCE MAJEURE

9. In this section, "Force Majeure" means a delay in the performance of the Services occurring other than as a result of the deliberate act or negligence of either party respectively, and which:
- rr) could not have been reasonably foreseen; and
 - ss) was caused by an event beyond the reasonable control of each party respectively; and for the sake of greater certainty shall include any one or more of the following:
 - tt) acts of God, the Queen or Her enemies;
 - uu) civil war; insurrections or riots;
 - vv) fires; floods; explosions; earthquakes or serious accidents;
 - ww) unusually severe weather; epidemics or quarantine restrictions;
 - xx) governmental priorities or allocation regulations or orders affecting materials, labour, equipment and facilities;
 - yy) fuel shortages or freight embargoes; or
 - zz) strikes or labour troubles causing cessation, slowdown, interruption of work or other similar events relating to a person other than the Successful Bidder (or any subcontractor) or to the Township.
46. In the event of the occurrence of a Force Majeure:
- a) the time for completing that portion of the supply of Goods or Services, or the completion of the Project or Work to which the RFP relates, which has been delayed by reason of the Force Majeure shall be extended by a period equal to the delay so caused; and,

b) the date for the payment of any portion of the price or any costs or fees shall be adjusted accordingly, without adjustment of the price;

but subject to the foregoing, each party shall be excused from performance so long as the Force Majeure persists, and shall not be considered to be in default under this section, if and to the extent that its failure of, or delay in performance is due to that Force Majeure.

3. Where a Force Majeure remains in effect for more than 90 days, either party may terminate the Contract upon twenty (20) Business Days written notice to the other party, provided at the time when that notice is given the Force Majeure is then continuing.

27. While a Force Majeure subsists which prevents the Successful Bidder from performing its obligations with respect to a Project, the Township may engage another contractor or supplier to perform those obligations on an interim basis.

ARTICLE 52: INTERPRETATION

1. In these Instructions:

vvv) "Addendum" means a written addendum issued under these Instructions;

www) "Bid" means a bid made by a Bidder in response to the RFP;

xxx) "Bid Price" means any Factor Price or other component of the Total Contract Price;

yyy) "Bidder" means any person submitting a Bid in response to a RFP Notice;

zzz) "black market" shall mean Goods and/or Services that are counterfeit and/or were purchased or involved transactions outside of the official economy, including, but not limited to, transactions in which applicable taxes were not paid and/or transactions dealing with or involving illegal Goods or Services;

aaaa) "Business Day" means any day other than a Saturday, Sunday, public holiday or other day on which banks in Ontario are authorized or required by law to be closed;

bbbb) "Project Manager" means any employee of the Township or any independent professional retained by the Township to advise it as a specialist consultant with respect to any aspect of the RFP or the Project, and who is designated by the Township as the Project Manager in respect of the Contract;

cccc) "Contract" means the contract arising upon the acceptance of a Bid by the Township made in response to this RFP;

dddd) "Contract Documents" means:

- i. these Instructions;
- ii. the Form of Proposal;
- iii. the RFP Notice;
- iv. any Addendum;
- v. the Description of Project;

- vi. any Special Provisions, including any contract drawings, detail drawings, or shop drawings;
 - i. the Contract for Work;
 - ii. any Specifications for the Project not included within any of the foregoing;
- j) provided by the Township or any Project Manager to the Township to the Successful Bidder, and also the Bid of the Successful Bidder to whom the contract is awarded, and any other document agreed by the parties to constitute one of the Contract Documents;
- k) "Contract for Work" has the meaning assigned in section 10;
- l) "Department" means an organizational unit of the Township of Wainfleet;
- m) "Department Head" means the person who is responsible for the direction and operational control of a Department;
- n) "Factor Price" means any Factor Price or other component of the Total Contract Price;
- o) "Goods" means any item of tangible personal property or computer software, and includes:
- xxi. deeds and instruments relating to or evidencing the title or right to such personal property, or a right to recover or receive such property;
 - xxiii. tickets or like evidence of right to be in attendance at a particular place at a particular time or times or of a right to transportation;
 - xxiv. energy, however generated;
 - xxv. items of tangible personal property that are intended for installation as a fixture or otherwise for incorporation into land, a building or structure, or that are ornamental or industrial trees, grass sod, flowering plants, shrubs, soil, seed or fertilizer;
- p) "grey market" shall mean Goods and/or Services that were purchased, acquired or provided legally, but the channels through which they were purchased, acquired and/or provided are either unauthorized or unofficial, including, but not limited to, channels that are not authorized by the manufacturer and/or Goods imported through unofficial channels which would otherwise be either more expensive if properly imported or would be unavailable in Canada.
- q) "Project" means all goods, services and other things of commercial value the supply, repair or installation of which are contemplated in the RFP Notice or the Description of Project and all labour and other items or things incidental thereto;
- r) "Project" includes the installation of fixtures and any type of work that is not a Service and the supply of any other thing of commercial value that is not a Good;

- s) "Project Manager" means the person (if any) designated by the Township to manage the delivery or performance of the Project to which the RFP relates, or the Township's obligations under the Contract;
 - t) "Services" means a service of any description whether commercial, industrial, trade, or otherwise, and includes all professional, technical and artistic services, and the transporting, acquiring, supplying, storing and otherwise dealing in Goods;
 - u) "Successful Bidder" means the Bidder whose Bid is selected by the Township for the award of the Contract in respect of a Project or Works;
 - v) "Supply" means the supply of a Good or Service; and
 - xv. in relation to a Good, includes the sale, rental, lease or other disposition or provision of the Good or an interest therein or a right thereto, or an offer so to dispose of the Good or interest therein or a right thereto, and
 - xxvi. in relation to a Service, includes the sale, rental or other disposition or provision of the Service or an offer so to provide a service;
 - w) "RFP" means the Request for Proposal to which these Instructions relates, and any renewal or substitute for that Request for Proposal or request for quotation;
 - x) "Total Contract Price" means the fully inclusive, all-in total contract price, constituting the sum of all costs quoted by a Bidder in its Bid with respect to the Project:
 - xxvii. including the purchase price for all materials, labour costs, service costs, costs for temporary structures and facilities, utility costs, warranty costs, life cycle costs, operating and disposal costs, and all applicable taxes relating to the foregoing; but
 - xxviii. excluding any options or alternatives requested in the RFP Notice or other Contract Documents that the Township elects not to purchase;
 - y) "Work" means the supply of Goods and Services.
3. Where in these Instructions a reference is made to the express written agreement of the Township, it shall be understood that the Township shall not be deemed or construed to have agreed to any stipulation, specification, exclusion, limitation or other term or condition set out in a Bid that deviates from a provision set out in any of the documents set out in clause (h)(i) to (viii) inclusive, unless that deviation is expressly confirmed in the Contract for Work or in an amendment to that contract.
28. In these Instructions and in all of the Contract Documents, unless the context otherwise necessitates:
- a) a word importing the masculine, feminine or neuter gender only includes members of the other genders;

- d) a word defined in or importing the singular number has the same meaning when used in the plural number, and vice versa;

- eeee) a reference to any Act, bylaw, rule or regulation or to a provision thereof shall be deemed to include a reference to any Act, bylaw, rule or regulation or provision enacted in substitution therefore or amendment thereof;

- ffff) the headings to each section are inserted for convenience of reference only and do not form part of the Contract;

- gggg) all accounting terms have the meaning recognized by or ascribed to those terms by the Canadian Institute of Chartered Accountants;

- hhhh) all references to time shall be deemed to be references to current time in the Township;

- iiii) any reference to an officer of the Township shall be construed to mean the person holding that office from time to time, and the designate or deputy of that person, and shall be deemed to include a reference to any person holding a successor office or the designate or deputy of that person; and

- jjjj) words and abbreviations which have well-known professional, technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings.

END OF INSTRUCTIONS TO BIDDERS

The following criteria will be used in selection of a preferred Design-Builder. It will be a two envelope bid submission process with Envelope #1 containing the Mandatory Submission Requirements (TAB1) and the Evaluation Criteria (TAB2-TAB5). Envelope #2 shall contain the 'Form of Proposal' with all pricing included and will be evaluated in accordance with sentence 2.1 of this Section.

1.1 Format of Submission

Proponent's submission must include all requested information as identified within this RFP and not exceed a total of **thirty-three (33) single sided pages**. Size of font is to be a minimum 12. No additional marketing material is to be included.

Proponent's submission shall be tabbed in the following order:

TAB 1 - Mandatory Submission Requirements (maximum page length - 21 pages)

TAB 2 - Similar Project Experience (maximum page length - 3 pages)

TAB 3 - Similar Project References (maximum page length - 3 pages)

TAB 4 - Experience of Key Personnel (maximum page length - 5 pages)

TAB 5 - Project Schedule (maximum page length - 1 pages)

1.2 TAB 1 - Mandatory Submission Requirements (maximum page length - 21 pages)

Proponents must ensure that the mandatory requirements described below otherwise contained in this Request for Pre-qualification have been satisfied in their Application. Failure to comply with these requirements may result in rejection of the Proponent's Application. Provide the following:

76. Proponents **MUST** provide 7 hard copies of their application submission and provision of a digital copy in PDF format on 5 USB memory keys.
47. Proponent shall supply a Gantt chart to outline the detailed Project Schedule. Identify each project phase and include all the milestones, tasks and durations within each phase of the project.
48. Completed CCDC Document 11 – Contractors Statement of Qualifications. Maximum length is 16 pages.
49. Bonding Verification – Provide a letter from a nationally recognized Surety Company stating total bonding limit, current bonding committed, and confirming availability of required bonding per the requirements identified in this RFP. Maximum length is 1 page.
50. Insurance Verification – Provide a letter from the Proponents Insurance Company confirming availability of required insurance coverage. Maximum length is 1 page.
51. WSIB – Submission of the most recent form issued by the WSIB is 1 page.

7. Health and Safety Policy Statement – Provide a description of the Proponents Health and Safety Policy and that all policies will be followed for the duration of the project. Proponents are also to provide a recent WSIB Clearance Certificate. PLEASE DO NOT INCLUDE YOUR ACTUAL HEALTH AND SAFETY POLICY. Maximum length is 2 pages.

1.3 TAB 2 - Similar Project Experience (maximum length – 3 pages)

With respect to this RFP and its evaluated submission requirements, “Similar Projects” shall be defined as a New Fire Station Project, completed within the past Seven (7) years with a minimum construction value of \$1,200,000, as further defined throughout this RFP. Proponents are to submit up to 3 proposed projects for evaluation using Appendix A, titled Form A.

Note: Proponents may propose other project types such as; Police Station and/or EMS Station facilities or other Municipal, Provincial or Federal facilities similar in nature. These projects may be reviewed as part of the evaluation, provided the page lengths are maintained and the project is deemed to be similar in nature (determined by the Evaluation Team), in relation to the project outlined in this RFP.

1.4 TAB 3 – Similar Project References (maximum length – 3 pages)

Proponents are to provide a reference letter from the Owners or Consultant, noting satisfactory performance, for the similar projects proposed as identified and submitted.

Alternatively, Proponents may provide alternative references from Owners or Consultants for other identified projects. Proponents shall provide full contact details for references from Owners and Consultants. The following is the type of questions that will be asked of the references provided:

- a. How did the Proponents handle staffing of site, trade coordination and site supervision?
- b. How did the Proponents handle scheduling, planning, meeting milestones and completion?
- c. How did the proponent deal with clearance of deficiencies?
- d. How did the proponent handle contract changes and change management?
- e. How did the Proponent handle office support and administrative functions?

References will be checked to assess each Proponents performance based on the above questions. Should the reference fail to provide feedback for whatsoever reason, or should the Evaluation team be unable to reach a proposed reference, the Proponent will be marked with a zero for that specific reference. It is the responsibility of the Proponent to ensure easily accessible references are provided.

1.5 TAB 4 - Experience of Key Personnel (maximum length – 5 pages)

The Proponent shall provide an organization chart to outline the structure of the firm. Identify one proposed Project Manager and Site Superintendent. Provide their resumes and a summary of their past project experience identifying the projects undertaken, the value, the year completed, their role while in your employ.

Note: If awarded the contract and deemed the successful bidder the Design Builder may not assign a Project Manager or Site Superintendent different than the individuals proposed within their submission. This will only be acceptable upon formal written request inclusive of support documentation and formal written approval from either the Township or its consultants.

1.6 Quality of Submission

Proponents are to provide a well-organized submission, with information clearly organized and identified, bound with tabs meeting the maximum page limits and font size.

1.7 Evaluated Submission Requirements

Proponents must ensure that the evaluated requirements described below or otherwise contained in this Request for Pre-qualification have been satisfied in their Application. Only Proponent providing the mandatory requirements will be evaluated according to the following requirements:

CRITERIA	Weighting
TAB 2 - SIMILAR PROJECTS	15
TAB 3 – SIMILAR PROJECT REFERENCES	15
TAB 4 – KEY PERSONNEL	10
QUALITY OF SUBMISSION	5
FEE EVALUATION	55
Maximum Attainable Points	100

Points	Description	Point Description
10	Excellent	Submission exceeds expectations, excellent probability of success. All or most objectives have been exceeded.
8	Very Good	Very good probability of success. Achieves all objectives met with limited number of objectives being exceeded.
7	Adequate	Has reasonable probability of success. All objectives have been met.
5	Fair	Partially unresponsive, missing some key items and requirements, fall short of expectations and has a low probability of success.
2	Inadequate	Addressed requirements inadequately and essentially fails to meet perceived needs or requirements. Approach has little or no probability of success.
0	Non-responsive	Requirement not addressed in submission.

1.8 Fee Proposal Evaluation

Cost proposals contained in Envelope 2 will be evaluated as follows:

The lowest priced Proposal under \$1,300,000 receives 55 points; and the remaining Proposals are assigned points based on the following formula:

Lowest Price under \$1,300,000 receives 55 points

Additional proposals under \$1,300,000 receive 45 points

Proposals between \$1,300,000 and \$1,350,000 receive 30 points

Proposals between \$1,350,000 and \$1,400,000 receive 20 points

Proposals between \$1,400,000 and \$1,500,000 receive 10 points

Proposals over \$1,500,000 receive 0 points

The review and evaluation of the Cost Proposal (identified in Envelope 2), will be based exclusively on the Total Contract Price Excluding Separate Price.

END OF EVALUATION

**SPECIFICATIONS
FOR
REPLACEMENT FIRE STATION**

NAME OF DESIGN-BUILDER: _____

To:

Township of Wainfleet
Attention – Township Clerk
31940 Highway 3
Wainfleet, Ontario L0S 1V0

1. I/We the undersigned Bidder, declare that we have carefully examined all RFP Documents including the Specifications, Drawings, Schedules, Addenda _____, the Agreement between Owner and Contractor, and the General Conditions of the Contract of the Standard Construction Document, CCDC 14, 2013 Stipulated Price Contract, as supplemented for this Project; and the Instruction to Bidders; and visited and investigated the site, and examined all conditions affecting the Work; and if notified in writing of the acceptance of this RFP within thirty (30) days of the date below, we agree to provide all materials necessary and perform all Work shown and described in these documents for the Stipulated Price of:

(Dollars)

Cash Allowances	\$	<u>\$35,500</u>
TOTAL CONTRACT PRICE	\$	_____
H.S.T. (13%) extra	\$	_____
TOTAL	\$	_____

5. In lawful money of Canada; included in which are all applicable Provincial Sales and Excise taxes, custom duties, freight, exchange and all other charges.
5. The undersigned agrees, if notified of award of a Contract, to immediately commence Work actively and to complete works and ready for occupancy by the 30 day of November, 2018).
6. The undersigned agrees that the List of Subconsultants, Appendix "A" completed and submitted in accordance with Article 17 of the Instructions to Bidders lists the Subcontractors who will perform the Work indicated.
7. The undersigned agrees that the List of Subcontractors, Appendix "B" completed and submitted in accordance with Article 17 of the Instructions to Bidders lists the Subcontractors who will perform the Work indicated.
8. The undersigned agrees that the Separate Price, Appendix "C" completed and submitted in accordance with the Instructions to Bidders will apply to the Work where and if accepted by the Owner.
9. The undersigned agrees that the Construction Schedule, Appendix "D" completed and submitted in accordance with Article 30 of the Instructions to Bidders will apply to the Work required for completion of the project.
10. The undersigned agrees that the Unit Prices, Appendix "F" completed and submitted in accordance with the Instructions to Bidders will apply to the Work required for completion of the project.
11. The undersigned hereby submits that he has carefully examined the site of the proposed Work and existing conditions; the requirements of the construction schedule; and has satisfied himself that all Subcontractors, material suppliers, and equipment suppliers on which this RFP is based are capable of meeting all requirements of the schedule, and of executing the Work in accordance with the Drawings and Specifications, the Instructions to Bidders, Form of Proposal and Form of Agreement, listed in Article 1 of this Form of Proposal.

1. Herewith is the list of Consultants to which reference is made on the submitted Form of Proposal in *Article 3: List of Consultants, Subconsultants and Qualifications:-*

DESIGN-BUILDER: _____

2. **Appendix "A" shall be included in Envelope #1.**
3. No changes to the List of Consultants will be allowed without the Project Manager's express written permission.
4. List each Consultant by his firm's proper legal designation, and to indicate whether his business is carried on as an individual, partnership or limited company.
5. The undersigned submits that in proposing the under mentioned Consultants he has consulted each and has ascertained to his complete satisfaction that those named are fully acquainted with the extent and nature of the Work involved and of the proposed construction schedule, met or exceed the requirements and that they will execute the Work to conform to the requirements of the Contract Documents.

1. LIST OF CONSULTANTS

Architect	_____
Structural Engineer	_____
Mechanical Engineer	_____
Electrical Engineer	_____
Landscape Architect	_____
Site Services Engineer	_____

END OF APPENDIX "A"

1. Herewith is the list of Subcontractors to which reference is made on the submitted Form of Proposal in *Article 4:- Subcontractor To Be submitted in envelope #1*

DESIGN-BUILDER: _____

3. Appendix "B" shall form an integral part of the Form of Proposal.
6. No changes to the List of Subcontractors will be allowed without the Project Manager's express written permission.
7. List each Subcontractor by his firm's proper legal designation, and to indicate whether his business is carried on as an individual, partnership or limited company.
8. The undersigned submits that in proposing the undermentioned Subcontractors he has consulted each and has ascertained to his complete satisfaction that those named are fully acquainted with the extent and nature of the Work involved and of the proposed construction schedule, and that they will execute the Work to conform to the requirements of the Contract Documents.

Earthwork and Site Clearing _____

Asphalt Paving _____

Landscaping _____

Concrete _____

Building Demolition _____

Structural Steel _____

Electrical _____

Mechanical _____

Flooring _____

Drywall _____

Painting _____

Roofing _____

Metal Prefab Supplier/Installer

THE GENERAL CONDITIONS OF THE STIPULATED PRICE CONTRACT, STANDARD CONSTRUCTION DOCUMENT - CCDC 14- 2013, shall be considered complete only as amended and supplemented by the following SUPPLEMENTARY GENERAL CONDITIONS.

GC 2.3 REVIEW AND INSPECTION OF THE

WORK Add the following new paragraph:-

2.3.6 The Design-Builder shall co-ordinate and incorporate all recommendations of the inspections performed by the Independent Inspection/Testing Agencies, who will be acting as the Project Manager's/Owner's authorized agent, as noted in Section 01050 Allowances of the Specifications.

GC 3.14 CLEANUP

Add the following new paragraph:-

3.14.4 The Design-Builder shall carry out a thorough professional cleaning of all surfaces, fixtures and equipment prior to Substantial Performance of the Contract and Owner Occupancy.

GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER

5.1.1 Add new sentence to the end of paragraph:

In addition, a holdback of \$10,000 will be retained by the Owner prior to Substantial Performance of the Project, until submission and acceptance by the Owner of the '**As Constructed Drawings and Manuals**' by the Design-Builder has been completed. This holdback is in addition to the holdback retained by the Owner in compliance with the Construction Lien Act.

Add the following new paragraphs:-

5.1.3 Reasonable disclosure, for the purpose of this Contract, shall be interpreted as pertaining only to the limits set forth for the Bond Amounts requested as they relate to the monies allotted for the Contract Agreement between the Owner and Design-Builder.

GC 5.2 APPLICATIONS FOR PROGRESS PAYMENT

Add the following new paragraphs:-

5.2.7 Applications for each payment after the initial request shall include a Statutory Declaration on a form acceptable to the Owner.

5.2.8 Applications for payment of Statutory Holdbacks shall include a Statutory Declaration, and other documents, i.e. Declaration of Completion of Contract, Declaration of Last Supply, as deemed necessary by the Owner.

GC 5.1 FINANCING INFORMATION REQUIRED OF THE

OWNER Add the following new paragraph:-

5.1.3 Reasonable evidence of financing shall only apply to the Stipulated Contract Price only and not be inclusive of any other agreements or arrangements made by the Owner for the Project. All costs incidental to and associated with requests for evidence of financing shall be paid for by the party making such requests.

GC 6.2 CHANGE ORDER

Add the following new paragraph:-

6.2.3 Changes involving an increase in the total contract price, evaluated in accordance with GC 6.1, GC 6.2, GC 6.3, GC 6.4, and 6.5, shall be calculated on the following basis:-

Material cost will be the actual material cost. Labour rates will be the net hourly rates, plus the current fair wage burden currently followed locally. Design-Builder's mark-up on General Contract work will be 10%. Design-Builder's mark-up on Trade Contractor's work will be 5%. Trade Contractor's mark-up charged on their own work will be 10%. Main Trade Contractor's mark-up on minor subtrade's work will be 5%. Design-Builder and Trade Contractors will not be entitled to charge a fee or charge for overhead and profit on credits to the Contract.

GC 8.2 NEGOTIATION, MEDIATION AND ARBITRATION

Add the following new paragraphs:-

8.2.9 Within five (5) days of receipt of the Notice of Arbitration by the responding party under paragraph 8.2.6, the Owner and the Design-Builder shall give the Project Manager a written notice containing:-

- a) a copy of the Notice of Arbitration
- b) a copy of Supplementary Conditions 8.2.9 to 8.2.15 of this Contract, and
- c) any claims or issues which the Design-Builder or the Owner, as the case may be, wishes to raise in relation to the Project Manager arising out of the issues in dispute in the arbitration.

8.2.10 The Owner and the Design-Builder agree that the Project Manager may elect, within ten (10) days of receipt of the notice under paragraph 8.2.9, to become a full party to the arbitration under paragraph 8.2.6 if the Project Manager:-

- a) has a vested or contingent financial interest in the outcome of the arbitration;

- b) gives the notice of election to the Owner and the Design-Builder before the arbitrator is appointed;
- d) agrees to be a party to the arbitration within the meaning of the rules referred to in paragraph 8.2.6, and
- d) agrees to be bound by the arbitral award made in the arbitration.

8.2.11 If the Project Manager is not given the written notice required under paragraph 8.2.9, both the Owner and the Design-Builder are stopped from pursuing an action, counter claim or other proceeding or making an application against the Project Manager arising out of the issues in dispute in the arbitration between the Owner and the Design-Builder under paragraph 8.2.6.

8.2.12 If an election is made under paragraph 8.2.10, the Project Manager may participate in the appointment of the arbitrator and, notwithstanding the rules referred to in paragraph 8.2.6, the time period for reaching agreement on the appointment of the arbitrator shall begin to run from the date the respondent receives a copy of the Notice of Arbitration.

8.2.13 The arbitrator in the arbitration in which the Project Manager has elected under paragraph 8.2.10 to become a full party may:-

- e) on application of the Owner or the Design-Builder, determine whether the Project Manager has satisfied the requirement of paragraph 8.2.10, and
- f) make any procedural order considered necessary to facilitate the addition of the Project Manager as a party to the arbitration.

8.2.14 the provisions of paragraph 8.2.9 shall apply mutatis mutandis to written notice to be given by the Project Manager to any sub-consultant.

8.2.15 In the event of Notice of Arbitration given by the Project Manager to a sub-consultant, the sub-consultant is not entitled to any election with respect to the proceeding, as outlined in 8.2.10, and is deemed to be bound by the arbitration proceeding.

GC 11.1 INSURANCE

Add the following new paragraphs:-

11.1.6 The Design-Builder shall provide and maintain, in addition to all insurance as set out in General Conditions GC 11.1, a binder to his own policy jointly naming the Design-Builder, all Subcontractors, the Owner and all Project Managers to include:-

- a) The addition of Builders Risk and Collapse Factor to the basic coverage for both the existing, renovated, and new facilities for the duration of the Contract and be maintained for a period of twelve (12) months from the date of Substantial Performance of the Work.

1.1 Contract Documents

.1 Work will be performed under one contract; bound by the Agreement between Owner and Design-Builder, Canadian Standard Construction Document - CCDC 14-2013 Stipulated Price Contract.

2.1 General Conditions

.1 The General Conditions of the Stipulated Price Contract, Standard Construction Document - CCDC 14-2013, and the Supplementary General Conditions, Section 00400 shall form an integral part of this Specification.

3.1 General Requirements

.1 All provisions of each Section of Division 1 shall apply to all other Divisions and Sections of the Specification.

4.1 Other Contractors

- .1 Separate Contracts for Work on this project, as noted in Section 01020 - Owner Supplied Equipment and Work and as let by the Owner, shall be coordinated by this Design-Builder within the Work of this Contract.
- .2 Interpretation of the limits of all Separate Contracts shall be the responsibility of the Project Manager.
- .3 All Contractors performing Work for the Owner under a Separate Contract shall be responsible for providing insurance in conformance with Article GC 11.1 Insurance of the General Conditions of the Contract.

END OF SECTION 01000

1.1 Description of Work

- .1 All Work described in the Specifications, Schedules, Drawings or referred to in the Contract Documents, shall be governed by the General Conditions & Supplementary General Conditions of the Stipulated Price Contract - CCDC 14-2013
- .2 Conceptual Drawings should be utilized and have been approved by council.
- .2 All Work described in Division I includes, but is not restricted to, the following requirements for setting out procedures, administration, standards, approvals, general construction safety/protection of property and people.
- .3 Work in these Specifications is divided into descriptive Sections which are not intended to indemnify absolute contractual limits between the Design-Builder and his Subcontractors, nor between Subcontractors or Suppliers. The Design-Builder shall be responsible for organizing all division of labour and supply of materials necessary and essential to complete the Project in all its parts, to provide a total enclosure and protection from weather of interior spaces, and as established in the General Conditions of the Contract.

2.1 Work Performed by Owner

- .1 As specified in Section 01020.

3.1 Work Covered By Contract Documents

- .1 Work of this Contract comprises the construction of all works required and as shown for a complete project, including but not limited to the following:-
 - .1 Stripping and stockpiling of topsoil from entire site
 - .2 Cutting/filling/excavation and backfill of site for new structure.
 - .3 Backfill compaction of granular fill and concrete paving for new apron, driveways and parking areas.
 - .4 Construction of new stormwater management facility.
 - .5 Hydro-seeding, topsoil, landscaping, fencing, rough grading and finish grading of site.
 - .6 Storm sewer services including pipes, spillways, catchbasins, storage tank, valves, etc.
 - .7 Domestic water service to building (self-contained on site).
 - .8 Water service for fire protection including hydrants, valves, thrust blocks and connections to new underground storage tank.
 - .9 Removal of all debris and excess excavated material from the site.
 - .10 All work as shown on the Drawings and as specified.
 - .11 Verification of existing bearing surfaces and building subgrade elevations prepared by other Contractors.
 - .12 Excavation and backfill for all foundations.
 - .13 Construction of all footings, foundation walls, and walls above grade.
 - .14 Backfill/compaction of granular under slab construction of electrical duct bank under slab and construction including finishing of reinforced concrete slab on

- grade.
- .15 Construction of new building.
- .16 Construction of all interior finishes, doors, frames, fittings and accessories.
- .17 Connections to exterior utility services including Gas, Hydro and Communications.
- .18 Renovation, Demolition and Alterations to existing structures, as shown on the drawings.

4.1 Soils Investigation

- .1 A soils investigation of the site has been conducted by an Engineer and a report based on this investigation was prepared. They were prepared for guidance in design and are not a part of the Contract Documents. Neither the Project Manager nor the Owner assume responsibility for the scope, accuracy, or interpretation of the soil investigation report, but offer it only for estimating guidance. A copy of the soils report and bore hole log is available for viewing at the office of the Project Manager.
- .2 Notify the Project Manager should subsurface conditions differ from the soil investigation report. The Project Manager will promptly investigate such conditions and if he finds that they differ materially resulting in either an increase or decrease in cost, an equitable adjustment shall be made to the contract based on either the unit prices as submitted with the Proposal or a time and material basis as agreed to.
- .3 Contaminated soil shall be dealt with under the terms of the General Conditions of the Contract. Should toxic or hazardous materials be unearthed, notify the Soils Testing Engineer and Project Manager immediately, cease Work in the area and carry out containment, excavation and removal at the direction of the Engineer.
- .4 The Design-Builder shall be responsible for variations in subsurface conditions to a maximum variation of + 200 mm (8") in depth from conditions indicated on the drawings and soils report. Adjustments required for such variations shall be carried out at no cost increase to the Owner.

5.1 Codes Reference Standards Regulatory Agencies and Specifications

- .1 Perform all Work in accordance with current Ontario Building Code O. Reg. 332/12 and any other code of Provincial or local application, provided that, in any case of conflict or discrepancy, the more stringent requirements shall apply and govern.
- .2 Perform all Work in accordance with all requirements of the Construction Safety Act, latest edition, of the Province of Ontario, as well as all other applicable regulations of jurisdictional authorities.
- .3 Meet or exceed requirements of contract documents, specified standards, codes and referenced documents.

- .4 Remedial Work required to review and/or correct Work installed, covered, buried and not inspected shall be carried out at the Design-Builder's expense.
- .5 Unless the edition date is specified, consider that references to manufacturer's and published codes, standards and specifications are made to the latest edition, (revision) approved by the issuing organization, current at the date of this Specification.
- .6 Reference standards and specifications are quoted in this Specification to establish minimum standards. Work which in quality exceeds these minimum standards shall be considered to conform.
- .7 Should the Contract Documents conflict with quoted reference standards or specifications, the General Conditions of the Contract shall govern.
- .8 Where reference is made to manufacturer's directions, instructions, inspections or specifications, they shall include full information on storing, handling, preparing, mixing, installing, erecting, applying, anchoring or other matters concerning the materials pertinent to their use and their relationship to materials with which they are incorporated.

6.1 Documents Required

- .1 Maintain at job site, one copy each of the following:-
 - .1 Contract Drawings/Specifications/Addenda.
 - .2 Copy of Approved Current Work Schedule.
 - .3 Building Permit/Drawings. Construction Record Drawings.
 - .4 Field Instructions and Site Inspection Reports.
 - .5 Notices of Change and Change Orders.
 - .6 Reviewed, Stamped Shop Drawings and Schedule.
 - .7 Independent Inspection and Field Test Reports.
 - .8 Authority Inspection Permits, Reports and Certificates.

7.1 Work Schedule

- .1 Provide to the Project Manager, within ten (10) working days after Contract award, a construction schedule showing anticipated progress stages, sequencing, milestone dates, delivery dates and final completion of Work within time period required by Contract Documents.
- .2 Provide to the Project Manager, prior to the first Project Site Meeting a shop drawing schedule showing the discipline, received date, schedule required date, and status of each shop drawing to be provided.
- .3 Provide updated schedules on a monthly basis to permit the Project Manager to evaluate and communicate to the Owner the status of Work for future Progress Billing purposes.

8.1 Site Meetings/Progress Records

- .1 As specified in Section 01200.
- .2 Reviews of Work Progress, based on the current Work Schedule, will be conducted by the Project Manager and Design-Builder and any necessary corrections to the schedule shall be noted and updated by Design-Builder in conjunction with all subtrades and suppliers to the satisfaction of the Project Manager at least once every thirty (30) working days. Copies of the updated schedule shall be submitted to the Project Manager for their review and comments.

9.1 Approval of Work

- .1 Where reference is made to jurisdictional authorities, it shall mean all authorities who have within their constituted powers the right to enforce the laws of the place of building.
- .2 Where reference is made in these Specifications that Work is to proceed or to meet the approval of jurisdictional authorities, Project Manager or others, such approval shall be in writing.

10.1 Work During Non-Business Hours

- .1 The Design-Builder is cautioned that the Project Manager cannot be committed to site attendance at the site except for normal working hours i.e. Monday to Friday 7:00 am to 6:00 p.m. excluding holidays. All and any Work performed during such times, requiring either the presence of the, Project Manager, Owner or other Authorities, and carried out without their specific written prior approval, shall be performed solely at the Design Builder's responsibility.
- .2 Notify the Project Manager at least ninety-six (96) hours in advance of Work at night (7:00 p.m. to 6:00 a.m.) on weekdays, Saturdays, Sundays and Statutory or declared holidays. Undertake no work during the foregoing times without the Project Manager's written approval.
- .3 The Design-Builder shall be responsible for and pay all costs for the Township of Wainfleet Inspection Fees based on a Cost plus 15% administration fee, which are additional to the inspection fees paid, for all inspections which are carried out on weekdays after 6:00 p.m., Saturdays, Sundays, Statutory or declared holidays.

11.1 Project Co-ordination

- .1 Assume full responsibility for the co-ordination and co-operation of all trades.
- .2 Employ a qualified superintendent who shall:-
 - .1 Be on the site at all times and control all Work throughout.

- .2 Have full authority to act on the Project Manager's instructions.
- .3 Have full knowledge of Construction and this Project in particular.
- .4 Not be changed without prior approval of the Project Manager.

- .3 Co-ordinate use of construction plant and equipment including cranes, hoists, ladders, scaffolds and similar items with the work of the various trades. The cost of such use is subject to whatever arrangement exists between Design-Builder and trades. Include all costs with respect to construction plant and equipment in the Contract Price.

- .4 Co-ordinate all service terminations with appropriate Authorities.

12.1 Workmen Suppliers and Subcontractors

- .1 Assign Work only to workmen, suppliers and Subcontractors who have complete knowledge, not only of the conditions of this Specification, but of jurisdictional requirements, reference standards and specifications.

- .2 Give preference to use of local workmen, suppliers and Subcontractors wherever possible.

13.1 Co-operation and Co-ordination of Subcontractor's Work

- .1 Co-ordinate all construction components in each area and on which subsequent Work depends to facilitate mutual progress, and to prevent conflict between parts of the Work performed by all trades.

- .2 The Design-Builder shall ensure that each of his Subcontractors make known to him, and to other Subcontractors, the environmental and surface conditions required for the execution of the Subcontractor's Work, and the sequence of other's Work required for installation of the Subcontractor's Work.

- .3 The Design-Builder shall ensure that each Subcontractor, before he commences his Work, fully understands the site requirements and conditions preceding and subsequent to his Work, and that each Subcontractor execute his preparatory Work properly as required by the Subcontractors whose Work depends upon it.

- .4 Subcontractors/Suppliers who give installation information in error, or too late to incorporate in the Work, shall be responsible for having any and all Work carried out which was thereby additionally made necessary to correct the situation.

- .5 Remove Work which has been installed in error, incorrectly or substituted without approval and which is unsatisfactory for subsequent Work immediately at no additional expense to the Owner.

.6 The Design-Builder shall ensure that setting drawings, templates, and all other information necessary for the location and installation of materials, holes, sleeves, inserts, anchors, accessories, fastenings, connections, and access panels are provided by

each Subcontractor whose Work requires co-operative location and installation by other Subcontractors.

.7 Schedule delivery of materials, supplied by one Subcontractor to be installed by another, well in advance of commencement of the installation.

14.1 Design-Builder's Use of Site

.1 Do not unreasonably encumber site with materials or equipment. Remove all materials from site as they accumulate daily.

.2 Use of site is limited and restricted to the areas for work and storage as designated by the Project Manager.

.3 Restore, at completion of Work, all adjacent property, surfaces, sidewalks, etc. to original condition of commencement of work to satisfaction of the Project Manager.

15.1 Access to Site

.1 The Design-Builder shall direct and control access and delivery of all construction materials and equipment onto and within the site. He shall provide flagmen and guards as required.

.2 The Design-Builder shall be completely responsible for delivery vehicles, and materials and equipment while they are on the site, and shall pay all costs for their immediate removal or relocation should they impede the access of others.

.3 Access for Fireman and the ongoing operational use of the existing fire station must be maintained. A Hoarding separation shall be erected to maintain function of this facility.

16.1 Parking

.1 Parking shall be allowed only with the prior approval and in authorized areas as agreed to and directed by the Project Manager.

17.1 Access for Equipment

.1 Fitments and other equipment shall be made up in sections of such size as can be easily transported in and through the building to the final location without alteration or damage to the building.

.2 Should it become necessary at any time during the execution of the Work to move materials and/or equipment which have been temporarily placed, when so directed by the, make arrangements with those who are furnishing such materials and equipment to move them or cause them to be moved to a different location as directed without additional charge.

18.1 Setting out of Work

- .1 The Design-Builder shall establish necessary lines, levels, and provide batter boards or other means to control the accurate positioning of all elements of work.
- .2 The Design-Builder shall verify all existing grades, property lines and levels shown on the Drawings.
- .3 Before commencing installation of Work, verify that it is laid out accurately in accordance with intent of Drawings and that position, levels and clearances to adjacent Work are maintained. If Work is installed in wrong location, rectify it before construction continues.
- .4 The Design-Builder shall furnish to the Project Manager, certification from a licensed Ontario Land Surveyor that the Building and other parts of the work are located in accordance with the Contract requirements. Setting out of Work shall be in conformity with the Municipal Setback requirements. The Surveyor's Certification shall represent an independent and disinterested verification of the Design-Builder's layout work. The Surveyor shall promptly verify and certify the lines and levels of any part of the work at any time it may be deemed necessary by the Project Manager. Any deviation from the drawings shall be reported to the Project Manager in writing within twenty-four (24) hours of discovery.

19.1 Examination of Site Before Execution of Work

- .1 Examine site, and ensure that each Subcontractor whose Work is related to site conditions has examined it, so that all are fully informed on all particulars, which affect Work thereon and at the place of building, and in order that construction proceeds competently and expeditiously.
- .2 Examine completed Work, Work in progress, and Work yet to be carried out by others under other Sections of the Specifications.
- .3 Verify dimensions of completed Work in place before fabrication of Work to be incorporated with it.
- .4 Verify that previously executed Work and surfaces are satisfactory for installation or application, or both and that performance of subsequent Work will not be affected. Commencement of Work shall constitute acceptance of site conditions and surfaces as satisfactory.

.5 Report to Project Manager any and all defects in previously completed Work which will affect the scheduling and quality of all subsequent Work.

.6 No allowance will be made for difficulties encountered in the Work which were in existence or could have been anticipated at the time the Work was tendered.

.7 No allowance will be made for difficulties encountered in the Work which are a result of the lack of co-operation/co-ordination on the part of the Design-Builder of any of his Trades or Suppliers.

20.1 Protection of Work Property and Persons

.1 Work shall include necessary methods, materials and construction to ensure that no damage or harm to Work, materials, property and persons results from the Work of this Contract. Temporary facilities relating to protection are specified in Section 01500. Schedule the work so that security and safety is maintained at all times. Access for Fireman and the ongoing operational use of the existing fire station must be maintained. A Hoarding separation shall be erected to maintain function of this facility.

.2 Keep excavations Work free of water at all times. Pump dry as required.

.3 Remove snow and ice immediately from building. Carefully remove snow and ice from all finished roof areas.

.4 Keep surfaces on which finish materials will be applied free from grease, oil and other contamination which would be detrimental in any way to the application of finish materials.

.5 Protect finish surfaces of completed Work from damage by restriction of access or by use of physical means suitable to the material and surface location. Establish with each Subcontractor the suitability of such protection in each case.

.6 Give constant close supervision to roofing following installation, during the time they are temporarily protected or exposed to ensure that no damage occurs to them before completion of building. Provide protection especially against damage from traffic or Work performed on top of completed roofing when temperature is over 80°F.

.7 Locate, identify and protect existing services from damages. If necessary, relocate active services to ensure that they function continuously in safety and without risk of damage. Any damage caused to existing services and/or property shall be made good at the Design-Builder's expense.

.8 Do not damage landscaped areas by piling of surplus soil over them, by dumping of debris over them or compacting the soil within the drip line of the trees/shrubs.

.9 Special precautions to be taken to protect all existing planting on the site. Do not

damage or cut root systems of existing trees; stockpile any surplus material over them or use trees for anchorage. Remove only those trees or shrubs which are designated to be removed and/or replanted. Protect, and if damaged make good, adjacent property.

.10 Assume full responsibility for the provision of all protection against rain, wind, snow, ice, storms, frost, heat and vandalism so as to maintain work area free from injury or damage.

- .11 Cease work and notify the Project Manager if low temperatures make it impossible to continue operations safely in spite of cold weather precautions.
- .12 Notify the Project Manager should the job be closed down for any reason and assume full responsibility, for providing adequate protection, security, etc. during the shutdown.
- .13 The Design-Builder is cautioned to use appropriate demolition methods in order to fully protect all existing structure. Do not carry out any work in a manner that will endanger any structural members, services.
- .14 Take all necessary precautions to protect the occupants, the public, passersby and adjoining property against flying dust and debris.

21.1 Fire Prevention and Safety

- .1 The Design-Builder shall enforce fire protection methods of good housekeeping, and adherence to local and underwriter's fire regulations. Provide ULC approved fire extinguishers, and other firefighting services and equipment except where more explicit requirements are specified as the responsibility of individual Subcontractors.
- .2 Maintain clear emergency exit paths for personnel at all times.
- .3 Use only fire resistant tarpaulins and similar protective covering on site.
- .4 Ensure that each Subcontractor stores his volatile waste in approved closed containers and removes them from premises daily.

22.1 Public Protection

- .1 When necessary, the Design-Builder must post a flagman who will be responsible for safety and direction of pedestrian traffic past the site.
- .2 Maintain existing exiting routes and access from the existing premises.

23.1 Provisions for Traffic

- .1 Particular effort shall be applied to the safety of pedestrian flow past the site. Any activity which has potential for interference with pedestrian flow shall first be approved by the Project Manager. Provide temporary guide barriers, signage and flagmen as required for safe and efficient control of pedestrian flow.

24.1 Mud Tracking

- .1 The Design-Builder shall take all steps necessary to prevent the tracking of mud beyond the site and assume all responsibilities for the tracking of mud, dirt and debris resulting from his operations, beyond the site and shall pay all costs necessary for the

clean-up resulting from this operation.

25.1 Dust Control

- .1 The Design-Builder shall take such steps as may be required to prevent dust nuisance resulting from his operations from spreading beyond the site.
- .2 Where the work requires the sawing of asphalt or the sawing or grinding of concrete, blades and grinders of the wet type shall be used together with sufficient water to prevent the incidence of dust. The cost of all such preventative measures shall be borne by the Design-Builder.

26.1 Security

- .1 The Design-Builder shall provide secure, solid closures to any opening which will not be able to be closed in with the new construction due to any circumstances which may arise.
- .2 Ensure that the site security is operating at all times construction is proceeding and that the temporary site enclosure is secured at the end of each days work.

27.1 Salvage and Disposal

- .1 Items of antiquity, including coin, art, anthropology, etc. which are on the site at the time of signing of Contract, which are uncovered or unearthed during the construction, shall remain the property of the Owner and shall be turned over to him immediately and without prejudice.
- .2 Unless otherwise specified, salvaged material which will not to be reused within the new construction, surplus materials and construction debris shall become property of Design-Builder. The Design-Builder shall pay all associated costs and arrange for the safe removal and disposal away from site.

28.1 Loading of Building

- .1 No one shall store materials in building or utilize it for construction purposes in any manner which would exceed design loading on any building element.
- .2 Temporarily support or strengthen parts of the structure subjected to excessive loads during construction.
- .3 Place loads on concrete slabs and members only after they have cured as required by this Specification and when approved by the Project Manager.

29.1 Location of Apparatus

- .1 The location of apparatus, fixtures, outlets, etc., shown or specified shall be considered

as only approximate. The actual locations shall be as directed and as required to suit the conditions at the time of installation. Before installation the Design-Builder shall notify the Project Manager and ascertain the actual desired final location required. The Project Manager shall have the right to change these locations without change to the Contract Sum providing the distance moved does not exceed 3000 mm (10'-0") and the information is given before the installation is made.

30.1 Fastenings

- .1 Work of each Subcontractor shall include necessary fastenings, anchors, inserts, attachment accessories and adhesives. Where installation part of Work of other Subcontractor, locate devices and co-operate with them as required.
- .2 Do not use fastenings which cause spalling or cracking of materials in which installed.
- .3 Install metal-to-metal fastenings fabricated of the same metal, or of a metal which will not set up electrolytic action causing damage to fastenings or components, or both, under moist conditions. Use only non-corrosive, galvanized steel or stainless steel fastenings.
- .4 Install Work with fastenings or adhesives in sufficient quantity to provide permanent secure anchorage of materials, constructions, components and equipment. Space anchors within limits of load-bearing or shear capacity.
- .5 Space exposed fastenings evenly and in an organized pattern. Keep number to a minimum. For exposed fastenings use metal of same material, texture, colour and finish as metal on which they occur.

31.1 Concealment of Pipes Ducts and Wiring

- .1 Conceal all pipes, ducts and wiring in floor, wall and ceiling construction of finished areas wherever possible. If any doubt arises as to the means of concealment, or the intention of the Contract Documents in this connection, request clarification from the Project Manager before proceeding with that portion of the Work.
- .2 Where necessary, mechanical and electrical Work shall be laid out well in advance of concrete pouring and furring erection so that provision may be made for proper concealment. All such Work shall be tested, inspected and pipe covering applied where applicable before being concealed.

32.1 Cutting Fitting Patching and Replacement

.1 Before cutting, drilling or sleeving of any structural load-bearing elements within the project, obtain the Project Manager's approval. Do not endanger Work or property by cutting, digging or similar activities. Do not cut or alter the Work of others unless approved by the Project Manager or Sub-Contractor whose Work is being altered.

.2 Cutting, drilling, sleeving and patching of Work shall be done by the Subcontractor whose trade Section corresponds to the Work requiring cutting, and where located by Subcontractor who requires the Work performed for his installations; all under the direct supervision of the Design-Builder.

.3 Replacement of damaged Work shall be done by the Subcontractor whose trade Section corresponds to the Work requiring patching or replacement, at the expense of the Subcontractor who causes the damage. Cut and drill with true smooth edges, and to minimal, suitable tolerances.

.4 Patching of damaged Work shall be done by the Design-Builder and it shall be his responsibility to ensure the remedial Work is carried out expeditiously, and at no expense to the Owner and to the satisfaction of the Project Manager. Make patches invisible in final assembly.

.5 Fit construction tightly to ducts, pipes and conduits to stop air movement completely. The Subcontractor whose Work penetrates an element of the building shall ensure that no movement will affect his Work, the joint is sealed and is the element is a fire separation he shall be responsible for maintaining the separation in an approved manner.

33.1 Existing Services

.1 Where Work involves capping/cutting or relocation of existing services, carry out work at times directed by governing authorities.

.2 Before commencing Work, establish location and extent of service lines in area of Work and notify the Project Manager of findings.

.3 Submit schedule to and obtain approval from the Project Manager and Owner and for any shutdown or closure of active service or facility. Adhere to approved schedule and provide notice to affected parties.

.4 Where unknown services are encountered, immediately advise Project Manager and confirm findings in writing.

.5 Record location of all new, capped or abandoned site services accurately on "Construction Record Drawings".

.6 All rough-in to point of equipment connection is to be carried out by the Mechanical

and Electrical Contractors as part of the General Contract for the Work. This Contractor shall be responsible for setting of the equipment in place and ensuring that all electrical and mechanical connections to this equipment is carried out correctly and as required by the equipment manufacturer.

.7 Final connection to equipment will be carried out under the Work of the General Contract for the Building Alteration and Addition.

- .8 Do not interrupt existing services except as approved by the Project Manager. Give the Project Manager or governing authority seven (7) days clear notice of intention to interrupt existing services.
- .9 In the event existing services are uncovered or disrupted accidentally, make complete restoration on a priority basis and provide adequate protection to avoid further disruption until diversion or alternative arrangements are made.

34.1 Drainage

- .1 The Design-Builder shall ensure that positive drainage is provided to gravel and concrete walkways and asphalt paving, as set in their final positions. Provide constant slopes for drained surfaces to drains and drainage courses.
- .2 Provide temporary grading as required to give positive drainage away from building to prevent water damage during the course of construction.
- .3 Verify the extent of each area served by a drain, or drainage course, to eliminate possible undrained surfaces. Co-ordinate the Work of involved Subcontractors before each proceeds.

35.1 Cleaning

- .1 Each Subcontractor shall clean and remove from his finished Work all stains, soiling, markings, labels, scratches, spatters, droppings, and debris. He shall leave his Work and adjacent finished Work in new condition.
- .2 Ensure that only cleaning materials are used which are recommended for the purpose by both the manufacturer of the surface to be cleaned and of the cleaning material.
- .3 No debris, waste or excess material shall be burned or buried at site. Ensure that volatile fluid wastes are not disposed of in storm or sanitary sewers or in open drain courses. Do not allow waste material and debris to accumulate in an unsightly or hazardous manner. Provide containers in which to collect waste material and debris. Sprinkle dusty accumulations with water.
- .4 Ensure that cleaning operations are scheduled to prevent dust or other foreign matter affecting surfaces which are wet or tacky.

.5 Each Subcontractor shall supply the Design-Builder with instructions for final cleaning of his Work, and for inclusion in Project Data Book as more exactly specified in each trade Section and in Section 01300.

.6 Ensure that cleanup is carried out daily to provide a neat, orderly and safe site for all personnel working on the site.

- .7 The final project cleanup and cleaning of all components shall be carried out by the Design-Builder in accordance with Section 01700 - Project Closeout.

END OF SECTION 01005

1.1 General Conditions

- .1 Work specified, shown on the Drawings or referred to in the Contract Documents, is governed by the General Conditions and Supplementary General Conditions.
- .2 The Owner supplied equipment and items of Work, noted in these specifications shall be incorporated into the Work of this Contract. This Contractor shall be responsible for, as part of his contract, the co-ordination of rough-in and completion of these items of Work as they affect his Contract and scheduling. The Owner shall be responsible for approvals, payment and delivery of this portion of the Work and shall notify the Design-Builder of any changes in status which may affect his scheduling for the entire project.

2.1 Work Performed by Owner

- .1 Topographic and legal survey.
- .2 Geotechnical Investigation and Report.
- .3 Furniture including desks, tables and chairs for office(s) and training room.
- .4 Drapes and blinds including drapery track accessories supplied and installed by the Owner. The Design-Builder shall provide all necessary blocking and anchorage.
- .5 Telephone system and equipment, wiring and connection supplied and installed by the contractor under the Cash Allowance. The Design-Builder shall provide all rough-in co-ordination, empty conduit, junction boxes, and outlets c/w fishwire as specified under Division 16.
- .6 Alarm system equipment, wiring and connection supplied and installed by the Contractor under the Cash Allowance. The Design-Builder shall provide all rough-in co-ordination, empty conduit, junction boxes, and outlets c/w fishwire as specified under Division 16.
- .7 Clocks are supplied by the Owner. The Design-Builder shall provide all conduit, wiring, outlet boxes and installation.
- .8 Microwave, dishwasher and refrigerator and stove in kitchen are supplied by Owner. The Design-Builder shall provide all conduit, wiring, outlet boxes and installation.

3.1 Work Performed by Others

- .1 Installation of furniture.

1.1 Generally

- .1 Cash allowances and the Construction Contingency Allowance specified shall be carried, administered and co-ordinated by the Design-Builder as part of the Work of this Contract.
- .2 Include the Design-Builder's charges for overhead and profit, on account of all Cash Allowances and Construction Contingency Allowance as specified, in the Contract Price in accordance with the General Conditions of the Stipulated Price Contract. Article GC 4.1 Cash Allowances and Article GC 4.2 Contingency Allowance.
- .3 Include with each expenditure from the appropriate Allowances all applicable taxes as specified in the General Conditions of the Stipulated Price Contract, Article GC 10.1 - Taxes and Duties. HST is extra to the amounts carried for this work.
- .4 List all Allowances separately on each and every billing and expend Allowances only on the Project Manager's agreement and written instructions.
- .5 Credit the Owner with unused portion of all Allowances in statement of reconciliation prior to the final billing for the project. The Project Manager will issue a final Change Order to cover this payment.
- .6 The Contingencies and Allowance are listed below.

2.1 Cash Allowances

- .1 **For Inspection and all Testing Services for Concrete and Masonry, Earthworks, Metal, Roofing, Insulation, Sound System, Training Aids, Security, and all Signage.**

A Cash Allowance of Thirty Five Thousand Five Hundred Dollars (\$35,500)

END OF SECTION 01050

1.1 Administrative Documentation

- .1 The Design-Builder shall be responsible for arranging, collecting, compiling and maintaining on the site all current documents, reports, minutes and affidavits etc. as specified and required by the Project Manager and jurisdictional authorities for their review and use.

2.1 Preconstruction Meeting

- .1 Immediately after award of Contract attend a meeting, arranged by the Project Manager, with the Owner, Sub-consultants, Design-Builder, Mechanical and Electrical Subcontractors to document the responsibilities and necessary activities of the Design-Builder, Subcontractor and Suppliers during construction, establish procedures for co-operation and co-ordination of all participants during construction and to set forth the lines of communication for all correspondence for the Project.

3.1 Project Site Meetings

- .1 Arrange for the Project Manager, Design-Builder, Owner and Subcontractors to attend Project Site Meetings to discuss project scheduling, document interpretation and contemplated revisions to the project.
- .2 Provide physical space and make arrangements for bi-weekly Project Site Meetings at times and dates mutually agreed to with the Project Manager, Sub-consultants and Owner.
- .3 The Design-Builder shall record all minutes of meetings and distribute to all parties involved.
- .4 Arrange for Sub-Contractors representatives to attend the site meetings approximately one (1) hour after the Project Site Meeting to discuss specific items of Work which require the interpretation or clarification of the documents with the Project Manager and Design-Builder. Provide a proposed agenda listing information, problems and concerns requiring resolution with the Project Manager and/or Sub-consultants.

4.1 Site Progress Records

- .1 Maintain on the site a permanent record, in a format acceptable to the Project Manager, of the progress of construction, site conditions, inspections and schedule of the Work. The record shall include:-
 - .1 Commencement and completion dates of each trades Work.
 - .2 Daily weather conditions
 - .3 Scheduling, inspections and approvals
 - .4 Status of materials, deliveries etc.
 - .5 Site conditions encountered.

5.1 Construction Schedule

- .1 The Design-Builder shall be responsible for maintaining the completion date as set out in Construction Schedule prepared, submitted and approved and shall advise the Project Manager immediately if any changes to deliveries or conditions will cause delays which would affect the completion date.
- .2 The Design-Builder shall review the current Project Schedule with all Subcontractors and Suppliers and note any variances which have occurred since the last meeting which may affect the scheduled completion of the project.
- .3 The Design-Builder shall correct, revise, update and otherwise maintain the schedule during progress of construction. Provide a revised and updated schedule to the Project Manager, Owner, and Subcontractors.

END OF SECTION 01200

1.1 **Generally**

- .1 The Design-Builder shall be responsible for preparing, for the first project site meeting, a schedule of all requested and required submittals listing all shop drawings, samples, reports, manuals, drawings intended for submission to the Project Manager.
- .2 The Design-Builder shall co-ordinate and distribute all submissions, to the Project Manager as well as Subtrades and suppliers, to ensure that the flow of documents is performed in a timely manner to maintain the construction schedule.
- .3 All submittals specified and requested in all Sections of these Specifications shall be made by the Design-Builder, directly to the Project Manager. Submit copies to the Sub-Consultants and jurisdictional authorities only on the instructions or in agreement with the Project Manager.
- .4 Submissions containing substitutions or alternates will be returned immediately by the Project Manager or Sub-Consultants.

1.2 **Construction Schedules**

- .1 Submit in accordance with Section 01005.

1.3 **Shop Drawings**

- .1 The Design-Builder's consultants shall review, stamp and return the digital copy of all shop drawings marked "**No Comments**", "**Comments as Noted**" or "**Revise and Resubmit**". A copy of all shop drawings marked "**No Comments or Comments as Noted**" shall be retained at the site for the Project Manager, Consultants and trades to review. Only drawings stamped "**Revise and Resubmit**" need be resubmitted. The Design-Builder shall be responsible for printing the reviewed shop drawings.
- .2 Submit to the Project Manager one (1) digital (PDF) approved copy of all shop drawings for the items of Work noted throughout this Specification, and in accordance with GC 3.11 of the Agreement as part of the as-built delivery package.
- .3 Submit shop drawings for signs, hoardings, fences, barricades, shoring and bracing, hoists, temporary supports, enclosures, stairs and similar Work specified in Division 1 when requested by the Project Manager or jurisdictional authorities in accordance with their requirements.
- .4 **The Design-Builder shall check, stamp, sign and make notations he considers necessary on shop drawings before each submission. Shop drawings not checked and signed will be returned without review.**

- .5 Do not proceed with Work dependent on shop drawing information until Project Manager's and Design-Builder's review is finalized. Shop drawings marked, "No Comments" shall not relieve the Design-Builder of his responsibility for execution of Work in accordance with Contract Documents.
- .6 The following information shall be shown on shop drawings:-
- title, project name, date, scale, manufacturer, fabricator and installer.
 - materials, finishes, fabrication and erection dimensions.
 - clear and obvious deviations or proposed changes from drawings or specifications.
- project specific details to indicate construction arrangement of parts, connections, anchorage, fastener type, and interconnections with other Work.
- mechanical and electrical requirements and characteristics when applicable.
 - information to verify that superimposed loads will not affect function, appearance and safety of this or related Work.
 - assumed design loadings, material specifications for load-bearing members.
 - dimensions and dimensioned locations of proposed chases, sleeves, cuts and holes in structural members.
 - Engineer's seals, calculations and notations as required.
- .7 Fabricate Work exactly as shown on shop drawings. If shop practice dictates revisions, revise drawings and resubmit.

1.4 Samples and Mock-Ups

- .1 Submit to Project Manager samples and mock-ups for the materials noted throughout these specifications and in accordance with GC 3.11 of the Agreement.
- .2 Samples labelled to show title, project, Design-Builder, Manufacturer and date. Submit samples of adequate size to show the colour, texture, thickness, shape, jointing, fastening and otherwise represent the material in its intended use on this specific Project. Submit the manufacturers complete range of samples unless the Project Manager has selected one (1) or more specific types to be used.
- .3 The Materials used on this Project shall match approved samples in all aspects including quality, colour, texture and finish. Materials installed without approval of samples shall be removed and replaced at the Design-Builder's expense.

1.5 Affidavits

- .1 Submit to the Project Manager affidavits, in duplicate signed and notarized by a responsible officer of the certifying company for the specified products noted in other Sections of the Specification.

1.6 Guarantees and Warranties

- .1 Provide the extended guarantees as specified in each applicable Section of this Specification.
- .2 Extended guarantees shall commence on termination of the standard one year guarantee granted in this Contract as specified in Article GC 12.3 - Warranty of the General Conditions, and shall be an extension of these same provisions.
- .3 Each extended guarantee shall be submitted in a format, identical to the other and as approved by Project Manager.
- .4 In addition to the normal one year guarantee as required by the contract, submit written guarantee to include all extended guarantee items with application for Final Certificate of Payment.

Section 07461	Cementitious Surfacing System	5 years
Section 07510	Insulated Built-up Bituminous Roofing	10 years
Section 07600	Sheet Metal Flashing and Trim	2 years
Section 07900	Sealants	3 years
Section 08300	Special Doors	3 years
Section 08400	Aluminum Doors, Frames & Windows	3 years
Section 08710	Finish Hardware	2 years and 10 years
Section 08800	Glazing	3 years

1.7 Maintenance Manual and Operating Instructions

- .1 Submit Maintenance Manuals to the Project Manager at completion of Project prior to application for Certificate of Substantial Performance. Maintenance Manual shall consist of shop drawings, extended guarantees and Project Data Book.
- .2 The Project Data Book shall consist of a hard-cover, black, vinyl-covered, loose-leaf, 215 x 280 mm (8½" x 11") binder

- have a title sheet, or sheets preceding data on which shall be recorded Project name, date, list of contents and Contractor's and Subcontractors' names
- be organized into applicable Sections of Work with each section separation by hard paper dividers with plastic covered tabs marked by Section
- contain only typed or printed information and notes, and neatly drafted drawings
- contain Warranties/Guarantees including extended Warranties/Guarantees with the names, addresses and phone numbers for servicing.
- contain maintenance and operating instructions on all building, and mechanical and electrical equipment
- contain maintenance instructions as specified in various Sections
- contain brochures and parts listed on all equipment sources of supply for all proprietary products used in the Work
- contain lists of supply sources for maintenance of all equipment in Project of which more detailed information is not included above
- contain finished hardware schedule
- contain charts, diagrams and reports specified in Divisions 15 and 16.
- contain one (1) copy of final reviewed, stamped and signed shop drawing issued for Project, on which have been recorded changes made during fabrication and installation caused by unforeseen conditions.

1.8 Extra Stock

- .1 Supply extra stock at completion of Project as specified in other Sections of this Specification but not less than the following:
 - 4 litres of each paint column,
 - Flooring – 5% of total stock,
 - Ceiling tiles – 5% of total stock,
 - Cladding (brick/siding) – 5% of total stock.

1.9 Inspection Laboratory Reports

- .1 Submit reports in duplicate unless specified otherwise, signed by a responsible officer of the inspection and testing laboratory, for the items as specified in other Sections of the Specifications in Articles entitled, "Source Quality Control" and "Field Quality Control".

1.10 Application for Payment

- .1 Applications for Payment must be accompanied by:
 - .1 The Design-Builder's Statement of Payment.
 - .2 Progress Draw showing a schedule of values of various trades and for various parts of the work in a format acceptable to the Project Manager.
 - .3 A Statutory Declaration, duly signed by the Design-Builder and all Subcontractors, stating that all Subcontractors and suppliers have been paid to date and that there are no liens outstanding or filed.

- .4 Letter of Good Standing from Workplace Safety and Insurance

Board. **1.11 Construction Record Drawings:**

.1 The Design-Builder will be provided with two sets of prints to be used as
Record

Drawings on which he shall mark clearly "IN RED, IN A NEAT AND LEGIBLE MANNER", all deviations from the Contract Documents in the Work as constructed, caused by site conditions and including Project Manager originated changes, Design-Builder /Sub-Contractor originated changes, Site Instructions, Supplementary Instructions, Addenda, instructions by correspondence and Jurisdiction authority approvals. Carefully record location of concealed elements which are required for maintenance, alteration work, and building additions, including elements of foundation, horizontal and vertical location of utilities and appurtenances, location of internal utilities concealed in construction, and all field changes of dimension and detail. Eradicate all obsolete information.

.2 The Design-Builder shall provide, at completion of each building, a full set of Construction Record drawings. This includes 3 full size paper copies, one digital AutoCAD copy and one digital PDF copy (stamped) delivered on memory stick or compact disc.

.3 Maintain record drawings in good condition, available at all times for inspection

by

Project Manager's site representatives, and do not use for construction purposes.

END OF SECTION 01300

1.1 General Requirements

- .1 Division 1, General Requirements, is a part of this Section and shall apply as if repeated here.

2.1 Inspection

- .1 The materials furnished by the Design-Builder shall be inspected by the Design-Builder and Inspection/Testing Agency at the source, time of delivery and at such other times as requested by the Project Manager.
- .2 The review of the information covering materials and equipment by the Design-Builder shall in no way release the Design-Builder or Inspection/Testing Agency from his responsibility for the proper design, installation and performance of any material, equipment or arrangement or from the liability to replace same should it prove defective or deficient.

3.1 Inspections by Owner

- .1 The Owner shall pay all costs associated with the testing/inspections carried out by their own forces.
- .2 The Design-Builder shall ensure that the testing/ inspection is carried out in conformance with these specifications including samples, reporting, etc.

4.1 Independent Inspection Agencies

- .1 Independent Inspection/Testing Agencies will be engaged by the Design-Builder, paid under the applicable cash allowance for the purpose of inspecting and/or testing portions of Work as outlined in the specifications.
- .2 Cost of such services for each portion of the Work noted, shall be paid for by the Design-Builder as part of the Cash Allowance specified under Section 01050. Do not expend such allowances without approval of Project Manager.
- .3 The Design-Builder shall ensure that the inspection/testing is carried out in conformance with these specifications, including sampling and reports.
- .4 Equipment required for executing inspection and testing by the appointed agencies shall be provided by them for their specific use.
- .5 Employment of Inspection/Testing Agencies does not relax the responsibility of the Design-Builder to perform the Work in accordance with the Contract Documents.
- .6 If defects are revealed during inspection and/or testing, the appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defects and irregularities as advised by the Project Manager at no cost to the Owner.

- .7 Allow Inspection/Testing Agencies access to the Work, offsite manufacturing and fabrication plants. Co-operate to provide reasonable facilities for such access.

5.1 Procedures

- .1 Prepare schedule of testing to be given to testing company. Notify the appropriate agency and Project Manager a minimum of two (2) working days in advance of the requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in the Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient to store and cure test samples.

6.1 Rejected Work

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

7.1 Reports

- .1 Reports shall contain the following information:
 - .1 Date and time of inspection or test.
 - .2 Weather conditions and ambient air temperatures during the inspection.
 - .3 Testing method employed by proper standard reference and specific paragraph or other detailed information as applicable.
 - .4 Inspection description and details and other relevant information.
 - .5 Test results in detail, complete with applicable graphs and other clarifying documents and information.
 - .6 Printed name and signature of person having conducted inspection or test, and name, title and signature of Supervisor having verified the report.
- .2 Inspection and Testing Agency shall provide written report for each inspection and test

made, one (1) copy to the Project Manager; two (2) copies to the Design-Builder direct, who shall forward one (1) copy to the Sub-Contractor, supplier or manufacturer concerned and two (2) copies for the data books.

8.1 Tests and Mix Designs

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

END OF SECTION 01400

1.1 General Requirements

- .1 Work shall include temporary facilities and controls required as construction aids or by jurisdictional authorities or as otherwise specified. Install to meet needs of construction as Work progresses. Maintain during use, remove at completion of need and make good adjacent Work and property affected by their installation.
- .2 Work shall include fixed or portable structures as shown and as required for storage, offices, washrooms, etc. as required for safety, security and to meet the needs of the construction project and the Owner as otherwise specified.
- .3 Temporary facilities shall include provisions for construction safety as required by the Construction Safety Act, 1961-62 amended 1962-63 and 1965; and O.R. 269/69 as amended by O.R. 293/70 and 270/71; and O.R. 213/91 as amended by O.R. 96/11 of the Province of Ontario, as well as all other applicable regulations of jurisdictional authorities.
- .4 Construct temporary Work of new materials unless use of second-hand materials is approved by the Project Manager.
- .5 Ensure that structural, mechanical and electrical characteristics of temporary facilities are suitable and adequate for use intended. Be responsible that no harm is caused to persons and property by failure of temporary facilities because of placing, location, stability, protection, structural sufficiency, removal or any other cause.
- .6 Prepare shop drawings and specifications of temporary Work, and submit for approval if required by jurisdictional authorities and to the Project Manager in accordance with Section 01300.
- .7 Pay all costs for any and all temporary facilities and controls including, but not limited to, permits, transportation, set-up, maintenance and leases.

2.1 Construction Aids

- .1 Erect scaffolding independent of building walls, and remove promptly when no longer required. Do not allow scaffolds to interfere with continuing "Work".
- .2 Each user of scaffolding which is not his own shall be responsible for its examination and testing before using it. He shall make it secure if necessary, or shall notify the Contractor in writing that he will not commence Work until it is made secure; otherwise he will be held responsible for accidents and acceptance of the scaffolding.
- .3 Work shall include temporary enclosure for building as required to protect it, in its entirety or in its parts, against the elements, to maintain environmental conditions required for Work within the enclosure, and to prevent damage to materials stored within. Design enclosures to withstand wind pressures required for the building by jurisdictional authorities. Use structural framing of building for support of temporary

enclosure framing only upon verification that the load limits of the building frame will not be exceeded, and upon approval of the Project Manager. Keep surfaces of enclosures free of snow and ice to avoid overloading of building structure. Erect enclosures to allow complete accessibility for installation of materials during the time enclosures remain in place.

3.1 Protective Fences Devices Barricades

- .1 Install temporary constructions to ensure protection to the public, premises and all personnel as specified other Sections of this Specification and the General Conditions of the Contract.
- .2 Protect roofs by substantial temporary construction to ensure that no damage occurs. Protection shall be provided by materials of sufficient thickness, positively secured to prevent all damage to structure and finish, and to waterproofing qualities of membranes whenever each of these individual components are exposed. Damage shall include harm resulting from all construction Work, such as falling objects, wheel and foot traffic, failure to remove debris, or scaffolding and hoisting operations.
- .3 Work shall include barricades for traffic control, and to prevent damaging traffic over finished areas, sidewalk and curb protection, as well as safety barricades, hoardings and otherwise as may be required.
- .4 **Erect protective enclosures around all trees and planting material noted to remain. Verify all items to be protected with the Project Manager prior to commencement of work.**

4.1 Security

- .1 Maintain security of construction site by control of access through enclosing fences during times Work is in progress, and by locking hardware otherwise.
- .2 Maintain security at all times construction is shut down because of a strike or a lockout, or for whatever reason the project is unoccupied.
- .3 Maintain security and construction of site in accordance with Section 01005.

5.1 Field Office

- .1 Erect a secure weathertight insulated temporary office for the Project Manager's and Design-Builder's use. It shall contain facilities as required for Design-Builder, a Conference table and chairs for site meetings, and facilities for the Project Manager.
- .2 Heat and light the office to minimum code requirements for office buildings.
- .3 Maintain and pay for telephone and internet service at the site available to Contractors and the Project Manager during entire construction.

- .4 Provide separate office with desk, drawing board, telephone, heat and lights for the Project Manager's use. Cost for telephone to be paid from the Cash Allowance allotted in Section 01050.

6.1 Storage Sheds

- .1 Provide secure weathertight sheds in which to store construction materials that require protection from the elements. Include construction and operating hardware, with security locks, as required.
- .2 Provide lighting and heat in those storage areas containing materials to protect them from freezing or cold temperatures.
- .3 Storage for painters' materials and tools shall be separated from other storage areas.
- .4 Locate all sheds where approved by the Project Manager/Owner.

7.1 Temporary Water Electricity Heat Lighting

- .1 The Design-Builder shall be responsible for and shall assume the cost for provision of water, electricity, heat and lighting required for construction of the facilities, for the duration of the project.
- .2 The Design-Builder shall supply electric power for all construction purposes. Make connections available to any part of the Work within distance of a 30m extension. Provide power at temporary storage sheds and field office.
- .3 Make connections for electric power for construction purposes (not heating or welding) at only the main switchboard, after it is installed. Feed from a separate sub-feed switch.
- .4 Temporary electric service shall include distribution conductors and necessary components. Provide a power centre for miscellaneous tools and equipment with weatherproof distribution box, a minimum of four 20 Amp grounded outlets, and circuit breaker protection for each outlet.
- .5 The Design-Builder shall heat building during construction to maintain temperature for working surface, and during conditions required by all specified materials. Use only heating methods approved by the Project Manager and jurisdictional authorities. Salamanders will not be permitted.
- .6 **Provide lighting for:**
 - emergency evacuation, safety and security throughout the Project at intensity levels required for jurisdictional authorities
 - performance of Work throughout areas as required, evenly distributed, and at intensities to ensure that proper installations and applications are achieved

performance of finishing Work in areas as required, evenly distributed and of an intensity of at least 15 foot candles.

.7 Use of Permanent Heating Systems by Contractors:

- .1 If permission is granted by the Project Manager, Owner and Sub-Consultants to use the permanent heating system for temporary heating, the following conditions must be rigidly adhered to:

Entire heating system and its controls must be 100% completed.
Filters shall be inspected daily and replaced weekly. All open ended ducts to be capped with filter cloth.

- .2 Upon termination of the temporary heating period and prior to acceptance by the Owner, the Contractor shall:

Replace all filters. Vacuum all ducts, coils, etc.
Open-up, clean and inspect all equipment. This must be done in the presence of the Owner's representative.
Provide the Owner with letter from each manufacturer of all the equipment used stating that their respective equipment is in A-1 condition at the date of acceptance by the Owner.
All guarantees will commence on the date of the Owner's acceptance.

- .8 Make arrangements for connections to water, septic, gas, electric and telephone utilities as required for temporary use during construction. Pay connection and disconnection charges, and for use of services required by construction.

8.1 Dust Control

- .1 Prevent spread of dust beyond the construction site by wetting or by other means approved by the Project Manager.

9.1 Project Identification

- .1 Work shall include Project sign painted by a professional sign painter on overlaid plywood, framed and mounted on braced posts. Only Owner's, Project, Design-Builder's and Sub-Consultant's and Contractor's names shall appear on sign. Submit shop drawings for approval. Size of sign shall be 2400mm x 2400mm (8' x 8') approximately.
- .2 Erect sign in location as directed by the Project Manager. Project sign to be detailed later.
- .3 Only specified Project sign and notices regarding safety, caution or instructions shall be placed on or near site.

END OF SECTION 01500

1.1 Construction Safety Measures

- .1 Observe and enforce construction safety measures required by National Building Code latest edition, Provincial Government, Workplace Safety and Insurance Board and municipal statutes and authorities.
- .2 In event of conflict between any provisions of above authorities, the most stringent provision governs.

2.1 Fire Protection

- .1 Eliminate fire hazards and prevent damage to work, materials, equipment and other property, both public and private.
- .2 Provide and maintain in working order, adequate temporary Underwriters' labelled fire extinguishers and locate in prominent positions, to the approval of authorities having jurisdiction.

3.1 First Aid

- .1 Provide and maintain on the site in a clean, orderly condition, completely equipped first aid facilities which shall be readily accessible at all times to all employees.
- .2 Designate certain employees who are properly instructed to be in charge of first aid. At least one such employee shall always be available on the site while work is being carried on.
- .3 A telephone call list for summoning aid, such as doctors, ambulances, Pulmotors, and rescue squads from outside sources shall be conspicuously posted.

4.1 Overloading

- .1 Ensure no part of Work is subjected to a load which will endanger its safety or will cause deformation.

5.1 Falsework

- .1 Design and construct falsework in accordance with CSA S269.1-16 or latest edition.

6.1 Scaffolding

- .1 Design and construct scaffolding in accordance with CSA Z797-09 (R2014) or latest edition.

7.1 Cranes/Hoisting Equipment

- .1 Do not commence any hoisting/erection on site without prior approval of the Project Manager.

- .2 Prepare a schedule of operations when such equipment is to be employed and submit for approval.

8.1 Disposal of Wastes

- .1 Do not bury rubbish and waste materials on site.
- .2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.
- .3 Fires and burning of rubbish on the site shall not be permitted.

9.1 Siltation Control

- .1 Erect siltation control fences were noted on drawings to protect existing drainage channels.

10.1 Drainage

- .1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
- .2 Do not pump water containing suspended materials into waterways, sewer or discharge systems.
- .3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

11.1 Pollution Control

- .1 Control emissions from equipment and plant to local authorities emission requirements.
- .2 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

12.1 Toxic and Hazardous Waste

- .1 Prior to commencement of Work, ensure that all reasonable precautions have been taken to determine if toxic or hazardous substances are present on the site.
- .2 Address unforeseen conditions expeditiously and report to the Project Manager, jurisdiction having authority, immediately, any conditions found on the site.
- .3 Do not bury any waste material on the site which could be deemed to be considered toxic or hazardous.

END OF SECTION 01510

1.1 General

- .1 Reference to material and equipment includes all products to be incorporated into the Work as specified in these Specifications, and which may otherwise referred to as materials, equipment, components and similar terms or more broadly as products. Obtain specified products from suppliers in the same locality as the Project insofar as possible without prejudice to the scheduling of the project.
- .2 Products for use in the Project and on which the proposal call was based shall be in production at that time, with a precise model and shop drawings available for viewing.
- .3 Where equivalent products are specified, or where alternatives are proposed, these products claimed by the Design-Builder as equivalent shall be listed on the form of proposal and be comparable in construction, type, function, quality, performance and appearance, as determined by the Project Manager. Where specified equivalents noted in the base tendered price, are accepted for incorporation into the Work, they shall be subject to final approval by the Project Manager for suitability on this project.
- .4 Products delivered to the Project site for incorporation into the Work, shall be considered the property of the Owner and shall not be removed from the site without written authorization from the Owner.
- .5 Do not install permanently incorporated labels, trademarks and nameplates in visible locations unless required for operating instructions or by jurisdictional authorities.

2.1 Specified Products

- .1 Products specified by manufacturer's name, brand name or catalogue reference shall be the basis of the bid and shall be supplied for the Work **without exception in any detail, subject to allowable substitution as specified.** Where several proprietary products are specified, any one of the several shall be acceptable.
- .2 For products specified by reference standards, the onus shall be on the supplier to establish that such products meet reference standard requirements. The Project Manager may require affidavits from the supplier, as specified, to prove compliance. Products exceeding minimum requirements established by reference standards will be accepted for the Work if such products are compatible with and harmless to Work with which they are incorporated.

3.1 Approval of Products

- .1 Wherever in this Specification it is specified that products shall meet approval of jurisdictional authorities, Underwriters, Consultants or others, such approval shall be in writing.

4.1 Substitution of Products During Progress of Work

- .1 No substitution for products shall be permitted. If the specified product cannot be delivered to maintain construction schedule and if the delay is caused by conditions beyond the Design-Builder 's, Sub-Contractors or Suppliers control, the Contractor shall notify the Project Manager immediately that alternate materials are requested to be reviewed.**
- .2 Substituted materials installed, without the approval of the Project Manager, shall be removed and all costs associated with the correction of the Work, including all Costs incurred by the Owner, Project Manager and Sub-Consultants shall be the responsibility of the Contractor.**
- .3 Obtain approval for substitutions from the Project Manager. Application for approval of substitutions shall be made only by Design-Builder. Process proposals for substituted Work in accordance with procedures established for changes in the Work.
- .4 Submit, with request for substitution, documentary evidence that substituted products are equal to, or superior to, approved products, and a comparison of price and delivery factors for each product.
- .5 It shall be the responsibility of the Design-Builder to ensure that substituted products can be both physically and dimensionally incorporated in the Work with no loss of intended function, performance or space. The Design-Builder shall be responsible for additional installation costs required by incorporation of substituted products and for adaptations made otherwise necessary to ensure that above requirements are satisfied.

5.1 Product Handling

- .1 Manufacture, pack, ship, deliver and store products so that no damage occurs to structural qualities and finish appearance, not in any other way detrimental to their function or appearance, or both.
- .2 Ensure that products, while transported, stored or installed, are not exposed to an environment which would increase their moisture content beyond the maximum specified.
- .3 Schedule early delivery of products to enable Work to be executed without delay. Before delivery, arrange for receiving at site.
- .4 Deliver package products, and store until use, with manufacturer's seals and labels intact.
- .5 Label packaged products to describe contents, quantity and other information as specified.

- .6 Product handling requirements may be repeated, and additional requirements specified, in other Sections.

6.1 Storage and Protection

- .1 Store products on site or in storage sheds with secure protection against all harmful environmental conditions. Prevent damage, adulteration, staining and soiling of materials while stored.
- .2 Store manufactured products in accordance with manufacturer's instructions, when such instructions are attached to products or submitted by him.
- .3 Store steel, lumber, masonry units, and similar products on platforms raised clear of ground. Store finished products under cover at all times.
- .4 All damaged products will be rejected for use, and thereupon shall be immediately removed from site.
- .5 Store and handle flammable liquids and other hazardous materials in approved safety containers and as otherwise prescribed by safety authorities. Store no flammable liquids or other hazardous materials in bulk within the Project.
- .6 Storage and special protection requirements may be repeated and additional requirements specified, in other Sections.

7.1 Defective Products and Work

- .1 Products and Work found defective; not in accordance with the Specifications; or defaced or injured through negligence of the Design-Builder, his employees or Subcontractors, or by fire, weather or any other cause shall be rejected.
- .2 Remove rejected products and Work from the premises immediately.
- .3 Replace rejected products and Work with satisfactory products with no delay after rejection. Previous inspection and payments shall not relieve the Design-Builder from the obligation of providing sound and satisfactory Work in compliance with this Specification.
- .4 Costs for replacement of defective material installed shall be the responsibility of the Design-Builder.

END OF SECTION 01600

1.1 Final Cleaning

- .1 Before final inspection, replace all material damaged during construction or which is otherwise defective, marred or deficient.
- .2 In addition to requirements for cleaning-up specified in the General Conditions of the Contract and as specified in the various sections of the Specifications, the Work by the Design-Builder shall include one (1) final cleaning by skilled cleaning specialists prior to Substantial Completion of the project and Occupancy by the Owner.
- .3 Final cleaning shall remove dust, stains, paint spots, soil, grease, fingerprints and accumulations of construction materials in accordance with manufacturer's instructions for each material. This Work shall include but not be limited to:
 - : remove temporary protections and make good defects before commencement of final cleaning.
 - : washing of exterior and interior concrete floors.
 - : cleaning and polishing of glass, mirrors, ceramic tile and finish metals.
 - : wiping, dusting and washing as necessary of floors, walls and ceilings.
 - : vacuuming of carpet, wall fabrics.
 - : cleaning, waxing and buffing of tile, resilient, wood flooring
 - : washing of glazed wall surfaces
 - : cleaning of door and millwork hardware.
 - : cleaning of all millwork and pl.lam. surfaces
 - : removing of visible labels left on materials, components and equipment.
 - : vacuuming of all ducts, grilles, registers.
 - : replacement of all equipment filter.
 - : vacuuming of all ductwork and equipment.
 - : mechanical fixtures, lighting fixtures, cover plates, equipment, including polishing of their finish components.
- .4 Maintain final cleaned state of the project, or portions thereof, until Owner has taken possession of project.

2.1 Demonstration of Systems

- .1 Each Subcontractor shall give a complete demonstration in the presence of the Owner of the operation of all systems and equipment installations once they are complete and when the Design-Builder is advised that the building is to be handed over to the Owner. Responsible personnel from the Subcontractors whose Work is being demonstrated shall be present as required at these demonstrations.

3.1 Construction Record Drawings

- .1 Record, on white prints, Work constructed differently than shown on Contract Documents. Record all changes in the Work caused by site conditions; by Owner, Project Manager, Design-Builder, Sub-Consultants, Contractor and Sub-contractors

originated changes; and by site instructions, supplementary instructions, field orders, change orders, addenda, correspondence and directions of jurisdictional authorities. Accurately record location of concealed structure and mechanical and electrical services, piping, conduits, pull boxes, junction boxes and similar Work not clearly in view, the position of which is required for maintenance, alteration Work and future additions. Do not conceal critical Work until its location has been recorded.

- .2 Make records in a neat and legibly printed manner with a non-smudging medium.
- .3 Identify each record drawing as "Project Record Copy", maintain drawings in good condition, do not use them for construction purposes and make available to the Project Manager at all times.

4.1 Substantial Performance Certificate

- .1 The following articles, in addition to those set forth under the General Conditions of the Contract, are to be submitted to the Project Manager before issuance of the **Substantial Performance Certificate**.
- .2 **General**
 - .1 Building Permit Copy of Drawings and Specifications, Building Permit, and all other permits/inspection approvals/documentation received during the course of construction from all Authorities.
 - .2 Verification of Fire Alarm, Emergency Lighting
 - .3 Copies of all Independent inspection reports as specified.
 - .4 Construction Record Drawings.
 - .5 Maintenance Manuals and Operating Instructions.
 - .6 Copies of all Warranties and Manufacturers inspection reports.
 - .7 Preliminary Deficiency List prepared by the Contractor for review by all trades and the Consultant and Sub-Consultants.
- .3 **Section 15 - Plumbing and Drainage**
 - .1 Construction Record Drawings.
 - .2 Maintenance Manuals and Operating Instructions.
number
 - .4 Plumbing, Hydro, Gas and all other inspection permits and documentation.
- .4 **Section 15 - Heating and Ventilation**
 - .1 Construction Record Drawings.
 - .2 Maintenance Manuals and Operating Instructions.
 - .3 Balancing Report of heating system and ventilating system.
 - .4 Test report on heating and ventilating control systems.

.5 **Section 16 - Electrical**

- .1 Construction Record Drawings.
- .2 Certificate of Verification of Fire Alarm System
- .3 Certificate of Verification of Emergency Lighting System.
- .4 Panel Directories typed and completed.
- .5 Electrical Inspection Certificate.
- .6 Maintenance Manuals and Operating Instructions.

5.1 Final Documentation

- .1 Provide the following documentation as applicable before completion will be declared:
 - .1 Adjusted and reconciled cash allowances.
 - .2 Written statement of completion from Design-Builder and all other declarations as requested by the Project Manager.
 - .3 Original copy of newspaper listing, as required under the Construction Lien Act.
 - .4 Abstract of title from Registrar of Land Registration and/or Certificate of Encumbrances at termination of lien period.

6.1 Final Inspection and Close-Out

- .1 Arrange for, conduct and document final inspections, close-out and take-over at completion of Work of this Specification in accordance with procedures described in **OAA/OGCA TAKE-OVER PROCEDURES**, OAA/OGCA Document No. 100, January 31, 2008.

1.1 General

- .1 Provide all necessary material, equipment and labour to fully develop the site for this new building.
- .2 Site Plan Survey and Geotechnical Investigation report have been included for the Burnaby Site. The Design-Builder shall verify location, size and existence of all buried and above ground servicing, including but not limited to, gas, hydro, water, sanitary, storm, telephone and cable. The Design- Builder shall complete detail design of all site works and shall complete the site plan application. The successful Design-Builder will provide all necessary support as required. All designs shall be in accordance with the Township of Wainfleet and the Region of Niagara Design Guide Lines.
- .3 The Design-Builder shall maintain/provide access and parking to the existing north Burnaby Station at all times. Upon completion of the new station, the Design-Building shall remove entirely the existing station. This includes disconnection of all services, application of demolition permit and complete removal (including footing) of the existing station building and full restoration (granular or topsoil and seeding).
- .4 All traffic and storage areas are to be paved. Gravel areas are not permitted. Design pavement for its intended use, i.e. heavy duty for fire route, heavy trucks, etc. and medium duty for all passenger vehicle routes and parking in accordance with the geotechnical report.

1.2 Site Work Items

- .1 Work on the site shall include, but not be limited to, the following:
 - Excavation and backfilling for building and parking areas,
 - All paving and curbing,
 - Site lighting, including building exterior and parking area must ensure no spill over of light at property lines per Region of Niagara Design Criteria,
 - Temporary and permanent security fencing,
 - Construction of stormwater management facilities,
 - Exterior signage,
 - All grassed areas to be hydro-seeded or sodded,
 - The Design-Builder is to provide a minimum of 25 passenger car parking places, and sufficient loading places for the intended use of the facility

A concrete apron (200mm thick, 10M@300 c/c each way) shall be provided on the exit overhead doors of sufficient length to house the pumper truck (but not less than 12m). Sufficient accessible parking places shall be provided to meet the requirements of the Ontario Building Code and accessible parking regulations,

- All site services (including protection and/or relocation of existing),
- There is currently no sanitary sewer at the building site. The Design-Builder shall design the on-site septic system to meet the Township of Wainfleet building standards. The Design- Builder shall apply and pay for all permits. fees and approvals are the full responsibility of the Design-Builder,
- There is currently no water service. The Design-Builder shall provide a precast concrete cistern, minimum 4,000 litres capacity sized to suit building requirements, complete with charcoal and UV filter systems to meet the MOE guidelines for potable water. The tank shall be complete with access hatches and fill standpipe. The cistern have be equipped with water level monitoring device, connected to the building for remote monitoring/reading,
- A second underground tank or combination of tanks interconnected with minimum 6” connections (minimum 95,000 litres) shall be connected to the roof drains for collection of rain water to maximize water harvesting. This water will be used to fill the pumper trucks. The tank shall include proper access hatches and 6” NH with female swivel connections to stand pipes (one inside and one outside) for drawing water from the tank. The overflow of these tanks shall be coordinated with the stormwater management system on the site.

.2 Demolition of the existing structures shall include decommissioning and complete removal of all structures including footings. Backfill excavated areas with granular ‘B’ completed to 95% SPDD. Backfill area to levels of surrounding grades with granular (in paved areas) or 150mm topsoil and hydro-seed (in landscaped areas).

.3 Stormwater management controls for the sites are to be determined in accordance with the current Ministry of Environment Guidelines (2003) , Region of Niagara Guidelines and approval from the Township

.4 Each site shall include an illuminated street sign, prominently displayed. The sign shall include a concrete base and footing, a minimum 1.2m below grade. The sign shall be 2600mm wide by 1440mm high with a total height of 2.2m. The sign itself shall be illuminated in three sections. The top section shall be a programmable marquis connected to the station office (power and data). The centre section shall include the station name and the bottom section shall have the station address.

END OF SITE WORK

1.1 Scope of Work

Work in this Section (**SEPARATE PRICE**) shall include but not limited to the decommissioning and deconstruction of existing buildings, including removal of concrete footings, foundations and slabs-on-grade abatement. Work shall also include deconstruction of existing site fitments and elements. Undertake investigation and preparation of a designated substance report. The cost of removal for any designated substance will be paid separately.

1.2 References

- .1 CSA S350-M1980 (R2003): Code of Practice for Safety in Demolition of Structures.

1.3 Submits

- .1 Submit three copies of each photograph taken of existing conditions to Project Manager.
- .2 Demolition Plan and provide copies stamped by a professional engineer knowledgeable of this Work. Demolition plan must include hoarding and protective measures to protect neighboring properties, public access and the public in general.
- .3 Submit three (3) copies of the designated substance report to the Project Manager.

1.4 Quality Assurance

- .1 Qualifications: a firm specializing in the work of this Section, and using only adequate equipment and skilled workers; and having a minimum five years documented experience.
- .2 Demolition Supervisor: an individual experienced in the work of this Section to ensure that all demolition work is carried out safely, expeditiously and without unnecessary damage to materials and surfaces that are designated to remain.

1.5 Regulatory Requirements

- .1 Permits and Fees: include the cost of all tipping charges and other related fees necessary for the completion of the demolition operations including demolition permit.
- .2 Utilities: Obtain approval from the appropriate authorities prior to commencing demolition operations.
- .3 Toxic and Hazardous Waste: in accordance with authorities having jurisdiction.

1.6 Site Conditions

- .1 Inspect and photograph existing adjacent construction or property.
- .2 Record conditions and stability in a manner suitable for evaluation of possible damage caused by demolition work of this Section.
- .3 Approximate locations of existing utilities may be indicated on Drawings. The Owner nor the Project Manager assumes any responsibility for the accuracy of the information shown.

1.7 Sequencing and Scheduling

- .1 Schedule work to minimize disruption to existing building operations.
- .2 Verify demolition schedule with Project Manager a minimum of 7 working days prior to commencement of Work.
- .3 Protect occupants from dust and from any danger arising from the work of this Section.

EXECUTION

2.1 Examination

- .1 Verify existing conditions are ready to receive work.
- .2 Verify locations and construction of structures to be demolished.
- .3 Verify construction and details of other existing and adjacent property.
- .4 Verify location of utility and other services.

2.2 Preparation

- .1 Review the findings of the designated substance report and remove all hazardous material as directed. Provide three (3) quotes for this work (paid under cash allowance).
- .2 Erect shoring, bracing and other temporary structures to prevent collapse, settlement and movement of property.
- .3 Provide and maintain dust protection screen.
- .4 Barricade all access by unauthorized persons to areas in which demolition is in progress.

- .5 Post danger signs in conspicuous locations to warn persons that demolition is in progress.
- .6 Erect protection to provide safe access that must be maintained to existing buildings.
- .7 Protect adjacent property from damage caused by demolition operations.
- .8 Remove flammable and contaminated materials, and refuse from building before demolition operations commence.
- .9 Arrange for the disconnection, capping and plugging of site services prior to commencement of demolition operations.

2.3 Demolition – General

- .1 Perform demolition work in an expeditious and safe manner. Conform to CSA S350-M.
- .2 Demolition shall not start until after the new station is fully commissioned and occupied.
- .3 Water down debris as frequently as required to prevent the spread of dust.
- .4 Do NOT drop debris more than one storey unless in an enclosed chute. Lower large components carefully, under control and fully supported at all times.
- .5 Withdraw or flatten protruding nails as demolition operations proceed.

2.4 Demolition – Foundations

- .1 Remove all below grade construction materials.
- .2 Remove all debris from site. Do not use such debris as backfill.

2.5 Demolition – Underground Tanks

- .1 Determine the former contents of each underground tank before proceeding.
- .2 Pump out remainder of tank contents.
- .3 Conform to the recommendations of the National Fire Protection Association, and the requirements of jurisdictional authorities for abandonment procedures for tanks formerly containing flammable materials.

2.6 Salvage

- .1 Carefully remove materials scheduled for salvage. Protect from damage.
- .2 Store salvaged materials in secure locations, protected from damage.
- .3 Items not scheduled for salvage become the property of the Design-Builder.
- .4 The Design-Builder is not permitted to sell salvaged material from the demolition site (i.e. no marketing or vending from the site).

2.7 Cleaning

- .1 Leave the Place of Work in a clean and orderly condition ready for use by others.
- .2 Backfill all excavations with Granular B compacted to 98% SPDD. Backfill to match existing grades.
- .3 Remove debris in accordance with authorities having jurisdiction.
- .4 Remove protections, barricades and other temporary constructions on completion of demolition operations.
- .5 Repair and make good property and materials damaged during demolition operations.

1.1 Scope of Work

- .1 Work of this Section shall include but not be limited to removal and/or relocation of trees and shrubs, etc., stripping and stockpiling of topsoil, native fill and granular material and removal of unsuitable material from site, removal of fences, posts, poles, pipes, culverts, foundations, concrete slabs, curbs, signs and all other material NOT noted to remain.

1.2 Requirements of Regulatory Agencies

- .1 Work of this Section shall include protection measures, consisting of materials, constructions and methods, required by the latest version of the Occupational Health and Safety Act and Regulation for Construction Projects, Ontario Regulation 213/91 and as otherwise imposed by jurisdictional authorities to save persons and property from harm.

1.3 Special Protection

- .1 Protect existing trees, shrubs and other landscape items, required to be retained, from damage by equipment and earthwork. Do not cut the roots of any tree. Contact the Project Manager immediately if roots are encountered. Hand dig around roots of trees designated to remain.
- .2 Ensure that the locations of buried utilities and other services have been established by an investigation conducted together with the utilities of services concerned. When unknown services are encountered during execution of work of this Section; identify, notify, appropriate authority and the Project Manager and brace and support them.

1.4 Examination

- .1 Before commencing clearing, ensure in examination of the site that all possible factors concerning clearing are investigated, and that the following are known in particular:
 - .1 Methods and means available for material handling, disposal, storage, and transportation.
 - .2 Conformation and condition of ground surfaces.
 - .3 Character, quality and quantity of growth on site.
 - .4 Review clearing to be performed in all its details at the site. Do not proceed without approval.

1.5 Equipment

- .1 Supply sufficient and adequate equipment as needed to carry out all work expeditiously and in a workman like manner.

1.6 Paint

- .1 Bituminous protection for repair to trees, shrubs, etc.

1.7 Stripping

- .1 Strip topsoil (depth of topsoil per geotechnical report to be provided) entirely from the building and paved areas to be excavated, and to a point 1500mm beyond these limits of these and other areas where excavation and/or cutting is to be carried out.
- .2 Stockpile topsoil in an area on site approved and agreed to with the Project Manager for re-use.

1.8 Removal of Driveways Parking Areas and Sidewalks

- .1 Remove all asphalt paving and concrete slabs from the site.
- .2 It is the intent of this specification to re-use the existing granular fill from under the existing parking areas where the new construction will be carried out. Verify on site with the Testing Engineer that no contaminated material is re-used and stockpile excavated granular material in a location designated. The Design-Builder must determine the depth of this granular base.

1.9 Adjustment Cleaning and Disposal

- .1 Remove all deleterious materials and debris from the site daily as it accumulates resulting from clearing performed by this Section, unless specified for salvage by the Design-Builder or Owner. Do not accumulate materials at the site from clearing performed outside or normal working hours for longer than 48 hours.
- .2 Maintain daily all adjacent sidewalks and pavement in a broom swept manner and clean-up all tracking on roadways.
- .3 All topsoil which will not be reused within the site shall be removed from the site.
- .4 For all other material to be removed from the site, provide Owner with Letter of Acceptance from the owner of the dump site verifying permission to dump on the site. Verify these locations with the governing Conservation Authority.

END OF SECTION 02100

1.1 Scope of Work

- .1 This section specifies the preservation of existing vegetation on the site.

1.2 Materials

- .1 Snow Fencing: Wood slats with wire lacing and galvanized steel T rails or approved equivalent, 1200mm high.
- .2 Drain Pipe: 100mm diameter perforated P.V.C. drain pipe complete with required connectors and end grates.
- .3 Wound Treatment: Braco or approved equivalent.
- .4 Equipment: adequate and specific for removal and moving of trees.

1.3 Preparation

- .1 Design-Builder shall lay out extent of tree preservation line for Project Manager's approval prior to any excavation and as per drawings included with the specifications.
- .2 Design-Builder shall lay out extent of lateral drain lines for Project Manager's approval prior to installation.
- .3 No excavation shall be carried out within the driplines of trees to be saved. Root loss must be minimal.
- .4 No heavy equipment shall be driven over the tree lawn area, to alleviate soil compaction around the tree roots.
- .5 No equipment or materials should be allowed to hit, abrade or otherwise damage any limbs or branch of a tree hanging over the immediate construction area.
- .6 No soil or construction materials should be piled over the tree lawn areas or around the trunks.

1.4 Installation

- .1 Stake fencing with adequate rails to ensure an upright line of fencing. Damaged or uneven sections must be repaired immediately.
- .2 All existing trees and shrubs which are to remain shall be completely protected by snow fencing erected beyond the drip line the tree's canopy. Areas within the protective fencing will remain undisturbed and will not be used for the storage of building materials or equipment.

.3 Where limbs or portions of trees are removed to accommodate construction work, they will be removed carefully in accordance with accepted arboriculture practice.

.4 Where root systems of protected trees are exposed directly to construction work or damaged in any way, they shall be trimmed neatly and the area backfilled with appropriate material to prevent desiccation.

.5 Where necessary, trees will be given an overall pruning to restore the balance between roots and top growth or to restore the appearance of the trees.

.6 Within the specified distances from the tree trunk, no roots over one (1) inch in diameter are to be cut if avoidable; any that are cut should be cleanly cut and will have to be painted with wound treatment.

END OF SECTION 02104

1.1 Scope of Work

- .1 Work of this Section shall include but not be limited to the following:
 - .1 Excavation for armour stone walls, retaining walls as required.
 - .2 Excavation and backfill to subbase for asphalt and concrete aprons.
 - .3 Installation of filter cloth, armour stone, and backfilling and chinking to the same.
 - .4 Excavation for and backfilling to footings, piers, bases, foundation walls for the entire structure and concrete slabs on grade including sidewalks and aprons and concrete curbs.
 - .5 Employment of adequate equipment for excavation, backfill, compaction, haulage and disposal.
 - .6 Excavate from within the limits of construction all organic and unacceptable material and replace with suitable, compatible and acceptable material. Haul away for disposal all material which will not be reused elsewhere on site.
 - .7 Cut and/or fill to entire site, grading to subdrains and compaction of subgrade.
This includes supply of additional/or removal of excess material to/from the site.
 - .8 Excavation and backfill to subgrade excavation for asphalt paving, building structure.
 - .9 Backfill and compaction for storm water management facility.
 - .10 Backfill and compaction and grading for all areas to be hydro-seeded, up to 150mm from finished grade.
 - .11 Grading and compaction for all swales to be constructed.
 - .12 Testing of all subbase bearing and backfill compaction.
 - .13 Excavation/backfill for and supply and installation of all sub drains for asphalt paved areas and retaining walls.

1.2 Special Protection

- .1 Ensure that the locations of existing buried utilities and other services have been established by an investigation conducted together with the utilities of services concerned.
- .2 When unknown services are encountered during execution of work of this Section:
identify, notify appropriate authority and the Project Manager and brace and support them.
- .3 Prevent damage to sides and bottoms of excavated pits and trenches from exposure to sun and rain which would cause cave-ins or softening of beds on which foundations and drains rest. Prevent flow of water and earth fines into excavated pits and trenches. Pump and/or divert water that fill excavations immediately and continuously as required. Do not discharge water to adjacent properties.

1.3 Soil Investigation

- .1 A geotechnical report is being prepared to assist the Design-Builder in estimating costs.

The Design-Builder shall determine whether additional geotechnical investigation is required and shall undertake additional investigation as deemed necessary for design and construction purposes. This cost shall be included in their base bid.

1.4 Field Quality Control

- .1 Excavation and placement of fill shall be carried out under the control of the Testing Engineer. The Design-Builder/Project Manager shall solicit (minimum 3) quotations for this work and appoint an inspection and testing company to inspect and report on compliance with the Specification of the Work of this Section.
- .2 Inspection and testing shall include approval of materials, adequacy of bearing surfaces, backfilling, fill, and necessary analysis and inspection of materials and operations to ensure specified compaction density is obtained. The testing and inspection shall include but not be limited to gradation, Standard Proctor Density, optimum moisture content determination, thickness and degree of compaction of each lift, and plate test for determination of Young's Modulus. Inspection and testing shall also include approval of materials and adequacy of bearing surfaces.
- .3 The costs of inspection and testing will be paid from the Cash Allowance covering this work as set forth in Section 01050.
- .4 Copies of all inspection reports to be forwarded to the Project Manager and the Township Staff Representative.
- .5 At least two (2) weeks prior to commencing work, inform the Testing Engineer of proposed source of fill materials and provide access for sampling.

1.5 Disposal of Materials

- .1 All surplus excavated material, which will not be reused within the site, shall be removed from the site by the Design-Builder. Soil to be tested and Letter of Acceptance from the Owner of the proposed dump site is to be submitted to the Project Manager.

1.6 Preparation

- .1 Supervise stripping and stockpiling of the topsoil from the entire area to be covered by the walkways, building, parking area and driveways and stormwater facility, for use in later grading around the building, where required and acceptable, and the removal of unsuitable soil and debris from the site.

1.7 Excavation

- .1 Excavate to extent and depth required for construction of the building, construction exterior to the building, paving, grading and as otherwise specified. Excavate beyond wall faces sufficiently to allow wall construction and installation of other specified work but generally no more than 1200mm beyond centre of wall. Excavate for footings to undisturbed soil no less than 1200 mm (4'-0") below finish grade at locations subject to frost and 450 mm (1'-6") below existing grade otherwise, or otherwise as noted on the structural drawing.

- .2 If any soft or spongy areas are located, the Soils Engineer shall be notified at once. Further, if the Soils Engineer so directs, the excavation shall be carried down to a greater depth until a firm bearing is obtained. Subexcavate soft spots disclosed during proof rolling and replace with approved fill compacted to at least 95% Standard Proctor maximum dry density.

- .3 Placing of footings and foundations on earth fill or loose material will not be permitted.

Do not place fill or concrete on excavated bearing surfaces until Soils Engineer has approved them. Notify him that work requires inspection immediately after excavation is completed.

- .4 Final subgrade level for all paved areas shall be established so that all pavement subgrade is sloped towards catchbasins and manholes. Subgrade exterior to foundation walls shall slope away from building.

- .5 Observe the rules and regulations governing the respective utilities during excavation.

Report to the Project Manager existing unlocated services encountered, and do not continue with excavation without the Project Manager's instructions. Repair damages to services should they occur.

- .6 Remove completely any obstructions within ground area to be occupied by the new building.

- .7 Carry out excavation to the extent, elevations and depths required to permit proper construction, shoring and inspection of the work.

- .8 Keep excavations clear of water at all times and check for adequacy of all pumping requirements and water control until foundation work and backfilling are completed.

- .9 Protect bottom of excavation from frost. Do not place foundations, footings or slabs on frozen ground. Shore and brace excavations and provide sheet piling, if necessary, to prevent cave-in. Remove shoring and piling before backfilling is completed, but not until permanent supports are in place.
- .10 Protect the bottom and sides of excavated pits and trenches from exposure to the sun and wet weather to prevent cave-ins and softening of the bed upon which further material will be placed. If permanent concrete cannot be placed within twenty-four (24) hours of exposure, place 50mm skim slab of concrete over the approved base.
- .11 Provide barriers, fences or other safety measures and adequate warning lights during the hours of darkness as required or directed.
- .12 Note that earthmoving equipment with high concentrated wheel loads may disturb the subgrade. The Design-Builder shall take appropriate precautions when such equipment is in operation.

1.8 Backfilling

- .1 Do not commence backfill until the subgrade is properly consolidated and approval is obtained from the Testing Engineer. Remove debris, rubbish, shoring, etc. before backfilling proceeds.
- .2 Ensure that dampproofing, perimeter insulation and weeping tile are installed where required and sloped to drain.
- .3 Care shall be taken to avoid damage to or displacement of walls, waterlines, drains, cables, conduits, insulation, etc. Where temporary unbalanced earth pressures are liable to develop in walls before the floor slabs are placed, the Design-Builder shall provide and place the necessary shoring and bracing to counteract the unbalance and shall leave the members in place until removal is approved by the Consultant.
- .4 Backfill to weeping tile and drains with minimum 300mm (1'-0") of clear stone. Ensure that slopes have been checked and verified and that installation of dampproofing and perimeter insulation is complete.
- .5 After completion of backfilling, check the fill surface for conformity with required profiles and contours. If necessary remove or add as required to correct elevations. Roll and check again. Concrete shall not be placed over any area not checked for correct elevation.
- .6 Fill Under Asphalt Pavement: Place fill under asphalt pavement as soon as mechanical and electrical services are installed, inspected and approved and upon approval of Soils Engineer. Compact sub-grade to density specified. Place fill in layers of 200 mm (8") maximum, and consolidate each before placing next layer. Areas which become contaminated are to be removed at Design-Builder's expense.

1.9 Excavation Bedding and Backfilling of Underground Services

- .1 Trenches: Excavate trenches to a minimum width, grade and alignment suitable for pipe installation. Locate trenches to avoid footings and outside of their bearings projected at 35° outwards from bottom footing edges. Compact subgrade before backfilling.
- .2 Ensure that trenches have been inspected and approved before services are installed, and that services have been inspected, tested and approved before backfilling commences.
- .3 Bedding:
 - Place bedding materials in trenches for underground services at sides of pipes simultaneously and in layers of 8" maximum depth, in full width of trench. Compact to densities specified.
 - Place bedding material before pipe is laid to depth of the sum of the following two dimensions:
 - (1) On Yielding Foundation
No less than either 150 mm (6") or 1/8 outside pipe diameter. On Unyielding Foundation
Not less than 300 mm (12")
plus 12.5 mm (1/2") for each 300 mm (12") of cover over 4500 mm
(15'-0")
 - (2) 3.2 mm (1/8") outside pipe diameter. Nest pipe into bedding so that distance between underside of pipe and bottom of trench equals dimension (1), and then fill in with bedding material to cover pipe to depth of 300 mm (12") minimum.

1.10 Erosion Control Blanket

- .1 The erosion control blanket shall be installed from the top of the bank down the slope to where the storm sewer outfall terminates and for the full width of the area disturbed.
- .2 Lay the blanket for the entire length and width of the cut and fill area where sodding will be installed. After backfilling completed and compaction carried out, lay and peg the blanket over the entire area disturbed.

1.11 Adjustment

- .1 Replace Defective Earthwork and make good areas where settlement has occurred during the warranty period of Contract.

END OF SECTION 02200

PART 1 – GENERAL.

1.1 General Requirements

- .1 Division 1, General Requirements, is a part of this Section and shall apply as if repeated here.

1.2 Work in Other Sections

.1 Related Work Specified in Other Sections

Section 02100	:	Site Clearing
Section 02200	:	Earthwork
Section 02260	:	Topsoil & Finish Grading
Section 02550	:	Site Services
Section 02822	:	Sodding
Section 02823	:	Planting of Trees, Shrubs & Ground Cover

1.3 Scope of Work

- .1 Provision of all labour, equipment, machinery, materials, tools, services and incidentals to establish and construct finished grades for the entire project.

1.4 Underground Services and Structures

- .1 Information concerning location and nature of existing underground services and structures, must be obtained from the various agencies concerned, the Design-Builder and the Owner.

1.5 Requirements of Regulatory Agencies

- .1 Work of this Section shall include protection measures, consisting of materials, constructions and methods required by the Occupational Health and Safety Act, O.R. 419/73, 213/91 amended O.R. 96/11 of the Province of Ontario, and as otherwise imposed by Jurisdictional Authorities to save persons and property from harm.

1.6 Special Protection

- .1 Ensure that adjacent property is not damaged in any way by site grading work; by the removal, stockpiling and transporting of materials; by blown sand or dust, or by spillage during the removal, stockpiling and transporting of materials; by the collapse or movement of excavated banks and stockpiles; or by storm water from altered drainage courses.

- .2 Ensure that silt and sediment fencing is installed along the perimeter of the property and has been inspected prior to commencement of work.
- .3 Do not excavate or grade until locations of services has been verified and protective measures taken are satisfactory to all that are concerned.
- .4 Ensure that no damage is caused by earthwork to existing structures, trees, buried and above-ground services, bench marks and survey monuments on the site, or adjacent property. Arrange or ensure that all damage which occurs is repaired completely and immediately.

1.7 Soils Investigation

- .1 Visit site and examine site and soil conditions and be satisfied that work can be carried out in accordance with requirements or contract documents.

1.8 Testing

- .1 Take samples of existing topsoil (one litre sample per 300m³ of stockpiled soil minimum), and have tested.

PART 2 - PRODUCTS

2.1 Materials:

- .1 Fill: as specified in Section 02200.
- .2 Topsoil: as specified in Section 02260.
- .3 Silt Sediment Fencing: as specified in Section 02200.

PART 3 - EXECUTION

3.1 Site Clearing

- .1 Strip, clear and grub the site in conformance with Sections

02100. 3.2 Layout

- .1 Stake out high points, low points, swales, and specific site elements to establish clear interpretation of grade.
- .2 Set grades by means of grade stakes clearly marked with final and subgrade elevations.

3.3 Rough Grading

- .1 Subgrade constitutes a compacted machine finished surface.
- .2 Establish the subgrade parallel to approved finished grades and shape the subgrade so that free drainage is permitted at all times.
- .3 Establish uniform slopes between points for which finish grades are approved or between such points and existing grade.
- .4 Round and smooth grades at top and toe of slopes and banks.
- .5 The subgrade established will clearly exhibit the land form character and balance and interrelationship delineated by contract documents.
- .6 Blend smoothly and flush with existing grades.
- .7 Do not grade when material is wet or frozen.
- .8 Do not obstruct flow in swales and provide adequate surface runoff and drainage at all times.
- .9 Ensure that all surfaces and gutters are properly graded with adequate falls so as to drain.
- .10 Get all rough grading work approved prior to placing other materials on subgrade.
- .11 Existing grade contours, where shown on plans, are approximate only.
- .12 Provide for the following minimum depths of topsoil in areas indicated:
In Sodded/Seeded Areas 100mm

3.4 Final Grading

- .1 Final grade constitutes a smooth surface free of all pockets and depressions. All final grading shall be in accordance with the drawings, specifications and to the satisfaction of the Landscape Architect.
- .2 Round and smooth grades at top and toe of slopes and banks. Blend smoothly and flush with existing grades.
- .3 Clean surface of all stones, rocks, branches, extraneous material, etc. larger than 40mm in diameter and live weeds.

- .4 Get approval by Project Manager of finish grading, prior to commencement of any subsequent work.

3.5 Field Quality Control

- .1 Assist Inspection Company in the execution of their work.

PART 1 - GENERAL

1.1 General Requirements

- .1 Division 1, General Requirements, is a part of this Section and shall apply as if repeated here.

1.2 Work in Other Sections

- .1 Related Work Specified in Other Sections

Section 02200 :	Earthwork
Section 02550 :	Site Services
Section 02822 :	Sodding
Section 02823 :	Planting of Trees, Shrubs & Ground Cover

1.3 Samples

- .1 Submit soil analysis report of imported topsoil to the Project Manager for approval.

1.4 Site Conditions

- .1 Report in writing to the Project Manager prior to commencing work any conditions or defects encountered on site, upon which the work of this section depends, and which may adversely affect the performance of the work.
- .2 Verify that rough grading has been carried out to the design drainage intent for the site. Commencement of work of this section shall be deemed as acceptance of the subcontractor.

1.5 Quality Assurance

- .1 Obtain approval of the topsoil in writing from the Project Manager.
- .2 Test topsoil for NPK, Mg, Soluble salt content, organic matter and pH.
- .3 Submit 2 copies of the soil analysis report and recommendations for correction to the Project Manager.
- .4 Should the source of topsoil be exhausted, test topsoil from new source, submit soil analysis report and recommendations for correction and obtain the approval from the Project Manager before using.

1.6 Submittals

- .1 Be prepared to submit a 10kg sample of topsoil to the Project Manager for approval, if requested.

- .2 Submit required sample of topsoil to the testing laboratory and indicate intended use, type of mulches to be applied, type of subsoil and quality of drainage.

1.7 **Product Delivery Storage and Handling**

- .1 Stockpile topsoil in locations designated by the Project Manager.
- .2 Do not stockpile topsoil in a frozen or muddy condition.

1.8 **Protection**

- .1 Protect all trees and planting areas to remain in accordance with Section 02104 - Tree Preservation. Make good all damage caused by construction activity at no extra cost.
- .2 Prevent damage to existing buildings, sidewalks, pavement, utility lines, servicing, and other existing structures which are to remain.

PART 2 - PRODUCTS

2.1 **Materials**

- .1 **Native Topsoil:** Existing topsoil stripped and stockpiled on the site shall be used with the approval of the Project Manager. The Design-Builder shall be responsible for all testing and quantities required to complete all work.
- .2 **Imported Topsoil:** A fertile, friable natural loam; containing not less than 4% organic matter for clay loams and not less than 2% organic matter for sandy loams to a maximum of 15%, and capable of sustaining vigorous plant growth, free of subsoil contamination, roots and stones over 50mm in diameter, reasonably free of weeds (as determined by the Project Manager), and having a pH ranging from 6.0 to 7.5.
- .3 **Peat Moss:** Partially decomposed, fibrous, of cellular stems and leaves of sphagnum moss varieties varying in texture from porous to spongy; crumbly or compact, and fairly elastic or homogenous in texture; free of decomposed colloidal residue wood, sulphur and iron; brown, finely shredded with no particles over 1/4"; and with an acidity range from 5.5 pH to 6.0 pH.
- .4 **Manure:** Well rotted, unleached cattle manure; free from harmful chemicals and other injurious substances, and sawdust, shaving, or similar refuse; at least 8 months old, but not more than 2 years old; and with no more than 25% straw, leaves, or other unacceptable materials for planting use.
- .5 **Fertilizer:** Shall be complete fertilizer, and shall contain no less than 25% urea-formaldehyde with the following percentages by weight of nitrogen, phosphoric acid, and potash in that order for sod (18-6-9).

PART 3 - EXECUTION

3.1 Preparation

- .1 Reuse existing topsoil under sodded areas only. Remove all deleterious material including rocks, roots, etc. Ensure that all services are installed, trenches compacted and catch basins covers set.
- .2 Fine grade the subgrade eliminating uneven areas and filling low spots. Remove all debris and all subsoil that has been contaminated. Verify all rough grading elevations to ensure that the drainage design intent for the site has been maintained.
- .3 Compact finished subgrade to 85% Standard Proctor Dry density for areas under sod or planting.
- .4 Scarify subgrade to a depth of 100mm.
- .5 Verify that drainage is away from the building and slopes to drain, swales, etc. have been installed correctly, uniformly and evenly.
- .6 All subgrade shall be approved by the Project Manager before the placement of topsoil.
- .7 Place existing and imported topsoil in dry weather on dry unfrozen subgrade to obtain minimum depth of 100mm under seeded and sodded areas after settlement and compaction,
- .8 Prior to finish sodding, incorporate specified fertilizer at the rate of 11 lbs. per 1,000 sq.ft. into the top 2" of soil surface. This operation may be done by discing or harrowing, or hand raking in confined areas.
- .9 Apply lime and disc into top 100mm of soil surface before incorporation of fertilizer if soil tests indicate the need for lime. A pH range of 6.5 - 7.5 is recommended for turf areas to be sodded.
- .10 Rake topsoil smooth to indicate finish grade elevations.
- .11 Topsoil to be compacted to a firmness sufficient to show a heel imprint of not more than 3mm deep. The top 50mm of topsoil shall be of a fine texture suitable for placement of sod.
- .12 Float the area until surface is smooth. Cut smooth falls to catch basin rims and finish up flush.

- .13 Do not cover catch basins, valve covers or inspection pits.
- .14 Fine grade the topsoil to ensure positive drainage away from buildings and sidewalks; provide positive drainage from curb edges.
- .15 Leave surface smooth, uniform and sufficiently firm to prevent sinkage pockets when irrigated.
- .16 Obtain approval of topsoil grading prior to the placing of plant material or sod.

3.2 Spreading of Topsoil

- .1 Spread dry topsoil during dry weather over approved, dry, unfrozen subgrade where sod is indicated.
- .2 Keep topsoil 40mm below finished grade for sodded areas. Elsewhere bring topsoil up to finished grade.
- .3 Apply topsoil to the following minimum depths:
 - 100mm for sodded/seeded areas
- .4 Fine grade topsoil eliminating rough and low areas and to ensure positive drainage.
- .5 Roll topsoil with a 50kg roller to compact and retain surface.
- .6 Make good any damage caused by topsoil spreading activities at no extra cost.

3.3 Clean-up

- .1 Clean up immediately any soil or debris spilled onto pavement or concrete.
- .2 Restore any topsoil stock piles from the site and leave in a 'rake clean' condition acceptable to the Project Manager.

END OF SECTION 02260

PART 1 - GENERAL

1.1 General Requirements

- .1 Division 1, General Requirements, is a part of this Section and shall apply as if repeated here.

1.2 Work In Other Sections

.1 Related Work Specified in Other Sections

Section 02100 :	Site Clearing
Section 02110 :	Demolition
Section 02200 :	Earthwork
Section 02260 :	Topsoil & Finish Grading
Section 02822 :	Sodding

.2 Products Specified Under Work of Other Sections and
Installed Under Work of This Section

Section 02200 :	Earthwork
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1.3 Qualifications

- .1 Execute the work of this Section by a Subcontractor who has equipment adequate for project, and skilled tradesmen supervised by foremen experienced in the type of work specified.

1.4 Requirements of Regulatory Agencies

- .1 Work of this Section shall be in accordance with the following documents, latest revisions:

Ontario Provincial Standard Specifications and Details
Township of Wainfleet
The Ontario Building Code - O.Reg. 332/12, 350/06 and 423/06
The Canadian Plumbing Code – Latest Edition
Any additional regulations that may apply

1.5 Inspection and Testing

- .1 The Design-Builder shall employ an independent inspection and testing company to carry out all testing and inspection as required. The Owner will appoint the inspection and testing company. The cost of inspection and testing shall be paid by the Design-Builder, out of the Cash Allowance for this testing.

1.6 Warranty

- .1 The Design-Builder hereby warrants that the work shall remain in such condition as will meet the approval of the Project Manager for a period of one (1) year from the date of substantial performance for the project.

1.7 Permits/Fees

- .1 The Design-Builder shall be responsible for all necessary permits and inspections.

1.8 Scope of Work

- .1 It is the intent of these Specifications to furnish and install all materials and equipment as hereinafter specified and/or as shown on the Drawings in such a manner as to leave each of the services complete and in satisfactory operating conditions.
- .2 All material required to complete the work under the Contract shall be supplied by the Design-Builder and compensation therefor shall be deemed to be included in the prices bid for the items of work for which it is to be used.
- .3 Excavation, backfill and bedding of all services and shown on the drawings is a part of this Section and OPSS Specification and OPSD details and shall apply as if repeated here.

1.9 Special Protection

- .1 Ensure that the locations of existing buried utilities and other services have been established by an investigation conducted together with the utilities of services concerned.
- .2 When unknown services are encountered during execution of work of this Section: identify, notify appropriate authority and the Project Manager and brace and support them.
- .3 Prevent damage to sides and bottoms of excavated pits and trenches from exposure to sun and rain which would cause cave-ins or softening of beds on which foundations and drains rest. Prevent flow of water and earth fines into excavated pits and trenches. Pump or divert water that fill excavations.

PART 2 - PRODUCTS

2.1 Materials

- .1 General: All materials supplied and installed shall be in accordance with Ontario Provincial Standards and Details and to meet Township of Wainfleet and Region of Niagara requirements.

- .2 Granular Fill: as specified in Section 02200.
- .3 Filter Cloth: As specified in Section 02200.
- .4 Rip Rap: As specified in Section 02200.
- .5 Bedding: As specified in Section 02200.
- .6 Pipe: As shown on drawings.

PART 3 - EXECUTION

3.1 Examination

- .1 Ensure in examination of the site that all possible factors concerning earthwork are investigated, and that the following are known in particular:
 - methods and means available for material handling, disposal, storage and transportation
 - physical conditions of site, including ground water table and drainage courses
 - conformation and conditions of ground surfaces
 - character, quality and quantity of surface and sub-surface materials.

3.2 Installation

- .1 The installation shall be in complete conformance with requirements of Ontario Provincial Standard Specifications and Details, Township of Wainfleet and Region of Niagara Standard Specification and Details.
- .2 Lay services on prepared bed, true to line and grade with pipe inverts smooth and free of sags or high points. Ensure pipe is in contact with shaped bed throughout its full length.
- .3 Lay and join in accordance with manufacturer's recommendations. Hand pipe by approved methods only.
- .4 Arrange for tapping, plugging and cutting of existing services, as required.
- .5 Excavate to extent and depth required for installation of services.
- .6 Verify location and set manholes and catchbasins to finished grades shown on drawings.

3.3 Adjustment

- .1 Replace Defective Services and make good areas where settlement has occurred during the warranty period of Contract at no additional cost to the Owner.

3.4 Holding Tank

- .1 Install holding tanks located to suit easy access and convenience on site. Make all connections to storm sewer services for overflow.
- .2 Level bearing surface, install Granular 'A' Backfill and compact to 95% Standard Proctor Density.

END OF SECTION 02550

PART 1 - GENERAL

1.1 General Requirements

- .1 Division 1, General Requirements, is a part of this Section and shall apply as if repeated here.

1.2 Work in Other Sections

.1 Related Work Specified in Other Sections

Section 02200 : Earthwork

1.3 Qualifications

- .1 Execute the work of this Section only by a Subcontractor who has adequate facilities, equipment and skilled supervisors and tradesmen to perform it expeditiously, and is known to have been responsible for satisfactory installations similar to that specified during a period of at least five years.

1.4 Source Quality Control

- .1 Topsoil: Work of this Section shall include testing of topsoil.
Test topsoil for N.P.K., soluble salt and organic matter content, and pH value.
Test topsoil in place and stockpiled at site, and at source of supply if imported.
Retest for each additional source of supply.

1.5 Product Handling

- .1 Generally: Label manufactured, processed or otherwise prepared materials that are packaged to indicate manufacturer, contents, weight, and a detailed description of the material.
- .2 Sod: Prevent drying out of sod during delivery, and keep cool and moist at site until laid.

1.6 Environmental Conditions

- .1 Installation of work of this Section shall be done under weather conditions and in suitable growth season for each specified material.

1.7 Materials

- .1 Topsoil: Friable natural loam with an acidity range from 6.0 pH to 7.5 pH; containing organic matter of 4% for clay loams and a minimum of 2% diameter, and subsoil, clay lumps and other solid materials.
- .2 Peat Moss: Partially decomposed, fibrous, of cellular stems and leaves of sphagnum moss varieties varying in texture from porous to spongy; crumbly or compact, and fairly elastic or homogenous in texture; free of decomposed colloidal residue, wood, sulphur and iron; brown, finely shredded with no particles over 6.4mm (1/4"); and with an acidity range from 5.5 pH to 6.0 pH.
- .3 Mulch: Bark mulch of a natural organic type.
- .4 Manure: Well-rotted, unleached cattle manure; free from harmful chemicals and other injurious substances, and sawdust, shaving, or similar refuse; at least 8 months old, but not more than 2 years old; and with no more than 25% straw, leaves, or other unacceptable materials for planting use.
- .5 Fertilizer: shall be complete fertilizer, and shall contain no less than 25% urea-formaldehyde with the following percentages by weight of nitrogen, phosphoric acid, and potash in that order for

seed - 18 - 6 - 9 or

Commercial superphosphate shall be finely ground with a minimum analysis of 20% phosphorus (V) oxide.

- .6 Anti-dessicant: emulsion to form permeable film over plant surfaces, and mixed according to manufacturer's directions.
- .7 Accessories:
 - Tree Wrapping: 30 lb. Kraft paper, laminated with asphaltum, crinkled, and 100mm (4") or 150mm (6") wide.
 - Anchors: Zinc coated, steel, Tee-bar fence posts, for trees 50mm (2") diameter or less.
 - Cable Wires: Zinc coated steel cable of diameters suitable for anticipated stresses for trees over 150mm (6") calliper; and zinc coated pliable wire of #9 gauge for all trees.
 - Eye Bolts, Turnbuckles: Zinc coated. Turnbuckles shall have 9.6mm (3/8") diameter bolts for trees over 75mm (3") calliper and 6.4mm (1/4") diameter bolts under 75mm (3").
 - Hose: 12.5mm (1/2") diameter new black rubber, 2 ply reinforced

- .8 Wood Edging: Nominal 6 x 6 Wolmanized White Pine #2 Grade or better with chamfered edges. Warped or severely checked timbers are not to be installed.
- .9 Plant Stock:
The standard for determining size, grade and quality of plants shall be Guide Specification for Nursery Stock, published and approved by the Canadian Nursery Trades Association. This document shall be made a part of this Specification in the same sense as if included and incorporated herein.
Plants shall be nursery grown under similar climatic and soil conditions to project locations, and under cultural practices recommended by the Canadian Nursery Trades Association. They shall meet their horticultural standards for grade and quality.
Supply plants in conformity to nomenclature of the International Code of Nomenclature for Cultivated Plants in accordance with the approved scientific names given in the latest edition of Standardized Plant Names.
Supply only fresh dug plants.
Prepare plants with cleanly cut roots: split roots will not be accepted. Cut roots at edges of ball when combing is not practiced. Paint ends of cut roots 1" diameter and larger with asphalt emulsion.
Plants shall be healthy; in vigorous growth; well branched; densely foliated in leaf; with well-developed root systems; and free of disease, damage, insect pests, and eggs or larvae.
Woody stems, branches and trunks shall be free of sun-scalds, frost cracks, rodent damage, abrasions and cuts. Old wounds shall be completely callused over.
Pruning wounds shall have vigorous bark growth on all edges, and all parts shall be moist and show live green cambium tissue when cut.
Measure plants with branches in normal position, to main body of plant, not from branch tip to branch tip or from root base to branch tip. Caliper dimension shall refer to diameter of trunk measured 12" above ground in original growing state.

1.8 Examination

- .1 Examine site before commencement of work, and inform Project Manager if site conditions will not permit completion of work of this Section as specified.
- .2 Ensure that subgrade preparation and drainage is satisfactory for continuing maintenance and growth of work of this Section.

1.9 Preparations

- .1 Subgrade: Scarify to a depth of 75 mm (3") subgrade surfaces in areas where topsoil will be placed. Work shall produce an even, loose-textured surface free from live weeds, and stones, roots, branches and similar materials larger than 75mm (3").
- .2 Plant Pits: Stake locations of plant pits for Project Manager's approval before they are excavated. Test plant pits for water percolation after they are dug. Ensure that further excavation and additional planting soil is provided to ensure drainage adequate for the plant survival.
- .3 Placing of Topsoil: Place topsoil to a minimum depth of 300mm (12") in areas to receive plant materials. Prior to finish sodding, incorporate specified fertilizer at the rate of 11 lbs. per 1000 sq. ft. into the top 50mm (2") of soil surface. This operation may be done by discing or harrowing, or hand raking in confined areas. Apply lime and disc into top 100mm (4") of soil surface before incorporation of fertilizer if soil tests indicate the need for lime. A pH range of 6.5 - 7.5 is recommended for turf areas to be sodded. Rake topsoil smooth to indicate finish grade elevations. Finish grades to a smooth, loose-textured surface free of depressions and stones, roots, branches and similar natural materials larger than 50mm (2"). Remove all materials of an unnatural kind, and concentrated accumulations of gravel.

1.10 Installation

- .1 Planting Generally:
Set plants plumb and, after settlement has taken place, so that they are in the same relation to grade as they originally grew.
Face plants, shrubs and trees to give best appearance when viewed from prime vantage points.
For each plant, not located in a planting bed, provide an earth saucer at its base of the same diameter as its planting pit in which to retain water for its roots.
- .2 Planting Soil: Mix planting soil of four parts topsoil and one part manure, to which

add one part peat moss, three pounds superphosphate for each cubic yard of the above soil mix. Over evergreen planting areas place a 100mm (4") layer of sand and incorporate it into top 300mm (12") of topsoil by cultivating. Dig planting pits in this prepared area and plant evergreens in specified planting soil as specified above.

.3 Planting Methods:

Partially fill planting pit with planting soil.

Place bare root plants with roots in their natural position.

Pull away and remove burlap, rope and wire from tops and sides, but not bottoms, of root balls. Ensure that balls or roots rest on a minimum of 225mm (9") of planting soil for shrub planting and 300mm (12") for trees.

Do not plant stock with root balls that have been cracked or broken during delivery, handling or planting.

Backfill around roots with planting soil in 150mm (6") layers. Tamp in place to pack firmly and to eliminate all air pockets around roots.

Thoroughly water when planting pit is half filled. When water has drained, complete backfilling, and water again.

.4 Trunk Wrapping and Plant Support: Wrap main tree stems of all trees, from ground line to first branch, with tree wrapping. Apply wrapping spirally and snugly, with overlap to shed rain, and held in place with cord or 12.5mm (1/2") T-50 staples.

Brace upright trees and large shrubs with three guys. Install a turnbuckle in each guy to allow for takeup. Use cable or wire as required for anticipated stresses.

Attach guys to anchors spaced equidistant around plant and 600mm (2'-0") outside of planting pit. Tops of anchors shall be not less than 50mm (2") below grade.

Attach guys to trunks of trees above lower branches, and to shrubs as otherwise possible, but in all cases so that plant is not subjected to undue strain. Cover guys with rubber hose where they contact plant.

.5 Pruning

Bare Root Shade and Ornamental Trees: Prune damaged branches off below the point of injury. Shorten side branches to a maximum of one half their length.

Do not remove leaders.

Make cuts smooth, clean and flush to base members. Leave no stubs.

Cut back cambium to living tissue where cuts are made, and at bruises, scars and other injuries. Shape wood to prevent retention of water.

Paint over pruned cuts of greater than 25mm (1") and other treated areas with tree paint.

.6 Wood Edging: Install with adequate stakes and lay true to line and grade as indicated.

.7 Mulch: Cover ground at all trees and shrubs, both pit and bed types, with mulch.

Apply to depth of 75mm (3") within area of earth saucer for tree and shrub plantings, and to cover grouped shrub plantings, planting beds and ground cover plantings within limits of plant bed.

.8 Seeded Grass Areas

Generally: Prepare topsoil for sodded areas immediately before seeding commences. Ensure that surface is free of depressions, and moisten with a fine spray to avoid surface disturbance.

Watering: Provide watering as required until grass has established

Protection: Post signs to warn against traffic over freshly seeded areas. Erect suitable barriers to prevent traffic until assured seeded areas will not suffer damage.

1.11 Adjustments and Replacements

.1 At the time of final acceptance and again at termination of guarantee period, work of this Section will be inspected by the Project Manager, and the necessary adjustments and replacements shall be made to the Project Manager's satisfaction.

.2 Commencement of guarantee period is predicated on acceptance of work of this Section.

or .3 Replace plant stock that is dead, or not in flourishing and satisfactory growing state, does not meet specification requirements. Remove dead stock immediately. Replace stock at proper time during next planting season. Disapproved but growing stock may be left, its guarantee period extended, and again inspected next planting season. At this time Project Manager will decide if replacement will be made.

.4 Re-roll grass areas to remove minor irregularities or depressions.

.5 Repair grass areas that show deterioration, bare spots or are

thin.

1.12 Maintenance

and .1 Work of this Section shall include maintenance of installations to ensure vigorous healthy growth. It shall consist of, but not be limited to, the following:

For Plant Stock: Pruning; treatment of pruning wounds, cultivating; weeding; mulching; watering; repairing of wrappings, protections and guys; tightening of guys; resetting to proper grade or to upright positions; spraying to keep free from pests, insects and disease, and barriers to prevent damage by persons or animals.

For Grass Areas: mowing to minimum height of 37mm (1-1/2") to 62mm (2-1/2"), removal of heavy clippings, edging, clipping, weed control, repair of erosion, watering, fertilizing, resodding to maintain uniform growth appearance, and maintaining barricades and other protective measures to prevent damage by traffic.

.2 Maintenance shall begin immediately following installation of work and shall continue until 30 days following final acceptance at project completion.

END OF SECTION 02800

1.1 Reference Standards

- .1 Do work in accordance with requirements of following standards, latest edition and to requirements of local authorities having jurisdiction:

Ontario Building Code
Ontario Fire Code
Ontario Ministry of Labour
Wainfleet Township Design Criteria
Region of Niagara Design Standards
Accessible Built Environment Standard
For the Sake of Sport Policy
Accessibility for Disabled Ontarians Act (ADOA)
Township of Wainfleet Business Plan Design Guidelines
Crime Prevention Through Environmental Design (CPTED)
Canadian Steel Door and Frame Manufacturer's Association
Terrazzo Tile and Marble Association of Canada

1.2 Design Statement

It is the intention of the Township of Wainfleet to construct a new fire station at the existing Burnaby fire station. located at 11603 Lakeshore Road.

This structure is to replace the existing facility in the respective rural area. The existing facility will be removed and will be decommissioned (**Separate Price**), and part of this assignment. **It is the Township intention to utilize the existing fire hall during construction of the new building.**

Through a prior feasibility and location study, the locations of the new facilities have been selected as best suiting the requirements of the community.

Based on preliminary engineering study for the site, the appropriate siting for the building has been shown on the attached plan for Burnaby. This site and location is to be reviewed by the Design-Builder and the design consultants to ensure that this is the best possible location for the facility on the site including reference to associated parking and other site amenities.

A three bay Station is proposed for the site.

Burnaby Fire Station:

The Burnaby Fire Station will include a three bay apparatus room, with sufficient depth for bunker gear storage. The truck bays will have front overhead doors.

It is the requirement of the Design-Builder and its design consultants to estimate the necessary servicing requirements (i.e. sanitary, water, power etc.) for the entire build and to ensure that they are provided for in the design and construction of this work. The Design-

Builder shall indicate in their proposal a conceptual layout of this building; both from a building design view point and a traffic and site management capacity. **The New Building Must Meet Post Disaster Standards.**

The Design-Builder and design consultants shall carefully design the exterior façade of this building and location of the site within the community. The new building is to be designed to blend with the neighbourhood setting. Proper consideration to selection of cladding material must be made. The Design-Builder and its consultants are encouraged to promote their design to incorporate sharable aspects of the facility.

1.3 Energy Design

- .1 Conform to the requirements of the Ontario Building Code and ASHRAE/IES 90.1-2013 “Energy Efficient Design of New Buildings except Low Rise Residential Buildings”. Where ASHRAE 90.1 Standards exceed the requirements of these specifications, the requirements of ASHRAE 90.1 shall prevail.
- .2 The building shall be designed with the objective of maximizing energy efficiency. Particular consideration shall be given to daylighting, insulating valves, double glazed Low E tinted windows, high efficiency lighting systems, efficient HVAC Systems and energy efficient refrigeration and heat recovery systems.

1.4 Building Envelope

- .1 The exterior building materials shall include major areas of pre-painted metal siding materials.
- .2 Foundation Walls:
 - Poured concrete (waterproofed) where floor levels are below adjacent grades.
 - Provide perimeter insulated in accordance with ASHRAE 90.1 in heated areas.
- .3 Exterior Walls:
 - Metal exterior wall systems to be comprised of 24 gauge prepainted galvanized or galvalume metal panels, R-20 fibreglass insulation, 24 gauge prepainted liner panel on interior with sealed edges so that liner performs as air/vapour barrier.
- .4 Interior Walls
 - All interior walls located between heated and unheated interior areas to be insulated to R-20. Provide insulation at floors, foundations walls, etc. to minimize heat transfer from heated areas to unheated areas and to prevent any potential of freezing sub bases.
 - Provide a prepainted metal liner on the interior (if not masonry).

1.5 Metal Roofing System

- .1 Over the large span roof structures, provide a metal roofing and thermal system.
 - Insulation – fiberglass blanket insulation with integral screen/vapour barrier laminated to insulation. Minimum R-40.
 - Thermal blocks and clips
 - Hidden fasteners
 - 24 gauge paint finish on galvalume base steel.
- .2 Other roof areas to be sloped to drains, minimum R-40 rigid insulation, EPDM 60 mil single-ply membrane, loose laid and ballasted.
- .3 Design-Builders are invited to submit alternative roofing proposals based upon the minimum thermal resistance values specified. Alternatives must meet or exceed the specifications including warranty, life expectancy, maintenance etc of the specified roof noted above.
- .4 Provide all roofing accessories required for a complete job including but not limited to roof drains, scuppers, curbs, flashings, roof access hatches and permanently mounted service ladders, and expansion joints.

1.6 Masonry

- .1 Do masonry work in accordance with:
 - CSA A179
 - CAN3-A371
 - CAN3-A370
 - CAN3-S370
 - CAN3-S304
 - CAN/CSA-A165
 - CAN/CSA A82.1
- .2 Concrete masonry units to CAN/CSA-A165.1-04 or latest edition. Provide bullnose blocks at exposed corners. Provide special shapes as required.

.3 All public lobby areas to receive architectural block in designed patterns and layouts to approval of Owner. Include acoustic block for sound quality control.

1.7 Metal Fabrications

- .1 Provide all metal fabrications required for a complete project. This work generally includes but is not limited to, loose steel angles (galvanized at exterior), pipe railings, trench gratings and frames, guards, bollards, bench supports, vanity supports, angles and plates cast in concrete, channel/plate frames and jambs at overhead doors, galvanized grating and support at snow melt pit.
- .2 Do welding work in accordance with CSA W59-03 or latest edition.
- .3 Steel sections and plates: to CAN/CSA-G40.21-04 or latest edition.
- .4 Steel pipes: to ASTM A53-84a or latest edition, standard weight, Schedule 40, seamless black.
- .5 Welding materials: to CSA W59-03 or latest edition.
- .6 Shop coat primer: to CGSB 1-GP-40M or latest edition.
- .7 Galvanizing: Hot dipped galvanizing with zinc coating 600 g/m² to CAN/CSA G164-M92 or latest edition.
- .8 Zinc Primer: Zinc rich, ready mix, to CGSB 1-GP-181M + Amdt-Mar-78 or latest edition.
- .9 Seal exterior steel fabrications to provide corrosion protection in accordance with CAN/CSA-S16-01 or latest edition.
- .10 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.
- .11 Galvanize after fabrication exterior work; work in high humidity areas and all exterior items.

.12 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

1.8 Carpentry

- .1 Provide all rough and finished carpentry and millwork as required for complete project.
- .2 All roof lumber and blocking subject to moisture and/or lack of ventilation shall be pressure treated.
- .3 Vanity tops in public washrooms to be plastic laminate.
- .4 Counter to be plastic laminate.

1.9 Door And Frames

- .1 Provide all steel doors and pressed steel frames as required for a complete project.
- .2 Work includes steel doors and pressed steel frames, steel fire rated doors and frames, pressed steel windows and screen frames.
- .3 Doors and frames to be manufactured by a member of Canadian Steel Door and Frame Manufacturer's Association.
- .4 All steel to be commercial grade to ASTM A568-81, Class 1, hot dip galvanized to ASTM A527-80 coating designed to ASTM A52-81 ZF75.
- .5 Door Faces – 1.22 mm base metal thickness, welded construction.
- .6 Frames 1.6 mm base thickness steel.
- .7 Exterior doors and interior doors located between heated and unheated areas shall be filled with Urethane foam insulation.
- .8 Doors shall have edge seams, tack welded at hinges and strikes and at top and bottom edges.
9. 4 (four) inch trim on exterior of doors and windows

1.10 Overhead Doors

- .1 Provide all overhead doors, as required, for a complete project.
- .2 Sectional overhead doors shall be prepainted, steel skins, urethane core insulation similar to Thermatite Model #175, as manufactured by Richards Wilcox or “Thermalex”, as manufactured by Upward Door Systems or other approved equal products.
- .3 Tracks: 76 mm heavy duty.
- .4 Rollers: Ball bearing.
- .5 Hinges: Heavy duty bolted on.
- .6 All doors to have weather-stripping.
- .7 All doors to be electrically operated with push buttons and remote control operation.
Provide manual chain and geared sprocket operations in addition to electric operator.
- .8 Supply five (5) remote control units with selector switches to Owner for operation
of
all overhead and rolling steel doors from a single remote control transmitter device.

1.11 Aluminum Windows

- .1 Exterior windows to be commercial quality, aluminum thermally broken frames,
Duranan coloured finish.
- .2 Windows to be glazed with 25 mm insulating units, high performance float glass
with
low E and solar heat gain tinted coatings.

1.12 Interior Glazing

- .1 Wired glass to CAN2-12.11 as required.

.2 Mirrors to CAN2-12.5.

1.13 Finish Hardware

- .1 Supply and install all finish hardware for all new doors.
- .2 Hardware to be heavy duty.
- .3 The Design-Builder shall prepare a hardware schedule. Obtain approval of Owner for all finish door hardware prior to ordering.
- .4 Keying all locks to be keyed alike with stock cylinders for use as construction cores. Schlage Primus Cylinders to be supplied and installed at substantial completion. All locks to receive Primus Cylinders, keyed to the Township of Wainfleet keying system.

1.14 Finish Flooring

- .1 Wall Tiles: Provide ceramic tile products appropriate for the intended location and as approved by the Owner.

Do tile work in accordance with Installation Manual 200-1979, "Ceramic Tile", produced by Terrazzo Tile and Marble Association of Canada (TTMAC).

- .2 Polished concrete floors:

Floors to meet CSA A23.1-04 Concrete Materials and Methods of concrete construction
A23.3-04 Design of concrete structures
S269.3-92 Concrete formwork
S448.1-93 Repair of reinforced concrete in buildings
A3000-08 Cementitious Materials
Provide a mock-up, Joint shop drawings, and specifications

1.15 Acoustic Ceilings

- .1 Do suspension system in accordance with ASTM C635-87 Specifications for Metal Suspension System for Acoustical Tile and Lay-In Panel Ceilings, ASTM C636-86 Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels, exposed, two directional grid.
- .2 Acoustical Panels: to CAN/CGSB2-92.1-M89, non-combustible, mineral fibre, 600

mm x 600 mm, 16 mm thick, square edge, NRC range 0.60 – 0.70, STC range 35-39 AIMA, non-directional fissured.

1.16 Painting

- .1 Paint all exposed unfinished materials except architectural block, precast concrete, etc.
- .2 Exposed steel structure in apparatus bays to be painted with alkyd paint.
- .3 Work rooms, washrooms and areas of high abuse to be painted with semi-gloss alkyd paint.
- .4 Masonry walls to receive block filler and two finish coats.
- .5 Generally apply one coat primer, two finish coats.
- .6 Paint products to be top-of-the-line quality on manufacturers such as Glidden, Pittsburgh, Pratt and Lambert, Sherwin-Williams, Benjamin Moore or Para.

1.17 Toilet Partitions

- .1 Floor-mounted, headrail braced, self-closing doors, nominal 900 mm wide x 1500 deep with stainless steel hardware and metal panels.

END OF ARCHITECTURAL PERFORMANCE STANDARDS

1.1 General

Provide all structural design and undertake all work in accordance with the requirements of the following Codes and Standards, latest edition, and to the requirements of the local authority having jurisdiction. **Building design is to be in accordance with the Ontario Building Code for post-disaster design requirements.**

- . Ontario Building Code
- . CSA, CGSB, ASTM, ULC, CISC, CPCA and ACI

All structural components, including foundation, slabs on grade, structural steel and other components of the building subject to structural loads shall be designed and stamped by a Professional Structural Engineer registered in the Province of Ontario.

- . All foundations shall be constructed of cast-in-place concrete, reinforced as required.
- . Provide waterproofing of foundation walls where exterior grades are higher than interior floor levels.

1.2 Material

Items, materials and products used in the construction shall be new, purpose made for the intended use, specifically designed and constructed to suit the requirements of the project.

1.3 Formwork

Do concrete formwork in accordance with CSA-A23.1-09 or latest edition.

1.4 Reinforcing Steel

- .1 Design and undertake reinforcing work in accordance with CSA-A23.1-09 and CAN3-A23.3-04 and welding of reinforcing with CSA W186-M1990, except where specified elsewhere.
- .2 Wire mesh reinforcing shall conform to CSA G30.5-M1983, "Welded Steel Wire Fabric for Concrete Reinforcement".

1.5 Cast-In-Place Concrete

- .1 Design cast-in-place concrete in accordance with CSA-A23.3-04 and CSA-A23.1-00.
- .2 Do cast-in-place concrete work in accordance with CSA-A23.1-09 and testing in accordance with CSA-A23.2-09. Note hot and cold weather requirements of A23.1.
- .3 Determination of the mix and strength design of the concrete shall be the responsibility of the Structural Engineer and Design-Builder based upon the location of the concrete.

- .4 Floor slabs shall be designed to reduce shrinkage to a minimum.
- .5 Truck bays shall receive a non-metallic surface hardener using natural trap rock aggregate or a product similar to Diamag 7 by Sternson applied in accordance with supplier's recommendations at a rate of not less than 500 kg per 100 m².
- .6 Concrete floor slabs shall be finished in accordance with CAN3-A23.1, Class A.

1.6 Precast Concrete

- .1 Precast, prestressed concrete shall be designed and fabricated by a fully experienced and recognized manufacturer of precast concrete products whose manufacturing plant and facilities are currently certified in accordance with CSA-A2510M.
- .2 Precast concrete work shall be done in accordance with the following standards (latest issues):
 - CAN3-A23.1
 - CAN3-A23.2
 - CAN3-A23.3
 - CAN3-A23.4
 - CSA-A251
 - Ontario Building Code
 - CSA-W47-1
- .3 Precast units used as floor slabs shall have standard finish with a minimum 50mm thick cementitious topping.
- .4 Interior finish to be smooth, dense, steel formed without blemishes.
- .5 Insulated wall panels shall be insulated with 75 mm thick extruded expanded polystyrene with R=15.98.
- .6 All joints in precast wall panel shall be sealed using Dymeric at exterior joints and Mono as manufactured by Tremco Manufacturing at interior joints. Joints shall be vented at exterior for pressure equalization of joint cavity.

1.7 Structural Steel Components

- .1 Provide the design and engineering of all components for a complete structural system for the project.
- .2 A structural steel system comprising rigid steel frames, steel roof deck, purlins, wall first and all other components for a complete system.
- .3 Provide a structural steel support system for areas other than the clear span apparatus room comprising steel columns, beams, steel roof joists and miscellaneous components, as required for a complete system.

.4 Structural steel components shall be designed, fabricated and installed in accordance with the following standards:

- Ontario Building Code
- CSSBI Standard for Steel Building System
- Structural Steel CSA S16
- Cold Formed Steel CSA S136
- Welding CSA W59 completed by certified welders conforming to CSA W47.1 and certified by Canadian Welding Bureau.
- Design, fabricate and install steel structure, details and connections in accordance with requirements of CSA-S16.1-09 and CSA-S136-07 to resist all forces, movements.
- Clean, prepare surfaces and shop prime structural steel in accordance with CSA-S16.1-09 and CSA-S136-07.
- Design, fabricate and erect steel joists and bridging in accordance with CSA-S16.1-09.

1.8 PRE-ENGINEERED METAL BUILDINGS

PART 1- GENERAL

.1 DESCRIPTION

- .1 General Requirements:
Division 1, General Requirements, is a part of this Section and shall apply as if repeated here.
- .2 Work performed by other Sections and which is related to this Section is specified in:
Section 03100: Concrete Formwork
Section 03300: Cast-In-Place Concrete
Section 03410: Pre-stressed Hollow Core Slabs
Section 04200: Unit Masonry
Section 05500: Metal Fabrication
Section 07600: Flashing and Sheet Metal
Section 07920: Sealants and Caulking
Section 08110: Steel Doors and Frames
Section 08360: Sectional Overhead Doors
Division 15: Mechanical
Division 16: Electrical

.2 SCOPE OF WORK

The Pre-Engineered Building contract shall include the complete design, supply, detailing, fabrication and complete erection of the Building System, which includes:

- .1 The primary and secondary structural steel system including, and support of the mezzanine.
- .2 Metal roof system:
 - .1 Wall panel system
 - .2 Roof and wall insulation
 - .3 Trim, Gutter, Flashings, Downspouts
 - .4 Overhead Door Framing.
 - .5 Man Door Framing
 - .6 Roof Curb Framing for Mechanical Equipment
 - .7 Wall Opening Framing for Mechanical devices and grilles.
 - .8 Elevated steel framing for roof top HVAC equipment if required

.3 BUILDING DESCRIPTION

Building width:	66'' +/-
Future Expansion:	19' - 0'' Design low end structure for future expansion.
Building length:	86' - 0'' +/-
Bay Spacing:	3 bays;
Building Frame Height:	24' - 0'' at the high building eave. prequalif
Inside Clear Height:	20' - 0'' minimum at the high building eave.
Roof Slope:	1/2'': 12''
Primary Structural:	Welded up plate section columns and roof beams c/w necessary splice plates for bolted field assembly.
End Wall Frames:	Standard.
Secondary Structure:	Steel Purlins, girts, eave struts, and ' c' sections.
Roof System:	24 Ga, Galvalume metal standing seam (incl.accessories)
Wall System:	24 Ga. (4'') Textured Insulated Wall Panels.
Ext. Metal Coating:	Non-directional embossed finish, factory cleaned, pretreated, and coated with baked-on finish compatible for texture coat.

.4 QUALITY ASSURANCE

- .1 Certification:
Submit written certification prepared and signed by a Professional Engineer, Registered to practice in the Province of Ontario verifying that the building system design and metal roof system design (including panels, clips, and support system components) meet indicated loading requirements and codes of authorities having jurisdiction. The certification must reference specific dead loads, live loads, snow loads, wind loads/speeds, tributary area load reductions (if applicable), concentrated loads, collateral loads, seismic loads, end use categories, governing code bodies including year, and load applications.
- .2 Manufacturing is to conform to the requirements of Canadian Standards Association in specific reference to CAN/CSA S16.1-M89, CAN/CSA S136-M89, CSA-W59 and CSA-W47.1.

.5 DESIGN LOADS

- .1 Design Standards:
 - .1 The structural design for the building to be provided by the Building Manufacturer will be in accordance with the Ontario Building Code as amended
 - .2 The importance factor shall be in reference
- b e .2 Roof Snow Loads: The roof snow load used for designing the structure shall
- and determined in accordance with the Ontario Building Code as amended Ontario Building Code,
- .3 Wind Load: The wind loads used for designing, the structure, including roof
- loads wall systems shall be determined in accordance with the Ontario Building Code as amended
- .4 Seismic Load: Seismic load acting on the primary

structure, and on the

attached to the primary structure by the mezzanine and office, shall be determined in accordance with the Ontario Building Code as amended,

.5 Dead Load: The weight of building system construction, such as roof, framing, and covering materials.

- .6 Collateral Load: Additional imposed loads required by the contract documents other than the weight of the building system. These added loads include such items as sprinklers, mechanical air handling units exhaust fans, electrical devices & lighting, and ceiling systems.
- .7 Auxiliary Loads: All dynamic loads required by the contract documents for material handling cranes: (2) 5 ton cranes between Grids F&E; and loading for second floor and plant mezzanine.
- .8 Load Combinations: Load factors and load combinations shall be as specified in the Ontario Building Code as amended,
- .9 Building is to be designed with a maximum storey drift not to exceed $h/400$ under the influence of crane lateral loads and specified wind loads.

.6 SUBMITTALS

- .1 Submit Shop Drawings in accordance with Section 01300.
- .2 Submit complete erection drawings showing roof framing, transverse cross sections, covering and trim details, and accessory installation details to clearly indicate proper assembly of building components.
- .3 Certification: Submit written certification prepared and signed by a Professional Engineer, registered to practice in the Province of Ontario.
- .4 Submit certification verifying that the metal roofing system has been tested and approved by Underwriter's Laboratory as Class 90.
- .5 Samples: Submit samples, two (2) each, for Owner's review, of finished roof and wall systems. Sample will be used as basis for evaluating quality.

PART 2 – PRODUCTS

.1 GENERAL

- .1 The design of the structural system shall be a clear or multi-span frame with tapered or straight columns and roof beams; with a gable roof. The office area to be built with straight columns.
- .2 Foundations:
 - .1 Foundations including anchor bolt embedment length shall be adequately designed by a competent engineer, retained by other than the building manufacturer, in accordance with the best recommended practices for the specific soil conditions of the building site.
 - .2 All reactions for the proper design of foundations shall be supplied by manufacturing company.
 - .3 Anchor bolt diameter shall be as specified by manufacturing company's standard anchor bolt layout drawings.

.2 STRUCTURAL STEEL DESIGN

- .1 All structural mill sections or welded-up plate sections shall be designed in accordance with the Canadian Standards Association, CAN/CSA-S16.1-M89 "Limit States Design of Steel Structures" and all cold-formed steel structural members shall be designed in accordance with CAN/CSA-S136-M89 "Cold Formed Steel Structural Members".
- .2 The structural system will be designed in accordance with the Ontario Building Code.

.3 PRIMARY FRAMING

- .1 Rigid Frames
 - .1 Single slope frames shall consist of welded-up plate section columns and roof beams complete with necessary splice plates for bolted field assembly.
 - .2 All bolts for field assembly of frame members shall be high strength bolts as indicated on erection drawings.
- .2 End-wall Structural
 - .1 The end-wall structural shall be cold formed channel members or welded-up plate sections designed in accordance with CAN/CSA S 16.1M89 "Limit Formed Steel Structural Members".
 - .3 Steel bracket support on primary frames for crane: Not Required
 - .4 Steel beam floor support on primary frames for mezzanine.

.4 SECONDARY STRUCTURAL MEMBERS

- .1 Purlins and Girts
 - .1 Purlins and Girts shall be "Z" shaped, precision roll formed.
 - .2 Girts shall be 8" or 9-1/2" deep "Z" sections.
 - .3 Purlins shall be 8" or 9-1/2" deep "Z" sections.
 - .4 Outer flange of all girts shall contain factory-punched holes for panel connections.
 - .5 Outer flange of purlins shall contain factory-punched holes for panel connections.
- .2 Eave Struts
 - .1 Eave struts shall be factory pre-punched 8", 9-1/2", or 11" deep "C" sections.
- .3 Bracing
 - .1 Bracing shall be located as indicated on shop /erection drawings.
 - .2 Diagonal bracing shall be hot-rolled rod of size indicated on drawings, and attached to columns and roof beams as shown on the drawings-
 - .3 Optional fixed base wind posts or pinned base portal frames may be substituted for wall rod bracing on buildings as required.
 - .4 Range braces, purlin braces, etc., when required, shall be cold-formed and installed as indicated on drawings.
 - .5 Provide portal frames at interior bracing locations.
- .4 Elevated Angle Frame for HVAC units & Roof Exhaust Fans
 - .1 Provide hot dipped galvanized steel frame elevated above the roof and supported on pipe columns. Unit support frame for (3) HVAC units.
 - .2 Provide framing for (2) roof exhaust fans as indicated on Mechanical drawings.

. 5 WELDING

- .1 standards Welding procedure and operator qualifications and welding quality shall be in accordance with the Canadian Standards Association CSA W 59 and CSA W 47.1. Certification of welder qualification shall be supplied when requested.

.6 STRUCTURAL PAINTING

- .1 to Factory cover all steel with one coat of grey oxide primer paint formulated

equal or exceed the performance requirements of Canadian General Standards Board: 1.40; 1 GP-81;1.140; or 1.GP- 166; or CISC/CPMA Standard 2.75.

.7 ROOF PANELS & ACCESSORIES

- .1 Roof panels shall be factory roll-formed standing seam roof panels; wide, with 2 major corrugations, 2" min. high (2-3/4" including seam) 24" on centre. The flat of the panel shall contain cross flutes 6" on centre perpendicular to the major corrugations the entire length of the panel to reduce wind noise and improve walkability.
- .2 Panel material as specified shall be: 24 gauge galvanized (G-90 coating) per ASTM specification A 525 (G90).
- .3 Panels of maximum possible lengths shall be used to minimize endlaps, eave panels shall extend beyond the structural line of the sidewall.
- .4 Panels shall be factory pre-punched at panel end to match pre-punched holes in the eave structural member. Panel end splices shall be factory pre-punched and pre-notched. Panel end splices shall be floating and allow the roof panels to expand and contract with roof panel temperature.
- .5 Ridge assembly shall be designed to allow roof panels to move lengthwise with expansion/contraction as the roof panel temperature changes. Parts shall be factory pre-punched for correct field assembly. Panel closures an interior reinforcing straps shall be installed to seal the panel ends at the ridge. The attachment fasteners shall not be exposed on the weather side. A lock-seam plug shall be used to seal the lock-seam portion of the panel. A hi-tensile steel ridge cover shall span from panel closure to panel closure and flex as the roof system expands and contracts.
- .6 Provide secondary framing for (2) metal roof curbs required for (2) HVAC units.
- .7 Provide pipe or conduit flashings penetrating the roof for the HVAC units and exhaust fans.
- .8 Insulation Board: Rigid "Thermax" Metal Building Board glass-fiber-reinforced, polyisocyanurate foam plastic core.
- .9 Vapour Retarder: WMP-50, 0.0015-inch minimum thickness, UV-stabilized, white polypropylene, laminated to 30-pound Kraft paper / metalized polyester and reinforced with glass fiber and polyester scrim.
- .10 Interior Liner Panel: 0.15-mil min primer and 0.70-mil minimum interior white polyester paint.

.8 WALL PANELS

- .1 Panel Material and Finish:
Steel-faced, shop-assembled, factory-foamed, insulated panel units. Double tongue-and groove, side-joint design, with fasteners concealed within side joint. Nominal Thickness: [4 inches]. One piece from base to top of wall.
- .2 Exterior Face:
Nominal Width: 36 inches. Roll-formed, flat surface from 24-gauge, Galvalume-coated steel.
Finish: Non-directional embossed finish, factory cleaned, pretreated, and coated with baked-on finish compatible for "Texture-Cote" finish system adhesion.
- .3 Interior Face:
Roll-formed from pre-painted steel with 1/16-inch-deep corrugations on 6-inch centers.

- .4 Panel Material and Finish:
Flat Exterior Face: 24-gauge, AZ50 aluminum-zinc coated steel.
Interior Face: 26-gauge, AZ50 aluminum-zinc coated steel.
Core: Poured-in-place polyurethane foam with a minimum 93 percent closed-cell structure.
- .5 Exterior Finish: "Texture-Cote" finish system applied to substrate and factory cured.
Warranty: 10-year warranty on material and application.
- .6 Panel Physical Properties: Calculated U-Factor: Based on actual test results from ASTM C 518 of panel core material. 4-Inch-Thick Panels: 0.0307
- .7 Panel Application
Structural system shall be plumb before wall panels are attached. Panels shall be aligned and attached in accordance with erection drawings furnished by Supplier.
- .8 Trim:
All exterior trim shall be of the same finish as the exterior colour of the wall panel. All gutters, downspouts, eave trim, gable trim, door side flashings, trim drip gutters and base trim to be of same finish as exterior colour.
- .9 Accent Strip:
8" wide x full length accent colour at bottom of metal siding to be prefinished metal (see elevations)
- .10 Provide trim around any louver, grill, or pipe openings.
- .11 Liner Sheet: (Air Barrier Membrane): L-800R, 22 Ga., prefinished, Air Barrier Membrane not required for insulated wall panels.

.9 ROOF DRAINAGE

- .1 Pre-finished 24 gauge wide contour metal gutter (11" wide x 5" deep) and 5" downspouts shall be engineered to permit adequate drainage of the entire roof system to grade.
- .2 Maximum downspout spacing: at low side 20' +/- o.c. Coordinate with Rain Water Harvesting System.
- .3 Colour: To match siding

PART 3 – EXECUTION

.1 ERECTION AND INSTALLATION

The erection of the metal building and the installation of accessories shall be performed in accordance with the Building Manufacturer's erection drawings by qualified erector using proper tools and equipment.

Erection practices shall, in addition, conform to CSA S16. There shall be no field modifications to primary structural members except as authorized and specified by the Building Manufacturer.

END OF STRUCTURAL PERFORMANCE STANDARDS

1. General

- .1 The mechanical systems shall conform to National and Provincial Building Codes and Municipal By-laws for the intended use and meet or exceed all fire and life safety requirements as per the latest Ontario Building Code and Ministry of Labour Regulations. If there should be a conflict between the requirements of this specification and reference codes and by-laws, then the most stringent or strict requirements shall apply.
- .2 All mechanical systems shall be designed by an experienced licensed Professional Engineer in fire station facilities and constructed using the most modern, proven technology regarding energy efficiency, occupant comfort, maintainability and operation cost. In general, the approach should be to use an available mechanical system.
- .3 The Design-Builder shall pay for and obtain all permits, authorizations and inspections required by the latest codes and by-laws for mechanical systems including the Ministry of Consumer and Commercial Relations and Ministry of Labour.
- .4 Provide Operating and Maintenance Manuals, including a complete set of shop drawings and warranty information for all mechanical equipment and control systems.
- .5 Provide drainage valves with caps at all system low points.
- .6 Provide pressure gauges with stop cocks and thermometers in wells at all key locations to measure system performance and for troubleshooting of operating problems.
- .7 Tag all valves, identify all piping in field with suitable markings and directional arrows and provide valve charts in mechanical rooms, complete with flow and control diagrams. Tags to be laminated plastic type.
- .8 Provide access to all fire dampers, fans, pumps, coils, control devices and sensors for maintenance and repairs.
- .9 Identify locations of all concealed equipment within ceiling spaces, shafts, etc. by installing colour coded pressure sensitive tape on T-bar or access doors.
- .10 All equipment, piping, ductwork and insulation shall be asbestos free.
- .11 All motors for fans and pumps over 560 W (3/4 HP) shall be high efficiency type.
- .12 Mechanical equipment shall be provided with isolators in order to avoid transmission of vibration.
- .13 Provide for a natural gas fired backup power generator (electric panel capacity, automatic transfer switch, wiring, gas line and valves) to provide backup for the full building.

2. Site Services

- .1 Co-ordinate all building services with the Site Services Subcontractor.
- .2 The heating fuel source to be utilized for this facility shall be natural gas as supplied by the local utility. Make connections at gas main, meters and regulators to building as required. Install in accordance with CSA/CAN/CGA-B149.1 and utility requirements. Extend supplies from existing services connections where possible.
- .3 Provide water for domestic and building fire protection purposes as required.
- .4 Provide backflow preventers in the new service connections, as required, to meet the requirement of the local authorities.
- .5 Connect building sanitary sewer to sanitary line (septic system). Sewers shall drain by gravity where possible.
- .6 Connect roof drainage to the site drainage system. Provide control flow roof drainage and interconnecting piping.

3. Plumbing And Drainage

- .1 All plumbing and drainage materials, fixtures, piping, fittings and equipment shall comply with all municipal standards and shall be subject of approval by the plumbing inspector.
- .2 Provide adequate number and size of roof drains with metal dome and flashing clamp.
- .3 Wherever trench drains are required, they shall be a minimum 300 mm x 300 mm in cross-section provided with a heavy duty galvanized iron anti-tilting grate. Drainage from floor drains shall have a minimum slope of 2% to nearest catchbasin and/or manhole.
- .4 Provide four non-freeze type exterior hose bibs, located on each side of the building.
- .5 Water closets and urinals shall be vitreous china wall-mounted type with flush valves. Locate flush valve tight to closest and/or urinal in order to reduce potential of vandalism. Fasten securely with tee bracket split ring.
- .6 Lavatories shall be vitreous china with carriers and heavy duty 100 mm centre set faucet and open strainer.
- .7 Showers to be fed from a common tempered water supply with self-cleaning tamperproof heads. Water supply to each head shall be controlled by an adjustable timer.
- .8 Provide eyewash and safety showers using room temperature water at each location required by code. Portable eyewash Station may be used in work areas.

- .9 Provide accessible type fixtures as required by code and the Accessible Built Environment Standard.
- .10 Floor drains shall be heavy-duty type and not susceptible to warping or dishing with prolonged heavy traffic. Locate drains out of main traffic areas. In washroom/ locker room/ shower rooms, locate near sink; in showers, provide trench drains.
- .11 Provide floor drains in washrooms, mechanical rooms, pits and food preparation areas.
- .12 Provide a central domestic hot water supply with recirculation piping system to serve each fixture. System size shall include for 3 kW addition heating capacity for each concession. Provide anti-scale protection where applicable.
- .13 Provide pressure boosting pumps to maintain a minimum cold and hot water pressure of 60 psi.
- .14 For shut-off service, use bronze body ball valves for piping 50 mm and smaller. Use gate valves for piping larger than 50 mm.
- .15 Heat trace and insulate all piping where freezing conditions could result in pipe failure, including drain lines from rain water leader, etc.
- .16 Provide shut-off valves for each fixture and group of fixtures.
- .17 Provide a weeping tile system around building perimeter and at each retaining wall.

4. Heating Ventilation And Air Conditioning

- .1 Design building heating, ventilation and air conditioning systems to meet the latest ASHRAE Standards and, in particular, No. 62 – Ventilation for Acceptable Indoor Air Quality and No. 90.1 – Energy Efficient Design for New Buildings. A/C for other than apparatus area.
- .2 The building heating systems shall have capacities to maintain the following indoor space conditions at the outdoor specified conditions:
- .3

Outdoor Design Conditions:	Indoor Design Conditions:
Summer: 30° C DB, 23° C WB	Summer: Max. Temp. 24° C mx R>h>55%
Winter: -22° C, 24 km/h wind	Winter: Max. Temp 24° C
- .4 Provide separate individual gas-fired infrared heating systems for heating apparatus truck bays. Locate zoned timer controls for each system in the Mechanical Room.
- .5 All mechanical systems and equipment shall be easily accessible for maintenance, shall be provided with space for components removal and components shall be readily available as spare parts from the manufacturer.

.6 Provide separate exhaust systems to the building exterior for each group of washrooms. Exhaust volumes shall meet code requirements or 10 air changes per hour, whichever is greater. Washrooms less than 5 m in area shall have a minimum exhaust of 47 L/s.

.7 Provide separate exhaust systems to the building exterior for the Bunker Gear Area. Exhaust volumes shall meet code requirements or 10 air changes per hour, whichever is greater.

.8 Provide sufficient outside air to offset all exhaust requirements and maintain positive pressure within building. Office areas, and other rooms, shall be maintained at a positive pressure relative to other adjacent spaces.

.9 Heating and ventilation systems shall allow for the odour flushing out of the building at ambient temperatures above 0 C. Odour flushing shall be achieved with 100% outside air, for a minimum of two hours during the unoccupied hours.

.10 Ventilation systems of mechanical rooms shall meet all code requirements and include all appropriate alarm and control devices.

.11 Packaged rooftop heating and air conditioning units for areas that require cooling are considered acceptable if appropriate access is provided if required.

.12 Packaged rooftop heating and ventilation units shall be used for connecting corridors and ancillary rooms. They shall be interlocked with roof exhaust systems fans. These systems shall be arranged to be automatically turned to set back temperatures during unoccupied periods by an electronic timer.

.13 All piping in unheated areas shall be heat traced and insulated.

.14 Provide sufficient separation between outside air intake and exhaust air locations to avoid short-circuiting of contaminated air back into the building. Meet all code requirements and good engineering practices regarding air intake and exhaust locations and louvre sizing.

.15 Mechanical equipment, components and systems shall be designed and selected in order to maintain a noise level in the occupied areas below the level allowed by the Codes and Regulations.

.16 The supply air filtration system efficiency shall be 60 – 65% minimum.

.17 All areas with high or different internal loads shall be zoned separately. All meeting rooms, washrooms and similar areas shall be zoned separately from any other rooms.

.18 In order to maintain air circulation, the minimum ventilation rate (outside and recirculated air) supplied to the occupied areas shall be 4 L/s, m at any room load.

5. Fire Protection

- .1 Provide fire extinguishers, with a minimum capacity of 4.5 kg (10 lb.), throughout area in accordance with NFPA requirements and the local authorities. All extinguishers provided shall be new and have the ability to be fully serviced. No plastic heads. Place extinguishers in built-in flush cabinets.

6. Thermal Insulation

- .1 Rigid type thermal insulation shall be applied to all hot and cold piping, ductwork and mechanical equipment surface to reduce heat loss or heat gain and to prevent condensation from occurring.
- .2 Provide insulation on all heat piping.
- .3 All hot and cold piping in the header trenches shall be insulated.
- .4 Piping and fittings not concealed in ceiling space or wall shafts shall be covered with a white PVC jacket.

7. Acoustic And Vibration

- .1 In order to maintain tolerable levels of noise in the occupied areas, mechanical systems shall be acoustically treated to reduce the noise generated by the equipment that may be transmitted by the piping through floors and walls, etc.
- .2 Equipment generated vibration shall be similarly treated to reduce disturbance and maintain the comfort of the building occupants.

1.1 General

- .1 Provide a complete electrical system. Comply with the latest edition of all applicable codes including:
 - Ontario Electrical Safety Authority
 - Ontario Building Code
 - CSA
 - ULC
 - CAN/ULC – S542
 - CAN4 – 536
 - Local Ordinances and Authorities
- .2 Obtain, pay for all necessary permits, licenses, inspections and fees required.
- .3 Include for all approval certificates.
- .4 Design electrical systems to conform to requirements for barrier-free access.
- .5 Include for all premium time as required to complete the project.

1.2 Energy-Efficient Design Criteria

- .1 Design shall conform to, or exceed where feasible, the ASHRAE 90.1 energy-efficient design standard.
- .2 The new facility shall be designed for energy-efficient application of electrical systems, while at the same time providing a pleasant and healthy environment for the building occupants.
- .3 State-of-the-art but proven technology shall be selected, where possible, to achieve optimum energy conservation levels.

1.3 Incoming Power

- .1 Anticipated demand calculations are to be submitted for the building indicating load and spare capacity on the selected main service equipment. Selection of service equipment must recognize minimum requirement of CSA – 22.1.1194, Section 8. Provide minimum 20% spare capacity in service, feeders and panels.
- .2 High voltage service conductors from the power system to the new transformers shall be installed underground in concrete encased duct bank. Provide secondary conductors to main electrical room installed below grade in concrete encased duct bank. Obtain specific service requirements from Hydro One.
- .3 Main service equipment shall be provided complete with concrete pads, to the requirements of Niagara Hydro and Hydro One.

- .4 Include for all Hydro One charges that are associated with incoming power, including transformer.
- .5 Provide surge arrestors as per CSA for the transformation system and service entrance board.
- .6 Supply and install a natural gas fired backup power generator (electric panel capacity, automatic transfer switch, wiring, gas line and valves) to fully power the station.

1.4 Building Power Distribution System

- .1 Utilize power in the building shall exceed the design load by 20% with a potential single bay expansion in future.
- .3 Terminate and meter incoming power at a Main Switchboard. The service entrance board shall be completed with a customer microprocessor controlled digital metering system. The meter shall read all voltages, kW, kVAR, kVA and provide an RS232 and RS485 communications ports.
- .4 Switchboard and incoming service to be loaded to not more than 80% of rated capacity, which shall include anticipated future expansion loads plus capacity.
- .5 Distribution/lighting/power panels are to be bolt-on circuit breaker type with minimum 20% spare capacity. Utilizing the largest panel for that amperage ?
- .6 Conduits shall be E.M.T. or rigid PVC as permitted by Code or stated otherwise. Where susceptible to mechanical damage, rigid threaded steel conduit will be heavy wall PVC. Conduits are to be installed concealed in slabs to be ceiling space or partitions except in unfinished mechanical, electrical and other utility or service areas where surface installation will be acceptable.
- .7 Wiring to be copper conductors with TWH, XLPE or THHN installation, rated 600 volt, for branch wiring and RW90 insulation, rated 1000 volt, for feeders. Armoured cable will be acceptable for feeders only. Armoured (BX) cable may be used for fixture drops, maximum length 1500 mm. Connections to transformers and motors to utilize flexible conduit.
- .8 Underground wiring to utilize type RWU installation and shall be in conduit.

- .9 Ground systems to incorporate ground bus and ground rods in main electrical room, if incoming water line is of conductive material, otherwise bonded to building water systems.
- .10 Provide separate green ground with all feeders and/or branch feeders installed in EMT conduit.
- .11 Include with submission a Single Line Diagram indicating proposed Power Distribution.

1.5 Interior Lighting

- .1 Accent and decorative lighting to be LED.
- .2 T12 lamps or ballasts will not be accepted.
- .3 Fixtures in washrooms, corridors to be LED, ceiling mounted with wire guards. Shower fixtures to be vapour proof.
- .4 Fixtures in unfinished equipment areas to be LED with reflectors
- .5 Required maintained light levels in lux areas listed below:
 - Entrance Level – 300
 - Office – 700
 - Corridors – 200
 - Mechanical/Electrical Equipment Areas – 300
 - Storage Areas – 300
 - Washroom – 300
 - Maintenance Areas – 500
 - Meeting Rooms – 500
- .6 Lighting is to be locally key switched throughout the complex. Utilizing guarded occupancy sensors, mounted high, wire remote from switches so that sensors can be easily bypassed, if necessary. Exception to above is security/night lighting, which should not be switched.

1.6 Exterior Lighting

- .1 Utilize LED light source for building and site lighting.
- .2 Provide contemporary style light standard for roadways and pedestrian walkways.
- .3 Provide security lighting on the building to include all alcoves, exits and entrances to the complex.
- .4 Minimum maintained light levels required in lux are:
 - Roadways – 10 Average – Uniformity Average to Minimum 3:1
 - Pedestrian Walkways – 25 Average – Uniformity Average Minimum 2:1

Provide sufficient shielding/directional fixtures to minimize adverse effect of neighbouring residents.
- .5 Exterior lighting control to be photocell ON, timer OFF with bypass switch in Electrical Room.

1.7 Miscellaneous Power

- .1 Wiring devices shall be specification grade, ivory in colour. Provide G.F.I. receptacles in washrooms exterior or near water as per ESA. Provide stainless steel cover plates for flush-mounted receptacles.
- .2 Connect maximum 6 receptacles per 15A circuit. Provide dedicated circuit as required for printers, copiers, fax, etc.
- .3 Provide convenience housekeeping receptacles throughout complex, including one in each entrance or exit vestibule connected to separate circuits.
- .4 In offices, meeting rooms and similar areas, provide one receptacle per 4 meters of wall. This is to be adjusted in specialized areas.
- .5 Provide exterior G.C.I. protected 15A, 120V receptacle at each exterior door. Provide disconnect switch just inside door for each receptacle. Mount high.
- .6 Provide motors, starters and feeders as required for mechanical systems. Starters to be grouped in mechanical room or electrical equipment areas, where possible.
- .7 Include for connections to all other equipment, such as electrically operated doors, clocks, etc.
- .8 All Owner metering indicated above to be installed in an electrical room.

1.8 Emergency Power And Exit Signs

- .1 Provide local battery units with local and remote heads to provide emergency lighting and exit signs throughout the complex, as required by Ontario Building Code and Hydro One.
- .2 Battery units shall incorporate an automatic test feature and self-diagnostics.
- .3 Provide battery back LED exit sign to Ontario Building Code requirements and Hydro One requirements.

1.9 Communications Systems

- .1 Supply and install complete rough-in for telephone system internal communications within the facility. Cable pull required for computer hook-ups. One phone in front vestibule for emergency calls.

1.10 Computer Network Systems

- .1 Supply and install complete rough-in for a dedicated computer system internal within the facility and connected to the main Township network. Cable pull required for computer hook-ups. Data runs are to be to each room with 4 connections in the Training Room.

1.11 Fire Alarm

- .1 Provide a complete upgraded Fire Alarm System, single stage, non-coded, zoned and electrically supervised, to current Ontario Building Code requirements.
- .2 Systems shall utilize pull station and where required, smoke and heat detectors, and shall be designed to meet current codes. Alarm and supervisory conditions shall be displayed on the annunciation and to be transmitted to local fire department or monitoring agency.

1.12 Security

- .1 Provide rough in including conduit, boxes and pull string for a security system. Hardware supply and installation is part of Cash Allowance (see Section 1050).

1.13 Products

- .1 Products shall be new and, where required, shall have CSA/ULC labels, or in exceptional cases, shall carry special Hydro Inspection labels.
- .2 Products are to be of good quality manufacturers. Include in specifications a minimum of three manufacturers for each product or system specified, unless single source procurement cannot be provided.

END OF ELECTRICAL PERFORMANCE STANDARDS

PART F

BUILDING PROGRAM & PROJECT REQUIREMENTS

Rooms Apparatus
Room Senior
Captain Office
Officer's Office
Kitchen Male
Washroom / Shower
Female Washroom /
Shower Chair/Table
Storage Storage
Room Utility Room
Bunker Gear S C B
A Compressor area
Multi Purpose
Room Corridor
Vestibule Entrance
Closet Back-Up G e
n e r a t o r

The following specifications are applicable unless otherwise noted.

Room Name: Apparatus Room

Item

Number of Rooms Required:	1
Occupant Load:	25 fire fighters
Net Floor Area (NFA):	appx. 3312 sq/ft - 3 bays, Preferred side clearance for the trucks would be 1.8m between truck and walls and 1.2m between trucks. Front clearance is 1.5m and the rear clearance is 3.0m
Equipment or furniture required:	<ul style="list-style-type: none">- Allow for 1 pumper truck at 11m long, 3.3m wide w/o mirrors and 3m high.- Allow for 1 rescue truck at 10m long, 3.3m wide w/o mirrors and 3m high.- Allow for 1 tanker truck that is 10m long, 3m wide w/o mirrors and 3m high.- Provide direct access to Bunker Gear Storage Area with mezzanine above- Refer to program for other rooms that require access to Apparatus Area.- Sliding glass door tack board display units 4'x4'- Stainless steel shelves below display units- Slop sink- Eye wash Station as per building code
Proximity to other areas:	Bunker Gear Storage area, Utility and Storage Room, Male and Female Washrooms, SCBA Compressor area preferably placed in mechanical room and outlet into apparatus bay

Design Criteria

82. Proximity to other areas noted may not be direct due to configuration of facility.
52. Ventilation of Compressor Room required.
53. Each overhead door shall have a 3 button control (open, stop, close) beside the door. In addition, each truck will be provided with a remote door opener that controls the front door of each bay that the truck is assigned to. Provide a single panel for all doors located in the apparatus area next to the Bunker Gear access.
54. Provide 6 inch water outlet for filling trucks in close proximity to Tanker Truck.
55. Room designed for ease of cleaning and maintenance including power washing of walls and floors.

Floor Finish: Concrete finish with nonslip epoxy with grit. Sloped to drain to trench drains. Painted back-up lines.

Walls finish: Painted concrete block and/or prefinished liner panel

for walls. Wall material as determined by Design-Builder to be finished. Utilize natural lighting through glazing in overhead doors.

Ceiling finish:

Ceiling material as determined by Design-Builder to be finished.

Doors:

- Provide 3 overhead doors. All overhead doors to be 4200mm wide x 4200mm high.
- Painted insulated hollow metal door and frame to outside. Insulated glass units in panel of doors (Uni-can locking system on exterior doors).
- Overhead Doors should be programmed to close on a timer and be equipped with a safety device that prevents closing when an object is within the sensed area. Have the garage doors on sensors that turn the apparatus bay heat off when the overhead doors are open to conserve energy.
- Have all doors into the station at ground level, no steps or elevation changes.

Millwork:

- Provide 3 stainless steel shelf units as noted above. Shelf units shall be 350mm deep x 2.4m long x 1.8m high. Location to be determined.

Electrical/Mechanical:

- Provide WP outlets. Total of 16
- Provide 2 WP data/voice outlets & WP outlet at each stainless steel shelf unit.
- Overhead air supply lines running from air compressor to each of the fire trucks to maintain air supply/air brakes. Provide retractable air lines.
- Power outlet on interior wall sufficient for air compressor (minimum 220V, 30A)
- Overhead wiring for truck plug-ins 3 WP in total in ceiling + 3 WP in total for Hubble Reels (12 ga) @ ceiling using retractable reels
- Hubble Reels 3 in total Location to be determined.

- Provide 3 ceiling fans c/w switch control.
- Provide 3 hose bibs in Apparatus Room.
- Provide a 6 inch hose connection for filling fire trucks
- Have sufficient exterior LED lighting around the station and in the parking lot
- Have an exterior natural gas connection for barbeque at patio
- Provide Gross Decontamination Shower – in Apparatus floor area or directly off floor area for shower in bunker gear to base clean or deluge.
- Eye wash station.
- Provide CO/NO2 monitored ventilation system to activate the necessary exhaust and alarms.

Contract Document Notes:

Architectural

- Refer to Part B.
- Refer to Part C for additional overhead door requirements and operation. Provide total of 3 overhead doors.
- Provide 200mm diameter steel bollards filled with concrete on outside of building on either side of overhead doors. Allow for 4 additional bollards, location to be selected by Owner. All bollards to be hot dip galvanized and enclosed with yellow PVC covers (3mm thick High Density Polyethylene).

Structural

- Refer to Part C.
- Minimum 200mm thick concrete floor slab on 200mm clear stone. Slab shall be reinforced with minimum 10M@300c/c each way.
- Minimum 12m long apron outside of exits doors. Apron width shall accommodate both overhead doors and shall consist of 200mm thick concrete slab on 200mm clear stone. Slab shall be reinforced with minimum 10M@300c/c each way.

Mechanical

- Refer to Part D,
- Provide trench drain below each fire truck, running parallel to fire truck. Floor drains required to catch summer/winter road residue and high quantities of water from washing apparatus.
- Provide oil interceptor,
- Overhead compressed air lines to be provided for fire trucks only.
- CO/NO2 monitored ventilation system to activate the necessary exhaust and alarms.
- Provide overhead hose reel plumbed for truck wash.

Electrical

- Refer to Part E,
- Cable Reel at ceiling. Unit shall be Hubble GCA16 series with 8m cord and duplex receptacle.
Provide 340° swivel base as required 3 locations.
- Provide adequate lighting
- Lights to be on occupancy sensors
- Provide 2 dedicated outlets for pressure washer located in front of bays between overhead doors

Plumbing

- Mount radiant tube heater control system panel and thermostat in lieu of manifold,
- Connect trench drain to septic,
- Provide oil interceptor in close proximity outside the building,
- Provide for required natural gas service and related metering to code requirements,
- Provide drain sumps and sediment basket,
- Provide one hot and 3 cold water outlet in front of bays for pressure washer and wash bucket filling

Room Name: Office for Senior Captain

Item

Number of Rooms Required:	1
Occupant Load:	1 officer, 2 visitors (chairs only)
Net Floor Area (NFA):	appx 145 sq/ft
Equipment or furniture required:	<ul style="list-style-type: none">- Provide 1200mm x 1200mm bulletin board and 1200mm x 1200mm white board with tray and markers.- Furniture by Owner.- Allow for shelving unit. Shelving Unit by owner.
Proximity to other areas:	Multipurpose room and easy access to Apparatus Room.

Design Criteria

Floor Finish:	Polished Concrete
Walls finish:	PTD drywall, floor to ceiling.
Ceiling finish:	Suspended acoustical ceiling system w/recessed lighting
Door:	Painted hollow metal door and frame. Safety glass in top and bottom panel of door. Provide locking hardware. Locking system to match to Township key program.

Contract Document Notes:

Architectural

- Refer to Part B
- Provide White Boards and Tackboards as follows:
 - o Marker boards: Marker boards shall be porcelain enamel on steel laminated to 8mm impregnated core with zinc coated backing sheet, Series 800 Pre-framed by Architectural School Products or approved equal. Each marker board shall be complete with clear anodized aluminum perimeter trim and chalk tray, concealed hanging brackets and one box (12 per box) of companion marking pens, black in colour. Provide 1200mm x 1200mm. Total of 1.
 - o Tackboards: Tackboards shall be "Series 200" as manufactured by Architectural School Products or equal. Consisting of 6 mm steel grey coloured cork laminated under heat and pressure to 6mm hardboard with clear aluminum frame; wall mounted with concealed wall hanger. Perimeter trim No. 205. Provide 1200mm x 1200mm Total of 1.

Structural

- Refer to Part C

Mechanical

- Refer to Part D

Electrical

- Refer to Part E

Room Name: Officer's Office

Item

Number of Rooms Required:	2
Occupant Load:	1 officers plus 2 visitors chairs around desk
Net Floor Area (NFA):	appx. 145 sq/ft
Equipment or furniture required:	<ul style="list-style-type: none">- Provide 1200mm x 1200mm bulletin board and 1200mm x 1200mm white board with tray and markers.- Office desks and cabinets for two staff persons.- Furniture by Owner.- Allow for shelving unit. Shelving Unit by owner.
Proximity to other areas:	Multipurpose Room and easy access to
Apparatus Room. Sub-rooms:	

Design Criteria

Floor Finish	Polished Concrete
Walls finish:	PTD drywall, floor to ceiling.
Ceiling finish:	Suspended acoustical ceiling system w/recessed lighting
Door:	Painted hollow metal door and frame. Safety glass in top and bottom panel of door. Provide locking hardware. Locking system to match to Township key program.

Contract Document Notes:

Architectural

- Refer to Part B

- Provide White Boards and Tackboards as follows:

- Marker boards: Marker boards shall be porcelain enamel on steel laminated to 8mm impregnated core with zinc coated backing sheet, Series 800 Pre-framed by Architectural School Products or equal. Each marker board shall be complete with clear anodized aluminum perimeter trim and chalk tray, concealed hanging brackets and one box (12 per box) of companion marking pens, black in colour. Provide 1200mm x 1200mm. Total of 1.
- Tackboards: Tackboards shall be "Series 200" as manufactured by Architectural School Products or equal. Consisting of 6 mm steel grey coloured cork laminated under heat and pressure to 6mm hardboard with clear aluminum frame; wall mounted with concealed wall hanger. Perimeter trim No. 205. Provide 1200mm x 1200mm Total of 1.

Structural

- Refer to Part C

Mechanical

- Refer to Part D

Electrical

- Refer to Part E
- Provide adequate lighting
- Lights to be on occupancy sensors
- Provide 6 electrical outlets
- Provide 2 data/voice drops and locations of all devices to be determined by the Owner. - Computer and communications compatibility

Room Name: Kitchen

Item

Number of Rooms Required:	1
Occupant Load:	3 to 4 persons
Net Floor Area (NFA):	TBD
Equipment or furniture required:	<ul style="list-style-type: none">- Provide for double stainless steel residential compartment sink.- Allow for microwave, dishwasher and refrigerator and stove as supplied by Owner.- Provide hand washing sink per Health Unit requirements.- Sufficient outlets on counter for crock pots, warmers etc. (separate circuits).
Proximity to other areas:	Multipurpose room

Design Criteria

Floor Finish:	VCT with rubber base.
Walls finish:	PTD drywall, floor to ceiling.
Ceiling finish:	Suspended acoustical ceiling system w/recessed lighting

Contract Document Notes:

Architectural

- Refer to Part B
- Cabinets to incorporate the following hardware or approved equal:
 - o Shelf Supports: Knape and Vogt KV255 ZC strips and KV256 ZC clip support or approved equal.
 - o Hinges: Blum (or approved equal) concealed hinges 170° opening, self closing. Provide manufacturer's recommended number of hinges to suit door size and thickness.
 - o Pulls: Richelieu 2288 (or approved equal), finish 195, mat nickel, 135mm long
 - o Small Drawer Suspension: Blum BS430E or Knape and Vogt 1375 (or approved equal). Full extension 75 lb. capacity for all small drawer suspension types.
 - o Deep Drawer Slides: Blum BS426A bottom mounted, Knape and Vogt 1483 or Accuride 4005 by McFadden (or approved equal). Full extension 150 lb. capacity for all deep drawer slide types.

Structural

- Refer to Part C

Mechanical

- Refer to Part D
- Provide water line for refrigerator ice/water.
- Provide venting hood for stove

Electrical

- Refer to Part E
- Provide adequate lighting
- Lights to be on occupancy sensors

Room Name: Male Accesible Washroom // Shower

Item

Number of Rooms Required:	1
Occupant Load:	2
Net Floor Area (NFA):	140 sq/ft approximately
Equipment or furniture required:	<ul style="list-style-type: none">- 1 water closet on motion sensor (hard-wired) minimum or per OBC requirements.- 1 urinals on motion sensors (hard-wired) minimum or per OBC requirements- 1 lavatories minimum or per OBC requirements.- Toilet partition by Hadrian (powder coated finish) or approved equal- Soap dispenser (supplied by Owner, installed by Design-Builder)- Mirror – 1 per sink- Grab bars at handicap toilet and shower- Toilet paper dispenser (supplied by Owner, installed by Design-Builder)- Paper towel dispenser and receptacle (supplied by Owner, installed by Design-Builder)- 20 lockable prefinished lockers 375mm wide x 610mm deep x 1000mm high (G.S.S. Décor Tri-Lock Eclipse or equal).- Bench (Fixed) for locker area and folding bench for shower- Shower & Shower Curtain w/ rod.- Towel hooks (American Specialties Inc. 0745-Z or equal).
Proximity to other areas:	- Accessible from Apparatus Room and multi-purpose room

Design Criteria

Floor Finish	<ul style="list-style-type: none">- Polished concrete- Ceramic tile in shower
Walls finish:	<ul style="list-style-type: none">- PTD drywall, floor to ceiling.- Ceramic tile full height in shower area.- Ceramic tile 1.2m high in toilet and urinal areas.
Ceiling finish:	<ul style="list-style-type: none">- Suspended drywall ceiling system, painted
Door:	<ul style="list-style-type: none">- Painted hollow metal door and frame.- Door to locker area for privacy.

- Electrical/Mechanical:
- Provide power outlet GF WP at vanity
 - Lighting as per Part F
 - Lights on occupancy sensors
 - Faucets on motion sensors (hard-wired)
 - Plumbing for lavatory and shower. Shower complete with adjustable shower head (Sliding Rod) and controls.
 - Provide floor drain in washroom area, locker area and floor drain at shower
 - must meet accessibility standards
- Millwork:
- Millwork for vanity.

Contract Document Notes:

- Refer to Part B
- Washroom Accessories as follows:
 - Toilet Paper Holder (TPD):
 - Type: To match township supplier). Design-Build contractor to coordinate and install.
 - Grab Bars (GB1):
 - Finish: Stainless steel, peened surface
 - Features: Concealed welded flanges and concealed anchor devices and mounting screws as required to suit installation
 - Support: 900 lb. (4 kN downward pull)
 - Model: Frost Code 1001-24-DP (or approved equal), 610mm x 38mm or equal, mount horizontally behind toilet. Frost Code 1001-38-DP, 760mm x 38mm or equal, mount horizontally and vertically in shower stalls. 2 grab bars for each shower stall
 - Grab Bars (GB2):
 - Finish : Stainless steel, peened surface
 - Features : Concealed welded flanges and concealed anchor devices and mounting screws as required to suit installation
 - Support : 900 lb. (4 kN downward pull)
 - Model : Frost Code 1003-38-DP (or approved equal), 760mm x 760mm x 38mm “ or equal, mount on side wall. Refer to drawings for LH or RH conditions.
 - Robe Hook (RH2):
 - Type : Surface Mounted Coat Hook and Bumper
 - Finish : Chrome Plated Brass with Neoprene Bumper
 - Mounting : 2 Mounting Screws
 - Model : American Specialties Inc. 0714 or equal.
 - Framed Mirror (F/MIR):
 - Mounting : Vandal resistant
 - Frame : Stainless steel, No. 4 satin finish
 - Model : Bobrick B-165 or equal, 460mm x 900mm high.
 - Paper Towel Dispenser/Waste Receptacle (PTD):
 - Type : Surface mounted
 - Finish : Satin finish steel
 - Model : Bobrick B-3949 or equal.

- o Soap Dispenser (SD1):
 - Type : Supplied by Township supplier (Design-Builder to coordinate and install)

Structural

- Refer to Part C

Mechanical

- Refer to Part D
- Provide three (3) floor drains.

Electrical

- Refer to Part E
- Provide adequate lighting
- Lights to be on occupancy sensors

Room Name: Female accessible Washroom // Shower

Item

Number of Rooms Required:	1
Occupant Load:	2 females
Net Floor Area (NFA):	140 sq/ft approximately
Equipment or furniture required:	<ul style="list-style-type: none">- 2 water closets on motion sensor (hard-wired)- 1 lavatory- Toilet partition by Hadrian (powder coated finish) or approved equal- Soap dispenser (supplied by Owner, installed by Design-Builder)- Mirror- Grab bars at handicap toilet and shower- Toilet paper dispenser (supplied by Owner, installed by Design-Builder)- Paper towel dispenser and receptacle (supplied by Owner, installed by Design-Builder)- 5 lockable prefinished lockers 375mm wide x 610mm deep x 1000mm high (G.S.S. Décor Tri-Lock Eclipse or equal).- Bench (Fixed) for locker area and folding bench for shower- Shower & Shower Curtain w/ rod.- Towel hooks (American Specialties Inc. 0745-Z or equal).
Proximity to other areas:	- Accessible from Apparatus Room and multi-purpose room.

Design Criteria

Floor Finish:	<ul style="list-style-type: none">- Polished Concrete- Ceramic tile in shower
Walls finish:	<ul style="list-style-type: none">- PTD drywall, floor to ceiling.- Ceramic tile full height in shower area.- Ceramic tile 1.2m high in toilet areas.
Ceiling finish:	<ul style="list-style-type: none">- Suspended drywall ceiling system, painted
Door:	<ul style="list-style-type: none">- Painted hollow metal door and frame.- Door to locker area for privacy.
Electrical/Mechanical:	<ul style="list-style-type: none">- Provide power outlet GF WP at vanity- Lighting as per Part F- Lights on occupancy sensors

- Faucets on motion sensors (hard-wired)
- Plumbing for lavatory and shower. Shower complete with adjustable shower head (sliding rod) and controls.
- Provide floor drain in washroom area, locker area and floor drain at shower
- must meet accessibility standards

Millwork:

- Millwork for vanity.

Contract Document Notes:

- Refer to Part B
- Washroom Accessories as follows:
 - Toilet Paper Holder (TPD):
 - Type: by Dominion or Flexo. Design-Build contractor to coordinate and install.
 - Grab Bars (GB1):
 - Finish : Stainless steel, peened surface
 - Features : Concealed welded flanges and concealed anchor devices and mounting screws as required to suit installation
 - Support : 900 lb. (4 kN downward pull)
 - Model : Frost Code 1001-24-DP (or approved equal), 610mm x 38mm or equal, mount horizontally behind toilet. Frost Code 1001 -38-DP (or approved equal), 760mm x 38mm or equal, mount horizontally and vertically in shower stalls. 2 grab bars for each shower stall
 - Grab Bars (GB2):
 - Finish : Stainless steel, peened surface
 - Features : Concealed welded flanges and concealed anchor devices and mounting screws as required to suit installation
 - Support : 900 lb. (4 kN downward pull)
 - Model : Frost Code 1003-38-DP (or approved equal), 760mm x 760mm x 38mm “ or equal, mount on side wall. Refer to drawings for LH or RH conditions.
 - Robe Hook (RH2):
 - Type : Surface Mounted Coat Hook and Bumper
 - Finish : Chrome Plated Brass with Neoprene Bumper
 - Mounting : 2 Mounting Screws
 - Model : American Specialties Inc. 0714 or equal.
 - Framed Mirror (F/MIR):
 - Mounting : Vandal resistant
 - Frame : Stainless steel, No. 4 satin finish
 - Model : Bobrick B-165 or equal, 460mm x 900mm high.
 - Paper Towel Dispenser/Waste Receptacle (PTD):
 - Type : Surface mounted
 - Finish : Satin finish steel
 - Model : Bobrick B-3949 or equal.
 - Soap Dispenser (SD1):
 - Type : by Dominion or Flexo (or approved equal) (Design-Builder to coordinate and install)

- o Sanitary Napkin Receptor (SNR):
 - Finish : Stainless steel No.4
 - Mounting : Surface
 - Model : American Standard 0852 or equal

Structural

- Refer to Part C

Mechanical

- Refer to Part D
- Provide three (3) floor drains.

Electrical

- Refer to Part E
- Provide adequate lighting
- Lights to be on occupancy sensors

Room Name: Storage Room

Item

Number of Rooms Required:	1
Occupant Load:	N/A
Net Floor Area (NFA):	appx. 192 sq/ft
Equipment or furniture required:	- Pantry style cabinets - Shelving
Proximity to other areas:	Office and Multi-purpose room

Design Criteria

Floor Finish:	- Sealed concrete with rubber base.
Walls finish:	- PTD drywall, floor to ceiling.
Ceiling finish:	- Suspended acoustic ceiling system
Door:	- Painted hollow metal door and frame. - Provide locking hardware. Locking to match Township key system.
Electrical/Mechanical:	- Provide adequate lighting and 2 outlets
Millwork:	- Provide pantry style millwork cabinets on 1 wall. 2 adjustable shelves below mid shelf on recessed metal pilasters.

Contract Document Notes:

Architectural

- Refer to Part B
- Cabinets to incorporate the following hardware:
 - o Shelf Supports: Knape and Vogt KV255 ZC strips and KV256 ZC clip support or approved equal.
 - o Hinges: Blum (or approved equal) concealed hinges 170° opening, self closing. Provide manufacturer's recommended number of hinges to suit door size and thickness.
 - o Pulls: Richelieu 2288 (or approved equal), finish 195, mat nickel, 135mm long

Structural

- Refer to Part C

Mechanical

- Refer to Part D

Electrical

- Refer to Part E
- Provide adequate lighting
- Lights to be on occupancy sensors

Room Name: Storage Room

Item

Number of Rooms Required:	1
Occupant Load:	N/A
Net Floor Area (NFA):	126
	sq/ft
Equipment or furniture required:	Provide three (3) stainless steel hooks over work bench.
Proximity to other areas:	Utility Room

Design Criteria

Floor Finish:	- Poured concrete with sealer.
Walls finish:	- PTD drywall, floor to ceiling with rubber base.
Ceiling finish:	- Suspended drywall ceiling system, painted
Door:	- Painted hollow metal door and frame. - Provide locking hardware. Locking to match Township key system.
Electrical/Mechanical:	- Provide adequate lighting (on occupancy sensor) - Provide 4 additional outlets in room -
Plumbing:	- Provide floor drain, hot and cold water
Millwork:	- Provide 2.4m long work bench c/w stainless steel counter top c/w stainless steel sink (residential size) and lower millwork cabinets. Same requirements for cabinets as kitchen. - Provide 4 shelves 400mm deep x 1500mm long on heavy duty wall standards and brackets. - Provide shelves in 2 locations along wall. Location to be determined. - Plywood for electrical panels if required

Contract Document Notes:

Architectural

- Refer to Part B
- Provide 3 stainless steel hooks (Bobrick B-232x36 or approved equal) over the bench.

Structural

- Refer to Part C

Mechanical

- Refer to Part D

Electrical

- Refer to Part E
- Provide adequate lighting
- Lights to be on occupancy sensors

Room Name: Utility Room

Item

Number of Rooms Required:	1
Occupant Load:	N/A
Net Floor Area (NFA):	
appx 126 sq/ft	
Equipment or furniture required:	Provide three (3) stainless steel hooks over work bench.
Proximity to other areas:	Mechanical and Electrical Room to be included in Utility Room. Access directly to Apparatus Room.

Design Criteria

Floor Finish:	- Poured concrete with sealer.
Walls finish:	- PTD drywall, floor to ceiling with rubber base.
Ceiling finish:	- Suspended drywall ceiling system, painted
Door:	- Painted hollow metal door and frame. - Provide locking hardware. Locking to match Township key system.
Electrical/Mechanical:	1. Supply and install new commercial 40lb capacity washing machine. The equipment shall have the primary purpose of laundering the machine washable components of firefighting ensembles, i.e. trousers, jacket, gloves, balaclava, helmet liner, etc. Specific features of the equipment are to include: <ul style="list-style-type: none">- Ability to launder a minimum of 1 complete ensembles,- Stainless steel construction of outer cylinder, tub and shaft,- Automatic load balancing.
2.	Supply and install portable bunker gear drying system (e.g. Ram Air, Phoenix Dryers, Direct Dryers or equivalent) for purpose of drying all components of the structural firefighting ensemble including gloves, boots, helmets and SCBA masks. System to accommodate a minimum of 2 ensembles. <ul style="list-style-type: none">- Provide adequate lighting (on occupancy sensor)- Provide 2 WP outlets over work bench- Provide 4 additional outlets in room- Provide controls for any water pumps.- Provide controls in Utility Room for natural gas generator located outside- Provide hot water tank and expansion tank or on demand to meet full capabilities

Plumbing:

- Provide floor drain, hot and cold water
- Slop sink with stainless steel backsplash, mop and broom rack.

Contract Document Notes:

Architectural

- Refer to Part B
- Provide 3 stainless steel hooks (Bobrick B-232x36 or equal) over the bench.

Structural

- Refer to Part C

Mechanical

- Refer to Part D

Electrical

- Refer to Part E
- Provide adequate lighting
- Lights to be on occupancy sensors

Room Name: Bunker Gear Area

Item

- Number of Rooms Required: 1
- Occupant Load: 20
- Net Floor Area (NFA): Included in Apparatus sq/ft
- Equipment or furniture required:
- Provide Gear Grid, Ready Rack or equivalent bunker gear storage racks, to be wire mesh design and provide the following features;
 - 24” compartments, 2 shelves,
 - Heavy Duty Gear Hanging Rod/Pole,
 - Two (2) Heavy Duty Hangers,
 - Gear Glove Hanger,
 - Trouser Hanger,
 - Gear Drying Hanger,
 - Helmet Holder,
 - Name Plate/Holder.
 - Provide Bench in the middle of the room, to run full length of bunker gear room.
 - Provide Small 1200mm x 1200mm bulletin board and small 1200mm x 1200mm white board over the small desk.
- Proximity to other areas: Access directly to Apparatus Room. Door to access directly from parking lot.

Design Criteria

The intent of this area would be to provide for a “pass-through” where firefighters responding to the call could enter the station through a door that would lead them into a wide hallway with bunker gear racks on both sides. This would allow firefighters to safely don their gear away from moving trucks and keep the gear protected from particulate. At the end of the pass-through firefighters would acknowledge the call on a base radio and obtain the CAD printout prior to entering the apparatus bay.

- Floor Finish: Concrete finish with nonslip epoxy with grit.
Sloped to drain to trench drains.
- Walls finish: PTD drywall, Or Metal floor to ceiling with rubber base
- Ceiling finish: Suspended drywall ceiling system, painted
- Doors: Painted hollow metal door and frame. Provide locking hardware. Locking to match Township key system.

Millwork: Provide small desk (1500mm long) to accommodate CAD printer and base radio. Desk to be complete with vertical bank of drawers to one side.

Contract Document Notes:

Architectural

- Refer to Part B
- Door to the exterior

Structural

- Refer to Part C

Mechanical

- Refer to Part D
- Provide 2 floor drains in Bunker Gear Room
- Provide adequate ventilation and exhaust for drying of bunker gear.
- Provide for humidity control.

Electrical

- Refer to Part E
- Provide adequate lighting
- Lights to be on occupancy sensors
- Provide telephone, data/IT, outlet, call for dispatch printer
- For overhead door controls refer to Apparatus Room. Provide single panel control for all overhead doors in Apparatus Room next to Bunker Gear Room.

Room Name: SCBA Compressor Area

Item

Number of Rooms Required:	1
Occupant Load:	N/A
Net Floor Area (NFA):	TBD
Equipment or furniture required:	N/A
Proximity to other areas:	Access to Apparatus Room

Design Criteria

This area includes rough in only for compressor purchase in future. Provide electrical power, floor reinforcement, ventilation and make-up air intake for breathing air compressor, cascade storage bank and containment refill station. Also include storage unit for 20 - 7.15" diameter SCBA cylinders and 5 - 4.4" diameter Oxygen bottles.

Floor Finish:	- Poured concrete with sealer.
Walls finish:	- PTD drywall, floor to ceiling with rubber base. - Provide adequate noise control in walls doors and ceiling due to compressor noise
Ceiling finish:	- Suspended drywall ceiling system, painted
Door:	- Painted hollow metal door and frame. - Provide locking hardware. Locking to match Township key system.
Plumbing:	- Provide drainage to floor drain for compressor.

Contract Document Notes:

Architectural

- Refer to Part B

Structural

- Refer to Part C

Mechanical

- Refer to Part D

- Provide proper make-up air and ventilation to room
- Provide fresh air intake to compressor by way of 100mm diameter PVC pipe. Ensure that the fresh air intake is not located in close proximity to exterior exhaust fumes.

Electrical

- Refer to Part E
- Provide adequate lighting
- Lights to be on occupancy sensors

Room Name: Multipurpose Room

Item

Number of Rooms Required:	1
Occupant Load:	31 (30 trainees and 1 instructor)
Net Floor Area (NFA):	803 sq/ft includes kitchen
Equipment or furniture required:	<ul style="list-style-type: none">- Allow for training tables, chairs and instructor's desk. Furniture by Owner.- Provide two (1) 1200mm x 4800mm whiteboards and one (1) 1200mm x 2400mm bulletin board.- Include monitor to be suitable for large screen and capable of connecting not only to computer but also satellite or cable television, include a Smart Board.
Proximity to other areas:	Corridor and Kitchen

Design Criteria

Floor Finish:	- Polished Concrete
Walls finish:	- PTD drywall, floor to ceiling.
Ceiling finish:	- Suspended acoustic ceiling system w/recessed lighting, outlets and speakers.
Door:	<ul style="list-style-type: none">- Painted hollow metal door and frame complete with sidelite. Provide doors to the exterior as required.- Provide locking hardware. Locking to match Township key system.-
Windows:	- Provide operable windows
Electrical/Mechanical:	- Provide adequate lighting and 2 split

outlets **Contract Document Notes:**

Architectural

- Refer to Part B

- Wall mounted speakers – 6 speakers
- Sony STR-DH520 (or approved equal) – AV Receiver – 7.1 Channel
- 1 x VGA, 1 x HDMI cable connections for 2 locations in same room (front/side), 15m length maximum, Audio Connection to Speakers

- Include installation and Configuration by Technician
- Provide White Boards and Tackboards as follows:
 - Marker boards: Marker boards shall be porcelain enamel on steel laminated to 8mm impregnated core with zinc coated backing sheet, Series 800 pre-framed by Architectural School Products or equal. Each marker board shall be complete with clear anodized aluminum perimeter trim and chalk tray, concealed hanging brackets and one box (12 per box) of companion marking pens, black in colour. Provide 1200mm x2400mm Total of 2.
 - Tackboards: Tackboards shall be “Series 200” as manufactured by Architectural School Products or equal. Consisting of 6 mm Steel Grey coloured cork laminated under heat and pressure to 6 mm hardboard with clear aluminum frame; wall mounted with concealed wall hanger. Perimeter trim No. 205. Provide 1200mm x 2400mm. Total of 1.

Structural

- Refer to Part C

Mechanical

- Refer to Part D
- Provide proper make-up air and ventilation to room

Electrical

- Refer to Part E
- Provide adequate lighting
 - Provide a blend of LED light fixtures and recessed pot lighting.
 - Provide for ceiling mounted digital projector. Provide data and power outlet.
 - Lights to be on occupancy sensors
 - Wired in speakers.
- Provide data/voice drops and power outlets around perimeter of rooms at training desks. Allow for 10 in total.
- Allow for 4 additional power outlets.
- Allow for 6 speakers in ceiling wired to AV box
- Allow for separate telephone outlet by the instructors desk.
- Allow for cable/satellite TV, computer outlet and power in behind projector screen approximately 5’ above floor.
- Allow for 3 outlets at ceiling for 3 new ceiling mounted fans.

Room Name: Corridor

Item

Number of Rooms Required:	1
Occupant Load:	1
Net Floor Area (NFA):	Extent and area to be determined by Design-Builder. The intent is to make access to each area as efficient as possible.
Equipment or furniture required:	N/A
Proximity to other areas:	Apparatus Room and Multipurpose Room.

Design Criteria

Floor Finish:	Polished Concrete.
Walls finish:	PTD block.
Ceiling finish:	Suspended T-bar, 600 x 1200 fluorescent lights.

Contract Document Notes:

Architectural

- Refer to Part B

Structural

- Refer to Part C

Mechanical

- Refer to Part D
- Provide proper make-up air and ventilation to room
- Provide floor drain

Electrical

- Refer to Part E
- Provide adequate lighting
- Lights to be on occupancy sensors

Room Name: Vestibule Entrance

Item

Number of Rooms Required:	1
Occupant Load:	N/A
Net Floor Area (NFA):	126
sq/ft.	
Equipment or furniture required:	Provide 2 door operators for each vestibule by Stanley for all entrances. Include required push plates to operate doors when entering and leaving.
Proximity to other areas:	Corridor, Training Room,

Washrooms. **Design Criteria**

Floor Finish:	Polished Concrete
Walls finish:	PTD drywall, floor to ceiling.
Ceiling finish:	Suspended drywall ceiling system, painted
Door:	<ul style="list-style-type: none">- Anodized aluminum doors with insulated glass for exterior insulated aluminum door and single glazing for interior door. Provide tempered glazing. Doors style to be heavy duty type. Provide side lights as required. Uni-can locking system on exterior doors.- Provide locking hardware (rated). Locking system to match to Township key program.

Contract Document Notes:

Square footage as per design layout. Allow for handicap accessibility.

Main Entrance is to be readily visible from the street and designed to comply with all requirements of the Accessibility for Ontarians with Disabilities Act.

Include 1 or 2 exterior lockable doors and 1 interior door to provide a public "Safe Haven" including telephone access to the Fire Dispatch Centre.

Architectural

- Refer to Part B

Structural

- Refer to Part C

Mechanical

- Refer to Part D

Electrical

- Refer to Part E
- Provide adequate lighting
- Lights to be on occupancy sensors
- Provide door operators and required push plates. Push plates to be wired, not battery operated.

Room Name: Closet

Item

Number of Rooms Required:	1
Occupant Load:	N/A
Net Floor Area (NFA):	
TBD 21 sq/ft	
Equipment or furniture required:	Slop sink with stainless steel backsplash, mop and broom rack.
Proximity to other areas:	Corridor, Training Room,

Washrooms. **Design Criteria**

Floor Finish:	VCT with rubber base.
Walls finish:	PTD drywall or block, floor to ceiling.
Ceiling finish:	Suspended drywall ceiling system, painted
Door:	- Painted hollow metal door and frame, one hour fire resistance rating. - Provide locking hardware (rated). Locking system to match to Township key program.
Millwork:	Provide stainless steel janitor shelving

unit. **Contract Document Notes:**

Architectural

- Refer to Part B
- Provide janitor shelf:
 - o Finish: - stainless steel
 - o Mounting: - surface mounted, 850mm wide by 200mm deep
 - o Features: - 3 spring loaded mop holders, stainless steel shelf
 - o Model: - Bobrick B-239 or equal.

Structural

- Refer to Part C

Mechanical

- Refer to Part D

Electrical

- Refer to Part E
- Provide adequate lighting
- Lights to be on occupancy sensors

Room Name: Back up Generator

Item

Number of Rooms Required:	N/A
Occupant Load:	N/A
Net Floor Area (NFA):	N/A
Equipment or furniture required:	-
Proximity to other areas:	N/A
Plumbing:	- Provide adequate sized gas line to generator. Coordinate all gas line requirements with Gas Company to ensure compatibility. Site work is to be included in the total project cost. Off site work at the road to included in the construction cost as noted under gas line engineering hook up allowance.

Contract Document Notes:

Natural Gas Generator to run Station at full capacity. Design-Builder design team to investigate placement of outside generator not in close proximity to residential zone due to noise levels.

The Design-Builder shall undertake all required permits include building permit and Certificate of Air as required.

Architectural

- Refer to Part B

Structural

- Refer to Part C

Mechanical

- Refer to Part D

- Provide proper ventilation from generator

Electrical

- Refer to Part E

- Provide proper switch and panels to accommodate the generator



New Proposed Location for Firehall



Legend

- Municipal Administration
- Parcel Fabric

50.8 0 25.40 50.8 Meters

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Notes



Terraprobe

Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing

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FIGURES

FIGURE 1	SITE LOCATION PLAN
FIGURE 2	BOREHOLE LOCATION PLAN

APPENDICES

APPENDIX A BOREHOLE LOGS

1.0 INTRODUCTION

This report presents the results of a geotechnical investigation carried out at 11603 Lakeshore Road in Burnaby, Ontario. The location of the site is shown on the plan, Figure 1. A proposal and cost estimate to carry out the investigation were provided in our letter of July 28, 2016.

The site consisted of an approximately 0.6 hectare piece of land located at the southwest corner of Lakeshore Road and Belleview Beach Road in Burnaby, Ontario. It is proposed to construct a new fire station to the west of the existing fire station. The general arrangement of the site and the proposed development is shown on Figure 2, based on a preliminary site plan prepared by Kalos Engineering Inc.

The purpose of the work was to investigate and report on the subsurface soil and ground water conditions in five boreholes drilled at the site. Information and advice on the geotechnical engineering aspects to be considered in the design of foundations, floor slabs on grade and pavements for the new station are provided based on our interpretation of the subsurface conditions encountered in the boreholes.

2.0 PROCEDURE

The field work for this investigation was carried out on October 21, 2016, during which time five (5) boreholes were drilled. The locations of the boreholes are shown on the Borehole Location Plan, Figure 2. The results of the boreholes are shown on the Log of Borehole sheets presented in Appendix A.

The boreholes were drilled using a track mounted power auger supplied and operated by a specialist drilling contractor. The boreholes were advanced using conventional interval augering and sampling techniques. Soil samples were recovered by split barrel sampling in accordance with ASTM D1586. After the drilling, sampling, and logging was completed, the boreholes were backfilled with auger cuttings and bentonite sealant. Ground water observations were made in each borehole during and upon completion of drilling and sampling.

The field work was observed throughout by a member of our engineering staff who located the boreholes, arranged for the underground utility clearances at the borehole locations and cared for the samples obtained during drilling.

The ground surface elevations at the boreholes were inferred from spot elevations shown on a topographical plan by Lanthier & Gilmore Surveying Ltd. The spot elevations were understood to have been referred to the Geodetic datum.

All of the samples recovered in the course of the investigation were brought to our Stoney Creek laboratory for further examination and water content determinations. The results of moisture content tests are plotted on the Log of Borehole sheets in Appendix A.

3.0 SUBSURFACE CONDITIONS

The subsurface soil and ground water conditions encountered in the boreholes, and the results of the field and laboratory testing, are shown on the Log of Borehole sheets in Appendix A. It should be noted that the boundaries between the stratigraphic units have been inferred from drilling observations and non-continuous samples. These boundaries generally represent a transition from one stratigraphic unit to another and should not be inferred to represent exact planes of geological change. Further, the subsurface conditions will vary between and beyond the boreholes.

3.1 Soil Conditions

The following discussion has been simplified in terms of the major soil strata for the purposes of geotechnical design. In general, the boreholes drilled at the site encountered shallow bedrock.

3.1.1 Topsoil

The boreholes encountered about 0.2 to 0.4m of black silty topsoil at the ground surface. The water content of the topsoil recovered from the penetration testing ranged from about 2 to 22 percent.

3.1.2 Clayey Silt Till

Borehole 1 penetrated a stratum of brown clayey silt till beneath the topsoil and to a depth of about 0.8m below the existing ground surface. A single N value of 19 blows per 0.3m was determined in the Standard Penetration Testing carried out in the clayey silt till indicating a very stiff consistency.

3.1.3 Bedrock

Refusal to advance by augering, which was presumed to coincide with the bedrock surface, was encountered at depths of 0.3 to 0.8m below the existing ground surface or between elevations 179.7

and 180.6m. ¹Geological mapping indicates that the bedrock in the area of the site consists of cherty, fossiliferous limestone belonging to the Onondaga Formation of Devonian age

3.1.4 Ground Water Conditions

All of the boreholes were dry during and upon completion of drilling. It should be noted that the conditions reported above may not necessarily represent stabilized conditions or the ground water conditions which will be encountered during construction. The ground water levels will vary due to seasonal effects and precipitation conditions.

4.0 DISCUSSION

The following discussion is based on our interpretation of the factual data obtained during this investigation and is intended for the use of the design engineer only. Comments made regarding the construction aspects are provided only in as much as they may impact on design considerations. Contractors bidding on or undertaking any work at the site should examine the factual results of the investigation, satisfy themselves as to the adequacy of the information for construction and make their own interpretation of the factual data as it affects their proposed construction techniques, schedule, equipment capabilities, costs, sequencing and the like.

Since only conceptual design information was available at the time of this investigation, some aspects of the following discussion are considered to be preliminary. Additional review may be required at the final design stage.

It is proposed to construct a new fire station to the west of the existing fire station as shown on Figure 2.

4.1 Building Foundations

The results of the boreholes indicate that the site was underlain by shallow bedrock. The depth to bedrock in the boreholes drilled on the site ranged from 0.3 to 0.8m below the existing ground. The bedrock beneath the site generally consists of cherty fossiliferous limestone. Exploration of the bedrock was not carried out as part of this investigation.

Conventionally designed spread/strip footing foundations supported on the limestone bedrock that underlies the site may be designed using a factored geotechnical resistance at Ultimate Limit States (ULS) of 2 MPa. In Limit States Design, the factored geotechnical resistance at ULS will govern the design

¹Paleozoic Geology of the Welland-Fort Erie Area, Southern Ontario; Ontario Division of Mines; Preliminary Map P. 989 – Geological Series; 1974.

since bedrock is non-yielding and the loading to produce 25 mm of axial deformation is greater than the factored resistance at ULS. It is considered that higher foundation design bearing resistance values may be feasible however further exploration of the bedrock would be necessary.

Depending on the grading scheme for the development it is expected that footings constructed on the bedrock will not have the depth of cover conventionally required for frost protection (i.e. ≥ 1.2 m). Both the Ontario and National Building Codes indicate that frost cover is not required where the bearing stratum is not frost susceptible. Although sound limestone bedrock would not be considered frost susceptible, highly weathered and/or highly fractured limestone or limestone with significant shale content may be frost susceptible, particularly where the drainage is poor. The migration of water into fissures, cracks, open bedding planes and other discontinuities of the bedrock that is within the frost zone may weaken the rock and possibly result in frost heave. Detailed exploration of the upper zone of the bedrock would be required to assess the susceptibility of the bedrock to frost if consideration is to be given to constructing footings on the bedrock without frost protection. Foundations supported on rock should be provided with perimeter foundation drains.

In instances where the upper surface of the rock is highly weathered or highly fractured, it may be feasible to excavate the frost susceptible zone of the rock or to install dowels through the frost zone into the underling sound rock. Alternatively consideration could be given to excavating the rock to provide the required frost protection or to provide the required frost protection by the use of insulation where adequate protection cannot be achieved by grading alone.

4.2 Seismic Design Considerations

The Ontario Building Code (2012) stipulates the methodology for earthquake design analysis, as set out in Subsection 4.1.8.7. The determination of the type of analysis is predicated on the importance of the structure, the spectral response acceleration and the site classification. The parameters for determination of Site Classification for Seismic Site Response are set out in Table 4.1.8.4A of the Ontario Building Code (2012). The classification is based on the determination of the average shear wave velocity in the top 30 meters of the site stratigraphy, where shear wave velocity (v_s) measurements have been taken. Alternatively, the classification is estimated on the basis of rational analysis of undrained shear strength (s_u) or penetration resistance (N-values).

Based on the results of the boreholes, and for foundations supported on the bedrock, it is recommended that the 'Site Class B', as per Table 4.1.8.4.A of the Ontario Building Code (2012) be considered for seismic analysis. Tables 4.1.8.4.B and 4.1.8.4.C. of the Code provide the applicable acceleration and velocity based site coefficients as follows

Site Class	Values of F_a				
	$S_a(0.2) \leq 0.25$	$S_a(0.2) = 0.50$	$S_a(0.2) = 0.75$	$S_a(0.2) = 1.00$	$S_a(0.2) \geq 1.25$
B	0.8	0.8	0.9	1.0	1.0
	Values of F_v				
	$S_a(1.0) \leq 0.1$	$S_a(1.0) = 0.20$	$S_a(1.0) = 0.30$	$S_a(1.0) = 0.40$	$S_a(1.0) \geq 0.50$
	0.6	0.7	0.7	0.8	0.8

Consideration could be given to conducting a site specific Multichannel Analysis of Surface Waves (MASW) at this site or a more accurate assessment of the average shear wave velocity. An improved seismic site designation may be possible on this basis.

4.3 Foundation Walls

The parameters used in the determination of unbalanced earth pressures acting on foundation walls are defined below.

Parameter	Definition	Units
ϕ	internal angle of friction	degrees
γ	bulk unit weight of soil	kN / m ³
K_a	active earth pressure coefficient (Rankin)	dimensionless
K_o	at-rest earth pressure coefficient (Rankin)	dimensionless
K_p	passive earth pressure coefficient (Rankin)	dimensionless

Walls subject to unbalanced earth pressures must be designed to resist a pressure that can be calculated based on the following equation:

$$P = K [\gamma (h-h_w) + \gamma' h_w + q] + \gamma_w h_w$$

where,

- P = the horizontal pressure at depth, h (m)
- K = the earth pressure coefficient,
- h_w = the depth below the ground water level (m)
- γ = the bulk unit weight of soil, (kN/m³)

γ' = the submerged unit weight of the exterior soil, ($\gamma - 9.8 \text{ kN/m}^3$)
 q = the complete surcharge loading (kPa)

Where the wall backfill can be drained effectively to eliminate hydrostatic pressures on the wall, acting in conjunction with the earth pressure, this equation can be simplified to:

$$P = K[\gamma h + q]$$

Since there is generally no overburden at the site, it will be necessary to import material for use as foundation backfill. On this basis it is recommended that the foundation backfill consist of OPSS Granular “B”.

The appropriate values for use in the design of structures subject to unbalanced earth pressures at this site are tabulated as follows:

Stratum/Parameter	ϕ	γ	K_a	K_o	K_p
Compact Granular Fill Granular ‘B’ (OPSS 1010)	32	21.0	0.31	0.47	3.25

4.4 Floor Slabs on Grade

Construction of the floor slabs on grade will consist of removing all of the topsoil as well as any highly organic subsoil and restoring the grade with an engineered fill material. Engineered fill should consist of OPSS Granular “A”, placed in 200 mm thick lifts with each lift uniformly compacted to 98 percent of standard Proctor maximum dry density. If the floor slab on grade will be covered with moisture sensitive flooring or if vapor transmission through the slabs is of concern, a vapor barrier must be provided beneath the slab. The vapor barrier could consist of a 200mm thick layer of clear crushed stone compacted to a dense state.

All slabs on grade should be structurally separate from foundation walls and columns. Interior load bearing walls or columns must be supported on footings as outlined in Section 4.1 of this report and not on the floor slab on grade

4.5 Underground Services

Bedding for the pipes should consist of well graded free draining granular material such as Granular “A”, which is compatible with the size and type of pipe and consistent with local standards. Care will be required to ensure that loosened or disturbed soil and or rock is removed prior to placing pipe bedding.

Trench backfill for the site services should consist of OPSS Type 1 “Granular B”. Re-use of excavated rock as backfill is not considered feasible unless the rock is crushed to a suitable size. All trench backfill should be placed in 300mm thick lifts with each lift uniformly compacted to at least 95 percent of standard Proctor maximum dry density (SPMDD). The upper 1m of trench backfill forming the pavement subgrade should be uniformly compacted to at least 98 percent of SPMDD. A minimum of 1.2 m of soil cover or equivalent insulation should be provided for all underground services.

4.6 Pavement Design

All areas to be developed as new pavements should be stripped of topsoil, fill and any loose surficial soil. In this case the subgrade will consist of the bedrock surface. The following pavement component thicknesses may be considered for new pavements.

Minimum Asphaltic Concrete Pavement Structure

Pavement Layer	Compaction Requirements	Minimum Component Thicknesses	
		Light Duty	Heavy Duty
Surface Course Asphaltic Concrete	92-96.5% MRD	40 mm	40 mm
Base Course Asphaltic Concrete HL8 (OPSS 1150)	92-96.5% MRD	80 mm	60 mm
Base Course: Granular A (OPSS 1010)	98% standard Proctor Maximum Dry Density (ASTM-D1557)	300 mm	300 mm

The thickness of the granular base indicated above is the minimum required. It is considered likely that the actual thickness may exceed 300mm in some areas depending on the final design grades.

In the case of the heavy duty pavements, the surface course or wearing surface should consist of HL1. The surface course for the light duty pavements (generally staff parking) may consist of HL3. Equivalent Super Pave mixes can be used in place of the Marshall Mix designations given above. SP12.5 FC1 can be used in place of the HL1 and SP19.0 in place of HL8.

Alternatively, consideration could be given to the use of rigid (concrete) pavement for some sections of the heavy duty pavement. In this case a minimum slab thickness of 200mm should be considered. Proper joint spacing for concrete paving is required for serviceable long-term performance.

5.0 DESIGN CONSIDERATIONS FOR CONSTRUCTABILITY

5.1 Excavations

It is expected that that bedrock excavation will be required to construct underground services and building foundations at the site. Local experience suggests that the excavation of the bedrock may be feasible using specialized excavation equipment and techniques, however “brute force” effort may ultimately be required and slow progress should be expected. Some over-break of the rock should also be expected. The ground water conditions in the bedrock have not been investigated.

All excavations must be carried out in accordance with the Occupational Health and Safety Act, Ontario Regulation 213/91 (as amended), Construction Projects, Part III – Excavations, Sections 222 through 242. These regulations designate four (4) broad classifications of soils for specifying appropriate measures for excavation safety. Within this context, the overburden at the site can be categorized as Type 3 Soil, provided that ground water seepage is controlled and surface water is directed away from open excavations. Excavations in the rock are expected to be self- supporting at near vertical inclinations.

5.2 Site Work

The overburden at the site consisted primarily of topsoil and near surface cohesive soil. The subgrade at this site will become weakened when subjected to traffic when wet. If site work is carried out during periods of wet weather, then it can be expected that the subgrade will be disturbed unless an adequate granular working surface is provided to protect the integrity of the subgrade soils from construction traffic. Subgrade preparation works cannot be adequately accomplished during wet weather and the project must be scheduled accordingly. The disturbance caused by the traffic can result in the removal of disturbed soil and use of fill material for site restoration or underfloor fill that is not intrinsic to the project requirements. Attempting to build slabs and pavements at this site during wet weather could significantly increase earthworks and pavement costs.

The most severe loading conditions on the subgrade may occur during construction. Consequently, special provisions such as end dumping and forward spreading of earth and aggregate fills, restricted construction lanes, and half-loads during paving and other work are required especially if construction is carried out during unfavourable weather.

If construction proceeds during freezing weather conditions, then adequate temporary frost protection for the founding strata and concrete must be provided.

5.3 Quality Control

The requirements for fill placement on this project have been stipulated relative to standard Proctor Maximum Dry Density. In situ density testing is required during fill placement to demonstrate that the specified placement density is achieved.

The foundation construction must be reviewed by a geotechnical engineer to confirm that the founding soil exposed is consistent with the design resistance intended. The on-site review of the condition of the foundation soil as the foundations are constructed is an integral part of the geotechnical design function and is required by Section 4.2.2.2 of the Ontario Building Code 2012.

Inspection and testing should be carried out during the construction of the pavements to verify the component thicknesses and the degree of compaction. Compliance testing of the pavement components including the granular base and subbase as well as the asphaltic concrete is also required. Concrete should be specified in accordance with the requirements of CAN3 - CSA A23.1-14.

6.0 LIMITATIONS AND USE OF REPORT

This investigation has been carried out using investigation techniques and engineering analysis methods consistent with those ordinarily exercised by Terraprobe and other engineering practitioners, working under similar conditions and subject to the time, financial and physical constraints applicable to this project. The discussions and recommendations that have been presented are based on the factual data obtained from this investigation.

It must be recognized that the passage of time, natural occurrences, and direct or indirect human intervention at or near the site have the potential to alter subsurface conditions. In particular, caution should be exercised in the consideration of contractual responsibilities as they relate to control of seepage, disturbance of soils, and frost protection.

The design parameters provided and the engineering advice offered are based on the factual data obtained from this investigation made at the site by Terraprobe and are intended for use by the owner and its retained design consultants in the design phase of the project. If there are changes to the project scope and development features then our interpretations of the subsurface information, the geotechnical design parameters, advice and comments relating to constructability issues and quality control may not be relevant to the revised project. Terraprobe should be retained to review the implications of changes with respect to the contents of this report and should be retained to review design drawings and specifications prior to construction.

Only conceptual design information regarding the proposed site development was available at the time of the investigation. For this reason it is recommended that the geotechnical engineering aspects of the final design be reviewed by this office.

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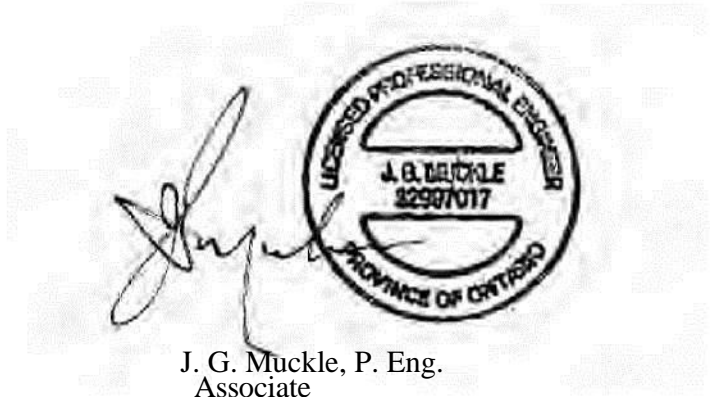
We trust this report is sufficient for your present requirements. If there is any point requiring further clarification, please do not hesitate to contact us.

Yours truly;

Terraprobe Inc.



Anthony Felice, B. Eng., E.I.T.



J. G. Muckle, P. Eng.
Associate



SAMPLING METHODS

AS	auger sample
CORE	cored sample
DP	direct push
FV	field vane
GS	grab sample
SS	split spoon
ST	shelby tube
WS	wash sample

PENETRATION RESISTANCE

Standard Penetration Test (SPT) resistance ('N' values) is defined as the number of blows by a hammer weighing 63.6 kg (140 lb.) falling freely for a distance of 0.76 m (30 in.) required to advance a standard 50 mm (2 in.) diameter split spoon sampler for a distance of 0.3 m (12 in.).

Dynamic Cone Test (DCT) resistance is defined as the number of blows by a hammer weighing 63.6 kg (140 lb.) falling freely for a distance of 0.76 m (30 in.) required to advance a conical steel point of 50 mm (2 in.) diameter and with 60° sides on 'A' size drill rods for a distance of 0.3 m (12 in.)."

COHESIONLESS SOILS COHESIVE SOILS

Compactness	'N' value	Consistency	'N' value	Undrained Shear Strength (kPa)
very loose	< 4	very soft	< 2	< 12
loose	4 – 10	soft	2 – 4	12 – 25
compact	10 – 30	firm	4 – 8	25 – 50
dense	30 – 50	stiff	8 – 15	50 – 100
very dense	> 50	very stiff	15 – 30	100 – 200
		hard	> 30	> 200

COMPOSITION

Term (e.g)	% by weight
trace silt	< 10
some silt	10 – 20
silty	20 – 35
sand and silt	> 35

TESTS AND SYMBOLS

MH	mechanical sieve and hydrometer analysis		Unstabilized water level
w, w _c	water content		1 st water level measurement
w _L , LL	liquid limit		2 nd water level measurement
w _p , PL	plastic limit		Most recent water level measurement
I _p , PI	plasticity index		Undrained shear strength from field vane (with sensitivity)
k	coefficient of permeability	C _c	compression index
γ	soil unit weight, bulk	c _v	coefficient of consolidation
φ'	internal friction angle	m _v	coefficient of compressibility
c'	effective cohesion	e	void ratio
C _u	undrained shear strength		

FIELD MOISTURE DESCRIPTIONS

Damp refers to a soil sample that does not exhibit any observable pore water from field/hand inspection.

Moist refers to a soil sample that exhibits evidence of existing pore water (e.g. sample feels cool, cohesive soil is at plastic limit) but does not have visible pore water

Wet refers to a soil sample that has visible pore water

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Sudbury, Ontario P3E 5P4

(705) 670-0460 Fax: 670-0558

www.terraprobe.ca

FIGURES



Terraprobe Inc.



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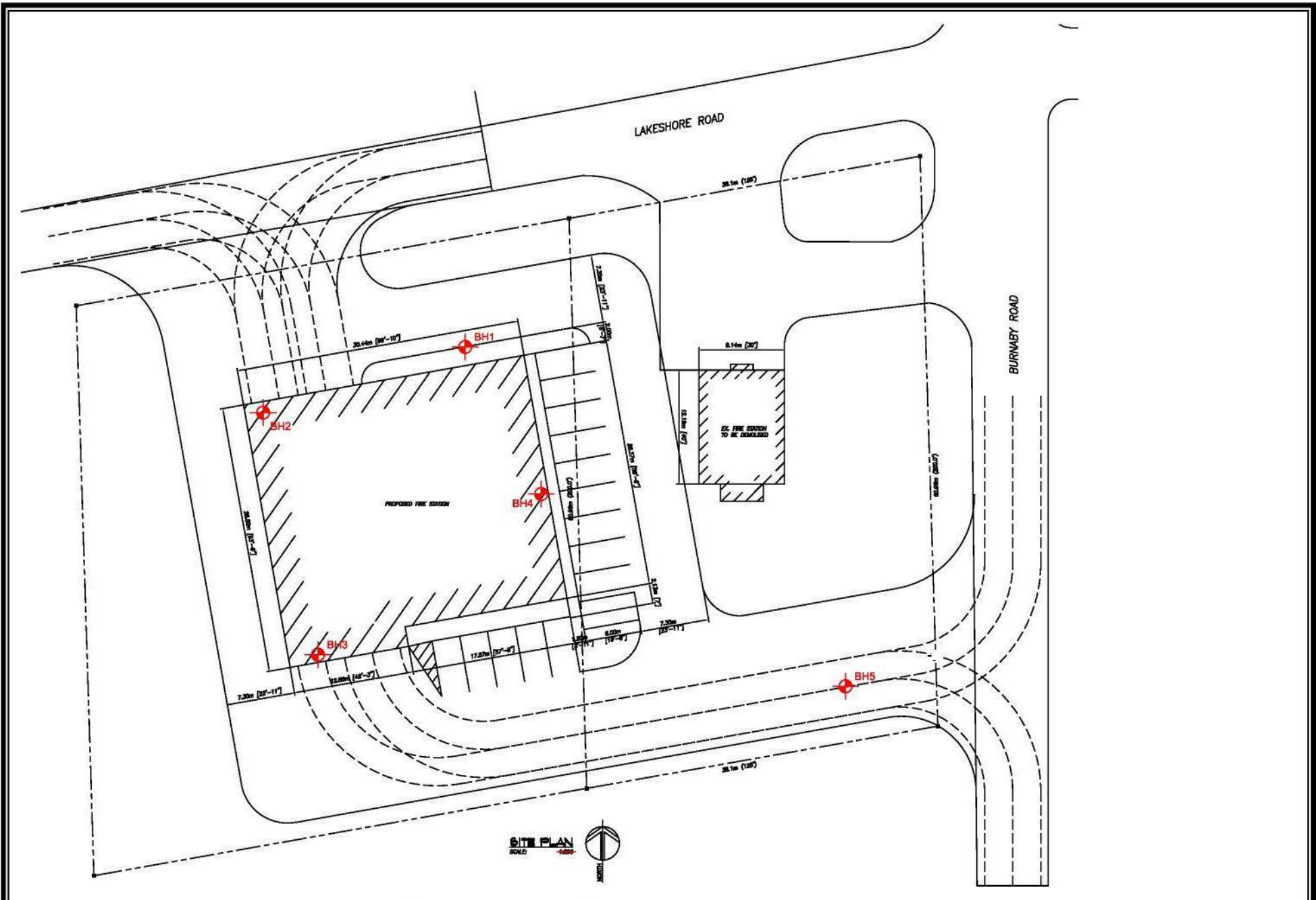
Terraprobe


SITE LOCATION PLAN

Title :

FIGURE :





LEGEND	
	BH1 Borehole Location


Terraproll e
 903 Barton Street - Unit 22, Stoney Creek, Ontario, L8E 5R7
 Tel: (905) 643-7560, Fax: (905) 643-7559

Title:	BOREHOLE LOCATION PLAN
File No.	7-160133-01

FIGURE :	2
----------	----------

LOGS OF BOREHOLES

APPENDIX A



Terraprobe Inc.

Project No. : 7-16-0133-01

Client : Township of West Lincoln

Originated by : AF

Date started : October 2, 2016

Project : 11603 Lakeshore Road

Compiled by : GM

Sheet No. : 1 of 1

Location : Burnaby , Ontario

Checked by : GM

Position : E: 634287, N: 4747565 (UTM 17T)

Elevation Datum : Geodetic (NAD83)

Rig type : CME 55, track-mounted

Drilling Method : Solid stem augers

Depth (m)	Description	SAMPLES			Elevation (m)	Penetration Test Values (Blows / 0.3m)	Moisture/Plasticity	Headspace/vapour (ppm)	Instrument Details	Lab Data and Comments
		Capillary	Number	SPT/Rate						
180.7	GROUND SURFACE									
180.4	300mm TOPSOIL									
179.9	CLAYEY SILT, very stiff, brownish black (GLACIAL TILL)		1 S S	19						
179.8										

END OF BOREHOLE
Auger refusal on inferred bedrock

Borehole was dry and open upon completion of drilling.

Project No. : 7-16-0133-01

Client : Township of West Lincoln

Originated by : AF

Date started : October 2, 2016

Project : 11603 Lakeshore Road

Compiled by : GM

Sheet No. : 1 of 1

Location : Burnaby , Ontario

Checked by : GM

Position : E: 634261, N: 4747556 (UTM 17T)

Elevation Datum : Geodetic (NAD83)

Rig type : CME 55, track-mounted

Drilling Method : Solid stem augers

Depth (m)	SOIL PROFILE		SAMPLES			Elevation (m)	Penetration Test Values (Blows / 0.3m)	Moisture/Plasticity	Headspace ev/apour (ppm)	Instrument Details	Lab Data and Comments
	Description	Capillary	Number	Type	SPT/Rate						
0	GROUND SURFACE					180.3	Dynamic Cone 1 0 2 0 3 0 4 0 Undrained Shear Strength (kPa) U _u confined Field Vane ● Pocket Penetrometer ■ Lab Vane 4 0 8 0 1 2 0 1 6 0	Plastic Natural Liquid Limit Water Content Limit PL MC LI 1 0 2 0 3 0			GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
179.9 0.4	400mm TOPSOIL		1	SS	54 / 200mm	180					

END OF BOREHOLE
Auger refusal on inferred bedrock

Borehole was dry and open
upon completion of drilling.

Project No. : 7-16-0133-01

Client : Township of West Lincoln

Originated by : AF

Date started : October 2, 2016

Project : 11603 Lakeshore Road

Compiled by : GM

Sheet No. : 1 of 1

Location : Burnaby , Ontario

Checked by : GM

Position : E: 634265, N: 4747533 (UTM 17T)

Elevation Datum : Geodetic (NAD83)

Rig type : CME 55, track-mounted

Drilling Method : Solid stem augers

Depth (m)	SOIL PROFILE		SAMPLES				Elevation (m)	Penetration Test Values (Blows / 0.3m)	Moisture/Plasticity	Headspace ev/apour (ppm)	Instrument Details	Lab Data and Comments
	Description	Capillary	Number	Type	SPT/Rate	Dynamic Cone						
0	GROUND SURFACE											
180.1	350mm TOPSOIL		1	SS	52 / 200mm	180						

END OF BOREHOLE
Auger refusal on inferred bedrock

Borehole was dry and open upon completion of drilling.

Project No. : 7-16-0133-01

Client : Township of West Lincoln

Originated by : AF

Date started : October 2, 2016

Project : 11603 Lakeshore Road

Compiled by : GM

Sheet No. : 1 of 1

Location : Burnaby , Ontario

Checked by : GM

Position : E: 634293, N: 4747539 (UTM 17T)

Elevation Datum : Geodetic (NAD83)

Rig type : CME 55, track-mounted

Drilling Method : Solid stem augers

Elev. Depth (m)	SOIL PROFILE		SAMPLES			Elevation (m)	Penetration Test Values (Blows / 0.3m) Dynamic Cone 1 0 2 0 3 0 4 0	Moisture/Plasticity Plastic Limit Natural Water Content Liquid Limit PL MC LI	Headspace Evapour (ppm)	Instrument Details	Lab Data and Comments GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	Description	Capillary	Number	Type	SPT/Male						
180.9	GROUND SURFACE										
180.6 0.3	250mm TOPSOIL		1	SS	50 / 100mm						

END OF BOREHOLE
Auger refusal on inferred bedrock

Borehole was dry and open upon completion of drilling.

Project No. : 7-16-0133-01

Client : Township of West Lincoln

Originated by : AF

Date started : October 2, 2016

Project : 11603 Lakeshore Road

Compiled by : GM

Sheet No. : 1 of 1

Location : Burnaby , Ontario

Checked by : GM

Position : E: 634335, N: 4747537 (UTM 17T)

Elevation Datum : Geodetic (NAD83)

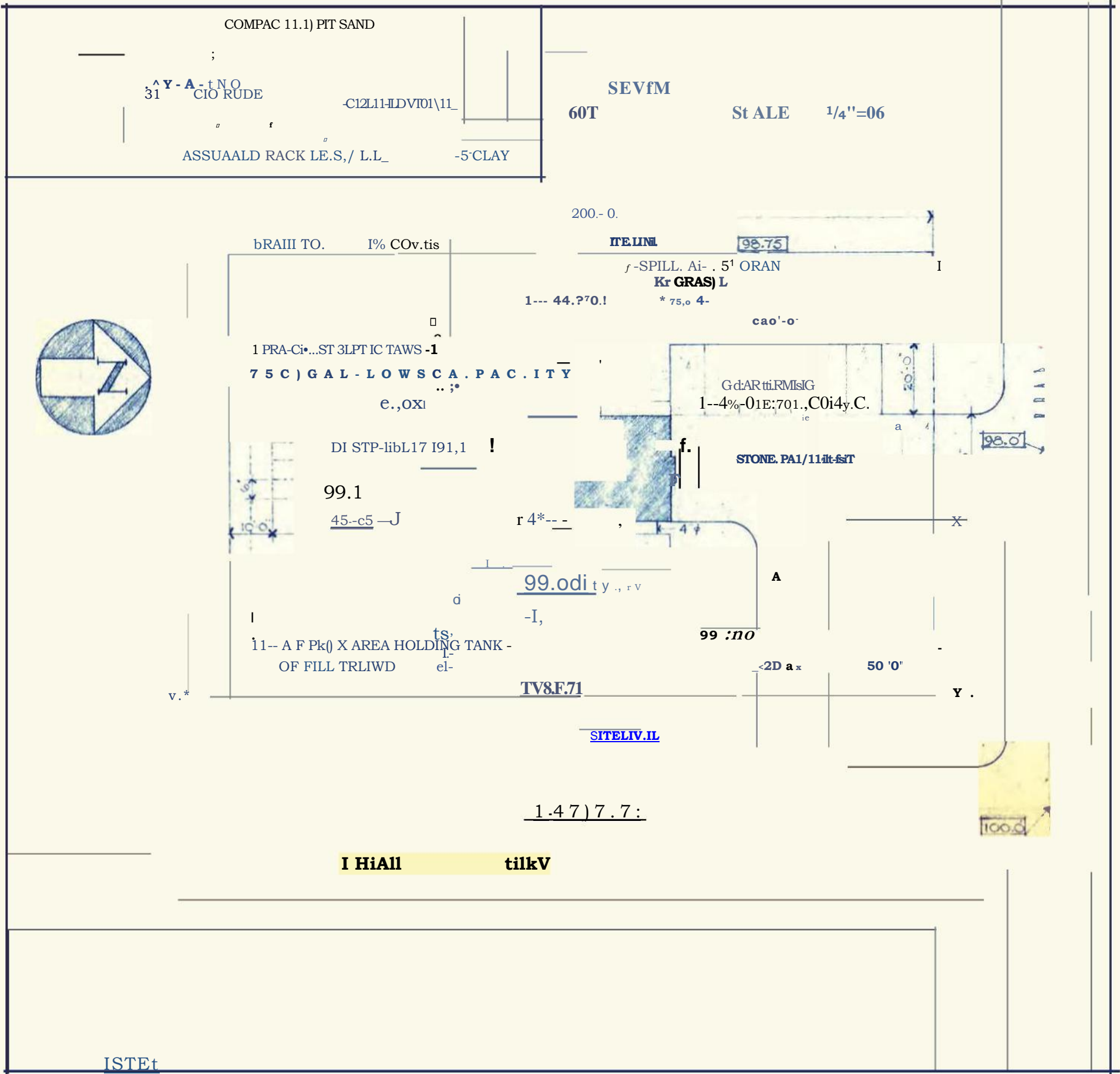
Rig type : CME 55, track-mounted

Drilling Method : Solid stem augers

Depth (m)	SOIL PROFILE		SAMPLES				Elevation (m)	Penetration Test Values (Blows / 0.3m)	Moisture/Plasticity	Headspace/vapour (ppm)	Instrument Details	Lab Data and Comments		
	Description	Capillary	Number	Type	SPT/Rate	Dynamic Cone							Plastic Limit	Natural Water Content
0	GROUND SURFACE													
181.2	350mm TOPSOIL		1	SS	51 / 200mm	181								

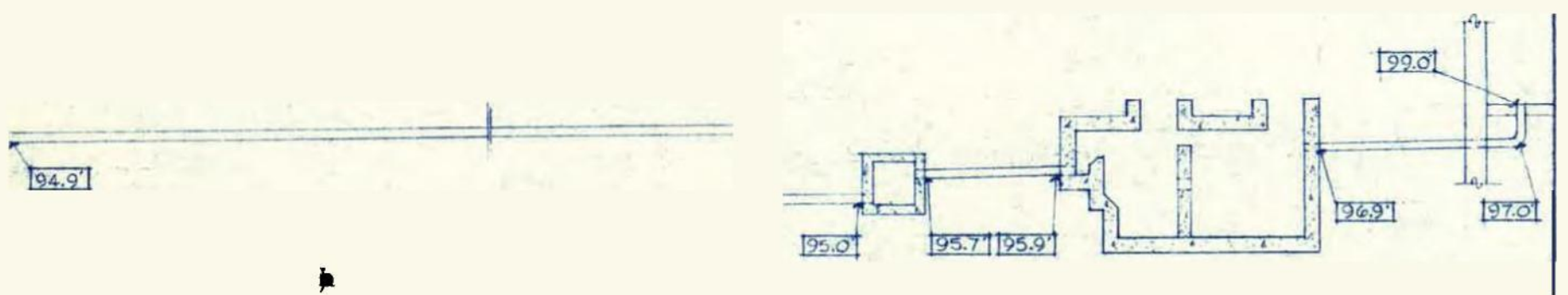
END OF BOREHOLE
Auger refusal on inferred bedrock

Borehole was dry and open upon completion of drilling.



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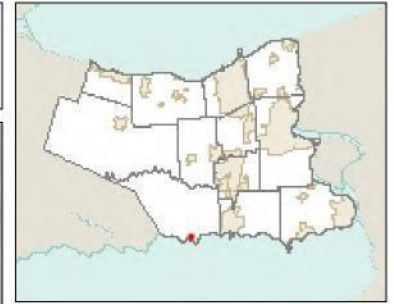
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Brunaby (Station 3)



Legend

- Zoning 2014 Parcel
- Fabric Government
- Offices
 - Provincial Offices
 - Courts Regional Offices
 - Municipal Offices

25.3 0 12.67 25.3 Meters

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Notes

Ontario Environmental & Safety Network Ltd.

Industrial Hygiene and Environmental Consulting

1783 Highway 20, RR#2

Allanburg, Ontario

L0S 1A0

Phone: 1-888-271-2111

DESIGNATED SUBSTANCES ASSESSMENT

Fire Station No. 3

Submitted To: Township of Wainfleet

Issued: July 12, 2017

OESN Project #: 00670.011

PROJECT SUMMARY SHEET

Report Title: Designated Substances and Hazardous Materials Survey

Project Location: Fire Station No. 3
Wainfleet, ON

Report Submission Date: July 12, 2017

Submitted to: Township of Wainfleet
Richard Nan
31940 Highway 3, PO Box 40
Wainfleet ON L0S 1V0

Authored by: Ontario Environmental & Safety Network Ltd. (OESN)
Kris Douglas

OESN Field Consultants: Jeff Drummond

OESN Project Manager

Laboratories: Paracel Laboratories Ltd.
Ottawa, Ontario
Canadian Association for Laboratory Accreditation Inc. (CALA) – Membership number 1262

Analysis Methods: EPA 600 Method (PLM) (asbestos)
EPA 6020 Digestion-ICP-MS (metals)
EPA 7471B - CVAA, digestion (mercury)

Chemical Agent(s) Considered: Asbestos, Arsenic, Lead, Mercury,
Silica

Other Hazardous Agents Considered: Polychlorinated Biphenyls
Ozone Depleting Substances
Biological Contaminants

Executive Summary

On Monday, June 12, 2017, a survey of Fire Station #3 was conducted to identify select designated substances and hazards in building materials.

Survey included inspection, collection and testing of materials suspected of containing designated substances.

Testing confirmed the presence of lead in paint coatings.

Lead is possibly present in solder at plumbing pipe joints.

Asbestos was detected in vinyl tiles and interior caulking.

Mercury is present within lighting.

Silica is assumed to be present within any concrete materials.

Lighting ballasts are assumed to be containing polychlorinated Biphenyls.

The building's owner or constructor will need to inform prospective contractors of the existing hazards by including this report with bid documentation.

Recommendations provided are based on provincial occupational health & safety laws and requirements.

About the author

This assessment was prepared by Ontario Environmental & Safety Network Ltd. (OESN).

OESN has been in business providing industrial hygiene, hazardous material assessment and occupational health and safety services since 1996.

Site work and reporting was conducted by Kris Douglas.

The project was managed by Jeff Drummond who has 20 years of conducting designated substances assessments and consulting experience.

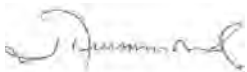
All work conducted was done to the best of our abilities and based on our knowledge, experience and the requirements of international and local legislation and industry best practice.

Please contact our office at 1-888-271-2111 with respect to questions or discussion regarding the content of this report.

Regards,



Kris Douglas
Field Consultant



Jeff Drummond, B.A.
Project Manager

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- Appendix C – Asbestos Photo Log
- Appendix D – Methodology and Analytical Results
- Appendix E – References
- Appendix F – Limitations

1.0 INTRODUCTION

1.1 OVERVIEW

On June 12, 2017 Ontario Environmental & Safety Network Ltd. (OESN) was contracted by the Township of Wainfleet to conduct a Designated Substances and Hazardous Materials Assessment within the Fire Station No. 3, located at 11603 Lakeshore Rd, Wainfleet, Ontario.

The purpose of the assessment was to identify select designated substances and hazardous materials through visual observation, bulk sampling and testing. The assessment was conducted in advance of plans to demolish.

1.2 BACKGROUND

The Occupational Health and Safety Act (The Act) for the Province of Ontario defines designated substances as biological, chemical or physical agents or combination thereof to which the exposure of a worker is prohibited, regulated, restricted, limited or controlled.

Section 30(1) of The Act prescribes duties for owners to determine if designated substances are present at a site prior to commencement of a construction project where disturbance is likely.

Industry interprets this requirement to include for the provision of a scope of work that assesses all structural and finishing materials (including equipment) that was used in the construction of a building.

1.3 SCOPE OF WORK

Based on client plans to demolish the building, the following scope of work was developed and carried out to produce a comprehensive designated substance report.

1. A survey inspection of all interior and exterior structural and finishing materials.
2. Collect bulk samples of materials suspected to contain designated substances.
3. Quantification and condition assessment of building materials suspected to contain asbestos minerals.
4. Chain of custody control for all samples submitted.
5. Materials with known hazardous materials/components were documented.
6. Reporting methods included recording assessment observations on forms, collecting photographs of materials sampled and plotting sample locations on building plan drawings.

Excluded from the scope of work was inspection and testing for acrylonitrile, benzene, coke oven emissions, ethylene oxide, isocyanates and vinyl chloride because these substances are generally associated with industrial sites and processes.

1.4 ASSESSMENT METHODOLOGY

The assessment is carried out systematically to include all accessible areas. Each room is assigned an identification number that, if provided, will coordinate with client identification number and name. Observations for suspect materials are recorded on a form designed specifically to meet the project requirements and obligations.

2.0 SURVEY FINDINGS

2.1 BUILDING DESCRIPTION

Fire Station No. 3 is a single storey building equipped with one attic space above floor level that houses a hot water tank. The building consists of a main area with two (2) bay doors for fire trucks, a washroom and a back storage room with an attic access hatch above. Building occupants include fire personnel when on duty.

1.1 BUILDING FINISHES

Below is a list of building finishes that existed at the time of inspection and were considered for testing.

Flooring Finishes – Flooring consisted of vinyl floor tiles and concrete. One (1) type of vinyl floor tile exists in the washroom and storage room. The remaining area of the building is cement floor.

Wall Finishes – The building is constructed of concrete block.

Ceiling Finishes – Metal and cement deck make up the entirety of the building.

Pipe Finishes – Mechanical pipe systems are bare and not insulated with insulation.

Textiles and Compounds – Caulking compounds are applied to the exterior/interior doors and windows.

Exterior: Finishes on building exterior is metal sheeting on the walls and roof.

Three (3) different paint coatings were collected and tested for arsenic, lead and mercury content.

2.2 OBSERVATION FINDINGS

Designated Substances and Hazardous Materials are assumed to be present in the following building items.

2.2.1 LEAD

Lead is expected to be present at the soldered joints and seams of piping.

2.2.2 MERCURY

Fluorescent tubes containing small quantities of mercury are present within the building area and storage units.

2.2.3 OZONE DEPLETING SUBSTANCES

Materials suspect for containing ozone depleting substances (refrigerators / air conditioning units) were not identified during the survey.

2.2.4 POLYCHLORINATED BIPHENYL (PCBs)

Polychlorinated Biphenyls (PCBs) are assumed present in fluorescent light ballasts. Light ballasts were not assessed by OESN at the time of inspection due to the fixtures being energized. Light ballasts should be assessed for PCBs prior to dismantling and disposal.

2.2.5 CRYSTALLINE SILICA

Cement and concrete building materials were not sampled for the presence of crystalline silica. It is assumed that original concrete materials, brick and ceramic tile are silica-containing.

2.2.6 BIOLOGICAL CONTAMINANTS

Biological contaminants such as animal fecal matter and fungal staining (i.e. mould) were not observed.

3.0 TEST RESULTS

3.1 ASBESTOS

The regulated limited for establishing asbestos content in materials in the Province of Ontario is 0.5% asbestos by dry weight¹. Test results for materials suspected of containing asbestos minerals are listed in Table 1.

Table 1: Asbestos Test Results

Sample Number	Material Number	Material Description	Regulated Limit	Result % by dry weight
Flooring Materials				
00670.011-M01 - M03	HM-01	Vinyl Floor Tile 12"X 12" Beige with White	0.5%	7.61% Chrysotile
		Mastic	0.5%	Chrysotile <MDL

¹ Ontario Regulation 278/05 Designated Substance – Asbestos on Construction Projects and in Buildings and Repair Operations

Sample Number	Material Number	Material Description	Regulated Limit	Result % by dry weight
Manufactured Materials				
00670.011-M04 - M06	HM-02	Exterior Caulking	0.5%	None Detected
00670.011-M07 - M09	HM-03	Interior Caulking (Window)	0.5%	5.93% Chrysotile

Note: MDL = Method Detection Limit

Refer to appendices for photos, laboratory analytical results and drawings outlining locations of asbestos-containing materials.

3.2 ARSENIC, LEAD AND MERCURY IN PAINT FINISHES

During a renovation or demolition project governed by the Occupational Health & Safety Act/Regulations which involves paint finishes containing designated substances **at any concentration**, employers must comply with the Designated Substance Regulation if the work is likely to allow worker exposure. Consideration must be given to the activities being performed and their potential for generation of airborne particulate.

For this reason, surface coatings with results **above analytical detection limits** identified during this **assessment are reported as “positive” for the designated substance**. Test results for paints suspected of containing arsenic, lead and mercury are listed in Table 2.

Table 2: Test Results for Arsenic, Lead or Mercury.

Sample Number	Paint Finish Description	Interpretation of Analytical Result		
		Arsenic	Lead	Mercury
00670.011 -P01	Dark Blue Paint	<MDL	POSITIVE	<MDL
00670.011 -P02	Light Blue Paint	<MDL	POSITIVE	<MDL
00670.011 -P03	Red Paint	<MDL	POSITIVE	<MDL

Note: MDL = Method Detection Limit

Refer to appendices for photos, laboratory analytical results and drawings outlining locations of arsenic, lead and mercury-containing paint finishes.

4.0 CONCLUSIONS

In preparation for demolition activities, designated substances and hazardous materials were identified within Fire Station #3. They include:

- Asbestos
- Lead
- Mercury
- Silica (assumed)
- Polychlorinated Biphenyls (assumed)

The information presented in this designated substance and hazardous materials survey is based on observations and analytical testing of bulk samples collected. It is possible that building materials not originally observed and subsequently not identified in this report may become exposed during renovation. Any materials not listed in this report and suspect to contain designated substances should be assumed until sampling and analysis is conducted.

5.0 RECOMMENDATIONS

Based on assessment findings, OESN provides the following recommendations:

1. Provide this report to all staff and vendors (contractors) prior to building demolition activities. The contractor is required to follow procedures prescribed in applicable legislation.
2. It is recommended that all hazardous materials and designated substances identified in this report be fully abated prior to the demolition of the building.
3. It is recommended that an abatement scope of work for the safe handling and disposal of designated substances and hazardous materials be written and designed for the purposes of tendering prior to project commencement.
4. Any materials not listed in this report and suspected to contain designated substances should be assumed positive until testing is conducted.

6.0 EXCLUSIONS

1. Roofing materials were excluded from the assessment to avoid compromising the integrity of the roof membrane.
2. Vermiculite insulation located in concrete block walls was considered during the inspection. Inspectors assessed areas for vermiculite debris, however, intrusive sampling of concrete block walls was excluded from the assessment to avoid compromising the integrity of the concrete block walls.

Appendix A: Building Material by Room List

- Introduction to Table
- Building Material by Room List

Building Material by Room List

Building Material by Room List represents a summary of building materials that were either sampled suspected of containing designated substances and / or hazardous materials during the assessment. Information presented in the table includes the material description, type of hazardous material and its analytical percentage, approximate quantity, material friability (asbestos), accessibility, visibility and covering type or finish as well as condition of material.

Evaluation of material condition is determined by the field technician during site inspection. Each material is assessed using the following criteria: type of building material (e.g. flooring, pipe insulation); accessibility to the material (e.g. above or below ceiling, within arm's reach); frequency of access (e.g. office space, washroom, boiler room); and future potential for disturbance to the material (e.g. physical contact, vibration, air movement).

Key Terms and Definitions:
Asbestos-Containing Material (ACM): Material that contains 0.5 per cent or more by dry weight.
Friable: When dry, can be crumbled, pulverized or powdered by hand pressure, or is crumbled, pulverized or powdered.
Accessible: Can be reached without the need of a ladder (i.e. less than 3 metres from the ground) or accessible without the destruction of barriers (i.e. access hatch, suspended ceiling tile, etc.).
Visible: Can be observed without physically moving barriers (i.e. access hatch, suspended ceiling tile, etc.).
Satisfactory Condition: Material found to be in "good" condition, firmly bound or encapsulated.
Unsatisfactory Condition: Material visually demonstrating surface crumbling, blistering, water stains, nicks, gouges, or otherwise abraded.



Drawing Room Location	Material Description	0.5% or > asbestos by dry weight Yes/No	Mineral Type	Approximate Quantity	Friable Yes/No	Material Accessible Yes/No	Material Visible Yes/No	Covering Type or Finish	Condition Satisfactory/Unsatisfactory	Maintenance Required Yes/No
MAIN AREA - LOCATION ID: 1001										
1001	HM-02 Exterior Door Caulking	No	-	-	-	-	-	-	-	-
WASHROOM ROOM - LOCATION ID: 1002										
1002	HM-01 VFT 12" x 12" Beige with Beige Streak	YES	CHRYBOTILE	25 SF	NO	YES	YES	YES	SATISFACTORY	NO
STORAGE ROOM - LOCATION ID: 1003										
1003	HM-01 VFT 12" x 12" Beige with Beige Streak	YES	CHRYBOTILE	60 SF	NO	YES	YES	YES	SATISFACTORY	NO
1003	HM-03 Interior Window Caulking	YES	CHRYBOTILE	48 LF	NO	YES	YES	YES	SATISFACTORY	NO

Appendix B: Material Drawing Locations

- **Drawing/ Figure Methodology**
- **Drawing Set: Asbestos Sample Locations**
 - **TOW-FH3-DSS-2017-01**
- **Drawing Set: Surface Coating Sample Locations**
 - **TOW-FH3-DSS-2017-01**

Drawing Methodology

Drawing Methodology

Plan view drawings provided are brought to site and used as a reference and checklist during inspection. Each individual room is assigned an identification number and name. Every bulk sample identified (confirmed, inferred and assumed) as asbestos-containing is plotted in each room where that particular material was observed.




Following on-site assessment completion, the field drawings are given to the AutoCAD department. The information, including field notes, sample codes, etc. is transferred from the field drawings on to electronic drawings. Once all information has been plotted by the CAD technician, the drawings are printed and reviewed by the field technician who was present during the on-site assessment. Corrections, if any, are made and the drawings are re-printed and reviewed by the project manager for approval before being converted into pdf format.

Drawing Legend

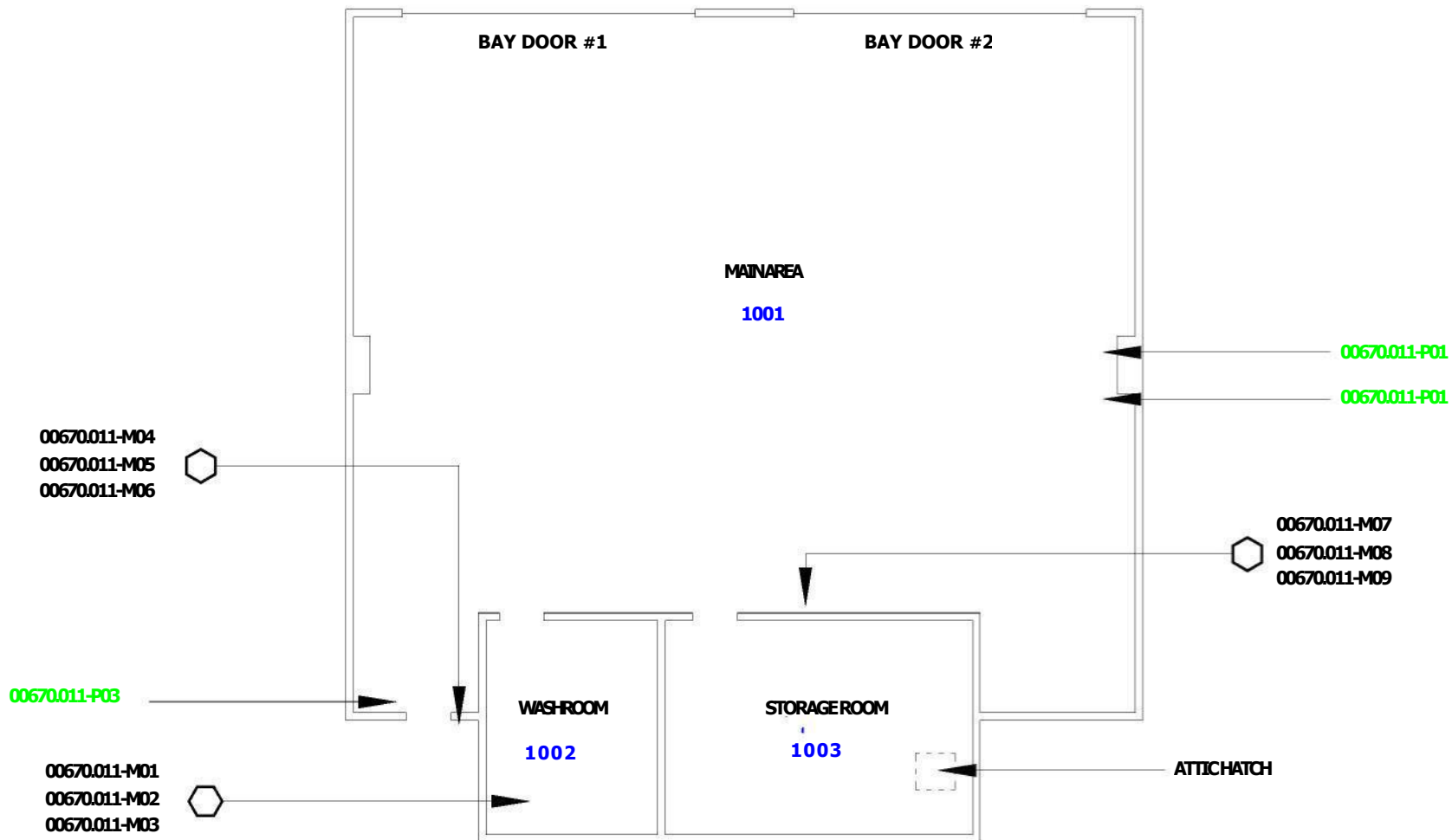
The legend found on the right hand side of the drawing explains the symbols that have been used. They are described in the table below.

Drawing Legend



The legend found on the right hand side of the drawing explains the symbols that have been used:

00670.011-F01	SAMPLE NUMBER The sample number is a sample code prescribed to a material sampled during the assessment. The sample number can be found on the Chain of Custody.
HW-01	MATERIAL CODE This symbol indicates the homogeneous material number.
	ASBESTOS-CONTAINING SAMPLE This symbol indicates that building material sampled during the assessment was analytically determined to be asbestos-containing.
	NON ASBESTOS-CONTAINING SAMPLE This symbol indicates that building material sampled during the assessment was analytically determined to be non asbestos-containing.
	NO ACCESS AT THE TIME OF INSPECTION Indicates that the room was not accessible during the time of inspection. Building materials located within this room were not inspected.








LEGEND

- 00597.001-W01 SAMPLE NUMBER
-  NON ASBESTOS-CONTAINING SAMPLE
-  ASBESTOS-CONTAINING SAMPLE
- 00597.001-P01 PAINT SAMPLE NUMBER
- 1001** LOCATION ID

PAINT RESULTS

	PAINT DESCRIPTION	ARSENIC ug/g	LEAD ug/g	MERCURY ug/g
	DARK BLUE	N1	24	N1
	LIGHT BLUE	N1	141	N1
	RED	N1	97	N1

ASBESTOS-CONTAINING

- Materials sampled were analytically determined none detected for asbestos minerals.



TITLE: DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS SURVEY

CUSTOMER: TOWNSHIP OF WAINFLEET

LOCATION: 31940 ON-3 WAINFLEET, ONTARIO


RE V. O	SCALE: N. T. S.	DRAWN BY: K. DOUGLAS
CHECKED BY:	DATE: JUNE 2016	
OESN JOB No: 00670.011	DWG #: TOW-FH3-DSS-2017-01	

Appendix C: Materials Sampled Photo Logs


- Asbestos-Containing Photo Log
- Non Asbestos-Containing Photo Log
- Surface Coatings

Asbestos and Non Asbestos-containing Materials


Flooring Materials

	<p>Sample Identification 00670.011-M01 00670.011-M02 00670.011-M03</p> <p>Sample Code HM-01</p>
	<p>Sample Location of Material Washroom (1002)</p>
	<p>Sample Description Vinyl Floor Tile (Beige)</p>
	<p>Quantity of Material 85 SF</p>
	<p>Condition of Material Satisfactory</p>
<p>Analytical Result: 7.61% Chrysotile</p>	

Manufactured Materials

	<p>Sample Identification 00670.011-M04 00670.011-M05 00670.011-M06</p> <p>Sample Code HM-02</p>
	<p>Sample Location of Material Exterior</p>
	<p>Sample Description Caulking - Exterior windows and doors</p>
	<p>Quantity of Material -</p>
	<p>Condition of Material -</p>
<p>Analytical Result: None Detected</p>	


Manufactured Materials(continued)

	<p>Sample Identification 00670.011-M07 00670.011-M08 00670.011-M09</p> <p>Sample Code HM-03</p>
	<p>Sample Location of Material Storage Room (1003)</p>
	<p>Sample Description Interior Window Caulking</p>
	<p>Quantity of Material 48 LF</p>
	<p>Condition of Material Satisfactory</p>
<p>Analytical Result: 5.93% Chrysotile</p>	


Surface Coatings

PAINT FINISHES (LEAD, MERCURY, ARSENIC)

	Sample Identification Dark Blue Paint 00670.011-P01
	Arsenic Content <50 µg/g
	Mercury Content <2 µg/g
	Lead Content 24 µg/g

	Sample Identification Light Blue Paint 00670.011-P02
	Arsenic Content <50 µg/g
	Mercury Content <2 µg/g
	Lead Content 141 µg/g



	Sample Identification Red Paint 00670.011-P03
	Arsenic Content <50 µg/g
	Mercury Content <2 µg/g
	Lead Content 97 µg/g

Appendix D: Analytical Results

- Site Inspection / Assessment Methodology
- Bulk Sample Methodology
- Analytical Methodology
- Analytical Results: Asbestos
- Analytical Results: Surface Coatings

Site Inspection/Assessment Methodology

Prior to inspection, plan view drawings are reviewed to determine a sampling strategy. The assessment is carried out in a methodical and systematic way to ensure that all visible and accessible areas are inspected. One floor at a time, typically beginning with the lowest level or basement and working towards the top floor, is assessed. At each floor level, a room-by-room examination of all accessible areas is conducted. Accessible is defined as all areas and surfaces - floors, walls, equipment and pipe coverings, ceilings (including areas above drop/false ceilings), crawlspaces, attics, hatches (which can be easily opened with hand tools) within a building.

Each room inspected is assigned a number and name (if provided). For each accessible room, observations in relation to building materials suspected of containing asbestos are recorded on a form designed specifically to meet the requirements and obligations of project. The identification of materials suspected of containing asbestos minerals is based on the field consultant's experience and knowledge regarding the historical use and applications of asbestos in building materials. Detailed information for each material sampled is documented within each room and includes the following:

- Material location
- Approximate quantity of material
- Condition (at the time of inspection) of material
- Accessibility of material
- Visibility of material
- Material covering or finish
- Friability of material (specific for materials suspected for containing asbestos minerals only).

Other items observed during the assessment and recorded on the site form include information regarding suspect asbestos-containing materials considered to be in unsatisfactory condition and requiring maintenance.



Asbestos Bulk Sampling Methodology

Samples of materials suspected for containing asbestos minerals are collected by a knowledgeable, competent worker who is trained and experienced in asbestos bulk sampling. Bulk material samples are randomly collected simultaneously during the assessment in strategic locations based on professional judgment. Samples collected are representative of each homogeneous material (uniform in colour and texture) and in accordance with the minimum number requirement as described in Table 1: Bulk Material Samples of O. Reg. 278/05.

The sampling approach accounts for a non intrusive sampling strategy and care is taken to minimize the amount of damage caused in the course of sampling. If damage occurs during sampling, OESN attempts to patch the area to match the previous finish as much as possible. An attempt to collect all samples from an inconspicuous location is made.

Prior to sample collection, the material substrate is misted down with amended water. Personal protective equipment (e.g. safety glasses, half face piece respirator, etc.) required for sampling is put on by the sampler and the sample is collected with care. Using a clean tool, a large enough sample is collected to ensure sufficient material for laboratory analysis, placed in an appropriate container then sealed. Each sample container is labelled with a sticker detailing the information (e.g. sample number, name, description, room location) specific for that sample. All samples are recorded on a Chain of Custody. Tools used for sample collection are rinsed with amended water prior to and following sample collection. Sample locations are depicted on the drawings that are used as reference and form a link between the Chain of Custody produced on site.

Asbestos Analytical Methodology

Bulk samples collected from site are submitted to Paracel Laboratory for analysis. Paracel's Quality Management System has been modeled after and standardized through the adoption of ISO/IEC 17025:2005.

Paracel is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) and the National Institute of Standards and Technology (NIST), Standard Services Division and NVLAP for specific environmental and IAQ tests listed in the Scopes of Accreditation registered with each association.

The method and procedures for establishing whether material is asbestos-containing and for establishing its asbestos content and the type of asbestos is in accordance with the following standard:

- U.S. Environmental Protection Agency. Test method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials. June 1993. O. Reg. 278/05.



Bulk Surface Coating Sampling Methodology

Samples of paint coatings are collected for all colours observed during the inspection. Since it is important for the sample to include all layers from the surface to the substrate, paint coatings are collected with care.

Using a clean tool, a large enough sample is collected to ensure sufficient material for laboratory analysis and placed in an appropriate container then sealed. Each sample container is labelled with a sticker detailing the information (e.g. sample number, name, colour description, room location) specific for that sample. All samples are recorded on a Chain of Custody. Tools used for sample collection are rinsed with amended water prior to and following sample collection. Sample locations are depicted on the drawings designated specifically as “Surface Coatings Sample Locations” that are used as reference and form a link between the Chain of Custody produced on site.

Bulk Surface Coating Analytical Methodology

Bulk samples collected from site are submitted to Paracel Laboratory for analysis. Paracel's Quality Management System has been modeled after and standardized through the adoption of ISO/IEC 17025:2005.

Paracel is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) and the National Institute of Standards and Technology (NIST), Standard Services Division and NVLAP for specific environmental and IAQ tests listed in the Scopes of Accreditation registered with each association.

For the determination of metals (arsenic and lead) in paint coatings the following method is conducted for bulk paint samples submitted:

- . U.S. Environmental Protection Agency. Test method EPA 6020 – Digestion, ICP-MS

For the determination of mercury in paint coatings the following method is conducted for bulk paint samples submitted:

- . U.S. Environmental Protection Agency. Test method EPA 7471B – CVAA, digestion



Certificate of Analysis

Ontario Environmental & Safety Network Ltd. (St.)

184 Scott Street, Unit 8 & 9
St. Catharines, ON L2N 1H1
Attn: Lisa Tappay

Client PO: 00670.011

Project: Town of Wainfleet Fire St NO#3
Custody: 16448

Report Date: 16-Jun-2017
Order Date: 12-Jun-2017

Order #: 1724101

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1724101-01	00670.011-M01, tile
1724101-02	00670.011-M01, mastic
1724101-03	00670.011-M02, tile
1724101-04	00670.011-M02, mastic
1724101-05	00670.011-M03, tile
1724101-06	00670.011-M03, mastic
1724101-07	00670.011-M04
1724101-08	00670.011-M05
1724101-09	00670.011-M06
1724101-10	00670.011-M07
1724101-11	00670.011-M08

Any use of these results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Approved By:



Senior Analyst

Certificate of Analysis

Client: Ontario Environmental & Safety Network Ltd. (St.)

Report Date: 16-Jun-2017

Order Date: 12-Jun-2017

Client PO: 00670.011

Project Description: Town of Wainfleet Fire St NO#3

Asbestos, PLM Visual Estimation **MDL - 0.5%**

Paracel I.D.	Sample Date	Layers Analyzed	Colour	Description	Asbestos Detected:	Material Identification	% Content
1724101-01	12-Jun-17	sample homogenized	Beige	Vinyl Floor Tile	Yes	Client ID: 00670.011-M01, tile Chrysotile Non-Fibers	[AS-PRE] 7.61 92.39
1724101-02	12-Jun-17	sample homogenized	Black	Mastic	Yes	Client ID: 00670.011-M01, mastic [ASTrc] Chrysotile Non-Fibers	[AS-PRE] <MDL 100
1724101-03	12-Jun-17					Client ID: 00670.011-M02, tile not analyzed	
1724101-04	12-Jun-17	sample homogenized	Black	Mastic	Yes	Client ID: 00670.011-M02, mastic [ASTrc] Chrysotile Non-Fibers	<MDL 100
1724101-05	12-Jun-17					Client ID: 00670.011-M03, tile not analyzed	
1724101-06	12-Jun-17	sample homogenized	Black	Mastic	Yes	Client ID: 00670.011-M03, mastic [ASTrc] Chrysotile Non-Fibers	[AS-PRE] <MDL 100
1724101-07	12-Jun-17	sample homogenized	Grey	Caulking	No	Client ID: 00670.011-M04 Non-Fibers	[AS-PRE] 100
1724101-08	12-Jun-17	sample homogenized	Grey	Caulking	No	Client ID: 00670.011-M05 Non-Fibers	[AS-PRE] 100
1724101-09	12-Jun-17	sample homogenized	Grey	Caulking	No	Client ID: 00670.011-M06 Non-Fibers	[AS-PRE] 100
1724101-10	12-Jun-17	sample homogenized	Brown	Caulking	Yes	Client ID: 00670.011-M07 Chrysotile Non-Fibers	[AS-PRE] 5.93 94.07
1724101-11	12-Jun-17					Client ID: 00670.011-M08 not analyzed	

**** Analytes in bold indicate asbestos mineral content.**

Certificate of Analysis
 Client: Ontario Environmental & Safety Network Ltd. (St.)
 Client PO: 00670.011

Report Date: 16-Jun-2017
 Order Date: 12-Jun-2017

Project Description: Town of Wainfleet Fire St NO#3

Analysis Summary Table

Analysis	Method Reference/Description	Lab Location	NVLAP Lab Code *	Analysis Date
Asbestos, PLM Visual Estimation	by EPA 600/R-93/116	1 - Mississauga	200863-0	15-Jun-17

* Reference to the NVLAP term does not permit the user of this report to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Qualifier Notes

Sample Qualifiers :

AS-PRE: Due to the difficult nature of the bulk sample (interfering fibers/binders), additional NOB preparation was required prior to analysis

ASTrc : Trace asbestos was observed below the noted detection limit but could not be accurately quantified.

Work Order Revisions / Comments

None

Certificate of Analysis

Ontario Environmental & Safety Network Ltd. (St.)

184 Scott Street, Unit 8 & 9
St. Catharines, ON L2N 1H1
Attn: Lisa Tappay

Client PO: 00670.011
Project: Town of Wainfleet Fire St #3
Custody: 27723

Report Date: 16-Jun-2017
Order Date: 12-Jun-2017

Order #: 1724077

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1724077-01	00670.011-P01 (Dark Blue)
1724077-02	00670.011-P02 (Light Blue)
1724077-03	00670.011-P03 (Red)

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 16-Jun-2017

Client: Ontario Environmental & Safety Network Ltd. (St.)

Order Date: 12-Jun-2017

Client PO: 00670.011

Project Description: Town of Wainfleet Fire St #3

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Mercury by CVAA	EPA 7471B - CVAA, digestion	16-Jun-17	16-Jun-17
Metals, ICP-MS	EPA 6020 - Digestion - ICP-MS	15-Jun-17	15-Jun-17

Certificate of Analysis

Client: Ontario Environmental & Safety Network Ltd. (St.)

Client PO: 00670.011

Report Date: 16-Jun-2017

Order Date: 12-Jun-2017

Project Description: Town of Wainfleet Fire St #3

Client ID:	00670.011-P01 (Dark Blue)	00670.011-P02 (Light Blue)	00670.011-P03 (Red)	-
Sample Date:	12-Jun-17	12-Jun-17	12-Jun-17	-
Sample ID:	1724077-01	1724077-02	1724077-03	-
MDL/Units	Paint	Paint	Paint	-

Metals

Arsenic	50 ug/g	<50	<50	<50	-
Lead	5 ug/g	24	141	97	-
Mercury	2 ug/g	<2	<2	<2	-

Certificate of Analysis

Report Date: 16-Jun-2017

Client: Ontario Environmental & Safety Network Ltd. (St.)

Order Date: 12-Jun-2017

Client PO: 00670.011

Project Description: Town of Wainfleet Fire St #3

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Source Units	Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Arsenic		ND	50	ug/g					
Lead		ND	5	ug/g					
Mercury		ND	2	ug/g					

Certificate of Analysis

Report Date: 16-Jun-2017

Client: Ontario Environmental & Safety Network Ltd. (St.)

Order Date: 12-Jun-2017

Client PO: 00670.011

Project Description: Town of Wainfleet Fire St #3

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Arsenic	ND	50	ug/g	ND			0.0	50	
Lead	21.1	5	ug/g	23.9			12.6	50	
Mercury	ND	2	ug/g	ND			0.0	30	

Certificate of Analysis
 Client: Ontario Environmental & Safety Network Ltd. (St.)
 Client PO: 00670.011

Report Date: 16-Jun-2017
 Order Date: 12-Jun-2017

Project Description: Town of Wainfleet Fire St #3

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	% RPD REC Limit	RPD Limit	Notes
Metals								
Arsenic	40.7		ug/L	ND	80.9	70-130		
Lead	41.9		ug/L	ND	81.8	70-130		
Mercury	15	2	ug/g		102	80-120		

Certificate of Analysis
Client: Ontario Environmental & Safety Network Ltd. (St.)
Client PO: 00670.011

Report Date: 16-Jun-2017
Order Date: 12-Jun-2017

Project Description: Town of Wainfleet Fire St #3

Qualifier Notes :

None

Sample Data Revisions

None

Work Order Revisions / Comments :

None

Other Report Notes :

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Appendix E: References

REFERENCES

This designated substance assessment was prepared referencing laws and guidelines cited below.

1. Ontario Occupational Health & Safety Act, R.S.O. 1990 c.01.
2. Ontario Regulation for Construction Projects 213/91 as amended.
3. Ontario Regulation respecting Asbestos on Construction Projects and in Buildings and Repair Operations 278/05 as amended.
4. Ontario Regulation for Designated Substances 490/09 as amended.
5. U.S. Department of Housing & Urban Development. Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing. Office of Healthy Homes and Lead Hazard Control, 2nd ed. July 2012.
4. Occupational Safety and Health Administration. Standard Interpretations, Standard number 1926.62.
5. Surface Coating Materials Regulations SOR/2005-109 (June 2011) under Canada Consumer Product Safety Act and pursuant to Section 5 of the Hazardous Products Act (R.S., c.24 (3rd Suppl), s.1).
6. R.R.O. 1990, Regulation 347 General – Waste Management under Environmental Protection Act (as amended).
7. Ontario Ministry of the Environment and Climate Change. Registration Guidance Manual for Generators of Liquid Industrial and Hazardous Waste (January 2016).

Appendix G: Limitations

Results are submitted pursuant to OESN's current terms and conditions of sale, including the company's standard warrant and limitation of liability provisions; and no responsibility is assumed for the manner in which the results are used or interpreted.

The findings and conclusions presented in this report were based, in part, on visual observations of the building. Our conclusions cannot and are not extended to include those portions of the building which were not reasonably available, in OESN's opinion, for direct observation.

Where testing was performed, it was carried out in accordance with the scope of our contract. Due to a possible lack of information, OESN reserves the right to modify any part of the assessment regarding the materials within the building. It should be noted that this report was not exhaustive for every possible contaminant and therefore other compounds or materials may be present in the site environment.

This report is for the sole use of the party to whom it is addressed unless expressly stated otherwise in the report or contract. Any use which a third party makes of the report, in whole or in part, or any reliance thereon, or decisions made based on any information or conclusions in the report, is the sole responsibility of such third party.

OESN accepts no responsibility whatsoever for damages or loss of any nature suffered by any such third party as a result of actions taken or not taken or decisions made in reliance on the report.

Please feel free to contact our office if there are any questions regarding the content of this report, 1 888 271 2111.

