



Contract For

Building Automation and Control Upgrades
for HVAC and Lighting at Hamilton Station

Contract Number: PT-2018-STNS-557

P.O. Number: TBD

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**TENDER DOCUMENT FORM
FORM OF TENDER**

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1.0 Contact Information

The Bidder submitting a Submission is as follows:

- 1.1 Bidder's registered legal business name (or individual) and any other name under which it carries on business:

Johnson Controls Canada LP

- (a) If a Joint Venture, enter the registered legal business name of the Participant-in-Charge:

Click here to enter text.

- (b) If a Joint Venture, enter the registered legal business name of the other Joint Venture members:

Click here to enter text.

- 1.2 The Bidder's address, telephone and facsimile numbers (if Joint Venture, insert Participant-in-Charge information):

Johnson Controls Canada LP, 40 Hempstead Drive, Hamilton, ON L8W 2E7,

P: (905) 577-4077

F: (905) 577-0091

- 1.3 Name, title, address, telephone/facsimile numbers and e-mail address of the Bidder's project representative (if a Joint Venture, insert contact information of project representative of Participant-in-Charge information)

Ray Kampen

Johnson Controls Canada LP

40 Hempstead Drive, Hamilton, ON L8W 2E7

raymond.a.kampen@jci.com

Cell: (905) 730 9695

Fax: (905) 577-0091

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1.4 New Vendor Information

- (a) All vendors submitting a Submission must complete and provide with the Submission the “New/Update Vendor Form” under “Attachments” and submit the additional documentation as indicated, including:
 - (i) Vendor Registration (Articles of Incorporation, Sole Proprietorship Registration, Partnership Agreements, etc.).
 - (ii) Canada Revenue Agency Registration (Business Number)
 - (iii) Void Cheque (for Electronic Funds Transfer setup)
 - (iv) Sample Invoice

1.5 The Bidder acknowledges that its Submission includes the appropriate Tender Document Forms submitted in accordance with the terms and requirements of the Instructions to Bidders. Failure to comply may result in the Bidder's Submission being found non-compliant and disqualified at the sole discretion of Metrolinx.

1.6 The Bidder has informed itself of the conditions relating to the Work to be performed and have inspected and is thoroughly familiar with the location of the Work and the plans, specifications, drawings and all terms, conditions and covenants of the Contract.

1.7 The Bidder acknowledges receipt of any and all Addenda/Addendum issued hereto and that its Submission has been developed in consideration of the Addenda/Addendum.

1.8 The Bidder acknowledges that it meets all mandatory requirements in order for their Submission to be considered further. Failure of a Bidder to meet all of the mandatory requirements shall result in the Bidder's Submission to be non-compliant and disqualified.

1.9 All Addenda, Tender Document Forms, the Supplementary Agreement Between Owner and Contractor, the Agreement Between Owner and Contractor, the Supplementary General Conditions of the Contract, the General Conditions of the Contract, the Supplementary Definitions of the Contract, the Definitions of the Contract, the General Requirements (Sections 01000 through 01800), Specifications, Drawings and Attachments set out in this Tender Document shall be included in and form part of the Contract. Submitting a Submission constitutes acknowledgement that the Bidder has read and agrees to be bound by such conditions.

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- 1.10 The Submission is hereby submitted on the condition and with the full understanding that it is an irrevocable offer by the Bidder for a period of one hundred and twenty (120) calendar days from the Closing. The Bidder hereby covenants that it enter into Contract with Metrolinx as contemplated by the Tender Documents by executing the Contract and will perform and execute the Work at the Contract Price if it is notified, in writing, by Metrolinx within one hundred and twenty (120) days of the Closing that it is the successful Bidder.
- 1.11 The Bidder hereby declares that it has the physical and financial resources to sustain and complete the Work.
- 1.12 The Bidder hereby declares that no Conflict of Interest exists in accordance with "Tender Document Form: Conflict of Interest".
- 1.13 The Bidder hereby declares that no person, firm or corporation (including any agent of Metrolinx), other than the undersigned or Suppliers or Subcontractors engaged in the ordinary course of business, has any interest in this call for Tenders or the proposed Contract for which the Submission is made.
- 1.14 The Bidder acknowledges that by way of the E-Bid Authorized Signer submitting a Submission, the Bidder is agreeing to be bound to each and every term, condition, article and obligation of the Tender Document and any resultant Contract.
- 1.15 The Bidder acknowledges that consistent with Section **Error! Reference source not found.** of Instructions to Bidders, failure by the Bidder, whose Submission was accepted by Metrolinx, to execute and deliver executed Contract with the required Insurance Certificates, Workplace Safety and Insurance Clearance Certificate and the Performance and Labour and Materials Payment Bonds, or specified alternatives, or any other required documentation (as applicable to this Tender Process) shall result in the cancellation of acceptance of the Bidder's Submission by Metrolinx and forfeiture of the Bidder's Bid Deposit (if applicable).
- 1.16 The submitting of a Submission by a Bidder shall be considered prima facie evidence that the above requirements have been met. Failure to have complied with said requirements shall not relieve the Bidder of its obligation to enter into the Contract and to carry out the Work in accordance with the terms and conditions set forth in the Tender Documents.

2.0 Requirement

- 2.1 The Bidder shall provide all labour, superintendence, plant, tools, appliances, equipment, supplies and other accessories, services and facilities necessary to complete the Parking Structure Roof Rehabilitation in Two Block at Whitby GO Station, as further described in this Tender Document.

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- 2.2 The Work is to be performed to the satisfaction of Manager, Station Construction and Commissioning, unless otherwise specified.

3.0 Contract Price

- 3.1 The Bidder, by submitting this Submission, hereby offers to Metrolinx to provide all goods and services necessary to execute the Work described by the Tender Documents, including all Addenda, and to perform the Work for the Contract Price quoted.

4.0 Harmonized Sales Tax

- 4.1 The Bidder acknowledges it has read and agrees to be bound by the Supplementary General Conditions of the Contract and the General Conditions of the Contract as it relates to Harmonized Sales Tax.
- 4.2 The Bidder declares that the H.S.T. registration number, as stated in the Excel spreadsheet of “Tender Document Form: Contract Prices”, is registered to the Bidder providing this Submission.
- 4.3 A non-resident Bidder unable to provide a H.S.T. Registration Number at the time of Submission shall be required to provide a H.S.T. Registration Number within five (5) Business Days of acceptance of its Submission by Metrolinx. The Bidder acknowledges that failure to comply with this requirement may result in the Contract being declared VOID.

5.0 Project Schedule

- 5.1 The date of Commencement of Work, the date of Substantial Performance of the Work and the date of Total Performance of the Work are identified in the Form of Agreement.

**TENDER DOCUMENT FORM
CONTRACT PRICES**

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Contract Prices is comprised of this section in addition to an Excel file attached.

1.0 Contract Price

The Contract Price is subject to all requirements of the Tender Document.

- 1.1 Payment for services rendered and goods supplied in accordance with the terms and conditions of the Contract shall be based on the requirements of the "Tender Document Form: Form of Tender" in addition to the following:
- (a) The Contract Price bid shall be firm and quoted in Canadian funds.
 - (b) The Contract Price includes all specified cash allowances, contingency allowances (if applicable) and all applicable taxes, except Harmonized Sales Tax (H.S.T.), in force at the date the Submission is submitted.
 - (c) The Contract Price quoted shall represent full payment for all the Work necessary for the proper completion of the Contract.
 - (d) The Contract Price includes all labour, superintendence, plant, tools, appliances, equipment, supplies and other accessories, services and facilities customs, duties, royalties, handling, transportation, travel, mileage, overhead, profit and all other charges.

2.0 Allowances

2.1 Cash Allowances

- (a) Cash Allowances are subject to the General Conditions of the Contract.
- (b) Descriptions of each Cash Allowance are listed below and amounts are specified in the attached Excel spreadsheet.

2.2 Description of Cash Allowances

- (a) Not Applicable

2.3 Contingency Allowances

- (a) Contingency Allowances are subject to the General Conditions of the Contract.

3.0 Options

3.1 Not Applicable

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CONTRACT PRICES**

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4.0 Completion of Pricing Schedules

- 4.1 Bidders shall fully complete the Excel file entitled "Tender Document Form: Contract Prices" and insert a Unit Price into each space provided under the Contract Unit Price column.
- 4.2 "Tender Document Form: Contract Prices" must be submitted as a separate file preferably in Excel format to facilitate the pricing evaluation process, and may not be retyped or recreated. Failure to follow the submission instructions or format requirements may result in the Submission being found non-compliant and disqualified.
- 4.3 If a "0" is entered in any of the spaces where price information is to be provided, it shall be interpreted as meaning the Contractor shall provide the specified service to Metrolinx at no charge.
- 4.4 If any space is left blank or an entry of "N/C" or "N/A" or "-" is entered where price information should be entered then the Submission may be found non-compliant and disqualified consistent with the provisions of the Instructions to Bidders.



METROLINX

An agency of the Government of Ontario

CONTRACT PRICES
Contract No. PT-2018-STNS-557

= Data Entry Cells for Contractors

TENDER NUMBER

PT-2018-STNS-557

TENDER SUBMITTED BY

Johnson Controls Canada LP

(Full Legal Name of Company or Individual)

40 Hempstead Drive, Hamilton, ON L8W 2E7

(Address)

(905) 730 9695

(Phone No.)

raymond.a.kampen@jci.com

(E-mail Address)

BIDDER'S H.S.T NUMBER

84187-9992 RT0001

CONTRACT PRICES			Johnson Controls Canada LP
Item No.	Description		AMOUNT
1.	Subtotal		\$289,483.00
(STIPULATED) CONTRACT PRICE			\$289,483.00
	13% Harmonized Sales Tax (H.S.T.) Amount		\$37,632.79
	GRAND TOTAL		\$327,115.79

**TENDER DOCUMENT FORM
BIDDER QUALIFICATIONS**

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1.0 Qualifications

- 1.1 Metrolinx will use the information submitted by the Bidder in this “Tender Document Form: Bidder’s Qualifications” to determine if the Bidder meets the Bidder’s Qualifications set out in Section 8.0 of Instructions to Bidders. Projects listed by the Bidder in this “Tender Document Form: Bidder’s Qualifications” must demonstrate that the Bidder has successfully completed contracts for work that meets the criteria as set out in Section 8.0 of Instructions to Bidders.
- 1.2 The Bidder should complete the following:
- (a) Approximate annual value of similar work performed in Canada for the past five (5) years, if applicable.
 - (i) 2017 \$ 275,000,000
 - (ii) 2016 \$ 250,000,000
 - (iii) 2015 \$ 220,000,000
 - (iv) 2014 \$ 210,000,000
 - (v) 2013 \$ 190,000,000

2.0 Reference Checks

- 2.1 References will be checked using a standard uniform method. Opinions of previous customers regarding budget and schedule experience, dependability, attitudes of employees and/or Subcontractors concern for efficiency, safety, economy and environment, sensitivity to community, and quality of service among others may be taken into account when evaluating the reference projects.
- 2.2 The Bidder shall ensure that contact information provided for each reference project is current and accurate in order to enable Metrolinx to obtain all necessary information for evaluation purposes in a timely manner. If Metrolinx is unable to validate a reference project through the customer contact person provided by the Bidder, Metrolinx may, at its sole discretion consider the reference project invalid.
- 2.3 Metrolinx reserves the right to forward the information provided by the Bidder within its Submission in relation to the cited project to the identified customer contact person to verify the various elements of the information provided.
- 2.4 In order to provide the sought after information in relation to a reference project, the named customer contact person identified as a reference for a cited reference project shall have held a position within the reference organization, directly

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BIDDER QUALIFICATIONS**

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involved in the referenced project, and in a position to verify that the work was carried out by the Bidder in relation to the reference project in question.

- 2.5 For any discrepancies resulting from the reference check, Metrolinx may, at its sole discretion, re-contact the Bidder in writing for a written clarification or validation of information provided. Section 16.1(c) of Instructions to Bidders shall apply for any misrepresentations, inaccurate or misleading information provided in Tender Document Form: Bidder's Qualifications.

3.0 Reference Projects

- 3.1 The Bidder shall complete the following charts using relevant projects, either completed, as per the requirements of Section 8.0 of Instructions to Bidders. The Bidder must submit descriptions of relevant projects, in the charts immediately below.
- (a) Reference projects submitted shall be for work completed by the Bidder providing the Submission, and not for a Subcontractor or individual, unless indicated otherwise by Metrolinx.
 - (b) Where Section **Error! Reference source not found.** of Instructions to Bidders, and/or "Tender Document Form: Mandatory Corporate, Personnel and Technical Requirements" requests the Bidder to submit its Subcontractor's experience and qualifications, the Bidder shall provide completed relevant references for its Subcontractor(s) in Section 0 herein, Subcontractor(s) Reference Projects,.
 - (c) Where a Bidder has completed similar relevant work for Metrolinx in the past five (5) years, the Bidder shall be required to identify and list such projects as part of its reference projects to be submitted.
- 3.2 The Bidder shall complete the following chart for each project that the Bidder is describing to demonstrate that the Bidder meets the Bidder's Qualifications. Bidders are required to start with the most recent project and to use additional pages if required.
- (a) The Bidder may attach two (2) additional pages of information for each reference project submitted below.
- 3.3 Reference projects must demonstrate the Bidder's experience and qualifications in the following areas of the Work:

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BIDDER QUALIFICATIONS**

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- (a) Provide three (3) to five (5) satisfactorily completed relevant reference projects which demonstrate that the Bidder has carried out Work similar in scope, magnitude and complexity, as the Work of this Tender Document:

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BIDDER QUALIFICATIONS**

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Reference Project 1			
Project Name and Location:	Peel Distirct School Board – BAS Upgrades, Peel Region		
Role of Bidder:	Sales		
Customer Name:	Peel District School Board		
Customer Contact Person:	Dominic Elia	Phone No.	(905) 279-4310, ext. 237
Customer Contact Email Address:	Dominic.elia@peelsb.com		
Customer's Consultant:	n/a		
Consultant's Contact Person:	n/a	Phone No.	n/a
Consultant's Contact Person's Email Address:	n/a		
Contract Value (Estimated)	\$1,531,000	Contract Value (Actual)	\$1,575,000
Reasons for variances in contract value:			
Increased scope of work			
Completion Date (Estimated)	December 2017	Completion Date (Actual)	February 2018
Reasons for schedule variances:			
Delayed project start			
Project Description (Provide a detailed description of the reference project and the Bidder's responsibilities for the reference project. The Bidder should specifically list below similarities between this reference project and the Work specified herein)			
Established scope of BAS upgrades based on Owner's instruction. Retained electrical contractors for installation of BAS components			
Provide an overview of the scope of work:	Replaced existing pneumatic controls with Johnson Controls Metasys BAS controllers and performed BAS upgrades to existing controllers		
List the major components of the work:	Upgraded obsolete BAS controllers with new BACnet controllers Replaced pneumatic controls with BACnet controllers		
Did any safety issues arise during construction?	No		

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BIDDER QUALIFICATIONS**

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Reference Project 2			
Project Name and Location:	Fengate BAS Upgrades, Burlington & Oakville		
Role of Bidder:	Sales		
Customer Name:	Fengate Properties		
Customer Contact Person:	Chris Innes	Phone No.	(905) 491-6595
Customer Contact Email Address:	Chris.innes@fengate.com		
Customer's Consultant:	n/a		
Consultant's Contact Person:	n/a	Phone No.	n/a
Consultant's Contact Person's Email Address:	n/a		
Contract Value (Estimated)	\$ 707,000	Contract Value (Actual)	\$725,000
Reasons for variances in contract value:			
Increased scope of work			
Completion Date (Estimated)	December 2018	Completion Date (Actual)	On-going
Reasons for schedule variances:			
Click here to enter text.			
Project Description (Provide a detailed description of the reference project and the Bidder's responsibilities for the reference project. The Bidder should specifically list below similarities between this reference project and the Work specified herein)			
Established scope of BAS upgrades based on Owner's instruction. Retained electrical contractors for installation of BAS components			
Provide an overview of the scope of work:	Replace existing obsolete control system with new Johnson Controls Metasys BAS.		
List the major components of the work:	Replace existing BAS DDC controllers, replaced standalone thermostats with wireless BAS DDC controllers, Provided new centralized BAS server with graphics		
Did any safety issues arise during construction?	No		

**TENDER DOCUMENT FORM
BIDDER QUALIFICATIONS**

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Reference Project 3			
Project Name and Location:	Conestoga College – E-Wing BAS Upgrades		
Role of Bidder:	Sales		
Customer Name:	Conestoga College		
Customer Contact Person:	Tony Sasso	Phone No.	(519) 748-5220, ext. 3120
Customer Contact Email Address:	tsasso@conestogac.on.ca		
Customer's Consultant:	n/a		
Consultant's Contact Person:	n/a	Phone No.	n/a
Consultant's Contact Person's Email Address:	n/a		
Contract Value (Estimated)	\$102,000	Contract Value (Actual)	\$102,000
Reasons for variances in contract value:			
n/a			
Completion Date (Estimated)	August 2018	Completion Date (Actual)	September 2018
Reasons for schedule variances:			
Material shipment delays			
Project Description (Provide a detailed description of the reference project and the Bidder's responsibilities for the reference project. The Bidder should specifically list below similarities between this reference project and the Work specified herein)			
Develop project scope base don Owner's requirements. Retained electrical contractor for installation of BAS. Coordinated with Owner's personnel for installation scheduling.			
Provide an overview of the scope of work:	Replace pneumatic control with BAS DDC control on existing VAV boxes		
List the major components of the work:	BAS Controls for VAV boxes		
Did any safety issues arise during construction?	No		

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BIDDER QUALIFICATIONS**

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Reference Project 4			
Project Name and Location:	GTAA – T1 HVAC Optimization, Phase 2, Person Airport		
Role of Bidder:	Sales		
Customer Name:	Greater Toronto Airport Authority		
Customer Contact Person:	Danny Juricic	Phone No.	(416) 776-5993
Customer Contact Email Address:	danny.juricic@gtaa.com		
Customer's Consultant:	JLSR Engineering		
Consultant's Contact Person:	James Persaud	Phone No.	(647) 352 7155
Consultant's Contact Person's Email Address:	james@jlsrengineering.com		
Contract Value (Estimated)	\$500,000	Contract Value (Actual)	\$500,000
Reasons for variances in contract value:			
n/a			
Completion Date (Estimated)	April 2018	Completion Date (Actual)	April 2018
Reasons for schedule variances:			
n/a			
Project Description (Provide a detailed description of the reference project and the Bidder's responsibilities for the reference project. The Bidder should specifically list below similarities between this reference project and the Work specified herein)			
Retain electrical contractor for installation and modifications to the existing Johnson Controls Metasys BAS, coordinated with Owner's personnel and schedule for equipment retrofit of BAS controls.			
Provide an overview of the scope of work:	Retrofit and Upgrade of BAS controls on 89 air-handling units.		
List the major components of the work:	BAS Upgrades		
Did any safety issues arise during construction?	No		

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BIDDER QUALIFICATIONS**

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Reference Project 5			
Project Name and Location:	Click here to enter text.		
Role of Bidder:	Click here to enter text.		
Customer Name:	Click here to enter text.		
Customer Contact Person:	Click here to enter text.	Phone No.	Click here to enter text.
Customer Contact Email Address:	Click here to enter text.		
Customer's Consultant:	Click here to enter text.		
Consultant's Contact Person:	Click here to enter text.	Phone No.	Click here to enter text.
Consultant's Contact Person's Email Address:	Click here to enter text.		
Contract Value (Estimated)	\$Click here to enter text.	Contract Value (Actual)	\$Click here to enter text.
Reasons for variances in contract value:			
Click here to enter text.			
Completion Date (Estimated)	Click here to enter text.	Completion Date (Actual)	Click here to enter text.
Reasons for schedule variances:			
Click here to enter text.			
Project Description (Provide a detailed description of the reference project and the Bidder's responsibilities for the reference project. The Bidder should specifically list below similarities between this reference project and the Work specified herein)			
Click here to enter text.			
Provide an overview of the scope of work:	Click here to enter text.		
List the major components of the work:	Click here to enter text.		
Did any safety issues arise during construction?	Click here to enter text.		

**TENDER DOCUMENT FORM
CONFLICT OF INTEREST**

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1.0 Conflict of Interest

As it pertains to Conflict of Interest:

1.1 If the box below is left blank or if this “Tender Document Form: Conflict of Interest” is not included as part of the Submission, the Bidder shall be deemed to declare that:

- (a) there was no Conflict of Interest in preparing its Submission; and there is no foreseeable Conflict of Interest in performing the contractual obligations contemplated in the Tender Document. Otherwise, if the statement in Section 1.1(b) below applies, check (“X”) the box.
- (b) ☐ The Bidder declares that there is an actual or potential Conflict of Interest relating to the preparation of its Submission, and/or the Bidder foresees an actual or potential Conflict of Interest in performing the contractual obligations contemplated in the Tender Document.

1.2 If the Bidder declares an actual or potential Conflict of Interest by marking the box above, the Bidder must set out below details of the actual or potential Conflict of Interest:

Click here to enter text.

1.3 The following individuals, as employees, advisers, or in any other capacity (a) participated in the preparation of our Submission (whether as employees, advisers, or in any other capacity); AND (b) were employees, advisers or consultants of Metrolinx at any time within the twelve (12) months prior to the Closing:

Name of Individual:	Click here to enter text.
Job Classification:	Click here to enter text.
Department:	Click here to enter text.
Last Date of Employment with Metrolinx:	Click here to enter text.
Name of Last Supervisor:	Click here to enter text.
Brief Description of Individual's Job Functions:	Click here to enter text.
Participation in the Preparation of the Submission:	Click here to enter text.

(Repeat above for each identified individual)

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CONFLICT OF INTEREST**

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- 1.4 The Bidder agrees that, upon request, the Bidder shall provide Metrolinx with additional information from each individual identified above in the form prescribed by Metrolinx.

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MANDATORY CORPORATE, PERSONNEL AND TECHNICAL REQUIREMENTS
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- 1.1 Bidders must meet all mandatory requirements stated below in order for their Submission to be considered further. Failure of a Bidder to meet all of the mandatory requirements listed below shall result in the Bidder's Submission being found non-compliant. Non-compliant Submissions shall not be considered further and shall be disqualified.
- 1.2 Bidders shall provide supporting documentation, if requested, to substantiate compliance to each of the listed mandatory requirements. If the Bidder has not provided the supporting documentation specified for that mandatory requirement, Metrolinx has the right but not the obligation, following the Closing, to request that the Bidder provide such supporting documentation or to request that the Bidder identify where in its Submission this information has been provided. Failure of a Bidder to provide information required to substantiate compliance to a mandatory requirement may result in the Bidder's Submission being found non-compliant and disqualified.
- 1.3 Metrolinx has the right but not the obligation, to carry out further investigations to ensure the Bidder can meet the mandatory corporate, personnel and technical requirements to the satisfaction of Metrolinx in its sole discretion.

Mandatory Corporate, Personnel and Technical Requirements	Supporting Documentation Required to Substantiate Compliance to be Provided by Bidder
Mandatory Corporate Requirements	
The Bidder has a valid Workplace Safety and Insurance Clearance Certificate for the premium rate class, subclass or group as appropriate for the Work of this Contract, as issued by the Workplace Safety and Insurance Board.	No supporting documentation required with the Submission. Metrolinx reserves the right to request a valid Workplace Safety and Insurance Clearance Certificate for the premium rate class, subclass or group as appropriate for the Work of this Tender Document, as issued by the Workplace Safety and Insurance Board, at any time after Closing.
The Bidder has obtained a Bid Deposit for this Tender Process in accordance with Section 12.0 of Instructions to Bidders and shall provide the original Bid Deposit to Metrolinx, within three (3) Business Days after Closing.	Original Bid Deposit to Metrolinx in accordance Section 12.0 of Instructions to Bidders of this Tender Document.
The Bidder has obtained Contract Security for the Work of this Tender Document in accordance with Section 13.0 of Instructions to Bidders and shall provide the original Agreement to Bond or alternative to Metrolinx,	Original Agreement to Bond, or specified alternative, for the Work of this Tender Document, as per Section 13.0 of Instructions to Bidders.

TENDER DOCUMENT FORM
MANDATORY CORPORATE, PERSONNEL AND TECHNICAL REQUIREMENTS
Building Automation and Control Upgrades for HVAC and Lighting
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Mandatory Corporate, Personnel and Technical Requirements	Supporting Documentation Required to Substantiate Compliance to be Provided by Bidder
within three (3) Business Days after Closing.	
<p>The Bidder has achieved one of the following:</p> <ol style="list-style-type: none"> 1. COR™ Certified Status with IHSA; or 2. OHSAS 18001 certification; or 3. Out-of-Province COR™ certification and intends to apply for Out-of-Province COR™ Reciprocity (for bidding purposes only) through IHSA. Bidders applying for Out-of-Province Reciprocity must submit the request directly to the Procurement Representative, for approval by Metrolinx, prior to reaching out to their COR™ associations for a reciprocity letter. Out-of-Province COR™ Reciprocity shall be approved on a case by case basis until such time Metrolinx issues a definitive list. 	<ol style="list-style-type: none"> 1. A screen shot demonstrating the Bidder has achieved “Certified” status in Ontario, with IHSA, as it pertains to COR™. 2. A copy of the Bidder’s OHSAS 18001 certificate or a screen shot demonstrating that the Bidder is certified in OHSAS 18001. 3. Upon receipt of Metrolinx approval, a letter from IHSA approving the Bidder’s request for Out-of-Province COR™ Reciprocity.”

SUPPLEMENTARY AGREEMENT BETWEEN OWNER AND CONTRACTOR

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The Standard Construction Document for the Stipulated Price Contract, English version, CCDC 2-2008 Stipulated Price Contract, consisting of the “Agreement between Owner and Contractor, Definitions, and General Conditions of the Unit Price Contract, Parts 1 to 12 inclusive, governing same is hereby made part of the Contract Documents with the following amendments, additions and modifications set out herein. CCDC 2-2008 is available for purchase at www.ccdc.org. The “Agreement Between Owner and Contractor” of CCDC 2 2008 Stipulated Price Contract, is hereby amended as follows:

1.0 ARTICLE A-1 THE WORK

1.1 Paragraph 1.3 is amended as follows:

- (a) Add the words “, and attain Total Performance of the Work by the 28th day of June in the year 2019” after the words “in the year 2019” in the third line of paragraph 1.3.

1.2 Paragraphs 1.4

- (a) Add Paragraphs 1.4:

“1.4 The Contractor has informed itself of the conditions relating to the Work to be performed and has inspected and is thoroughly familiar with the location of the Work and the plans, specifications, drawings and all terms, conditions and covenants of the Contract.

2.0 ARTICLE A-3 CONTRACT DOCUMENTS

2.1 Paragraph 3.1 to 3.8

- (a) Delete paragraph 3.1 in its entirety and replace with the following new paragraph 3.1 to 3.8:

3.1 the words, “The following are the Contract Documents referred to in Article A-1 of the Agreement – THE WORK, and in the case of any conflicts, ambiguities, or inconsistencies between the Contract Documents, the provisions shall govern in the following order of precedence with each taking precedence over those listed subsequently:

- .1 Contract Amendments;
- .2 Change Order;
- .3 Change Directive;

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- .4 the body of this Supplementary Agreement between Owner and Contractor;
 - .5 Supplementary the General Conditions of the Contract;
 - .6 Definitions;
 - .7 General Conditions of the Contract;
 - .8 Agreement between Owner and Contractor;
 - .9 Drawings; and
 - .10 Specifications.
- 3.2 The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all.
- 3.3 Drawings of a larger scale shall govern over those of a smaller scale of the same date. Later dated documents shall govern over earlier documents of the same type.
- 3.4 Regardless of the order of precedence set out in paragraph hereinany provision establishing a higher standard of safety, reliability, durability, performance or service shall take precedence over a provision establishing a lower standard of safety, reliability, durability, performance or service.
- 3.5 In case of discrepancies, noted materials and annotations shall take precedence over graphic indications in the Contract Documents.
- 3.6 Headings or subheadings in the Contract Documents are inserted for reference convenience only and shall not affect the Work, or the interpretation of the Contract Documents.
- 3.7 The following provisions shall survive the expiry or termination of this Contract: Article A-3, Article A-4, GC 1.5 – ADVERTISING AND PUBLIC NOTICES, GC 1.6 – CONFIDENTIAL INFORMATION AND PERSONAL INFORMATION, GC 1.7 RECORDS AND AUDIT, GC 5.10 – CLAIMS FOR LIEN, Part 8 – DISPUTE RESOLUTION, GC 11.1 INSURANCE, GC 11.2 CONTRACT SECURITY, Part 12

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– INDEMNIFICATION, WAIVER OF CLAIMS AND WARRANTY, GC 14 – CONTRACTOR WORK PERFORMANCE RATING, GC 15 – CONFLICT OF INTEREST; and any other provision which state explicitly therein that it shall survive expiry or termination.”

3.0 ARTICLE A-4 CONTRACT PRICE

3.1 Paragraphs 4.7 through 4.13

(a) Add new Paragraphs 4.7 through 4.10 as follows:

- “4.7 The Contract Price is firm. The Contractor acknowledges and agrees that, the Contractor has satisfied itself as to the correctness and sufficiency of the Contract Price, and has based the Contract Price on the data, interpretations, necessary information, examinations and satisfaction as to all relevant matters and any further data relevant to the Work, and that the Contract Price covers all of the Contractor’s obligations under the Contract, and all things necessary for the proper performance of the Work, including the remedying of any defects.
- 4.8 The Contract Price includes all Cash Allowances, contingency allowances (if applicable) and all applicable taxes, except Harmonized Sales Tax (H.S.T.).
- 4.9 The Contract Price represents full payment for all the Work necessary for the proper completion of the Contract, including any warranty work or correction of deficiencies or defects that is required in accordance with this Contract.
- 4.10 The Contract Price includes all labour, superintendence, plant, tools, appliances, equipment, supplies and other accessories, services and facilities customs, duties, royalties, handling, transportation, travel, mileage, overhead, profit and all other charges.
- 4.11 The Owner may, from time to time, withhold or set off against any amounts otherwise due to the Contractor, any amounts (including, without limitation, any amounts payable as liquidated damages), which are due to or owed to the owner from or by the Contractor pursuant to the terms of this Contract.”

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4.11 Allowances

4.11.1 Cash Allowances

- .1 Cash Allowances are subject to the Supplementary General Conditions and General Conditions of the Contract.
- .2 Descriptions of each Cash Allowance are listed below and amounts are specified under this A-4 – Contract Price in the attached Excel spreadsheet entitled “Contract Prices”.

4.11.2 Description of Cash Allowances

- .1 Not Applicable

4.11.3 Contingency Allowances

- .1 Contingency Allowances are subject to the General Conditions of the Contract.

4.12 Options

4.12.1 Not Applicable

4.0 ARTICLE A-5 PAYMENT

4.1 Delete subparagraphs 5.1.2. and 5.1.3 in their entirety and replace with the following:

- .1 upon the issuance of the final certificate for payment, pay to the *Contractor* the unpaid balance of the *Contract Price* when due together with such *Value Added Taxes* as may be applicable to such payment.”

5.0 ARTICLE A-5 PAYMENT

5.1 Not Applicable

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

6.1 Paragraph 6.1 is amended as follows:

- (a) Delete the words “or other form of electronic communication” from the second line.

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- (b) Delete the words “or other form of electronic communication” from the seventh line of.
- (c) Delete the words “email address” from the signature lines for the Owner, Contractor and Consultant.

7.0 ARTICLE A-9 SEVERABILITY

7.1 Add new Article A-9 as follows:

“ARTICLE A-9 SEVERABILITY

- 9.1 If any provision of this Contract is found to be invalid or unenforceable in any circumstances, the remainder of this Contract, and the application of such provision in any other circumstances, shall not be affected.”

8.0 ARTICLE A-10 TIME OF ESSENCE

8.1 Add new Article A-10 as follows:

“ARTICLE A-10 TIME OF ESSENCE

- 10.1 Time shall be of the essence of the Contract and under all Contract Documents.”

9.0 ARTICLE A-11 GENERAL PROVISIONS

10.1 Add new Article A-11 as follows:

“ARTICLE A-11 GENERAL PROVISIONS

- 11.1 Failure or delay by either the Contractor or the Owner to exercise any right or power under this Contract will not operate as a waiver of such right or power. For a waiver of a right or power to be effective, it must be in writing signed by the waiving party. An effective waiver of a right or power shall not be construed as either (i) a future or continuing waiver of that same right or power, or (ii) the waiver of any other right or power.
- 11.2 The parties hereto shall do all further acts and things and execute all further documents reasonably required in the circumstances to affect the intent of this Contract. References to the singular of any term includes the plural, and vice versa, the use of any term is generally applicable to any gender and, where applicable, a

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legal entity, the word “or” is not exclusive; the words “herein”, “hereof”, “hereunder” and other words of similar import refer to the Contract Documents as a whole and not to any particular Article, Section, subsection or other subdivision thereof.

- 11.3 In the exercise of their respective rights and in the performance of their respective obligations under the Contract Documents, unless the provision explicitly permits the contrary, each party shall act reasonably, diligently and in good faith."

END OF SECTION

CCDC 2

stipulated price contract

2 0 0 8

Apply a CCDC 2 copyright seal here. The application of the seal demonstrates the intention of the party proposing the use of this document that it be an accurate and unamended form of CCDC 2 – 2008 except to the extent that any alterations, additions or modifications are set forth in supplementary conditions.

CANADIAN CONSTRUCTION DOCUMENTS COMMITTEE
CANADIAN CONSTRUCTION DOCUMENTS COMMITTEE
CANADIAN CONSTRUCTION DOCUMENTS COMMITTEE

AGREEMENT BETWEEN OWNER AND CONTRACTOR

For use when a stipulated price is the basis of payment.

This Agreement made on the _____ day of _____ in the year _____.

by and between the parties

hereinafter called the "*Owner*"

and

hereinafter called the "*Contractor*"

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

ARTICLE A-1 THE WORK

The *Contractor* shall:

1.1 perform the *Work* required by the *Contract Documents* for

located at

insert above the name of the Work

for which the Agreement has been signed by the parties, and for which

insert above the Place of the Work

is acting as and is hereinafter called the "*Consultant*" and

insert above the name of the Consultant

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

1.3 commence the *Work* by the _____ day of _____ in the year _____ and, subject to adjustment in *Contract Time* as provided for in the *Contract Documents*, attain *Substantial Performance of the Work*, by the _____ day of _____ in the year _____.

ARTICLE A-2 AGREEMENTS AND AMENDMENTS

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

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

ARTICLE A-3 CONTRACT DOCUMENTS

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

- Agreement between *Owner* and *Contractor*
- Definitions
- The General Conditions of the Stipulated Price Contract
- *

* (Insert here, attaching additional pages if required, a list identifying all other Contract Documents e.g. supplementary conditions; information documents; specifications, giving a list of contents with section numbers and titles, number of pages and date; material finishing schedules; drawings, giving drawing number, title, date, revision date or mark; addenda, giving title, number, date)

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ARTICLE A-4 CONTRACT PRICE

4.1 The *Contract Price*, which excludes *Value Added Taxes*, is:

/100 dollars \$

4.2 *Value Added Taxes* (of %) payable by the *Owner* to the *Contractor* are:

/100 dollars \$

4.3 Total amount payable by the *Owner* to the *Contractor* for the construction of the *Work* is:

/100 dollars \$

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

4.5 All amounts are in Canadian funds.

ARTICLE A-5 PAYMENT

5.1 Subject to the provisions of the *Contract Documents*, and in accordance with legislation and statutory regulations respecting holdback percentages and, where such legislation or regulations do not exist or apply, subject to a holdback of

percent (%), the *Owner* shall:

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

5.2 In the event of loss or damage occurring where payment becomes due under the property and boiler insurance policies, payments shall be made to the *Contractor* in accordance with the provisions of GC 11.1 – INSURANCE.

5.3 Interest

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

(Insert name of chartered lending institution whose prime rate is to be used)

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

- .2 Interest shall apply at the rate and in the manner prescribed by paragraph 5.3.1 of this Article on the settlement amount of any claim in dispute that is resolved either pursuant to Part 8 of the General Conditions – DISPUTE RESOLUTION or otherwise, from the date the amount would have been due and payable under the *Contract*, had it not been in dispute, until the date it is paid.

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

- 6.1 *Notices in Writing* will be addressed to the recipient at the address set out below. The delivery of a *Notice in Writing* will be by hand, by courier, by prepaid first class mail, or by facsimile or other form of electronic communication during the transmission of which no indication of failure of receipt is communicated to the sender. A *Notice in Writing* delivered by one party in accordance with this *Contract* will be deemed to have been received by the other party on the date of delivery if delivered by hand or courier, or if sent by mail it shall be deemed to have been received five calendar days after the date on which it was mailed, provided that if either such day is not a *Working Day*, then the *Notice in Writing* shall be deemed to have been received on the *Working Day* next following such day. A *Notice in Writing* sent by facsimile or other form of electronic communication shall be deemed to have been received on the date of its transmission provided that if such day is not a *Working Day* or if it is received after the end of normal business hours on the date of its transmission at the place of receipt, then it shall be deemed to have been received at the opening of business at the place of receipt on the first *Working Day* next following the transmission thereof. An address for a party may be changed by *Notice in Writing* to the other party setting out the new address in accordance with this Article.

Owner

*name of Owner**

address

facsimile number

email address

Contractor

*name of Contractor**

address

facsimile number

email address

Consultant

*name of Consultant**

address

facsimile number

email address

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

ARTICLE A-7 LANGUAGE OF THE CONTRACT

- 7.1 When the *Contract Documents* are prepared in both the English and French languages, it is agreed that in the event of any apparent discrepancy between the English and French versions, the English / French # language shall prevail.
Complete this statement by striking out inapplicable term.

- 7.2 This Agreement is drawn in English at the request of the parties hereto. La présente convention est rédigée en anglais à la demande des parties.

ARTICLE A-8 SUCCESSION

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

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

SIGNED AND DELIVERED
in the presence of:

WITNESS

OWNER

name of owner

signature

signature

name of person signing

name and title of person signing

signature

signature

name of person signing

name and title of person signing

WITNESS

CONTRACTOR

name of Contractor

signature

signature

name of person signing

name and title of person signing

signature

signature

name of person signing

name and title of person signing

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

SUPPLEMENTARY DEFINITIONS OF THE CONTRACT

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The “Definitions” of CCDC2 2008 Stipulated Price Contract, are hereby amended as follows:

1.0 Definitions

1.1 Act

- (a) Add new definition, “Act”, as follows:
- (b) *Act* means the Construction Act (Ontario) as amended.”

1.2 Applicable Law

- (a) Add new definition, “Applicable Law”, as follows:
- (b) *Applicable Law* means all applicable laws, statutes, regulations, orders, by-laws, treaties, judgements, decrees and ordinances applicable from time to time and, whether or not having the force of law, all applicable approvals, standards, codes, requirements, requests, directives, rules, guidelines, instructions, circulars, manuals, and policies of any Governmental Authority having or purporting to have jurisdiction or authority over a party, property, transaction or event, including laws relating to workplace safety and insurance, occupational health and safety and employment standards.”

1.3 Confidential Information

- (a) Add new definition, “Confidential Information”, as follows:
- (b) *Confidential Information* means all information of a confidential nature (as determined with reference to its treatment by the Owner) which is provided, disclosed or made available (orally, electronically or in writing or by any other media) by the Owner or the Consultant (or its representatives) to the Contractor (including to employees, contractors, or other representatives thereof). For greater certainty, *Confidential Information* also includes all construction documents, Personal Information and all of the Owner’s materials provided by the Owner, which includes: (a) specifications, drawings, images, software, audio or video recordings, specifications, performance requirements, software development tools, technologies, content, data (including all information whether or not contained in or on any database or electronic information storage system or media owned by or in the custody or control of the Owner), (b) technical information, and any other recorded information, in any form and on any media, that are proprietary to, or controlled or licensed by, the Owner or the Consultant and

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provided to the Contractor; (c) all procurement documents issued by the Owner; (d) all documentation or source materials (including source code) related to any of the foregoing; and (e) all copies, translations, improvements, modifications, enhancements, adaptations, or derivations made to the aforementioned Owner's materials by the Owner or any third party not performing work under this Contract."

1.4 Consultant

- (a) Delete the definition of "Consultant" in its entirety and replace it with the following:
- (b) The *Consultant* shall be the person or entity designated as the *Consultant* by the Owner, from time to time."

1.5 Contract Documents

- (a) Add the words "in writing" after the word "upon" in the second line of the definition of Contract Documents.

1.6 Contract Time

- (a) Delete the word "Substantial" and substitute the word "Total" in the second line.

1.7 Contractor Personnel

- (a) Add new definition, "Contractor Personnel" as follows:
 - (i) "Contractor Personnel" means (a) with respect to the Contractor, all of the Contractor's personnel, employees, agents, third party providers an Independent Inspection Company and independent contractors engaged in the performance of the Work; and (b) with respect to each Subcontractor all of that Subcontractor's personnel, employees, agents, third party providers, an Independent Inspection Company and independent contractors engaged in the performance of the Work."

1.8 Intentionally Left Blank

1.9 FIPPA

- (a) Add new definition, "FIPPA", as follows:

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- (i) FIPPA means the Freedom of Information and Protection of Privacy Act (Ontario) as amended.”

1.10 FIPPA Records

- (a) Add new definition, “FIPPA Records” as follows:
- (b) *FIPPA Records* means all information, data, records and materials, however recorded, in the custody or control of the Owner, including Confidential Information and Personal Information (as defined in FIPPA). For the purposes of this definition, documents held by the *Contractor* in connection with this *Contract* are considered to be in the control of the Owner.”

1.11 GC

- (a) Add new definition, “GC”, as follows:
 - (i) *GC* means the General Conditions of the Contract, as amended by the Supplementary General Conditions”.

1.12 Governmental Authority

- (a) Add new definition, “Governmental Authority”, as follows:
- (b) *Governmental Authority* means any domestic government, including any federal, provincial, territorial, municipal, regional or other local government, and any government established court, agency, tribunal, commission or other authority exercising or purporting to exercise executive, legislative, judicial, regulatory or administrative functions respecting government; provided, however, “*Governmental Authority*” does not include Metrolinx.

1.13 Independent Inspection Company

- (a) Add new definition, “Independent Inspection Company”, as follows:
- (b) “*Independent Inspection Company* means any independent or 3rd party inspection and testing agencies/companies.”

1.14 OHSA

- (a) Add new definition, “OHSA”, as follows:

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- (b) *OHSA* means the Occupational Health and Safety Act (Ontario), as amended.”

1.15 Personal Information

- (a) Add new definition, “Personal Information” as follows:
- (b) *Personal Information* has the meaning as set out for the term in FIPPA.

1.16 Provisional Item(s)

- (a) Add new definition, “Provisional Item(s) as follows:
- (b) *Provisional Item(s)* are one or more components of the Work that are to be exercised at the sole discretion of Metrolinx.

1.17 Railway

- (a) Add new definition, “Railway”, as follows:
- (b) *Railway* or *Railways* means one or more of the Canadian National Railway Company, Canadian Pacific Railway Company, or The Toronto Terminals Railway Company Limited owning or operating the *Railway Right-of-Way* on which all or part of the *Work* may be performed.”

1.18 Railway’s Engineer

- (a) Add new definition, “Railway’s Engineer”, as follows:
- (b) *Railway’s Engineer* means the person designated as such by the applicable *Railway* or the *Owner*.”

1.19 Railway Flag Person

- (a) Add new definition, “Railway Flag Person”, as follows:

Railway Flag Person means the person designated as such by the applicable *Railway* or the *Owner* to provide flagging services.”

1.20 Railway Right-of-Way

- (a) Add new definition, “Railway Right-of-Way”, as follows:

Railway Right-of-Way means the land, property, trackage, equipment and

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facilities of the *Railway*, including main tracks, side tracks, branch lines, yards and terminals owned or controlled by the *Railway* or the *Owner*.”

1.21 Submittals

- (a) Add new definition, “Submittals”, as follows:
- (b) *Submittals* are any or all documents or items required by the *Contract Documents* to be provided by the *Contractor* to the *Owner* or the *Consultant*, including but not limited to:
 - (i) Shop Drawings, samples, models, specifications, mock-ups to indicate details or characteristics, before the portion of the *Work* that they represent can be incorporated into the *Work*;
 - (ii) Construction Schedule;
 - (iii) As-built drawings and manuals to provide instructions for the operation; and
 - (iv) safety plans, schedules or policies; and
 - (v) documents related to the warranty or maintenance of the *Work*.”

1.22 Standard of Care

- (a) Add new definition, “Standard of Care”, as follows:
- (b) *Standard of Care* shall have the meaning set out in GC 3.15.”

1.23 Total Performance of the Work

- (a) Add new definition, “Total Performance of the Work”, as follows:
- (b) *Total Performance of the Work* means when the entire *Work*, except for those items arising from GC 12.3 – WARRANTY, has been performed in accordance with the requirements of the *Contract Documents* and is so certified by the *Consultant*.”

1.24 Toxic and Hazardous Substances

- (a) Add new definition, “Toxic and Hazardous Substances”, as follows:

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- (b) *Toxic and Hazardous Substances* means, collectively, any contaminant, waste, subject waste, pollutant, toxic substance, dangerous goods, asbestos, petroleum, its derivatives, by-products or other hydrocarbons, as defined in or pursuant to any applicable laws, regulations, by-laws, guidelines or orders rendered by any governmental authority having jurisdiction or any other substance or material which, when released to, or present in, the natural environment, is likely to cause in some immediate or foreseeable future time, material harm or degradation of the natural environment or material risk to human health.”

1.25 Unit Price

- (a) Add new definition “Unit Price”, as follows:
- (b) A Unit Price means an all-inclusive cost for goods and/or services, including customs duties, royalties, handling, transportation, overhead, profit and all other charges as it relates to SGC 4.3, Provisional Items.

1.26 Warranty Period

- (a) Add new definition, “Warranty Period” as follows:
 - (i) “*Warranty Period* means two (2) years from the Total Performance Date, except where longer periods of warranty are specified in the Contract, in each case as may be extended in accordance with the provisions of the Contract.”

1.27 Warranty Period Letter of Credit

- (a) Add new definition, “Warranty Period Letter of Credit” as follows:
 - (i) “Warranty Period Letter of Credit has the meaning ascribed to it in GC 12.3.”

1.28 WSIB

- (a) Add new definition, “WSIB”, as follows:
 - (i) “*WSIB* means the Workplace Safety and Insurance Board.”

1.29 Working Days

- (a) Delete the definition of “Working Days” in its entirety and replace with the following:

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Working Days means any day other than: (a) a Saturday or Sunday and (b) any other day on which the *Owner's* Head Office at 97 Front Street West, Toronto, Ontario, is not open for business. Each *Working Day* will end at 4:00 p.m. on that day.”

END OF SECTION

DEFINITIONS OF THE CONTRACT

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1.0 Definitions

The “Definitions” of CCDC 2 2008 Stipulated Price Contract shall constitute the “Definitions of the Contract” in their entirety as amended by the Supplementary Definitions herein. CCDC 2 2008 can be purchased at www.ccdc.org.

END OF SECTION

DEFINITIONS

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

1. Change Directive

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

2. Change Order

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

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

3. Construction Equipment

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

4. Consultant

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

5. Contract

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

6. Contract Documents

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

7. Contract Price

The *Contract Price* is the amount stipulated in Article A-4 of the Agreement - CONTRACT PRICE.

8. Contract Time

The *Contract Time* is the time stipulated in paragraph 1.3 of Article A-1 of the Agreement - THE WORK from commencement of the *Work* to *Substantial Performance of the Work*.

9. Contractor

The *Contractor* is the person or entity identified as such in the Agreement. The term *Contractor* means the *Contractor* or the *Contractor's* authorized representative as designated to the *Owner* in writing.

10. Drawings

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

11. Notice in Writing

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

12. Owner

The *Owner* is the person or entity identified as such in the Agreement. The term *Owner* means the *Owner* or the *Owner's* authorized agent or representative as designated to the *Contractor* in writing, but does not include the *Consultant*.

13. Place of the Work

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

14. Product

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

- 15. Project**
The *Project* means the total construction contemplated of which the *Work* may be the whole or a part.
- 16. Provide**
Provide means to supply and install.
- 17. Shop Drawings**
Shop Drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures, *Product* data, and other data which the *Contractor* provides to illustrate details of portions of the *Work*.
- 18. Specifications**
The *Specifications* are that portion of the *Contract Documents*, wherever located and whenever issued, consisting of the written requirements and standards for *Products*, systems, workmanship, quality, and the services necessary for the performance of the *Work*.
- 19. Subcontractor**
A *Subcontractor* is a person or entity having a direct contract with the *Contractor* to perform a part or parts of the *Work* at the *Place of the Work*.
- 20. Substantial Performance of the Work**
Substantial Performance of the Work is as defined in the lien legislation applicable to the *Place of the Work*. If such legislation is not in force or does not contain such definition, or if the *Work* is governed by the Civil Code of Quebec, *Substantial Performance of the Work* shall have been reached when the *Work* is ready for use or is being used for the purpose intended and is so certified by the *Consultant*.
- 21. Supplemental Instruction**
A *Supplemental Instruction* is an instruction, not involving adjustment in the *Contract Price* or *Contract Time*, in the form of *Specifications*, *Drawings*, schedules, samples, models or written instructions, consistent with the intent of the *Contract Documents*. It is to be issued by the *Consultant* to supplement the *Contract Documents* as required for the performance of the *Work*.
- 22. Supplier**
A *Supplier* is a person or entity having a direct contract with the *Contractor* to supply *Products*.
- 23. Temporary Work**
Temporary Work means temporary supports, structures, facilities, services, and other temporary items, excluding *Construction Equipment*, required for the execution of the *Work* but not incorporated into the *Work*.
- 24. Value Added Taxes**
Value Added Taxes means such sum as shall be levied upon the *Contract Price* by the Federal or any Provincial or Territorial Government and is computed as a percentage of the *Contract Price* and includes the Goods and Services Tax, the Quebec Sales Tax, the Harmonized Sales Tax, and any similar tax, the collection and payment of which have been imposed on the *Contractor* by the tax legislation.
- 25. Work**
The *Work* means the total construction and related services required by the *Contract Documents*.
- 26. Working Day**
Working Day means a day other than a Saturday, Sunday, statutory holiday, or statutory vacation day that is observed by the construction industry in the area of the *Place of the Work*.

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Where a General Condition or paragraph of the General Conditions of the Stipulated Price Contract of the CCDC2 2008 – Stipulated Price Contracts (hereinafter referred to as “General Conditions of the Contract” is deleted in its entirety by these Supplementary General Conditions, it shall be noted as “Intentionally left blank”. The numbering of the remaining General Conditions or paragraphs shall remain unchanged, and the numbering of the deleted item will be retained. The General Conditions of the Contract are hereby amended as follows:

PART 1 GENERAL PROVISIONS

1.0 GC 1.1 - Contract Documents

1.1 GC 1.1.3

Delete GC 1.1.3 in its entirety.

1.2 GC 1.1.5

Delete GC 1.1.5 in its entirety

1.3 GC 1.1.7

(a) Delete GC 1.1.7 in its entirety and replace with the following:

“1.1.7 If there is a conflict with the Contract Documents, it shall be resolved be in accordance with the order of priority set out in Article A-3 Contract Documents of the Agreement between the Owner and the Contractor.”

(b) Add GC 1.1.7.5, as follows:

“1.1.7.5 In case of discrepancies, noted materials and annotations shall take precedence over graphic indications in the Contract Documents.”

1.4 GC 1.1.8

(a) Delete GC 1.1.8 in its entirety and replace with the following:

“1.1.8 The Owner shall provide the Contractor, without charge, up to ten copies of the Contract Documents. If requested by the Contractor, the Owner shall provide additional copies, at the cost of the Contractor.”

1.5 GC 1.1.11

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(a) Add GC 1.1.11 as follows:

“1.1.11 Subject to paragraph 1.1.9, all surveys, reports, drawings, calculations, designs, plan, specifications and other data, information, materials, collected, compiled, drawn or produced, including computer printouts, pursuant to the Contract are the property of the Owner. The Contractor shall transfer the copyright, including an express waiver and release of all moral rights, of all Drawings, plans, Specifications, models, photos, and other written or graphic materials produced under the Contract to the Owner which will be free to use them as it sees fit. Any waiver or release obtained under this clause may include a reasonable exclusion of liability regarding the use of materials for other projects. In the event of any dispute or disagreement pertaining to the Work between the Owner and the Contractor, the Owner will have the unqualified right and license to use the design as it may have evolved from time to time and any Drawings, Specifications, documents, materials of any nature and kind which may now or hereafter exist and which the Contractor may have any right, title, interest or copyright for the purpose of completing the design and construction of the Work for which they were prepared.”

1.6 GC 1.1.12

(a) Add GC 1.1.12 as follows:

“1.1.12 Wherever in the Contract Documents items are noted as “N.I.C.” (“Not In Contract”) the Owner will provide such items either during or after the Contract Time. The Contractor shall accommodate the entry of such items into the Work when N.I.C. items are delivered to the Place of the Work.”

2.0 GC 1.2 - Law Of The Contract

2.1 Delete GC 1.2.1 in its entirety and replace with the following:

“1.2.1 The parties agree that the law of Ontario, Canada shall govern the interpretation of the *Contract* and irrevocably attorn to the exclusive jurisdiction of the courts of Ontario, Canada and all lawful courts to which decisions can be appealed therefrom.”

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3.0 GC 1.3 – Rights and Remedies

3.1 Add GC 1.3.3 as follows:

“1.3.3 Notwithstanding paragraph 1.3.1, the Owner shall not be liable, whether in contract, tort or any other theory of law, for any claim arising from any prior negotiation, representation, or agreement, whether written or oral, which is superseded by the Contract under Article A-2 of the Agreement – Agreements and Amendments.”

4.0 GC 1.4 ASSIGNMENT

4.1 GC 1.4.1

(a) Delete GC 1.4.1 in its entirety and replace with the following:

“1.4.1 The *Contractor* shall not assign the Contract, either whole or in part, without the prior written consent of the *Owner*. The *Owner* may assign the Contract, either in whole or in part, with written notice to the *Contractor*.”

5.0 GC 1.5 ADVERTISING AND PUBLIC NOTICES

5.1 Add GC 1.5 – ADVERTISING AND PUBLIC NOTICES as follows:

“GC 1.5 – ADVERTISING AND PUBLIC NOTICES

1.5.1 The *Contractor* will obtain the *Owner's* prior written approval for any public statement, advertising, written public sales promotions, press release or other general publicity matter, in which the name or trademarks of the *Owner* or any Railway are mentioned or used or in which words are used from which any connection with the *Owner* or any Railway or their trademarks may be inferred. The *Contractor* will not allow or permit any public ceremony in connection with the Work without the prior written permission of the Owner, which may be unreasonably withheld. The *Contractor* will not erect or permit the erection of any sign or advertising without the prior written approval of the *Owner*. The Contractor shall not publish, issue or make any public statements or news release, electronic or otherwise concerning the *Contract* or the *Work*, without the express written consent of the *Owner*, which may be unreasonably withheld”

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6.0 GC 1.6 CONFIDENTIAL INFORMATION AND PERSONAL INFORMATION

6.1 Add GC 1.6 - CONFIDENTIAL INFORMATION AND PERSONAL INFORMATION as follows:

“GC 1.6 – CONFIDENTIAL INFORMATION AND PERSONAL INFORMATION

- 1.6.1 The *Contractor* shall not disclose or provide any Confidential Information to third parties who do not require that information or data to complete any portion of the *Work* and who are not authorized by the *Owner* to receive, or have access to, such Confidential Information.
- 1.6.2 The Contractor acknowledges that the Owner is a provincial crown agency subject to the *Freedom of Information and Protection of Privacy Act* (Ontario), and agrees that all *FIPPA Records* are subject to, and the collection, use, storage and treatment thereof, is governed by FIPPA. The Contractor agrees to keep all *FIPPA Records* secure and available, in accordance with the requirements of *FIPPA*. In the event of a conflict between the requirements of this Contract and the requirements of *FIPPA*, the requirements of *FIPPA* shall take precedence.
- 1.6.3 In the event that a request is made under *FIPPA* for the disclosure of any *FIPPA Records*, the Owner shall provide prompt written notice thereof to the Contractor and the Contractor shall provide any and all relevant FIPPA Records to the Owner on demand for the purposes of responding to an access request under *FIPPA*. In these circumstances, the *Contractor* shall provide all *FIPPA Records* requested to the *Owner's* Freedom of Information Coordinator (or equivalent) within seven (7) *Working Days* of receipt of the request from the Owner. Notwithstanding anything to the contrary in this Contract and subject to the Contractor's rights of appeal pursuant to Section 28(9) of FIPPA, the Owner shall determine what FIPPA Records will be disclosed in connection with any such request, in accordance with the requirements of FIPPA (including, without limitation, the requirements with respect to affected persons set out in Section 28 thereof).
- 1.6.4 For greater certainty, the *Contractor* shall advise its representatives and all *Subcontractors* of the requirements of this GC 1.6, and associated requirements set out elsewhere in this *Contract*, and take appropriate action to ensure compliance by such representatives with the terms of this GC 1.6. In addition to any other liabilities of the Contractor pursuant to this *Contract* or otherwise at law or in equity, the *Contractor* shall be

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liable for all claims arising from any non-compliance with this GC 1.6 by the Contractor, Subcontractors and their respective personnel.”

7.0 GC 1.7 RECORDS AND AUDIT

7.1 Add GC 1.7 - RECORDS AND AUDIT as follows:

“GC 1.7 - RECORDS AND AUDIT

1.7.1 The *Contractor* shall maintain complete and accurate books, payrolls, accounts, records and invoices in relation to the Contract and shall grant the Owner, full audit rights in respect of all said books, records, accounts and invoices relating to the performance of the Work. Such records shall include, but are not limited to:

- .1 a daily log or report containing details on weather conditions, the condition of the Place of the Work, work force of the Contractor, Subcontractor, Suppliers, third parties and any other forces on site at the Place of the Work, and also record general activities and performance for the day. Such log or report shall also include any extraordinary or emergency events which may occur;
- .2 records with details on manpower and material resourcing of the Work, including records which document the activities of the Contractor in connection with the construction schedule, and comparing that resourcing to the resourcing anticipated against the most recent version of the construction schedule; and
- .3 other information, reports, documents, records and the like pertaining to the physical condition of the Place of the Work, health and safety, fire safety, emergency preparedness, environmental matters, human resources or employee matters.

1.7.2 The Owner may inspect and audit such books, payrolls, accounts records and invoices of the *Contractor* from time to time, at any time as deemed necessary by the *Owner* prior to the date of Final Certificate for Payment and thereafter for a period of two (2) years to verify the *Contractor's* estimates, valuation of changes in the *Work*, the performance of the *Contractor*, and claims, and the *Contractor* shall supply certified copies of books, payrolls, accounts, invoices and other records to the Owner or access to same as required by the *Owner*. The books and records, together with the supporting or underlying documents and materials shall be made available, upon request, to the Owner, through its employees, agents,

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representatives, or other designees, during normal business hours at the Contractor's office or place of business. The Contractor shall ensure an equivalent provision to this SC 1.7.2 are part of each Subcontractor's and Supplier's contract (and shall require the Subcontractors and Suppliers to incorporate same into every level of contract thereunder) for any part of the Work and the Contract, to provide the Owner with access to project records as contemplated herein.

- 1.7.3 If the *Contractor* fails to keep, or fails to cause to be kept, adequate records to document the estimate, valuation of a change in the *Work*, the *Contractor's* performance, or claim or fails to provide certified copies or access to such records when requested, the *Contractor* shall forfeit all right to payment for the change in the *Work* or claim which it may otherwise have had. Any amount already paid by the *Owner* in respect of such change in *Work* or claim shall become immediately repayable to the *Owner* on demand for same."

8.0 GC 1.8 FURTHER ASSURANCES

- 8.1 Add GC 1.8 - FURTHER ASSURANCES as follows:

"GC 1.8 - FURTHER ASSURANCES

- 1.8.1 Each party agrees that it shall at any time and from time to time, at its own expense, execute and deliver such further documents and do such further acts and things as the other party may reasonably request for the purpose of giving effect to the *Contract* or carrying out the intention of facilitating the performance of the *Contract*.
- 1.8.2 Without limiting the generality of GC 1.8.1 and notwithstanding any other provisions of the *Contract*, the *Contractor* acknowledges that it may, from time to time during the *Contract* Time, be requested to provide its agreement to indemnify, or to directly indemnify third parties for any liability, damages or claims which may arise in connection with the performance of the *Work* and as a result of the acts or omissions of the *Contractor* or those persons or entities for who it is responsible at law, and the *Contractor* shall reasonably cooperate with the *Owner* and shall execute and deliver such documents and agreements as may be required and requested by the *Owner*."

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PART 2 ADMINISTRATION OF THE CONTRACT

1.0 GC 2.1 AUTHORITY OF THE CONSULTANT

- 1.1 Delete GC 2.1 in its entirety and replace with the following:

"GC 2.1 AUTHORITY OF THE CONSULTANT

- 2.1.1 The *Consultant* shall be appointed by the *Owner* and shall be the *Owner's* representative during construction and until the issuance by the *Consultant* of a certificate attesting to the Total Performance of the Work, or at a date specified by the *Owner*. All instructions to the *Contractor* including instructions from the *Owner* will be issued by the *Consultant*. The *Consultant* will have the authority to act on behalf of the *Owner* only to the extent provided in the *Contract Documents*.
- 2.1.2 The *Consultant* shall inspect the *Work* for its conformity with the plans and Specifications, and record the necessary data to establish payment quantities under the schedule of Contract quantities and unit prices or to make an assessment of the value of the *Work* completed in the case of a lump sum price contract.
- 2.1.3 The *Consultant* will investigate all claims of a change in the *Work* made by the *Contractor* and issue appropriate instructions
- 2.1.4 In the case of non-compliance with the provisions of the *Contract* by the *Contractor*, the *Consultant*, after consultation with the *Owner*, will have the authority to suspend the *Work* for such reasonable time as may be necessary to remedy such non-compliance. The *Contractor* shall not be entitled to any compensation for suspension of the *Work* in these circumstances.
- 2.1.5 The duties, responsibilities and limitations of authority of the *Consultant* as set forth in the *Contract Documents* may be modified or extended by the *Owner* in writing.
- 2.1.6 If the *Consultant's* employment is terminated, the *Owner* shall appoint a replacement *Consultant* whose status under the *Contract Documents* shall be that of the former *Consultant*."

2.0 GC 2.2 ROLE OF THE CONSULTANT

- 2.1 GC 2.2.3

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- (a) Delete the second sentence of GC 2.2.3.

2.2 GC 2.2.6

- (a) Add the word “schedules” after the word “techniques,” in the second line.

2.3 GC 2.2.7

- (a) Delete GC 2.2.7 in its entirety and replace with the following:

“2.2.7 The *Consultant* will be, in the first instance, the interpreter of the requirements of the *Contract Document*.”

2.4 GC 2.2.14

- (a) Delete the word “submittals,” and replace with the words “Submittals which are provided” after the word “Contractor’s” in the first line of GC 2.2.14.

2.5 GC 2.2.16

- (a) Delete GC 2.2.16 in its entirety and replace with the following:

“2.2.16 The *Consultant* will conduct reviews of the *Work* to determine the dates of *Substantial Performance of the Work* and *Total Performance of the Work*.”

3.0 GC 2.3 REVIEW AND INSPECTION OF THE WORK

3.1 GC 2.3.8

- (a) Add 2.3.8 as follows:

“2.3.8 The *Contractor* shall immediately inform the *Owner* and the *Consultant* of any notices, warnings or asserted violations issued by any regulatory or government agencies having jurisdiction relating to the *Work*.”

3.2 GC 2.3.9

- (a) Add GC 2.3.9 as follows:

“2.3.9 The *Owner* or the *Consultant* shall have the right to:

- .1 review and inspect the progress of the *Work*; and

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.2 review, approve or accept any Submittals.

The *Owner's* or the *Consultant's* review, inspection, approval and/or acceptance is for the sole benefit of *Owner* and shall not constitute a transfer of liability from the Contractor to the *Owner* or the *Consultant*, nor shall it constitute a waiver by the *Owner* or the *Consultant* of the *Contractor's* liability. The *Contractor* remains liable and responsible for its actions, errors or omissions, and its obligations to carry out the Work in accordance with the *Contract Documents*, *Applicable Law* and the *Required Standard of Care* regardless of any such review, inspection, approval or acceptance by the *Owner*."

3.3 GC 2.3.10

(a) Add GC 2.3.10 as follows:

"2.3.10 Where standards of performance are specified in the *Contract Documents* and the *Work* does not comply with the performance specified, such deficiency shall be corrected as directed by the *Consultant*. Any testing of work identified as defective in accordance with GC 2.4, including retesting required by the *Owner* to verify performance, shall be done at the *Contractor's* expense."

4.0 GC 2.4 DEFECTIVE WORK

4.1 GC 2.4.1

(a) Delete GC 2.4.1 in its entirety and replace with the following:

"2.4.1 The *Contractor* shall promptly correct defective work that has been rejected by the *Consultant* as failing to conform to the *Contract Documents* whether or not the defective work has been incorporated into the Work and whether or not the defect is the result of poor workmanship, use of defective products or damage through carelessness or other act or omission of the *Contractor* at no additional cost to the *Owner*. If the said defective work was in any way identified as a result of, or during the course of, an inspection by the *Owner*, the *Contractor* shall reimburse the *Owner* in full for any costs or expenses incurred by the *Owner* in respect of, or as a result of, the inspection.

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- .1 The *Contractor* shall rectify, in a manner acceptable to the *Owner* and the *Consultant*, all defective *Work* and deficiencies throughout the *Work*, whether or not they are specifically identified by the *Consultant*.
- .2 The *Contractor* shall prioritize the correction of any defective *Work* which, in the sole discretion of the *Owner*, adversely affects the day to day operations of the *Owner*.”

4.2 GC 2.4.3

- (a) Delete the words “the difference in value between the work as performed and that called for by” and replace with “the value of such work as is necessary to correct any non-compliance with” in the second and third lines of GC 2.4.3.

PART 3 EXECUTION OF THE WORK

1.0 GC 3.1 CONTROL OF THE WORK

1.1 GC 3.1.2

- (a) Add the word “schedules” after the word “techniques” in the first line of GC 3.1.2.

1.2 GC 3.1.3

- (a) Add GC 3.1.3 as follows:

“3.1.3 Notwithstanding paragraphs 3.1.1 and 3.1.2, the Contractor agrees that it shall fully comply with all policies and procedures of the Owner which are relevant to any activity of the Contractor to be performed under the Contract. The Contractor further agrees that it will use reasonable efforts to inquire from the Owner if such policies or procedures exist which are relevant to any activity of the Contractor to be performed under the Contract. The Owner agrees that it will use reasonable efforts to communicate to the Contractor all policies or procedures it may have which are relevant to any such activity.”

1.3 GC 3.1.4

- (a) Add GC 3.1.4 as follows:

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“3.1.4 Prior to commencing individual procurement, fabrication and construction activities, the Contractor shall verify, at the Place of the Work, all relevant measurements and levels necessary for proper and complete fabrication, assembly and installation of the Work and shall further carefully compare such field measurements and conditions with the requirements of the Contract Documents. Where dimensions are not included or exact locations are not apparent, the Contractor shall immediately notify the Consultant in writing and obtain written instructions from the Consultant before proceeding with any part of the affected work.”

2.0 GC 3.2 CONSTRUCTION BY OWNER OR OTHER CONTRACTORS

2.1 GC 3.2.2

(a) Delete GC 3.2.2 in its entirety.

3.0 GC 3.4 DOCUMENT REVIEW

3.1 GC 3.4.1

(a) Delete GC 3.4.1 in its entirety and replace with the following:

“3.4.1 The Contractor shall review the Contract Documents and shall report promptly to the Consultant any error, inconsistency or omission the Contractor may discover. Such review by the Contractor shall comply with the standard of care described in GC 3.15 STANDARD OF CARE. Except for its obligation to make such review and report the result, the Contractor does not assume any responsibility to the Owner or to the Consultant for the accuracy of the Contract Documents. The Contractor shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the Contract Documents, which the Contractor could not reasonably have discovered. If the Contractor does discover any error, inconsistency or omission in the Contract Documents, the Contractor shall not proceed with the Work affected until the Contractor has received corrected or missing information from the Consultant.”

3.2 GC 3.4.2

(a) Add GC 3.4.2 as follows:

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“3.4.2 If the Contractor finds discrepancies in or omissions from the Contract Documents or has any doubt as to the meaning or intent of any part thereof, the Contractor shall immediately notify the Consultant, who will provide written instructions or explanations. Neither the Owner nor the Consultant will be responsible for oral instructions.”

4.0 GC 3.5 CONSTRUCTION SCHEDULE

4.1 GC 3.5.1

(a) Delete GC 3.5.1 in its entirety and replace with the following:

“3.5.1 The Contractor shall submit to the Owner and Consultant within five (5) Working Days of the date that the Agreement between *Owner* and the *Contractor* has been fully executed by the *Owner*, and thereafter from time to time in accordance with GC 3.5.2, a construction schedule in computerized form in accordance with the following requirements, for acceptance by the *Owner* and Consultant, each in its sole discretion:

- .1 takes into account the sequence of construction and completion dates;
- .2 demonstrates and indicates the logic and timing of major activities of the Work with sufficient detail of critical events and their inter-relationship to demonstrate the Work will be performed in conformity with the Contract Time;
- .3 indicates proposed start dates and estimated duration for activities; and
- .4 with sufficient detail to identify the Contractor and each specific Subcontractor and their respective parts of the Work and specific location thereof.

If the Owner or the Consultant identifies deficiencies, problems, discrepancies or omissions in the construction schedule, the Contractor shall promptly revise the schedule to incorporate such comments and re-submit to the Owner and the Consultant as many times as required, all at the cost of the Contractor, until the construction schedule is acceptable to the Owner and the Consultant. The Contractor is responsible for providing a complete

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and sufficient constructions schedule in accordance with the requirements set out herein and there shall be no claims for delays or costs as a result of the failure to provide an acceptable schedule.”

4.2 GC 3.5.2

(a) Add GC 3.5.2 as follows:

“3.5.2 The Contractor shall monitor the progress of the Work relative to the construction schedule and provide an updated schedule that is acceptable to the Owner in its sole discretion, subject to the requirements set out in GC 3.5.1, on a monthly basis or as requested by the Owner. The Contractor shall submit such updated and accepted schedule with every application for progress payment in accordance with GC 5.2.8.”

4.3 GC 3.5.3

(a) Add GC 3.5.3 as follows:

“3.5.3 The Contractor shall immediately advise the Consultant of any revisions required to the schedule as the result of extensions of the Contract Time as provided in Part 6 of the General Conditions – CHANGES IN THE WORK.”

4.4 GC 3.5.4

(a) Add GC 3.5.4 as follows:

“3.5.2 If the Contract Price is greater than \$500,000.00, the schedule shall be prepared using the critical path method and the Contractor shall submit with the schedule a Gantt Chart (a list of tasks and related information, including duration, with a bar type chart showing tasks and durations over time) and a PERT Chart (a network diagram showing all tasks and task dependencies).”

4.5 GC 3.5.5

(a) Add GC 3.5.5 as follows:

“3.5.5 If, at any time, it should appear to the Owner or the Consultant that the actual progress of the Work is behind schedule or is

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likely to become behind schedule, or if the Contractor has given notice of such to the Owner or the Consultant pursuant to GC 3.5.2, the Contractor shall take appropriate steps to cause the actual progress of the Work to conform to the schedule or minimize the resulting delay and shall produce and present to the Owner and the Consultant a recovery plan demonstrating how the Contractor will achieve recovery of the schedule.”

5.0 GC 3.6 SUPERVISION

5.1 GC 3.6.1

- (a) Add the words “with the prior consent of the Owner” at the end of GC 3.6.1.

5.2 GC 3.6.3

- (a) Add GC 3.6.3 as follows:

“3.6.3 The Contractor shall provide the Owner and the Consultant with the name, address, and telephone number of the representative referred to in GC 3.6.1 and other responsible persons who may be contacted for emergency and other reasons during non-working hours throughout the course of the Work.”

5.3 GC 3.6.4

- (a) Add GC 3.6.4 as follows:

“3.6.4 The Owner may, at any time, object to any representative or employee of the Contractor, Subcontractors or Suppliers and require the Contractor to remove, dismiss or replace, or cause to be removed, dismissed or replaced, the said representative or employee.”

6.0 GC 3.7 SUBCONTRACTS AND SUPPLIERS

6.1 GC 3.7.1.4

- (a) Add GC 3.7.1.4 as follows:

“4 ensure that the Contractor, all Subcontractors and Suppliers, and anyone employed or engaged by them directly or indirectly, have the qualifications, technical skills, levels of experience and

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knowledge required, and all applicable permits, licences and approvals necessary, to discharge the work to be performed by them in accordance with the terms of the Contract.”

6.2 GC 3.7.3

- (a) Delete GC 3.7.3 in its entirety and replace with the following:

“3.7.3 The Contractor may subcontract any part of the Work, subject to these General Conditions and the terms set out in the Contract Documents.”

6.3 GC 3.7.4

- (a) Delete GC 3.7.4 in its entirety and replace with the following:

“3.7.4 The Contractor shall notify the Consultant, in writing, of its intention to subcontract. Such notification shall identify the part or parts of the Work and the Subcontractor with whom it is proposing to subcontract. The Owner may object to the use of any Subcontractor, in which case the Contractor shall nominate an alternative Subcontractor for review by the Owner.”

6.4 GC 3.7.5

- (a) Delete GC 3.7.5 in its entirety and replace with the following:

“3.7.5 The Contractor shall not, without the written consent of the Owner, and whose consent may be unreasonably withheld, change a Subcontractor who has been engaged in accordance with this General Condition.”

6.5 GC 3.7.7

- (a) Add GC 3.7.7 as follows:

“3.7.7 The Contractor shall preserve and protect the rights of the Owner with respect to that part of the Work to be performed under subcontract and shall enter into agreements with the intended Subcontractors to require them to perform their Work in accordance with the Contract Documents and shall be as fully responsible to the Owner for acts and omissions of the Contractor's Subcontractors and of persons directly and

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indirectly employed by them as for acts and omissions of persons employed directly by the Contractor.”

6.6 GC 3.7.8

(a) Add GC 3.7.8 as follows:

“3.7.8 The Owner's consent to subcontracting by the Contractor shall not be construed as relieving the Contractor from any obligation under the Contract and shall not impose any liability on the Owner. Nothing contained in the Contract Documents shall create a contractual relationship between a Subcontractor and the Owner. The Contractor shall be solely responsible for scheduling, coordinating and reviewing the work of its Subcontractors and Suppliers. ”

6.7 GC 3.7.9

(a) Add GC 3.7.9 as follows:

“3.7.9 Subcontracting shall be conducted in a manner consistent with the principles of open, fair and transparent procurement, and the Contractor shall keep records demonstrating compliance with this requirement in accordance with GC 1.7 RECORDS AND AUDIT.”

6.8 GC 3.7.10

(a) Add GC 3.7.10 as follows:

“3.7.10 The Contractor shall not be entitled to compensation by the Owner or any extension to the Contract Time arising out of, or in any way relating to, any breach of contract or failure to perform work by any Subcontractor or Supplier for any reason, including but not limited to, the insolvency or bankruptcy of the Subcontractor or Supplier, even though the Subcontractor or Supplier may have been designated or pre-qualified by the Owner or the Consultant.”

7.0 GC 3.8 LABOUR AND PRODUCTS

7.1 GC 3.8.2

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- (a) Add the following sentence to the end of GC 3.8.2:

“The Contractor shall not change the source of supply of any Product without the written authorization of the Consultant.”

7.2 GC 3.8.3

- (a) Add the words “and qualified” after the word “skilled” in the first line of GC 3.8.3.

7.3 GC 3.8.4

- (a) Add GC 3.8.4 as follows:

“3.8.4 The Owner may at any time, for reasonable cause, require the Contractor to promptly remove from the Place of the Work any employee of the Contractor as well as any Subcontractor or employee of any Subcontractor.”

7.4 GC 3.8.5

- (a) Add GC 3.8.5 as follows:

“3.8.5 The Contractor is responsible for the safe on-site storage of Products and their protection (including Products supplied by the Owner and other contractors to be installed under the Contract) in such ways as to avoid dangerous conditions or contamination to the Products or other persons or property and in locations at the Place of the Work to the satisfaction of the Owner and the Consultant. The Owner shall provide all relevant information to the Contractor in relation to the Products to be supplied by the Owner.”

7.5 GC 3.8.6

- (a) Add GC 3.8.6 as follows:

“3.8.6 The Contractor shall ensure that all Products are of good quality, fit for their intended purpose and maintained in a safe, serviceable condition in accordance with this Contract and good industry practice.”

7.6 GC 3.8.7

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(a) Add GC 3.8.7 as follows:

“3.8.7 Where more than one Product is specified for a use, the Contractor may select any of the Products so specified unless the Specifications, Drawings or Contract Documents indicate otherwise. The Contractor shall assume all responsibility for liabilities and additional costs that may arise as a result of the Contractor’s choice to use one of the named Products.”

7.7 GC 3.8.8

(a) Add GC 3.8.8 as follows:

“3.8.8 The Contractor may apply to the Consultant to substitute a Product for an equivalent Product. Such application shall be in writing and made at the earliest opportunity with sufficient time for the Consultant to assess the application. The application shall include the following:

- .1 reasons for the proposed substitution (eg. significant delay in delivery, strikes, unavailability, improved quality or field service, amount of contract cost reduction etc.); and
- .2 sufficient description and technical information, specifications, references and samples and any other information requested by the Consultant; in order for the Consultant to thoroughly assess the proposed substitution and compare the proposed substitute with that specified.”

7.8 GC 3.8.9

(a) Add GC 3.8.9 as follows:

“3.8.9 The Consultant’s assessment of proposed substitutions shall include, but not limited to, criteria such as quality, durability, performance, ease of operation, safety, technical support, service and parts, availability and estimated cost of warranty and adherence to Specifications. All applications and submissions related to the proposed substitution shall only be made by the Contractor and not by any Subcontractors or Suppliers.”

7.9 GC 3.8.10

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- (a) Add GC 3.8.10 as follows:

“3.8.10 The approval or rejection of a proposed substitution shall be at the discretion of the Consultant, whose decision shall be final. Regardless of the Consultant’s decision on a proposed substitution, the Owner reserves the right to assess and apply to the Contractor, all costs related to the Consultant’s and the Owner’s review of the proposed substitution.”

7.10 GC 3.8.11

- (a) Add GC 3.8.11 as follows:

“3.8.11 The Contractor’s prices shall be based on the Products specified. The Contract shall not be based on a presumed acceptance by the Consultant or the Owner of a substitute Product.”

7.11 GC 3.8.12

- (a) Add GC 3.8.12 as follows:

“3.8.12 Acceptance by the Consultant of an equivalent Product shall apply to this Contract only and shall not set any precedent for other Contracts.”

7.12 GC 3.8.13

- (a) Add GC 3.8.13 as follows:

“3.8.13 The Contractor shall assume all responsibility for liabilities and additional costs that may subsequently arise as a result of his proposed substitution being accepted by the Consultant.”

7.13 GC 3.8.14

- (a) Add GC 3.8.14 as follows:

“3.8.14 Any changes necessitated by the use of the substituted Products shall be at the sole expense of the Contractor. The Contractor shall be responsible for assuring the proper fit and matching of all substituted Products to the surrounding materials.”

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8.0 GC 3.10 SHOP DRAWINGS AND OTHER SUBMITTALS

8.1 GC 3.10

- (a) Add the words “AND OTHER SUBMITTALS” to the end of the heading for GC 3.10 – SHOP DRAWINGS.
- (b) Add the words “and Other Submittals” after the words “Shop Drawings” in GC’s 3.10.1, 3.10.2, 3.10.3, 3.10.4, 3.10.5, 3.10.7, 3.10.8, 3.10.8.2, 3.10.9, 3.10.10, 3.10.11 and 3.10.12.
- (c) Add the following to the end of GC 3.10.1:

“All *Shop Drawings* and *Other Submittals*, shall be submitted electronically on a FTP site supplied by the *Contractor*, and should be kept up-to-date during the *Contract*.”

8.2 GC 3.10.8.2

- (a) Add the words “and *Submittal*” after the words “*Shop Drawing*” in the first line of GC 3.10.8.2

9.0 GC 3.11 USE OF THE WORK

9.1 GC 3.11.1

- (a) Add the words “the Owner’s reasonable instructions,” after the word “permits,” in the second line of GC 3.11.1.

9.2 GC 3.11.2

- (a) Add the words, “individuals and the areas adjacent to the work.” to the end of GC 3.11.2.

9.3 GC 3.11.3

- (a) Add GC 3.11.3 as follows:

“3.11.3 Subject to paragraph 9.4.6 of GC 9.4 - CONSTRUCTION SAFETY, The Owner shall have the right to enter and occupy the Place of the Work in whole or in part for the purpose of placing materials, fittings, and equipment, or for any other use at any time before completion of the Contract if, in the reasonable opinion of the Consultant, such entry and occupation does not

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prevent or interfere with the Contractor in achieving Substantial Performance of the Work within the Contract Time stipulated in the Contract.”

9.4 GC 3.11.4

- (a) Add GC 3.11.4 as follows:

“3.11.4 No entry or occupation by the Owner as referenced in paragraph 3.11.3 shall constitute or be considered as acceptance of the Work in whole or in part, or in any way relieve the Contractor of its responsibility to complete the Contract.”

10.0 GC 3.13 CLEANUP

10.1 GC 3.13.2

- (a) Add the words “all to the satisfaction of the Consultant and the Owner, acting reasonably.” to the end of GC 3.13.2.

10.2 GC 3.13.4

- (a) Add GC 3.13.4 as follows:

“3.13.4 The Owner shall have the right to back charge the cost of cleaning and removal if such cleaning and removal is not completed within twenty-four (24) hours of written notice to clean or remove. The Owner shall also have the right to back charge the cost of damage to the Place of the Work caused by the Contractor’s, Subcontractor’s or Supplier’s transportation in and out of the Place of the Work if not repaired within five (5) Working Days of written notice to repair or before final payment, whichever is earlier.”

11.0 GC 3.14 INTERFERENCE

11.1 GC 3.14

- (a) Add GC 3.14 INTERFERENCE as follows:

“GC 3.14 INTERFERENCE

3.14.1 If the Work, in whole or in part, involves the renovation of, or addition to, existing and occupied premises:

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- .1 the Contractor shall maintain normal business operations and traffic flow, with a minimum of inconvenience to the tenants and occupants of the Place of the Work;
- .2 subject to the provisions of the Contract Documents, the Contractor shall ensure that no essential services such as electric power, water supply or other public utilities are interrupted;
- .3 in every case where an interruption to existing services or utilities is to occur during execution of the Work, the Contractor shall give the Owner five (5) Working Days prior written notice. The Contractor shall reschedule any such interruption if requested to do so in writing by the Owner; and
- .4 any work by the Contractor that generates excessive noise shall be subject to the restrictions set out elsewhere in the Contract Documents.”

12.0 GC 3.15 – PERFORMANCE BY CONTRACTOR AND STANDARD OF CARE

- 12.1 Add GC 3.15 PERFORMANCE BY CONTRACTOR AND STANDARD OF CARE as follows:

“GC 3.15 PERFORMANCE BY CONTRACTOR AND STANDARD OF CARE

3.15.1 In performing its services and obligations under the Contract, the Contractor shall exercise a standard of care, skill and diligence that would normally be provided by an experienced and prudent contractor supplying similar services for similar projects (“Standard of Care”). The Contractor acknowledges and agrees that throughout the Contract, the Contractor’s obligations, duties and responsibilities shall be interpreted in accordance with this standard. The Contractor shall exercise the same standard of due care and diligence in respect of any Products, personnel, or procedures which it may recommend to the Owner. The Contractor shall ensure that all Subcontractors and Suppliers perform the work in accordance with the Standard of Care.

3.15.2 The Contractor further represents, covenants, and warrants to the Owner that:

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- .1 the personnel it assigns are appropriately experienced and qualified;
- .2 it has a sufficient staff of qualified and competent personnel to replace its designated supervisor and project manager, subject the Owner's approval, in the event of death, incapacity, removal or resignation; and
- .3 there are no pending, threatened, or anticipated claims that would have a material effect on the financial ability of the Contractor to perform its work under the Contract."

13.0 GC 3.16 – RISK OF LOSS AND TITLE

13.1 Add GC 3.16 RISK OF LOSS AND TITLE as follows:

"3.16 RISK OF LOSS AND TITLE

- 3.16.1 Title to portions of the Work completed or in the process of being completed and title to all Product and material produced and received by the Contractor shall pass to the Owner on the earlier of payment by the Owner or the delivery of any such portion of the Work and materials to the Owner; provided that the Owner is then in compliance with its payment obligations under the Contract and that the total value of such portion of the Work, Products and materials is not greater than the amount of money paid by the Owner at that time, to the Contractor under this Contract.
- 3.16.2 Risk of loss or damage to any part of the Work or Products shall remain with the Contractor until issuance of the Consultant's certificate of Total Performance of the Work.
- 3.16.3 The Contractor shall take reasonable and proper care of all property, title to which is vested in the Owner, while the same is in, on or about the plant and premises of the Contractor or otherwise in his possession or subject to his control and shall be responsible for any loss or damage resulting from his failure to do so other than loss or damage caused by ordinary wear and tear."

PART 4 ALLOWANCES AND PROVISIONAL ITEMS

1.0 PART 4 ALLOWANCES AND PROVISION ITEMS

- 1.1 Add the words “AND PROVISIONAL ITEMS” to the end of the heading for PART 4 ALLOWANCES.

2.0 GC 4.1 CASH ALLOWANCE

2.1 GC 4.1.3

- (a) Delete GC 4.1.3 in its entirety and replace with following:

“4.1.3 Cash Allowances shall be used and expended solely for purposes specified and at the sole discretion of Owner, and work under a Cash Allowance is not guaranteed. The Contract Price includes the Contractor’s overhead and profit, including but not limited to administering the Cash Allowance or soliciting bids for such Cash Allowances, in connection with such Cash Allowances. Where costs under a Cash Allowance exceed the amount of the allowance allocated to such Cash Allowance item, unexpended amounts from other Cash Allowances may be reallocated at the Owner’s direction in its sole discretion to cover the shortfall without additional overhead or profit charges being attributed to the Contractor. A markup for overhead and profit may only be charged to overruns on the total of all Cash Allowances in accordance with the percentages set out for such markup in GC 6.1.3. Cash Allowance items shall be administered and authorized as follows:

- .1 The Owner, via the Consultant, shall notify the Contractor a request to proceed with a Cash Allowance item.
- .2 Upon receipt of such request from the Consultant, the Contractor shall, in respect of the identified Cash Allowance item provide to the Owner a response setting out: the schedule for the Work and expected milestones and completion date; the personnel and subcontractors which the Contractor proposes to perform the Work and the costs of such Work, with up to three (3) quotations for any or all of the Work if requested by the Owner; and any other information requested by the Owner. If one of the quotations is from the Consultant, then all quotations shall

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be caused by the Consultant to be submitted to the Owner directly from all vendors.”

- .3 Upon receipt and review of such response, the Owner, via the Consultant, shall approve such Cash Allowance item in writing. No amounts shall be payable in respect of any Cash Allowance items unless and until the Owner has approved such expenditure in writing.”

2.2 GC 4.1.4

- (a) Delete “the Contract Documents” from GC 4.1.4 and replace with “GC 6.1.3”.

3.0 GC 4.3 – PROVISIONAL ITEMS

3.1 Add new GC 4.3 – PROVISIONAL ITEMS as follows:

“GC 4.3 – Provisional Items

- 4.3.1 The Contract Price includes the Provisional Items, if any, stated in the Contract Documents.
- 4.3.2 The Provisional Items shall be authorized individually in writing by the Owner through the Consultant. The Contractor shall not proceed with any Provisional Item without such prior written authorization.
- 4.3.3 The prices stated for any and all items identified as “Provisional Items” in Article A-4 Contract Price of Supplementary Agreement Between Owner and Contractor shall be for the completed Work “in place” and shall be inclusive of all costs related thereto including, but not necessarily limited to, all overhead, profit and applicable taxes, except Harmonized Sales Tax, unless otherwise specified by the Owner. In the event the Owner decides, in its sole discretion, not to proceed with any or all of the identified Provisional Items, the Contract Price shall be adjusted by the Extended Price for the applicable Item No.’s stated in Article A-4 Contract Price of Supplementary Agreement Between Owner and Contractor for such Provisional Item(s).
- 4.3.4 In the event changes are made to the stated estimated quantities for a Provisional Item, the Extended Price for that Provisional Item as stated in Article A-4 Contract Price of the Supplementary Agreement Between Owner and Contractor shall be adjusted based on the actual quantity of

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work performed and the Unit Price for that Provisional Item.”4.3.5
Provisional Items are options to be exercised at the sole discretion of the Owner. In the event the Owner decides, in its sole discretion, to:

- .1 not proceed with any or all of the identified Provisional Items; or
- .2 proceed with any or all of the identified Provisional Items but increases or reduces the quantity of such Provisional Items;

the Contract Price shall be adjusted proportionally based on the Extended Price stated for such Provisional Items in Article A-4. The Extended Price shall form the basis of all adjustments without any additional compensation or markup. For greater certainty, the markups provided in GC 6.1.3 and GC 6.7.4 are not applicable to Provisional Items.”

PART 5 PAYMENT

1.0 GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER

1.1 GC 5.1.1

- (a) Delete GC 5.1.1 in its entirety.

1.2 GC 5.1.2

- (a) Delete GC 5.1.2 in its entirety.

2.0 GC 5.2 APPLICATIONS FOR PROGRESS PAYMENT

2.1 GC 5.2.4

- (a) Delete the words “calendar days” and replace with “Working Days” in the first line of GC 5.2.4.

2.2 GC 5.2.7

- (a) Add the following sentence to the end of GC 5.2.7:

“Any Products delivered to the Place of the Work but not yet incorporated into the Work shall remain at the risk of the Contractor notwithstanding that title has passed to the Owner pursuant to GC 3.16 RISK OF LOSS AND TITLE.”

2.3 GC 5.2.8

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(a) Add GC 5.2.8 as follows:

“5.2.8 The Contractor shall submit, with each application for progress payment after the first, a WSIB clearance certificate, an updated schedule acceptable to the Owner in accordance with GC 3.5 CONSTRUCTION SCHEDULE, and a Statutory Declaration, on an original form of CCDC Document 9A-2001 Statutory Declaration of Progress Payment Distribution by Contractor, stating that payments in connection with the Work, as noted in the Statutory Declaration, have been made to the end of the period immediately preceding that covered by the current application and, if requested by the Owner, a Statutory Declaration from any Subcontractor, as may be identified by the Owner, on an original form of CCDC Document 9B-2001 Statutory Declaration of Progress Payment Distribution by Subcontractor. The Statutory Declarations shall be dated the same date as the Contractor’s application for payment.”

2.4 GC 5.2.9

(a) Add GC 5.2.9 as follows:

“5.2.9 The Contractor shall prepare and maintain current as-built drawings which shall consist of the Drawings and Specifications revised by the Contractor during the Work, showing changes to the Drawings and Specifications, including but not limited to architectural, structural, mechanical, electrical, cabling, Shop Drawings, single-line diagrams and any other graphical representations, and shall be maintained by the Contractor and made available to the Consultant for review with each application for progress payment.”

2.5 GC 5.2.10

(a) Add GC 5.2.10 as follows:

“5.2.10 Payment for bonds and insurance will be paid one hundred percent (100%) on the first progress payment, provided that respective invoices are submitted as proof of payment.”

3.0 GC 5.3 PROGRESS PAYMENT

3.1 GC 5.3.1.2

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- (a) Add the following sentence to the end of GC 5.3.1.2:

“For clarity, the 10 calendar day period referenced herein shall not commence until such time as the Consultant has determined that he has received from the Contractor all required documents supporting the invoice and evidencing the Work being invoiced, including but not limited to the documents listed in GC 5.2.8 and GC 5.2.9, all to the Consultant's satisfaction.”

3.2 GC 5.3.1.3

- (a) Delete GC 5.3.1.3 in its entirety and replace with following:

“3 the Owner shall make payment to the Contractor on account as provided in Article A-5 of the Agreement – Payment no later than twenty (20) calendar days after the date of issuance by the Consultant of a certificate for payment.”

3.3 GC 5.3.3

- (a) Add GC 5.3.3 as follows:

“5.3.3 Certificates for payment may provide for retention of amounts as determined by the Consultant to ensure correction or replacement of deficient work done or unacceptable product provided.”

4.0 GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK

4.1 GC 5.4.3

- (a) Delete GC 5.4.3 in its entirety and replace with the following:

“5.4.3 Immediately prior to the issuance of the certificate of Substantial Performance of the Work, the Contractor, in consultation with the Consultant, shall establish a schedule for completion of the Work and correcting deficiencies in the Work, and the construction schedule shall be deemed to be amended to include this completion schedule.”

4.2 GC 5.4.4

- (a) Add GC 5.4.4 as follows:

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“5.4.4 Prior to submitting its written application for Substantial Performance of the Work, the Contractor shall submit to the Consultant all:

- .1 guarantees;
- .2 warranties, completed as per GC 12.3;
- .3 certificates;
- .4 testing and balancing reports;
- .5 distribution system diagrams;
- .6 spare parts;
- .7 maintenance/operation manuals;
- .8 training manuals;
- .9 samples;
- .10 reports and correspondence from authorities having jurisdiction in the Place of the Work;
- .11 Shop Drawings, and marked up Drawings;
- .12 completed as-built drawings in the latest edition of a Computer Assisted Design Drawing software program;
- .13 inspection certificates;
- .14 and other materials or documentation required to be submitted under the Contract, together with written proof acceptable to the Owner and the Consultant that the Work has been substantially performed in conformance with the requirements of municipal, governmental and utility authorities having jurisdiction in the Place of the Work.”

5.0 GC 5.5 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF THE WORK

5.1 GC 5.5.1.2

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- (a) Add the words “and, if requested by the Owner, as Statutory Declaration from any Subcontractor, as may be identified by the Owner, on an original form of CCDC Document 9B – 2001 Statutory Declaration of Progress Payment Distribution by Subcontractor.” to the end of GC 5.5.1.2.

5.2 GC 5.5.2

- (a) Delete the words “the statement” and replace with the words “the documents” in the first line of GC 5.5.2.

5.3 GC 5.5.3

- (a) Delete GC 5.5.3 in its entirety.

5.4 GC 5.5.4

- (a) Delete GC 5.5.4 in its entirety and replace with the following:

“5.5.4 The Contract shall be subject to the Construction Act (Ontario) (the “Act”). In accordance with the Act, the Owner may retain any amounts which are: required by law to satisfy any liens against the Work, in respect of claims of third parties made to the Owner in respect of the Contract or the Work, and in respect of any claims the Owner may have against the Contractor.”

5.5 GC 5.5.5

- (a) Delete GC 5.5.5 in its entirety.

6.0 GC 5.6 PROGRESSIVE RELEASE OF HOLDBACK

6.1 GC 5.6.1

- (a) Delete 5.6.1 in its entirety and replace with following:

“5.6.1 Where the work of a Subcontractor or Supplier has been performed prior to Substantial Performance of the Work and is certified as completed in accordance with the Act and evidence of such is submitted by the Contractor, along with a clearance certificate or letter from the Workplace Safety and Insurance Board relating to the subcontract, to the satisfaction of the Consultant, the Owner shall pay the Contractor the holdback amount retained for such subcontract work, or the Products supplied by such Supplier, on the first calendar day following the

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expiration of the holdback period for such work stipulated in the Act. The Owner may retain out of the holdback amount any sums required by law to satisfy any liens against the Work and any amounts in respect of claims of third parties made to the Owner in respect of the Contract or the Work.”

7.0 GC 5.7 FINAL PAYMENT

7.1 GC 5.7.1

- (a) Delete GC 5.7.1 in its entirety and replace with the following:

“5.7.1 When the Contractor considers that the Work has been totally performed, the Contractor shall submit an application for final payment, together with a written application for review by the Consultant to establish Total Performance of the Work, and any other documents or materials not yet delivered pursuant to GC 5.4.4 and as listed in GC 5.7.5. The Work shall not be deemed to have been performed until all of the aforementioned documents and materials have been delivered, and the Owner may withhold payment in respect of the delivery of any documents or materials in an amount determined by the Consultant in accordance with the provisions of GC 5.8 WITHHOLDING OF PAYMENT and GC 12.1 INDEMNIFICATION. The Consultant shall advise the Contractor upon receipt of an application for final payment if additional documents or materials are required pursuant to this GC 5.7.1 and the Contractor shall respond promptly with such documents or materials.”

7.2 GC 5.7.2

- (a) Delete GC 5.7.2 in its entirety and replace with following:

“5.7.2 The Consultant will, no later than 10 calendar days after the receipt of an application from the Contractor for final payment, review the Work to verify the validity of the application and:

- .1 advise the Contractor in writing that the Work is not totally performed and give reasons why, or
- .2 state the date of Total Performance of the Work in a certificate and issue a copy of that certificate to each of the Owner and the Contractor.”

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The above time period for response shall not commence until all documents and materials required pursuant to GC 5.7.1 have been received by the Consultant.”

7.3 GC 5.7.3

- (a) Delete the words “finds the Contractor’s application for final payment valid” and substitute the words “issues the certificate of Total Performance of the Work” in the first line of GC 5.7.3.

7.4 GC 5.7.4

- (a) Delete the number “5” and replace with “15” in the second line of GC 5.7.4.

7.5 GC 5.7.5

- (a) Add GC 5.7.5 as follows:

“5.7.5 The Contractor shall submit to the Consultant, with the application for final payment, the following documentation:

- .1 all closeout documentation required by the Contract Documents, including but not limited to, warranties, manuals, guarantees, as-built drawings and all other relevant literature from Suppliers and manufacturers including, but not limited to:
 - .1 equipment, maintenance and operations manuals;
 - .2 equipment specifications, data sheets and brochures, parts lists and assembly drawings, performance curves and other related data;
 - .3 line drawings, value charts and control sequences with description of the sequence of operations;
 - .4 warranty documents;
 - .5 service and maintenance reports as applicable;
 - .6 specifications;
 - .7 shop drawings;

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- .8 testing results;
- .9 commissioning and quality assurance documentation, and
- .10 HVAC balance reports.
- .2 a Statutory Declaration, on an original form of CCDC Document 9A – 2001, stating that payments in connection with the Work, as noted in the statutory declaration, have been made to the end of the period immediately preceding that covered by the application for final payment and, if requested by the Owner, as Statutory Declaration from any Subcontractor, as may be identified by the Owner, on an original form of CCDC Document 9B – 2001 Statutory Declaration of Progress Payment Distribution by Subcontractor.”

8.0 GC 5.8 WITHHOLDING OF PAYMENT

8.1 GC 5.8

- (a) Add “Subject to GC 12.1 INDEMNIFICATION,” at the beginning of GC 5.8.1.

9.0 GC 5.10 CLAIMS FOR LIEN

9.1 GC 5.10

- (a) Add GC 5.10 Claims for Lien as follows:

“GC 5.10 CLAIMS FOR LIEN

- 5.10.1 The Contractor shall cause any and all construction liens and certificates of action relating to the Work registered or preserved by any Subcontractor, Supplier, Contractor’s employees, or any other party to whom the Contractor is or may be responsible at law, to be discharged or vacated, or cause to be discharged or vacated, immediately but in any case no later than five (5) Working Days of the date of registration or reservation, all at the Contractor’s sole expense. The Contractor shall not be entitled to receive any payment from the Owner until all such claims for lien and certificates of action have been vacated or discharged.

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- 5.10.2 The Contractor shall cause any and all written notices of lien relating to the Work given to any person, including, but not limited to, the Owner by any Subcontractor, sub-subcontractor, Supplier, Contractor's employees, or any party to whom the Contractor is or may be responsible at law, to be withdrawn or vacated, and the Contractor shall do so immediately but in any case no later than five (5) Working Days of the written notice of lien having been given, all at the Contractor's sole expense.
- 5.10.3 If the Contractor fails to discharge or vacate any such lien or certificate of action, or to have any such written notice of lien withdrawn or vacated, within five (5) days, then the Owner shall have the right but not the obligation, do so and set off and deduct from any amount owing to the Contractor, all costs and expenses of so doing, and of defending any related action, including without limitation, the costs of borrowing the appropriate cash, letter of credit or bond as security, and legal fees and disbursements on a full indemnity basis. If there is no amount owing by the Owner to the Contractor, then the Contractor shall reimburse the Owner for all of the said costs and expenses of so doing."

10.0 GC 5.11 PAYMENT OF ACCRUED HOLDBACK ON A PHASED BASIS

10.1 GC 5.11

- (a) Add GC 5.11 Payment of Accrued Holdback on a Phased Basis as follows:
- (b) "GC 5.11 PAYMENT OF ACCRUED HOLDBACK ON A PHASED BASIS:

- 5.11.1 After completion of any of the Substantial Performance of the Work, the *Contractor* shall:
- .1 submit an application for payment of the unpaid holdback that has accrued during the phase that has been completed,
 - .2 submit CCDC 9A 'Statutory Declaration' to state that all accounts for labour, subcontracts, *Products*, *construction Equipment*, and other indebtedness which may have been incurred by the *Contractor* during the phase referred to in subparagraph 5.11.1.1 and for which the *Owner* might in any way be held responsible have been paid in full, except

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for amounts properly retained as a holdback or as an identified amount in dispute and, if requested by the *Owner*, a Statutory Declaration from any *Subcontractor*, as may be identified by the *Owner*, on an original form of CCDC Document 9B – 2001 Statutory Declaration of Progress Payment Distribution by Subcontractor, and

.3 provide confirmation to the *Owner* and the *Consultant* in writing that:

.1 there are no preserved or perfected liens in respect of the *Contract* or in respect of any *Subcontractors*, *Suppliers* or other subtrades or sub-subtrades of the *Contractor*, or

.2 all liens in respect of the *Contract*, and all liens in respect of any of *Subcontractors*, *Suppliers* or other subtrades or sub-subtrades of the *Contractor*, have been satisfied, discharged or otherwise provided for under the *Act* and the *Contractor* shall provide proof of same to the *Owner* and the *Consultant*.

5.11.2 After the receipt of an application for payment from the *Contractor* and the documents as provided in paragraph 5.11.1, the *Consultant* will issue a certificate for payment of the accrued holdback amount.

5.11.3 The *Contract* shall be subject to the Construction Act (the “*Act*”). In accordance with the *Act*, the *Owner* may retain any amounts which are: required by law to satisfy any liens against the *Work*, in respect of claims of third parties made to the *Owner* in respect of the *Contract* or the *Work*, and in respect of any claims the *Owner* may have against the *Contractor*.”

11.0 GC 5.11 PAYMENT OF ACCRUED HOLDBACK ON AN ANNUAL BASIS

11.1 Not Applicable

12.0 GC 6.1 OWNER’S RIGHT TO MAKE CHANGES

12.1 GC 6.1.3

(a) Add GC 6.1.3 as follows:

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“6.1.3 For the purpose of valuing Cash Allowances pursuant to GC 4.1.4, Contingency Allowances or Optional Items pursuant to GC 4.2.2, changes which result in an increase in the Contract Price, and any other items under the Contract Documents which provide for payment to the Contractor of overhead and profit, allowances for overhead and profit shall be included as follows:

- .1 Contractor’s combined mark-up for overhead and profit shall be fifteen percent (15%) on work and services completed by its own forces, and five percent (5%) on work and services completed by its Subcontractors.
- .2 Subcontractors’ combined mark-up for overhead and profit shall be fifteen percent (15%) on work and services completed by their own forces, and five percent (5%) on work and services completed by their subcontractors.”

12.2 GC 6.1.4

(a) Add GC 6.1.4 as follows:

“6.1.4 The mark-ups provided for in GC 6.1.3 shall constitute the only compensation the Contractor shall be entitled to for any and all overhead and profit related to the change, Cash Allowance or Contingency Allowance.”

12.3 GC 6.1.5

(a) Add GC 6.1.5 as follows:

“6.1.5 The Contractor’s and Subcontractor’s overhead as set out in GC 6.1.3 shall be deemed to include direct and indirect costs arising from: preparation of change order, change directive, supplemental instruction; obtaining quotations and preparation and submission of any documentation or materials; computer services; cleaning and cleaning services; any increase in the cost of obtaining or maintaining all bonds and insurance policies; any increase in performance, labour and materials payment bonds values and durations; any increase in insurance and workplace safety insurance values and durations; any increase in warranty or guaranty values or durations; estimating, costing, accounting, payroll administration; office administration, processing correspondence, timekeeping, material consumed in the

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construction contract administration and management process; reproduction, office, shop drawing review and preparation; permits and statutory fees; plant and equipment including operators and equipment rentals; vehicles; place of work office and head office overheads; place of work site contractor and subcontractor superintendence, supervisors and assistants; material re-handling; safety equipment, safety wear and first aid; security; technical staff; telephone, mobile phone, and facsimile services and charges; temporary heat, light and power; temporary protection; temporary place of work offices, trailers and storage compounds; timekeeping and the like.”

13.0 GC 6.2 – CHANGE ORDER

13.1 GC 6.2.1 is amended as follows:

- (a) Delete the words “promptly present,” and substitute the words “, within five (5) Working Days of receiving the written description, present” in the second line of paragraph 6.2.1.

13.2 GC 6.2.2:

- (a) Renumber existing paragraph “6.2.2” to paragraph number “6.2.3”.
- (b) Add new paragraph 6.2.2 as follows:

“6.2.2 The method of adjustment of the Contract Price presented by the Contractor may be:

- .1 by estimate and acceptance in a lump sum or Unit Price quotation,
- .2 by Unit Prices set out in the Contract or subsequently agreed upon, or
- .3 by the actual cost of the change in the Work, plus an agreed fixed or percentage fee.”

13.3 GC 6.2.4

- (a) Add GC 6.2.4 as follows:

“6.2.4 When the Contractor submits an invoice from a Subcontractor or Supplier as part of its detailed breakdown of the cost of a change,

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as may be required by GC 6.2 CHANGE ORDER or GC 6.3 CHANGE DIRECTIVE, the Contractor is deemed to represent and warrant to the Owner that the amount shown on the invoice is the amount that the Contractor is liable to pay for the services and materials described in the invoice, net of all discounts, unless the Contractor indicates otherwise when submitting its detailed breakdown. When the Contractor submits an estimate or quotation from a Subcontractor or Supplier as part of its detailed breakdown of the estimated cost of a change, the Contractor is deemed to represent and warrant to the Owner that, subject to any qualifications on the face of the estimate or quotation and any qualifications made by the Contractor within the detailed breakdown, that the amount set out in the estimate or quotation is the amount the Contractor has agreed to pay should the Contractor be authorized to proceed with the change, net of all discounts. Notwithstanding the foregoing, the Contractor shall be entitled to take a commercially reasonable early payment discount (if offered) when the Contractor pays its Subcontractor or Supplier prior to receiving payment from the Owner.”

13.4 GC 6.2.5

(a) Add GC 6.2.5 as follows:

“6.2.5 In the event any of the change in the Work, contains items or parts that, in the opinion of the Consultant, are the same or equivalent to items for which the Contractor submitted prices under Optional Items, in the Submission, then such prices shall be used to calculate the amount paid by the Owner for that work or parts of the Work in respect of any such change in the Work.”

13.5 GC 6.2.6

(a) Add GC 6.2.6 as follows:

“6.2.6 No compensation for any change in the Work shall be allowed unless such change is first ordered in writing by the Consultant and authorized by the Owner.”

14.0 GC 6.3 CHANGE DIRECTIVE

14.1 GC 6.3.7

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- (a) Delete GC 6.3.7.1 in its entirety and replace with following:

- “1 salaries, wages and benefits paid to personnel in the direct employ of the Contractor, applying the labour rates set out in the wage schedule in the Contract Documents or as otherwise agreed between the Owner and Contractor for personnel,
- .2 carrying out the Work on-site at the Place of the Work, including necessary supervisory services;
- .3 engaged in expediting the production or transportation of material or equipment, at shops or on the road;
- .4 engaged in the preparation of Shop Drawings, fabrication drawings, coordination drawings and Contract as-built drawings, or,
- .5 carrying out clerical work to process changes in the Work.”

14.2 GC 6.3.8

- (a) Add the words “except for GC 6.3.14” after the word “Contract” in the first line.

14.3 GC 6.3.14

- (a) Add GC 6.3.14 as follows:

- “6.3.14 For greater certainty, any adjustment of the Contract Price for the Work attributable to the Change Directive shall not include, and no payment shall be made for:
- .1 head office salaries and benefits and all other overhead or general expenses, except only for the salaries, wages and benefits of personnel described in paragraph 6.3.7.1 and the contributions, assessments or taxes referred to in paragraphs 6.3.7.2;
 - .2 capital expenses and interest on capital;
 - .3 general clean-up, except where the performance of the Work in the Change Directive causes specific additional clean-up requirements;

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- .4 wages paid for project managers, superintendents, assistants, watch persons and administrative personnel, provided the Change Directive does not result in an extension of Contract Time;
- .5 wages, salaries, rentals, or other expenses that exceed the rates that are standard in the locality of the Place of the Work that are otherwise deemed unreasonable by the Consultant;
- .6 any costs or expenses attributable to the negligence, improper Work, deficiencies, or breaches of Contract by the Contractor or Subcontractor; and
- .7 any cost of quality assurance, such as inspection and testing services, charges levied by authorities, and any legal fees unless any such costs or fees are pre-approved in writing by the Owner."

15.0 GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

15.1 GC 6.4.5

- (a) Add GC 6.4.5 as follows:

"6.4.5 The Contractor confirms that, prior to bidding, it carefully investigated the character of the Work, the Place of the Work, and all local conditions which might affect its obligations and that it has satisfied itself as to the nature and extent of the Work, the Contract Documents and the Contract and as to the facilities and difficulties in attending and completing the execution of the Work. The Owner shall, upon written request, co-operate with, and provide reasonable assistance to, the Contractor during such investigations. The Contractor confirms that it has applied to its investigations as aforesaid the degree of care and skill described in paragraph 3.15.1. The Contractor is not entitled to compensation or to an extension of the Contract Time for conditions which could reasonably have been ascertained by the Contractor by such careful investigation undertaken prior to the submission of its bid."

15.2 GC 6.4.6

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- (a) Add GC 6.4.6 as follows:

“6.4.6 To the extent the Contractor has not investigated as referenced in paragraph 6.4.5, the Contractor willingly assumes responsibility for all losses, damages, costs, expenses (including all legal costs on a full indemnity basis), liabilities, claims, actions, and demands, whether arising under statute, contract or at common law, which such investigations might have avoided or reduced and shall indemnify and save harmless the Owner from all risk which might make it more onerous and more expensive to fulfill or perform the Work than was contemplated or known when the Contract was signed, and for any and all liability, responsibility and obligations which the Owner may have to any third parties resulting from any failure to investigate.”

15.3 GC 6.4.7

- (a) Add GC 6.4.7 as follows:

“6.4.7 If the finding made pursuant to paragraph 6.4.2 is that the subsurface or otherwise concealed physical conditions differ materially and this would cause an increase or decrease in the Contractor’s cost or time to perform the Work, and if the said conditions were otherwise discoverable by the Contractor in the proper performance of its duties and obligations under the Contract, all costs and expenses resulting from any delay (excluding, for clarity, the direct cost of remediating the said conditions) in the completion of the Work that is caused, or contributed to, as a result of the said conditions, will be borne by the Contractor.”

16.0 GC 6.5 DELAYS

16.1 GC 6.5.1 and GC 6.5.2

- (a) Add after the phrase “as the result of such delay” at the end of GC 6.5.1 and GC 6.5.2, respectively, the following:

“, as determined by the Consultant, subject to GC 6.5.9 and the following:

- .1 the Contractor shall not be reimbursed for any consequential, incidental, indirect or special damages including, without

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limitation, loss of profits, loss of opportunity or loss of productivity resulting from such delay; and

- .2 the Contractor shall not be reimbursed for any costs which, regardless of the delay, would be expected to have been incurred in the regular course of business, including but not limited to the costs of the Contractor's head office personnel during or in relation to such delay."

16.2 GC 6.5.6

- (a) Add GC 6.5.6 as follows:

"6.5.6 If the Contractor is delayed in the performance of the Work by an act or omission of the Contractor, any Subcontractor, or anyone employed or engaged by them, directly or indirectly, or by any cause within the Contractor's control, the Contractor shall devote such additional resources and take all steps necessary (all at the Contractor's own cost and expense), to ensure that the date for attaining Substantial Performance of the Work and Total Performance of the Work under the Contract, as may have been amended in accordance with the provisions of Part 6 of the General Conditions – Changes in the Work, is met. The Owner shall be reimbursed by the Contractor for all reasonable costs incurred by the Owner as a result of such delay, as determined by the Consultant."

16.3 GC 6.5.7

- (a) Add GC 6.5.7 as follows:

"6.5.7 The Contractor shall be responsible for the care, maintenance and protection of the Work in the event of any suspension of construction as a result of the delay described in paragraphs 6.5.1, 6.5.2 or 6.5.3. In the event of such suspension, the Contractor shall be reimbursed by the Owner for the reasonable costs incurred by the Contractor for such care, maintenance and protection. The Contractor's entitlement to costs pursuant to this paragraph 6.5.7, if any, shall be in addition to amounts, if any, to which the Contractor is entitled pursuant to paragraphs 6.5.1, 6.5.2 or 6.5.3."

16.4 GC 6.5.8

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(a) Add GC 6.5.8 as follows:

“6.5.8 Without limiting the obligations of the Contractor described in GC 3.2 – CONSTRUCTION BY OWNER OR OTHER CONTRACTORS and GC 9.4 – CONSTRUCTION SAFETY, the Owner may, by Notice in Writing, direct the Contractor to stop the Work or stop parts of the Work where the Owner determines that there is an imminent risk to the safety of persons or property at the Place of the Work. In the event that the Contractor receives such notice, it shall immediately stop the Work, secure the Place of the Work, rectify the safety issue to the satisfaction of the Owner, and make up any lost time due to the safety issue, all at the Contractor’s cost. The Contractor shall not be entitled to an extension of the Contract Time or to an increase in the Contract Price.”

16.5 GC 6.5.9

(a) Add GC 6.5.9 as follows:

“6.5.9 Regardless of the reason or cause of delay, the Contractor shall:

- .1 have a duty to mitigate the expenses or costs which may be incurred as a result of any delay, which mitigation measures shall include, but not be limited to, reducing the number of the Contractor’s and Subcontractor’s personnel at the Place of the Work, reducing the amount of supplies or the use of Equipment, and there shall be no reimbursement for any costs or expenses that could reasonably have been mitigated; and
- .2 keep such records and documentation as may be necessary to support any claim for reimbursement for expenses or costs which may be incurred as a result of any delay, including any records or documentation which demonstrates compliance with GC 6.5.9.1, and there shall be no reimbursement for any costs that are not sufficiently supported by such necessary records and documentation, as determined by the Consultant.”

16.6 GC 6.5.10

(a) Add GC 6.5.10 as follows:

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“6.5.10 Any finding or recommendation of the Consultant under GC 6.5 not accepted by either party shall be settled in accordance with PART 8 DISPUTE RESOLUTION.”

PART 7 DEFAULT NOTICE

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

1.1 GC 7.1

- (a) Add the words “suspend the work” after the words “perform the work” in the first line of the heading for GC 7.1.

1.2 GC 7.1.5.5

- (a) Add GC 7.1.5.5 as follows:
 - “.5 charge the Contractor for any damages the Owner may have sustained as a result of the default.”

1.3 GC 7.1.7

- (a) Add GC 7.1.7 as follows:
 - “7.1.7 The Owner may, if conditions arise which make it necessary for reasons other than as provided in paragraphs 7.1.1 and 7.1.4, suspend performance of the Work, terminate the Contractor’s right to continue with the Work or terminate the Contract, in whole or in part, by giving Notice in Writing to that effect to the Contractor. Such suspension or termination shall be effective in the manner specified in said notice and shall be without prejudice to any claims which either party may have against the other. The Owner’s entitlement to so terminate or suspend shall be absolute and unconditional and exercisable by the Owner in its sole discretion.”

1.4 GC 7.1.8

- (a) Add GC 7.1.8 as follows:
 - “7.1.8 The Contractor upon receiving notice of suspension or termination from the Owner shall suspend all operations as soon

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as reasonably possible except for work which, in the Contractor's opinion, is necessary for the safety of personnel and for the care and preservation of the Work, the materials and plant. Subject to any directions in the notice of suspension or termination, the Contractor shall discontinue ordering materials, facilities, and supplies and make every reasonable effort to delay delivery of existing orders and, in the event of termination, to cancel existing orders on the best terms available."

1.5 GC 7.1.9

(a) Add GC 7.1.9 as follows:

"7.1.9 During any period of suspension, the Contractor shall not remove from the site any part of the Work, or any Product or materials without the consent of the Owner."

1.6 GC 7.1.10

(a) Add GC 7.1.10 as follows:

"7.1.10 If the Work should be suspended for a period of sixty (60) consecutive calendar days or less, the Contractor, upon the expiration of the period of suspension, shall resume the performance of the Work in accordance with the Contract Documents. If the suspension was not due to an act or omission of the Contractor, the Contract Price and Contract Time shall be adjusted as provided in paragraph 6.5.1 of GC 6.5 - Delays."

1.7 GC 7.1.11

(a) Add GC 7.1.11 as follows:

"7.1.11 If after sixty (60) consecutive calendar days from the date of notice of suspension of the Work, the Owner and the Contractor agree to continue with and complete the Work, the Contractor shall resume operations and complete the Work in accordance with any terms and conditions agreed upon by the Owner and the Contractor. Failing such an agreement, the provisions of paragraph 7.2.2 shall become applicable."

1.8 GC 7.1.12

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- (a) Add GC 7.1.12 as follows:

“7.1.12 If the Owner terminates the Contract pursuant to paragraph 7.1.7, the Contractor shall only be entitled to receive payment for all work performed up to the date of termination as certified by the Consultant and the direct costs associated with the termination incurred by the Contractor, including the costs of the demobilization, losses sustained on Products and Construction Equipment and Subcontractor and sub-subcontractor cancellation costs (which costs shall not include loss of profit claims) reasonably incurred by the Contractor. The Contractor shall not be entitled to any additional reimbursement on account of the termination including, without limitation, indirect, incidental, special, consequential or other damages, including loss of profits, notwithstanding any other provision of the Contract Documents.”

1.9 GC 7.1.13

- (a) Add GC 7.1.13 as follows:

“7.1.13 Notwithstanding any other provision in the *Contract*, the *Owner* shall not be liable to the *Contractor* for any actual or alleged damages of any kind whatsoever (including without limitation indirect, incidental, special, consequential or other damages, including loss of profits) on account of the publication of a Notice of Termination pursuant to the *Act*, and the *Contractor* waives any claim against the *Owner* related to or arising from the publication.”

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

2.1 GC 7.2.1

- (a) Delete GC 7.2.1 in its entirety.

2.2 GC 7.2.2

- (a) Delete the words “20 Working Days” and substitute the words “sixty (60) consecutive calendar days” in the first line of paragraph 7.2.2.

2.3 GC 7.2.3.1

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- (a) Delete GC 7.2.3.1 in its entirety.

2.4 GC 7.2.3.3

- (a) Add the words “, except where the Owner has a claim against the Contractor for set-off,” after the word Consultant” in GC 7.2.3.3.

2.5 GC 7.2.3.4

- (a) Delete the words “, except for GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER,” from the first and second lines of GC 7.2.3.4.

2.6 GC 7.2.4

- (a) Delete the word “5” and replace with “15” and add the following sentence to the end of GC 7.2.4:

“If the default cannot be corrected within the 5 Working Days specified herein, the Owner shall be deemed to have cured the default if it

- .1 commences the correction of the default within the specified time; and
- .2 provides the Contractor with an acceptable schedule for such correction; and
- .3 completes the correction in accordance with such schedule.”

2.7 GC 7.2.5

- (a) Delete GC 7.2.5 in its entirety and replace with following:

“7.2.5 If the Contractor terminates the Contract under the conditions set out above, the Contractor shall be entitled to be paid for all work performed to the date of termination. The Contractor shall also be entitled to recover the direct costs associated with termination, including the costs of demobilization, and losses sustained on Products and Construction Equipment. The Contractor shall not be entitled to any additional reimbursement on account of any such termination including, without limitation, indirect, incidental, special, consequential or other damages, including loss of profits, notwithstanding any other provision of the Contract Documents.”

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2.8 GC 7.2.6

- (a) Add GC 7.2.6 as follows:

“7.2.6 The Owner’s withholding of a progress payment, holdback payment or final payment due to the Contractor’s failure to pay a Subcontractor or Supplier, to protect the Owner’s interest in the event of the registration of a lien or receipt of notice of lien, or otherwise pursuant to the terms of the Contract, shall not constitute a default under paragraph 7.2.3 which would permit the Contractor to stop the Work or terminate the Contract. In such circumstances, the Contractor shall continue with the Work.”

2.9 GC 7.2.7

- (a) Add GC 7.2.7 as follows:

“7.2.7 If the Contractor stops the Work or terminates the Contract in accordance with this GC 7.2 – Contractor’s Right To Suspend The Work Or Terminate The Contract, the Contractor shall leave the Place of the Work and the Work in a secure condition.”

PART 8 – DISPUTE RESOLUTION

1.0 GC 8.1 AUTHORITY OF THE CONSULTANT

1.1 GC 8.1.3

- (a) Delete GC 8.1.3 in its entirety and replace with following:

“8.1.3 Unless the Contract has been terminated or completed, the Contractor shall in every case, regardless of claim or dispute, continue to proceed with the Work with due diligence in accordance with the Consultant’s instructions. It is understood by the parties that such actions will not jeopardize any claim that the parties may have.”

2.0 GC 8.2 NEGOTIATION, MEDIATION AND ARBITRATION

2.1 GC 8.2.6

- (a) Delete GC 8.2.6 in its entirety and replace with following:

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“8.2.6 When a dispute has not been resolved through negotiation or mediation, within 10 Working Days after the date of termination of the mediated negotiations under GC 8.2.5, either party may give a Notice in Writing to the other Party and to the Consultant inviting the other Party to agree to submit the dispute to be resolved by arbitration pursuant to the Arbitration Act, 1991. If the other party wishes to accept the invitation to submit the dispute to arbitration, it shall so indicate by the delivery of a responding Notice in Writing within 10 Working Days of receipt of the invitation. If, within the required times, no invitation is made, or, if made, is not accepted, either Party may refer the dispute to the courts or any other form of dispute resolution, which they have agreed to use.”

2.2 GC 8.2.7

(a) Delete GC 8.2.7 in its entirety.

2.3 GC 8.2.8

(a) Delete GC 8.2.8 in its entirety.

PART 9 – PROTECTION OF PERSONS AND PROPERTY

1.0 GC 9.1 PROTECTION OF WORK AND PROPERTY

1.1 GC 9.1.1

(a) Delete GC 9.1.1 in its entirety and replace with following:

“9.1.1 The Contractor shall be responsible for security at the Place of the Work and will take such other security measures as may be necessary in respect of the Work and the Place of the Work, as may be determined by the Owner in its sole discretion, and shall protect the Work, the Place of the Work, the Railway Property, and the Owner’s property and property adjacent to the Place of the Work and the Railway Property from damage which may arise as the result of the Contractor’s operations under the Contract, and shall be responsible for such damage, except damage which occurs as the result of:

- .1 errors in the Contract Documents which the Contractor could not have discovered applying the Standard of Care;

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- .2 acts or omissions by the Owner, the Consultant, other contractors, and their agents and employees.”

1.2 GC 9.1.2

- (a) Delete GC 9.1.2 in its entirety and replace with the following:

“9.1.2 Before commencing any Work, the Contractor shall determine the locations of all underground utilities and structures indicated in or inferable from the Contract Documents, or that are inferable from an inspection of the Place of the Work.”

1.3 GC 9.1.3

- (a) Add the words “Railway property,” after the word “Work,” in the first line.

1.4 GC 9.1.4

- (a) Add the words, “Railway’s property,” after the word “Work” in the first line of GC 9.1.4 and add the words “and Railway’s property” after the word “property” in the second line of GC 9.1.4.

2.0 GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES

2.1 GC 9.2.1, 9.2.2, 9.2.3, 9.2.4, 9.2.5, 9.2.6, 9.2.7 and 9.2.8

- (a) Delete the words “toxic and hazardous substances” from GC 9.2.1, 9.2.2, 9.2.3, 9.2.4, 9.2.5, 9.2.6, 9.2.7 and 9.2.8 and substitute the words “Toxic and Hazardous Substances” in their place.

2.2 GC 9.2.5.5

- (a) Add GC 9.2.5.5 as follows:

“9.2.5.5 take all reasonable steps to mitigate the impact on Contract Time and Contract Price.”

2.3 GC 9.2.7.4

- (a) Delete GC 9.2.7.4 in its entirety.

2.4 GC 9.2.8.2

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- (a) Add the words "Railway's property," after the words "damage to the Work," in the first line of GC 9.2.8.2.

3.0 GC 9.4 CONSTRUCTION SAFETY

3.1 GC 9.4.1

- (a) Delete 9.4.1 in its entirety and replace with the following:

"9.4.1 The Contractor shall be solely responsible for construction safety at the Place of the Work and for compliance with Applicable Law and the Metrolinx Safety Guidelines For Vendors, Consultants and Project Coordinators, and shall be responsible for initiating, maintaining and supervising all safety precautions and programs, in connection with the performance of the Work, in accordance with the Standard of Care."

3.2 GC 9.4.2

- (a) Add GC 9.4.2 as follows:

"9.4.2 The Contractor shall assume the role of contractor, constructor, prime contractor, or principal contractor as may apply in accordance with applicable Occupational Health and Safety Legislation at the Place of the Work and provide to the Owner copies of the related Health and Safety notices and documents."

- .1 immediately provide written notice to the Owner of any accident at the Place of the Work causing personal or possible personal injury to any individual, and to immediately provide such details to the Owner, including the identity of the personnel, the nature of such injuries which were suffered or may have been suffered and any other information as the Owner may require or request; and
- .2 participate in or provide to its personnel such health and safety training as the Owner may reasonably require, prior to the Commencement of the Work and from time to time."

3.3 GC 9.4.3

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- (a) Add GC 9.4.3 as follows:

“9.4.3 The Contractor represents and warrants that it is familiar with the obligations imposed on an “employer” as defined in the *Occupational Health and Safety Act (Ontario)*, and that it has in place a health and safety program to ensure the health and safety of all workers for which it has responsibility under the said *Act*.”

3.4 GC 9.4.4

- (a) Add GC 9.4.4 as follows:

“9.4.4 The Contractor shall comply in all respects with the requirements of the Occupational Health and Safety Act (Ontario) and its own health and safety program to take all steps reasonable in the circumstances to ensure the health and safety of all workers for which it has responsibility under the said Act. The Contractor shall maintain and strictly enforce its health and safety program. The Contractor shall also provide such information within such timeframes as may be required in order to allow the Owner to fulfill its obligations pursuant to the Occupational Health and Safety Act (Ontario), including, without limitation, the obligation to notify the Director under such Act in the event of an accident causing personal injury.”

3.5 GC 9.4.5

- (a) Add GC 9.4.5 as follows:

“9.4.5 The Contractor shall comply with all requirements of the Workplace Hazardous Materials System (WHMIS) regarding the use, handling and storage of controlled products.”

3.6 GC 9.4.6

- (a) Add GC 9.4.6 as follows:

“9.4.6 Prior to commencing the Work the Contractor shall:

- .1 ensure that all prescribed posting requirements are posted on site for all workers to view;

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- .2 provide a copy of the Contractor's Health & Safety Policy to the Owner;
- .3 prepare and submit to the Owner a Site Specific Safety Plan (Job Safety Analysis);
- .4 review and comply with facility specific hazard, safety and orientation requirements as applicable; and
- .5 prepare and submit site-specific hazardous assessment plans as applicable pertaining to but not limited to: live power work, lock out/tag out/shut down/switch covers, confined space entry, cranes and crane lifts, and other hazardous assessment plans as required."

3.7 GC 9.4.7

- (a) Add GC 9.4.7 as follows:

"9.4.7 The Contractor shall indemnify and save harmless the Owner, its agents, officers, directors, employees, consultants, successors and assigns from and against the consequences of any and all safety infractions committed by the Contractor or any of its Subcontractors or their subcontractors under the construction health and safety legislation applicable to the Place of the Work, including but not limited to, payment of legal fees and disbursements on a full indemnity basis."

3.8 GC 9.4.8

- (a) Add GC 9.4.8 as follows:

"9.4.8 The Owner and/or the Consultant shall have the right, from time to time during the performance of the Work, to perform or cause to be performed, an on-site safety audit of the Work and the Place of the Work. The Owner may identify specific safety issues or Safety Incidents as set out in GC 17, and the Contractor shall address such issues or Safety Incidents promptly to the satisfaction of the Owner, at the Contractor's cost, and provide the Owner with sufficient evidence of correction. No act or omission of the Owner during the audit shall constitute a transfer of liability from the Contractor to the Owner. The Contractor

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remains responsible for ensuring safety of the Work and the Place of the Work.”

4.0 GC 9.5 MOULD

4.1 GC 9.5.2.2

- (a) Add the words “Railway’s property,” after the words “damage to the Work,” in the first line of GC 9.5.2.2.

4.2 GC 9.5.3.4

- (a) Delete paragraph 9.5.3.4 in its entirety.

PART 10 GOVERNING REGULATIONS

1.0 GC 10.1 TAXES AND DUTIES

1.1 GC 10.1.2

- (a) Add the following sentence to the end of GC 10.1.2:

“For greater certainty, the Contractor shall not be entitled to any mark-up for overhead or profit on any increase in such taxes and duties.”

1.2 GC 10.1.3

- (a) Add GC 10.1.3 as follows:

“10.1.3 Where the Owner is entitled to an exemption or a recovery of sales taxes, customs duties, excise taxes or Value Added Taxes (including Harmonized Sales Tax) applicable to the Contract, the Contractor shall, at the request of the Owner or the Owner's representative, assist with the application for any exemption, recovery or refund of all such taxes and duties and all amounts recovered or exemptions obtained shall be for the sole benefit of the Owner. The Contractor agrees to endorse over to the Owner any cheques received from the federal or provincial governments, or any other taxing authority, as may be required to give effect to this section.”

1.3 GC 10.1.4

- (a) Add GC 10.1.4 as follows:

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“10.1.4 The Contractor shall maintain accurate records of Construction Equipment, Product and component costs reflecting the taxes, customs duties, excise taxes and Value Added Taxes paid.”

1.4 GC 10.1.5

(a) Add GC 10.1.5 as follows:

“10.1.5 Any refund of taxes, including, without limitation, any government sales tax, customs duty, excise tax or Value Added Tax, whether or not paid, which is found to be inapplicable or for which exemption may be obtained, is the sole and exclusive property of the Owner. The Contractor agrees to cooperate with the Owner and to obtain from all Subcontractors and Suppliers cooperation with the Owner in the application for any refund of any taxes, which cooperation shall include but not be limited to, making or concurring in the making of an application for any such refund or exemption, and providing to the Owner copies, or where required, originals of records, invoices, purchase orders and other documentation necessary to support such applications or exemptions or refunds. All such refunds shall either be paid to the Owner, or shall be a credit to the Owner against the Contract Price, at the Owner's discretion. The Contractor agrees to enable, assist with and submit to any reasonable audit requested by the Owner with respect the potential refunds under this section.”

1.5 GC 10.1.6

(a) Add 10.1.6 as follows:

“10.1.6 Customs duties penalties, or any other penalty, fine or assessment levied against the Contractor, shall not be treated as a tax or customs duty for the purpose of this GC 10.1.”

2.0 GC 10.2 LAWS, NOTICES, PERMITS AND FEES

2.1 GC 10.2.1

(a) Add the following sentence to the end of GC 10.2.1:

“The Contractor shall comply with all Applicable Law.”

2.2 GC 10.2.3

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- (a) Add the words “The Contractor shall provide the Owner with copies of all such permits, licenses, inspections and certificates.” at the end of GC 10.2.3.

2.3 GC 10.2.4

- (a) Delete the word “laws” and substitute the words “Applicable Laws” in the first line of GC 10.2.4.
- (b) Delete the words “or codes” and substitute the words “codes, and industry best practices and guidelines” after the word “regulations,” in the first line of GC 10.2.4.
- (c) Add the words “to the environment,” after the words “relate to the Work,” in the second line of GC 10.2.4.
- (d) Add the words “The Contractor shall provide the Owner with copies of all such required notices and related health and safety documents.” at the end of GC 10.2.4.

2.4 GC 10.2.5

- (a) Delete the word “The” and substitute the words “Subject to GC 3.4.1, the” at the beginning of GC 10.2.5.
- (b) Delete the words “applicable laws” and substitute the words “Applicable Laws” in the third line of GC 10.2.5.

2.5 GC 10.2.6

- (a) Delete GC 10.2.6 in its entirety and replace with the following:

“10.2.6 If the Contractor fails to notify the Owner and the Consultant in writing, fails to obtain direction as required in GC 10.2.5, and/or performs work that it knows or ought to have known that contravenes Applicable Laws, ordinances, guidelines, standards, permits, statutes, by-laws, rules, regulations, or codes, the Contractor shall be responsible for and shall correct the violations thereof, and shall bear the costs, expenses, and damages attributable to the failure to comply with the provisions of such laws, ordinances, guidelines, standards, permits, statutes, by-laws, rules, regulations, or codes, and, notwithstanding any limitations described in GC 12.1.1, shall indemnify and hold

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harmless the Owner and the Consultant from and against any claims, demands, losses, costs, damages, actions, suits or proceedings resulting from such failure or breach of law."

2.6 GC 10.2.8

- (a) Add GC 10.2.8 as follows:

"10.2.8 Without limiting the generality of any other provision in the Contract Documents, the Contractor shall cause all certificates to be furnished that are required by or given by the appropriate governmental or quasi-governmental authorities as evidence that the Work as installed conforms with Applicable Laws and regulations of any authorities having jurisdiction over the Place of the Work, including, without limitation, certificates of compliance for the Owner's occupancy or partial occupancy. The certificates are to be final certificates giving complete clearance of the Work, in the event that such governmental or quasi-governmental authorities furnish such certificates."

3.0 GC 10.4 WORKER'S COMPENSATION

3.1 GC 10.4.1

- (a) Add the words "with each application for progress payment," after the word "Work," in the first line of GC 10.4.1.
- (b) Add the words "the Certificate of Clearance and" after the word "provide" in the third line of GC 10.4.1 .

PART 11 INSURANCE AND CONTRACT SECURITY

1.0 GC 11.1 INSURANCE

1.1 GC 11.1

- (a) Delete GC 11.1 INSURANCE in its entirety and replace with the following:

"GC 11.1 INSURANCE

11.1.1 Without restricting the generality of GC 12.1 - INDEMNIFICATION, and unless the Owner and the Contractor agree to obtain project-specific insurance, or higher insurance limits, the Contractor shall provide, maintain, and pay for the

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minimum insurance coverages specified in GC 11.1 -
INSURANCE.

.1 General Liability Insurance:

The policy shall be in the joint names of the Contractor, the Owner and the Consultant with limits of not less than two million dollars (\$2,000,000) per occurrence. The insurance coverage shall not be less than the insurance required by IBC Forms 2100 and 2320, or their equivalent replacement. Umbrella or excess liability insurance may be used to achieve the desired limit. Where the Contractor maintains a single, blanket policy, the addition of the Owner is limited to liability arising out of the Work and all operations necessary or incidental thereto. Completed Operations Liability coverage shall be maintained continuously from the commencement of the Construction until two (2) years after the date of Substantial Performance of the Work. The policy shall include a waiver of subrogation against Owner.

.2 Automobile Liability Insurance:

The policy covers for bodily injury, death, and damage to property with respect to all licensed vehicles owned or leased by the Contractor. The policy shall have limits of not less than two million dollars (\$2,000,000) inclusive per occurrence. If the policy is issued pursuant to a government-operated automobile insurance system, the Contractor shall provide the Owner with confirmation of automobile insurance coverage for all automobiles registered in the name of the Contractor.

.3 Aircraft and Watercraft Liability Insurance: Not Applicable

.4 Property and Boiler and Machinery Insurance:

.1 All Risks Property Insurance: Not Applicable

.2 Boiler and Machinery Insurance:

Boiler and Machinery Insurance shall be in the joint names of the Contractor, the Owner, the Consultant,

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and all Subcontractors. The insurance coverage shall not be less than the insurance provided by the "Comprehensive Boiler and Machinery Form". The insurance provided shall have limits of not less than the replacement value of the boilers, pressure vessels, and other insurable objects forming part of the Work. The policy shall include a waiver of subrogation against the Owner.

- .3 The policy/policies shall allow for partial or total use or occupancy of the Work. If because of such use or occupancy the Contractor is unable to provide coverage, the Contractor shall notify the Owner in writing. Prior to such use or occupancy, the Owner shall provide, maintain, and pay for all risk property and boiler insurance in the amounts described in subparagraphs (1) and (2), including coverage for such use or occupancy and shall provide the Contractor with proof of such insurance. The policies shall be amended to include permission for completion of Construction and shall include all insureds as specified in subparagraph (1). The Contractor shall refund to the Owner the unearned premiums applicable to the Contractor's policies upon termination of coverage.
- .4 The policy/policies shall provide that, in the case of a loss or damage, payment shall be made to the Owner and the Contractor as their respective interests may appear. The Contractor shall act on behalf of the Owner for the purpose of adjusting the amount of such loss or damage payment with the insurers. When the extent of the loss or damage is determined, the Contractor shall proceed to restore the Work. Loss or damage shall not affect the rights and obligations of either party under the Contract except that the Contractor shall be entitled to a reasonable extension of Contract Time.
- .5 The Contractor shall be entitled to receive from the Owner, in addition to the amount due under the Contract, the amount at which the Owner's interest in

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restoration of the Work has been appraised, such amount to be paid as the restoration of the Work proceeds and as provided in GC 5.2 - APPLICATIONS FOR PROGRESS PAYMENT and GC 5.3 - PROGRESS PAYMENT. In addition the Contractor shall be entitled to receive from the payments made by the insurer the amount of the Contractor's interest in the restoration of the Work.

- .6 In the case of loss or damage to the Work arising from the work of another contractor, or Owner's own forces, the Owner, in accordance with the Owner's obligations under paragraph 3.2.2.4 of GC 3.2 - CONSTRUCTION BY OWNER OR OTHER CONTRACTORS, shall pay the Contractor the cost of restoring the Work as the restoration of the Work proceeds and as provided in GC 5.2 - APPLICATIONS FOR PROGRESS PAYMENT and GC 5.3 - PROGRESS PAYMENT.

.5 Equipment Insurance:

The policy covers construction machinery and equipment used by the Contractor for the performance of the Work, including boiler insurance on temporary boilers and pressure vessels. The policy shall be in a form acceptable to the Owner and shall not allow subrogation claims by the insurer against the Owner. Subject to satisfactory proof of financial capability by the Contractor for self-insurance, the Owner agrees to waive the equipment insurance requirement.

- 11.1.2 Unless otherwise stipulated, the duration of each insurance policy shall be from the date of Commencement of the Work until the date of the final certificate for payment.
- 11.1.3 The Contractor shall be responsible for deductible amounts under the policies except where otherwise provided in GC 11.1 - INSURANCE or where such amounts may be excluded from the Contractor's responsibility by the terms of GC 9.1 - PROTECTION OF WORK AND PROPERTY and GC 9.2 - DAMAGES AND MUTUAL RESPONSIBILITY.

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11.1.4 Proof of Insurance Coverage:

- .1 Prior to Commencement of Work and upon the placement, renewal, amendment, or extension of all or any part of the insurance, the Contractor shall promptly provide the Owner with confirmation of coverage and, if required, a certified true copy of the policies certified by an authorized representative of the insurer together with copies of any amending endorsements.
- .2 Certificates for General Liability Insurance shall include, in addition to the Contractor the following as additional insureds:
 - .1 Metrolinx;
 - .2 SAB Engineering Inc.
- .3 Certificates of All Risks Property Insurance and Boiler and Machinery Insurance shall include the Owner, Consultant and all Subcontractors as additional insureds.
- .4 All Certificates of Insurance shall also include the Contract name and number.

11.1.5 Where the full insurable value of the Work is substantially less than the Contract Price, the Owner may reduce the amount of insurance required or waive one or more of the types of insurance requirement.

11.1.6 If the Contractor fails to provide or maintain insurance as required by the Contract Documents, then the Owner shall have the right to provide and maintain such insurance and give evidence to the Contractor and the Consultant. The Contractor shall pay the cost thereof to the Owner on demand or the Owner may deduct the amount which is due or may become due to the Contractor.

11.1.7 All required insurance policies shall be placed with insurers licensed to underwrite insurance in the jurisdiction of the Place of the Work.

11.1.8 All required insurance policies shall be endorsed to provide the Owner with not less than thirty (30) days' notice in writing in advance of any cancellation and material amendment or change restricting coverage.

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11.1.9 All insureds shall cooperate with the Contractor to comply with any reporting requirements of the insurance policies in order to maintain the policies in good standing, to give notice in writing of any incidents which may result in a claim or loss covered by the policies and to provide documentation necessary in the defence or settlement of claims.

11.1.10 The Contractor shall be responsible for providing proof of insurance renewals to the Owner or the Owner's third party representative, via submission of updated insurance certificates, throughout the term of the Contract.

2.0 GC 11.2 CONTRACT SECURITY

2.1 GC 11.2.1

- (a) Delete the "prior to commencement of the *Work* or within the specified time" and replace with "no later than upon entering into the *Contract*".
- (b) Add the following to the end of GC 11.2.1:

"The Contractor shall provide and maintain the following Contract security:

- .1 Performance Bond and a Labour and Materials Payment Bond each equal to fifty percent (50%) of the Contract Price"

2.2 GC 11.2.2

- (a) Replace the period at the end of the paragraph with: "or in accordance with the forms prescribed by the *Act*, if applicable."

2.3 GC 11.2.3

- (a) Add GC 11.2.3 as follows:

"11.2.3 The premiums for the bonds required by the Contract Documents are included in the Contract Price. On or before entering into the *Contract*, the Contractor shall promptly provide the Owner with confirmation of the Contract security with documentary evidence and thereafter provide confirmation and evidence of up-to-date Contract security from time to time upon request by the Owner. If approved changes pursuant to the Contract result in approved increases to the Contract Price, the Contractor shall promptly

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acquire additional bonding and provide the Owner with confirmation and evidence of the up-to-date Contract security.”

PART 12 INDEMNIFICATION, WAIVER OF CLAIMS AND WARRANTY

1.0 GC 12.1 INDEMNIFICATION

1.1 GC 12.1.1

(a) Delete paragraph 12.1.1 in its entirety and replace with the following:

“12.1.1 Without restricting the Contractor’s obligation to indemnify as described in paragraph 12.1.4, the Contractor shall indemnify and hold harmless the Owner from and against all claims, demands, losses, costs, damages, actions, suits or proceedings whether in respect to losses suffered by the Owner or in respect to claims by third parties that arise out of, or are attributable in any respect to the Contractor’s involvement as a party to this Contract, provided such claims are caused by:

- .1 the negligent acts or omissions of the Contractor or anyone for whose acts or omissions the Contractor is liable, or
- .2 a failure of the Contractor to fulfil the terms or conditions of the Contract; and
- .3 made by Notice in Writing within a period of six years from the date of Substantial Performance of the Work as set out in the certificate of Substantial Performance of the Work issued pursuant to paragraph 5.4.2.2 of GC 5.4 – SUBSTANTIAL PERFORMANCE THE WORK or within such shorter period as may be prescribed by any limitation statute of the Province of Ontario.
- .4 The Owner expressly waives the right to indemnity for claims other than those provided for in this Contract.”

1.2 GC 12.1.2

(a) Delete GC 12.1.2 in its entirety.

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2.0 GC 12.1.3

- 2.1 Delete the words “either party to indemnify the other” and substitute the words “the Contractor to indemnify the Owner” in the first line of GC 12.1.3.

3.0 GC 12.1.4

- 3.1 Delete the words “The Owner and the Contractor shall indemnify and hold harmless the other” and substitute the words “The Contractor shall indemnify and hold harmless the Owner” in the first line of GC 12.1.4.
- 3.2 (Delete the word “their” and substitute the words “the Contractor’s” in the second line of GC 12.1.4.

4.0 GC 12.1.5

- 4.1 Delete GC 12.1.5 in its entirety.

5.0 GC 12.1.6

- 5.1 Delete the words “or the Contractor” from the first line.

(a) GC 12.1.6.2

- (i) Delete GC 12.1.6.2 in its entirety and replace with the following:

“12.1.6.2 Should the Contractor be required as a result of its obligation to indemnify the Owner to pay or satisfy a final order, judgment or award made against the Owner, then the Contractor upon assuming all liability for any costs that might result shall have the right to appeal in the name of the Owner until such rights of appeal have been exhausted.”

6.0 GC 12.1.7

- 6.1 Add GC 12.1.7 as follows:

“12.1.7 Notwithstanding anything contained in the Contract Documents to the contrary, the Owner shall have the right to set-off the amount of any claims for which Notice in Writing has been given by the Owner to the Contractor in accordance with GC 6.6 CLAIMS FOR A CHANGE TO CONTRACT PRICE or GC 12.1 INDEMNIFICATION against any

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amounts which may be otherwise owing or payable to the Contractor pursuant to the terms of the Contract.”

7.0 GC 12.1.8

7.1 Add GC 12.1.8 as follows:

“12.1.8 In addition to and without limiting any other rights the Owner may have under this Contract and at law, the Owner may retain from monies owing to the Contractor under this Contract, at any time, an amount sufficient to cover any outstanding or disputed liabilities including the cost to remedy deficiencies in the Work, the reduction in value of substandard portions of the Work, claims for damages by third parties, undetermined claims by the Owner, and any assessment due to the Workplace Safety and Insurance Board.”

8.0 GC 12.2 WAIVER OF CLAIMS

8.1 GC 12.2.1.2 and 12.2.1.3

(a) Delete GC 12.2.1.2 and GC 12.2.1.3 in their entirety.

8.2 GC 12.2.2

(a) Delete the words “those referred in paragraphs 12.2.1.2 and 12.2.1.3 and from GC 12.2.2”.

9.0 GC 12.3 WARRANTY

9.1 GC 12.3

(a) Delete GC 12.3 in its entirety and replace with the following:

“12.3.1 The Contractor warrants and covenants that the Work (including and all Products, parts and workmanship, including those replaced during the Warranty Period), shall,

- .1 conform to the requirements and specifications, and perform as set out in this Contract, the Standard of Care and Applicable Law;
- .2 be free of defects and deficiencies;

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- .3 be new, of good quality material, of merchantable quality and fit for their intended purpose as described in the Contract Documents; and
 - .4 materials and equipment shall be of good quality and in compliance with this Contract.
- 12.3.2 The Contractor warrants the above GC 12.3.1 for the applicable Warranty Period.
- 12.3.2 The Contractor shall be responsible for the proper performance of the Work to the extent that the design and Contract Documents permit such performance.
- 12.3.3 The Owner shall promptly give the Contractor notice in writing of observed defects and deficiencies that occur during the Warranty Period.
- 12.3.4 The Contractor shall be responsible for obtaining Product warranties in excess of two (2) years, if specified in the Contract Documents, on behalf of the Owner from the manufacturer. These Product warranties shall be issued by the manufacturer to the benefit of the Owner.
- 12.3.5 The Contractor shall assign to the Owner all warranties, guarantees or other obligations for Work, services or Products performed or supplied by any Subcontractor, Supplier or other person in connection with the Work and such assignment shall be with the consent of the assigning party where required by law or by the terms of that party's contract. Such assignment shall be in addition to, and shall in no way limit, the warranty rights of the Owner under the Contract Documents. Until the expiry of the relevant Warranty Periods enforceable against the Contractor, the Owner shall have in its custody all warranties, guarantees and other obligations of the third parties and the Contractor and the Owner shall not directly exercise any rights under such warranties, guarantees or other obligations without first notifying the Contractor thereof and giving the Contractor the opportunity to correct the relevant defect, or cause it to be corrected.
- 12.3.6 The Contractor shall commence to correct any deficiency within ten (10) Working Days or a longer period of time as agreed to by the Parties acting reasonably, after receiving a notice in writing

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from the Owner, and shall complete the correction as expeditiously as possible, except that in case the deficiency would prevent maintaining security, compromise safety or keeping basic systems essential to the ongoing business of the Owner, operational as designed, all necessary corrections and/or installation of temporary replacements shall be carried out immediately as an emergency service at the Contractor's expense. If the Contractor fails to provide this emergency service within twenty-four (24) hours of a request made in writing during the normal business hours of the Contractor, Owner is authorised to carry out all necessary repairs or replacements at the Contractor's expense.

- 12.3.7 The Contractor warrants any redesigned, repaired or replaced Work against defective materials and workmanship for two (2) years from and after the date of acceptance by the Owner of the redesigned, repaired or replaced Work thereof.
- 12.3.8 The carrying out of warranty work and making good of defects shall be executed at times convenient to the Owner and this may require work outside of normal working hours at the Contractor's expense.
- 12.3.9 Specified Warranty Periods shall not be construed as limiting any indemnification provisions herein.
- 12.3.10 The remedies of the Owner set forth above shall not deprive the Owner of any action, right or remedy otherwise available to it for breach of any provisions of the Contract Documents and the periods referred to above, or such longer time as may be specified elsewhere, shall not be construed as a limitation on the time in which the Owner may pursue such other action or remedy.
- 12.3.11 During each Warranty Period, the Contractor shall correct and make good all defects arising in respect of the Work, at its own cost. For greater certainty, the Contractor is required to correct and make good any defects related to any Product and any equipment during the applicable Warranty Period despite the Contractor having obtained on the Owner's behalf industry-standard or other equipment warranties.
- 12.3.12 **Intentionally Deleted**

10.0 GC 13 FRENCH LANGUAGE SERVICES

10.1 Add GC 13 FRENCH LANGUAGE SERVICES as follows:

“GC 13 FRENCH LANGUAGE SERVICES

13.1 Definitions

- .1 "French Language Services Act" means the French Language Services Act, R.S.O. 1990, c.F. 32, as amended.
- .2 "French-designated Area" means an area designated from time to time in the Schedule to the French Language Services Act (Ontario). A map and complete listing of French-designated areas is available at <http://www.ofa.gov.on.ca/en/flsa-mapdesig.html>.

13.2 French Language Services

- .1 Insofar as this Contract relates to the provision of Services directly to the public on behalf of the Owner, the French Language Services Act, R.S.O. 1990, c. F. 32 and any amendments thereto (hereinafter referred to as "the FLSA") shall be applicable.
- .2 A person has the right in accordance with the FLSA to communicate in French with, and to receive available services in French where the Contractor's work is located in or serves an area designated in the FLSA Schedule. It shall be the Contractor's responsibility to provide translation services to any person making such a request as per R.S.O. 1990, c. F.32, s. 5(1).
- .3 A service refers to any service or procedure provided to the public, including communications.
- .4 Services being provided in French must be equivalent to those offered in English, available within the same timeframe and of the same quality.
- .5 Services and communications in designated areas include, but are not limited to:
 - .1 Consultations/Public Meetings

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- .2 Presentation materials, displays, comment cards/feedback mechanism or other materials are available in French. Contractor has at least one bilingual staff or interpreter on hand able to answer questions and discuss technical drawings/documents in French. When relevant, the Contractor will compile and analyze the views of Francophones separately, because they may have different concerns.
- .3 Construction contracts may from time to time involve erecting temporary signage to redirect or warn the public of hazards. Such signage will be bilingual.
- .4 Communication plans, customer impact documents, information bulletins, notices of service disruption and public relations information will be bilingual.
- .5 Advertising, promotion, publicity will be undertaken in English and French. A list of Francophone media is available at: <http://www.ofa.gov.on.ca/en/franco-media.html>.
- .6 The Contractor will have a bilingual staff available to attend consultations or public meetings.
- .7 The Contractor will have a staff or procure the services of a professional translator or interpreter, accredited by the Association of Translators and Interpreters of Ontario. <http://www.atio.on.ca/>

11.0 GC 14 CONTRACTOR WORK PERFORMANCE RATING

11.1 Add GC 14 CONTRACTOR WORK PERFORMANCE RATING, as follows:

“GC 14 CONTRACTOR WORK PERFORMANCE RATING

- 14.1 The Owner shall during the term of the Contract, maintain a record of the performance of the Contractor completing Work for the Owner. This information shall be used to complete a “Contract Performance Appraisal” report, a copy of which will be forwarded to the Contractor upon completion of Total Performance of the Work. Interim “Contractor Performance Appraisal” reports may be issued, as deemed appropriate by the Owner, at any time during the term of the Contract. A copy of the

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Contract Performance Appraisal template can be found under “Attachments”.

- 14.2 The overall history of the Contractor in performing work for the Owner, including the Contractor’s performance pursuant to this Contract, will be considered in the evaluation of future submissions from the Contractor.
- 14.3 The Owner shall not be held liable for any administrative delays in updating VPR scores, which could result in a Vendor being bypassed for award on any procurement processes.
- 14.4 The Owner reserves the right during any procurement process, to reject any submissions by the Contractor due to unsatisfactory performance history with the Owner.
- 14.5 Non-compliance with Contract requirements will be identified to the Contractor.
- 14.6 The performance category on the Contract Performance Appraisal may be revised by Metrolinx subject to Change Orders. In such instances, the Contractor shall be notified via written communication of the change.
- 14.5 The information contained in the “Contract Performance Appraisal” may be provided to the Ministry of Transportation, other ministries and other government agencies. Such performance reviews may be relied upon to reject the Contractor’s submission and disqualify a company from providing a bid on future procurements. This section shall survive any termination or expiry of this Contract.”

12.0 GC 15 CONFLICT OF INTEREST

- 12.1 Add GC 15 CONFLICT OF INTEREST, as follows:

“GC 15 CONFLICT OF INTEREST

- 15.1 For the purposes of this Contract, a “Conflict of Interest” includes any situation or circumstances where, in relation to the performance of its contractual obligations in this Contract, the Contractor’s other commitments, relationships or financial interests:
 - .1 could or could be seen to exercise an improper influence over the objective, unbiased and impartial exercise of its independent judgment; or

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- .2 could or could be seen to compromise, impair or be incompatible with the effective performance of its contractual obligations.

15.2 The Contractor shall:

- .1 avoid all Conflict of Interest in the performance of its contractual obligations;
- .2 disclose to the Owner without delay any actual or potential Conflict of Interest that arises during the performance of its contractual obligations; and
- .3 comply with any requirements prescribed by the Owner to resolve any Conflict of Interest.

15.3 In addition to all other contractual rights or rights available at law or in equity, Owner shall have the right to immediately terminate this Contract, by giving Notice in Writing to the Contractor, where:

- .1 the Contractor fails to disclose an actual or potential Conflict of Interest;
- .2 the Contractor fails to comply with any requirements prescribed by Owner to resolve a Conflict of Interest; or
- .3 the Contractor's Conflict of Interest cannot be resolved.

15.4 This section shall survive any termination or expiry of this Contract.

13.0 GC 17 LIQUIDATED DAMAGES

13.1 Add GC 17 LIQUIDATED DAMAGES, as follows:

“GC 17 – Liquidated Damages

17.1 LIQUIDATED DAMAGES FOR FAILURE TO ACHIEVE SUBSTANTIAL PERFORMANCE OF THE WORK

- .1 The Contractor acknowledges and agrees that the Owner will suffer harm in the event the Work is delayed and the date for Substantial Performance of the Work is not met. The Contractor further acknowledges and agrees that it is extremely difficult to determine the actual damages that the Owner will suffer as a result of such late Substantial Performance of the Work and that

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the amounts stated herein represent a reasonable estimate of such damages.

.2 The Contractor shall be assessed liquidated damages as follows:

.1 Liquidated Damages in the amount of one hundred Dollars (\$100.00) per Working Day for each and every Working Day that the completion of the Work for Substantial Performance of the Work, as may be amended by Change Order, exceeds the date of Substantial Completion of the Work. The maximum amount assessed for liquidated damages pertaining to Substantial Performance of the Work shall not exceed one thousand Dollars (\$1,000.00).

17.2 LIQUIDATED DAMAGES FOR SAFETY INCIDENTS

.1 The Contractor acknowledges and agrees that the Owner will suffer harm in the event of any breach, act or omission of the Contractor that does or can reasonably be expected to create a threat to the health, safety or security of any person or user at the Place of the Work including other members of the public (each, a "Safety Incident").

.2 Whether a Safety Incident has occurred, and the categorization of it as Major Safety Incident or Minor Safety Incident, shall be determined in accordance with this provision by the Owner in its sole discretion in accordance with this Section 17.2.

.3 Minor Safety Incidents

a. A Minor Safety Incident is an incident giving rise to health, safety or security concerns, but not a Major Safety Incident, and may include, but is not limited to: failure to notify the Owner of a safety issue or incident, or a failure to wear personal protective equipment. The occurrence of any of the following events shall constitute a Minor Safety Incident:

i. The Contractor fails to notify the Owner in a timely manner of any event or happening that occurs for which notification is required under this Contract.

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- ii. The Contractor or any Contractor Personnel are present at the Place of Work and are not wearing personal protective equipment as required under CSMP in the circumstances.
 - iii. The Contractor or any Contractor Personnel fail to comply with CSMP standards at any time while acting in furtherance of any obligations under the Contract.
 - iv. A failure by the Contractor to punctually submit safety reports as required periodically by the Contract.
- b. For each and every Minor Safety Incident that occurs, the Contractor shall pay the Owner liquidated damages in the amount of One Thousand dollars (\$1000.00) for administrative costs incurred by the Owner to review and, if necessary, address, rectify or cause to be rectified any or all failures which caused or contributed to the Minor Safety Incident and prevent the recurrence of same.

.4 Major Safety Incidents

- a. A Major Safety Incident is a a material breach or threat to the health, safety or security of any person or user of the Place of Work, and may include, but is not limited to: work proceeding without an approved work plan, incident causing injury to a person, risk to public safety, or incident giving rise to a report to, or charge or stop work order by the Ministry of Labour. The occurrence of any of the following events shall constitute a Major Safety Incident:
- i. The Contractor or any Contractor Personnel proceed with the Work without appropriate approval pursuant to Contract requirements.
 - ii. The Contractor or any Contractor Personnel perform any portion of the Work without the track protection required for that portion of the Work, as the case may be.

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- iii. An injury occurs at the Place of Work which is reportable to the Ministry of Labour, including without limitation fatal injuries.
 - iv. An incident occurs at the Place of Work which gives rise to a report to, charge or stop work order by the Ministry of Labour.
- b. For each and every Major Safety Incident that occurs, the Contractor shall pay the Owner liquidated damages in the amount of Fifteen Thousand dollars (\$15,000.00) for administrative costs incurred by the Owner to interface with the Ministry of Labour, if necessary, in regard to the Major Safety Incident and to review, address and rectify, or cause to be rectified, as the case may be, the failures which caused or contributed to the Major Safety Incident and to prevent the recurrence of same.
- .5 To ensure clarity, the liquidated damages in this Section 17.5 concern only and are limited to direct administrative costs incurred by the Owner for the administration of safety compliance and related due diligence conducted in accordance with and in furtherance of the Owner's legal and professional obligations to be informed of, monitor and understand workplace safety risks and to reduce, limit and, where possible, prevent potential or actual risks to safety at the Place of Work. The liquidated damages in this Section 16.4 in no way apply to or limit damages available to the Owner in respect of property damage sustained by the Owner or otherwise limit the scope of any indemnity in this Contract regarding claims that may be made against the Owner as a result of or related to any Safety Incident.
- .6 The Contractor acknowledges and agrees that the liquidated damages in this Section 17.5 constitute a genuine estimate of the administrative costs that the Owner will incur, as described in Section 17.5(5), upon the occurrence of a Minor Safety Incident or a Major Safety Incident, as the case may be, and further acknowledges and agrees that submitting a Submission indicates an unequivocal acceptance by the Contractor that the costs calculus in this Section 17.5 represents bona fide liquidated damages and not a penalty.

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- .7 The Owner shall have the right to set-off any amount owed by the Contractor to the Owner for liquidated damages pursuant to this Section 17.5.
 - .8 Nothing in this Section 17.5 shall limit the rights of the Owner to place the Contractor in default for any Safety Incident, nor limit the legal rights of the Owner in respect of claims against the Contractor for damages resulting from any Safety Incident or default, whether related to a Safety Incident or otherwise.
- 17.3 The Contractor acknowledges and agrees that any amounts payable pursuant to this GC 17 - Liquidated Damages shall not be construed as a penalty imposed on the Contractor by the Owner. The Contractor agrees that it is, and shall be, estopped from alleging that any liquidated damages set out in this GC 17 are a penalty and not liquidated damages, or are otherwise unenforceable for any reason, including that such damages were not incurred. The Contractor acknowledges and agrees that all liquidated damages pursuant to GC 17 shall be payable whether or not the Owner incurs or mitigates these damages, and that Owner shall have no obligation to mitigate these damages.
- 17.4 The Owner shall have the right to deduct the amount of any and all liquidated damages assessed against the Contractor under this GC 17 – Liquidated Damages from any amount due to the Contractor at any time.
- 17.5 Except as expressly provided herein, nothing in this GC 17 shall restrict, limit, prejudice or in any other way impair the rights or remedies of the Owner under any other provision of the Contract.

14.0 GC 18 SUBSTITUTING FORMS OF HOLDBACK

- 14.1 Add GC 18 SUBSTITUTING FORMS OF HOLDBACK, as follows:

“GC 18 – SUBSTITUTING FORMS OF HOLDBACK

18.1 SUBSTITUTING FORMS OF HOLDBACK

- .1 The *Contractor* may, at any time, submit an application in writing to the *Owner* requesting that all or any holdbacks being retained by the *Owner* in the form of funds be replaced with one or more of the following forms of holdback: a letter of credit (in the form prescribed by the *Act*), a demand-worded holdback

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repayment bond (in the form prescribed by the *Act*) or any other form of holdback prescribed by the *Act*.

- .2 If the *Owner* agrees to a request made by the *Contractor* under subparagraph 18.1.1, the *Owner* shall notify the *Contractor* that it agrees to the *Contractor's* request and the *Contractor* shall then proceed to obtain and provide to the *Owner* the agreed upon substitute form(s) of holdback. Once the *Contractor* has provided the agreed upon substitute form(s) of holdback to the *Owner* and the *Owner* has satisfied itself that the substitute form(s) of holdback are in the appropriate form and are consistent with the form agreed upon by the parties, the *Owner* shall release to the *Contractor* the holdback funds retained.
- .3 Notwithstanding any other provision in the *Contract*, the *Owner* is under no obligation whatsoever to agree to any requests made by the *Contractor* under subparagraph 18.1.1. For greater certainty, the *Owner* has absolute and unfettered discretion in determining whether or not to accept or reject a request made by the *Contractor* under subparagraph 18.1.1.

END OF SECTION

GENERAL CONDITIONS OF THE CONTRACT

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1.0 General Conditions of the Contract

- 1.1 The “General Conditions of the Stipulated Price Contract” of CCDC 2 2008 Stipulated Price Contract are herein called the General Conditions of the Contract and shall constitute the General Conditions of this Contract in their entirety as amended by the Supplementary General Conditions of the Contract herein. CCDC 2 2008 is available for purchase on www.ccdc.org.

END OF SECTION

GENERAL CONDITIONS OF THE STIPULATED PRICE CONTRACT

PART 1 GENERAL PROVISIONS

GC 1.1 CONTRACT DOCUMENTS

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

GC 1.2 LAW OF THE CONTRACT

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

GC 1.3 RIGHTS AND REMEDIES

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

GC 1.4 ASSIGNMENT

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

PART 2 ADMINISTRATION OF THE CONTRACT

GC 2.1 AUTHORITY OF THE CONSULTANT

- 2.1.1 The *Consultant* will have authority to act on behalf of the *Owner* only to the extent provided in the *Contract Documents*, unless otherwise modified by written agreement as provided in paragraph 2.1.2.
- 2.1.2 The duties, responsibilities and limitations of authority of the *Consultant* as set forth in the *Contract Documents* shall be modified or extended only with the written consent of the *Owner*, the *Contractor* and the *Consultant*.
- 2.1.3 If the *Consultant's* employment is terminated, the *Owner* shall immediately appoint or reappoint a *Consultant* against whom the *Contractor* makes no reasonable objection and whose status under the *Contract Documents* shall be that of the former *Consultant*.

GC 2.2 ROLE OF THE CONSULTANT

- 2.2.1 The *Consultant* will provide administration of the *Contract* as described in the *Contract Documents*.
- 2.2.2 The *Consultant* will visit the *Place of the Work* at intervals appropriate to the progress of construction to become familiar with the progress and quality of the work and to determine if the *Work* is proceeding in general conformity with the *Contract Documents*.
- 2.2.3 If the *Owner* and the *Consultant* agree, the *Consultant* will provide at the *Place of the Work*, one or more project representatives to assist in carrying out the *Consultant's* responsibilities. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in writing to the *Contractor*.
- 2.2.4 The *Consultant* will promptly inform the *Owner* of the date of receipt of the *Contractor's* applications for payment as provided in paragraph 5.3.1.1 of GC 5.3 – PROGRESS PAYMENT.
- 2.2.5 Based on the *Consultant's* observations and evaluation of the *Contractor's* applications for payment, the *Consultant* will determine the amounts owing to the *Contractor* under the *Contract* and will issue certificates for payment as provided in Article A-5 of the Agreement - PAYMENT, GC 5.3 - PROGRESS PAYMENT and GC 5.7 - FINAL PAYMENT.
- 2.2.6 The *Consultant* will not be responsible for and will not have control, charge or supervision of construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs required in connection with the *Work* in accordance with the applicable construction safety legislation, other regulations or general construction practice. The *Consultant* will not be responsible for the *Contractor's* failure to carry out the *Work* in accordance with the *Contract Documents*. The *Consultant* will not have control over, charge of or be responsible for the acts or omissions of the *Contractor*, *Subcontractors*, *Suppliers*, or their agents, employees, or any other persons performing portions of the *Work*.
- 2.2.7 Except with respect to GC 5.1 - FINANCING INFORMATION REQUIRED OF THE OWNER, the *Consultant* will be, in the first instance, the interpreter of the requirements of the *Contract Documents*.
- 2.2.8 Matters in question relating to the performance of the *Work* or the interpretation of the *Contract Documents* shall be initially referred in writing to the *Consultant* by the party raising the question for interpretations and findings and copied to the other party.
- 2.2.9 Interpretations and findings of the *Consultant* shall be consistent with the intent of the *Contract Documents*. In making such interpretations and findings the *Consultant* will not show partiality to either the *Owner* or the *Contractor*.
- 2.2.10 The *Consultant's* interpretations and findings will be given in writing to the parties within a reasonable time.
- 2.2.11 With respect to claims for a change in *Contract Price*, the *Consultant* will make findings as set out in GC 6.6 – CLAIMS FOR A CHANGE IN CONTRACT PRICE.
- 2.2.12 The *Consultant* will have authority to reject work which in the *Consultant's* opinion does not conform to the requirements of the *Contract Documents*. Whenever the *Consultant* considers it necessary or advisable, the *Consultant* will have authority to require inspection or testing of work, whether or not such work is fabricated, installed or completed. However, neither the authority of the *Consultant* to act nor any decision either to exercise or not to exercise such authority shall give rise to any duty or responsibility of the *Consultant* to the *Contractor*, *Subcontractors*, *Suppliers*, or their agents, employees, or other persons performing any of the *Work*.

- 2.2.13 During the progress of the *Work* the *Consultant* will furnish *Supplemental Instructions* to the *Contractor* with reasonable promptness or in accordance with a schedule for such instructions agreed to by the *Consultant* and the *Contractor*.
- 2.2.14 The *Consultant* will review and take appropriate action upon *Shop Drawings*, samples and other *Contractor's* submittals, in accordance with the *Contract Documents*.
- 2.2.15 The *Consultant* will prepare *Change Orders* and *Change Directives* as provided in GC 6.2 - CHANGE ORDER and GC 6.3 - CHANGE DIRECTIVE.
- 2.2.16 The *Consultant* will conduct reviews of the *Work* to determine the date of *Substantial Performance of the Work* as provided in GC 5.4 - SUBSTANTIAL PERFORMANCE OF THE WORK.
- 2.2.17 All certificates issued by the *Consultant* will be to the best of the *Consultant's* knowledge, information and belief. By issuing any certificate, the *Consultant* does not guarantee the *Work* is correct or complete.
- 2.2.18 The *Consultant* will receive and review written warranties and related documents required by the *Contract* and provided by the *Contractor* and will forward such warranties and documents to the *Owner* for the *Owner's* acceptance.

GC 2.3 REVIEW AND INSPECTION OF THE WORK

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

GC 2.4 DEFECTIVE WORK

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

PART 3 EXECUTION OF THE WORK

GC 3.1 CONTROL OF THE WORK

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

GC 3.2 CONSTRUCTION BY OWNER OR OTHER CONTRACTORS

- 3.2.1 The *Owner* reserves the right to award separate contracts in connection with other parts of the *Project* to other contractors and to perform work with own forces.
- 3.2.2 When separate contracts are awarded for other parts of the *Project*, or when work is performed by the *Owner's* own forces, the *Owner* shall:
- .1 provide for the co-ordination of the activities and work of other contractors and *Owner's* own forces with the *Work* of the *Contract*;
 - .2 assume overall responsibility for compliance with the applicable health and construction safety legislation at the *Place of the Work*;
 - .3 enter into separate contracts with other contractors under conditions of contract which are compatible with the conditions of the *Contract*;
 - .4 ensure that insurance coverage is provided to the same requirements as are called for in GC 11.1 - INSURANCE and co-ordinate such insurance with the insurance coverage of the *Contractor* as it affects the *Work*; and
 - .5 take all reasonable precautions to avoid labour disputes or other disputes on the *Project* arising from the work of other contractors or the *Owner's* own forces.
- 3.2.3 When separate contracts are awarded for other parts of the *Project*, or when work is performed by the *Owner's* own forces, the *Contractor* shall:
- .1 afford the *Owner* and other contractors reasonable opportunity to store their products and execute their work;
 - .2 cooperate with other contractors and the *Owner* in reviewing their construction schedules; and
 - .3 promptly report to the *Consultant* in writing any apparent deficiencies in the work of other contractors or of the *Owner's* own forces, where such work affects the proper execution of any portion of the *Work*, prior to proceeding with that portion of the *Work*.
- 3.2.4 Where the *Contract Documents* identify work to be performed by other contractors or the *Owner's* own forces, the *Contractor* shall co-ordinate and schedule the *Work* with the work of other contractors and the *Owner's* own forces as specified in the *Contract Documents*.
- 3.2.5 Where a change in the *Work* is required as a result of the co-ordination and integration of the work of other contractors or *Owner's* own forces with the *Work*, the changes shall be authorized and valued as provided in GC 6.1 – OWNER'S RIGHT TO MAKE CHANGES, GC 6.2 - CHANGE ORDER and GC 6.3 - CHANGE DIRECTIVE.
- 3.2.6 Disputes and other matters in question between the *Contractor* and other contractors shall be dealt with as provided in Part 8 of the General Conditions - DISPUTE RESOLUTION provided the other contractors have reciprocal obligations. The *Contractor* shall be deemed to have consented to arbitration of any dispute with any other contractor whose contract with the *Owner* contains a similar agreement to arbitrate.

GC 3.3 TEMPORARY WORK

- 3.3.1 The *Contractor* shall have the sole responsibility for the design, erection, operation, maintenance, and removal of *Temporary Work*.
- 3.3.2 The *Contractor* shall engage and pay for registered professional engineering personnel skilled in the appropriate disciplines to perform those functions referred to in paragraph 3.3.1 where required by law or by the *Contract Documents* and in all cases where such *Temporary Work* is of such a nature that professional engineering skill is required to produce safe and satisfactory results.

- 3.3.3 Notwithstanding the provisions of GC 3.1 - CONTROL OF THE WORK, paragraphs 3.3.1 and 3.3.2 or provisions to the contrary elsewhere in the *Contract Documents* where such *Contract Documents* include designs for *Temporary Work* or specify a method of construction in whole or in part, such designs or methods of construction shall be considered to be part of the design of the *Work* and the *Contractor* shall not be held responsible for that part of the design or the specified method of construction. The *Contractor* shall, however, be responsible for the execution of such design or specified method of construction in the same manner as for the execution of the *Work*.

GC 3.4 DOCUMENT REVIEW

- 3.4.1 The *Contractor* shall review the *Contract Documents* and shall report promptly to the *Consultant* any error, inconsistency or omission the *Contractor* may discover. Such review by the *Contractor* shall be to the best of the *Contractor's* knowledge, information and belief and in making such review the *Contractor* does not assume any responsibility to the *Owner* or the *Consultant* for the accuracy of the review. The *Contractor* shall not be liable for damage or costs resulting from such errors, inconsistencies or omissions in the *Contract Documents*, which the *Contractor* did not discover. If the *Contractor* does discover any error, inconsistency or omission in the *Contract Documents*, the *Contractor* shall not proceed with the work affected until the *Contractor* has received corrected or missing information from the *Consultant*.

GC 3.5 CONSTRUCTION SCHEDULE

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

GC 3.6 SUPERVISION

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

GC 3.7 SUBCONTRACTORS AND SUPPLIERS

- 3.7.1 The *Contractor* shall preserve and protect the rights of the parties under the *Contract* with respect to work to be performed under subcontract, and shall:
- .1 enter into contracts or written agreements with *Subcontractors* and *Suppliers* to require them to perform their work as provided in the *Contract Documents*;
 - .2 incorporate the terms and conditions of the *Contract Documents* into all contracts or written agreements with *Subcontractors* and *Suppliers*; and
 - .3 be as fully responsible to the *Owner* for acts and omissions of *Subcontractors*, *Suppliers* and of persons directly or indirectly employed by them as for acts and omissions of persons directly employed by the *Contractor*.
- 3.7.2 The *Contractor* shall indicate in writing, if requested by the *Owner*, those *Subcontractors* or *Suppliers* whose bids have been received by the *Contractor* which the *Contractor* would be prepared to accept for the performance of a portion of the *Work*. Should the *Owner* not object before signing the *Contract*, the *Contractor* shall employ those *Subcontractors* or *Suppliers* so identified by the *Contractor* in writing for the performance of that portion of the *Work* to which their bid applies.
- 3.7.3 The *Owner* may, for reasonable cause, at any time before the *Owner* has signed the *Contract*, object to the use of a proposed *Subcontractor* or *Supplier* and require the *Contractor* to employ one of the other subcontract bidders.
- 3.7.4 If the *Owner* requires the *Contractor* to change a proposed *Subcontractor* or *Supplier*, the *Contract Price* and *Contract Time* shall be adjusted by the differences occasioned by such required change.

- 3.7.5 The *Contractor* shall not be required to employ as a *Subcontractor* or *Supplier*, a person or firm to which the *Contractor* may reasonably object.
- 3.7.6 The *Owner*, through the *Consultant*, may provide to a *Subcontractor* or *Supplier* information as to the percentage of the *Subcontractor's* or *Supplier's* work which has been certified for payment.

GC 3.8 LABOUR AND PRODUCTS

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

GC 3.9 DOCUMENTS AT THE SITE

- 3.9.1 The *Contractor* shall keep one copy of current *Contract Documents*, submittals, reports, and records of meetings at the *Place of the Work*, in good order and available to the *Owner* and the *Consultant*.

GC 3.10 SHOP DRAWINGS

- 3.10.1 The *Contractor* shall provide *Shop Drawings* as required in the *Contract Documents*.
- 3.10.2 The *Contractor* shall provide *Shop Drawings* to the *Consultant* to review in orderly sequence and sufficiently in advance so as to cause no delay in the *Work* or in the work of other contractors.
- 3.10.3 Upon request of the *Contractor* or the *Consultant*, they shall jointly prepare a schedule of the dates for provision, review and return of *Shop Drawings*.
- 3.10.4 The *Contractor* shall provide *Shop Drawings* in the form specified, or if not specified, as directed by the *Consultant*.
- 3.10.5 *Shop Drawings* provided by the *Contractor* to the *Consultant* shall indicate by stamp, date and signature of the person responsible for the review that the *Contractor* has reviewed each one of them.
- 3.10.6 The *Consultant's* review is for conformity to the design concept and for general arrangement only.
- 3.10.7 *Shop Drawings* which require approval of any legally constituted authority having jurisdiction shall be provided to such authority by the *Contractor* for approval.
- 3.10.8 The *Contractor* shall review all *Shop Drawings* before providing them to the *Consultant*. The *Contractor* represents by this review that:
- .1 the *Contractor* has determined and verified all applicable field measurements, field construction conditions, *Product* requirements, catalogue numbers and similar data, or will do so, and
 - .2 the *Contractor* has checked and co-ordinated each *Shop Drawing* with the requirements of the *Work* and of the *Contract Documents*.
- 3.10.9 At the time of providing *Shop Drawings*, the *Contractor* shall expressly advise the *Consultant* in writing of any deviations in a *Shop Drawing* from the requirements of the *Contract Documents*. The *Consultant* shall indicate the acceptance or rejection of such deviation expressly in writing.
- 3.10.10 The *Consultant's* review shall not relieve the *Contractor* of responsibility for errors or omissions in the *Shop Drawings* or for meeting all requirements of the *Contract Documents*.
- 3.10.11 The *Contractor* shall provide revised *Shop Drawings* to correct those which the *Consultant* rejects as inconsistent with the *Contract Documents*, unless otherwise directed by the *Consultant*. The *Contractor* shall notify the *Consultant* in writing of any revisions to the *Shop Drawings* other than those requested by the *Consultant*.
- 3.10.12 The *Consultant* will review and return *Shop Drawings* in accordance with the schedule agreed upon, or, in the absence of such schedule, with reasonable promptness so as to cause no delay in the performance of the *Work*.

GC 3.11 USE OF THE WORK

- 3.11.1 The *Contractor* shall confine *Construction Equipment*, *Temporary Work*, storage of *Products*, waste products and debris, and operations of employees and *Subcontractors* to limits indicated by laws, ordinances, permits, or the *Contract Documents* and shall not unreasonably encumber the *Place of the Work*.
- 3.11.2 The *Contractor* shall not load or permit to be loaded any part of the *Work* with a weight or force that will endanger the safety of the *Work*.

GC 3.12 CUTTING AND REMEDIAL WORK

- 3.12.1 The *Contractor* shall perform the cutting and remedial work required to make the affected parts of the *Work* come together properly.
- 3.12.2 The *Contractor* shall co-ordinate the *Work* to ensure that the cutting and remedial work is kept to a minimum.
- 3.12.3 Should the *Owner*, the *Consultant*, other contractors or anyone employed by them be responsible for ill-timed work necessitating cutting or remedial work to be performed, the cost of such cutting or remedial work shall be valued as provided in GC 6.1 – OWNER’S RIGHT TO MAKE CHANGES, GC 6.2 - CHANGE ORDER and GC 6.3 - CHANGE DIRECTIVE.
- 3.12.4 Cutting and remedial work shall be performed by specialists familiar with the *Products* affected and shall be performed in a manner to neither damage nor endanger the *Work*.

GC 3.13 CLEANUP

- 3.13.1 The *Contractor* shall maintain the *Work* in a safe and tidy condition and free from the accumulation of waste products and debris, other than that caused by the *Owner*, other contractors or their employees.
- 3.13.2 Before applying for *Substantial Performance of the Work* as provided in GC 5.4 – SUBSTANTIAL PERFORMANCE OF THE WORK, the *Contractor* shall remove waste products and debris, other than that resulting from the work of the *Owner*, other contractors or their employees, and shall leave the *Place of the Work* clean and suitable for use or occupancy by the *Owner*. The *Contractor* shall remove products, tools, *Construction Equipment*, and *Temporary Work* not required for the performance of the remaining work.
- 3.13.3 Prior to application for the final payment, the *Contractor* shall remove any remaining products, tools, *Construction Equipment*, *Temporary Work*, and waste products and debris, other than those resulting from the work of the *Owner*, other contractors or their employees.

PART 4 ALLOWANCES

GC 4.1 CASH ALLOWANCES

- 4.1.1 The *Contract Price* includes the cash allowances, if any, stated in the *Contract Documents*. The scope of work or costs included in such cash allowances shall be as described in the *Contract Documents*.
- 4.1.2 The *Contract Price*, and not the cash allowances, includes the *Contractor's* overhead and profit in connection with such cash allowances.
- 4.1.3 Expenditures under cash allowances shall be authorized by the *Owner* through the *Consultant*.
- 4.1.4 Where the actual cost of the *Work* under any cash allowance exceeds the amount of the allowance, the *Contractor* shall be compensated for the excess incurred and substantiated plus an amount for overhead and profit on the excess as set out in the *Contract Documents*. Where the actual cost of the *Work* under any cash allowance is less than the amount of the allowance, the *Owner* shall be credited for the unexpended portion of the cash allowance, but not for the *Contractor's* overhead and profit on such amount. Multiple cash allowances shall not be combined for the purpose of calculating the foregoing.
- 4.1.5 The *Contract Price* shall be adjusted by *Change Order* to provide for any difference between the amount of each cash allowance and the actual cost of the work under that cash allowance.
- 4.1.6 The value of the work performed under a cash allowance is eligible to be included in progress payments.
- 4.1.7 The *Contractor* and the *Consultant* shall jointly prepare a schedule that shows when the *Consultant* and *Owner* must authorize ordering of items called for under cash allowances to avoid delaying the progress of the *Work*.

GC 4.2 CONTINGENCY ALLOWANCE

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

PART 5 PAYMENT

GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER

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

GC 5.2 APPLICATIONS FOR PROGRESS PAYMENT

- 5.2.1 Applications for payment on account as provided in Article A-5 of the Agreement - PAYMENT may be made monthly as the *Work* progresses.
- 5.2.2 Applications for payment shall be dated the last day of each payment period, which is the last day of the month or an alternative day of the month agreed in writing by the parties.
- 5.2.3 The amount claimed shall be for the value, proportionate to the amount of the *Contract*, of *Work* performed and *Products* delivered to the *Place of the Work* as of the last day of the payment period.
- 5.2.4 The *Contractor* shall submit to the *Consultant*, at least 15 calendar days before the first application for payment, a schedule of values for the parts of the *Work*, aggregating the total amount of the *Contract Price*, so as to facilitate evaluation of applications for payment.
- 5.2.5 The schedule of values shall be made out in such form and supported by such evidence as the *Consultant* may reasonably direct and when accepted by the *Consultant*, shall be used as the basis for applications for payment, unless it is found to be in error.
- 5.2.6 The *Contractor* shall include a statement based on the schedule of values with each application for payment.
- 5.2.7 Applications for payment for *Products* delivered to the *Place of the Work* but not yet incorporated into the *Work* shall be supported by such evidence as the *Consultant* may reasonably require to establish the value and delivery of the *Products*.

GC 5.3 PROGRESS PAYMENT

- 5.3.1 After receipt by the *Consultant* of an application for payment submitted by the *Contractor* in accordance with GC 5.2 - APPLICATIONS FOR PROGRESS PAYMENT:
 - .1 the *Consultant* will promptly inform the *Owner* of the date of receipt of the *Contractor's* application for payment,
 - .2 the *Consultant* will issue to the *Owner* and copy to the *Contractor*, no later than 10 calendar days after the receipt of the application for payment, a certificate for payment in the amount applied for, or in such other amount as the *Consultant* determines to be properly due. If the *Consultant* amends the application, the *Consultant* will promptly advise the *Contractor* in writing giving reasons for the amendment,
 - .3 the *Owner* shall make payment to the *Contractor* on account as provided in Article A-5 of the Agreement - PAYMENT on or before 20 calendar days after the later of:
 - receipt by the *Consultant* of the application for payment, or
 - the last day of the monthly payment period for which the application for payment is made.

GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK

- 5.4.1 When the *Contractor* considers that the *Work* is substantially performed, or if permitted by the lien legislation applicable to the *Place of the Work* a designated portion thereof which the *Owner* agrees to accept separately is substantially performed, the *Contractor* shall, within one *Working Day*, deliver to the *Consultant* and to the *Owner* a comprehensive list of items to be completed or corrected, together with a written application for a review by the *Consultant* to establish *Substantial Performance of the Work* or substantial performance of the designated portion of the *Work*. Failure to include an item on the list does not alter the responsibility of the *Contractor* to complete the *Contract*.
- 5.4.2 The *Consultant* will review the *Work* to verify the validity of the application and shall promptly, and in any event, no later than 20 calendar days after receipt of the *Contractor's* list and application:
- .1 advise the *Contractor* in writing that the *Work* or the designated portion of the *Work* is not substantially performed and give reasons why, or
 - .2 state the date of *Substantial Performance of the Work* or a designated portion of the *Work* in a certificate and issue a copy of that certificate to each of the *Owner* and the *Contractor*.
- 5.4.3 Immediately following the issuance of the certificate of *Substantial Performance of the Work*, the *Contractor*, in consultation with the *Consultant*, shall establish a reasonable date for finishing the *Work*.

GC 5.5 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF THE WORK

- 5.5.1 After the issuance of the certificate of *Substantial Performance of the Work*, the *Contractor* shall:
- .1 submit an application for payment of the holdback amount,
 - .2 submit CCDC 9A 'Statutory Declaration' to state that all accounts for labour, subcontracts, *Products*, *Construction Equipment*, and other indebtedness which may have been incurred by the *Contractor* in the *Substantial Performance of the Work* and for which the *Owner* might in any way be held responsible have been paid in full, except for amounts properly retained as a holdback or as an identified amount in dispute.
- 5.5.2 After the receipt of an application for payment from the *Contractor* and the statement as provided in paragraph 5.5.1, the *Consultant* will issue a certificate for payment of the holdback amount.
- 5.5.3 Where the holdback amount required by the applicable lien legislation has not been placed in a separate holdback account, the *Owner* shall, 10 calendar days prior to the expiry of the holdback period stipulated in the lien legislation applicable to the *Place of the Work*, place the holdback amount in a bank account in the joint names of the *Owner* and the *Contractor*.
- 5.5.4 In the common law jurisdictions, the holdback amount authorized by the certificate for payment of the holdback amount is due and payable on the first calendar day following the expiration of the holdback period stipulated in the lien legislation applicable to the *Place of the Work*. Where lien legislation does not exist or apply, the holdback amount shall be due and payable in accordance with other legislation, industry practice or provisions which may be agreed to between the parties. The *Owner* may retain out of the holdback amount any sums required by law to satisfy any liens against the *Work* or, if permitted by the lien legislation applicable to the *Place of the Work*, other third party monetary claims against the *Contractor* which are enforceable against the *Owner*.
- 5.5.5 In the Province of Quebec, the holdback amount authorized by the certificate for payment of the holdback amount is due and payable 30 calendar days after the issuance of the certificate. The *Owner* may retain out of the holdback amount any sums required to satisfy any legal hypothecs that have been taken, or could be taken, against the *Work* or other third party monetary claims against the *Contractor* which are enforceable against the *Owner*.

GC 5.6 PROGRESSIVE RELEASE OF HOLDBACK

- 5.6.1 In the common law jurisdictions, where legislation permits and where, upon application by the *Contractor*, the *Consultant* has certified that the work of a *Subcontractor* or *Supplier* has been performed prior to *Substantial Performance of the Work*, the *Owner* shall pay the *Contractor* the holdback amount retained for such subcontract work, or the *Products* supplied by such *Supplier*, on the first calendar day following the expiration of the holdback period for such work stipulated in the lien legislation applicable to the *Place of the Work*. The *Owner* may retain out of the holdback amount any sums required by law to satisfy any liens against the *Work* or, if permitted by the lien legislation applicable to the *Place of the Work*, other third party monetary claims against the *Contractor* which are enforceable against the *Owner*.

- 5.6.2 In the Province of Quebec, where, upon application by the *Contractor*, the *Consultant* has certified that the work of a *Subcontractor* or *Supplier* has been performed prior to *Substantial Performance of the Work*, the *Owner* shall pay the *Contractor* the holdback amount retained for such subcontract work, or the *Products* supplied by such *Supplier*, no later than 30 calendar days after such certification by the *Consultant*. The *Owner* may retain out of the holdback amount any sums required to satisfy any legal hypothecs that have been taken, or could be taken, against the *Work* or other third party monetary claims against the *Contractor* which are enforceable against the *Owner*.
- 5.6.3 Notwithstanding the provisions of the preceding paragraphs, and notwithstanding the wording of such certificates, the *Contractor* shall ensure that such subcontract work or *Products* are protected pending the issuance of a final certificate for payment and be responsible for the correction of defects or work not performed regardless of whether or not such was apparent when such certificates were issued.

GC 5.7 FINAL PAYMENT

- 5.7.1 When the *Contractor* considers that the *Work* is completed, the *Contractor* shall submit an application for final payment.
- 5.7.2 The *Consultant* will, no later than 10 calendar days after the receipt of an application from the *Contractor* for final payment, review the *Work* to verify the validity of the application and advise the *Contractor* in writing that the application is valid or give reasons why it is not valid.
- 5.7.3 When the *Consultant* finds the *Contractor's* application for final payment valid, the *Consultant* will promptly issue a final certificate for payment.
- 5.7.4 Subject to the provision of paragraph 10.4.1 of GC 10.4 - WORKERS' COMPENSATION, and any lien legislation applicable to the *Place of the Work*, the *Owner* shall, no later than 5 calendar days after the issuance of a final certificate for payment, pay the *Contractor* as provided in Article A-5 of the Agreement - PAYMENT.

GC 5.8 WITHHOLDING OF PAYMENT

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

GC 5.9 NON-CONFORMING WORK

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

PART 6 CHANGES IN THE WORK

GC 6.1 OWNER'S RIGHT TO MAKE CHANGES

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

GC 6.2 CHANGE ORDER

- 6.2.1 When a change in the *Work* is proposed or required, the *Consultant* will provide the *Contractor* with a written description of the proposed change in the *Work*. The *Contractor* shall promptly present, in a form acceptable to the *Consultant*, a method of adjustment or an amount of adjustment for the *Contract Price*, if any, and the adjustment in the *Contract Time*, if any, for the proposed change in the *Work*.
- 6.2.2 When the *Owner* and *Contractor* agree to the adjustments in the *Contract Price* and *Contract Time* or to the method to be used to determine the adjustments, such agreement shall be effective immediately and shall be recorded in a *Change Order*. The value of the work performed as the result of a *Change Order* shall be included in the application for progress payment.

GC 6.3 CHANGE DIRECTIVE

- 6.3.1 If the *Owner* requires the *Contractor* to proceed with a change in the *Work* prior to the *Owner* and the *Contractor* agreeing upon the corresponding adjustment in *Contract Price* and *Contract Time*, the *Owner*, through the *Consultant*, shall issue a *Change Directive*.
- 6.3.2 A *Change Directive* shall only be used to direct a change in the *Work* which is within the general scope of the *Contract Documents*.
- 6.3.3 A *Change Directive* shall not be used to direct a change in the *Contract Time* only.
- 6.3.4 Upon receipt of a *Change Directive*, the *Contractor* shall proceed promptly with the change in the *Work*.
- 6.3.5 For the purpose of valuing *Change Directives*, changes in the *Work* that are not substitutions or otherwise related to each other shall not be grouped together in the same *Change Directive*.
- 6.3.6 The adjustment in the *Contract Price* for a change carried out by way of a *Change Directive* shall be determined on the basis of the cost of the *Contractor's* actual expenditures and savings attributable to the *Change Directive*, valued in accordance with paragraph 6.3.7 and as follows:
- .1 If the change results in a net increase in the *Contractor's* cost, the *Contract Price* shall be increased by the amount of the net increase in the *Contractor's* cost, plus the *Contractor's* percentage fee on such net increase.
 - .2 If the change results in a net decrease in the *Contractor's* cost, the *Contract Price* shall be decreased by the amount of the net decrease in the *Contractor's* cost, without adjustment for the *Contractor's* percentage fee.
 - .3 The *Contractor's* fee shall be as specified in the *Contract Documents* or as otherwise agreed by the parties.
- 6.3.7 The cost of performing the work attributable to the *Change Directive* shall be limited to the actual cost of the following:
- .1 salaries, wages and benefits paid to personnel in the direct employ of the *Contractor* under a salary or wage schedule agreed upon by the *Owner* and the *Contractor*, or in the absence of such a schedule, actual salaries, wages and benefits paid under applicable bargaining agreement, and in the absence of a salary or wage schedule and bargaining agreement, actual salaries, wages and benefits paid by the *Contractor*, for personnel
 - (1) stationed at the *Contractor's* field office, in whatever capacity employed;
 - (2) engaged in expediting the production or transportation of material or equipment, at shops or on the road;
 - (3) engaged in the preparation or review of *Shop Drawings*, fabrication drawings, and coordination drawings; or
 - (4) engaged in the processing of changes in the *Work*.
 - .2 contributions, assessments or taxes incurred for such items as employment insurance, provincial or territorial health insurance, workers' compensation, and Canada or Quebec Pension Plan, insofar as such cost is based on wages, salaries or other remuneration paid to employees of the *Contractor* and included in the cost of the *Work* as provided in paragraph 6.3.7.1;
 - .3 travel and subsistence expenses of the *Contractor's* personnel described in paragraph 6.3.7.1;
 - .4 all *Products* including cost of transportation thereof;
 - .5 materials, supplies, *Construction Equipment*, *Temporary Work*, and hand tools not owned by the workers, including transportation and maintenance thereof, which are consumed in the performance of the *Work*; and cost less salvage value on such items used but not consumed, which remain the property of the *Contractor*;
 - .6 all tools and *Construction Equipment*, exclusive of hand tools used in the performance of the *Work*, whether rented from or provided by the *Contractor* or others, including installation, minor repairs and replacements, dismantling, removal, transportation, and delivery cost thereof;
 - .7 all equipment and services required for the *Contractor's* field office;
 - .8 deposits lost;
 - .9 the amounts of all subcontracts;
 - .10 quality assurance such as independent inspection and testing services;
 - .11 charges levied by authorities having jurisdiction at the *Place of the Work*;
 - .12 royalties, patent licence fees and damages for infringement of patents and cost of defending suits therefor subject always to the *Contractor's* obligations to indemnify the *Owner* as provided in paragraph 10.3.1 of GC 10.3 - PATENT FEES;
 - .13 any adjustment in premiums for all bonds and insurance which the *Contractor* is required, by the *Contract Documents*, to purchase and maintain;
 - .14 any adjustment in taxes, other than *Value Added Taxes*, and duties for which the *Contractor* is liable;
 - .15 charges for long distance telephone and facsimile communications, courier services, expressage, and petty cash items incurred in relation to the performance of the *Work*;
 - .16 removal and disposal of waste products and debris; and
 - .17 safety measures and requirements.

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

GC 6.4 CONCEALED OR UNKNOWN CONDITIONS

- 6.4.1 If the *Owner* or the *Contractor* discover conditions at the *Place of the Work* which are:
- .1 subsurface or otherwise concealed physical conditions which existed before the commencement of the *Work* which differ materially from those indicated in the *Contract Documents*; or
 - .2 physical conditions, other than conditions due to weather, that are of a nature which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the *Contract Documents*,
- then the observing party shall give *Notice in Writing* to the other party of such conditions before they are disturbed and in no event later than 5 *Working Days* after first observance of the conditions.
- 6.4.2 The *Consultant* will promptly investigate such conditions and make a finding. If the finding is that the conditions differ materially and this would cause an increase or decrease in the *Contractor's* cost or time to perform the *Work*, the *Consultant*, with the *Owner's* approval, will issue appropriate instructions for a change in the *Work* as provided in GC 6.2 - CHANGE ORDER or GC 6.3 - CHANGE DIRECTIVE.
- 6.4.3 If the *Consultant* finds that the conditions at the *Place of the Work* are not materially different or that no change in the *Contract Price* or the *Contract Time* is justified, the *Consultant* will report the reasons for this finding to the *Owner* and the *Contractor* in writing.
- 6.4.4 If such concealed or unknown conditions relate to toxic and hazardous substances and materials, artifacts and fossils, or mould, the parties will be governed by the provisions of GC 9.2 - TOXIC AND HAZARDOUS SUBSTANCES, GC 9.3 - ARTIFACTS AND FOSSILS and GC 9.5 – MOULD.

GC 6.5 DELAYS

- 6.5.1 If the *Contractor* is delayed in the performance of the *Work* by an action or omission of the *Owner*, *Consultant* or anyone employed or engaged by them directly or indirectly, contrary to the provisions of the *Contract Documents*, then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor*. The *Contractor* shall be reimbursed by the *Owner* for reasonable costs incurred by the *Contractor* as the result of such delay.
- 6.5.2 If the *Contractor* is delayed in the performance of the *Work* by a stop work order issued by a court or other public authority and providing that such order was not issued as the result of an act or fault of the *Contractor* or any person employed or engaged by the *Contractor* directly or indirectly, then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor*. The *Contractor* shall be reimbursed by the *Owner* for reasonable costs incurred by the *Contractor* as the result of such delay.

- 6.5.3 If the *Contractor* is delayed in the performance of the *Work* by:
- .1 labour disputes, strikes, lock-outs (including lock-outs decreed or recommended for its members by a recognized contractors' association, of which the *Contractor* is a member or to which the *Contractor* is otherwise bound),
 - .2 fire, unusual delay by common carriers or unavoidable casualties,
 - .3 abnormally adverse weather conditions, or
 - .4 any cause beyond the *Contractor's* control other than one resulting from a default or breach of *Contract* by the *Contractor*,
- then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor*. The extension of time shall not be less than the time lost as the result of the event causing the delay, unless the *Contractor* agrees to a shorter extension. The *Contractor* shall not be entitled to payment for costs incurred by such delays unless such delays result from actions by the *Owner*, *Consultant* or anyone employed or engaged by them directly or indirectly.
- 6.5.4 No extension shall be made for delay unless *Notice in Writing* of the cause of delay is given to the *Consultant* not later than 10 *Working Days* after the commencement of the delay. In the case of a continuing cause of delay only one *Notice in Writing* shall be necessary.
- 6.5.5 If no schedule is made under paragraph 2.2.13 of GC 2.2 - ROLE OF THE CONSULTANT, then no request for extension shall be made because of failure of the *Consultant* to furnish instructions until 10 *Working Days* after demand for such instructions has been made.

GC 6.6 CLAIMS FOR A CHANGE IN CONTRACT PRICE

- 6.6.1 If the *Contractor* intends to make a claim for an increase to the *Contract Price*, or if the *Owner* intends to make a claim against the *Contractor* for a credit to the *Contract Price*, the party that intends to make the claim shall give timely *Notice in Writing* of intent to claim to the other party and to the *Consultant*.
- 6.6.2 Upon commencement of the event or series of events giving rise to a claim, the party intending to make the claim shall:
- .1 take all reasonable measures to mitigate any loss or expense which may be incurred as a result of such event or series of events, and
 - .2 keep such records as may be necessary to support the claim.
- 6.6.3 The party making the claim shall submit within a reasonable time to the *Consultant* a detailed account of the amount claimed and the grounds upon which the claim is based.
- 6.6.4 Where the event or series of events giving rise to the claim has a continuing effect, the detailed account submitted under paragraph 6.6.3 shall be considered to be an interim account and the party making the claim shall, at such intervals as the *Consultant* may reasonably require, submit further interim accounts giving the accumulated amount of the claim and any further grounds upon which it is based. The party making the claim shall submit a final account after the end of the effects resulting from the event or series of events.
- 6.6.5 The *Consultant's* findings, with respect to a claim made by either party, will be given by *Notice in Writing* to both parties within 30 *Working Days* after receipt of the claim by the *Consultant*, or within such other time period as may be agreed by the parties.
- 6.6.6 If such finding is not acceptable to either party, the claim shall be settled in accordance with Part 8 of the General Conditions - DISPUTE RESOLUTION.

PART 7 DEFAULT NOTICE

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

- 7.1.1 If the *Contractor* is adjudged bankrupt, or makes a general assignment for the benefit of creditors because of the *Contractor's* insolvency, or if a receiver is appointed because of the *Contractor's* insolvency, the *Owner* may, without prejudice to any other right or remedy the *Owner* may have, terminate the *Contractor's* right to continue with the *Work*, by giving the *Contractor* or receiver or trustee in bankruptcy *Notice in Writing* to that effect.
- 7.1.2 If the *Contractor* neglects to prosecute the *Work* properly or otherwise fails to comply with the requirements of the *Contract* to a substantial degree and if the *Consultant* has given a written statement to the *Owner* and *Contractor* that sufficient cause exists to justify such action, the *Owner* may, without prejudice to any other right or remedy the *Owner* may have, give the *Contractor Notice in Writing* that the *Contractor* is in default of the *Contractor's* contractual obligations and instruct the *Contractor* to correct the default in the 5 *Working Days* immediately following the receipt of such *Notice in Writing*.

- 7.1.3 If the default cannot be corrected in the 5 *Working Days* specified or in such other time period as may be subsequently agreed in writing by the parties, the *Contractor* shall be in compliance with the *Owner's* instructions if the *Contractor*:
- .1 commences the correction of the default within the specified time, and
 - .2 provides the *Owner* with an acceptable schedule for such correction, and
 - .3 corrects the default in accordance with the *Contract* terms and with such schedule.
- 7.1.4 If the *Contractor* fails to correct the default in the time specified or in such other time period as may be subsequently agreed in writing by the parties, without prejudice to any other right or remedy the *Owner* may have, the *Owner* may:
- .1 correct such default and deduct the cost thereof from any payment then or thereafter due the *Contractor* provided the *Consultant* has certified such cost to the *Owner* and the *Contractor*, or
 - .2 terminate the *Contractor's* right to continue with the *Work* in whole or in part or terminate the *Contract*.
- 7.1.5 If the *Owner* terminates the *Contractor's* right to continue with the *Work* as provided in paragraphs 7.1.1 and 7.1.4, the *Owner* shall be entitled to:
- .1 take possession of the *Work* and *Products* at the *Place of the Work*; subject to the rights of third parties, utilize the *Construction Equipment* at the *Place of the Work*; finish the *Work* by whatever method the *Owner* may consider expedient, but without undue delay or expense, and
 - .2 withhold further payment to the *Contractor* until a final certificate for payment is issued, and
 - .3 charge the *Contractor* the amount by which the full cost of finishing the *Work* as certified by the *Consultant*, including compensation to the *Consultant* for the *Consultant's* additional services and a reasonable allowance as determined by the *Consultant* to cover the cost of corrections to work performed by the *Contractor* that may be required under GC 12.3 - WARRANTY, exceeds the unpaid balance of the *Contract Price*; however, if such cost of finishing the *Work* is less than the unpaid balance of the *Contract Price*, the *Owner* shall pay the *Contractor* the difference, and
 - .4 on expiry of the warranty period, charge the *Contractor* the amount by which the cost of corrections to the *Contractor's* work under GC 12.3 - WARRANTY exceeds the allowance provided for such corrections, or if the cost of such corrections is less than the allowance, pay the *Contractor* the difference.
- 7.1.6 The *Contractor's* obligation under the *Contract* as to quality, correction and warranty of the work performed by the *Contractor* up to the time of termination shall continue after such termination of the *Contract*.

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

- 7.2.1 If the *Owner* is adjudged bankrupt, or makes a general assignment for the benefit of creditors because of the *Owner's* insolvency, or if a receiver is appointed because of the *Owner's* insolvency, the *Contractor* may, without prejudice to any other right or remedy the *Contractor* may have, terminate the *Contract* by giving the *Owner* or receiver or trustee in bankruptcy *Notice in Writing* to that effect.
- 7.2.2 If the *Work* is suspended or otherwise delayed for a period of 20 *Working Days* or more under an order of a court or other public authority and providing that such order was not issued as the result of an act or fault of the *Contractor* or of anyone directly or indirectly employed or engaged by the *Contractor*, the *Contractor* may, without prejudice to any other right or remedy the *Contractor* may have, terminate the *Contract* by giving the *Owner* *Notice in Writing* to that effect.
- 7.2.3 The *Contractor* may give *Notice in Writing* to the *Owner*, with a copy to the *Consultant*, that the *Owner* is in default of the *Owner's* contractual obligations if:
- .1 the *Owner* fails to furnish, when so requested by the *Contractor*, reasonable evidence that financial arrangements have been made to fulfill the *Owner's* obligations under the *Contract*, or
 - .2 the *Consultant* fails to issue a certificate as provided in GC 5.3 - PROGRESS PAYMENT, or
 - .3 the *Owner* fails to pay the *Contractor* when due the amounts certified by the *Consultant* or awarded by arbitration or court, or
 - .4 the *Owner* violates the requirements of the *Contract* to a substantial degree and the *Consultant*, except for GC 5.1 - FINANCING INFORMATION REQUIRED OF THE OWNER, confirms by written statement to the *Contractor* that sufficient cause exists.
- 7.2.4 The *Contractor's* *Notice in Writing* to the *Owner* provided under paragraph 7.2.3 shall advise that if the default is not corrected within 5 *Working Days* following the receipt of the *Notice in Writing*, the *Contractor* may, without prejudice to any other right or remedy the *Contractor* may have, suspend the *Work* or terminate the *Contract*.
- 7.2.5 If the *Contractor* terminates the *Contract* under the conditions set out above, the *Contractor* shall be entitled to be paid for all work performed including reasonable profit, for loss sustained upon *Products* and *Construction Equipment*, and such other damages as the *Contractor* may have sustained as a result of the termination of the *Contract*.

PART 8 DISPUTE RESOLUTION

GC 8.1 AUTHORITY OF THE CONSULTANT

- 8.1.1 Differences between the parties to the *Contract* as to the interpretation, application or administration of the *Contract* or any failure to agree where agreement between the parties is called for, herein collectively called disputes, which are not resolved in the first instance by findings of the *Consultant* as provided in GC 2.2 - ROLE OF THE CONSULTANT, shall be settled in accordance with the requirements of Part 8 of the General Conditions - DISPUTE RESOLUTION.
- 8.1.2 If a dispute arises under the *Contract* in respect of a matter in which the *Consultant* has no authority under the *Contract* to make a finding, the procedures set out in paragraph 8.1.3 and paragraphs 8.2.3 to 8.2.8 of GC 8.2 - NEGOTIATION, MEDIATION AND ARBITRATION, and in GC 8.3 - RETENTION OF RIGHTS apply to that dispute with the necessary changes to detail as may be required.
- 8.1.3 If a dispute is not resolved promptly, the *Consultant* will give such instructions as in the *Consultant's* opinion are necessary for the proper performance of the *Work* and to prevent delays pending settlement of the dispute. The parties shall act immediately according to such instructions, it being understood that by so doing neither party will jeopardize any claim the party may have. If it is subsequently determined that such instructions were in error or at variance with the *Contract Documents*, the *Owner* shall pay the *Contractor* costs incurred by the *Contractor* in carrying out such instructions which the *Contractor* was required to do beyond what the *Contract Documents* correctly understood and interpreted would have required, including costs resulting from interruption of the *Work*.

GC 8.2 NEGOTIATION, MEDIATION AND ARBITRATION

- 8.2.1 In accordance with the Rules for Mediation of Construction Disputes as provided in CCDC 40 in effect at the time of bid closing, the parties shall appoint a Project Mediator
- .1 within 20 *Working Days* after the *Contract* was awarded, or
 - .2 if the parties neglected to make an appointment within the 20 *Working Days*, within 10 *Working Days* after either party by *Notice in Writing* requests that the Project Mediator be appointed.
- 8.2.2 A party shall be conclusively deemed to have accepted a finding of the *Consultant* under GC 2.2 - ROLE OF THE CONSULTANT and to have expressly waived and released the other party from any claims in respect of the particular matter dealt with in that finding unless, within 15 *Working Days* after receipt of that finding, the party sends a *Notice in Writing* of dispute to the other party and to the *Consultant*, which contains the particulars of the matter in dispute and the relevant provisions of the *Contract Documents*. The responding party shall send a *Notice in Writing* of reply to the dispute within 10 *Working Days* after receipt of such *Notice in Writing* setting out particulars of this response and any relevant provisions of the *Contract Documents*.
- 8.2.3 The parties shall make all reasonable efforts to resolve their dispute by amicable negotiations and agree to provide, without prejudice, frank, candid and timely disclosure of relevant facts, information and documents to facilitate these negotiations.
- 8.2.4 After a period of 10 *Working Days* following receipt of a responding party's *Notice in Writing* of reply under paragraph 8.2.2, the parties shall request the Project Mediator to assist the parties to reach agreement on any unresolved dispute. The mediated negotiations shall be conducted in accordance with the Rules for Mediation of Construction Disputes as provided in CCDC 40 in effect at the time of bid closing.
- 8.2.5 If the dispute has not been resolved within 10 *Working Days* after the Project Mediator was requested under paragraph 8.2.4 or within such further period agreed by the parties, the Project Mediator shall terminate the mediated negotiations by giving *Notice in Writing* to the *Owner*, the *Contractor* and the *Consultant*.
- 8.2.6 By giving a *Notice in Writing* to the other party and the *Consultant*, not later than 10 *Working Days* after the date of termination of the mediated negotiations under paragraph 8.2.5, either party may refer the dispute to be finally resolved by arbitration under the Rules for Arbitration of Construction Disputes as provided in CCDC 40 in effect at the time of bid closing. The arbitration shall be conducted in the jurisdiction of the *Place of the Work*.
- 8.2.7 On expiration of the 10 *Working Days*, the arbitration agreement under paragraph 8.2.6 is not binding on the parties and, if a *Notice in Writing* is not given under paragraph 8.2.6 within the required time, the parties may refer the unresolved dispute to the courts or to any other form of dispute resolution, including arbitration, which they have agreed to use.

- 8.2.8 If neither party, by *Notice in Writing*, given within 10 *Working Days* of the date of *Notice in Writing* requesting arbitration in paragraph 8.2.6, requires that a dispute be arbitrated immediately, all disputes referred to arbitration as provided in paragraph 8.2.6 shall be
- .1 held in abeyance until
 - (1) *Substantial Performance of the Work*,
 - (2) the *Contract* has been terminated, or
 - (3) the *Contractor* has abandoned the *Work*,whichever is earlier; and
 - .2 consolidated into a single arbitration under the rules governing the arbitration under paragraph 8.2.6.

GC 8.3 RETENTION OF RIGHTS

- 8.3.1 It is agreed that no act by either party shall be construed as a renunciation or waiver of any rights or recourses, provided the party has given the *Notice in Writing* required under Part 8 of the General Conditions - DISPUTE RESOLUTION and has carried out the instructions as provided in paragraph 8.1.3 of GC 8.1 – AUTHORITY OF THE CONSULTANT.
- 8.3.2 Nothing in Part 8 of the General Conditions - DISPUTE RESOLUTION shall be construed in any way to limit a party from asserting any statutory right to a lien under applicable lien legislation of the jurisdiction of the *Place of the Work* and the assertion of such right by initiating judicial proceedings is not to be construed as a waiver of any right that party may have under paragraph 8.2.6 of GC 8.2 – NEGOTIATION, MEDIATION AND ARBITRATION to proceed by way of arbitration to adjudicate the merits of the claim upon which such a lien is based.

PART 9 PROTECTION OF PERSONS AND PROPERTY

GC 9.1 PROTECTION OF WORK AND PROPERTY

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

GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES

- 9.2.1 For the purposes of applicable legislation related to toxic and hazardous substances, the *Owner* shall be deemed to have control and management of the *Place of the Work* with respect to existing conditions.
- 9.2.2 Prior to the *Contractor* commencing the *Work*, the *Owner* shall,
- .1 take all reasonable steps to determine whether any toxic or hazardous substances are present at the *Place of the Work*, and
 - .2 provide the *Consultant* and the *Contractor* with a written list of any such substances that are known to exist and their locations.
- 9.2.3 The *Owner* shall take all reasonable steps to ensure that no person's exposure to any toxic or hazardous substances exceeds the time weighted levels prescribed by applicable legislation at the *Place of the Work* and that no property is damaged or destroyed as a result of exposure to, or the presence of, toxic or hazardous substances which were at the *Place of the Work* prior to the *Contractor* commencing the *Work*.
- 9.2.4 Unless the *Contract* expressly provides otherwise, the *Owner* shall be responsible for taking all necessary steps, in accordance with applicable legislation in force at the *Place of the Work*, to dispose of, store or otherwise render harmless toxic or hazardous substances which were present at the *Place of the Work* prior to the *Contractor* commencing the *Work*.

- 9.2.5 If the *Contractor*
- .1 encounters toxic or hazardous substances at the *Place of the Work*, or
 - .2 has reasonable grounds to believe that toxic or hazardous substances are present at the *Place of the Work*, which were not brought to the *Place of the Work* by the *Contractor* or anyone for whom the *Contractor* is responsible and which were not disclosed by the *Owner* or which were disclosed but have not been dealt with as required under paragraph 9.2.4, the *Contractor* shall
 - .3 take all reasonable steps, including stopping the *Work*, to ensure that no person's exposure to any toxic or hazardous substances exceeds any applicable time weighted levels prescribed by applicable legislation at the *Place of the Work*, and
 - .4 immediately report the circumstances to the *Consultant* and the *Owner* in writing.
- 9.2.6 If the *Owner* and *Contractor* do not agree on the existence, significance of, or whether the toxic or hazardous substances were brought onto the *Place of the Work* by the *Contractor* or anyone for whom the *Contractor* is responsible, the *Owner* shall retain and pay for an independent qualified expert to investigate and determine such matters. The expert's report shall be delivered to the *Owner* and the *Contractor*.
- 9.2.7 If the *Owner* and *Contractor* agree or if the expert referred to in paragraph 9.2.6 determines that the toxic or hazardous substances were not brought onto the place of the *Work* by the *Contractor* or anyone for whom the *Contractor* is responsible, the *Owner* shall promptly at the *Owner's* own expense:
- .1 take all steps as required under paragraph 9.2.4;
 - .2 reimburse the *Contractor* for the costs of all steps taken pursuant to paragraph 9.2.5;
 - .3 extend the *Contract* time for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor* and the expert referred to in 9.2.6 and reimburse the *Contractor* for reasonable costs incurred as a result of the delay; and
 - .4 indemnify the *Contractor* as required by GC 12.1 - INDEMNIFICATION.
- 9.2.8 If the *Owner* and *Contractor* agree or if the expert referred to in paragraph 9.2.6 determines that the toxic or hazardous substances were brought onto the place of the *Work* by the *Contractor* or anyone for whom the *Contractor* is responsible, the *Contractor* shall promptly at the *Contractor's* own expense:
- .1 take all necessary steps, in accordance with applicable legislation in force at the *Place of the Work*, to safely remove and dispose the toxic or hazardous substances;
 - .2 make good any damage to the *Work*, the *Owner's* property or property adjacent to the place of the *Work* as provided in paragraph 9.1.3 of GC 9.1 – PROTECTION OF WORK AND PROPERTY;
 - .3 reimburse the *Owner* for reasonable costs incurred under paragraph 9.2.6; and
 - .4 indemnify the *Owner* as required by GC 12.1 - INDEMNIFICATION.
- 9.2.9 If either party does not accept the expert's findings under paragraph 9.2.6, the disagreement shall be settled in accordance with Part 8 of the General Conditions - Dispute Resolution. If such disagreement is not resolved promptly, the parties shall act immediately in accordance with the expert's determination and take the steps required by paragraph 9.2.7 or 9.2.8 it being understood that by so doing, neither party will jeopardize any claim that party may have to be reimbursed as provided by GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES.

GC 9.3 ARTIFACTS AND FOSSILS

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

GC 9.4 CONSTRUCTION SAFETY

- 9.4.1 Subject to paragraph 3.2.2.2 of GC 3.2 - CONSTRUCTION BY OWNER OR OTHER CONTRACTORS, the *Contractor* shall be solely responsible for construction safety at the *Place of the Work* and for compliance with the rules, regulations and practices required by the applicable construction health and safety legislation and shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the *Work*.

GC 9.5 MOULD

- 9.5.1 If the *Contractor* or *Owner* observes or reasonably suspects the presence of mould at the *Place of the Work*, the remediation of which is not expressly part of the *Work*,
- .1 the observing party shall promptly report the circumstances to the other party in writing, and
 - .2 the *Contractor* shall promptly take all reasonable steps, including stopping the *Work* if necessary, to ensure that no person suffers injury, sickness or death and that no property is damaged as a result of exposure to or the presence of the mould, and
 - .3 if the *Owner* and *Contractor* do not agree on the existence, significance or cause of the mould or as to what steps need be taken to deal with it, the *Owner* shall retain and pay for an independent qualified expert to investigate and determine such matters. The expert's report shall be delivered to the *Owner* and *Contractor*.
- 9.5.2 If the *Owner* and *Contractor* agree, or if the expert referred to in paragraph 9.5.1.3 determines that the presence of mould was caused by the *Contractor*'s operations under the *Contract*, the *Contractor* shall promptly, at the *Contractor*'s own expense:
- .1 take all reasonable and necessary steps to safely remediate or dispose of the mould, and
 - .2 make good any damage to the *Work*, the *Owner*'s property or property adjacent to the *Place of the Work* as provided in paragraph 9.1.3 of GC 9.1 - PROTECTION OF WORK AND PROPERTY, and
 - .3 reimburse the *Owner* for reasonable costs incurred under paragraph 9.5.1.3, and
 - .4 indemnify the *Owner* as required by GC 12.1 - INDEMNIFICATION.
- 9.5.3 If the *Owner* and *Contractor* agree, or if the expert referred to in paragraph 9.5.1.3 determines that the presence of mould was not caused by the *Contractor*'s operations under the *Contract*, the *Owner* shall promptly, at the *Owner*'s own expense:
- .1 take all reasonable and necessary steps to safely remediate or dispose of the mould, and
 - .2 reimburse the *Contractor* for the cost of taking the steps under paragraph 9.5.1.2 and making good any damage to the *Work* as provided in paragraph 9.1.4 of GC 9.1 - PROTECTION OF WORK AND PROPERTY, and
 - .3 extend the *Contract Time* for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor* and the expert referred to in paragraph 9.5.1.3 and reimburse the *Contractor* for reasonable costs incurred as a result of the delay, and
 - .4 indemnify the *Contractor* as required by GC 12.1 - INDEMNIFICATION.
- 9.5.4 If either party does not accept the expert's finding under paragraph 9.5.1.3, the disagreement shall be settled in accordance with Part 8 of the General Conditions - DISPUTE RESOLUTION. If such disagreement is not resolved promptly, the parties shall act immediately in accordance with the expert's determination and take the steps required by paragraphs 9.5.2 or 9.5.3, it being understood that by so doing neither party will jeopardize any claim the party may have to be reimbursed as provided by GC 9.5 - MOULD.

PART 10 GOVERNING REGULATIONS

GC 10.1 TAXES AND DUTIES

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

GC 10.2 LAWS, NOTICES, PERMITS, AND FEES

- 10.2.1 The laws of the *Place of the Work* shall govern the *Work*.
- 10.2.2 The *Owner* shall obtain and pay for development approvals, building permit, permanent easements, rights of servitude, and all other necessary approvals and permits, except for the permits and fees referred to in paragraph 10.2.3 or for which the *Contract Documents* specify as the responsibility of the *Contractor*.
- 10.2.3 The *Contractor* shall be responsible for the procurement of permits, licences, inspections, and certificates, which are necessary for the performance of the *Work* and customarily obtained by contractors in the jurisdiction of the *Place of the Work* after the issuance of the building permit. The *Contract Price* includes the cost of these permits, licences, inspections, and certificates, and their procurement.
- 10.2.4 The *Contractor* shall give the required notices and comply with the laws, ordinances, rules, regulations, or codes which are or become in force during the performance of the *Work* and which relate to the *Work*, to the preservation of the public health, and to construction safety.

- 10.2.5 The *Contractor* shall not be responsible for verifying that the *Contract Documents* are in compliance with the applicable laws, ordinances, rules, regulations, or codes relating to the *Work*. If the *Contract Documents* are at variance therewith, or if, subsequent to the time of bid closing, changes are made to the applicable laws, ordinances, rules, regulations, or codes which require modification to the *Contract Documents*, the *Contractor* shall advise the *Consultant* in writing requesting direction immediately upon such variance or change becoming known. The *Consultant* will make the changes required to the *Contract Documents* as provided in GC 6.1 - OWNER'S RIGHT TO MAKE CHANGES, GC 6.2 - CHANGE ORDER and GC 6.3 - CHANGE DIRECTIVE.
- 10.2.6 If the *Contractor* fails to advise the *Consultant* in writing; and fails to obtain direction as required in paragraph 10.2.5; and performs work knowing it to be contrary to any laws, ordinances, rules, regulations, or codes; the *Contractor* shall be responsible for and shall correct the violations thereof; and shall bear the costs, expenses and damages attributable to the failure to comply with the provisions of such laws, ordinances, rules, regulations, or codes.
- 10.2.7 If, subsequent to the time of bid closing, changes are made to applicable laws, ordinances, rules, regulations, or codes of authorities having jurisdiction which affect the cost of the *Work*, either party may submit a claim in accordance with the requirements of GC 6.6 – CLAIMS FOR A CHANGE IN CONTRACT PRICE.

GC 10.3 PATENT FEES

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

GC 10.4 WORKERS' COMPENSATION

- 10.4.1 Prior to commencing the *Work*, again with the *Contractor's* application for payment of the holdback amount following *Substantial Performance of the Work* and again with the *Contractor's* application for final payment, the *Contractor* shall provide evidence of compliance with workers' compensation legislation at the *Place of the Work*, including payments due thereunder.
- 10.4.2 At any time during the term of the *Contract*, when requested by the *Owner*, the *Contractor* shall provide such evidence of compliance by the *Contractor* and *Subcontractors*.

PART 11 INSURANCE AND CONTRACT SECURITY

GC 11.1 INSURANCE

- 11.1.1 Without restricting the generality of GC 12.1 - INDEMNIFICATION, the *Contractor* shall provide, maintain and pay for the following insurance coverages, the minimum requirements of which are specified in CCDC 41 – CCDC Insurance Requirements in effect at the time of bid closing except as hereinafter provided:
- 1 General liability insurance in the name of the *Contractor* and include, or in the case of a single, blanket policy, be endorsed to name, the *Owner* and the *Consultant* as insureds but only with respect to liability, other than legal liability arising out of their sole negligence, arising out of the operations of the *Contractor* with regard to the *Work*. General liability insurance shall be maintained from the date of commencement of the *Work* until one year from the date of *Substantial Performance of the Work*. Liability coverage shall be provided for completed operations hazards from the date of *Substantial Performance of the Work*, as set out in the certificate of *Substantial Performance of the Work*, on an ongoing basis for a period of 6 years following *Substantial Performance of the Work*.
 - 2 Automobile Liability Insurance from the date of commencement of the *Work* until one year after the date of *Substantial Performance of the Work*.
 - 3 Aircraft or Watercraft Liability Insurance when owned or non-owned aircraft or watercraft are used directly or indirectly in the performance of the *Work*
 - 4 "Broad form" property insurance in the joint names of the *Contractor*, the *Owner* and the *Consultant*. The policy shall include as insureds all *Subcontractors*. The "Broad form" property insurance shall be provided from the date of commencement of the *Work* until the earliest of:
 - (1) 10 calendar days after the date of *Substantial Performance of the Work*;

- (2) on the commencement of use or occupancy of any part or section of the *Work* unless such use or occupancy is for construction purposes, habitation, office, banking, convenience store under 465 square metres in area, or parking purposes, or for the installation, testing and commissioning of equipment forming part of the *Work*;
- (3) when left unattended for more than 30 consecutive calendar days or when construction activity has ceased for more than 30 consecutive calendar days.
- .5 Boiler and machinery insurance in the joint names of the *Contractor*, the *Owner* and the *Consultant*. The policy shall include as insureds all *Subcontractors*. The coverage shall be maintained continuously from commencement of use or operation of the boiler and machinery objects insured by the policy and until 10 calendar days after the date of *Substantial Performance of the Work*.
- .6 The "Broad form" property and boiler and machinery policies shall provide that, in the case of a loss or damage, payment shall be made to the *Owner* and the *Contractor* as their respective interests may appear. In the event of loss or damage:
 - (1) the *Contractor* shall act on behalf of the *Owner* for the purpose of adjusting the amount of such loss or damage payment with the insurers. When the extent of the loss or damage is determined, the *Contractor* shall proceed to restore the *Work*. Loss or damage shall not affect the rights and obligations of either party under the *Contract* except that the *Contractor* shall be entitled to such reasonable extension of *Contract Time* relative to the extent of the loss or damage as the *Consultant* may recommend in consultation with the *Contractor*;
 - (2) the *Contractor* shall be entitled to receive from the *Owner*, in addition to the amount due under the *Contract*, the amount which the *Owner's* interest in restoration of the *Work* has been appraised, such amount to be paid as the restoration of the *Work* proceeds in accordance with the progress payment provisions. In addition the *Contractor* shall be entitled to receive from the payments made by the insurer the amount of the *Contractor's* interest in the restoration of the *Work*; and
 - (3) to the *Work* arising from the work of the *Owner*, the *Owner's* own forces or another contractor, the *Owner* shall, in accordance with the *Owner's* obligations under the provisions relating to construction by *Owner* or other contractors, pay the *Contractor* the cost of restoring the *Work* as the restoration of the *Work* proceeds and as in accordance with the progress payment provisions.
- .7 *Contractors' Equipment Insurance* from the date of commencement of the *Work* until one year after the date of *Substantial Performance of the Work*.
- 11.1.2 Prior to commencement of the *Work* and upon the placement, renewal, amendment, or extension of all or any part of the insurance, the *Contractor* shall promptly provide the *Owner* with confirmation of coverage and, if required, a certified true copy of the policies certified by an authorized representative of the insurer together with copies of any amending endorsements applicable to the *Work*.
- 11.1.3 The parties shall pay their share of the deductible amounts in direct proportion to their responsibility in regards to any loss for which the above policies are required to pay, except where such amounts may be excluded by the terms of the *Contract*.
- 11.1.4 If the *Contractor* fails to provide or maintain insurance as required by the *Contract Documents*, then the *Owner* shall have the right to provide and maintain such insurance and give evidence to the *Contractor* and the *Consultant*. The *Contractor* shall pay the cost thereof to the *Owner* on demand or the *Owner* may deduct the cost from the amount which is due or may become due to the *Contractor*.
- 11.1.5 All required insurance policies shall be with insurers licensed to underwrite insurance in the jurisdiction of the *Place of the Work*.
- 11.1.6 If a revised version of CCDC 41 – INSURANCE REQUIREMENTS is published, which specifies reduced insurance requirements, the parties shall address such reduction, prior to the *Contractor's* insurance policy becoming due for renewal, and record any agreement in a *Change Order*.
- 11.1.7 If a revised version of CCDC 41 – INSURANCE REQUIREMENTS is published, which specifies increased insurance requirements, the *Owner* may request the increased coverage from the *Contractor* by way of a *Change Order*.
- 11.1.8 A *Change Directive* shall not be used to direct a change in the insurance requirements in response to the revision of CCDC 41 – INSURANCE REQUIREMENTS.

GC 11.2 CONTRACT SECURITY

- 11.2.1 The *Contractor* shall, prior to commencement of the *Work* or within the specified time, provide to the *Owner* any *Contract* security specified in the *Contract Documents*.

- 11.2.2 If the *Contract Documents* require surety bonds to be provided, such bonds shall be issued by a duly licensed surety company authorized to transact the business of suretyship in the province or territory of the *Place of the Work* and shall be maintained in good standing until the fulfillment of the *Contract*. The form of such bonds shall be in accordance with the latest edition of the CCDC approved bond forms.

PART 12 INDEMNIFICATION, WAIVER OF CLAIMS AND WARRANTY

GC 12.1 INDEMNIFICATION

- 12.1.1 Without restricting the parties' obligation to indemnify as described in paragraphs 12.1.4 and 12.1.5, the *Owner* and the *Contractor* shall each indemnify and hold harmless the other from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings whether in respect to losses suffered by them or in respect to claims by third parties that arise out of, or are attributable in any respect to their involvement as parties to this *Contract*, provided such claims are:

- .1 caused by:
 - (1) the negligent acts or omissions of the party from whom indemnification is sought or anyone for whose acts or omissions that party is liable, or
 - (2) a failure of the party to the *Contract* from whom indemnification is sought to fulfill its terms or conditions; and
- .2 made by *Notice in Writing* within a period of 6 years from the date of *Substantial Performance of the Work* as set out in the certificate of *Substantial Performance of the Work* issued pursuant to paragraph 5.4.2.2 of GC 5.4 – SUBSTANTIAL PERFORMANCE OF THE WORK or within such shorter period as may be prescribed by any limitation statute of the province or territory of the *Place of the Work*.

The parties expressly waive the right to indemnity for claims other than those provided for in this *Contract*.

- 12.1.2 The obligation of either party to indemnify as set forth in paragraph 12.1.1 shall be limited as follows:

- .1 In respect to losses suffered by the *Owner* and the *Contractor* for which insurance is to be provided by either party pursuant to GC 11.1 – INSURANCE, the general liability insurance limit for one occurrence as referred to in CCDC 41 in effect at the time of bid closing.
- .2 In respect to losses suffered by the *Owner* and the *Contractor* for which insurance is not required to be provided by either party in accordance with GC 11.1 – INSURANCE, the greater of the *Contract Price* as recorded in Article A-4 – CONTRACT PRICE or \$2,000,000, but in no event shall the sum be greater than \$20,000,000.
- .3 In respect to claims by third parties for direct loss resulting from bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, the obligation to indemnify is without limit. In respect to all other claims for indemnity as a result of claims advanced by third parties, the limits of indemnity set forth in paragraphs 12.1.2.1 and 12.1.2.2 shall apply.

- 12.1.3 The obligation of either party to indemnify the other as set forth in paragraphs 12.1.1 and 12.1.2 shall be inclusive of interest and all legal costs.

- 12.1.4 The *Owner* and the *Contractor* shall indemnify and hold harmless the other from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of their obligations described in GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES.

- 12.1.5 The *Owner* shall indemnify and hold harmless the *Contractor* from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings:

- .1 as described in paragraph 10.3.2 of GC 10.3 – PATENT FEES, and
- .2 arising out of the *Contractor's* performance of the *Contract* which are attributable to a lack of or defect in title or an alleged lack of or defect in title to the *Place of the Work*.

- 12.1.6 In respect to any claim for indemnity or to be held harmless by the *Owner* or the *Contractor*:

- .1 *Notice in Writing* of such claim shall be given within a reasonable time after the facts upon which such claim is based became known;
- .2 should any party be required as a result of its obligation to indemnify another to pay or satisfy a final order, judgment or award made against the party entitled by this contract to be indemnified, then the indemnifying party upon assuming all liability for any costs that might result shall have the right to appeal in the name of the party against whom such final order or judgment has been made until such rights of appeal have been exhausted.

GC 12.2 WAIVER OF CLAIMS

- 12.2.1 Subject to any lien legislation applicable to the *Place of the Work*, as of the fifth calendar day before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work*, the *Contractor* waives and releases the *Owner* from all claims which the *Contractor* has or reasonably ought to have knowledge of that could be advanced by the *Contractor* against the *Owner* arising from the *Contractor's* involvement in the *Work*, including, without limitation, those arising from negligence or breach of contract in respect to which the cause of action is based upon acts or omissions which occurred prior to or on the date of *Substantial Performance of the Work*, except as follows:
- .1 claims arising prior to or on the date of *Substantial Performance of the Work* for which *Notice in Writing* of claim has been received by the *Owner* from the *Contractor* no later than the sixth calendar day before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work*;
 - .2 indemnification for claims advanced against the *Contractor* by third parties for which a right of indemnification may be asserted by the *Contractor* against the *Owner* pursuant to the provisions of this *Contract*;
 - .3 claims for which a right of indemnity could be asserted by the *Contractor* pursuant to the provisions of paragraphs 12.1.4 or 12.1.5 of GC 12.1 – INDEMNIFICATION; and
 - .4 claims resulting from acts or omissions which occur after the date of *Substantial Performance of the Work*.
- 12.2.2 The *Contractor* waives and releases the *Owner* from all claims referenced in paragraph 12.2.1.4 except for those referred in paragraphs 12.2.1.2 and 12.2.1.3 and claims for which *Notice in Writing* of claim has been received by the *Owner* from the *Contractor* within 395 calendar days following the date of *Substantial Performance of the Work*.
- 12.2.3 Subject to any lien legislation applicable to the *Place of the Work*, as of the fifth calendar day before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work*, the *Owner* waives and releases the *Contractor* from all claims which the *Owner* has or reasonably ought to have knowledge of that could be advanced by the *Owner* against the *Contractor* arising from the *Owner's* involvement in the *Work*, including, without limitation, those arising from negligence or breach of contract in respect to which the cause of action is based upon acts or omissions which occurred prior to or on the date of *Substantial Performance of the Work*, except as follows:
- .1 claims arising prior to or on the date of *Substantial Performance of the Work* for which *Notice in Writing* of claim has been received by the *Contractor* from the *Owner* no later than the sixth calendar day before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work*;
 - .2 indemnification for claims advanced against the *Owner* by third parties for which a right of indemnification may be asserted by the *Owner* against the *Contractor* pursuant to the provisions of this *Contract*;
 - .3 claims for which a right of indemnity could be asserted by the *Owner* against the *Contractor* pursuant to the provisions of paragraph 12.1.4 of GC 12.1 - INDEMNIFICATION;
 - .4 damages arising from the *Contractor's* actions which result in substantial defects or deficiencies in the *Work*. “Substantial defects or deficiencies” mean those defects or deficiencies in the *Work* which affect the *Work* to such an extent or in such a manner that a significant part or the whole of the *Work* is unfit for the purpose intended by the *Contract Documents*;
 - .5 claims arising pursuant to GC 12.3 - WARRANTY; and
 - .6 claims arising from acts or omissions which occur after the date of *Substantial Performance of the Work*.
- 12.2.4 The *Owner* waives and releases the *Contractor* from all claims referred to in paragraph 12.2.3.4 except claims for which *Notice in Writing* of claim has been received by the *Contractor* from the *Owner* within a period of six years from the date of *Substantial Performance of the Work* should any limitation statute of the Province or Territory of the *Place of the Work* permit such agreement. If the applicable limitation statute does not permit such agreement, within such shorter period as may be prescribed by:
- .1 any limitation statute of the Province or Territory of the *Place of the Work*; or
 - .2 if the *Place of the Work* is the Province of Quebec, then Article 2118 of the Civil Code of Quebec.
- 12.2.5 The *Owner* waives and releases the *Contractor* from all claims referenced in paragraph 12.2.3.6 except for those referred in paragraph 12.2.3.2, 12.2.3.3 and those arising under GC 12.3 – WARRANTY and claims for which *Notice in Writing* has been received by the *Contractor* from the *Owner* within 395 calendar days following the date of *Substantial Performance of the Work*.
- 12.2.6 “*Notice in Writing* of claim” as provided for in GC 12.2 – WAIVER OF CLAIMS to preserve a claim or right of action which would otherwise, by the provisions of GC 12.2 – WAIVER OF CLAIMS, be deemed to be waived, must include the following:
- .1 a clear and unequivocal statement of the intention to claim;
 - .2 a statement as to the nature of the claim and the grounds upon which the claim is based; and
 - .3 a statement of the estimated quantum of the claim.
- 12.2.7 The party giving “*Notice in Writing* of claim” as provided for in GC 12.2 – WAIVER OF CLAIMS shall submit within a reasonable time a detailed account of the amount claimed.

- 12.2.8 Where the event or series of events giving rise to a claim made under paragraphs 12.2.1 or 12.2.3 has a continuing effect, the detailed account submitted under paragraph 12.2.7 shall be considered to be an interim account and the party making the claim shall submit further interim accounts, at reasonable intervals, giving the accumulated amount of the claim and any further grounds upon which it is based. The party making the claim shall submit a final account after the end of the effects resulting from the event or series of events.
- 12.2.9 If a *Notice in Writing* of claim pursuant to paragraph 12.2.1.1 is received on the seventh or sixth calendar day before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work*, the period within which *Notice in Writing* of claim shall be received pursuant to paragraph 12.2.3.1 shall be extended to two calendar days before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work*.
- 12.2.10 If a *Notice in Writing* of claim pursuant to paragraph 12.2.3.1 is received on the seventh or sixth calendar day before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work*, the period within which *Notice in Writing* of claim shall be received pursuant to paragraph 12.2.1.1 shall be extended to two calendar days before the expiry of the lien period provided by the lien legislation applicable at the *Place of the Work*.

GC 12.3 WARRANTY

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

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1.0 Documents Required

1.1 Maintain at the Place of Work, one (1) copy of following:

- (a) Contract Drawings;
- (b) Specifications;
- (c) Addenda;
- (d) Reviewed Shop Drawings;
- (e) Change Orders;
- (f) Other modifications to Contract;
- (g) Field test reports; and
- (h) Contractor's Occupational Health and Safety Policy, the program to implement the Occupational Health and Safety Policy and the Site Safety Plan.

2.0 Work Schedule

2.1 Interim reviews of Work progress based on schedule submitted by the Contractor will be conducted. Update Contractor's schedule and cash flow chart when requested by Consultant.

3.0 Hours of Work

- 3.1 The Contractor's hours of Work for this Contract are 9:30a.m. to 5:00p.m., Monday to Sunday, statutory holidays excluded.
- 3.2 Hours other than those stated in 3.1 may be allowed with prior written approval from the Owner.

4.0 Subcontractors and Suppliers

- 4.1 The Contractor shall submit within five (5) Working Days of execution of the Contract a complete list of Subcontractors and Suppliers that shall include the names of all Subcontractors and Suppliers that will be employed to perform or supply the following Divisions or Sections of the Work:
 - (a) Not Applicable

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4.2 Pre-qualified Subcontractors and Suppliers

- (a) Contractors shall note that for some Sections or Divisions of the Work specific Subcontractors or Suppliers may be named in the Contract Documents as having been pre-qualified to perform or supply that Section or Division of Work. In such instances only those Subcontractors or Suppliers are to be named as performing or supplying, and shall perform or supply, those Sections or Divisions of the Work. The Contractor shall not use "Own Forces" for such Sections or Divisions of the Work unless the Contractor is named in the Contract Documents as having been pre-qualified for the Section or Division of the Work.
- (b) Where more than one Subcontractor or Supplier is named as having been pre-qualified to supply a Section or Division of the Work, the Contractor shall select one of its own choice from those so named.
- (c) Only the following pre-qualified Subcontractors below are permitted to perform the Work of this Section of this Contract. No other Subcontractor will be permitted to perform this Work. The Contractor shall not use its "Own Forces" for this section of the Work unless its name appears on the list below.
 - (i) Authorized Utility Contractors
 - (A) Bell / 360, Rogers Fibre Allstream:
- (d) The Contractor shall not change the identified Subcontractors or Suppliers listed without written consent of Owner.

5.0 Certificate of Recognition

- 5.1 The Contractor shall maintain a valid COR™ "Certified" status with IHSA throughout the Term of the Contract, unless one of the following criteria has been met:
 - (a) The Contractor maintains a valid OHSAS 18001 certification and has initiated the process to obtain COR™ Certified status in Ontario, through IHSA. Prior to commencement of the Work, the Contractor shall provide proof of COR™ Registered status. The Contractor shall achieve COR™ Certified status through IHSA, within eighteen (18) months from the commencement date of the Work of this Contract.

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- (b) The Contractor maintains a valid Out-of-Province COR™ Certified status and has initiated the process to obtain COR™ Certified status in Ontario, through IHSA. Prior to commencement of the Work, the Contractor shall provide proof of COR™ Registered status. The Contractor shall achieve COR™ Certified status through IHSA, within eighteen (18) months from the commencement date of the Work of this Contract.

5.2 For more information about COR™ and the certification process in Ontario, please contact:

- (a) Infrastructure Health and Safety Association (IHSA)
5110 Creekbank Road, Suite 400
Mississauga, Ontario
L4W 0A1
Email: cor@ihsa.ca
Website: www.ihsa.ca/cor
Telephone: 1-800-263-5024

6.0 Contractor's Use of Site

- 6.1 Perform Work in a manner that will interfere as little as possible with the Owner's operations.
- 6.2 Storage of materials and equipment and Contractor's temporary office must be contained within designated Contractor's area(s).
- 6.3 Schedule deliveries to interfere as little as possible with the Owner's operations.
- 6.4 Park on site only within the designated Contractor's area.

7.0 Codes and Standards

- 7.1 Perform Work in accordance with Ontario Building Code, Ontario Hydro Electrical Safety Code and applicable acts administered by other authorities having jurisdiction.
- 7.2 Work to meet or exceed requirements of specified standards, codes and referenced documents.
- 7.3 Codes, specification standards, manuals and installation, application and maintenance instructions, referred to in the Contract Documents shall be of latest published editions at date of closing of Tender.

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8.0 Project Meetings

- 8.1 Hold project meetings at times and locations approved by Consultant.
- 8.2 Notify parties concerned of meetings, to ensure proper co-ordination of Work.
- 8.3 Designated parties shall take required action on decisions made at meeting. Consultant will record minutes of meetings and distribute to parties prior to next meeting.

9.0 Sublet of Work

- 9.1 Administration, supply and installation of Work specified is the sole responsibility of Contractor.

10.0 Examination

- 10.1 Examine site of Work, and investigate all matters relating to nature of Work to be undertaken.
- 10.2 Examine areas to receive specific Work and ensure that conditions are satisfactory to receive subsequent Work. Do not proceed with subsequent work, until unsatisfactory conditions are corrected.

11.0 Setting Out of Work

- 11.1 Setting out of Work is sole responsibility of the Contractor.
- 11.2 Lay out Work in accordance with Contract Drawings.
- 11.3 Verify all grades, lines, and levels and dimensions indicated, and report errors or inconsistencies to the Consultant before commencing Work or as soon as discovered.

12.0 Location of Equipment and Fixtures

- 12.1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate. Final actual placement location within a reasonable distance from that shown on Drawings shall be carried out at no additional cost to the Owner.
- 12.2 Locate equipment, fixtures and outlets to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.

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- 12.3 Obtain manufacturer's literature for roughing in and hook-up of equipment and fixtures.
- 12.4 Inform the Consultant of impending installation and obtain his approval for final actual location.
- 12.5 Submit field drawings to indicate relative position of various services and equipment when requested by Consultant.

13.0 Concealment

- 13.1 Conceal wiring in wall and ceiling construction of finished areas except where indicated otherwise.
- 13.2 Cutting, Fitting and Patching
 - (a) Execute cutting, fitting and patching required to make Work fit properly together.
 - (b) Where new Work connects with existing and where existing Work is altered, cut, patch and make good to match existing Work.
- 13.3 Obtain Consultant's approval before cutting, boring or sleeving load-bearing members.
- 13.4 Make cuts with clean, true, smooth edges. Make patches inconspicuous in final assembly.

14.0 Existing Services

- 14.1 Before commencing Work, establish location and extent of service lines in area of Work and notify the Owner of findings.
- 14.2 Where unknown services are encountered, immediately advise authorities having jurisdiction and Consultant and confirm findings in writing.
- 14.3 Record locations of maintained, re-routed and abandoned service lines.

15.0 Protection

- 15.1 Contractor is cautioned to use appropriate construction methods in order to fully protect existing building(s) or plant from any damage. These facilities shall be inspected prior to construction and existing defects noted in a written report, witnessed by Consultant. Repair or restore defects resulting from construction

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under this Contract to the satisfaction of the Owner, at no additional expense to the Owner.

16.0 Trades Qualification

- 16.1 The Contractor shall ensure that persons (trades workers) performing work that the Trades Qualification and Apprenticeship Act (TQAA) sets out certification requirements for, are properly qualified under the TQAA.
- 16.2 The Contractor shall further ensure these trades workers can, upon request, provide written proof of TQAA trades qualification, such as a certificate of qualification or apprenticeship contract, to the Owner, the Consultant or other authority having jurisdiction.

17.0 Additional Drawings

- 17.1 Consultant may furnish additional Drawings to assist proper execution of Work. These Drawings will be issued for clarification only. Such Drawings shall have the same meaning and intent as if they were included with the Contract Documents referred to in Article A-3 of the Agreement Between Owner and Contractor.

18.0 Allowable Gross Weight – Hauling Materials

- 18.1 If applicable, if the Contractor is hauling materials, in whole or in part upon a highway (as such term is defined in the Highway Traffic Act, R.S.O. 1990, c.H.8 as amended from time to time), and where motor vehicle registration is required for such vehicle, the Contractor shall not cause or permit such vehicle to be loaded beyond the legal limit specified in the Highway Traffic Act, whether such vehicle is registered in the name of the Contractor or otherwise. This does not apply where overloading is permitted within the Place of the Work and not on the highway.
- 18.2 The Contractor shall ensure that all vehicles hauling materials on a highway shall be accompanied by a Record of Allowable Gross Weight certificate, available at a truck inspection station or on the Ministry of Transportation website. The allowable limit shall be the vehicle's registered gross weight or the allowable gross weight, whichever is less. The Contractor shall ensure that a copy of the Record of Allowable Gross Weight form is made available to the Owner and left with the weigh person for Owner use.

END OF SECTION

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1.0 General

- 1.1 Be responsible for familiarization with the Place of the Work, the location of the Work and any limitations and constraints.
- 1.2 Before commencing Mobilization, where required by the Contract Documents, obtain all required Access Permits before entering onto land impacted by the Work.
- 1.3 Commence Mobilization at the Notice to Proceed date unless otherwise required by the Contract Documents and directed by Consultant.
- 1.4 Transport personnel, equipment and supplies and materials to the Place of the Work, including Contractor's offices, buildings, and other necessary facilities, Consultant's Work Trailer and portable toilet for the Consultant's use at the Place of Work.
- 1.5 Be responsible for all required permits for transportation of the Contractor's equipment.
- 1.6 Check on any roadway and bridge loading and restricted height clearances.
- 1.7 Equipment and materials shall be mobilized and demobilized in accordance with all local, provincial and federal regulations and acts related to transportation and safety.
- 1.8 Mobilize and demobilize equipment by means of access routes shown on the Drawings.
- 1.9 Upon completion of the Work, restore all access areas to the same condition as prior to the start of the Work.
- 1.10 Be responsible for security of Contractor's equipment and materials at the place of the Work

2.0 Definitions

- 2.1 Mobilization and Demobilization: means the mobilization and demobilization of the Contractor's forces and equipment, supplies, appurtenances and the like, manned and ready for prosecuting the Work required under the Contract, and the subsequent demobilization and removal from the Place of the Work of said equipment, materials appurtenances and the like upon completion of the Work.

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Mobilization will not be considered as work in fulfilling the Contract requirements for commencement of the Work.

3.0 Mobilization

3.1 Mobilization is deemed to include the provision of the following:

- (a) Construction permits not obtained by the Owner;
- (b) Initial Construction Schedule;
- (c) Initial Work Block Schedule;
- (d) Initial Shop Drawings and other submittal Schedules;
- (e) Initial Contractor's Cash Flow Schedule; and
- (f) Site Specific Safety Plan.

3.2 Mobilization includes assembly and delivery to the Place of the Work plant equipment, materials and supplies, necessary for the prosecution of the Work that are not intended to be incorporated into the Work; the clearing of and preparation of the Contractor's work area (Note; this activity is separate from and not considered incidental to Grading Work specified in Specifications and Drawings); the complete assembly, in working order, of all equipment necessary to perform the required work; personnel services, and all other preparatory work required to allow commencement of the actual Work on the construction items for which payment is provided under the Contract.

3.3 Mobilization is deemed not to include the provision of the following, which are deemed to be elements of the Contractor's overhead, profit and contract administration costs included and incidental to the Work and included in and incidental to the Unit Prices and Lump Sum prices as quoted in the Schedule of Prices for each Work Item:

- (a) Overhead and Profit;
- (b) Bond and insurances; and
- (c) Labour and costs.

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4.0 Demobilization

- 4.1 Demobilization includes all activities and costs for transportation of personnel, equipment and supplies and materials not used in the Contract, including disassembly, removal from the Place of the Work, the Contractor's offices, buildings, and other facilities including the Consultant's Work Trailer and portable toilet for the Consultant's use, removal and site cleanup of any offices, buildings or other facilities assembled at the Place of Work for the Contract.
- 4.2 Demobilization includes submission and acceptance of final documentation required to meet the requirements of the Contract.

5.0 Changes to the Work

- 5.1 If additional mobilization and demobilization are required during the performance of the Contract because of changes to the Work, deleted or added items of Work, the Contractor is entitled to an adjustment in the Contract Price, compensation for such costs will be included in the Price of the approved Change Order or Orders for the item or items of Work changed or added.

6.0 Management and Disposal of Mobilization and Demobilization Materials

- 6.1 Dispose of materials resulting from Mobilization and Demobilization activities from the Place of the Work within forty-eight (48) hours of Total Performance of the Work.

END OF SECTION

GENERAL REQUIREMENTS: SHOP DRAWINGS AND OTHER SUBMITTALS

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1.0 General

- 1.1 Submit to Consultant for review, product data specified.
- 1.2 Conform to General Condition No. GC 3.10 Shop Drawings.
- 1.3 Until submission is reviewed, work involving relevant product may not proceed.

2.0 Product Data

- 2.1 Manufacturer's standard schematic drawings, catalogue sheets, diagrams, schedules, performance charts, illustrations and other standard descriptive data will only be accepted in lieu of Shop Drawings when authorized by Consultant.
- 2.2 Above will only be accepted if it conforms to the following:
 - (a) delete information which is not applicable to project;
 - (b) supplement standard information to provide additional information applicable to project;
 - (c) show dimensions and clearances required;
 - (d) show performance characteristics and capacities; and
 - (e) show wiring diagrams and controls.

3.0 Shop Drawings

- 3.1 Within five (5) Working Days of execution of the Contract, submit for review by the Consultant, a schedule of Shop Drawings indicating dates, review dates, fabrication and lead times.
- 3.2 Drawings to be originals prepared by Contractor, Subcontractor, Supplier or Distributor, which illustrate appropriate portion of Work, showing fabrication, layout, setting or erection details as specified in appropriate Sections.
- 3.3 Identify details by reference to sheet and detail numbers shown on Contract Drawings.
- 3.4 Maximum sheet size 48" x 36" (1220mm x 915mm).

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- 3.5 All Shop Drawings of structural components shall show all pieces, dimensions, materials, weld types and sizes, material treatments and finish to a large scale (metric) suitable to the Product.

4.0 Samples & Mock-Ups

- 4.1 Submit samples in sizes and quantities specified.
- 4.2 Where specified, shown or considered necessary, submit duplicate samples for Consultant's approval.
- 4.3 Where colour, pattern or texture is criterion, submit full range of samples.
- 4.4 Samples must correspond in every aspect to materials supplied for the project.
- 4.5 Construct field samples and mock-ups at locations acceptable to Consultant.
- 4.6 Construct each sample of mock-up completely, including work of all trades required to finish.
- 4.7 Do not proceed with fabrication or delivery of materials until samples are approved.
- 4.8 Reviewed samples or mock-ups will become standards of workmanship and material against which installed work will be checked on project.
- 4.9 Approval of samples does not imply acceptance of finished work.

5.0 Coordination of Submissions

- 5.1 Review Shop Drawings, Product data and samples prior to submission. Any Shop Drawing not bearing evidence of having been checked by the Contractor will not be accepted by the Consultant.
- 5.2 Indicate on Shop Drawings that they have been checked by applying stamp "checked and certified for construction", including date and Contractor's signature.
- 5.3 No claim for delay will be considered as a result of time lost for Drawings returned because the Contractor has failed to check the Drawings as stated above.
- 5.4 Check Shop Drawings and Product data sheets before submission as follows:

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- (a) Against Contract Documents and other applicable Shop Drawings to ensure that work adjacent to and affecting other work is accurately detailed.
 - (b) To ensure work conforms to requirements of Contract Documents.
 - (c) Verify field measurements, field construction criteria, catalogue number and similar data.
- 5.5 Coordinate each submission with requirements of Work and Contract Documents. Individual Shop Drawings will not be reviewed until all related drawings are available.
- 5.6 Consultant's review of Shop Drawings and data sheets pertain to general design only. Errors in dimensions, quantities or interference will be marked if noticed, but this will not in any way relieve the Contractor from his responsibility to complete the Work as shown and specified.
- 5.7 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by the Consultant's review of submission, unless Consultant gives written acceptance of specified deviations.
- 5.8 Notify Consultant, in writing at time of submission, of deviations from requirements of Contract Documents.
- 5.9 Do not proceed with Work covered by Shop Drawings and data sheets until reviewed by Consultant. Any such installation will not be considered for payment until Shop Drawings are approved.
- 5.10 After Consultant's review, distribute copies to all trades affected.

6.0 Submission Requirements

- 6.1 Schedule submissions at least ten (10) Working Days before dates reviewed submissions will be needed.
- 6.2 Submissions shall be as follows:
 - (a) Four (4) white prints of Shop Drawings and Product data bearing the review stamp of the Contractor, three (3) of which will be retained by the Consultant;
 - (b) The fourth set will be returned to the Contractor, who is responsible for preparing all additional copies for distribution, and distributing to all required parties; and

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(c) Submit final Shop Drawings as noted in Section 01800 Project Closeout.

6.3 Additional copies of Shop Drawings, Product data, reports, procedures, plans and certificates shall be required for distribution by the Contractor.

END OF SECTION

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1.0 Inspection

- 1.1 Refer to GC 2.3 - REVIEW AND INSPECTION OF THE WORK.
- 1.2 The materials furnished by the Contractor shall be inspected by the Consultant at the time of delivery and at such other times as the Consultant may elect.
- 1.3 The Owner and the Consultant shall have access to the work. If parts of the work are in preparation at locations other than the Place of the Work, access shall be given to such work whenever it is in progress.
- 1.4 The Consultant may order any part of the work to be examined if such work is suspected to be not in accordance with the Contract. If, upon examination such work is found not in accordance with the Contract, correct such work and pay the cost of examination and correction. If such Work is found in accordance with the Contract, the Owner will pay the cost of examination and replacement.
- 1.5 The review of the information covering materials and equipment by the Consultant shall in no release the Contractor 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.

2.0 Independent Inspection Agencies

- 2.1 Independent Inspection/Testing Agencies will be engaged by the Consultant for inspecting and/or testing portions of work.
- 2.2 Cost of such services will be borne by the Contractor under the appropriate Cash Allowance item in the Form of Tender.
- 2.3 Provide samples and/or assistance required for inspection and testing by the appointed agencies.
- 2.4 Employment of Inspection/Testing Agencies does not remove the responsibility to perform Work in accordance with the Contract Documents.
- 2.5 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 Consultant at no cost to the Owner. Pay costs for retesting and re-inspection.

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3.0 Procedures

- 3.1 Notify the appropriate agency and Consultant a minimum of two (2) working days in advance of the requirement for tests, in order that arrangements can be made with the testing company.
- 3.2 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.
- 3.3 Provide labour and equipment to obtain and handle samples and materials on site.

4.0 Rejected Work

- 4.1 Refer to GC 2.4 - DEFECTIVE WORK.
- 4.2 If, in the opinion of the Consultant, 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 Consultant.

5.0 Reports

- 5.1 Reports on materials testing as arranged by the Consultant shall contain the following information:
 - (a) Date and time of inspection or test.
 - (b) Weather conditions and ambient air temperatures during the inspection.
 - (c) Testing method employed by proper standard reference and specific paragraph or other detailed information as applicable.
 - (d) Inspection description and detailed and other relevant information.
 - (e) Test results in detail, complete with applicable graphs and other clarifying documents and information.
 - (f) Printed name and signature of person having conducted inspection or test, and name, title and signature of Supervisor having verified the report.
- 5.2 Inspection and Testing Agency shall provide a written report for each inspection and test made, three copies to the Consultant; three copies to the Contractor

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direct, who shall forward one copy to the Subcontractor, supplier or manufacturer concerned.

END OF SECTION

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1.0 Access

- 1.1 The Contractor shall be limited to using access onto the site as further directed.

2.0 Power

- 2.1 Contractor may connect into the Owner's electrical power supply in the existing building for power for construction requirements. All such connections shall be first approved by the Owner.
- 2.2 The Contractor shall be responsible for all claims and damages resulting from unauthorized or misuse of the Owner's electrical power supply. Verify all circuit and circuit protection capacities with the Owner's Manager of Station Operations of the respective region before making any connections.

END OF SECTION

1.0 Fires

- 1.1 Fire and burnings of rubbish at the Place of Work will not be permitted.

2.0 Disposal of Wastes

- 2.1 Do not bury rubbish and waste materials on site.
- 2.2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.
- 2.3 Except as indicated otherwise, surplus materials shall become the property of the Contractor and shall be removed from the premises promptly as they become surplus, at the cost of the Contractor.

3.0 Drainage

- 3.1 Divert surface drainage water away from excavation.
- 3.2 Provide temporary drainage and pumping as necessary to keep excavations and site free from water from whatever source until backfill operations are completed.
- 3.3 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
- 3.4 Provide pumping units of sufficient number to comply with the above requirements and keep a minimum of one (1) unit in operating condition as a spare on site.

4.0 Pollution Control

- 4.1 Operations generating smoke, fumes, gases, dusts, vapours and odours shall be exhausted at source in a manner approved by the Consultant.
- 4.2 Take precautions necessary to keep dust, smoke, fumes, dirt and vibration to an acceptable level as determined by the Consultant.
- 4.3 Prevent extraneous materials from contaminating the environment immediately to and beyond the application area, by providing temporary enclosures or other appropriate preventative measures.

5.0 Noise

- 5.1 Prevent excessive noise which will be disturbing to the occupant of building. Machine tools which are set up in fixed locations shall be so located to minimize noise and suitable sound deflectors shall be used if directed by the Consultant.
- 5.2 Use air compressors and pneumatic hammers only with the expressed authorization of the Consultant.

6.0 Spills

- 6.1 The Contractor shall provide the Owner with a written program for spills response and reporting. Copies of training records shall also be provided.
- 6.2 All spills shall immediately be reported to the Rail Operations Control Centre, (416) 601-2174, or as directed by the Consultant.

7.0 Dust Control

- 7.1 The Contractor shall take any and all steps necessary to prevent a dust nuisance occurring as a result of his performance of the Work.
- 7.2 Where the Work requires the sawing or grinding of concrete, wet type blades and grinders shall be used together with sufficient water to prevent the occurrence of dust. Cost of all such preventative measures shall be borne by the Contractor.

END OF SECTION

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1.0 Safety Measures

- 1.1 The Vendor's representative shall be responsible for ensuring that the provisions of statutes, regulations and by-laws pertaining to safe performance of the work and the work of other vendors/Subvendors at the Place of Work are observed and that the methods of performing the work do not endanger the personnel employed thereon, the general public, and are in accordance with best safety practices and the latest edition of the OHSA and applicable Regulations.
- 1.2 Prior to the Vendor's representative being absent from the Place of Work, the Vendor's representative will name another person, in writing to Metrolinx, who is competent to assume these responsibilities as the Vendor's representative.

2.0 Project Health and Safety Compliance

- 2.1 The Vendor and the Vendor's representative shall ensure that:
 - (a) All measures and procedures prescribed by the following Acts and Regulations (applicable Provincial) are carried out at the Place of Work;
 - (i) The Occupational Health and Safety Act;
 - (ii) The Regulations for Industrial Establishments;
 - (iii) The Canada Labour Code Part II;
 - (iv) The Environmental Protection Act and Regulations;
 - (v) WHMIS Regulations;
 - (vi) Smoke-Free Ontario Act;
 - (vii) All other legislation, regulations and standards as applicable; and
 - (viii) Metrolinx's "Safety Guidelines For Vendors, Consultants and Project Coordinators";
- 2.2 Every employer and every worker performing work at the Place of Work complies with all of the requirements referred to in Section 2.1 above; and
- 2.3 The health and safety of workers and the general public are protected in relation to the work performed at the Place of Work. In addition to compliance with all occupational health and safety legislation, every employer and every worker

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performing Work at the Place of Work is required to demonstrate a willingness to participate in occupational health and safety program(s).

3.0 Deliverables

- 3.1 The Vendor shall within five (5) Business Days of the date of final execution of the Contract submit the following to Metrolinx for its review and acceptance:
- (a) A copy of the Vendor's Occupational Health and Safety Policy, and a copy of the Vendor's program to implement its Occupational Health and Safety Policy, which in each case shall comply with all the requirements of Regulations for Industrial Establishments, Occupational Health and Safety Act, as amended from time to time; and
 - (b) A copy of the Vendor's site specific safety plan that includes site-specific hazard and risk assessment plans that will effectively prevent and control incidents and/or accidents. Specific Work plans may be required for tasks deemed to be safety critical such as crane lifts, confined space entry, or working from heights.
 - (c) Work shall not commence at Place of Work until Metrolinx has reviewed and accepted the above referenced documents. Metrolinx shall not entertain any claim on the part of the Vendor for any extension to the Contract Time or the Total Contract Price as a result of the Vendor's failure to submit an Occupational Health and Safety and/or program and Site specific safety plan that are acceptable to Metrolinx.
- 3.2 The Vendor shall, within five (5) Business Days of the date of final execution of the Contract, deliver to Metrolinx copies of all training records for Occupational Health and Safety related courses taken by a "competent person" as defined by the Occupational Health and Safety Act, paragraph 1(i) and designated as the Supervisor as per Part III (2)(c). Relevant course subjects may, without limitation, include or be similar to the following:
- (a) Certified Joint Health and Safety Committee Management Member Training;
 - (b) Basics of Supervising;
 - (c) Occupational Health and Safety Act;
 - (d) Accident Investigation and Reporting; and

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- (e) Any other courses that relate directly to the Occupational Health and Safety Act.

3.3 The Vendor shall deliver to Metrolinx as required:

- (a) A copy of all inspection reports made by the Vendor in compliance with the employer's responsibility under the Occupational Health and Safety Act.
- (b) A copy of all safety information pertaining to the Contract made and furnished by the Vendor's own "Safety Officer" or outside consultants/advisers engaged for the purpose of inspecting the workplace for occupational health and safety.
- (c) A verification that all workers in the employ of the Vendor at the Place of Work, have had WHMIS training or refresher course within the last twelve (12) months.
- (d) Verification that all workers in the employ of the Vendor have had "Explosive Activated Tool Training" on the type of tools being used, as applicable.
- (e) A verification that the instruction manuals are at the Place of Work for all tools and equipment being used.
- (f) A copy of the most recent workers compensation experience rating account, i.e., CAD-7, NEER or MAP
- (g) Copies of all injury and accident reports for occurrences at the Place of Work. This shall include copies of all remedial measures taken to prevent recurrence.
- (h) Copies of all weekly safety talks shall be maintained on file for review by Metrolinx upon request.
- (i) Statistical information for the purpose of determining injury frequency and severity rates (hours worked, first-aid injuries, medical aid/reportable injuries, lost time injuries, restricted workday injuries, incident/accident and significant occurrence data), in a timely manner on a monthly basis or as required by Metrolinx.
- (j) The immediate reporting to Metrolinx of all instances that are defined in the Occupational Health and Safety Act as "Notices of Injuries" and

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"Occurrences" under Sections 51, 52 and 53, and any occasion that a worker exercises their "Right to Refuse Unsafe Work".

- (k) Metrolinx reserves the right to require additional or amended deliverables pertaining to safety during the duration of the Work at no additional cost to Metrolinx.

4.0 Due Diligence

- 4.1 The Vendor acknowledges that it has read and understands the measures and procedures relating to occupational health and safety as prescribed in Sections 2.0 and 3.0 above. The Vendor acknowledges and understands its duties as therein set out and hereby expressly undertakes and agrees to comply with all such requirements and standards in their entirety and at the Vendor's expense.
- 4.2 The Vendor further agrees to fully cooperate with all health and safety requirements, rules, regulations, standards and criteria set out in the Contract, which agreement is in furtherance of the Vendor's duties and responsibilities under occupational health and safety legislation.
- 4.3 The Vendor agrees that if, in the opinion of Metrolinx, the health and safety of a person or persons is endangered or the effective operation of the system put in place to ensure the health and safety of workers on the Place of Work is not being implemented, Metrolinx may take such action as it deems necessary and appropriate in the circumstances, including, without limitation, the following:
 - (a) Require the Vendor to correct the condition forthwith at no expense to Metrolinx;
 - (b) Require that the Place of Work be shut down in whole or in part until such time as the condition has been corrected. Metrolinx will not reimburse the Vendor for any costs caused by such a delay nor will Metrolinx extend the time to complete the Work of the Contract because of such a delay;
 - (c) Correct the problem and deduct the cost thereof from any payment then or thereafter due the Vendor; and/or
 - (d) Terminate the Contract in whole or in part.

5.0 Joint Health and Safety Committee and/or Representative

- 5.1 The Vendor shall be responsible for the establishment and operation of the JHSC as required or the selection of a safety representative as required by the

GENERAL REQUIREMENTS: SAFETY REQUIREMENTS

Occupational Health and Safety Act or the Canada Labour Code, Part II as applicable to the operations of the Vendor.

- 5.2 In advance of commencement of the Work, the Vendor shall provide its plan of compliance with the Occupational Health and Safety Act, Part II, Administration, to Metrolinx where:
- (a) the number of workers employed at the Place of Work regularly exceeds five (5); or
 - (b) the duration of the Work is three (3) months or longer.
- 5.3 A site file shall be maintained of all information specific to the Joint Health and Safety Committee for the Project. This file shall be made available to Metrolinx for review upon request.

6.0 Alcohol and Drug Abuse Prevention

- 6.1 The following rules shall apply to all persons while at the Place of Work and/or on Metrolinx property:
- (a) The use, possession, distribution and/or sale of illegal drugs or drug paraphernalia is prohibited;
 - (b) The use, possession, distribution and/or sale of any any form of alcohol, including alcoholic beverages;
 - (c) Workers must know and understand the possible effects of drugs, medication or mood altering agents, including those prescribed by a doctor, which will adversely affect, in any way and to any extent, their ability to work safely;
 - (d) Individuals shall ensure that prescribed or over-the-counter medications are used responsibly and in accordance with the applicable instructions. Persons taking prescription drugs shall advise their supervisor if there is potential for performance to be negatively affected;
 - (e) No distribution, offering or sale of prescription medications is permitted; and
 - (f) Individuals must report for duty, free of the negative effects of alcohol and other drugs, including the effects of such use, and remain so during the entire period of duty.

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- 6.2 Where a worker is suspected of being intoxicated, the following procedures must be followed:
- (a) The worker will be escorted to a safe location away from the work area, and asked to remain there pending further action;
 - (b) The worker's supervision, worker health and safety representative (if applicable), union steward (if applicable) and the designated Metrolinx's Contract representative will be requested to attend;
 - (c) The group present will determine an appropriate course of action and a means of transport to a suitable safe location;
 - (d) Where there are differences of opinion with respect to the worker's fitness for duty, the dispute will be resolved with a view to ensuring safety, and the worker will be transported home, or required to remain in a safe location until this can be arranged; and
 - (e) The local police may be called if the worker was operating any motorized vehicle requiring a valid driver's license.
- 6.3 Metrolinx will maintain a position of zero tolerance to any violations of these rules. At the sole discretion of Metrolinx, rule contraventions may result in:
- (a) Verbal and written reporting to the person's supervisor/employer;
 - (b) Issuance of a written warning, and recording of same;
 - (c) Reporting to the appropriate police department for investigation and subject to criminal prosecution;
 - (d) An order to leave the Place of Work temporarily or permanently; or
 - (e) Remedies as may be specified in the Contract.

7.0 Smoking in the Workplace

- 7.1 The Vendor shall comply with, and enforce, all the provisions of the Smoke Free Ontario Act at all times while on Metrolinx's property.
- 7.2 A designated smoking area may be created at the Place of Work providing Metrolinx and the Vendor can mutually agree that one can be provided within the provisions of the Smoke Free Ontario Act. The Vendor shall be responsible for

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providing any and all signage required for the designated smoking area in the event a designated smoking area is created.

8.0 Barricades

- 8.1 Observe all necessary precautions and provide, erect and maintain suitable signs, barricades and lights to protect all persons from injury and all vehicles from damage during the progress of the work, all to the approval of Metrolinx or any authority having jurisdiction at this location.
- 8.2 Provide all means necessary to prevent the entrance of unauthorized personnel at the Place of Work and from using access roads.
- 8.3 Protect the work in conformity with the Contract.

9.0 Vehicle Traffic Protection

- 9.1 Provide qualified signal persons to protect vehicular and pedestrian traffic during the operations, at any time when workers or equipment could endanger such traffic, all to the complete satisfaction of Metrolinx and any other authority having jurisdiction at this location.
- 9.2 Accept responsibility for any damage to vehicles and damage and injury to pedestrians or occupants of vehicles resulting from the operations or the operating of equipment by others. Provide adequate protection to the satisfaction of Metrolinx.
- 9.3 Wherever the Place of Work is intersected by public or private roads, provide convenient openings to pass and maintain all crossings in a condition so they can be used safely and without any just grounds for complaint during the progress of the work; all to the satisfaction of Metrolinx and respective road authority.

10.0 Workplace Hazardous Materials Information System (WHMIS)

- 10.1 Be familiar with and comply to WHMIS Regulations:
- 10.2 Properly label controlled products.
- 10.3 Provide proper warning labels and training at the Place of Work.
- 10.4 Prior to delivery of products to the Place of Work, provide copies of the material safety data sheets (MSDS) for any controlled products.
- 10.5 Be responsible for all applicable requirements of the regulations.

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10.6 Before commencing any work at the Place of Work, attend a meeting in a location to be determined by Metrolinx and provide a proposal as to how hazardous materials will be stored and dispensed at the Place of Work. Also, present a proposal as to how hazardous and contaminated materials will be removed from the Place of Work. The disposal of hazardous materials shall comply with all legislative and municipal requirements.

10.7 Provide a list and proper handling procedures for all hazardous materials.

11.0 Metrolinx Safety Guidelines

11.1 Metrolinx will issue an appropriate number of copies of its "Safety Guidelines For Vendors, Consultants and Project Coordinators" to the Vendor in advance of commencement of the Work. This will also be made available electronically in PDF format, to the Vendor.

11.2 Vendors are responsible for familiarizing themselves and their employees with the contents of this manual.

11.3 Vendors shall distribute copies of this manual to their Subvendors and shall ensure that they, and their employees, are familiar with its content.

11.4 This manual shall form part of the orientation for new employees and acknowledged as being included.

11.5 The requirements of this manual shall apply to the Work and the Place of the Work.

12.0 Safety Personnel at the Place of Work

12.1 In the event Metrolinx deems it necessary, because of the Work and/or Safety Performance, the Vendor shall assign to the Place of Work a full time "Safety Officer" to assist the Vendor's representative in the discharging of safety responsibility at the Place of Work, at no additional costs to Metrolinx.

12.2 The Safety Officer shall have the training, experience and credentials to ensure compliance to the Occupational Health and Safety Act and regulations that pertain to the Work at the Place of Work.

13.0 Security at the Place of Work

13.1 The Vendor shall ensure all personnel employed at the Place of Work, whether its own employees or a Subvendor's, wear an identification badge. At Metrolinx's

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locations where access is restricted Metrolinx shall supply the identification badges. At all other locations it shall be the Vendor's responsibility to provide the identification badges. The "GO Safe" Railway Orientation badge with photo I.D. will meet this requirement.

- 13.2 A daily site log shall be maintained of all persons granted access to the "Place of Work" under the control and custody of the Vendor.
- 13.3 The Vendor shall ensure that all required documentation is available upon request by Metrolinx.
- 13.4 The Vendor shall not allow "Unauthorized" persons to access the "Place of Work".

END OF SECTION

GENERAL REQUIREMENTS: MATERIALS AND EQUIPMENT

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1.0 General

- 1.1 Provide material and equipment of specified design and quality, performing to published ratings and for which replacement parts are readily available.
- 1.2 Use products of one manufacturer for equipment or material of same type or classification unless otherwise specified.

2.0 Manufacturer's Instructions

- 2.1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.
- 2.2 Notify the Owner in writing of any conflict between these Specifications and manufacturer's instructions. The Owner will designate which document is to be followed.

3.0 Fastenings

- 3.1 Provide metal fastenings and accessories in same texture, colour and finish as base metal in which they occur. Prevent electrolytic action between dissimilar metals. Use non-corrosive fasteners, anchors and spacers for securing exterior work.
- 3.2 Space anchors within limits of load bearing or shear capacity and ensure that they provide positive permanent anchorage. Wood plugs are not acceptable.
- 3.3 Keep exposed fastenings to minimum, space evenly and lay out neatly.
- 3.4 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.
- 3.5 Do not use explosive actuated fastening devices.

4.0 Fastening Equipment

- 4.1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- 4.2 Use heavy hexagon heads, semi-finished unless otherwise specified.
- 4.3 Bolts may not project more than one diameter beyond nuts.

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- 4.4 Use plain type washers on equipment, sheet metal and shaft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

5.0 Delivery and Storage

- 5.1 Deliver, store and maintain packaged material and equipment with manufacturer's seals and labels intact.
- 5.2 Prevent damage, adulteration and soiling of material and equipment during delivery, handling and storage. Immediately remove rejected material and equipment from the site.
- 5.3 Store material and equipment in accordance with suppliers' instructions.
- 5.4 Touch-up damaged factory finished surfaces to the Owner's satisfaction. Use primer or enamel to match original. Do not paint over name plates.

6.0 Origin of Materials

- 6.1 Materials, plant and equipment supplied for Work shall be as far as possible and unless otherwise specified, of Canadian manufacture.

7.0 Ownership of Materials

- 7.1 Unless otherwise specified, materials existing on site at time of signing Contract shall remain the property of Owner.
- 7.2 Equipment and materials delivered on site to form part of Work shall be property of the Owner but the Owner shall not be liable for any loss or damage from any cause.
- 7.3 Contractor shall remove surplus or rejected materials off site when notified by Consultant as required by site conditions.

8.0 Specified Material and Equipment

- 8.1 Materials and equipment shall be as specified.

9.0 Substitutions After Contract Execution

- 9.1 Request for substitutions of specified materials and equipment other than alternatives accepted during the in-market tendering period and prior to tender closing, will not be considered unless the request is accompanied by a written statement from Contractor giving reasons why specified item cannot or should not

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be used, evidence of quality of substitution and amount of change in Contract amount.

- 9.2 Written statement shall include full details, stating clearly name of manufacturer or supplier, together with a detailed description of substitutions, and stating reduction from or addition to the Contract Price, if any for the use of alternative material or equipment.
- 9.3 The Consultant reserves right to accept or reject substitution as he sees fit and also to claim for the Owner financial benefit of substitution if accepted. Rejection by Consultant of proposed alternative material or equipment is final and does not become obligated to give any reason for his action.
- 9.4 Approved equipment substitutions must not exceed space requirements allocated on Drawings. Be responsible for additional cost resulting from acceptance of a substitute piece of equipment for this Division of Work.
- 9.5 Substitutions shall not be considered accepted unless authorized in writing by the Consultant.

10.0 Date-Related Compliance

- 10.1 All materials, equipment, systems and components thereof used in connection with the provision of the Work, individually or in combination as the case may be, shall accurately and automatically process any and all date and date-related data including, but not limited to calculating, comparing and sequencing when used in accordance with the documentation provided by the Contractor.

END OF SECTION

GENERAL REQUIREMENTS: CLEANING

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1.0 General

- 1.1 Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
- 1.2 Store volatile wastes in covered metal containers, and remove from premises daily.
- 1.3 Prevent accumulation of wastes which create hazardous conditions.
- 1.4 Provide adequate ventilation during use of volatile or noxious substances.

2.0 Products

- 2.1 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

3.0 Execution

3.1 Cleaning During Construction

- (a) Ensure that the work site is kept clean and tidy at all times throughout the construction period. Remove all rubbish and debris promptly as it accumulates. Ensure that all sub-trades conform similarly.
- (b) Promptly remove from site and dispose of surplus materials.
- (c) Do not accumulate scrap piles at any time. Fires will not be permitted on the site.
- (d) Provide on-site containers for collection of waste materials, and rubbish.
- (e) Vacuum clean interior work areas when ready to receive finish painting, and continue vacuum cleaning on an as-needed basis until work area is ready for substantial completion or occupancy.
- (f) Schedule cleaning operations so that resulting dust and other contaminants will not fall on wet, newly painted surfaces.

END OF SECTION

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1.0 Final Cleaning

- 1.1 Remove dust and soil from all surfaces affected by Work by vacuuming, damp mopping, washing or scrubbing, as required.
- 1.2 Clean all equipment and accessories.
- 1.3 Remove all temporary labels, protective coatings, markings and tags, and thoroughly clean adhesive off surfaces.
- 1.4 Avoid contamination of surrounding surfaces with cleaning fluids. Install temporary protection, if required, and remove same immediately upon completion of cleaning operation involved.
- 1.5 Methods of cleaning shall be in accordance with Manufacturer's recommendations of the finishes involved.
- 1.6 Soaps, detergents, waxes, and other cleaning materials and methods shall be as recommended by Manufacturer of finish surface material involved.
- 1.7 Use a heavy duty type industrial machine for all vacuum cleaning.
- 1.8 Exercise extreme care with abrasive and chemical cleaning agents and verify their compatibility with finish and material to be cleaning.

2.0 Systems Demonstration

- 2.1 Prior to final inspection, demonstrate operation of each system to the Owner.
- 2.2 Instruct personnel in operation, adjustment, and maintenance of equipment and systems, using provided operation and maintenance data as basis for instruction.

3.0 Project Record Drawings

- 3.1 The Consultant will provide one set of white prints for each major trade section of this Contract for recording "as constructed" information.
- 3.2 The Contractor shall co-ordinate and maintain project "as-constructed" record drawings and record accurately significant deviations from Contract Documents caused by site conditions and changes ordered by Consultant and approved by the Owner.
- 3.3 Record following information:

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- (a) field changes of dimension and detail; and
 - (b) changes made by Change Order or Field Instructions.
- 3.4 At each project meeting "as-constructed" record drawings shall be reviewed for completeness.
- 3.5 At completion of project and prior to final inspection, submit "as-constructed" drawings to Consultant.

4.0 Operations and Maintenance Data

- 4.1 On completion of project, submit to Consultant four (4) copies of Operations Data and Maintenance Manual, made up as follows:
 - (a) bind data in vinyl, hard covered, three ring, loose leaf binder for 215 x 280mm sized paper;
 - (b) enclose title sheet, labelled "Operation Data and Maintenance Manual", project name, date and list of contents; and
 - (c) organize contents into applicable sections of work. Mark each section by labelled tabs protected with celluloid covers fastened to hard paper dividing sheets.
- 4.2 Include following information plus data specified:
 - (a) description operation and maintenance instructions for equipment and systems, including a complete list of equipment and parts list. Indicate nameplate information such as make, size, capacity, serial number;
 - (b) names, addresses and phone numbers of subcontractors and suppliers;
 - (c) guarantees, warranties and bonds showing:
 - (i) name and address of projects;
 - (ii) guarantee commencement date (date of Final Certificate of Completion);
 - (iii) duration of guarantee;
 - (iv) clear indication of what is being guaranteed and what remedial action will be taken under guarantee; and

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(v) signature and seal of Contractor; and

(vi) additional material used in project listed under various sections showing name of manufacturer and source supply.

4.3 Neatly type lists and notes. Use clear Drawings, diagrams or manufacturer's literature.

4.4 Include four complete sets of final Shop Drawings, bound separately, indicating corrections and changes made during fabrication and installation.

5.0 Inspection/Takeover Procedures

5.1 Procedures for Substantial and Total Performance of Work and completion takeover procedures shall be according to OAA/OGCA Document No. 100, December 12, 2007.

6.0 Date-Related Compliance

6.1 The Owner may, at no additional cost to itself, require the Contractor to demonstrate Date-Related Compliance as specified by General Requirements: Material and Equipment and/or compliance techniques and test procedures the Contractor followed in order to comply with these requirements.

END OF SECTION

MECHANICAL GENERAL REQUIREMENTS

15000 Index
15010 General Conditions

CONTROLS

15900 Building Automation System

ELECTRICAL

16010 Electrical General Requirements
16050 Electrical Basic Materials and Methods
16550 Low Voltage Lighting Panels

1. GENERAL

(a) General

- (i) This section of the specification is an integral part of the Contract Documents and shall be read accordingly.

(b) Duties Of Contractor

- (i) The Contractor shall assume the responsibilities and duties including but not limited to the ones described below:
- (ii) Superintendence
- (A) Provide full time on-site superintendent personnel and supporting staff with proven experience in project of similar value and complexity.
- (iii) Coordination
- (A) Coordinate the work with all the sub-trades involved to ensure that the work will be carried out on schedule and in proper sequence.
- (B) Take complete responsibility for all remedial work that results from failure to coordinate any aspect of the mechanical work prior to its fabrication and/or installation.
- (C) Take responsibility for the delivery of equipment necessary to complete the work in accordance with the approved schedule.
- (iv) Staffing and Scheduling
- (A) Within seven days after the award of the contract, the Mechanical Contractor shall provide to Metolinx the following information:
- (I) Appointment of site superintendent in the project.
- (II) Schedule of Work, which suits Section 00510, Form of Agreement Article 1, Subsection Article 1-A.
- (III) Delivery schedule for specified equipment.
- (IV) Requirements for temporary facilities, site signs, storage, etc.

(v) Work Completion Meeting

- (A) Prior to application for Substantial Performance of the Work, the Contractor shall participate in the take-over meeting. Agenda to include the following:
 - (I) Review of outstanding deficiencies.
 - (II) Submission of maintenance manuals, warranties and as-built drawings.
 - (III) Results of performance tests and described further in this section.
 - (IV) Scheduling of training to Metrolinx personnel.

(c) **Scope Of Work**

- (i) The Work shall include for all labor, material, equipment and all other related cost including all applicable taxes (except HST) and fees to provide the complete work as indicated on the drawings and specified herein. The Work shall include but is not limited to:
 - (A) Removal of existing main control panel for the BAS system and any other devices or controllers deem redundant after the installation of the new system.
 - (B) Supply and install a new network main controller to communicate with the exiting N2 network and have BACNET capabilities.
 - (C) Provide new local computer and software and new web server at the Go Woldale location,
 - (D) Design all the new graphical interface and sequence of operation as noted on the drawings.
 - (E) Verify the operation of all existing field controller, programmable controller, sensors and devices during the commissioning process.
 - (F) Connect the new lighting controllers (refer to electrical drawings and specifications for details) to the new BAS.
 - (G) All cutting and patching required to complete the work, including making good and repair of all surfaces affected by the work.
 - (H) All other equipment and labour required to make the new equipment fully operational.

(d) **Scheduling Of Work**

- (i) For all work to be performed under this Contract, adhere to construction schedule agreed upon with Metrolinx. Refer to Section 01000, General Instructions, Article 3, Hours of Work.

(e) **Interferences**

- (i) Discrepancies between different plans, or between plans and actual field conditions, or between plans and specifications shall promptly be brought to the attention of Consultant.
- (ii) Wherever differences occur between these specifications, plans and schematics and drawings, the maximum conditions shall govern.
- (iii) In addition to the work specifically mentioned in the specifications and shown on the drawings, provide all other items that are obviously necessary to make a complete working installation, including those required by the authorities having jurisdiction over the Work.

(f) **Cleaning**

- (i) During the performance of the work and on the completion, remove from the place of the work all debris, rubbish and waste materials caused by the performance of the work. Remove all tools and surplus materials after completion and acceptance of the work.
- (ii) All equipment shall be thoroughly vacuumed out at the time of final acceptance of the work.

(g) **Delivery, Storage And Handling**

- (i) Protection of Equipment:
 - (A) Equipment and material placed on the job site shall remain in the custody of the Contractor until accepted by Metrolinx, whether or not Metrolinx has reimbursed the Contractor for the equipment and material. The Contractor is solely responsible for the protection of such equipment and material against any damage.

- (ii) Existing equipment and wiring being worked on by the Contractor shall be under the custody and responsibility of the Contractor and shall be protected as required for new work.

(h) **Installation Of Work**

- (i) Be responsible for:
 - (A) The layout of the work shown on the drawings and specified herein, and for any damage caused to Metrolinx by improper location or carrying out of this work.
 - (B) The condition of all material and equipment supplied and for the protection and maintenance of work completed.
- (ii) Coordinate and schedule all Work to suit the date for the substantial performance established in the construction Contract.
- (iii) Proceed with the Work as quickly as practical so that construction may be completed in as short a time as possible and in accordance with the construction schedule.
- (iv) Ensure that all equipment and material is ordered in time to meet the construction schedule. Provide a schedule of equipment deliveries to Metrolinx within the time limit stipulated.
- (v) Furnish promptly information required for the construction schedule.
- (vi) Manufactured products supplied with instructions for their installation shall be installed in strict accordance with those instructions.

(i) **Codes, Permits, Fees And Connections**

- (i) Conform to Federal, Provincial and Municipal regulations and perform work in accordance with requirements of By-Laws and Regulations in force in area where the work will take place.
- (ii) Apply for, obtain, and pay for permits, fees and service connections for the mechanical work and the inspections required by authorities having jurisdiction in the area where the work will take place.

(j) **Shop Drawings And Samples**

- (i) Submit to Metrolinx detailed dimension shop drawings and installation wiring diagrams for all control equipment. Further details and special requirements called for in these specifications shall be shown on the shop drawings.
- (ii) Ensure that copies of all reviewed shop drawings are available on the job site for reference.
- (iii) Provide samples of mechanical equipment as requested in the specification at the same time as the shop drawing submission.

(k) **Cutting, Patching, Roofing And X-Ray**

- (i) All cutting and patching, required for the completion of this project whether shown on the drawings or not, shall be the Contractor's responsibility.

1. GENERAL

(a) Intent

- (i) The existing BAS system is an N2 JC system.
- (ii) The intent is to keep all the existing field devices and field controllers and replace the frontend control panel.
- (iii) The scope is to remove the existing main controller (NCM 200) and to supply and install an NAE55 main controller that will be able to communicate with the existing N2 network and BACNET network.
- (iv) Supply and install additional NCE control panel in order to allow for sufficient capacity and also future capacity.
- (v) Test and commission a complete microprocessor-based programmable control system including all components as described herein and as necessary to make the HVAC systems serving the station operate in accordance with the sequences described in these specifications.
- (vi) The system shall provide seamless interface with N2 and BACNET such that the operation of the existing HVAC equipment and new lighting control equipment can be performed as described in the sequence of operation.
- (vii) Provide a Facility Management and Control System incorporating N2 and BACNET Compatible Direct Digital Control, open architecture, that utilizes the N2 protocol as the common communication protocol between all the existing Application Specific Controller (ASCs), such as AHU or UNT and programmable controller such as DX9100, and BACNET protocol for graphic displays and alarm handling and control from the Central Server as required
- (viii) The system installed shall be able to seamlessly connect existing devices other than HVAC throughout the building regardless of subsystem type, i.e. HVAC and lighting shall coexist on the same network channel with out the need for gateways. These components shall share common software for network

communications, configuration, time scheduling, alarm handling, history logging, custom programming and monitoring.

- (ix) System Monitoring and Supervisory Control shall be provided through a Web Server or as required a Central Server. The Web Server shall be accessible using standard web browser software and shall be access restricted to authorized users only.
- (x) The control system shall include the necessary engineering, supervision and programming, to form a complete operational system.
- (xi) Provide a local work station c/w software capable of controlling and monitoring the system
- (xii) Provide web accessible server located at the Go Facility in Wolfedale.
- (xiii) Provide network connection to the Metrolinx network system. Coordinate with the Metrolinx IT Department for final commissioning and integration.
IP and setup is performed by this contractor with Metrolinx IT assistance required.
- (xiv) Provide full commissioning of the entire BAS system (existing and new) and confirm functionality of all systems.

(b) **Shop Drawing Submittals**

- (i) Prepare and submit three (3) copies of shop drawing manuals for the review and approval of the Consultant. Under no circumstances shall the Controls Contractor commence site work prior to the receipt of approved shop drawings
- (ii) The shop drawing submittal shall include the following:
 - (A) Control schematics for each system
 - (B) Detailed sequence of operation for each controlled system.
 - (C) System Architecture indicating the type and model number for all BAS components, the proposed interconnection and location of all panels, network connection and key peripheral devices (workstations, modems, printers, repeaters, etc)

- (D) BAS Points List indicating the panel ID (existing and new), panel location, hardware address, point acronym, point description, field device type, point type (i.e. AO/DO/AI/DI), end device fail position, end device manufacture and model number and wire tag ID.
- (E) Provide a list of field labels (i.e. lamicoids) with proposed software names and point descriptions.
- (F) Wiring diagrams including complete power system, interlocks, control and data communications.
- (G) Programming code listing for all controllers
- (H) Manufacturers' data/specification sheets and catalogue cuts for all material and equipment supplied.
- (I) Automatic control devices and sensors

(c) **As-Built Documentation**

- (i) Prepare and submit one (1) copy of BAS As Built and Operating/Maintenance manuals to the Consultant for review and acceptance.
- (ii) Once the BAS As-Built documentation has been accepted by the Consultant, prepare and make up five (5) copies of the combined BAS documentation manuals and submit them at the project turn-over meeting.
- (iii) The BAS Contractor shall provide a CD with each manual to include all of the As Built Documentation contained within the manual (warranties, letters, graphics, points lists, programming, sequences etc.) and shall also include As Built drawings in Autocad format. The Metrolinx will supply electronic copies of the original tender BAS drawings to the BAS Contractor.
- (iv) The As-built documentation shall include the following:
 - (A) Building and address
 - (B) A brief description of the control details. i.e. total # of points, list of equipment controls and the panels to which they are connected.
 - (C) Panel's information i.e. part numbers for panels used and their serial numbers and revision # (if applicable).
 - (D) Software version.
 - (E) BAS/Metrolinx's WAN IP address.
 - (F) Warranty start date and duration.

- (G) BAS Contractor Name, address, and Phone number.
- (H) Detailed sequence of operation for each controlled system.
- (I) Control schematics for each system. Including a System Architecture indicating the type and model number for all BAS components, the proposed interconnection and location of all panels, network connection and key peripheral devices (workstations, modems, printers, repeaters, etc)
- (J) BAS Points List indicating the panel ID, panel location, hardware address, point acronym, point description, field device type, point type (i.e. AO/DO/AI/DI), end device fail position, end device manufacture and model number and wire tag ID.
- (K) Floor plan with the location of all field mounted control devices.
- (L) Programming code for all DDC controllers
- (M) Wiring diagrams including complete power system, interlocks, control and data communications.
- (N) Manufacturers' data/specification sheets and catalogue cuts for all material and equipment supplied including the workstation PC (where applicable). This section shall include a summary sheet that indicates all BAS Device, Manufacturers', model number, and quantity of each used on this job.
- (O) Automatic control devices and sensors
- (P) Electrical Authority Inspection Certificates – General Inspection and Product Approval Inspection.
- (Q) Licensed BAS workstation software.
- (R) BAS programming database stored on a CD-R disk.
- (S) Workstation PC documentation, original Windows operating system/ recovery disks, licenses, and warranty (where applicable)

(d) **Warranty**

- (i) The warranty for all labour and material (hardware and software) supplied under this contract shall be the more restrictive between the following:
 - (A) 2 (two) years from the date of the Substantial Performance of the Work.

- (ii) Control system failures during the warranty period shall be adjusted, repaired, or replaced at no additional cost to the Metrolinx. The Contractor shall respond to Metrolinx's request for warranty service within one (1) business day.
 - (iii) The final completion and acceptance date shall be the date of the Substantial Performance of the Work.
 - (iv) All work shall have a single warranty date, even when the Metrolinx has received beneficial use of part of the system in advance of the date of the Total Performance of the Work.
 - (v) The Contractor shall be responsible for correcting any deficiencies, errors or omissions in operating strategies, programming code, system functionality or parameters and operator workstation graphics during the warranty period.
- (e) **Metrolinx Ownership Of Proprietary Material**
- (i) All project-developed software and documentation shall become the property of The Metrolinx. These include, but are not limited to:
 - (A) Project graphic images
 - (B) Record drawings
 - (C) Project database
 - (D) Project application programming code
 - (E) All documentation
- (f) **Standard Of Acceptance**
- (i) The following vendors shall be accepted to supply the controls equipment:
 - (A) Johnson Controls
 - (B) TA Canada
 - (C) Siemens
 - (D) Automated Logic Controls
 - (E) Or approved equivalent

2. PRODUCTS

(a) System Hardware

- (i) The existing system architecture comprises of PACs (Programmable Application Controllers), ASCs (Application Specific Controllers), Unit Controllers (UNT) networked together providing a system of connected controllers that operates as a single BAS for the entire building.
- (ii) Provide a new Network Automation Engine (NAE) to offer a Web-based user interface and expansion capability for BACnet.
- (iii) The building operator shall be able to access the local BAS by logging onto a new network PC. All required site database and graphics files shall reside on the The Metrolinx central BAS server located at Wofdale location.
- (iv) Allow for a minimum of 25% spare program and trend memory capacity in NAE.
- (v) For each specified BAS control point, the contractor shall supply the hardware point type (e.g. AI, AO, DI, DO) as indicated on the controls points list. The use of alternate hardware point types or the use of external interface cards or devices to simulate the function of a specified hardware point type is not acceptable. For example, the use of a DO point and an external PWM card to simulate the function of a physical AO point shall not be accepted.

(b) Main Controller (NAE55)

- (i) The Network Automation Engine (NAE) shall be a fully user-programmable, supervisory controller. The NAE shall monitor the network of distributed application-specific controllers, provide global strategy and direction, and communicate on a peer-to-peer basis with other Network Automation Engines.
- (ii) Automation network – The NAE shall reside on the automation network and shall support a subnet of system controllers.
- (iii) User Interface – Each NAE shall have the ability to deliver a web based User Interface (UI) as previously described. All computers

connected physically or virtually to the automation network shall have access to the web based UI.

- (A) The web based UI software shall be imbedded in the NAE. Systems that require a local copy of the system database on the user's personal computer are not acceptable.
 - (B) The NAE shall support up a minimum of four (4) concurrent users.
 - (C) The web based user shall have the capability to access all system data through one NAE.
 - (D) Remote users connected to the network through an Internet Service Provider (ISP) or telephone dial up shall also have total system access through one NAE.
 - (E) Systems that require the user to address more than one NAE to access all system information are not acceptable.
 - (F) The NAE shall have the capability of generating web based UI graphics. The graphics capability shall be imbedded in the NAE.
 - (G) Systems that support UI Graphics from a central database or require the graphics to reside on the user's personal computer are not acceptable.
 - (H) The web based UI shall support the following functions using a standard version of Microsoft Internet Explorer:
 - (I) Configuration
 - (II) Commissioning
 - (III) Data Archiving
 - (IV) Monitoring
 - (V) Commanding
 - (VI) System Diagnostics
 - (I) Systems that require workstation software or modified web browsers are not acceptable.
 - (J) The NAE shall allow temporary use of portable devices without interrupting the normal operation of permanently connected modems.
- (iv) Processor – The NAE shall be microprocessor-based with a minimum word size of 32 bits. The NAE shall be a multi-tasking, multi-user, and real-time digital control processor. Standard operating systems shall be employed. NAE size and capability shall be sufficient to fully meet the requirements of this Specification.
- (v) Memory – Each NAE shall have sufficient memory to support its own operating system, databases, and control programs, and to provide supervisory control for all control level devices.

- (vi) Hardware Real Time Clock – The NAE shall include an integrated, hardware-based, real-time clock.
- (vii) The NAE shall include troubleshooting LED indicators to identify the following conditions:
 - (A) Power - On/Off
 - (B) Ethernet Traffic – Ethernet Traffic/No Ethernet Traffic
 - (C) Ethernet Connection Speed – 10 Mbps/100 Mbps/1000 Mbps
 - (D) FC Bus A – Normal Communications/No Field Communications
 - (E) FC Bus B – Normal Communications/No Field Communications
 - (F) Peer Communication – Data Traffic between NAE Devices
 - (G) Run – NAE Running/NAE in Startup/NAE Shutting Down/Software Not Running
 - (H) Bat Fault – Battery Defective, Data Protection Battery Not Installed
 - (I) 24 VAC – 24 VAC Present/Loss Of 24VAC
 - (J) Fault – General Fault
- (viii) Communications Ports – The NAE shall provide the following ports for operation of operator Input/Output (I/O) devices, such as industry-standard computers, modems, and portable operator's terminals.
 - (A) Two (2) USB port
 - (B) Two (2) URS-232 serial data communication port
 - (C) Two (2) RS-485 port
 - (D) One (1) Ethernet port
- (ix) Diagnostics – The NAE shall continuously perform self-diagnostics, communication diagnosis, and diagnosis of all panel components. The Network Automation Engine shall provide both local and remote annunciation of any detected component failures, low battery conditions, or repeated failures to establish communication.
- (x) Power Failure – In the event of the loss of normal power, The NAE shall continue to operate for a user adjustable period of up to 10 minutes after which there shall be an orderly shutdown of all programs to prevent the loss of database or operating system software.
 - (A) During a loss of normal power, the control sequences shall go to the normal system shutdown conditions. All critical configuration data shall be saved into Flash memory.
 - (B) Upon restoration of normal power and after a minimum off-time delay, the controller shall automatically resume

full operation without manual intervention through a normal soft-start sequence.

- (xi) Certification – The NAE shall be listed by Underwriters Laboratories (UL).
- (xii) Controller network – The NAE shall support the following communication protocols on the controller network:
 - (A) The NAE shall support BACnet Standard MS/TP Bus Protocol ASHRAE SSPC-135, Clause 9 on the controller network.
 - (I) The NAE shall be BACnet Testing Labs (BTL) certified and carry the BTL Label.
 - (II) The NAE shall be tested and certified as a BACnet Building Controller (B-BC).
 - (III) A BACnet Protocol Implementation Conformance Statement shall be provided for the NAE.
 - (IV) The Conformance Statements shall be submitted 10 days prior to bidding.
 - (V) The NAE shall support a minimum of 100 control devices.
 - (B) The NAE shall support LonWorks enabled devices using the Free Topology Transceiver FTT10.
 - (I) All LonWorks controls devices shall be LonMark certified.
 - (II) The NAE shall support a minimum of 255 LonWorks enabled control devices.
 - (C) The NAE shall support the Johnson Controls N2 Field Bus.
 - (I) The NAE shall support a minimum of 100 N2 control devices.
 - (II) The Bus shall conform to Electronic Industry Alliance (EIA) Standard RS-485.
 - (III) The Bus shall employ a master/slave protocol where the NAE is the master.
 - (IV) The Bus shall employ a four (4) level priority system for polling frequency.
 - (V) The Bus shall be optically isolated from the NAE.
 - (VI) The Bus shall support the Metasys Integrator System.

(c) **System Software**

- (i) BAS Workstation Software
 - (A) Site licenses are not required.

(ii) Trend Data

- (A) Provide trend logs for all hardware inputs and outputs.
- (B) All trends should be accessible via the graphical interface.
- (C) Trends should contain all related variables of a control loop (i.e. setpoint, measured variable and control output) and have the ability to be plotted simultaneously on the same graph.
- (D) Field Devices individual trends should provide an appropriate “snapshot” of the variable. Slow reacting variables such as space temperatures should be sampled every 30 - 60 minutes while other variables such as mixed air or boiler water temperatures should be sampled every 5 to 10 minutes.
- (E) Provide the maximum number of trend samples within the controller while maintaining the requirement for spare memory capability.
- (F) The primary input sensor for all control loops must physically be wired to the same panel containing the control loop output.
- (G) Trend data storage must be in the same panel as the hardware or logical points being trended.

(d) **User Access**

- (i) Provide the Metrolinx-standard user IDs and passwords for operations, maintenance and engineering staff.

(e) **Alarms**

- (i) Alarms shall be assigned the following categories:
 - (A) Maintenance Alarms
 - (B) Mismatch of equipment control and status for more than 30 minutes
 - (C) Any other miscellaneous alarm not specifically noted herein
- (ii) Alarms shall not require any acknowledgment before automatic reset by the system.

- (iii) An alarm notification shall not be issued when an alarm condition returns to normal.
 - (iv) The Contractor shall provide additional alarms as directed by the Metrolinx and specified in this section and customize the alarms to the operating characteristics of the specific the systems being controlled.
- (f) **Bas Dynamic Graphics**
- (i) Provide customized, site specific dynamic graphics to meet the requirements of the Metrolinx and/or The Metrolinx
- (g) **Lan Cabling**
- (i) All LAN cabling shall be Category V as defined by EIA/TIA 568A. The contractor shall test all cabling to verify that 100Mb bandwidth is supported. See commissioning requirements.
 - (ii) Cabling shall be 4 pair, 100 ohm UTP, #24 AWG solid copper conductor PVC insulated, with blue or grey colour coded jacket. FT6 rated cable shall be used unless otherwise required to meet building codes or by-laws.
 - (iii) Data outlets shall be RJ45, 8 pin connectors, with 50 microns of hard gold over nickel, minimum durability of 750 mating cycles and contact pressure of 100 grams per contact. Transmission characteristics shall meet TSB-40 Category V.
 - (iv) Provide one RJ45 data outlet adjacent to each device to be terminated (e.g. workstation PC, DDC panel, hub, etc.) Use a flexible patch cable to connect from the data outlet to the end device.
 - (v) Provide protection from EMI sources in accordance with CSA-T530 article 4
 - (vi) The contractor shall test all cabling to verify conformance with TIA /EIA TSB-67 - Basic Link Test using a Level 2, bi-directional tester. See commissioning requirements.
 - (vii) Where there are more than 2-90 degree in a conduit run, provide a pull box between sections so that there are two bends or less in any one section.
 - (viii) Where a conduit run requires a reverse bend, between 100 degrees and 180 degrees, insert a pull box at each bend having an angle from 100 degrees to 180 degrees.

- (ix) Ream all conduit ends and install insulated bushings on each end. Terminate all conduits that protrude through the structural floor 2" above the concrete base. Do not use a pull box in lieu of a conduit bend. Align conduits that enter a pull box from opposite ends with each other.

3. EXECUTION

(a) Sequence Of Operation

- (i) The sequence of operation shall be as described on the drawings.
- (ii) Contractor to review and identify all the control point currently under the BAS system and ensure that they are included in the new system.

(b) Power Sources And Wiring Methods

- (i) All wiring shall be installed in EMT conduit unless specified otherwise. Exposed wiring in finished areas shall be installed in wiremold
- (ii) Wiring from DDC controllers to sensors and actuators and control system network and low voltage wiring running in accessible ceilings may be installed using LVT cable. Where the ceiling is used as a return air plenum, plenum rated cable shall be used in lieu of LVT cable.
- (iii) Install EMT and cable at right angles to building lines, securely fastened, and in accordance with current electrical codes and standards.
- (iv) Power and control wiring shall be copper conductor (RW90). For power wiring, provide #12 AWG (minimum) with a 3% maximum voltage drop in accordance with CEC requirements. Control wiring shall be a minimum of #14 AWG, unless otherwise specified.
- (v) The wires smaller than 18 gauge shall not be used and will not be accepted on the project except for: wiring between terminal computer devices, wire in standard communication cables, such as printers and short haul modems, wire used in communication networks, i.e. any cable transferring digital data, using twisted shielded pairs.

- (vi) The wiring from panels to devices shall be installed without splices. The use of crimp connectors is not allowed when connecting field wiring to sensor or device leads. The use of wire nuts is acceptable in this application.
 - (vii) Power for control system shall not be obtained by tapping into miscellaneous circuits that could be inadvertently switched off. Only dedicated circuit(s) shall power the control system. Provide additional breakers or electrical panels as required.
 - (viii) Mount transformers and other peripheral equipment in panels located in serviceable areas. Provide line-side breakers/fuses for each transformer.
 - (ix) All 120 VAC power for any controls equipment shall be from dedicated circuits. Provide a breaker lock for each breaker used to supply the control system. Update the panel circuit directory.
 - (x) A dedicated power circuit may be used to power DDC panels and equipment within the same or adjoining mechanical rooms. The use of one power circuit to power DDC panels distributed throughout the building is not acceptable.
 - (A) The controller may be powered from the equipment that it is directly controlling (i.e. heat pump, rooftop unit) only if the controller controls no other equipment and the power supply to the controller remains energized independently of unit operation or status.
 - (xi) Provide all required code gauge boxes, connectors and other wiring accessories.
 - (xii) For all DC wiring, positive conductors shall be WHITE or RED in colour while negative conductors shall be BLACK in colour.
- (c) **Cutting And Patching**
- (i) All cutting, patching, painting and making good for the installation of the BAS work shall be done by the BAS Contractor. All cutting shall be performed in a neat and true fashion, with proper tools and equipment.

(d) **Electrical Wiring And Accessories**

- (i) Install all electrical materials and equipment conform to Canadian Electrical Code as amended to date and as specified below.
- (ii) Provide conduit, electrical wiring and fittings from load side of starters and/or disconnects to motor or electrical connected item, including the connections to all mechanical equipment.
- (iii) Provide control wiring, conduit and relays to interlock starters and connect safety and operating controls as required.
- (iv) Wire final 12 in to 18 in of motor connections with flexible liquid tight conduit, with insulated throat connectors.
- (v) Use thin wall conduit up to and including 1 ¼ in size for wiring in ceiling, furred spaces and where not exposed to mechanical injury. Use rigid galvanized steel conduit for exposed wiring and for conduit 1 ½ in size and larger.
- (vi) Provide branch circuit wiring and an outlet for each motorized damper control.
- (vii) Conduit shall be in accordance with the following CSA standards:
 - (A) C22.2 No.813 - 1976 - Electric Metallic Tubing
 - (B) C22.2 No.56 - 1977 - Flexible Metal Conduit and Liquid Tight Flexible Metal Conduit
 - (C) C22.2 No.136 - 1966 - Rigid PVC Conduit
- (viii) Install all wiring in conduit, unless otherwise specified.
- (ix) Conduit accessories, condulets and fittings shall conform to C.S.A. Standard C22.2 No.18 - M1987.
- (x) Use thin wall conduit for branch circuit and signal wiring in ceiling, furred spaces and where not exposed to mechanical injury.
- (xi) Conduit shall be of sufficient size to permit easy removal of conductors at any time. Do not bend conduit over sharp objects. Do not use bends and fittings together.

- (xii) All conduit connections made to enclosures housing electrical devices (e.g. DDC panels, transformers, etc.) shall be made on the sides or bottom end of the enclosure. No openings of any kind shall be made to the top side of such enclosures.

(e) **Equipment Enclosures And Locations**

- (i) Clean and organize the existing control enclosures. All the wires to be tied up and identified as much as possible..
- (ii) Mount all new enclosures in in the existing mechanical room located in the basement..
- (iii) All transformers and power supplies for control equipment shall be installed in new dedicated metal cabinets with hinged, lockable covers located in the proximity of their dedicated controller cabinets.
- (iv) Include within a DDC panel enclosure one 120 VAC duplex receptacle for portable PC power, if the controller cabinet is located further than 5'-0" from the nearest wall receptacle.
- (v) Ensure that enclosures are sized to allow for ease of servicing of all equipment contained within. Enclosures containing DDC panels shall be sized to allow for the installation of the maximum allowable number of expansion panels/boards. Do not mount other equipment in a manner that may interfere with the future installation of expansion panels/boards.
- (vi) For enclosures containing pneumatic transducers or devices, provide one pressure gauge (1-1/2" dial, 0-30psi) for the main air line supply.

(f) **Identification And Labeling Of Control Equipment**

- (i) All panels must have a lamoid tag (min. 3"x1") affixed to the front face indicating panel designation and function (i.e. "BAS Panel 1" or "Relay Panel 3").
- (ii) All devices within a field enclosure shall be identified via a label or tag.

- (iii) All BAS panel power sources must be identified by a label (min. 3"x1") indicating the source power panel designation and circuit number (i.e. "120vac fed from LP-2A cct #1).
 - (iv) All field control equipment panels fed from more than one power source must have a warning label on the front cover.
 - (v) All wires shall be identified with the hardware address with a band-type self-adhesive strips or clip-on plastic wire markers at both ends.
 - (vi) All BAS panels will be supplied with a point's list sheet (within a plastic sleeve) attached to the inside door.
 - (vii) The points list shall identify the following for each point:
 - (A) Panel number.
 - (B) Panel location.
 - (C) Hardware address.
 - (D) Software name.
 - (E) Point description.
 - (F) Field device type.
 - (G) Point type (i.e. AI or DO).
 - (H) Device fail position.
 - (I) Device manufacturer.
 - (J) Model number or reference.
 - (K) Wire tag reference.
 - (viii) Where directed by the Metrolinx, provide any and all additional labeling, diagrams, schematics or instructions as may be required to facilitate the correct operation and maintenance of controlled building systems.
- (g) **Systems Hardware Commissioning**
- (i) This contractor shall be responsible for the "end to end" commissioning, testing, verification and start-up of the complete control system hardware including panels, sensors, transducers, end devices, relays and wiring existing and new. This shall include any points from the existing and/or re-used automation system in the building.

- (ii) The Contractor shall prepare a hardware commissioning report containing the following information and test results:
- (A) Analogue inputs (i.e. temperatures, pressure, etc.) shall be verified with an approved calibration device. All actual temperature readings should be with $\pm 1^{\circ}\text{C}$ of the readings observed at the workstation. Record calibration adjustments and settings.
 - (B) Analogue outputs shall be verified by manually commanding the output channel from the operator workstation to two or more positions within the 0-100% range and verifying the actual position of the actuator or device. All devices shall operate over their entire 0-100% range from a minimum control range of 10-90%. Record the actual output scale range (channel output voltage versus controller command) for each analogue end device.
 - (C) Digital outputs shall be verified by witnessing the actual start/stop operation of the equipment under control.
 - (D) Digital inputs shall be verified by witnessing the status of the input point as the equipment is manually cycled on and off.
 - (E) Record all out-of-season or unverified points in the commissioning report as “non-commissioned”.
 - (F) Identify any existing equipment (valves, dampers, fan starters, etc.) that are inoperative or require maintenance or repair.
 - (G) The BAS field panel power source shall be toggled on and off to ensure reboot functionality and power down memory retention of all parameters. During the power down test, all controlled system outputs shall go to their fail-safe position.
 - (H) Verify PID loop tuning parameters by applying a step change to the current setpoint and observing the response of the controlled device. Setpoint should be reached in an acceptable period of time without excessive cycling or hunting of the controlled device. Provide a graph of the trend response to setpoint change for important controlled devices (e.g. valves 1-inch or larger, dampers on major air handlers, etc.)
 - (I) Provide confirmation that a series of test alarms has been successfully received at a designated remote monitoring workstations.

- (J) Include with the hardware commissioning report a site floor plan indicating the location of all equipment installed in concealed or recessed locations (e.g. interposing relays in ceiling spaces).
- (K) Provide testing of all LAN cabling to ensure that 100Mb bandwidth is supported.
- (L) Verify conformance with TIA /EIA TSB-67 - Basic Link Test using a Level 2, bi-directional tester. Provide all equipment necessary to carry out the required tests.
- (M) The hardware commissioning report must be signed and dated by the Contractor's technician performing the tests and participating The Metrolinx trades staff.
- (N) At the completion of site commissioning, submit four (4) copies of hardware commissioning report to The Metrolinx.

(h) **Substantial Completion Inspection**

- (i) At the completion of the site hardware inspection, the Contractor shall test and verify that the system programming, graphics and alarm software is operating correctly and is in compliance all requirements of the specifications.
- (ii) The Contractor shall provide written notification to the Metrolinx that the site is ready for the Substantial Completion Inspection by the Metrolinx
- (iii) Issue a comprehensive site deficiency report to the Contractor for his immediate action.
- (iv) The Contractor shall correct all items noted in the site deficiency report within ten (10) business days of receipt.
- (v) The Contractor shall provide written notification to Metrolinx that all items on the Metrolinx's site deficiency report have been corrected.

(i) **Training**

- (i) Provide four (4) hours of operator training and four (4) hours of advanced maintenance level training per facility. The allocation of training hours and the number of participants shall be determined by Metrolinx. The training hours may be divided up over several training sessions. The number of trainees to be determined by

Metrolinx but shall not exceed 8 for any one session. Training may take place on site, at another Metrolinx location, at the Contractor's office or any combination thereof.

- (ii) Submit a proposed training lesson plan for each session to Metrolinx for review and approval.

1. GENERAL

(a) References

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

(b) Application

- (i) This Section applies to and is a part of all Sections of Division 16.

(c) Work Included

- (i) The Work of this Section shall include all labor, materials, equipment and tools required for a complete and working installation as described.

(d) Intent

- (i) Equipment and installation provided under this Division shall conform to applicable standards and regulations of the following organizations:
- (A) Canadian Standards Association (CSA)
 - (B) Underwriter's Laboratories of Canada (ULC)
 - (C) Ontario Electrical Safety Code (OESC)
 - (D) Electrical Safety Authority (ESA)
 - (E) Ontario Building Code (OBC)
 - (F) Canadian Underwriters Association (CUA)
 - (G) National Building Code (NBC)
 - (H) Canadian Electrical Code (CEC)
 - (I) Canadian Electrical Manufacturers Association (CEMA)
 - (J) American Institute of Electrical Engineers (AIEE)

- (K) Institute of Electrical and Electronics Engineer (IEEE)
- (L) Illuminating Engineering Society of North America (IESNA)

(e) **Workmanship**

- (i) Workmanship and method of installation shall conform to best standards and practice. Where required by local or other By-Laws and Regulations, tradesmen shall be licensed in their trade.

(f) **Temporary & Trial Usage**

- (i) Temporary or trial usage of any equipment or materials shall not be construed as evidence of acceptance of same and no claim for damage shall be made for injury to or breaking of any part of such Work which may be so used.

(g) **By-Laws & Regulations**

- (i) Work shall conform to latest rules, regulations and definitions of Canadian Electrical Code and applicable Municipal and Provincial Codes and Regulations, and with requirements of other authorities having jurisdiction in the area where Work is to be performed. Minor changes required by an authority having jurisdiction shall be carried out at no additional cost to the Owner. Standards established by Drawings and Specifications shall not be reduced by applicable codes or regulations.

(h) **Permits & Fees**

- (i) File Contract Drawings with proper authorities and obtain their approval of installation and permits for same before proceeding with Work. Prepare and submit necessary detailed Shop Drawings as required by Authorities.
- (ii) Pay all fees in connection with permits, inspections and final certificate of approval.

(i) **Certificates**

- (i) Furnish necessary certificates as evidence that Work installed conforms to laws and regulations of authorities having jurisdiction.

(j) **Guarantee- Warrantee**

- (i) Guarantee and warranty requirements of the Contract shall apply.

(k) **Specifications, Drawings & Job Conditions**

- (i) Electrical Drawings do not show structural and related details. Take information involving accurate measurement of building from building Drawings, or at building. Make, without additional charge to the Owner, any necessary changes or additions to electrical Work or equipment locations to accommodate structural conditions. Equipment locations may be altered by Consultant without extra charge provided change is made before installation and does not necessitate major additional material.
- (ii) Examine site and local conditions. Examine carefully all Drawings and complete Specifications to ensure that Work can be satisfactorily carried out as shown. Before commencing Work, examine the work of other Sections and report at once any defect or interference affecting the Work, its completion or warranty. No allowance will be made later for any expense incurred through failure to make these examinations or to report any such discrepancies in writing.
- (iii) Relocate equipment and/or material installed but not coordinated with Work of other Sections as directed, without extra charge to the Owner.
- (iv) Furnish "built-in" items in ample time and give necessary information and assistance in connection with building-in of same. Notify Section concerned in writing of size and location of recesses, openings and chases at least forty-eight hours before walls are erected, floors poured and similar work.

(l) **Interference Drawings**

- (i) Prepare and submit composite interference Drawings if required to avoid and/or resolve conflict of trades and to co-ordinate Work of Electrical Division with all other trades.
- (ii) Interference Drawings shall indicate exact arrangements of all

areas and equipment to scale with dimensions.

- (iii) Co-operate with Work of Division 15 and provide data requested and as required in the preparation of interference Drawings for the Work of Division 15.
 - (iv) Make interference Drawings in conjunction with all parties and trades concerned showing sleeves and openings and passage of electrical Work through building structure. Drawings shall also show inserts, special hangers and other features to indicate routing through confined spaces, installation of equipment in such areas.
 - (v) Provide detailed Drawings, fully dimensioned of equipment in Equipment Rooms, Electrical Rooms, etc. Base equipment Drawings on approved Shop Drawings and include, but do not necessarily limit to, details pertaining to access, clearances, sleeves, connections, etc.
 - (vi) Provide detailed Drawings of pulling pits, equipment bases, anchors, floor and roof curbs, etc., pertaining to Electrical work.
- (m) **Shop Drawing Material & Lists**
- (i) Prepare and submit shop drawings and lists of materials for review in accordance with Section 01300 – Product Data. Make submittals of more than two pages in booklet form. Individual and loose Drawings will not be accepted for review.
 - (ii) Prior to equipment fabrication, delivery or installation, submit complete lists of materials proposed, indicating manufacturer, catalogue numbers and complete performance data.
 - (iii) Reviews of Shop Drawings by Consultant is for sole purpose of ascertaining conformance with general design concept. This review shall not mean that Consultant approves detail design inherent in Shop Drawings, responsibility for which shall remain with Contractor and such review shall not relieve Contractor of his responsibility for meeting all requirements of Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work with all trades.

- (iv) Shop Drawings transmitted via facsimile (fax) machines, or copies of same, will not be accepted for review.

(n) **Record Documents**

- (i) Conform to General Requirements. Maintain at least two sets of documents and clearly mark on same as job progresses, changes and deviations from Work shown so that on completion Owner will have records of exact location of ducts and equipment and record of material and equipment changes.
- (ii) Record all homerun conduits, junction boxes for complete power and systems on As-Built Drawings. GPS coordinates of all underground ducts and any direction changes.
- (iii) Contractor shall obtain clean set of prints from Consultant at start of Work and shall keep these prints up-to-date at jobsite, accurately recording all changes made on Project and locating all services, equipment, etc. which may have been shown only diagrammatically on Contract Documents.
- (iv) Contractor shall ensure that as-built information is accurately recorded and shall check same. As-Built drawings shall be reviewed with Consultant at each jobsite meeting.
- (v) Upon completion of Work, prior to Substantial Performance inspection and after final review with Consultants, Contractor shall neatly transfer recorded information and make final As-Built submission to Consultant in the following form:
 - (A) One (1) set of clean, legible prints.
 - (B) Updated ACAD R2012 Drawings.
- (vi) Consultant shall review As-Built information provided by Contractor. Revise Drawings to suit any comments until acceptable for submission to Owner.

(o) **Protection**

- (i) Securely plug or cap open ends of electrical raceways or equipment to prevent entry of dirt, dust, debris, water, snow or ice. Clean all equipment inside and outside before testing.

- (ii) Equipment stored on site shall be protected from weather and kept dry and clean at all times. Take care to avoid corrosion of metal parts.
- (iii) Protect Work installed from damage. Secure all unfinished or loose Work to prevent movement.

(p) **Instructions To Operate**

- (i) Instruct the Owner's Representatives in repair, maintenance and operation of Electrical Systems and associated equipment.
- (ii) Supply three (3) full Operation and Maintenance Instructions each in stiff cover, three-ring binder suitably indexed, separated and labeled. Operate each item of equipment in presence of the Owner's Representatives to ensure understanding of working parts and function of each item of equipment. Supply one complete set of "Reviewed" Shop Drawings in separate hard cover binder suitably separated and labeled for Owner's use.
- (iii) Operation and maintenance manuals shall be carefully prepared in co-operation with equipment manufacturers and include miscellaneous parts necessary for proper, efficient operation of all equipment.
- (iv) Manuals shall also include spare parts list for each type of equipment, component, control and device installed together with manufacturer's name and address so such items can be suitably identified and purchased. Include list of recommended spares.

(q) **Cleaning, Lubrication and Adjustment**

- (i) Immediately prior to completion of Work:
 - (A) Remove all dust, dirt and other foreign matter from internal surfaces of enclosed electrical apparatus and equipment.
 - (B) Remove all temporary protective coverings, coatings and temporary labels.
 - (C) Clean, repair, lubricate and adjust all mechanism and moveable parts of apparatus and equipment leaving it in

new condition and operating properly.

- (D) Balance demand loads for service and distribution feeders within five percent upon completion of Work and after the building is in full operation.

(r) **Inspection and Testing**

- (i) Systems, equipment, and all major items of material shall be tested to the satisfaction of the Consultant, and as required to establish compliance with plans and Specifications, and with the requirements for the Authorities having jurisdiction. Such tests shall be paid for by the Contractor. Tests shall be conducted by third party specializing in the work and stamped by Professional Engineer licensed to practice in the Province of Ontario.
- (ii) Faulty and defective equipment shall be replaced with new materials. Conductors which are found to be shorted or grounded, or to have less than proper insulation resistance, shall be replaced with new conductors.
- (iii) Tests shall include but are not limited to the following:
 - (A) Test of secondary voltage cables shall include megger tests to establish proper insulation resistance, and phase-to-ground resistance of cables. Record findings.
 - (B) Test of system neutral to establish proper insulation resistance and isolation of neutral from ground except for required ground connection at Service.
 - (C) Polarity tests - to establish proper polarity connections to all sockets and receptacles.
 - (D) Verify rotation of all three circuit phases.

(s) **Certificate of Tests**

- (i) When Work is complete submit three (3) copies of test results and a signed statement listing all tests that have been performed as required by Specifications and manufacturer's instructions.

(t) **Completion**

- (i) Provide receipts from designated representative of Owner for portable and loose materials (e.g. spare fuses, fixture re-lamping equipment and the like).
- (ii) Provide copy of final inspection certificate from Electrical Inspection Authority and fire alarm verification report.
- (iii) Provide manufacturers corrected "as built" Shop Drawings for all major electrical items and systems, including all Shop Drawings returned for modifications.

(u) **Alterations To Existing Buildings**

- (i) Note that certain alterations and structural changes are to be made to existing buildings. Contract & existing building drawings and site are to be examined to determine extent of alterations affecting existing electrical systems. Where existing conduits and wires run through areas to be altered, to feed other parts of existing building, they shall be re-routed and reconnected to maintain their original function.
- (ii) Electrical services and auxiliary services (controls and the like) shall be maintained continuously without interruption. Interruptions to services shall be confined to periods of time to be designated by Consultant, and/or Owner's designated representative.
- (iii) Perform removal, reinstallation, cutting and patching of ceiling and walls as required in the existing buildings.
- (iv) Cutting directly related to electrical work, regardless of whether such work occurs in new or existing construction, shall be coordinated and performed by electrical Subcontractor involved, under supervision of Contractor.
- (v) Where existing electrical items or systems are demolished and removed from existing construction assemblies, the Contractor involved shall be responsible for infilling entire hole left after removal of item or system with new construction assembly to match existing. Where new electrical items or systems are installed through existing construction assemblies, the Contractor involved

shall be responsible for properly sized and accurate cutting of existing construction assembly to allow installation of new Work.

END OF SECTION

1. GENERAL

(a) **References**

- (i) Conform to Section 16010 - Electrical General Requirements.

(b) **Materials**

- (i) Materials shall be new, of Canadian manufacture where available, first quality and uniform throughout.
- (ii) Electrical materials shall be CSA approved and be so labeled. Material not CSA approved shall receive acceptance for installation by Electrical Safety Authority (ESA) Special Inspections Branch before delivery, and modifications and charges required for such acceptance shall be included in Work of this Section. Material shall not be installed or connected to the source of electrical power until approval is obtained.
- (iii) Confirm capacity, ratings and characteristics of equipment items being provided to supply power to equipment provided under other Sections of the Work. Resolve discrepancies before such items are purchased.

(c) **Material Acceptance**

- (i) Acceptance of materials installed presumes that materials have not been damaged or exposed to conditions that would adversely affect performance and life expectancy.
- (ii) If in the opinion of the Consultant, materials have sustained damage, or have been exposed to abnormal conditions it shall be the responsibility of the Contractor to have such tests performed as deemed necessary by the Consultant to establish condition and therefore, acceptability of installed materials.

2. PRODUCTS

(a) **Raceways**

- (i) Rigid galvanized steel conduits shall comply with CSA Specification C22.2 No. 45.

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- (ii) Epoxy Coated conduits shall comply with CSA Specification C22.2 No. 45 with zinc coating and corrosion resistant epoxy coating both inside and outside.
- (iii) Electrical metallic tubing (EMT) shall comply with CSA Specification C22.2 No. 83. Connectors and couplings to be forged steel and rain tight. Connectors to have factory-installed insulated throats. No screw type connectors or couplers allowed.
- (iv) Rigid PVC conduits shall comply with CSA Specification C22.2 No. 136.
- (v) Watertight flexible conduits: "Sealtite" PVC jacketed flexible steel with Hubbell-Kellum strain relief grips or approved equivalent; shall comply with CSA Standard C22.2 No. 56.

(b) **Wire & Cable**

- (i) Branch wire and cable shall comprise copper conductors, sized as noted, rated 90 deg. C., 600 volt minimum flame retardant insulation, and CSA approved for application.
- (ii) Wire and cable installed in conduit shall be RW90 - Flame retardant and comply with CSA Specifications.
- (iii) Use Electrovert "Z-Type" or approved equivalent code markers for control & communication conductors.

3. PRODUCTS

(a) **Equipment Locations**

- (i) Approximate locations of electrical equipment, and the like, are given on the Drawings. In absence of definite detail, exact location of equipment/outlets shall be determined on site as Work progresses.
- (ii) The right is reserved to alter the location of equipment and outlets a distance of up to three meters without additional cost to the owner, providing notice is given prior to installation.

(b) **Holes & Drilling**

- (i) Pneumatic hammers and percussion drills are prohibited.
- (ii) Where not sleeved, make holes through concrete walls and floors by core-drill only. Obtain Consultant's approval before drilling.
- (iii) Seal holes and sleeves through floors to serve as water dam.

(c) **Cutting & Patching**

- (i) Layout and install Work in advance of other Sections for all new Work. Bear all costs resulting from failing to comply with this requirement.
- (ii) Pay for cutting and patching and making good as required for Work of this Division by reason of faulty or late Work. Employ appropriate trades already engaged on the site to perform such cutting, patching and making good existing walls, floor, ceiling, etc. Before commencing, obtain Consultant's approval for extent and nature of cutting. Make good disturbed surfaces to the Consultant's approval.

(d) **Hangers & Inserts**

- (i) Provide necessary hangers and inserts for Work of this Division.
- (ii) Fasten to cast-in place concrete by suitable drilled or cast-in inserts.
- (iii) Fasten to structural steel using bolts or welded fasteners.
- (iv) Do not use wood, chain, wire lashings, strap or grappler bar hangers except where noted or detailed.
- (v) Support outlet and junction boxes independently of the conduits running to them where required by electrical code and where deemed necessary by the Consultant, use steel angle brackets or steel rods to support outlets and fixtures, to the building structure.
- (vi) Drilled fastenings to concrete shall be self-drilling concrete anchors, Phillips 'Red-Head' or approved equivalent. The maximum weight per fastening shall not exceed 25% of manufacturer's 'pull-out' load data.

(e) **Painting**

- (i) Hangers, support framing and all equipment fabricated from ferrous metals which are not protected with zinc or other suitable corrosion-resistant finish shall have at least one coat of a corrosion-resistant paint applied before shipment or immediately on arrival at the site.
- (ii) After installation, touch up all scratches, chips, other damage and defects in paint, using zinc chromate primer or paint or special enamels as necessary to match the original.
- (iii) Finish and colour of all equipment shall be coordinated to provide uniform appearance.
- (iv) Paint all interior conduit to match existing interior finish. Do not paint over nameplates.

(f) **Nameplates & Schedules**

- (i) Identify electrical equipment supplied under this Division with 3 mm thick black laminated plastic nameplate to indicate equipment controlled to provide instruction or warning. Fasten each plate with two chrome plated screws. Lettering shall be 6 mm high for small devices such as control stations and at least 13 mm high for all other equipment. Submit a list of proposed nameplates for approval before installation. All labeling shall be done to Go Transit DRM standards. Review requirements prior to shop drawings and ordering of materials.
- (ii) Provide panelboards with typewritten schedules identifying outlets and equipment controlled by each branch circuit including existing panels being changed. Protect schedules with non-flammable clear plastic.
- (iii) Identify junction boxes, pull boxes, cover plates, conduits and the like, provided for future extension, indicating their function (e.g. power, fire alarm, communication).
- (iv) Verify room names and numbers prior to listing on nameplates and schedules.

(g) **Branch Circuit Wiring & Feeder Cables**

- (i) Provide branch circuit wiring, conduits and feeders as required for power and auxiliary systems. Separate conduit systems shall be provided for power, control and auxiliary communication systems.

(h) **Conduit, Raceways & Wireways**

- (i) All wiring and cables shall be installed in conduit.
- (ii) Electrical metallic tubing (EMT) may be used in place of rigid conduit in dry locations subject to governing regulations, embedded in masonry walls, and concealed above suspended ceilings. Connectors shall be provided with factory-installed insulated throats. No screw type connections permitted compression type only to be used.
- (iii) Use flexible metallic conduit for connections to chain suspended and recessed fixture drops, motors and similar equipment to prevent transmission of vibration. A code-gauge green grounding conductor shall be provided for all such connections. Use "Sealtite" conduit with Hubbell-Kellum Sealtite or approved equivalent conduit strain relief grips for all such connections at motors.
- (iv) Fasten every conduit and cable to structure by means of approved conduit clamps or clips. Wire lashing is not acceptable.
- (v) Conceal conduits and wiring except where noted. Run exposed conduits parallel to building lines and to other conduits. Provide every empty conduit with a pull rope (3 mm polypropylene rope) and identify to designate its function (power, telephone, fire Alarm and the like).
- (vi) Where conduit is installed in concrete slabs, obtain approval from consultant, prior to commencing the Work, on both maximum dimension and cross-overs which may be used therein.
- (vii) Install conduits in such a manner as to conserve head room and interfere as little as possible with free use of space through which they pass. Obtain Consultants approval for routing of same. Keep conduits at least 150 mm clear high temperature work.

- (viii) Conduits installed at the roof level of exposed structures, shall be run tight to roof deck, above purlins and beams.
 - (ix) Conduit and cables for electrical work in demountable type and drywall type partitions shall enter from above, from a junction box concealed in the ceiling above and shall comprise a flexible conduit connection.
 - (x) All branch & feeder wiring shall be provided with a separate code gauge supplementary grounding conductor run in each conduit or duct, terminating at ground block at panelboards. Use of metallic conduit as ground will not be acceptable.
 - (xi) Run conduits exposed in mechanical equipment rooms, electrical rooms, fan rooms, and the like, and installed after mechanical and other equipment is completed. Install fixtures, outlets, starters, etc., to clear and to suit application.
 - (xii) Wiring, boxes, conduit fittings, etc., in hazardous areas shall conform to Ontario Electrical Code, covering explosion-proof areas. Provide conduit seals where required by these regulations.
 - (xiii) Provide housekeeping curbs around exposed conduits feeding panels, disconnect switches, starters, etc. penetrating floors in front of walls.
- (i) **Wire & Cable**
- (i) Wire and cable shall not be installed at temperatures below 20oC unless "minus 40" type is used. Wiring to heating equipment shall be rated 90oC minimum, the capacity of which shall be limited to 75oC value.
 - (ii) Conductors used for all auxiliary systems (e.g. fire alarm) shall be tagged and/or colour-coded, and where applicable shall agree with manufacturer's wiring diagrams.

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- (iii) Minimum wire sizes for power wiring shall be #12 AWG gauge unless specified otherwise. Minimum wire size for "Common" neutral conductors shall be #10AWG. Control wiring shall be #14AWG red insulation. Maximum voltage drop between furthest outlet of any circuit, when fully energized, and panel to which it is connected shall not exceed two percent except for electric heating circuits which shall not exceed one percent. All wire #14AWG and larger shall be stranded.
- (iv) Cables shall be terminated with moisture-proof connectors, clamped to sheet metal enclosure by a single non-ferrous locknut and grounding bushing.
- (v) Sheaths of multi-conductor cables shall be grounded at both cable ends.
- (vi) Sheaths of single conductor cables shall be grounded at supply end only. Provide a code gauge grounding conductor with each feeder cable run.
- (vii) Number of wires indicated for lighting and power, motor and motor control, alarm, signal, communications, and auxiliary systems is intended to show general scheme only. The required number and types of wires shall be installed in accordance with equipment manufacturer's diagrams and requirements, and with requirements of the installation, except that Specification standards shall not be reduced.
- (viii) Solderless connectors with nylon-jacketted "Vibration-proof" screw-on wire connectors ideal "Wing Nuts", rated 600 volts shall be used for joints in branch wiring.
- (ix) Use compression joints and terminals for all control wiring; and all conductors #4 AWG and larger. Mechanical connections are acceptable at panelboards and circuit breakers where these are part of factory-assembly.
- (x) Wire or cables in feeders, sub-feeders and branch circuits shall be colour-coded in accordance with Ontario Electrical Safety Code. Each end of feeder terminations (e.g. in switchboard, panelboards, switches, splitters and the like) Code Phase A - Red, Phase B - Black, Phase C - Blue, Neutral - White.

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- (xi) Use C.G.E. Vulkan X-Link insulated cables for circuits protected by ground fault circuit interrupters, or approved equivalent.
- (xii) Include in each conduit, tubing and raceway, a code gauge green supplementary grounding conductor which shall be connected to suitable ground bus in equipment.
- (xiii) Armoured or sheathed cables may be used only for wiring within demountable and dry wall type partitions and if additionally specified or detailed; however it shall not be directly buried in or below concrete slabs.

(j) Outlet, Junction & Pull Boxes

- (i) Use suitable electrical boxes for terminations and junctions on conduit work. Install pull boxes where necessary to permit installation of conductors. Support pull boxes, outlet boxes, panels and other cabinets independently of conduit.
- (ii) Provide each light switch, wall receptacle and other device with an outlet box of suitable dimensions and a faceplate. Outlet boxes shall be adapted to their respective locations.
- (iii) "Thruwall" and "Utility" type boxes shall not be used.
- (iv) Electrical boxes and panels shall be CSA approved, code-gauge sheet metal, galvanized or with suitable protective treatment. Secure covers with screws or bolts.
- (v) Outlet boxes shall not be installed "Back-to-Back" in walls; separate by a minimum of 150 mm.
- (vi) Use "Masonry Type" outlet boxes for flush installation in masonry walls as detailed on Drawings. Standard sectional boxes, 1004, 1104 and the like shall not be used.
- (vii) Install surface mounted devices, in cast conduit fittings, with threaded hubs and suitable stainless steel faceplates.
- (viii) Main pull and junction boxes (excluding obvious outlet boxes) shall be clearly identified to Go Transit DRM standards. Review requirements prior to project start.

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- (ix) In addition, each box shall be identified with a system and service designator of logic reference to the service.

(k) **Access Doors & Access Markers**

- (i) Supply access doors for installation under the Work of other Divisions where electrical equipment requiring maintenance or adjustment or inspection is located above ceilings, within walls or behind furring; except ceilings of lay-in removable panel type.
- (ii) Access doors shall be 12 gauge hinged metal Stelpro Ltd. or approved equivalent #722 flush type, minimum size 300 mm x 300 mm (12" x 12") "Reach-in" 300 mm x 600 mm (12" x 24") "Crawl-in", with prime coat finish, concealed hinges, screwdriver lock and plaster key. Access doors in finished masonry or drywall construction shall be #722 less plaster key. Access doors shall be #726 in acoustic tile ceilings; #704 in drywall ceiling and #726E in plaster ceilings.
- (iii) Access doors in fire rated ceiling assemblies, all fire rated walls, duct shaft or in corridor walls shall be UL, ULC or WHI listed 1-1/2 hour fire rated access doors equal to LeHage #L1010, Acudor #150B or approved equivalent with screwdriver lock.
- (iv) Where lay-in removable panel ceilings requiring hold-down clips are used, access doors are not required but panels shall be secured with accessible hold-down clips and marked with Buildemup #6 or approved equivalent RH brass paper fasteners inserted through acoustic panel and bent over. Paint heads with blue enamel before installation.
- (v) Obtain approval from Consultant for sizes and locations prior to installation.

(l) **Grounding- General**

- (i) Ground all electrical systems in accordance with provisions of the Ontario Electrical Code.

- (ii) Install grounding conductors to permit the shortest and most direct path from equipment to ground. Install grounding conductors in electrical metallic tubing (EMT) & rigid galvanized conduit with both conductor and conduit bonded at both ends. Provide bonding jumpers with approved clamps to maintain ground continuity of metallic raceway systems at all expansion joints.
 - (iii) Ground connections to grounding conductors shall be accessible for inspection and made with approved solderless connectors bolted to the equipment of structure to be grounded. Clean contact surface prior to making connections to ensure proper metal to metal contact. Connections shall be of the type that grounds both conduit and conductor, and cap screws, bolts, nuts and washers shall be silicon bronze.
- (m) **Fireproofing & Sealing**
- (i) Make watertight seal at sleeves and other openings through floors above grade. Sleeves to extend minimum 25 mm (1 inch) above finished floors.
 - (ii) Provide Fireproofing protection of openings through floors and fire rated walls.
 - (iii) Caulk spaces between conduit, cables, raceways, cabletrays with "Cerafibre" 2300 F packing or approved equivalent to Consultant's approval. Pack and seal both sides of openings with Electrovert "Flameseal" or approved equivalent putty, minimum thickness 25 mm (1"). Install in accordance with the manufacturer's instructions.

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1. GENERAL

(a) Overview

- (i) Provide a complete low voltage lighting control system for the building as shown on the plans and specified herein.
- (ii) Lighting control system shall utilize networking technology connecting relay panels, switches and sensors based upon a 2 wire data line providing both power and data to all devices. The network shall be free topology; therefore a serial loop is not necessary to achieve maximum network distance. The system shall utilize a web server device complete with a touch screen located in a relay panel so that programming and viewing of status can be accomplished at the panel or by any PC connected to the same LAN or via the internet. The lighting control system shall be "BACnet/ IP or BACnet/MSTP ready". Lighting zone programming will be done by the system supplier. Building Automation System supplier will interface into the lighting control panels and map all the graphics on their system so that it can be controlled by BAS.
- (iii) All relay panel interiors shall be pre-assembled complete with the necessary relays, transformers and devices. Relay panels that are wall mounted shall have interiors separate from enclosure so as to permit easy mounting, conduit installation and wire pull to enclosures. Enclosures mounted in the ceiling space are not required to have separate interiors.

(b) Manufacturers

- (i) All components are to be supplied by same manufacturer. Manufacturer to be a supplier of this type of equipment for over 10 years.
- (ii) Lighting control system shall be the Dialog system manufactured by Douglas Lighting Controls.

(c) Prior Approval Submissions

- (i) Manufacturers wishing to submit quotations on the lighting control system must pre-qualify. Pre-qualification information must be submitted to the electrical consulting engineer not later than ten (10) working days prior to the final closing of tenders for this project.
- (ii) The manufacturer must be prepared to demonstrate the equipment being proposed before the closing of tender.

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- (iii) Submit a one-line diagram of the proposed system configuration for review.

(d) **Instruction Manuals**

- (i) Supply manuals on system components to permit ease of installation, system operation and maintenance including, but not limited to the following:
- Lighting control system step-by-step operating instructions.
 - Relay panel schedules indicating circuits connected, inputs assigned, area controlled, panel location and panel equipment details.

2. PRODUCTS

(a) **Relays**

- (i) Lighting control relays shall be mechanically latching and shall come complete with a manual ON/OFF switch. The mechanical switch shall continuously display the true state of the relay's internal contacts.
- (A) Single pole relays shall be rated and UL/CSA listed for 120, 277 and 347 VAC lighting loads at 20 amps. Use Douglas WR-6161.
- (B) Double pole relays shall be rated and UL listed for 208, 240 or 480 VAC and CSA for up to 347 VAC lighting loads at 20 amps. Use Douglas WR-6172.
- (ii) The relays shall have a label indicating the short circuit fault current rating as per the NEC 2005. The relays shall have passed UL 508 short circuit tests at 14,000 amperes.
- (iii) Each lighting control relay shall be capable of controlling incandescent, fluorescent, electronic ballast and H.I.D. lighting loads and have an inrush capability of 3000 amperes. Relays shall be complete with a 5 year Manufacturer's Limited Warranty.
- (iv) Lighting control relays shall include captive screw terminals for both the line voltage and the low voltage connections. Switching the relay shall be accomplished with ONE signal wire and a common return. The signal wire shall be able to signal ON and OFF and shall carry status current that indicates if the relay is ON or OFF.

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(b) **Pre-assembled Relay Panels: PWEx Series**

- (i) Where indicated on the drawings, provide a factory pre-assembled relay panel. The panel's enclosure shall be for surface or flush installation, with a screw-on cover or a hinged door assembly as required.
- (ii) The panel shall consist of a pre-assembled interior insert; UL/CSA approved Douglas Cat No: CxxM or WxxM series with capacities for 6, 12, 24, 36, 48 or 72 relays as required. Panel enclosure must be UL/CSA Approved.
- (iii) Panel interior shall have the following pre-assembled and pre-wired:
 - Suitable divider separating class 1 and class 2 compartments.
 - Control transformer, UL/CSA approved for class 2 circuits, Douglas Cat. No. WR-4075-xxx where xxx = primary voltage.
 - Low voltage relays as required by switched circuits shown on plans or schedules.

(c) **Relay controls installed in relay panels Relay Drivers: WRD-3408**

- (i) The low voltage relays shall be connected to the Dialog system by a WRD-3408 relay driver unit. Each WRD-3408 relay driver has 8 outputs. Provide enough relay driver units to so that each relay in the system is connected to an output.
- (ii) Relay drivers shall be able to control relays on and off, determine relay status, provide feedback as to whether a relay is connected and be addressable within the Dialog network. Control devices as required.

(d) **Device Network Controls:**

- (i) The WLC-3150 Lighting Control Unit (LCU) shall be able to operate the local lighting control system on a stand alone basis. For large installations that require multiple LCUs, all units must be able to operate on a stand alone basis should they become disconnected from the network.
The LCU shall provide the following user interfaces for viewing and editing data:
 - Built-in touch screen, for convenient access.
 - Built-in web server, accessed via TCP/IP connection.

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- (ii) Each LCU shall provide the following standard lighting control functions:
 - Program and control up to 256 relays or dimming points.
 - Link outputs to switches and/or sensors to provide On/Off, Preset, or Dim Up/Down commands. In addition, functions such as flick warn, time out, daylight harvesting, enable/disable, quiet time and cleaning mode can be associated with switches, sensors and relays and have these features scheduled by time of day or date.
 - Be able to group outputs and inputs to facilitate various control schemes.
 - Be able to program peripheral devices (switches, sensors, etc.) to function differently based on specific situations such as time-of-day, demand response status, user intervention, etc.
 - Photo sensor to provide dusk-to-dawn (switching) and/or day light harvesting (dimming) with multiple set points to different groups.
 - Astronomic controls for dusk-to-dawn applications not requiring light sensor.
 - Provide log reports for diagnostic and run time tracking purposes.
 - Time schedule types include: 7day weekly scheduling, 365 day date specific and event scheduling.
- (iii) The system shall have pre-defined logical applications for lighting controls.
 - Astronomical Time Clock
 - Daylight Harvesting (CLC) – Open Loop & Close Loop
 - Exterior Threshold Photo Control
 - Time Out (Unoccupied Mode)
 - Quiet Mode
 - Permanent Block
- (iv) The system must have the ability to operate multiple items and modes with a single action and sequence them with time offsets.
- (v) Each Lighting Control Unit shall provide the following system functions:
 - Demand response: connection via TCP/IP or contact input.
 - Accept software updates via USB port or Ethernet connection.
 - Backup data via Ethernet, RS485 or USB port.
- (vi) If required, the system shall have the ability to communicate to a system integrator or other software specialist to program the system. It shall be possible to view control the system via the BACNet integration software. The system shall provide the following features:
 - Program and control up to 256 relays and dimming points.

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- Control and receive status for Groups
- Control and receive status for Presets
- Receive status from Occupancy Sensors
- Be able to control outputs and program elements to facilitate various control schemes.

(e) Wall Switches & Accessories

- (i) Switches shall connect to the lighting control network via a common 2-wire, non polarized data line. Switches shall be configured and programmed to control one or more outputs in the lighting control system.
- (ii) Switches shall have addresses set with an infra-red setting device that accesses the front of the switch and permits setting of the switch without removing the switch from the wall box.
- (iii) Switches are linked to a single output or a group of outputs.
- (iv) Switches, occupancy sensors and daylight sensors can be set to a common output address to permit multiple points of control for a single relay or dimming output.
- (v) Switches, occupancy sensors and daylight sensors can be set to a common group address to permit multiple points of control for a group of outputs.
- (vi) Each switch can be programmed for ON/OFF control of outputs, UP/DOWN control of 0-10VDC dimming ballasts, and/or preset control to set a specific lighting scene.
- (vii) Switch modules shall be available with 1, 2, 3, or 4 single button switches per gang or 8 two button switches per gang. Switch to fit standard 'Decora' opening.
- (viii) Switches and switch hardware shall mount to standard wall boxes.
- (ix) Switches shall include integral LEDs to indicate both ON and OFF output/group status.
- (x) Each switch shall permit a paper switch label to be inserted for identification purpose. The label shall be held in place under a clear plastic cover and shall be field replaceable should the operation of the switch change. Permanently etched switches are not acceptable.
- (xi) Adhere to the factory recommended wiring practices so that physical removal of any single switch shall still permit communication between relay panels in the rest of the lighting control network.

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- (xii) Keyed switches shall be connected to the lighting control network via a 2-wire, non polarized data line.
- (xiii) Keyed ON/OFF switches shall include an integral LED to indicate both ON and OFF states.
- (xiv) Keyed switches can be programmed to control individual outputs or groups of output and can also be programmed to enable/disable peripheral devices such as switches or sensors

(f) **Photo Sensor & Daylight Controls**

- (i) Provide where required a light sensor capable of sensing from 1 to 60,000 lux for direct light measurement or 1 to 6000 lux for indirect light measurement. The sensor shall derive both its power and data information from the Dialog data line. The sensor shall be available in both indoor and outdoor versions.
- (ii) The ambient light level shall be continuously monitored in lux by the sensor. The sensor shall broadcast to the network the existing light level when requested or when there is a change in detected light level.
- (iii) Set point adjustments can be made via the touch screen or web server interface in the WLC-3150 Network Controller.
- (iv) Each sensor can be programmed to provide ON/OFF control of relays, raise/lower of 0-10vdc type or demandflex® ballasts.
- (v) One sensor shall permit different outputs to switch and/or control light levels as ambient light changes. Light levels shall be controlled by 'sensor only' or in combination with a time schedule.
- (vi) It shall be possible to set a maximum light level which cannot be exceeded during daylight harvesting operations or for non daylight controlled areas, a permanent or "tuned" light level to maximize energy savings.

(g) **Handheld Programmer**

- (i) Provide a WIR-3110 Handheld Programmer to facilitate the following functions:
 - Set switch type and address
 - Create presets
 - Calibrate photo sensors and set addresses and light levels
 - Set addresses of motion sensors

3. INSTALLATION

(a) **Relay panels and conduit.**

- (i) Ensure that conduit for line voltage wires enters panel in line voltage areas and conduit for low voltage control wires enters panel on low voltage areas. Check manufacturer's drawings for location of line and low voltage areas.

(b) **Daylight Sensors**

- (i) Locate daylight sensors as per manufacturer's recommendations for closed loop and open loop applications. Ensure there is no artificial light shining directly into the sensor head.
- (ii) Adhere to manufacturer's recommendations for wiring and programming.

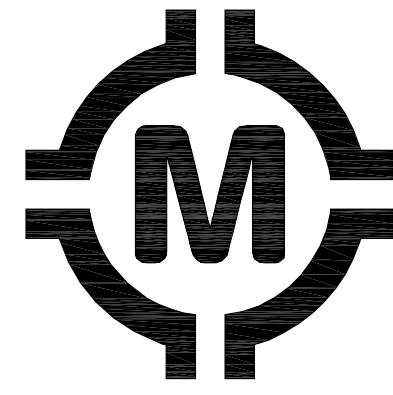
(c) **Wiring**

- (i) For low voltage wiring, provide wire type as recommended by the manufacturer.
- (ii) Adhere to manufacturer's recommendations as to maximum wire length and maximum quantity of relays per switch.
- (iii) Dialog Data line shall be single pair #18 LVT wire type or equivalent.

(d) **Line Voltage Wiring**

- (i) Use wire gauges from #10AWG to #12AWG as appropriately sized for the branch circuit.

END OF SECTION



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PT-2018-STNS-557**


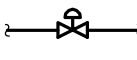

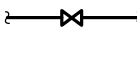


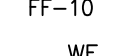






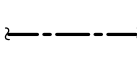
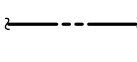
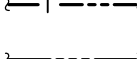
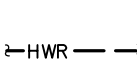
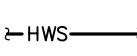
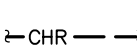
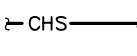
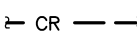
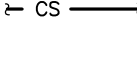
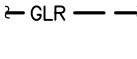
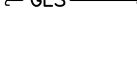
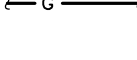
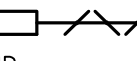
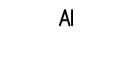
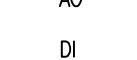
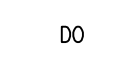




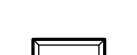


METRIC

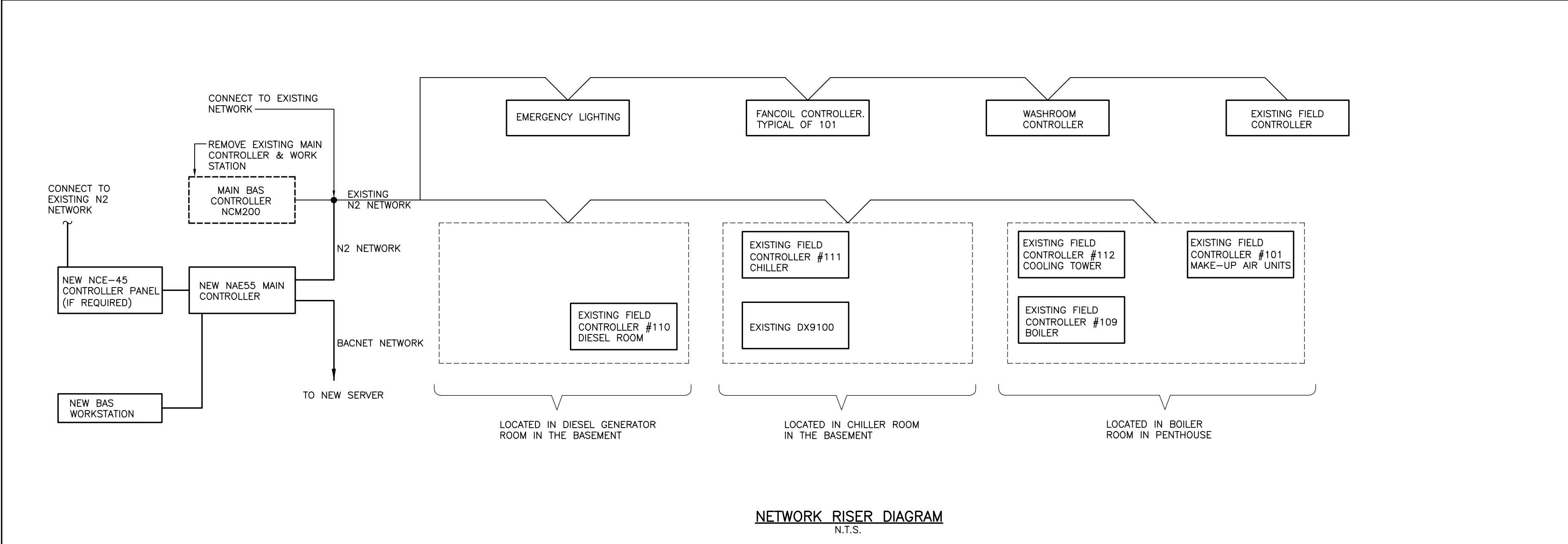
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DRAWING LIST

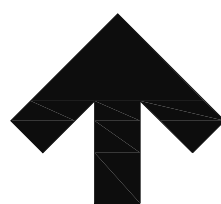
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	SIGN SHEET
M-001	DRAWING LIST, SYMBOLS & NETWORK RISER DIAGRAM – MECHANICAL
M-002	BASEMENT FLOOR LAYOUT & CONTROL DIAGRAMS – MECHANICAL
M-003	MAIN FLOOR LAYOUT & CONTROL DIAGRAMS – MECHANICAL
M-004	TRACK LEVEL LAYOUT & CONTROL DIAGRAMS – MECHANICAL
M-005	3RD, 4TH, 5TH & 6TH FLOOR LAYOUTS – MECHANICAL
M-006	7TH FLOOR & ROOF PLAN LAYOUTS & CONTROL DIAGRAMS MECHANICAL
M-007	CONTROL DIAGRAMS – MECHANICAL
E-001	BASEMENT FLOOR – LIGHTING CONTROLS SYSTEM LAYOUT
E-002	MAIN FLOOR LAYOUT – LIGHTING CONTROL SCHEMATIC
E-003	TRACK LEVEL – LIGHTING CONTROL LAYOUT

SYMBOLS

	PUMP
	AUTOMATIC CONTROL VALVE - TWO WAY
	MIXING OR DIVERTER VALVE (3-WAY)
	VALVE
	UNIT HEATER #2
	FORCE FLOW HEATER #10
	PERIMETER CONVECTOR (WALL FIN CONVECTOR)
	FAN COIL UNIT #87
	ROOM THERMOSTAT
	ROOM THERMOSTAT WITH GUARD
	EXHAUST FAN MOUNTED ON THE CURB
	IN-LINE EXHAUST FAN
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC TEMPERED WATER
	DOMESTIC HOT RECIRC. LINE
	HEATING WATER RETURN
	HEATING WATER SUPPLY
	CHILLED WATER RETURN
	CHILLED WATER SUPPLY
	CONDENSER WATER RETURN
	CONDENSER WATER SUPPLY
	GLYCOL RETURN
	GLYCOL SUPPLY
	GAS LINE
	AUTOMATIC MODULATING DAMPERS
	ANALOG IN
	ANALOG OUT
	DIGITAL IN
	DIGITAL OUT
	TEMPERATURE SENSOR
	WATER FLOW SWITCH
	OUTDOOR SENSOR
	SPACE TEMPERATURE (FOR CONTROL DIAGRAMS)
	SUPPLY AIR FAN
	EXHAUST AIR FAN

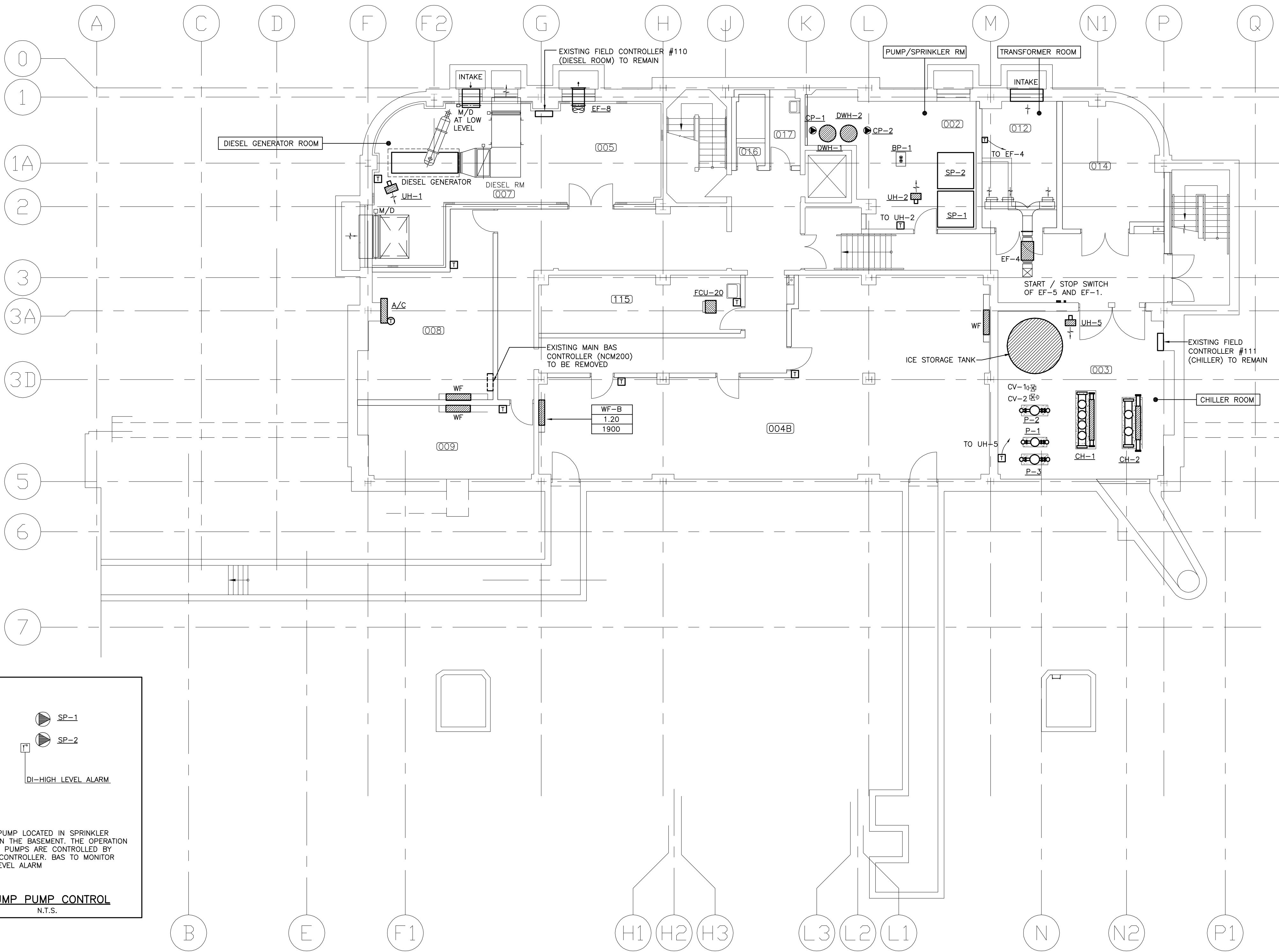
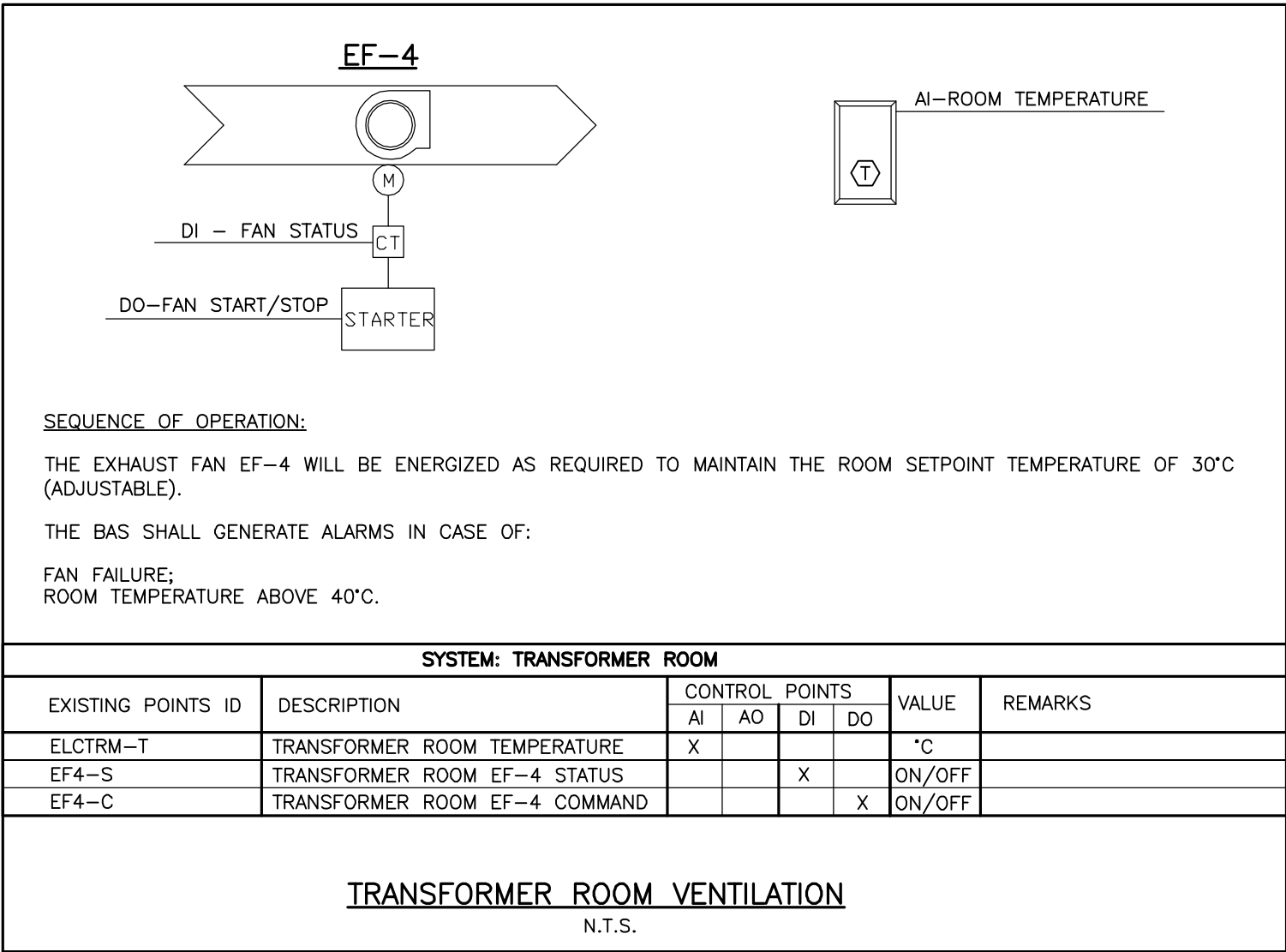
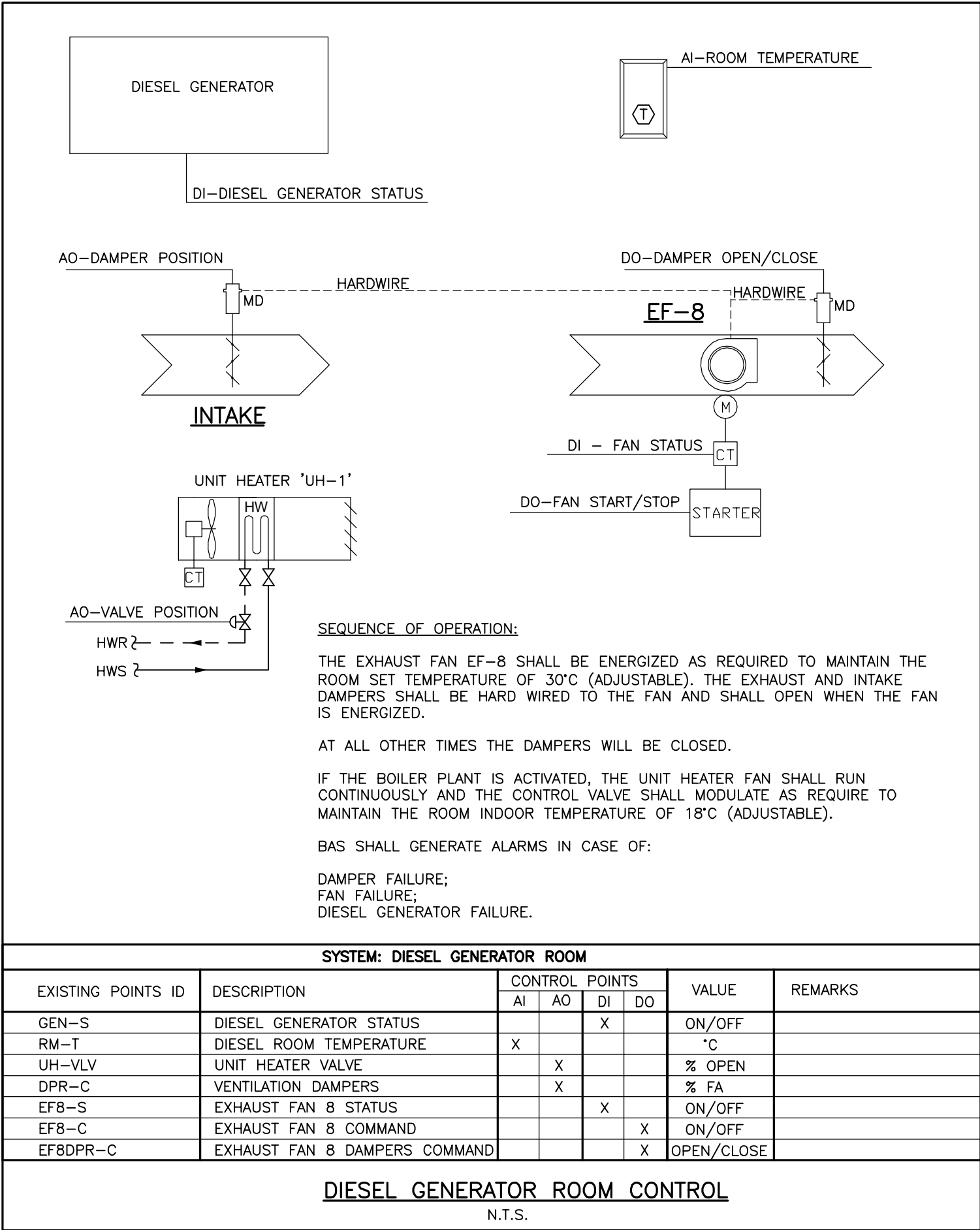


REFERENCE DRAWINGS				ISSUE				REVISIONS				DRAWN BY: A.S. 17/06/08		DESIGNED BY: A.S. 17/06/08					METROLINX PROJECT NO. 135174			
															HAMILTON GO CENTRE							
															BAS & CONTROL UPGRADES FOR HVAC AND LIGHTING							
															DRAWING LIST, SYMBOLS & NETWORK RISER DIAGRAM – MECHANICAL							
				2.	17/06/08	ISSUED FOR TENDER											588 EDWARD AVE., UNIT 25, RICHMOND HILL, ONT., L4C 9Y6 TEL. (905)-787 8885 FAX (905)-787 8771 SAB ENGINEERING PROJECT # 2013-06	CORPORATE INFRASTRUCTURE	CONTRACT NO.	DWG. NO.	REV.	SHEET
DWG NO.	TITLE			1.	13/10/21	ISSUED FOR REVIEW										PT-2018-STNS-557			M-001	0	3 of 12	
				REV.	DATE	ISSUED FOR				REV.	DATE											






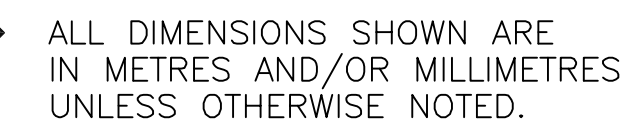
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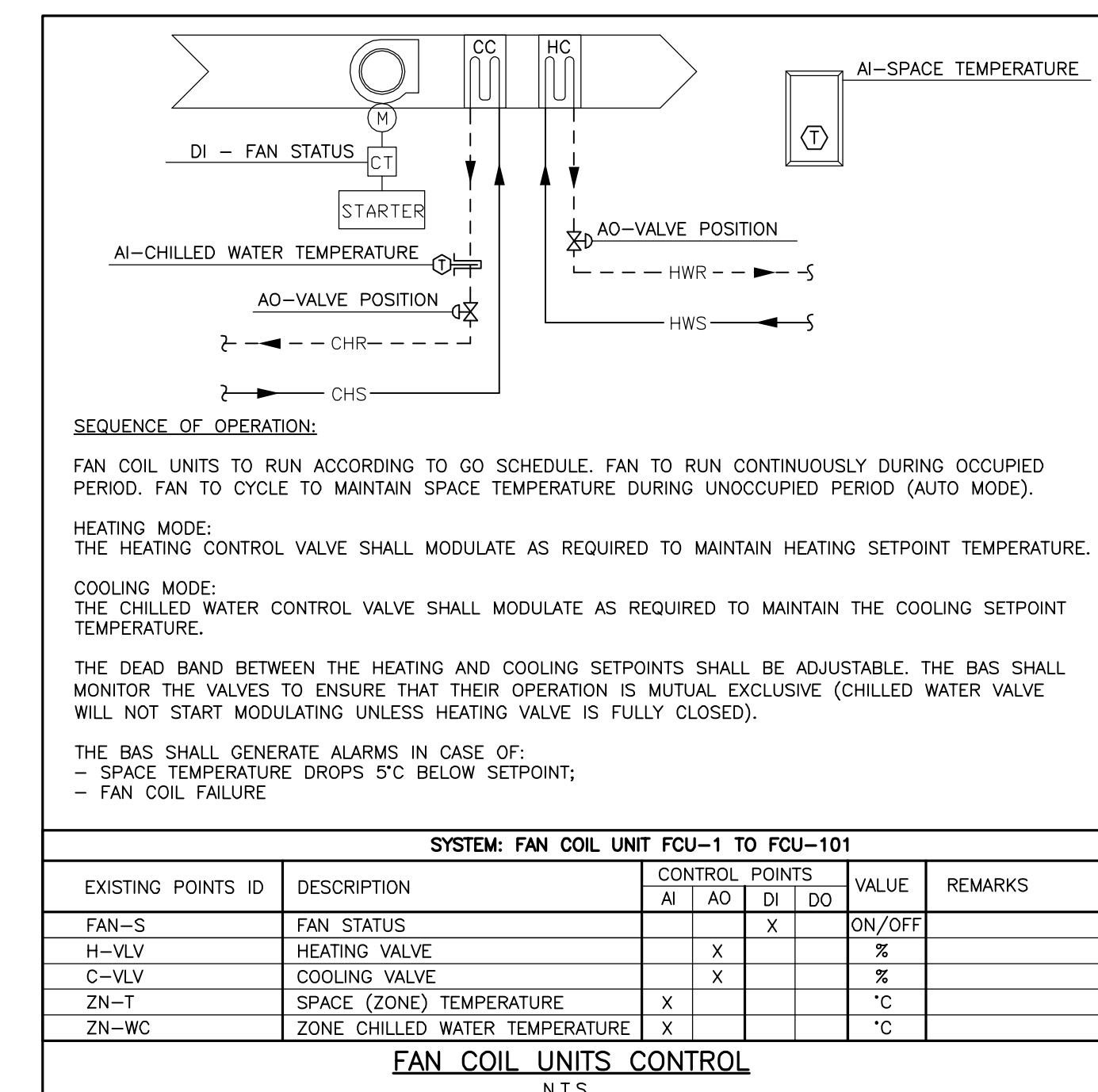


BASEMENT FLOOR LAYOUT - MECHANICAL
SCALE: 1:100



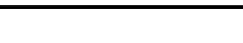
REFERENCE DRAWINGS		ISSUE		REVISIONS		DRAWN BY: A.S. 17/06/08	DESIGNED BY: A.S. 17/06/08		 588 EDWARD AVE., UNIT 25, RICHMOND HILL, ONT., L4C 9Y6 TEL. (905)-787 8885 FAX (905)-787 8771 SAB ENGINEERING PROJECT # 2013-06	 METROLINX CORPORATE INFRASTRUCTURE	HAMILTON GO CENTRE			
BAS & CONTROL UPGRADES FOR HVAC AND LIGHTING														
BASEMENT FLOOR LAYOUT & CONTROL DIAGRAMS – MECHANICAL														
CONTRACT NO. PT-2018-STNS-557		DWG. NO. M-002		REV. 0	SHEET 4 of 12									
DWG NO.		TITLE		REV.	DATE	ISSUED FOR	REV.				DATE			



SYSTEM: FAN COIL UNITS										
FCU No.	FLOOR	ROOM No. & NAME	FCU No.	FLOOR	ROOM No. & NAME					
FCU-1	MAIN	103E	FCU-49	3	OFFICES 303					
FCU-2		103A	FCU-53							
FCU-3		103A&B	FCU-57							
FCU-4		103B	FCU-61							
FCU-5		103D	FCU-65							
FCU-6		104B	FCU-69							
FCU-7		104C	FCU-73							
FCU-8		104D	FCU-77							
FCU-9		104E	FCU-81							
FCU-10		104C	FCU-85							
FCU-11		102	FCU-89							
FCU-12		102	FCU-93							
FCU-13		102	TOTAL: 12							
FCU-14		102	FCU-50			4	OFFICES 403			
FCU-15		102	FCU-54							
FCU-16		102	FCU-58							
FCU-17		106	FCU-62							
FCU-18		106	FCU-66							
FCU-19		106	FCU-70							
FCU-20	BASEMENT	FCU-74								
FCU-21		MAIN			FCU-78					
FCU-22					FCU-82					
FCU-23					FCU-86					
FCU-24					FCU-90					
FCU-25					FCU-94					
FCU-26					TOTAL: 12					
FCU-27					FCU-51			5	OFFICES 503	
FCU-28					FCU-55					
FCU-29					FCU-59					
FCU-30					FCU-63					
FCU-31					FCU-67					
FCU-32					FCU-71					
FCU-33					FCU-75					
FCU-34					FCU-79					
FCU-35					FCU-83					
FCU-36					FCU-87					
FCU-37					FCU-91					
FCU-38					FCU-95					
FCU-39	104		TOTAL: 12							
FCU-40	103C	FCU-52	6	OFFICES 603						
FCU-41	122	FCU-56								
FCU-42	122	FCU-60								
FCU-43	107	FCU-64								
TOTAL: 42		FCU-68								
FCU-39	2	FCU-72								
FCU-40		STAIRWELL								
FCU-41		CORRIDOR 201								
FCU-42		CORRIDOR 201								
FCU-43		STAIRWELL								
FCU-44		203								
FCU-45		203								
FCU-46		204								
FCU-47		204								
FCU-48		206					TOTAL: 12			
TOTAL: 10							FCU-101	7	BOILER ROOM	
							TOTAL FCU IN THE BUILDING: 101			

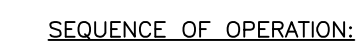


CONTRACT NO.	DWG. NO.	REV.	SHEET
PT-2018-STNS-557	M-003	0	5 of 12

REFERENCE DRAWINGS		ISSUE		REVISIONS		DRAWN BY: A.S. 17/06/08		DESIGNED BY: A.S. 17/06/08					HAMILTON GO CENTRE BAS & CONTROL UPGRADES FOR HVAC AND LIGHTING MAIN FLOOR LAYOUT & CONTROL DIAGRAMS – MECHANICAL			
						CHECKED BY: G.S. 17/06/08		APPROVED BY: G.S. 17/06/08								
						SCALE: 1:125		FULL SIZE ONLY					588 EDWARD AVE., UNIT 25, RICHMOND HILL, ONT., L4C 9Y6 TEL (905)-787 8885 FAX (905)-787 8771 SAB ENGINEERING PROJECT # 2013-06			
		2.	17/06/08	ISSUED FOR TENDER						METROLINX CORPORATE INFRASTRUCTURE		CONTRACT NO. DWG. NO. REV. SHEET PT-2018-STNS-557 M-003 0 5 of 12				
		1.	13/10/21	ISSUED FOR REVIEW												
DWG NO.	TITLE	REV.	DATE	ISSUED FOR	REV.	DATE										



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WHEN THE HEATING PLANT

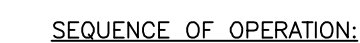
THE BAS SHALL GENERATE ALARM IN CASE OF:
ROOM TEMPERATURE DROPS 5°C BELOW SETPOINT.

SYSTEM: STAIRWELL

EXISTING POINTS ID	DESCRIPTION	CONTROL POINTS				VALUE	REMARKS
		AI	AO	DI	DO		
STR-T	STAIRWELL TEMPERATURE	X				°C	
HTG-VLV	STAIRWELL HEATING VALVE		X			% OPEN	

2ND, 4TH & 6TH FLOORS STAIRWELL CONTROL

N.T.S.



WHEN THE HEATING PLANT

THE BAS SHALL GENERATE ALARM IN CASE OF:
ROOM TEMPERATURE DROPS 5°C BELOW SETPOINT.

SYSTEM: 1ST FLOOR

SYSTEM: 1ST FLOOR WASHROOM	
	CONTROL

EXISTING POINTS ID	DESCRIPTION	CONTROL POINTS				VALUE	REMARKS
		AI	AO	DI	DO		
WRM-T	WEST WASHROOM TEMPERATURE	X				°C	
WHTG-VLV	WEST WASHROOM HEATING VALVE		X			% OPEN	




SYSTEM: CORE WASHROOMS (2-6 FLOORS)

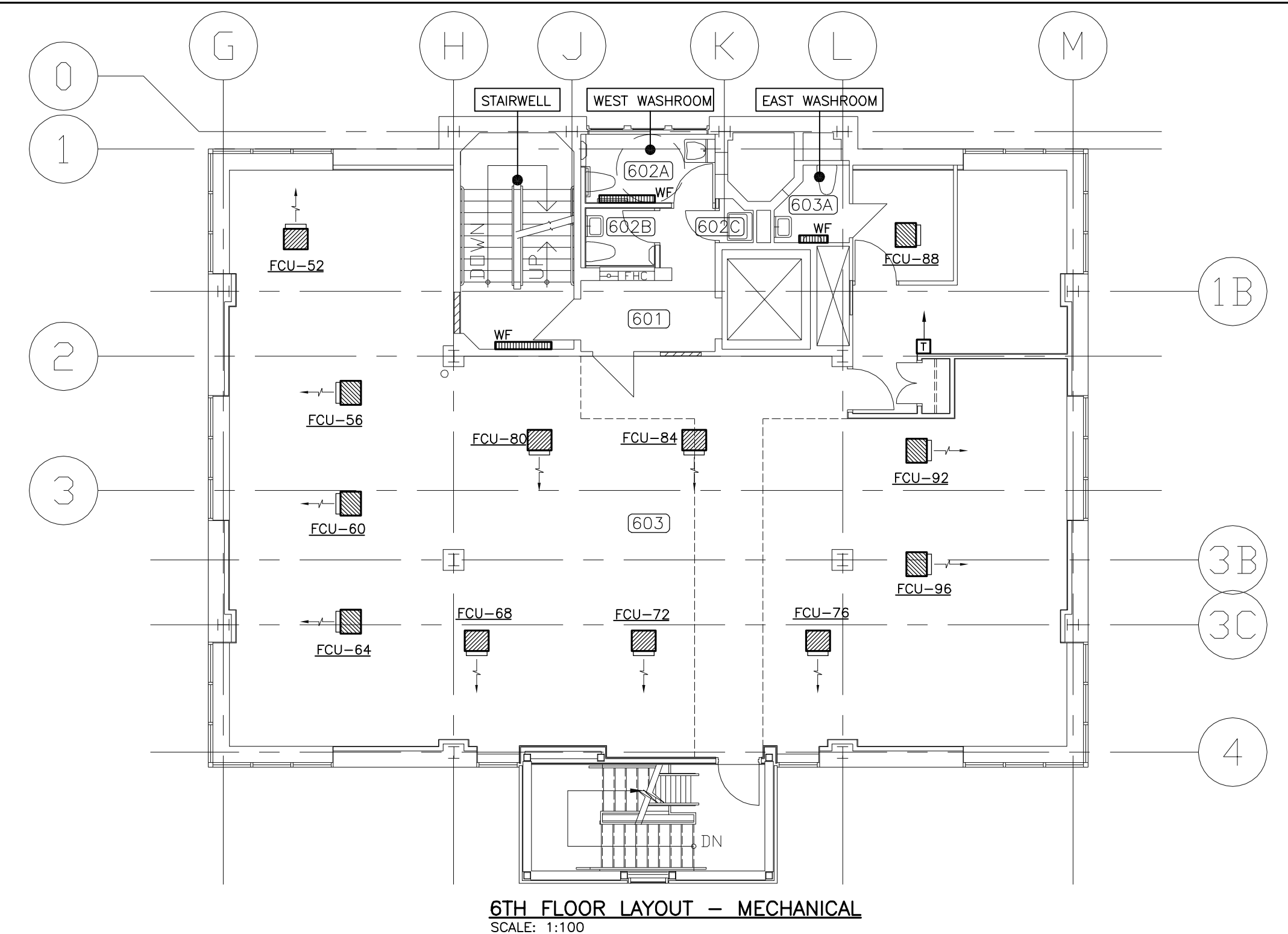
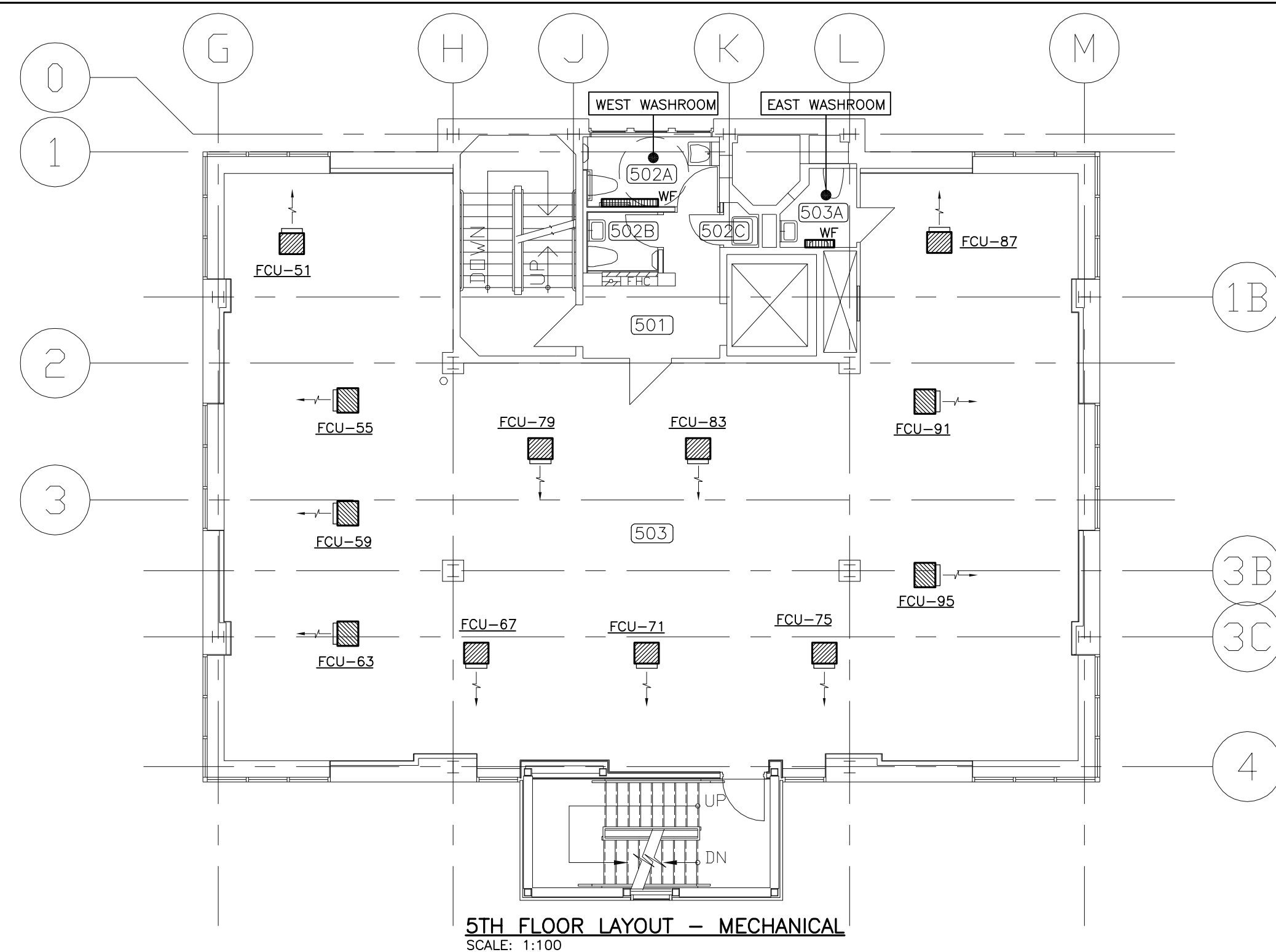
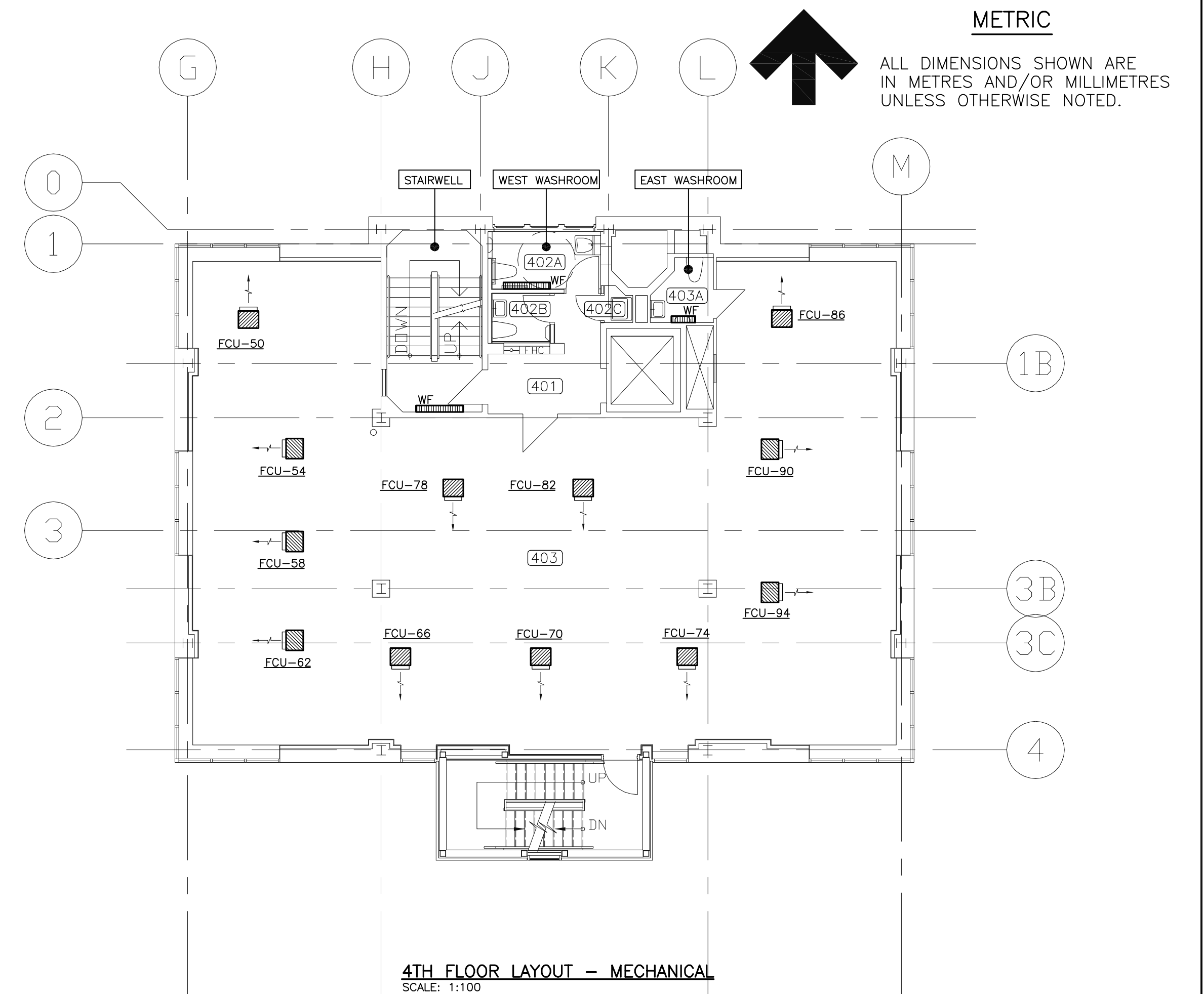
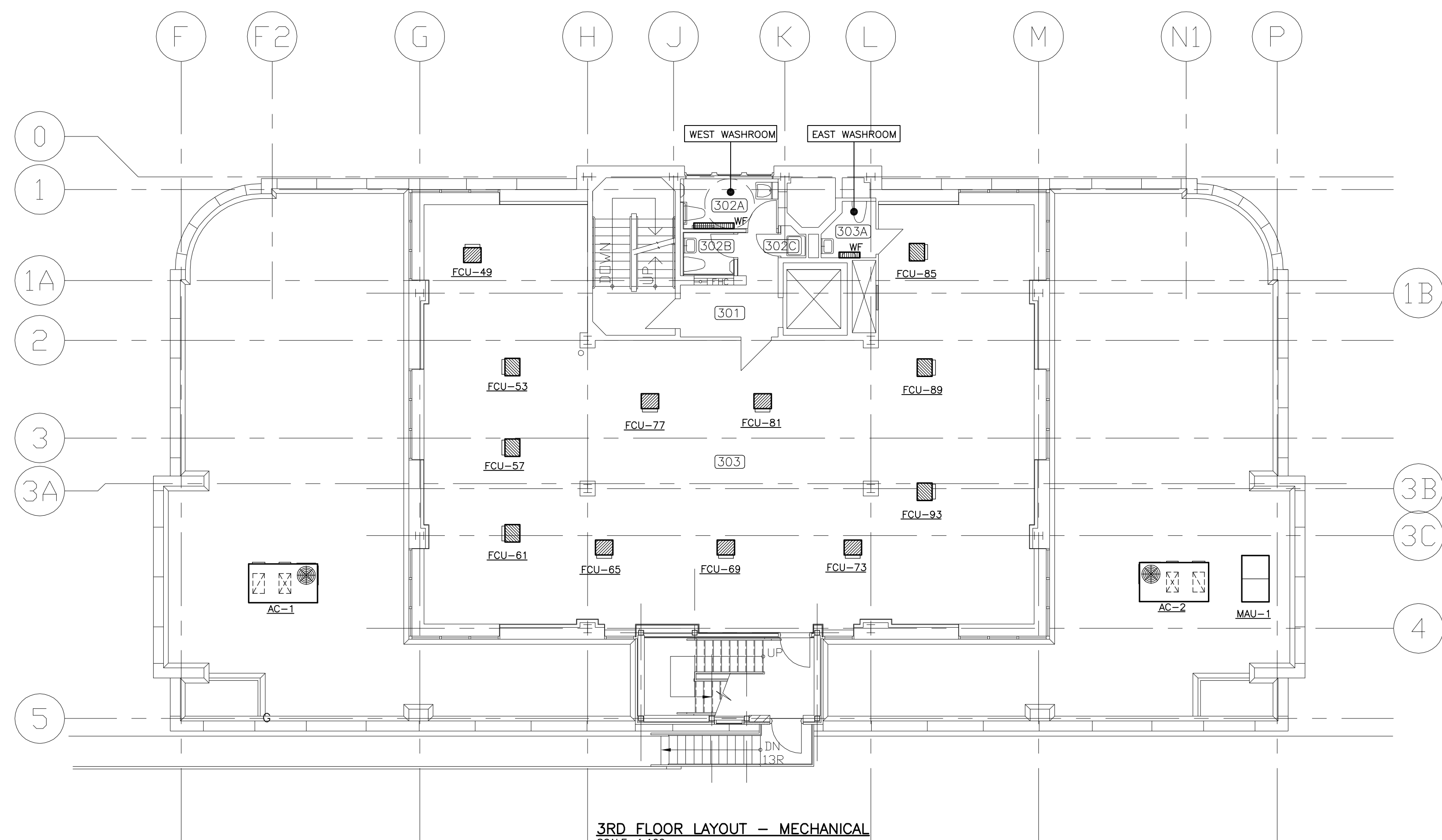
EXISTING POINTS ID	DESCRIPTION	CONTROL POINTS				VALUE	REMARKS
		AI	AO	DI	DO		
WRM-T	WEST WASHROOM TEMPERATURE	X				°C	
ERM-T	EAST WASHROOM TEMPERATURE	X				°C	
WHTG-VLV	WEST WASHROOM HEATING VALVE		X			% OPEN	
EHTG-VLV	EAST WASHROOM HEATING VALVE		X			% OPEN	




WASHROOMS CONTROL

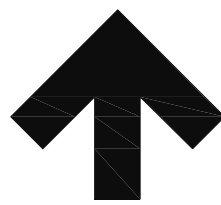
N.T.S

TRACK LEVEL LAYOUT – MECHANICAL
SCALE: 1:100

REFERENCE DRAWINGS		ISSUE		REVISIONS		DRAWN BY: A.S. 17/06/08	DESIGNED BY: A.S. 17/06/08		 588 EDWARD AVE., UNIT 25, RICHMOND HILL, ONT., L4C 9Y6 TEL. (905)-787 8885 FAX (905)-787 8771 SAB ENGINEERING PROJECT # 2013-06	 METROLINX CORPORATE INFRASTRUCTURE	HAMILTON GO CENTRE BAS & CONTROL UPGRADES FOR HVAC AND LIGHTING TRACK LEVEL LAYOUT & CONTROL DIAGRAMS – MECHANICAL			
		2.	17/06/08	ISSUED FOR TENDER										
		1.	13/10/21	ISSUED FOR REVIEW										
DWG NO.	TITLE	REV.	DATE	ISSUED FOR	REV.	DATE								

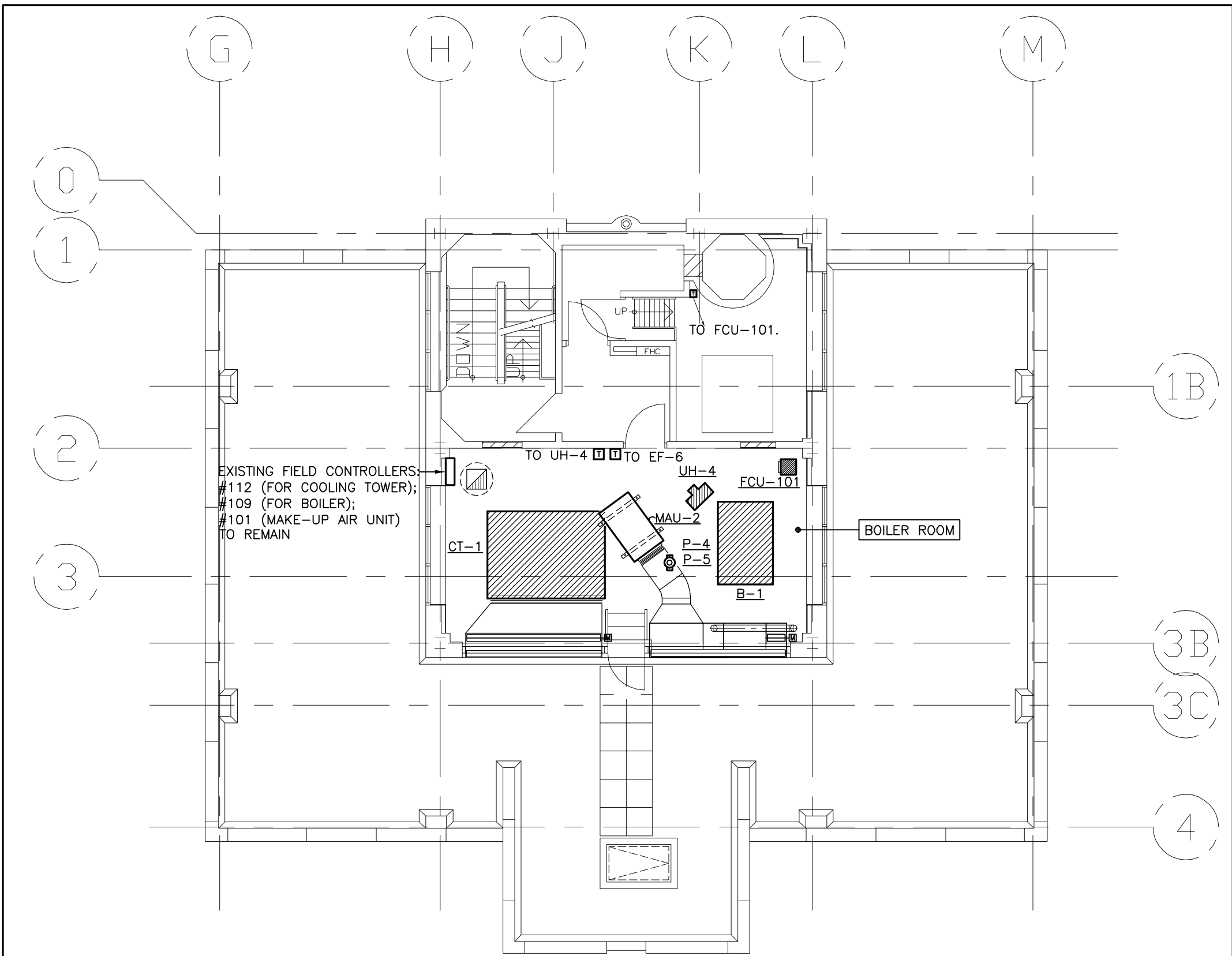


REFERENCE DRAWINGS		ISSUE		REVISIONS		DRAWN BY: A.S. 17/06/08		DESIGNED BY: A.S. 17/06/08				 METROLINX CORPORATE INFRASTRUCTURE	HAMILTON GO CENTRE BAS & CONTROL UPGRADES FOR HVAC AND LIGHTING 3RD, 4TH, 5TH & 6TH FLOOR LAYOUTS MECHANICAL			
						CHECKED BY: G.S. 17/06/08		APPROVED BY: G.S. 17/06/08					588 EDWARD AVE., UNIT 25, RICHMOND HILL, ONT., L4C 9Y6 TEL. (905)-787 8885 FAX (905)-787 8771			
													SAB ENGINEERING PROJECT # 2013-06			
		2.	17/06/08	ISSUED FOR TENDER												
		1.	13/10/21	ISSUED FOR REVIEW												
DWG. NO.	TITLE	REV.	DATE	ISSUED FOR	REV.	DATE							CONTRACT NO. PT-2018-STNS-557	DWG. NO. M-005	REV. O	SHEET 7 of 12

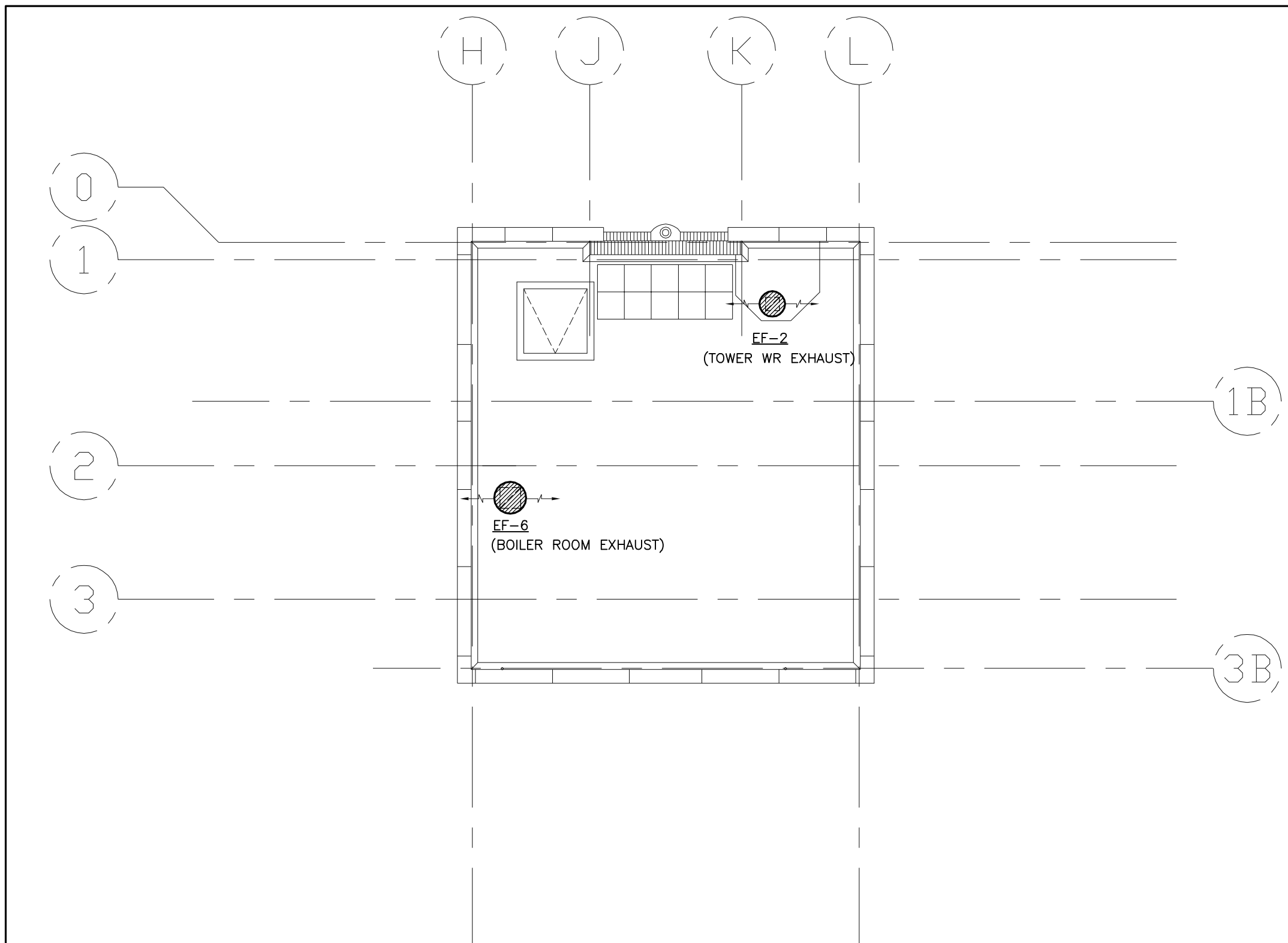


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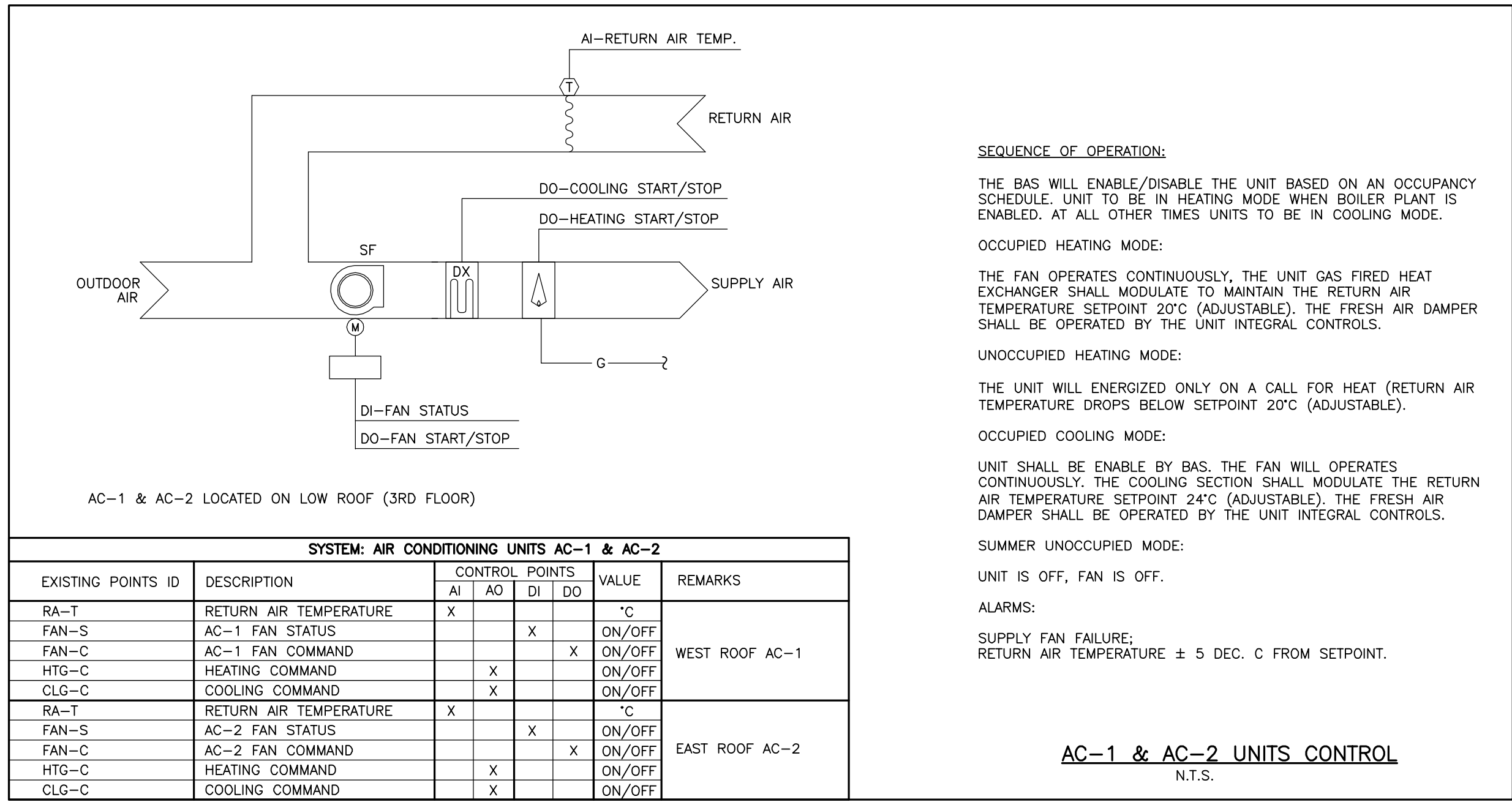
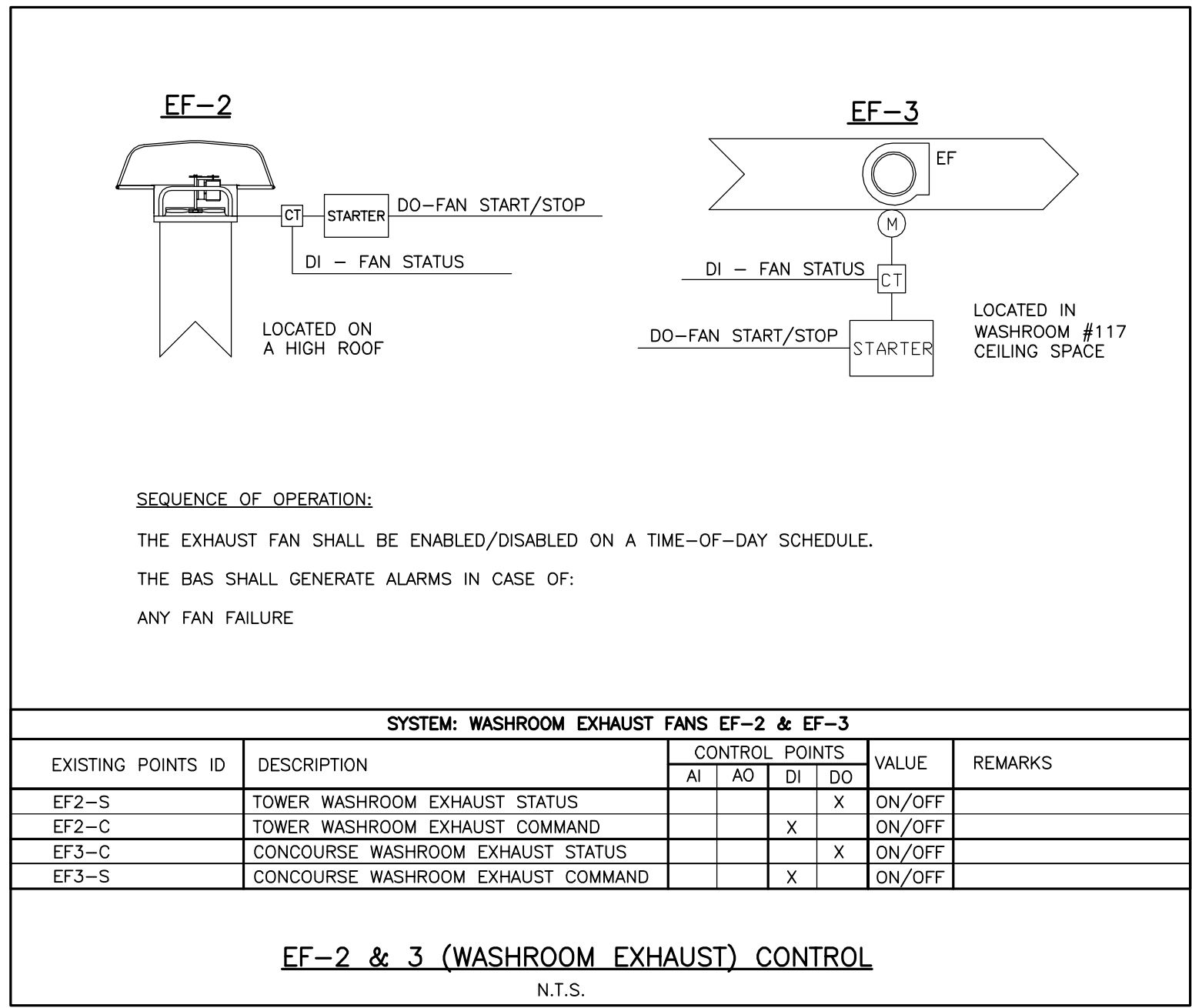
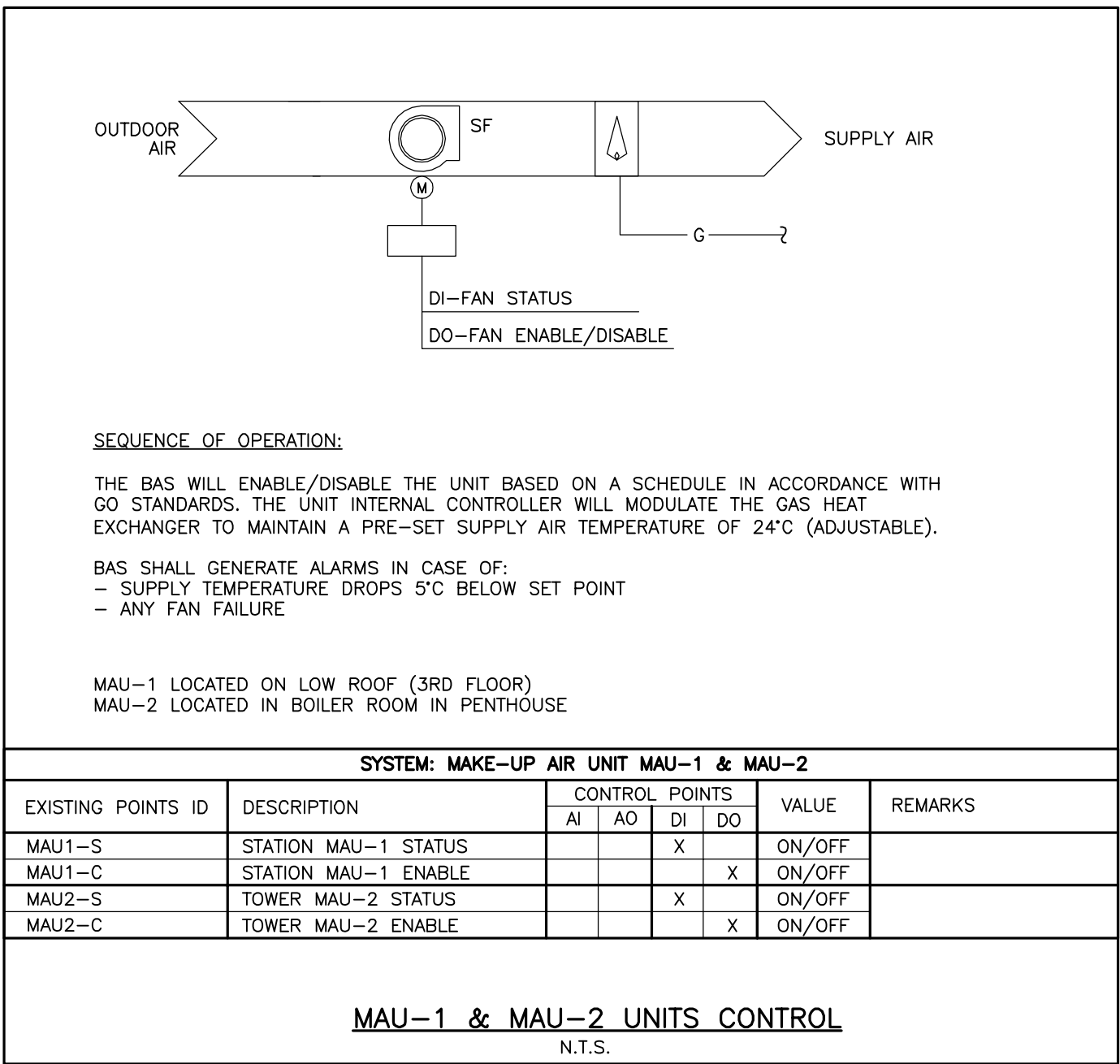
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7TH FLOOR (PENTHOUSE) LAYOUT - MECHANICAL
SCALE: 1:100



HIGH ROOF LAYOUT - MECHANICAL
SCALE: 1:100



REFERENCE DRAWINGS		ISSUE		REVISIONS		DRAWN BY:	DESIGNED BY:
						A.S.	A.S.
						17/06/08	17/06/08
						CHECKED BY:	APPROVED BY:
						G.S.	G.S.
						17/06/08	17/06/08
						SCALE:	FULL SIZE ONLY
						AS SHOWN	
DWG NO.	TITLE	REV.	DATE	ISSUED FOR	REV.	DATE	

2. 17/06/08 ISSUED FOR TENDER			
1. 13/10/21 ISSUED FOR REVIEW			

SAB ENGINEERING Inc.		METROLINX	
588 EDWARD AVE., UNIT 25, RICHMOND HILL, ONT., L4C 9Y6 TEL. (905)-787 8885 FAX (905)-787 8771 SAB ENGINEERING PROJECT # 2013-06		CORPORATE INFRASTRUCTURE	

HAMILTON GO CENTRE BAS & CONTROL UPGRADES FOR HVAC AND LIGHTING 7TH FLOOR & ROOF PLAN LAYOUTS & CONTROL DIAGRAMS - MECHANICAL		CONTRACT NO. PT-2018-STNS-557	DWG. NO. M-006	REV. 0	SHEET 8 OF 12
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METRIC

ALL DIMENSIONS SHOWN ARE
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SEQUENCE OF OPERATION:

ICE BUILD-UP MODE:

THE ICE BUILD-UP SHALL TAKE PLACE DURING UNOCCUPIED PERIODS.

CHILLER #2 AND PUMP P-2 ARE IDLE.

CHILLER #1 AND PUMP P-1 OPERATE AS REQUIRED TO PREPARE THE ICE IN THE ICE STORAGE CONTAINER. THE MIXING VALVE CV-1 SHALL BE FULLY OPEN TO THE TANK. THE CONDITION OF THE ICE SHALL BE MONITORED BY THE CHS TEMPERATURE SENSOR. THE ICE MAKING SHALL BE COMPLETE WHEN THE GLYCOL TEMPERATURE LEAVING THE ICE CONTAINER REACHES -5°C (FINAL GLYCOL SETPOINT). DURING ICE BUILD-UP, CHILLER CH-1 SHALL OPERATE AT 100% CAPACITY, TO PREVENT THE CHILLER CH-1 FROM UNLOADING DURING ICE BUILD-UP. THE CH-1 LEAVING GLYCOL TEMPERATURE SHALL BE SET AT -7°C. THE DIVERTING VALVE DV-1 SHALL ALLOW THE GLYCOL LEAVING THE ICE TANK TO RE-ENTER THE SUCTION SIDE OF PUMP P-1. VALVE CV-2 SHALL BE CLOSED. THE COOLING TOWER AND ASSOCIATED PUMP SHALL OPERATE AS REQUIRED TO REJECT THE HEAT GENERATED BY THE OPERATION OF CHILLER CH-1.

WHEN THE ICE BUILD-UP IS COMPLETE, CHILLER CH-1 AND PUMP P-1 SHALL TURN OFF.

COMFORT COOLING OPERATION - CHILLER CH-2 ONLY.

CHILLER CH-2 AND PUMP P-2 SHALL OPERATE DURING OCCUPIED PERIODS ONLY.

AT THE BEGINNING OF THE OCCUPIED MODE, CHILLER CH-2 AND PUMP P-2 SHALL BE ENABLED. CHILLER CH-1 SHALL REMAIN IDLE. PUMP P-1 SHALL BE ENABLED; THE MIXING AND DIVERTING VALVE SHALL BE POSITIONED SUCH THAT THE GLYCOL CIRCULATED BY PUMP P-1 SHALL BY-PASS THE ICE STORAGE AND FLOW INTO THE SUPPLY HEADER. THE ISOLATION VALVE CV-2 SHALL OPEN TO ALLOW WATER FROM THE SYSTEM TO ENTER THE SUCTION OF PUMP P-1. CHILLER CH-2 SHALL MODULATE AS REQUIRED TO MAINTAIN THE GLYCOL SUPPLY TEMPERATURE AT THE PRESCRIBED SETPOINT (DEFAULT VALUE 5.5°C). THE BAS SHALL MONITOR THE GLYCOL RETURN TEMPERATURE. THE GLYCOL RETURN TEMPERATURE SHALL BE LESS THAN 10°C HIGHER THAN THE GLYCOL SUPPLY TEMPERATURE. THE COOLING TOWER AND ASSOCIATED PUMP SHALL OPERATE AS REQUIRED TO REJECT THE HEAT GENERATED BY THE OPERATION OF CHILLER CH-2.

COMFORT COOLING OPERATION - COMBINED CHILLER CH-2/ICE STORAGE OPERATION

CHILLER CH-2 SHALL CONTINUE MODULATE AS REQUIRED TO MAINTAIN THE GLYCOL SUPPLY TEMPERATURE AT THE PRESCRIBED SETPOINT (DEFAULT VALUE 5.5°C). THE BAS SHALL MONITOR THE GLYCOL RETURN TEMPERATURE. IF THE RETURN GLYCOL TEMPERATURE RISES MORE THAN 10°C ABOVE THE GLYCOL SUPPLY SETPOINT, THE 3-WAY MODULATING VALVE CV-1 SHALL START MODULATING AS REQUIRED TO ALLOW THE GLYCOL PUMPED BY P-1 TO LEAVE THE ICE STORAGE TANK AT THE PRESCRIBED SUPPLY SETPOINT (5.5°C). THE COOLING TOWER AND ASSOCIATED PUMP SHALL OPERATE AS REQUIRED TO REJECT THE HEAT GENERATED BY THE OPERATION OF CHILLER CH-2.

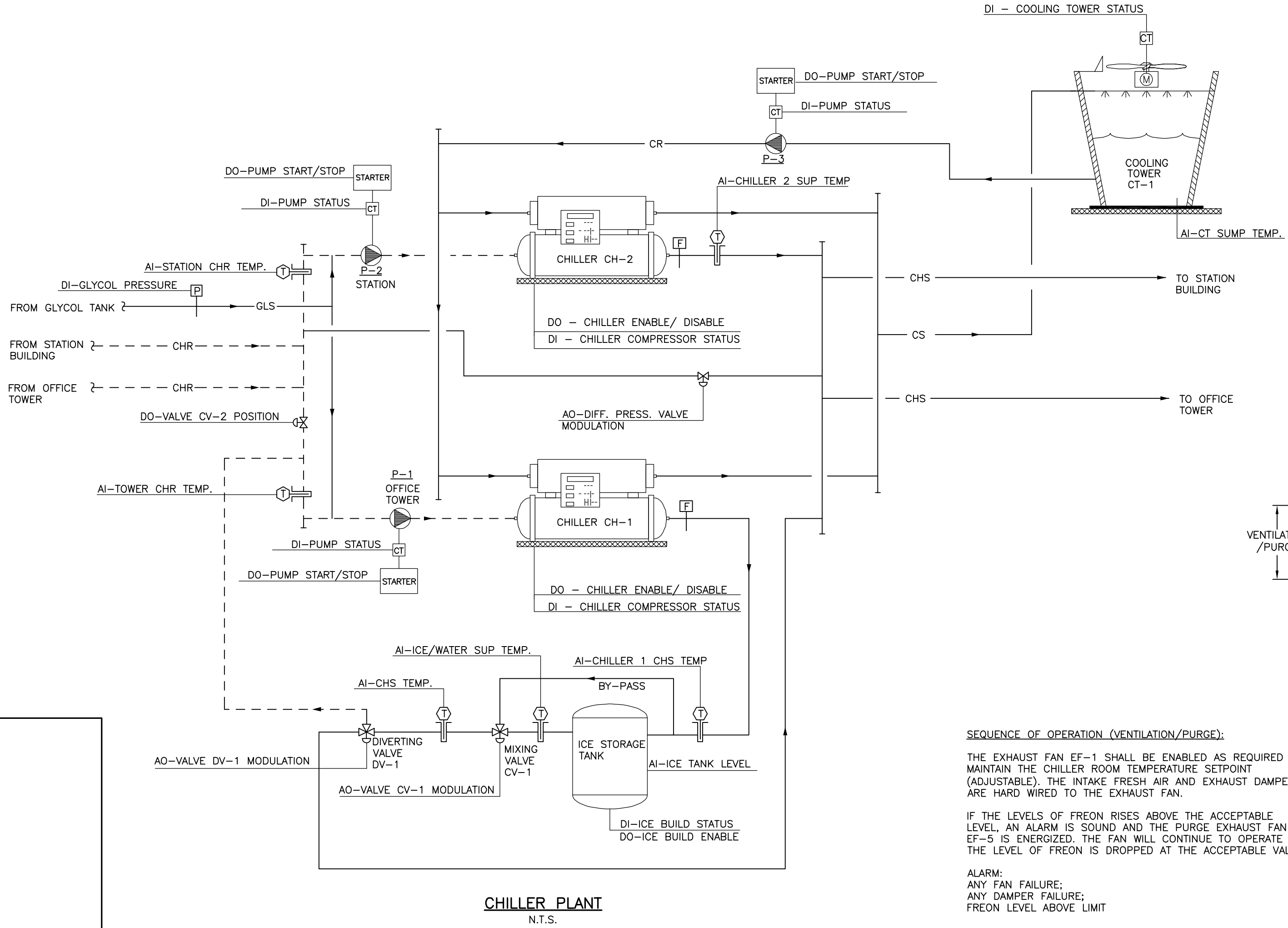
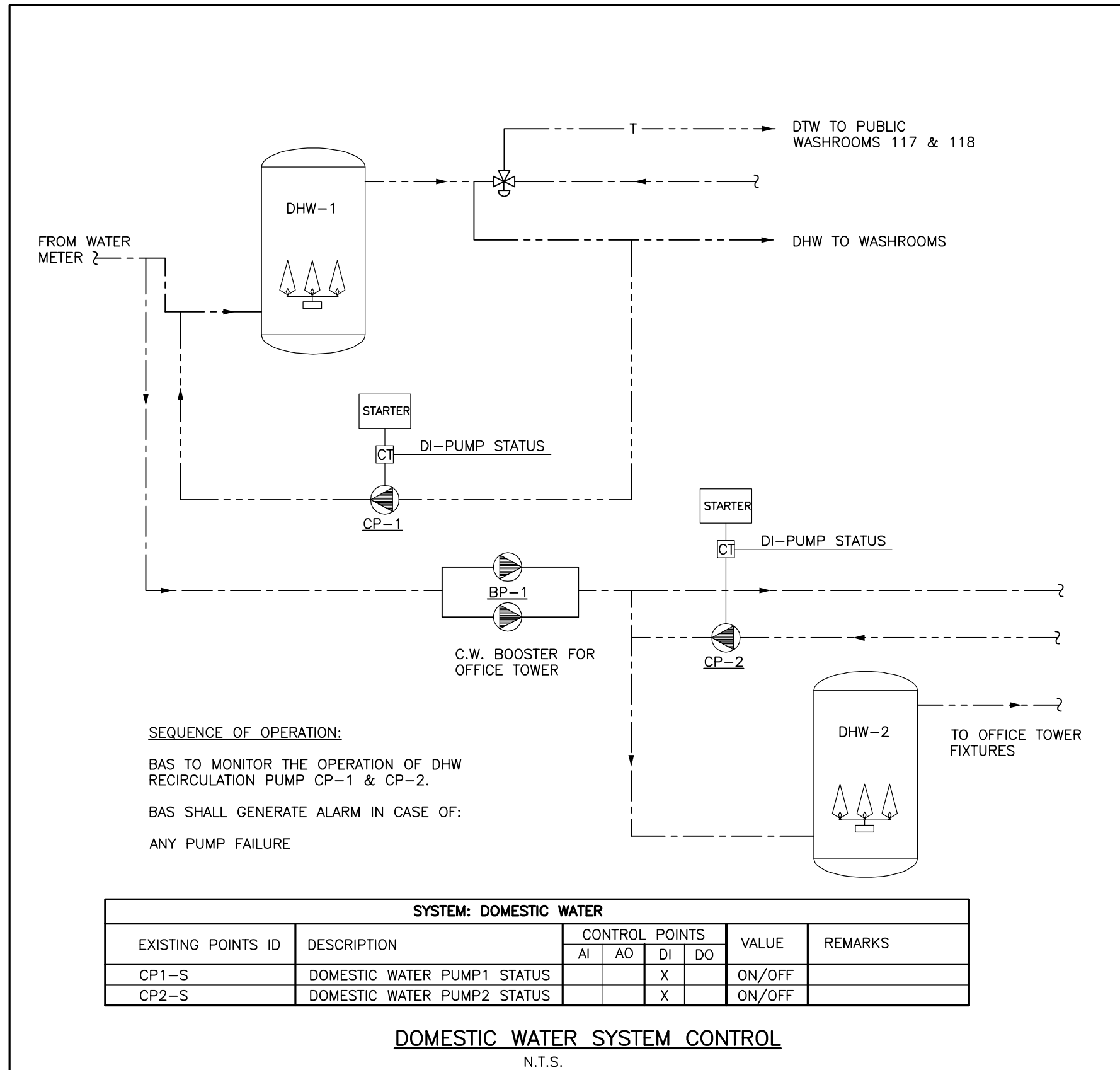
COMFORT COOLING OPERATION - CHILLERS CH-1/CH-2 OPERATION

IF THE CHILLER CH-2 OPERATES AT FULL CAPACITY AND THE 3-WAY VALE CV-1 ALLOWS FULL GLYCOL FLOW THROUGH THE ICE STORAGE TANK AND THE RETURN GLYCOL TEMPERATURE RISES MORE THAN 10°C ABOVE THE SUPPLY SETPOINT, CHILLER CH-1 WILL COMMENCE OPERATION AND SHALL MODULATE AS REQUIRED TO MAINTAIN THE GLYCOL SUPPLY TEMPERATURE AT SETPOINT (5.5°C). THE COOLING TOWER AND ASSOCIATED PUMP SHALL OPERATE AS REQUIRED TO REJECT THE HEAT GENERATED BY THE OPERATION OF CHILLER CH-1 AND CH-2.

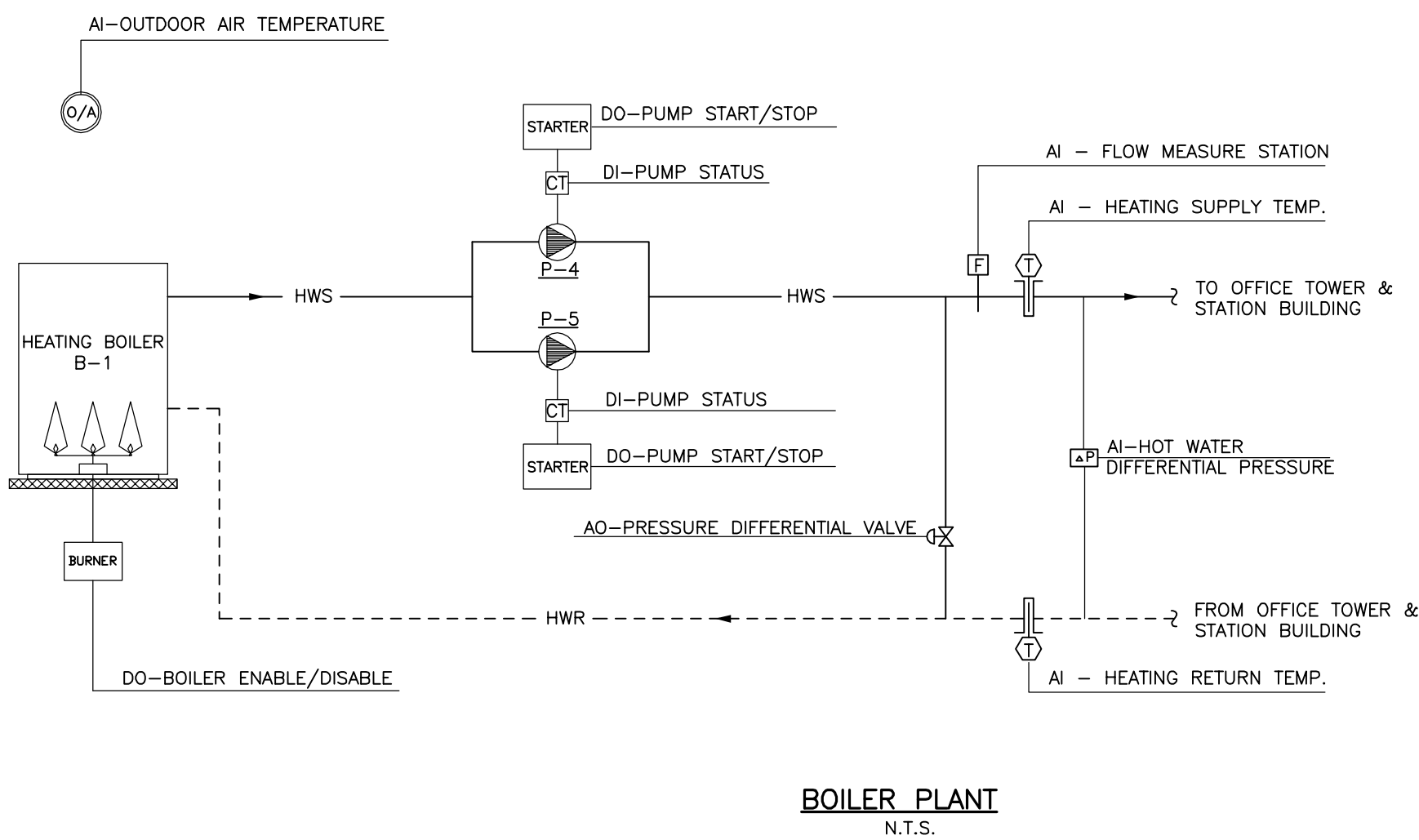
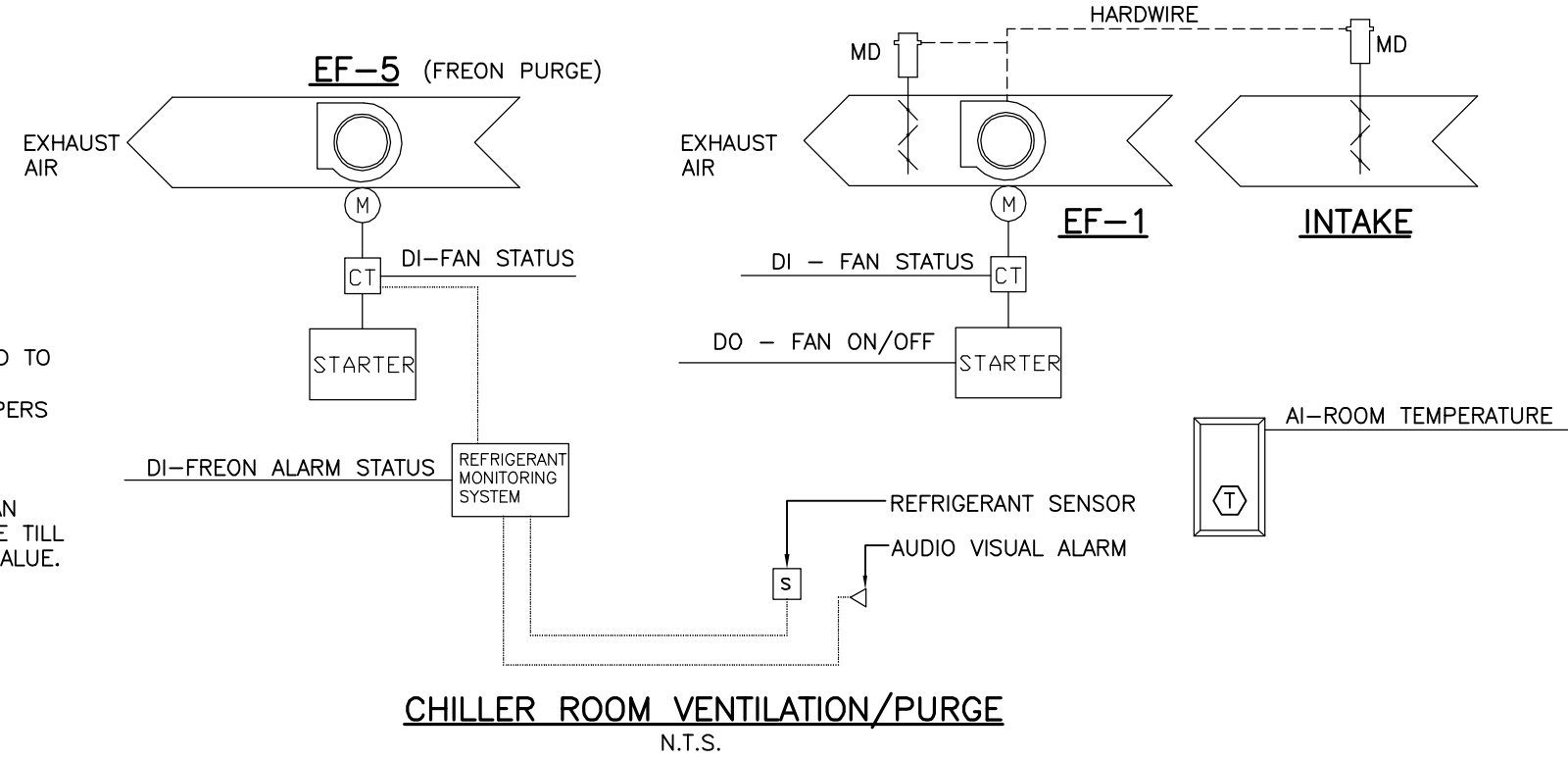
THE PRESSURE DIFFERENTIAL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN THE PRESSURE DIFFERENTIAL SETPOINT BETWEEN THE SUPPLY AND RETURN HEADERS.

ALARMS

- ANY PUMP FAILURE (DISCREPANCY BETWEEN COMMAND AND STATUS)
- ANY CHILLER FAILURE (DISCREPANCY BETWEEN COMMAND AND STATUS)
- COOLING TOWER FAILURE (DISCREPANCY BETWEEN COMMAND AND STATUS)
- ICE BUILDING MODE - GLYCOL LEAVING THE ICE STORAGE TANK LOWER THAN -7°C.
- ICE BUILDING MODE - GLYCOL LEAVING CHILLER CH-1 HIGHER THAN -5°C.
- COMFORT COOLING OPERATION - RETURN GLYCOL TEMPERATURE HIGHER THAN 18°C



SYSTEM: CHILLER PLANT							
EXISTING POINTS ID	DESCRIPTION	CONTROL		POINTS		VALUE	REMARKS
		AI	AO	DI	DO		
ICEBD-S	ICE BUILD STATUS			X		EN/DIS	
ICE-BLD	ICE BUILD ENABLE				X	EN/DIS	
CH1-ENA	CHILLER 1 ENABLE				X	EN/DIS	
CH1COMP	CHILLER 1 COMPRESSOR STATUS				X	ON/OFF	
ISO-VLV	CHILLER ISOLATION VALVE CV-2 COMMAND				X	OPEN/CLOSE	
P1-S	OFFICE TOWER CHILLED WATER PUMP STATUS			X		ON/OFF	
P1-C	OFFICE TOWER CHILLED WATER PUMP START/STOP				X	ON/OFF	
TCHR-T	TOWER CHILLED WATER RETURN TEMPERATURE	X				°C	
CH1S-T	CHILLER 1 SUPPLY TEMPERATURE	X				°C	
ICE-T	ICE/WATER SUPPLY TEMPERATURE	X				°C	
CHS-T	CHILLED WATER SUPPLY TEMPERATURE	X				°C	
MIX-VLV	ICE BUILD MIX VALVE MODULATION CV-1		X			%	
DIV-VLV	ICE STORAGE DIVERTING VALVE MODULATION DV-1		X			%	
ICE-LVL	ICE TANK LEVEL	X				% FULL	
CHW-DP	CHILLED WATER DIFFERENTIAL PRESSURE			X		PSI	
DP-VLV	OFFICE TOWER DIFFERENTIAL PRESSURE VALVE		X			% OPEN	
P3-S	CONDENSER WATER PUMP STATUS			X		ON/OFF	
P3-C	CONDENSER WATER PUMP START/ STOP				X	ON/OFF	
CT-S	COOLING TOWER STATUS			X		EN/DIS	
CT-SUMP	COOLING TOWER SUMP TEMPERATURE	X				°C	
CH2-ENA	CHILLER 2 ENABLE				X	EN/DIS	
CH2COMP	CHILLER 2 COMPRESSOR STATUS				X	ON/OFF	
SCHR-T	STATION CHILLED WATER RETURN TEMPERATURE	X				°C	
CH2S-T	CHILLER 2 SUPPLY TEMPERATURE	X				°C	
P2-S	STATION CHILLED WATER PUMP STATUS			X		ON/OFF	
P2-C	STATION CHILLED WATER PUMP START/ STOP				X	ON/OFF	
GLYCOL-P	GLYCOL PRESSURE PT-2			X		PSI	
OFFCHW-P	OFFICE CHILLED WATER PRESSURE PT-3			X		IN W.G.	
STNCHW-P	STATION CHILLED WATER PRESSURE PT-3			X		IN W.G.	
EF5-S	CHILLER ROOM FREON EXHAUST FAN STATUS			X		ON/OFF	
EF5-C	CHILLER ROOM FREON EXHAUST FAN START/STOP				X	ON/OFF	
CHRM-ALM	CHILLER ROOM FREON ALARM			X		ON/OFF	
EF1-S	CHILLER ROOM VENTILATION EXHAUST STATUS			X		ON/OFF	
EF1-C	CHILLER ROOM VENTILATION EXHAUST START/STOP				X	ON/OFF	



SEQUENCE OF OPERATION:

THE BOILER PLANT SHALL BE ACTIVATED WHEN THE OUTDOOR TEMPERATURE DROP BELOW 13°C FOR MORE THAN 30 MINUTES. THE BOILER PLANT SHALL BE OFF WHEN THE OUTDOOR TEMPERATURE IS ABOVE 15°C FOR MORE THAN 30 MIN.

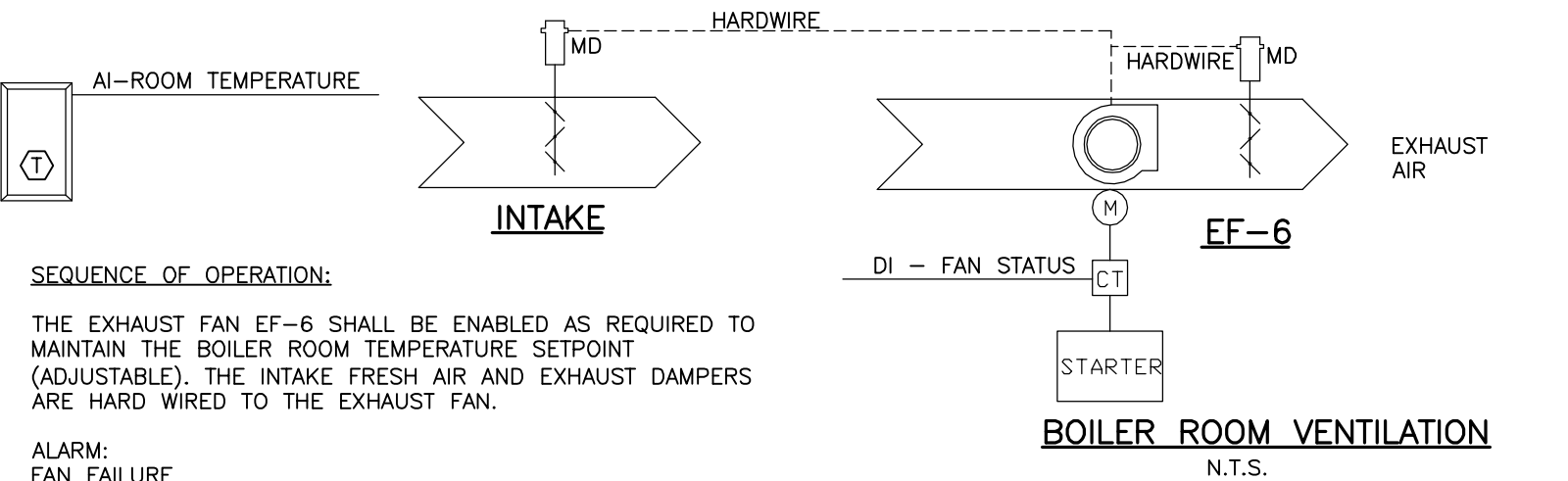
WHEN BOILER PLANT IS ACTIVATED THE LEAD PRIMARY PUMP SHALL START. THE LAG PRIMARY PUMP SHALL BE IN STAND-BY MODE. THE LEAD/LAG STATUS SHALL ALTERNATE ON A RUN-TIME BASIS (EVERY 168 HOURS).

UPON PROOF OF FLOW, THE BOILER SHALL BE ENABLED. THE BURNER SHALL MODULATE AS REQUIRED TO MAINTAIN THE RETURN WATER AT 71°C (ADJUSTABLE), SUBJECT TO A MAXIMUM SUPPLY WATER TEMPERATURE OF 88°C (ADJUSTABLE).




THE BAS SHALL GENERATE ALARMS IN CASE OF:

ANY PUMP FAILURE;
BURNER FAILURE;
SUPPLY WATER DROPS BELOW 43.3°C WHEN THE BOILER PLANT IS ACTIVE.

SYSTEM: BOILER PLANT							
EXISTING POINTS ID	DESCRIPTION	CONTROL		POINTS		VALUE	REMARKS
		AI	AO	DI	DO		
OA-T	OUTDOOR AIR TEMPERATURE	X				°C	
BLR-ENA	BOILER ENABLE				X	EN/DIS	
HWS-T	HOT WATER SUPPLY TEMPERATURE	X				°C	
HWR-T	HOT WATER RETURN TEMPERATURE	X				°C	
P4-S	HOT WATER PUMP 4 STATUS			X		ON/OFF	
P4-C	HOT WATER PUMP 4 CONTROL				X	ON/OFF	
P5-S	HOT WATER PUMP 5 STATUS			X		ON/OFF	
P5-C	HOT WATER PUMP 5 CONTROL				X	ON/OFF	
DP-VLV	HOT WATER DIFFERENTIAL PRESSURE VALVE	X				% OPEN	
HW-DP	HOT WATER DIFFERENTIAL PRESSURE	X				PSI	
HWFLW-DP	HOT WATER FLOW DIFFERENTIAL PRESSURE	X				IN W.G.	
FMS	HOT WATER FLOW MEASURE STATION	X					
BLRRM-T	BOILER ROOM TEMPERATURE	X				°C	
EF6-S	BOILER ROOM EF-6 STATUS				X	ON/OFF	

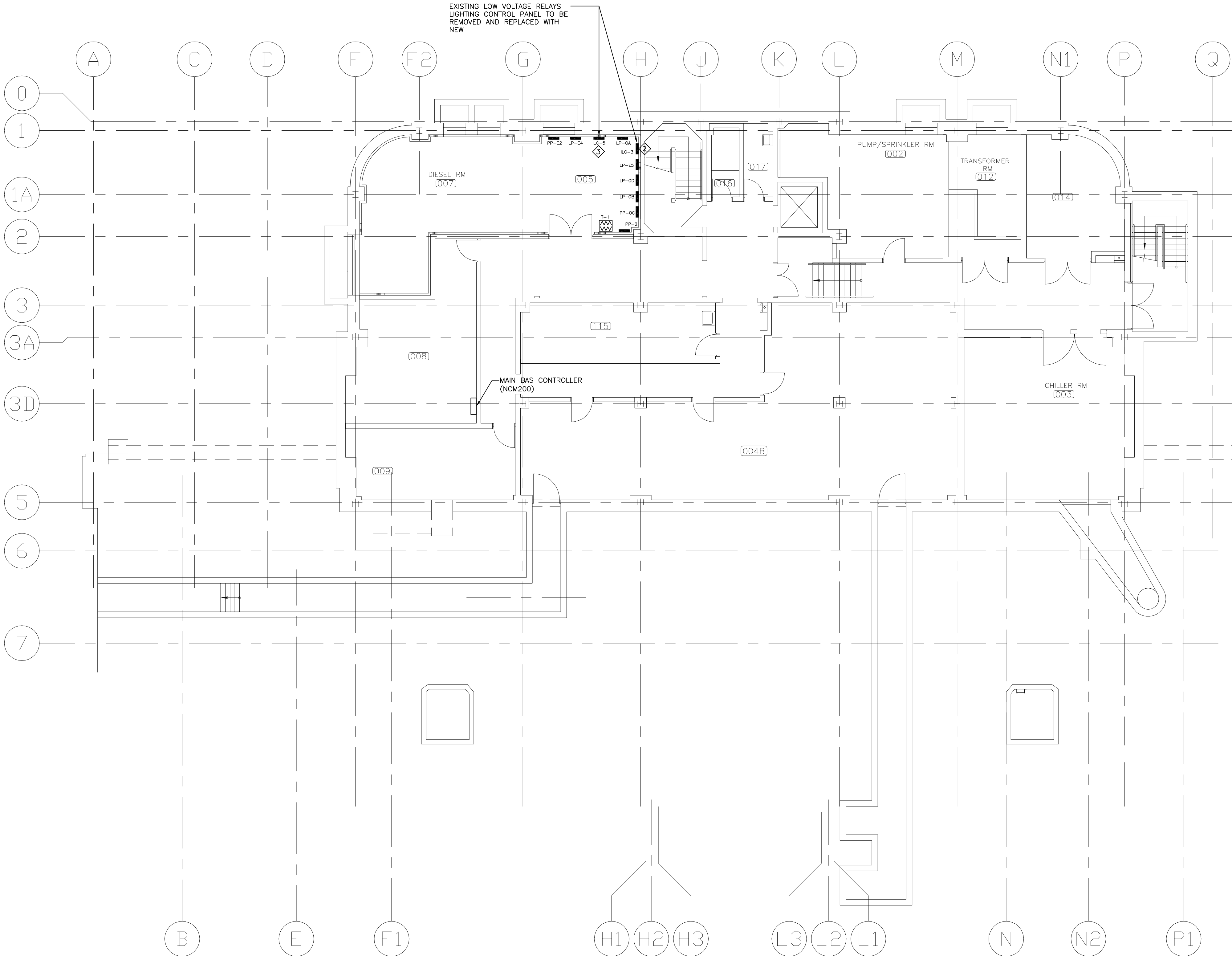


METROLINX PROJECT NO. 135174

REFERENCE DRAWINGS		ISSUE		REVISIONS		DRAWN BY: A.S. 17/06/08	DESIGNED BY: A.S. 17/06/08		 <div>588 EDWARD AVE., UNIT 25, RICHMOND HILL, ONT., L4C 9Y6 TEL. (905)-787 8885 FAX (905)-787 8771 SAB ENGINEERING PROJECT # 2013-06</div>	 <div>METROLINX CORPORATE INFRASTRUCTURE</div>	HAMILTON GO CENTRE BAS & CONTROL UPGRADES FOR HVAC AND LIGHTING CONTROL DIAGRAMS MECHANICAL				

METRIC

ALL DIMENSIONS SHOWN ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE NOTED.



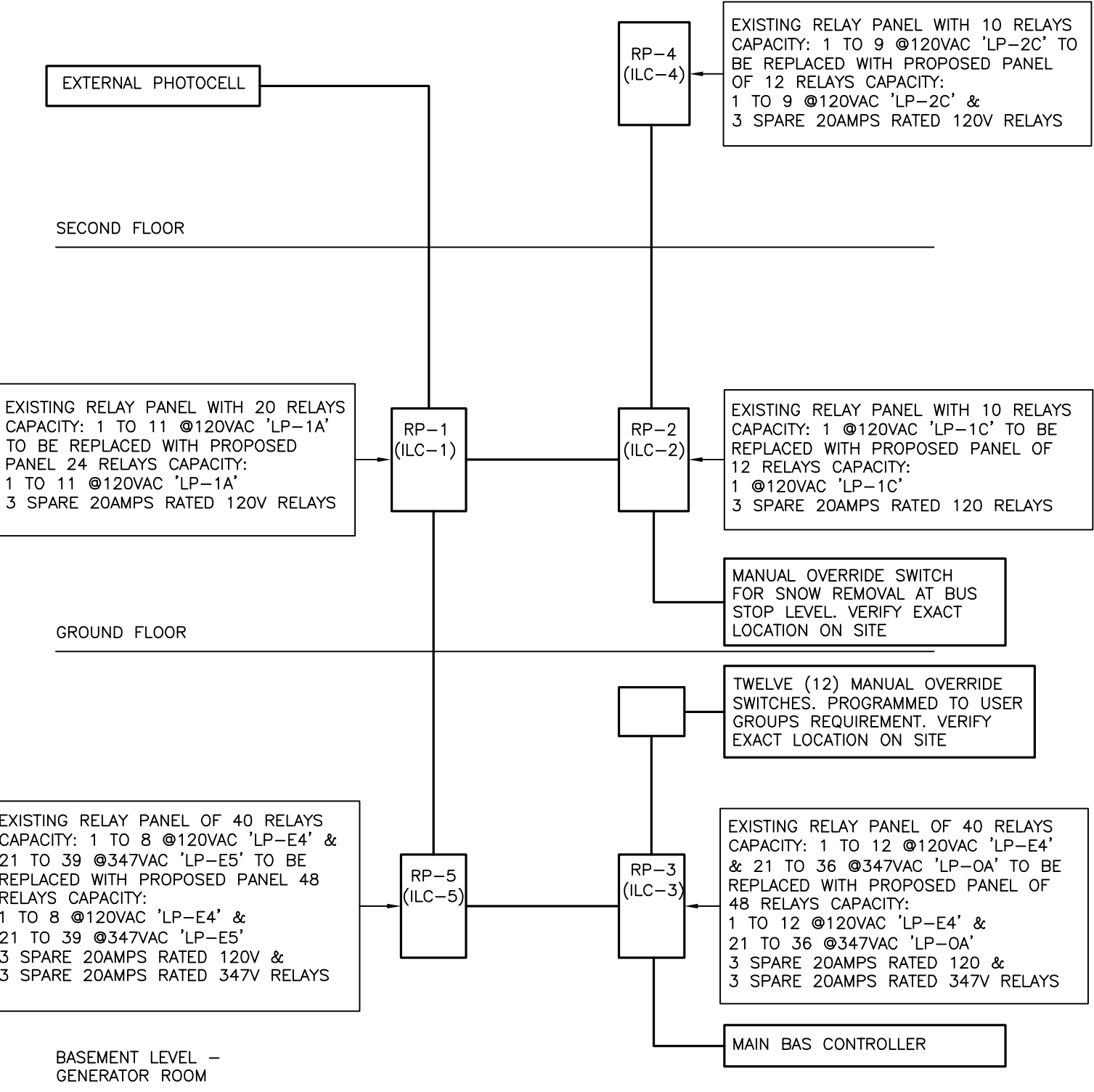
BASEMENT FLOOR LAYOUT -- ELECTRICAL
SCALE: 1:100

DRAWING NOTES

- 1 VISIT SITE TO REVIEW AND VERIFY EXISTING CONDITIONS AND INCLUDE IN TENDER PRICE FOR COMPLETE SCOPE FOR FULLY OPERATIONAL LIGHTING CONTROL SYSTEM.
- 2 DISCONNECT AND REMOVE EXISTING LOW VOLTAGE LIGHTING CONTROL PANEL 'ILC-3' AND REPLACE WITH NEW PANEL C/W RELAYS AS PER SPECIFICATIONS. SALVAGE EXISTING PANEL DIRECTORY AND CONTROLLED BRANCH CIRCUITS LISTING AND USE FOR NEW PANEL.
- 3 DISCONNECT AND REMOVE EXISTING LOW VOLTAGE LIGHTING CONTROL PANEL 'ILC-5' AND REPLACE WITH NEW PANEL C/W RELAYS AS PER SPECIFICATIONS. SALVAGE EXISTING PANEL DIRECTORY AND CONTROLLED BRANCH CIRCUITS LISTING AND USE FOR NEW PANEL.
- 4 DISCONNECT EXISTING WIRING CONNECTION OF LOW VOLTAGE LIGHTING CONTROL SYSTEM TO OLD BUILDING AUTOMATION SYSTEM AND PROVIDE NEW FOR TIMER AND PHOTOCELL SIGNAL.


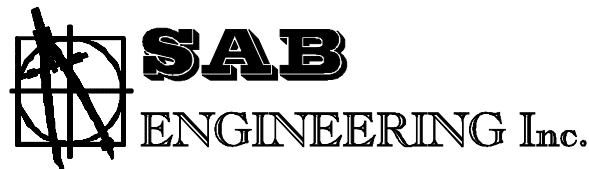

NOTES:

1. REPLACE RELAY PANELS AS SHOWN.
2. PROVIDE INTERCONNECTION WIRING IN CONDUIT TO NETWORK ALL PANELS, BAS CONTROLLER AND OTHER DEVICES. REUSE OF EXISTING CONDUIT AND WIRING IF FEASIBLE WILL BE ACCEPTABLE. VERIFY ON SITE PRIOR TO PRICING AND INSTALLATION WITH MANUFACTURER.
3. LIGHTING CONTROL PANELS REPLACEMENT WORK SHALL BE DONE AFTER HOURS AND IN MINIMUM POSSIBLE CONSECUTIVE TIME PERIOD (48 HOURS, IF FEASIBLE). UPON COMPLETION OF WORK AFTER HOURS EACH DAY, ALL LIGHTING CIRCUITS SHALL BE ENERGIZED AND MADE OPERATIONAL FOR REGULAR BUSINESS OPERATION OF FACILITY. PROVIDE ALL LABOR AND MATERIALS FOR FULLY OPERATIONAL SYSTEM AT END OF SHIFT UNTIL THE WORK IS FULLY COMPLETED. ALL PREPARATION WORK SUCH AS PLANNING, CONDUIT & WIRING RUN SHALL BE DONE IN ADVANCE OF PANELS REPLACEMENT. CONSULT AND COORDINATE WORK WITH PROJECT MANAGER DURING PRICING AND INSTALLATION.
4. LIGHTING CONTROLS SYSTEM SHALL BE "BACNET/IP OR BACNET/MSTP READY". LIGHTING ZONE PROGRAMMING SHALL BE DONE BY THE SYSTEM SUPPLIER. BUILDING AUTOMATION SYSTEM SUPPLIER SHALL INTERFACE INTO THE LIGHTING CONTROL PANELS AND MAP ALL THE GRAPHICS ON OUR SYSTEM SO THAT IT CAN BE CONTROLLED THROUGH METASYS.



LOW VOLTAGE LIGHTING RELAY CONTROL PANELS
INTERCONNECTION SCHEMATIC

METROLINX PROJECT NO. 135174

REFERENCE DRAWINGS		ISSUE		REVISIONS		DRAWN BY:	DESIGNED BY:				HAMILTON GO CENTRE BAS & CONTROL UPGRADES FOR HVAC AND LIGHTING BASEMENT FLOOR -- LIGHTING CONTROLS SYSTEM LAYOUT			
						17/06/08	17/06/08							
						17/06/08	17/06/08							
		2.	17/06/08	ISSUED FOR TENDER										
		1.	13/10/21	ISSUED FOR REVIEW										
DWG NO.	TITLE	REV.	DATE	ISSUED FOR	REV.	DATE								

588 EDWARD AVE., UNIT 25, RICHMOND HILL, ONT., L4C 9Y6
TEL. (905)-787 8885 FAX (905)-787 8771
SAB ENGINEERING PROJECT # 2013-06




CORPORATE INFRASTRUCTURE

CONTRACT NO. PT-2018-STNS-557
DWG. NO. E-001
REV. 0
SHEET 10 of 12

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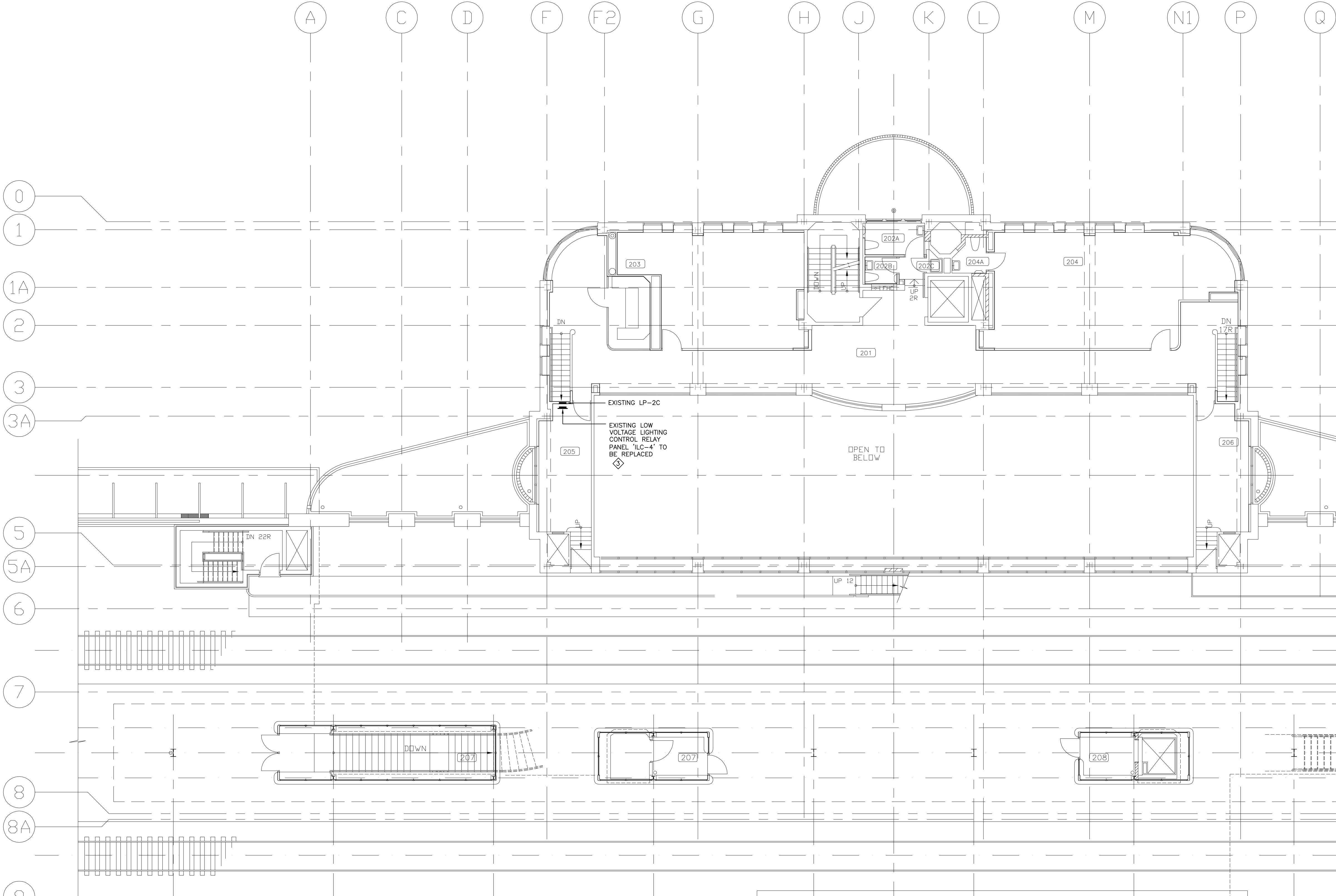
1. VISIT SITE TO REVIEW AND VERIFY EXISTING CONDITIONS AND INCLUDE IN TENDER PRICE FOR COMPLETE SCOPE FOR FULLY OPERATIONAL LIGHTING CONTROL SYSTEM.
2. DISCONNECT AND REMOVE EXISTING RECESSED LOW VOLTAGE LIGHTING CONTROL PANEL "1LC-1" OF 20 RELAYS CAPACITY WITH ELEVEN (11) USED RELAYS. REPLACE WITH NEW RECESSED PANEL WITH 24 RELAYS CAPACITY C/W FOURTEEN (14) RELAYS AS PER SPECIFICATIONS, RECONNECT EXISTING BRANCH CIRCUIT WIRING CONTROLLED BY SYSTEM TO NEW RELAYS, SALVAGE EXISTING PANEL DIRECTORY AND CONTROLLED BRANCH CIRCUITS LISTING & DETAILS AND USE FOR NEW PANEL.
3. DISCONNECT AND REMOVE EXISTING RECESSED LOW VOLTAGE LIGHTING CONTROL PANEL "1LC-2" OF 10 RELAYS CAPACITY WITH ONE (1) RELAY IN USE. REPLACE WITH NEW RECESSED PANEL WITH 12 RELAYS CAPACITY C/W FOUR (4) RELAYS AS PER SPECIFICATIONS, RECONNECT EXISTING BRANCH CIRCUIT WIRING CONTROLLED BY SYSTEM TO NEW RELAY, SALVAGE EXISTING PANEL DIRECTORY AND CONTROLLED BRANCH CIRCUITS LISTING & DETAILS AND USE FOR NEW PANEL.
4. INCLUDE FOR CUTTING, PATCHING AND PAINT FINISHING TO MATCH EXISTING DUE TO VARIATION IN DIMENSIONS OF EXISTING VERSUS NEW RELAY PANEL AND CONDUIT/WIRING RUN.

SCALE: 1:125

REFERENCE DRAWINGS		ISSUE		REVISIONS		DRAWN BY: A.B. 17/06/08	DESIGNED BY: A.B. 17/06/08				HAMILTON GO CENTRE					
						CHECKED BY: S.S. 17/06/08	APPROVED BY: S.S. 17/06/08				BAS & CONTROL UPGRADES FOR HVAC AND LIGHTING					
											MAIN FLOOR LAYOUT –					
											LIGHTING CONTROL SCHEMATIC					
		2.	17/06/08	ISSUED FOR TENDER												
		1.	13/10/21	ISSUED FOR REVIEW												
DWG NO.	TITLE	REV.	DATE	ISSUED FOR	REV.	DATE	SCALE: 1:125 FULL SIZE ONLY		588 EDWARD AVE., UNIT 25, RICHMOND HILL, ONT., L4C 9Y6 TEL. (905)-787 8885 FAX (905)-787 8771 SAB ENGINEERING PROJECT # 2013-06		CORPORATE INFRASTRUCTURE		CONTRACT NO. PT-2018-STNS-557	DWG. NO. E-002	REV. 0	SHEET 11 of 12

METRIC




ALL DIMENSIONS SHOWN ARE
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DRAWING NOTES

1. VISIT SITE TO REVIEW AND VERIFY EXISTING CONDITIONS AND INCLUDE IN TENDER PRICE FOR COMPLETE SCOPE FOR FULLY OPERATIONAL LIGHTING CONTROL SYSTEM.
2. DISCONNECT AND REMOVE EXISTING RECESSED LOW VOLTAGE LIGHTING CONTROL PANEL "ILC-4" WITH TEN (10) RELAYS. REPLACE WITH NEW RECESSED PANEL C/W TWELVE (12) RELAYS AS PER SPECIFICATIONS. RECONNECT EXISTING BRANCH CIRCUIT TO BE CONTROLLED BY SYSTEM TO NEW RELAYS. SALVAGE EXISTING PANEL DIRECTORY AND CONTROLLED BRANCH CIRCUITS LISTING & DETAILS AND USE FOR NEW PANEL.
3. INCLUDE FOR CUTTING, PATCHING AND PAINT FINISHING TO MATCH EXISTING DUE TO VARIATION IN DIMENSIONS OF EXISTING VERSUS NEW RELAY PANEL AND CONDUIT/WIRING RUN.

TRACK LEVEL LAYOUT - ELECTRICAL
SCALE: 1:100

REFERENCE DRAWINGS		ISSUE		REVISIONS			DRAWN BY: A.B. 17/06/08		DESIGNED BY: A.B. 17/06/08					HAMILTON GO CENTRE BAS & CONTROL UPGRADES FOR HVAC AND LIGHTING TRACK LEVEL – LIGHTING CONTROLS LAYOUT				
										CONTRACT NO. PT-2018-STNS-557				DWG. NO. E-003	REV. 0	SHEET 12 of 12		
		2.	17/06/08	ISSUED FOR TENDER														
		1.	13/10/21	ISSUED FOR REVIEW														
DWG NO.	TITLE	REV.	DATE	ISSUED FOR	REV.	DATE	SCALE: 1:100 FULL SIZE ONLY		588 EDWARD AVE., UNIT 25, RICHMOND HILL, ONT., L4C 9Y6 TEL. (905)-787 8885 FAX (905)-787 8771 SAB ENGINEERING PROJECT # 2013-06		CORPORATE INFRASTRUCTURE							



Name of Vendor:		Vendor Project Manager:	
Street:	City:	Province/State:	Postal/ZIP Code:
Original Contract Date	Contract No. PT-2018-STNS-557	Project No. 155174	
Contract Name:	BAS & control upgrades for HVAC and lighting at Hamilton		
Category of Work:	Construction Services		
Division:	Station construction and commissioning	Branch:	West Region
Project Coordinator:	Mohamed Ksara		

Scale	0: Unacceptable - Does not meet any requirements of the key performance indicator 1: Poor - Meets few of the requirements of the key performance indicator 2: Fair - Meets some of the requirements of the key performance indicator 3: Satisfactory - Meets most of the requirements of the key performance indicator 4: Good - Meets all of the requirements of the key performance indicator 5: Excellent - Exceeds the requirements of the key performance indicator	Applied Weight	Score
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Section 3	Qualifications in Support of the Rating
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Information regarding the Metrolinx Vendor Performance Management System and how a Vendor Performance Rating is calculated can be found in the Metrolinx "Vendor Relationship Management Procedures and Guidelines v1,1 dated November 7, 2016", or most current version, accessed through the following link:
http://www.metrolinx.com/tenders/en/VendorRelationshipManagement_Guidelines.pdf.



METROLINX

An agency of the Government of Ontario



Safety Guidelines for Contractors, Consultants and Project Coordinators

EMERGENCY CONTACT NUMBERS

GO Transit 24 hrs contact list:

1. Rail Operations Control Centre (ROCC): **416.601.2174**
2. Bus Operations – Steeprock Ctrl Room (24/7): . **416.638.6776**
3. Transit Safety Dispatch: **905.803.0642**
1.877.297.0642
4. USRC-CMO (Union Station): **416.601.3611**
5. City of Toronto (Union Station Security): **416.338.8000**

Railway 24 hrs contact list:

6. CN Railway: **1.800.465.9239**
7. CP Railway: **1.800.716.9132**
8. TTR (07:00 – 16:00): **416.864.3440**

Others:

9. Fire / Police / Ambulance: **911**
10. Nearest Hospital:
11. MOE Spills Action Centre : **1.800.268.6060**
(Toronto Division) **416.325.3000**
12. Project Manager / Coordinator:

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Occupational Health and Safety Policy

1

Metrolinx, as an employer is dedicated to the health, safety and well-being of all its employees and is committed to conducting its operations in a safe manner in order to prevent injuries, illnesses, and damages. We will take whatever steps reasonable to protect our workers from workplace violence and harassment from all sources.

Metrolinx strives to fully comply with all health and safety legislation. Where reasonable, Metrolinx will strive to exceed legislated requirements by adopting the best practices available to protect Metrolinx employees and to promote a positive health and safety culture. Metrolinx will work towards continuous improvement on its health and safety program.

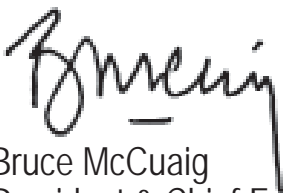
In recognition and support of the corporate goals, management ensures that employees work safely and that safe work conditions are maintained by implementation of personal injury and occupational disease prevention methods; training and competent supervision.

Management will be held accountable for the health and safety of those individuals under their supervision and those workplaces under their charge. Management will ensure that all workers and supervisors have the appropriate information and instruction to protect them from violence and harassment in the workplace.

Every employee must protect his or her own health, safety and well-being, and that of any person in the workplace, by following occupational health and safety legislation, as well as Metrolinx policies and procedures. Employees must receive adequate training in their specific work tasks and must report all unsafe and unhealthy conditions to management.

Contractors and sub-contractors employed by the Corporation have a responsibility for the health, safety and well-being of all workers and, when working for the Corporation, must follow the requirements of the Occupational Health & Safety Act and the Corporation's safety programs, policies, practices, procedures and departmental requirements, where applicable.

It is in the best interest of all parties to consider health and safety in every activity. Commitment to health and safety is integral to Metrolinx, and is reflected at all levels within the organization.



Bruce McCuaig
President & Chief Executive Officer
Metrolinx

January 2014

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Definitions

In this document, unless the context requires otherwise, the following definitions shall apply:

Accident: An undesirable and unexpected event resulting in personal injury, property or environmental damage, or losses in the production process.

Applicable Law: All applicable laws, statutes, regulations, orders, by-laws, ordinances, codes and standards of any governmental authority, body, agency or association having jurisdiction over the Work of the Contract or the Place of Work.

Arc Flash Hazard: A dangerous condition associated with the release of energy caused by an electric arc (CSA Z462-12).

Blue Tag – Track Protection: Lock out procedure during train servicing/cleaning (Willowbrook Maintenance Facility) Bombardier OP-W-11-003.

CCDC: Canadian Construction Documents Committee.

CCOHS: Canadian Centre for Occupational Health and Safety (www.ccohs.ca).

Confined Space: Fully or partially enclosed space:

- (a) that is not both designed and constructed for continuous human occupancy, and
- (b) in which atmospheric hazards may occur because of its construction, location, or contents or because of work that is done in it.

Contract: The duly executed agreement between GO Transit and the Contractor to perform their respective duties, obligations and responsibilities as presented in the Contract Documents.

Contract Documents: Those documents listed in the Agreement between Owner and Contractor section of the Contract that make-up the Contract.

CN: Canadian National Railway Company or a designated representative thereof (www.cn.ca).

CP: Canadian Pacific Railway Company or a designated representative thereof (www.cpr.ca).

Consultant: A person, firm or corporation identified as such in the Contract Documents, and is an Architect or Engineer licensed to practice in the province or territory where the Work is being performed.

Contractor: The person or entity identified as such in the Contract Documents. The term Contractor means the Contactor or the Contractor's authorized representative as designated to GO Transit in writing.

CROR: Canadian Rail Operating Rules, as well as the special instructions in use on the operating railways within GO Transit rail service area.

Employee: Any person employed at the Place of Work or Work Site by Contractor or any of its Subcontractors.

Fall Hazard: A dangerous condition associated with a person falling from a height.

Fall Protection System: A system designed to protect a person from the risk of falling when working at heights.

Governing Authority: Any governmental authority, body, agency or association having jurisdiction over the Work of the Contract or the Place of work.

Hazard: A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation; a condition that is a prerequisite to an accident.

Hazards can include latent conditions that may represent future threats and can have different origins. Hazards can be single, sequential or combined in their origin and effects. Each hazard is characterized by its location, intensity, frequency and probability.

Hot Work: A process or activity that produces heat ,sparks or open flame including cutting, welding, grinding, soldering, brazing.

Incident (near miss): An undesirable and unexpected event that under slightly different circumstances could have resulted in personal injury, property or environmental damage, or losses in the production process.

MOE: Ministry of Environment (www.ene.gov.on.ca).

MOL: Ministry of Labour (www.labour.gov.on.ca).

MOT: Ministry of Transportation (www.mto.gov.on.ca).

MSDS: Material Safety Data Sheet.

OHSA: Occupational Health and Safety Act and Regulations.

Operator: A person responsible for operating or driving vehicles or equipment.

Place of Work: The designated site or location of the work as identified in the Contract Documents.

PNR: Pacific Northern Railway Contractors Inc. or a designated representative thereof (www.railworks.com).

Professional Engineer: A person who is duly registered and licensed to practice as an engineer in the province or territory where the Work is being performed (www.peo.on.ca).

Project Coordinator: The designated GO Transit employee or representative who is responsible for the entire project and acts on behalf of GO Transit in this capacity.

Protecting Person – Flagman: A Protecting Person is a railway employee qualified in the Canadian Rail Operating Rules (CROR).

Protecting Persons are charged solely with the safe movement of trains and are NOT responsible for the safety of the Contractor, Contractor's Employees, Consultants, or their equipment.

Qualified person: A person who, by reason of his/her knowledge, training and experience in a specific field, has the skills necessary to perform a task safely and efficiently.

Risk: The possibility that a specific undesirable event may occur, within a given time period or under specific circumstances, and that the event may produce negative effects or consequences.

Risk Evaluation: A quantitative estimation of the possibility of a given undesirable event occurring and of its consequences.

Railway Right of Way, (ROW): The land occupied by a railway for its exclusive use; the right of railway traffic to take precedence.

Where work is to be performed less than 8 m (25 ft) from the nearest rail or where otherwise deemed necessary by the railroad, host railroad will assign a Protecting Person for protection of the Railway's operation (refer to section 6 for more details).

Subcontractor: A person or entity having a direct contract with the Contractor to perform a part or parts of the Work, or to supply products worked to a special design for the Work.

TC: Transport Canada (www.tc.gc.ca).

TTR: Toronto Terminals Railway Company Ltd. or a representative thereof (www.ttrly.com).

Visitor: A person authorized to visit the Work Site to examine conditions, or to give or gather information, but who is only at the site for a short time. The Contractor shall accompany visitors.

WHMIS: Workplace Hazardous Materials Information System.

WSIB: Work Place Safety & Insurance Board (www.wsib.on.ca).

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

Work Site: Any place where the Contractor performs tasks as part of the contracted work.

Worker: See Employee.

Intent & Limitations

1. The following health and safety guidelines shall govern the actions of all Contractors including their subcontractors, and all service providers engaged in performing work of any sort for GO Transit, including its employees or the designated GO Transit Consultant(s) who act on behalf of GO Transit.
2. The purpose of this document is to outline **minimum** GO Transit safety standards for Contractors, their employees, Subcontractors and Consultants. The Office of System Safety will be available as an additional resource in developing and maintaining a Safe and Secure work environment for all parties involved.
3. When GO Transit a division of Metrolinx is deemed the “constructor” under the *Occupational Health & Safety Act* additional governance will be implemented by the GO-CMO Construction Safety Management Program and will be referenced in the contract documents.
4. These health and safety guidelines are deemed to be supplementary to and incorporated in the obligations and responsibilities identified in the contract documents or purchase order agreements between GO Transit and the Contractor or service provider. In the event of discrepancy between these guidelines and the Contract, the Contract shall govern.
5. When the work is being performed indirectly for GO Transit within a railway right-of-way, under direct Contract to the railway company having ownership of the right-of-way, the railway shall be fully responsible for the management of the contract work. The Contractor shall deal with the designated railway “Project Manager” or the designated railway Consultant. The railway’s safety procedures and requirements are set out in the appropriate contract documents.

6. When the work is being performed directly for GO Transit, under direct Contract to GO Transit, within the railway right-of-way, or property owned or controlled by GO Transit, GO Transit is fully responsible for the management of the contract work and the Contractor or service provider shall deal with the designated GO Transit Project Coordinator or Consultant.
7. Contractors are responsible for thoroughly familiarizing themselves with all Applicable Law and Regulation governing worker health and safety and providing safe work procedures that determine their applicability in relation to the Work of the Contract prior to the start of work.
8. Contractors are responsible and accountable for ensuring compliance with all Applicable Law and regulation and these Safety Guidelines. Contractors will be monitored from time to time by GO Transit to ensure said compliance as set out in these guidelines.
9. The Contractor shall be responsible for determining the appropriate measures to ensure the health, safety, security and physical wellbeing of Employees, in consultation with the appropriate regulatory authorities, if necessary, to achieve compliance with Applicable Laws prior to the implementation of these Safety Guidelines.
10. A health & safety program and site specific plan developed by the Contractor working on GO Transit property shall be submitted for approval prior to the start of work. Such complementary safety programs shall:
 - a) Be specific to the work site and scope of work being contracted,
 - b) Take into account the existing and potential hazards inherent to the work performed,
 - c) Include copies of the risk assessments, job hazard analysis and / or engineering reports used to develop risk control strategies,

- d) Include copies of all specific work and emergency procedures required for the project, and
 - e) Shall include summaries of all specific safety training given to the Contractor's and Subcontractors employees. Copies of all training certificates shall be included in the package.
11. The Contractor shall be responsible for ensuring that its employees, subcontractors and visitors are familiar with these Safety Guidelines and ensuring day-to-day application.
12. The information set out in this document, including regulations, standards, references and links, are up to date during the time of printing. They are subject to change without further notice. Any discrepancies, omissions should be directed to the Office of System Safety.

4.1 - Principles

These guidelines are based on the following principles:

1. All accidents and incidents causing loss or injury can be prevented.
2. It is possible to manage effectively all risks that may lead to injuries, occupational illness, or property damage.

4.2 - Conditions To Be Respected By The Contractor

These guidelines require that the following conditions be respected:

1. The respect for safety in the performance of work shall be a condition of the Contract.
2. The Contractor shall be responsible for enforcing and respecting safety rules in the performance of all work covered by the Contract.
3. It is the Contractor's responsibility to quickly resolve any problems related to health and safety at the Place of Work.
4. No task, regardless of its urgency, shall be performed unless it can be done in complete safety.

4.3 - Contractor's Responsibility

Contractors engaged for the purpose of providing construction services to GO Transit shall be responsible for:

1. Ensuring that the health and safety of its Employees, GO personnel, patrons and the general public is of paramount

importance with regards to the performance of construction at GO Transit.

2. Ensuring that all construction conforms to all Applicable Laws.
3. Ensuring that the Employees, Consultants and suppliers conform to all its safety requirements as well as GO Transit safety requirements for construction at the Place of Work.
4. Protecting the environment by:
 - Conducting a daily clean up of the work area.
 - Properly disposing of any waste, including hazardous waste and by controlling the release of any hazardous substances as per applicable regulation.
 - Not dumping, burying or burning waste material on GO Transit or railway property.
 - Labeling all containers as to contents and hazards.
 - Providing a means to capture any fluids leaking from equipment.
 - Providing adequate dust control measures.
 - Containing any runoff from washing work equipment.
 - Implement erosion control and mitigation measures.
 - Tree hoarding where required by jurisdictional boundary.
 - Reporting all spills immediately to GO Transit by utilizing the Safety Management Systems Environmental Management Program specifically the GO-ENV-R201 Spill Prevention and Contingency Plan.
5. Conducting regular work site inspections and acting promptly in all situations where there is a risk to Health & Safety or the Environment.
 - The inspections shall be carried out on a weekly basis, or

more frequently as the nature of the Work dictates.

- Copies of all inspection reports shall be kept on file and immediately forwarded to GO Transit for review upon request.
6. Investigating all accidents and incidents having caused or risked causing losses or injury, in order to identify the causal factors, and immediately take the appropriate corrective action to prevent their recurrence.
 - All investigation reports shall be forwarded to GO Transit within twenty four (24) hours of the occurrence.
 - All major injury and property damage accidents must be immediately reported to the GO Transit Control Center: 416.601.2174.
 - All close out reports indicating corrective actions taken to prevent recurrence shall be forwarded to GO Transit Project Coordinator within twenty one (21) days from the date of occurrence and copied to the Office of System Safety.
 7. Taking all necessary steps to ensure that Employees and all persons admitted to the Place of Work and who are under the Contractor's control, or who are present at the latter's request, comply with Contractor safety procedures, these safety guidelines and with all codes, regulations and other instructions in effect.
 8. Providing proper training prior to starting a task so that they can perform their work safely.
 9. Providing and maintaining in good condition all personal protective devices for Employees, and / or any other safety devices required by regulation, standard or code during the performance of the work.
 10. Maintaining contact with the Office of System Safety as an additional resource when required.

4.4 - Consultant / Project Coordinator Responsibilities

Consultants / Project Coordinators, shall be responsible for:

1. Monitoring, recording and notifying the Contractor and GO Transit of any observed safety violations during construction, based on reasonable care, competence, knowledge, skill, judgment and due diligence.
2. Following up with Contractor and verifying completion and sustainability of requested corrective actions.
3. Maintain, record, compile and ensure all required regulatory and contractually referenced documentation as identified in the contract or required by Applicable law is provided or available for review by the Office of System Safety as required.
4. Provide notice and minutes of site meetings to the Office of System Safety on a regular and ongoing basis for the duration of the contract
5. Maintaining contact with the Office of System Safety as an additional resource when required.

5.1 - Compliance With Regulations

1. The Contractor is fully responsible for the occupational health and safety of its Employees, Subcontractors and visitors in accordance with Contract provisions and Applicable Law.
2. In the event of conflict between Applicable Laws, the Contractor shall comply with and apply the most restrictive or demanding Applicable Law.
3. As CN, CP and TTR are federally chartered and regulated railway companies, Contractors are advised that work undertaken on any Railway ROW shall be carried out in compliance with federal regulation.
4. The Contractor is responsible for obtaining approval from GO Transit where work is to be performed on or near the Railway ROW. GO Transit Project Coordinators or Consultants may issue new instructions from time to time based on site conditions or contract changes.

5.2 - Site Set-up

5.2.1 - Start-up meeting

The Contractor shall:

1. Attend a construction kick-off meeting with GO Transit representatives prior to mobilizing on site. The agenda of this meeting shall include as a minimum the following topics:
 - Review of GO Transit policies and procedures,
 - Review of Contractors' safety programs and site specific safety plans,

- Review and planning of project activities,
 - Ensuring compliance with all Applicable Law,
 - Initial Safety Orientation session planning, •
Railway protection planning (ROW access),
 - Initial job briefing session planning.
2. Communicate all applicable safety issues discussed at the meeting to its supervisors and others responsible for contract execution, including Subcontractors and Visitors.

5.2.2 - Safety Orientation / Meetings

The Contractor is responsible to ensure that the following safety orientations and job briefings are carried out prior to and during the performance of the Work.

The Contractor shall:

1. Provide site safety orientation to all persons with access to the site and maintain written records of this event. Copies of the written records to be sent to GO Transit upon request.
2. Organize additional safety orientation sessions for new employees, as required.
3. Instruct all visitors and delivery personnel on all safety instructions applicable to the Work Site, including all emergency procedures and GO Transit Contractor Safety Guidelines as required.
4. Ensure that a health and safety representative or JHSC committee has been established for the site and hold regular meetings as required by Applicable Law. The GO Transit Project Coordinator / Consultant shall attend these meetings.
5. Keep minutes of all Joint Health and Safety Committee meetings. The minutes shall be kept on file. Documentation of said meetings shall be retained on file at the Place of

Work by the Contractor and provided to GO Transit upon request.

6. Hold weekly safety meetings with all employees as required to ensure site safety and maintain employee hazard awareness. Documentation of said meetings shall be retained on file at the Place of Work by the Contractor and provided to GO Transit upon request.
7. Ensure that all of the Contractors' Employees and all Subcontractors and their employees working on ROW have taken GO Safe Railway Orientation training, for all work at track level, prior to the start of work.
8. Hold a daily job briefing session with all persons engaged in work to identify hazards and appropriate controls. Work activity that may interfere with rail operations requires the Protecting Person to attend these briefings and identify the required track protection methods to all affected workers. A written record of the briefing sessions shall be kept on file by the Protecting Person and shall be made available to GO Transit upon request for audit purposes.

5.2.3 - Work Site access / Material Delivery

1. The Contractor is ultimately responsible for ALL individuals entering the Place of Work. Accompany / escort all visitors at all time.
2. The Contractor shall submit their method of controlling access to the Place of Work to GO Transit for approval prior to the start of the contract.
3. All persons admitted to the Work Site shall wear personal protective equipment in accordance with section 5.3 herein.
4. The Contractor shall ensure that all persons with access to the Place of Work wear their hard hat stickers for identification purposes (ROW access).

5. The Contractor shall keep an up-to-date register of all personnel who have been issued the identification stickers. This register shall be accessible to GO Transit within twenty four (24) hours of receiving such a request (ROW access).
6. Communicate safety procedures around live railway track to those delivering materials or equipment and have them accompanied at all times. Individuals that deliver materials / supplies frequently (on the regular basis) will be required to complete the GO Safe Railway Orientation training.
7. Deny site access to a person who is not respecting the safety standards or a person who has been ordered off the site by GO Transit.

5.2.4 - Contractor's file

1. Prepare and maintain a list, by company and Subcontractor, of the people in charge at the Work Site, indicating their function relating to the Work, the name and address of their employer and their appropriate telephone numbers (office, fax, cellular, pager, home).
2. Prepare and maintain a list of emergency response employees, indicating their employers' names and twenty four (24) hour emergency telephone numbers.
3. The most updated list shall be posted at the Place of Work, kept at the GO Transit and Contractor's offices, and shall be readily accessible.

5.2.5 - Notices from Governing Authorities

1. GO Transit must be promptly notified by the contractor of any and all inspections conducted at the Place of Work by any Governing Authority.
2. The Contractor shall forward a copy of said notices on the same day as the inspection to the Project Coordinator and the Office of System Safety.

5.2.6 - Vehicles, Equipment, Tools

1. It is the responsibility of the Contractor to ensure that all vehicles, equipment, tools are in a safe condition to operate and where required have received the necessary regulatory inspection as per Applicable Law. If, in the opinion of the Project Coordinator, any of the Contractor's equipment is unsafe for use, the Contractor shall remove such equipment from the GO Transit / host railway's property.
 - The Contractor must ensure that the Operators of all equipment are properly trained and competent in the safe operation of the equipment.
 - Training records shall be made available to GO Transit upon request and be carried by the equipment operator at all times.
2. Operators on the ROW must (*refer to section 6 for more details*):
 - Be CROR qualified to operate Hi- rail mounted equipment
 - Obey Protecting Person directives all the time.
 - Ensure the operator's manual, which includes instructions for safe operation, is kept with each machine.
 - Shut off any unattended vehicle, equipment, tools, and properly secure the equipment against movement.
 - Verify that the master battery switch is left in the off or disconnect position and padlocked if equipment is to be left for extended period of time.
 - Where equipment has an enclosed cab, padlock the cab access doors and any glass protective coverings.
3. All crane work (hoisting, setting-up, and dismantling) shall be done in accordance with the provisions of the most recent Applicable Law and OHSa regulations.
 - Written safe work procedures, hoisting plans,

yearly crane certifications, including major rigging components, and operator training records for all hoisting activity must be provided to the Project Coordinator and the Office of System Safety for review prior to the work being undertaken.

- All overhead lines will be considered to be 'live' and high voltage, unless otherwise explicitly indicated by local utility provider. Work performed near power lines shall conform to O.Reg 213/91 s.187,188 and O.Reg. 627/05, s.7.
 - All hoisting activity must be well communicated and coordinated with other employees at the job site during daily job briefings.
 - The hoisting area shall be cordoned off and proper signage in place to warn others of the hazard.
 - The Contractor must implement an inclement weather policy in their written program for any hoisting operation.
 - Any serious violations of the crane safety procedures will result in an immediate work stoppage pending appropriate investigation by the Contractor, Project Coordinator with System Safety Review or involvement as required.
4. All vehicles and equipment are to give the right of way to trains. They must be prepared and able to stop at all railway at-grade crossings, and shall stop when necessary (*refer to Section 6 for min clearances*).
- Cranes shall ensure that the crane body, counter weight, boom or load attached to the crane is positioned to maintain adequate minimum clearances for passing trains.
 - Loads must be grounded while trains are passing to avoid wind induced movement.

5. Seat belt use is required when available on operating equipment and when driving or riding in vehicles unless they are on hi-rail gear.

5.2.7 - Site Housekeeping

The Contractor shall:

1. Remove all rubbish and debris from the site as work progresses, to GO Transit's satisfaction and in accordance with all Applicable Law and the requirements of the Contract Documents.
2. Keep traffic and employees' access routes clean and clear of any obstructions including application of sand and salt during winter months. Access routes with openings, construction material, excavated material or equipment must be barricaded and / or marked with appropriate and approved signage.
3. Obtain pre-authorization from GO Transit and / or the operating railway to store equipment or materials on the Railway (ROW) . Such storage shall in no way impede railway operations.

5.2.8 - Utility Locates

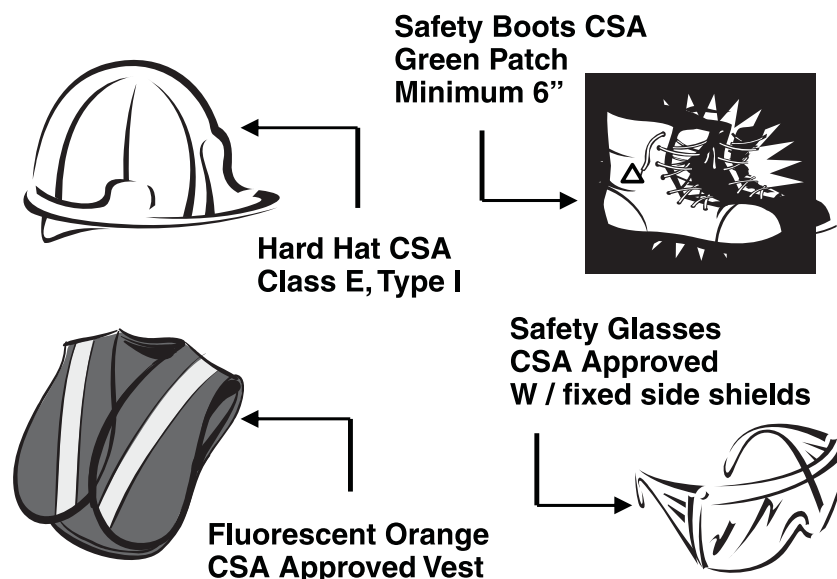
The Contractor shall:

1. Be responsible for determining the exact location of all utilities. The Contractor shall serve proper advance notice to GO Transit and the respective railway, as applicable, and the appropriate utility company or agency, for the purpose of utility locates.
2. Be responsible for all costs, including permit fees, daylighting, radar or any other means as may be required to perform the utility locates.
3. Not allow any excavation or other work that could impact

the existing utilities or services to be undertaken before approval is granted by the consultant or GO Transit Project Coordinator. The exact location and size of all embedded services has to be determined. Hand digging within three feet of known services must be done to ensure identification and eliminate potential contact with equipment.

4. Have written notification from the Railway Signal & Communications Department indicating that ALL cables/ services have been located in the Railway ROW prior to allowing any tool to break the ground surface.
5. If in doubt as to the validity or accuracy of any locate mark a remark must be requested of the utility service provider(s).
6. Barricade and prevent access to all excavations, holes, and trenches to protect pedestrians and vehicle traffic.
7. A review of all locates must be performed with the designated equipment operator prior to excavation and a valid copy of the locates maintained in the cab or in possession of the operator at all times

5.3 - Personal Protective Equipment



5.3.1 - Site access on Railway ROW

1. All Employees having access to the Place of Work on railway property shall wear CSA approved personal protective equipment:

- Approved headwear, approved footwear
- Approved eyewear with fixed side shields
- High visibility apparel

Note: High visibility apparel must be approved by the Office of System Safety, and must be manufactured to CSA Z96-02 High Visibility Apparel, Class 2 during daylight hours, and Class 3 for employees required to work between dusk and dawn and during other low-light conditions, or at any time on and about roadways where the posted speed exceeds 80 km/h.

- Any other additional PPE as prescribed for project specific activities or defined in safe work procedures, risk assessments or required by Applicable Law.
2. The individuals that are allowed to the Place of Work visiting, delivering, supplying shall also wear all required personal protective equipment and shall be briefed with all site safety procedures. It is the Contractor's responsibility to ensure that personal protective equipment is used.

5.3.2 - Site access with NON Railway ROW

1. All persons having access to the work site shall wear CSA approved personal protective equipment, at all times as required by:
 - The Contractors' own safety program.
 - GO Transit's site-specific safety requirements.
 - As prescribed by Applicable Law.

2. The individuals that are allowed to the Place of Work visiting, delivering, supplying shall also wear all required personal protective equipment and shall be briefed with all site safety procedures. It is the Contractor's responsibility to ensure that personal protective equipment is used.

5.3.3 - Potential danger zones

1. Use appropriate signage, caution/danger tape to identify potential danger zones such as high noise levels, hoisting or reversing equipment to warn others and where special protective equipment must be used to ensure personal safety.
2. Hearing protection, face shields, respiratory protection, fall protection equipment and all other special protective devices shall be used where signs are posted or when a potential hazard exists.

5.4 - Public Safety Protection

1. The Contractor shall erect and maintain all necessary protective devices / measures required to protect the public i.e. traffic signs, barricades, lights, fences etc.
2. Arrangements must be made with the designated GO Transit Project Coordinator / Consultant or appropriate operating railway personnel when these precautions could interfere with rail equipment movement (ROW access).

5.5 - Hazardous Materials

1. GO Transit shall disclose the information on any known substances in the workplace that may be hazardous to the Contractor's employees in the tender documents. (i.e. asbestos, lead, mould, etc.)
2. The Contractor shall provide GO Transit with their written program to address removal, abatement, handling and

disposal of said hazardous substances as required by Applicable Law.

3. The Contractor shall ensure compliance with WHMIS regulations and shall provide GO Transit with the MSDS's for all hazardous substances the Contractor will introduce to the worksite fourteen (14) days prior to starting work.
4. GO Transit reserves the right to request that the Contractor substitute products with less hazardous ones, or may ban the use of certain products all together.

5.6 - Emergency and Accident Response Plans

5.6.1 - Emergency procedures

The Contractor shall:

1. Prepare site specific emergency procedures and an evacuation plan for the work site prior to commencing work.
2. Arrange for adequate emergency transportation including remote rail operations to the nearest accessible meeting or muster point with local EMS in coordination with the local Hospital in the event an injury occurs at the Place of Work.
3. Ensure that all persons having access to the Place of Work are instructed on the emergency procedures and evacuation plan before being authorized to enter the Place of Work.
4. Keep the following records and postings at the work site:
 - List of all persons present (sign in log book).
 - Written emergency procedures with the hospital route map posted including WSIB form 82 poster "In Case of Injury at Work".
 - List of emergency contact & phone numbers posted.
 - List of qualified first-aid attendants posted with copy of Record of Training.

- WSIB Regulation 1101po.
 - Employment Standards Act Poster
 - Health & Safety , Workplace Violence & Harassment Policies
 - Post at the Place of Work any plan for the rescue of workers from a confined space , fall arrest situation or work over water.
 - Traffic Control Plans.
 - All material safety data sheets.
 - MOL orders and narratives.
 - JHSC /WTC Committee Members and meeting minutes.
 - Workplace Inspections.
 - Safety Talks.
5. Develop emergency procedures and submit the most updated copy to GO Transit. Keep an up-to-date list of emergency numbers, including GO Transit emergency numbers.
6. Investigate all accidents and incidents having caused or risked causing losses or injury, in order to identify the cause or causes, and immediately take the appropriate corrective action to prevent their recurrence.
- All investigation reports shall be forwarded to GO Transit within twenty four (24) hours of the occurrence.
 - All major injury and property damage accidents must be immediately reported to GO Transit Control Center 416.601.2174.
 - All close out reports indicating corrective actions taken to prevent recurrence shall be forwarded to GO Transit within twenty one (21) days from the date of occurrence.

7. Participate and collaborate with GO Transit and all other Governing Authorities in the planning and in realization of emergency procedure exercises and evacuation exercises implemented by the Contractor, GO Transit or any Governing Authority. These exercises may be conducted at any time and anywhere at the Place of Work.

5.6.2 - Rescue Equipment and Training

1. Before considering the Fire Department (911) as a means for rescuing an employee, the Contractor shall:
 - a) Ensure a complete Risk Evaluation of the fall protection system, or confined space, has been carried out by a competent person; and
 - b) Ensure the Risk Evaluation and Rescue Plan have been reviewed and signed off by the appropriate Governing Authority indicating they have:
 - i) An appropriate response time; and
 - ii) The necessary rescue equipment; and
 - iii) The specialized rescue training required.
 - c) Ensure all documentation has been submitted to GO Transit, System Safety, for final review and approval prior to project start-up.
2. If it has been determined that the Fire Department (911) cannot adequately respond to the emergency and specialty rescue equipment, personal and/or training is required, the Contractor shall ensure that:
 - a) Specific rescue equipment for confined space rescue or fall protection rescue is on site as required, and in readiness at all times; and
 - b) A sufficient number of employees or third party service providers are fully trained and qualified as “rescuers”, and are on site, in order to carry out an efficient and effective rescue.

5.6.3 - First aid

1. The Contractor shall ensure that the adequate quantity and type of First Aid supplies is readily available at the Place of Work, are in compliance with the requirements of the Applicable Law and (WSIB Reg. 1101).
2. The number of Employees trained and their qualification level shall meet all requirements of Applicable Law. The names of those identified as being First Responders shall be posted as per (WSIB Reg. 1101).
3. Remote operations without EMS access will require the contractor to provide adequate procedures and methods of communication, transportation and medical equipment to the nearest vehicle accessible location.

5.6.4 - Fire prevention

1. Supply, at the Place of Work, a sufficient number of 20 lbs type ABC regulation fire extinguishers, or other type of fire extinguishing medium as required, to provide reasonable protection as dictated by the nature of the Work, the Ontario Fire Code, and O.Reg. 213/91, s.(52 - 57).
2. The Contractor, Project Coordinator, Consultant or GO Transit Supervisor shall utilize the Hot work Permit Guidelines /Checklist form 0566-14 and Hot Work Permit form 0565-14 when performing hot work on a project or while conducting maintenance activities at GO Transit Facilities. The contractor may substitute their program and form if in place and offering similar protection.
3. Inspect the work area for flammables, combustibles and fire extinguishing devices prior to the start of work and utilize adequate spark containment and asset protection measures in the form of fire retardant tarps or blankets where necessary.

4. Provide a dedicated fire watch to observe and perform regular inspections to prevent fires and ensure permit compliance.

5.7 - Working At Heights

5.7.1 - Ladders

The Contractor shall ensure employees are trained on the types of ladder to use, the methods for its use, and requirements for inspection and maintenance.

Typical safety concerns may include:

- Ladders not secured, inadequate footing, improper angle
- Not maintaining three point contact
- Improper use
- Housekeeping
- Defective ladder

O.Reg. 213/91, Construction Projects. s. (72, 78-84)

5.7.2 - Scaffolding

1. Scaffolding must comply with the provisions of the OHSA, O. Reg. 213/91, Construction Projects (s. 125-142), as amended from time to time, as well as any more restrictive directive issued by GO Transit or imposed by any Applicable Law.
2. The Contractor shall adhere to the following restrictions for scaffold installations:
 - a) Obtain authorization from GO Transit before erecting scaffolds on a GO Transit structure or near a railway track.
 - b) The scaffolding shall not interfere with the safe operation of railway traffic unless authorized by the Protecting Person for set periods of time.

- c) Scaffolds must be positioned so that minimum clearance for vehicle or pedestrian traffic is always provided.

5.7.3 - Fall Protection

1. Fall Protection systems and equipment must comply with the provisions of the OHSA, O. Reg. 213/91 Construction Projects, s. 26, as amended from time to time, as well as any more restrictive directive issued by GO Transit or imposed by any Applicable Law.
2. All horizontal lifelines used for fall protection shall be designed by a professional engineer and installed in accordance with the following CSA Standards:
 - a) CAN / CSA Z259.13-04 Flexible horizontal lifeline systems
 - b) CAN / CSA Z259.16-04 Design of active fall-protection systems
3. The Contractor shall adhere to the following restrictions for fall protection system installations:
 - a) Obtain authorization from GO Transit before suspending, attaching or erecting fall protection devices on a GO Transit structure or near a railway track.
 - b) Components attached to structures must be placed on pads to prevent damage to the structures.
 - c) Fall protection systems must be positioned so that minimum clearance for railway, road and other traffic is always provided, unless authorized by the Protecting Person for set periods of time.
4. All Employees requiring fall protection shall be adequately trained on the fall protection equipment, systems, specific safe usage procedures, rescue procedures, its maintenance and inspection requirements.

5. Prior to the start of work: GO Transit reserves the right to review all training program material, instructor qualifications, and employee testing criteria prior to accepting the Contractor's training program as adequate and in conformance with the Working at Heights Program Standard released by the Ontario Ministry of Labour in 2014. O.Reg 297/13.
6. If the Contractor's training program and/or procedures are deemed inadequate by GO Transit, the Contractor will not be allowed to begin work until such deficiencies are corrected, at no cost to GO Transit.

5.8 - Hazardous Energy Sources

1. The Contractor shall be responsible for ensuring that its Employees are trained to recognize the energy sources and to implement Lock out/ Tag out procedures. (CSA Z460-13) Control of Hazardous Energy – Lockout and other methods.
2. The Contractor shall be responsible for ensuring that its Employees are trained on how to identify, work with and control the types of hazardous energy including use of an adequate personal protection:
 - **Electrical (Arc Flash, Shock and Burn)**
Electrical Utility Safety Rules
CSA Z462-12 Workplace Electrical Safety
CSA Z463-13 Maintenance of Electrical Systems
 - **Mechanical (hydraulic, pneumatic pressure)**
Applicable Safety Standards
 - **Steam, Heat, Natural Gas**
Applicable Safety Standards
CSA B149 Natural Gas & Propane Handling Code 2010
 - **Gravity, Spring, etc**
Applicable Safety Standards

3. The Contractor shall de-energize, disconnect, depressurize, block, drain, any and all energy sources and verify 'zero energy' state before proceeding with any task where a hazardous energy source may be encountered.
4. The Contractor shall utilize a lockout system that conforms to O.Reg 213/91, s. 190 s.(6)(7)(8) that defines the requirements on the use of tags and identification of the owner for all Contractor installed lockout devices.

NEVER WORK 'LIVE', UNLESS ABSOLUTELY NECESSARY WITH PROPER PROCEDURES and MANDATORY PPE.

OHSA s.(25- 28)

O.Reg. 213/91 Construction Projects s... (181-195)

5.9 - Confined Space Entry

1. The Contractor shall ensure that all feasible precautions and required safeguards are met to prevent exposure to toxic gases, oxygen deficiency, flammable atmosphere, and accidents related to entering confined spaces. Follow O.Reg., 632/05 Confined Spaces issued by Ministry of Labour and /or the most current Applicable Law
2. Confined spaces may include:
 - Storage tanks, process vessels, bins, boilers, ventilations or exhaust ducts, sewers, underground utility vaults, enclosed tunnels, pipelines and deep open top spaces such as sump pits
3. No work is to be carried out in a confined space until the Contractor has provided GO Transit with a copy of the written hazard assessments, rescue procedures and training records for review to verify that all risks have been adequately addressed and entrants are adequately trained in the rescue procedures.

4. GO Transit may stipulate that the Contractor use, at no cost to GO Transit, a third party to provide confined space rescue and supervision if the Contractors plan is deemed inadequate.
5. An “Entry Permit” form 0169-14 as found in this document or the contractors form & program documents approved by Office of System Safety, must be used to record all confined space entries and tests made during the course of the entry. see O.Reg 632/05 s.(21) Records for retention on construction projects and GO Transit owned facility.

5.10 - Respiratory Protection

The Contractor shall identify all potential atmospheric hazards by Risk Assessment and ensure occupational exposure levels are not exceeded. Mitigation efforts will utilize the hierarchy of controls to eliminate exposure to workers, GO Transit Staff and members of the public. In the event that PPE is the only available or cost effective method of control the Contractor will supply the adequate PPE to employees. The Employees shall be adequately equipped and trained on proper use and care of the protective equipment when it is required by Applicable Law.

5.11 - Compressed Gas Cylinders & Flammables

1. All workers involved with the storage, handling and use of any compressed gas, flammable or combustible liquid shall be familiar with its M.S.D.S. , characteristics and the necessary safety precautions and Applicable Law.
2. Compressed gas cylinders must be secured in the upright position at all times with the protective cap in place when not in use. Storage areas for gas cylinders and flammable liquids must be kept separated locked and identified with the appropriate signage. see O.Reg., 213/91 s. 42,43
3. Any and all compressed gas cylinders must be transported

utilizing appropriately designed carts or dollies and storage racks.

4. Flammable/ Combustible liquid containers utilized at GO Transit Facilities must be stored in a flammable storage cabinet. Class 1 and Class 2 flammable and combustible liquids must utilize a safety container that meets NFPA requirements including a self -closing lid with flash back arrestor. (See Ontario Fire Code (4.2.6 and 4.2.10).
5. No more than one day's supply may be stored in a building or structure on a project unless in a controlled access area or room that has sufficient window area to provide explosion relief to the outside.
6. Large Flammable/ Combustible storage and dispensing tanks on a Construction site must be placed a minimum 25 feet from any commonly occupied buildings and at least 100 feet from any compressed gas cylinder storage area. Have fire suppression, warning signage, vehicle protection and spill or leak containment equal to the tank size.
7. See Safety Management System Environmental Management System. GO-Env-PS104 Bulk Storage Tanks and Fuel Handling Environmental Performance Standard.

Propane

1. The Contractor shall have adequate number of Workers trained in the proper use, care and storage of propane appliances and containers. This certification must be obtained by training providers certified by the Technical Safety & Standards Association (TSSA) CSA B149 Natural Gas & Propane Handling Code 2010.

Typical safety concerns:

- Propane is heavier than air and will settle in low areas.
- Trenches, manholes, sumps shall be checked for gas build up.

- The containers shall be regularly checked for leaks.
- Cylinders shall be kept upright and secured.
- Cylinders shall be stored in a well ventilated area, away from heat.
- Only approved hoses and fittings will be used. ALL propane fired appliances shall utilize a pressure regulator affixed at the cylinder.
- Adequate warning signage to be posted

Only one day's supply of propane may be left inside a building and it must be removed overnight.

5.12 - Other Hazardous Processes

The Contractor and Workers shall be trained on how to identify, work with and control the hazardous material and processes including use of adequate personal protective equipment and containment measures.

Typical hazardous processes may include:

- excessive dust, noise,
- equipment / tool vibration,
- welding fumes and flash,
- sand blasting,
- concrete cutting
- abatement of designated substances, i.e. lead , asbestos.

The Contractor shall submit their hazardous process safety procedures, MOL Notices, to GO Transit for review prior to any site activity involving a designated substance and according to contract documents.

Hazardous Waste will be defined in contract documents and System Safety Environmental Management Program references should be referenced. See Regulated Waste Management Environmental Performance Standard (GO-Env-PS103),

5.13 - Workplace Hazardous Material Information System

All GO Transit, Contractors, are required to have annual WHMIS Training. The contractor will be responsible to maintain an up to date copy of all WHMIS controlled products at the Place of Work for review by workers. R.R.O 1990, Regulation 860.

The contractor will be responsible to train workers on any new products introduced into the Place of Work or unfamiliar to the worker.

Railway Right-of-way and Train Operation

6

6.1 - General Overview

1. Before entering and start of Work on the Railway ROW within GO Transit facilities, Consultants, Contractors and Subcontractors shall:

Undergo the GO Safe Railway Orientation training, in addition to the Contractor's own Safety Orientation training:

<https://gotransitcontractor.com/>

2. The Contractor shall not mobilize or start any work within the railway ROW, unless proper advance notice has been given and the appropriate written authorization has been granted by the respective railway or GO Transit.
3. When Work is being performed under direct Contract to GO Transit, either within the railway right-of-way or property of GO Transit, the Contractor shall deal with the designated GO Transit Project Coordinator or Project Manager.
4. GO Transit reserves the right to prohibit or halt, without prior notice, any of the Contractor's work that may have repercussions on rail operations and / or for Health & Safety violations.
5. Specific Blue Flag Procedures must be developed, and approved by GO Transit System Safety, prior to any work being undertaken on or about rail equipment on shop tracks or at lay-over points or any railway yard.
6. Contractors employees, visitors shall be properly briefed by a C.R.O.R qualified Protecting person on safety procedures to be followed when working on, or being near a railway track and shall be accompanied at all times or

in communication with that qualified Protecting person. A written record of the job briefing shall be maintained and made available to GO Transit upon request.

7. The Contractor shall not unnecessarily interfere with the movement of trains.
8. The Contractor shall ensure that no railway plant, signal, structure, equipment or property of any kind is tampered with, modified or removed.

6.2 - Restrictions for working on ROW

1. Host railway's (CN, CP, TTR etc) safety requirements apply and take precedence.
2. Summary of General Safety Rules:
 - Always be on the alert for moving equipment. All parties involved in the Work must always expect train, engine, car or track unit movement on **any track, at any time, in either direction.**
 - Where work is to be performed less than **10 m (30 ft)** from the nearest rail, or where otherwise deemed necessary by the operating railway, the Contractor must arrange for a qualified C.R.O.R. Protecting Person to be on site.
 - The Protecting Person will provide proper track protection, assist, participate and / or conduct a job briefing and have the Contractor sign the job briefing form before employees or machines are allowed to move and be positioned in the right-of-way. All parties involved in the Work shall always obey Protecting Person directives.

NOTE: CN / CP / GO Transit require that vehicles come to a stop, the engine to be shut off and be located at least:

***10 m (30 ft)** away from the nearest rail when trains are passing.*

- Do not step or walk on the top of the rail, frog, switches, guardrails, or other track components. Do not operate a track switch, derail or electric lock.
- Look in both directions before stepping over or crossing tracks and / or passing obstructions limiting clear line of sight.
- Do not sit on, lie under, or cross between cars except as required in the performance of your duties and only when equipment has been protected against movement and authorized by the railway's Protecting Person.
- Do not cross the tracks within 25 feet of standing railway equipment.
- No tools or materials are to be left UNATTENDED close to the track AT ANY TIME. Metal or conductive tools must not be allowed to contact both rails at the same time.
- Vehicles shall not exceed **15 km/h (9 mph)** on ROW. More restrictive speed limits may be imposed.
- Cranes & Hoisting devices are NOT permitted to be operated closer than **10m (30 ft)** from the nearest rail of any track without Protecting Person authorization and with railway traffic protection as specified by host railway.
- No track shall be fouled at any time except for a specific and approved task, for a limited time and under protection of the railway's Protecting Person.

7.1 - Alcohol & Drug Abuse Prevention

1. GO Transit is committed to a safe work environment free from the negative effects of substance abuse and has set strictly enforced rules pertaining to drug and alcohol use, consumption and “under the influence of” while on duty.
2. The Contractor is responsible to be astute to the indications of substance abuse as well as employees’ physical and mental capabilities to perform and to undertake corrective actions as necessary.
3. Employees who are taking prescribed medication must ensure any potential adverse affects of such medication do not pose a safety hazard to themselves or others while performing their duties. These employees are encouraged to disclose this potential hazard to their Supervisor to reduce risk potential while under the influence of prescription medications. Contractors’ employees are responsible to report and remain fit for duty while on GO Transit property.
4. Metrolinx CCDC Contract Documents “ Safety Requirements” section 01600 specifically section 6. Alcohol & Drug Abuse Prevention detail the requirements in regard to the process and expectations of contractors if this contravention is identified by either GO Transit staff or the contractor’s employees.

NOTE: Operating railways such as CN in particular, maintain a “Zero Tolerance” approach to violations of their Policy To Prevent Workplace Alcohol and Drug Problems.

8.1 - Quick Reference

1. **Site Security Measures:**

All Employees to display GO approved positive identification, provided by Contractor, while on GO Transit project / property:

- Restricted Areas – Photo ID badge required (high risk, direct impact on operations)
- Private Areas – Non Photo ID badge required (low risk, indirect impact on operations)
- Other project specific security measures as approved by GO Transit

2. **Training:**

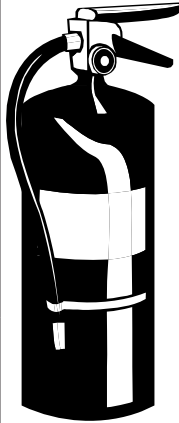
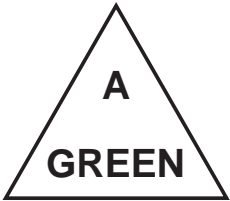
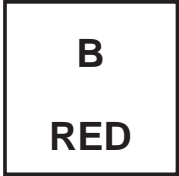
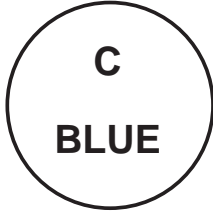
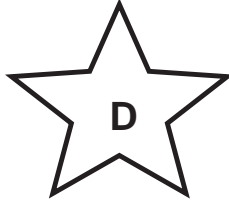
- All Employees to go through site specific orientation
- All Visitors to go through visitor orientation and
- GO Transit GO Safe Railway Orientation

3. **Personal Protective Equipment PPE (Sec 5.3)**

- Approved headwear and footwear O.Reg 213/91 s. 22,23,
- A fluorescent outer most garment around moving vehicles and/or equipment and when on any Railway ROW or Construction Project,. O.Reg. 213/91 s.69.1
- Safety glasses as required and when on any Railway ROW or Construction Project. O.Reg 213/91 s. 24

4. **Every Project must have:**

- A qualified competent Supervisor present whenever there is any activity or task being performed, O.Reg. 213/91 s. 14 (2)
- Appropriate first aid supplies / equipment and a sufficient number of qualified first aiders. (WSIB Reg. 1101)
- Appropriate number of 20lb fire extinguishers present, with a sufficient number of Workers trained in their use, and compliance with O.Reg 213/91 s. 52-55

	Ordinary Combustible 	GREEN	CLASS “A” Extinguishers For fires with ordinary combustible materials such as wood, paper and textiles, where a quenching cooling effect is required.
	Flammable Liquid 	RED	CLASS “B” Extinguishers For flammable liquid and gas fires such as oil, paint, gasoline and greases where an oxygen exclusion or flame interruption is essential.
	Electrical Equipment 	BLUE	CLASS “C” Extinguishers For fires with electrical wiring and equipment where the non-conductivity of extinguishing agents is crucial. This extinguisher should be present whenever functional testing and system energizing takes place.
	Combustible Metals 		CLASS “D” Extinguishers For fires in combustible metals such a sodium magnesium, and potassium.
How to use the Fire Extinguisher Aim the extinguisher at the base of the fire to extinguish the flame at their source.			

5. Postings to be displayed:

- Notice of Project, R.S.O. 1990, c. 0.1, s. 23(2) O.Reg. 213/91, s.6
- Project Emergency Procedures, O.Reg. 213/91 s. 17
Emergency Contacts – names, company, position and 24 hour contact phone number(s)
- Map to Nearest Hospital,
- Qualified First Aiders names,
- WSIB poster, Form 82 “In Case of Injury at Work”
- Form 1000 posted for all contractors on the project
- Employment Standards Act Poster
- MSDS for all products at the project
- See Emergency Procedures Section 5.6.1 for complete List of required postings

6. Signage to be displayed:

- Appropriate ‘DANGER’, PPE, and ‘NO TRESPASSING’ warning signage will be conspicuously posted as required, and
- All signage will remain legible at all times and in conformance with the GO Transit Design Requirements stipulated in the contract documents

7. Hoarding, where installation is approved by GO Transit, to have:

- A 1.8 meter (6ft) approved sturdy fence will be erected to protect the public, O. Reg. 213/91 s. 65
- A 1.8 meter (6ft) approved sturdy fence will be erected between any railway track and the project, to protect the Railway ROW
- The Place of Work to be secured against unauthorized access

8. Records to be kept onsite:

- All safety related activities (NOP, employer registration forms, project orientation, training, proof of training, weekly/daily site inspections, safety talks, meetings, investigations, First Aids, maintenance, MOL

- notifications, MOL inspections etc.),
- Record(s) will be sent to GO Transit upon request

9. Same day notification to GO Transit to be submitted for each of the following:

- Every incident and/or accident, regardless if reportable to the MOL,
- Every MOL site inspection – a copy of the MOL Orders will be forwarded to The Office of System Safety the same day as the inspection.

NOTE: *A written report making recommendations and listing the procedure changes instituted for each of the above will be forwarded to The Office of System Safety within 48 hours of occurrence.*

10. Project specific activities – adherence to all applicable standards and legislations, such as but not limited to:

- Hot Work (Permits),
- Confined Spaces (Entry Permits) / Rescue Plan,
- Fall Protection / Rescue Plan,
- Ladders, scaffolding, work platforms,
- Public Way Protection,
- Track Safety,
- Traffic Control / Protection,
- WHMIS, MSDS's
- Ventilation, house keeping,
- Additional PPE (i.e. sandblasting, arc flash, respiratory, etc)
- Security.
- Work in proximity to overhead power lines.

11. Environmental Protection:

- Spills Controls / Notification / Reporting,
- Sandblasting operations
- Tree hoarding
- Sediment and erosion control
- Hazardous waste disposal procedures.

8.2 - Stoppage of Work Due To Failure To Comply

1. Failure by the Contractor, Subcontractors or Employees to respect established Safety Guidelines may, in accordance with provisions of the Contract Documents, lead to temporary stoppage of the work, closure of the site until the situation is corrected or even removal of the Contractor from the work site at the discretion of GO Transit.

8.3 - Execution of Safety Compliance

1. The Contractor is responsible for ensuring compliance with all Applicable Laws in effect, and keeping a written record of safety supervision activities carried out by the Contractor, or on the Contractor's behalf.
2. The Contractor is responsible for putting into effect the necessary procedures and mechanisms required to comply with the Applicable Laws including broadcasting the necessary information to all those having access to the Place of Work, controlling and supervising all activities to ensure compliance and executing corrective measures resulting from non-compliant activities.
3. Governing Authorities, such as the WSIB, Ontario Ministry of Labour, Transport Canada, etc., may intervene with the Contractor. A Governing Authority may intervene on its own or in association with other Authorities and / or GO Transit. GO Transit may also ask Governing Authorities to intervene as required to ensure compliance under their respective jurisdiction.

8.4 - Contractor Safety Information Flow

Documentation Type	Action	By Who?	TO Who?	Timelines
Safety Policy & Program	Copy to GO	Contractor	PC/SS	With tender/Annually
Site Specific Safety Plan	Copy to GO/file	Contractor	PC/SS	14 days before start of Work
Training Records	Copy to GO/file	Contractor	PC/SS	as requested
Inspection Certificates Lifting/ Handling Eqpt.	Copy to GO/file	Contractor	PC/SS	as requested
Start-Up meeting minutes	Copy to GO/file	Consultant	PC/SS	Within 5 days after meeting
Job Briefing Forms	File	Contractor	PC/SS	as requested
Orientation Register	File	Contractor	PC/SS	as requested
Emergency contact list (with Site Specific Safety Plan)	Copy to GO/file Posted on Site	Contractor	PC/SS	48 hrs before start of Work
Utility Locates	Owner	Contractor	PC/RLWY	7 days prior to start of Work
Hazard Reports	Copy to GO/file	Contractor	PC/SS	as required

Documentation Type	Action	By Who?	TO Who?	Timelines
Inspection Reports	File on Project	Contractor	upon request monthly by PC/SS	monthly
Accident Reports	Copy to GO/file	Contractor	PC/SS	immediately to 24 hrs after event - 21 days for close-out report
JHSC Meeting Minutes	Copy to GO/file	Contractor	PC/SS	monthly or as required by regulation
Compliance Observations	Copy to GO/file	PC/SS/ Contractor	PC/SS	based on project scope(monthly/quarterly)
Corrective Actions Taken	Copy to GO/file	Contractor	PC/SS	as stipulated in request
Sign in log book	Copy to GO/file Posted on Site	Contractor	PC/SS	Weekly review

PC = GO Project Coordinator / Consultant

SS = System Safety

RLWY = CN / CP / TTR

8.5 - Construction Site Security

Since GO Transit's construction projects deal with critical, direct or indirect transportation infrastructure, it is a subject to service disruption and / or civil security. This interference can be triggered by an intentional or accidental act. Additionally, and to comply with Transport Canada security guidelines, as well as to reduce construction equipment thefts, GO Transit recommends a number of specific security requirements to be applied to the projects, based on the security hazard:

1. **Visible Identification**

The Contract Documents shall set out the required Employees identification measures on each project based on the level of security risk determined by GO Transit.

All Employees on GO Transit projects shall follow the required security measures. This affords the Contractor the ability to easily identify and challenge individuals who do not belong at the Place of Work.

2. **Sign in/out logs**

The Contractor to maintain an accurate up to date sign in/out log located at the entrance checkpoint. These logs shall be supplied to GO Transit upon request.

3. **Key Controlled lockable gates and construction hoarding**

Wherever possible, construction hoarding shall be erected to limit accessibility to the Place of Work to one (1) designated entrance point. This provides for a single point of entry requiring all who work or visit to report to the entrance checkpoint to sign in.

Entrance to stairwells, tunnels, and other designated areas under construction, shall be secured in a manner acceptable to GO Transit at all times when the Contractor does not have employees at the Place of Work.

4. **Security Personnel**

Where required by the Contract, the contractor shall provide security personnel at the entrance checkpoint.

5. **Security Signage**

All projects shall have GO Transit approved security signage. These signs will be of high visibility type indicating that the site is private property and trespassers will be prosecuted.

6. **Suspicious Activities / Articles**

Any suspicious activities and / or unattended articles, packages of unknown origin should be immediately reported to:

GO Transit Control Center1.416.601.2174

Transit Safety Dispatch1.877.297.0642
905.803.0642

CN Railway.....1.800.465.9239

CP Railway1.800.716.9132

Remember:

‘If you see something, say something’

<u>Basic:</u> Routine day to day business.	<div>BLUE</div>
<u>Low:</u> (Increased Vigilance) Authorized by the Manager of the affected department or by any supervisor in the department on duty in place of the Manager, where there is a potential or indirect threat to GO Transit. → Staff should be more aware of their surroundings, including who or what maybe be within that environment.	<div>YELLOW</div>
<u>Medium:</u> (Precautionary Measures) Authorized by the Manager of the affected department or the Director of the affected division, when a threat is perceived to exist against GO Transit. → Staff should maintain vigilance; escort all visitors and contractors from the workplace and screen all deliveries.	<div>ORANGE</div>
<u>High:</u> (Maximum Measures) Authorized by the Managing Director, when GO Transit in whole or in part is subject to a direct threat that is imminent or underway. → All GO Transit operations have ceased. No visitors/ contractors allowed on site and only deliveries essential to our operations will be allowed.	<div>RED</div>

9.1 - Safety Management System

The GO Transit Safety Management System (SMS) - August 2014 v. 1.0 can be found in the GO Transit MY Linx Web page at <http://mylinx/sites/Safety/en/System/Pages/Safety-Management-System.asp>

9.2 - Metrolinx as a “Constructor”

1. USRC-CMO Construction Safety Management Program

9.3 - Willowbrook Maintenance Facility

1. Willowbrook Maintenance Facility, Contractor Safety Requirements
2. Bombardier OP-W-11-003 – Blue Signal Regulation –

9.4 - Environmental Management System

The GO Transit Environmental Management System (ENV-MS) The GO-Env-M001 Environmental Management System Manual can be found in the GO Transit MY Linx Web page at <http://mylinx/sites/Safety/en/System/Pages/Environmental-Management-Plan.aspx>

1. ENV-GO-R201 Spill Prevention & Contingency Plan

9.5 - Station Operations

1. SO-0205-01 Platform Protection Procedures

9.6 - Regulatory Requirements

1. *Occupational Health and Safety Act* R.S.O. 1990, c 0.1.
 - a) Ontario Regulation 851 Industrial Establishments
 - b) Ontario Regulation. 213/91 Construction Projects
2. Canada Labour Code, Part II
 - a) Canada Occupational Health and Safety Regulations
3. *Workplace Safety & Insurance Act*, 1997
4. *Building Code Act*, S.O.. 1992, CHAPTER 23
 - a) And applicable municipal by-laws
5. *Environmental Protection Act* R.S.O. 1990
6. *Railway Safety Act* (1985, c. 32 (4th Supp.))
7. Ontario Fire Code 2007

9.7 - Transport Canada (www.tc.gc.ca)

9.8 - Ministry of Transportation Ontario (www.mto.gov.on.ca)

9.9 - Canadian National Railway (www.cn.ca)

- Safety Guidelines for Contractors September 2013
- Operating Manual

9.10 - Canadian Pacific Railway (www.cpr.ca)

- Minimum Safety Requirements for Contractors working on CP Property in Canada 2010

9.11 - Infrastructure Health & Safety Association (www.ihsa.ca)

- Includes the Transportation Health & Safety Association, Electrical & Utility Safety Association, Construction Health & Safety Association

9.12 - Industrial Accident Prevention Association (www.iapa.ca)

9.13 - Ontario General Contractors Association (www.ogca.ca)

- Safety Policy and Reference Manual

9.14 - Construction Safety Engineering Principles

David V. MacCollum, McGraw Hill, Dec 2006

9.15 - The Canadian Standards Association (www.csa.ca)

9.16 - *Fire Protection and Prevention Act* The Ontario Fire Code (www.ofm.gov.on.ca)

9.17 - National Fire Protection Association (www.nfpa.org)

- 10.1 GO Transit Reporting Forms
 - 10.1.1 Job Briefing Forms 0593-09
 - 10.1.2 Incident Report Form
- 10.2 Hot Work Permit Form – 0565-14
Hot Work Permit Guidelines – 0566-14
- 10.3 Confined Space Entry Permit – 0169-12
- 10.4 Spill Report
Consult Go Transit Spill Prevention & Contingency Plan
ENV-GO-R201

Attached Forms are recommended templates for effective communication. Contractor specific forms may be substituted provided that they are acceptable by GO Transit and fulfill the required purpose.

Other forms for project specific activities can be developed and / or approved by the Office of System Safety upon request.

Confirm attached form's latest revision level before use

.

10.1.1 - Job Briefing Form



Job Briefing Record

Fill out the appropriate areas before starting the job briefing. Note any safety concerns raised and steps taken to address them. All personnel must review and sign the form before starting work.

Station Name:	Sub:	Mile:
----------------------	-------------	--------------

Describe work being done:
Track(s) affected:

☐ Light Equipment
 ☐ Heavy Equipment
 ☐ Other (explain) _____

TRACK PROTECTION to be used:

☐ Track Occupancy Permit
 ☐ Safety Watch
 ☐ Other (explain) _____

Protecting Person: _____
 (Print Name) (Signature)

Safety Watch: _____
 (Print Name) (Print Names of Relief & Times)

Safety Watch to be located:
Safety Warnings: ("Clear the Track")
Clearing Location:
Other Considerations:

I was present at the Job Briefing and understand the safety requirements for the tasks assigned.
--

Date: dd/mm/yy	Conducted by:	Signature
----------------	---------------	-----------

Retain on file and send completed copy to System Safety as directed.

0593-15 (Feb 2015)



A Division of Metrolinx

Incident Report

(To be completed by GO Transit employees **ONLY**)

Page 1 of _____

Type of Incident:
☐ **Bus** ☐ **Train** ☐ **Personal/Property**

Reference no.	Incident Time	Incident Date
Incident Location (specify)		<input type="checkbox"/> Inside Station <input type="checkbox"/> Bus Platform <input type="checkbox"/> Outside Station <input type="checkbox"/> Rail Platform <input type="checkbox"/> Parking Lot

Bus/Train no.	Trip no.	Coach no./location of coach-rail	Travelling from: _____ To: _____
---------------	----------	----------------------------------	----------------------------------

Incident Location (check one or more of the following):**Bus**

- ☐
- Boarding
-
- ☐
- On-Board
-
- ☐
- Exiting

Train

- ☐
- Boarding
-
- ☐
- On-Board -
- ☐
- Locomotive end
-
- ☐
- Exiting
- ☐
- Washroom end
-
- ☐
- Lower level
-
- ☐
- Mezzanine
-
- ☐
- Upper level
-
- ☐
- Other - specify: _____

Station / Terminal / Bus Stop

- ☐
- Concourse/waiting area
- ☐
- Parking lot
- ☐
- Sidewalk
-
- ☐
- Elevator
- ☐
- Pedestrian bridge
- ☐
- Stairway
-
- ☐
- Escalator
- ☐
- Platform
- ☐
- Tunnel
-
- ☐
- Mezzanine
- ☐
- Shelter
- ☐
- Washroom
-
- ☐
- Other - specify: _____

Describe incident/exact location: _____

Type of Incident

☐ Additional information on back

Was Bus/Train moving at time of incident? <input type="checkbox"/> No <input type="checkbox"/> Yes	Was the emergency strip used? <input type="checkbox"/> No <input type="checkbox"/> Yes	Was the train between stations?, If so what stations? <input type="checkbox"/> No <input type="checkbox"/> Yes
---	---	---

What was the condition of the coach where the accident occurred?

How soon after the incident did you inspect the premises?

Specify minutes:

Did you find:

☐ Area clear ☐ Ice ☐ Snow ☐ Slush ☐ Water ☐ Litter ☐ Defect ☐ Obstacle ☐ Other: _____

Describe ground conditions:

Complete a separate form for each individual

Passenger / Victim	<input type="checkbox"/> Mr <input type="checkbox"/> Mrs <input type="checkbox"/> Ms	Surname _____	Given name _____	Sex <input type="checkbox"/> M <input type="checkbox"/> F
	Address - include street number and name _____		City/Town _____	Postal Code _____
	Home telephone number _____	Business telephone number _____	Driver's licence number _____	Vehicle plate _____
	Vehicle make / model / colour _____		Insurance company _____	Policy number _____
	Did person require immediate medical attention? <input type="checkbox"/> No <input type="checkbox"/> Yes		Did person report the incident to any on-board personnel? <input type="checkbox"/> No <input type="checkbox"/> Yes Name/Badge No.: _____	
	Other information / injuries - describe specific details on reverse side of form.			

Witness

Were you an eye witness to the incident? <input type="checkbox"/> No <input type="checkbox"/> Yes	GO Employee? Employee no. _____ <input type="checkbox"/> No <input type="checkbox"/> Yes (specify work location)
Name _____	Name _____
Address - include street number and name _____	Address - include street number and name _____
City/Town _____	City/Town _____
Postal Code _____	Postal Code _____
Home telephone number _____	Business telephone number _____
Home telephone number _____	Business telephone number _____

Action Taken

Emergency assistance called: <input type="checkbox"/> Police <input type="checkbox"/> Fire / Emergency <input type="checkbox"/> Ambulance <input type="checkbox"/> Other (specify): _____			
Police officer #1 _____		Badge number _____	Division _____
Police officer #2 _____		Badge number _____	Division _____
Charges laid, against who (specify): _____			
Was medical aid provided? <input type="checkbox"/> No <input type="checkbox"/> Yes (describe): _____			
Ambulance number _____		Hospital _____	

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Complete all information on back page

Incident Report

Page 2 of _____

Reference no.	Incident Time	Incident Date
Incident Location (<i>specify</i>)		<input type="checkbox"/> Inside Station <input type="checkbox"/> Bus Platform <input type="checkbox"/> Outside Station <input type="checkbox"/> Rail Platform <input type="checkbox"/> Parking Lot

Description of incident: _____

Additional Pages attached ☐ Yes ☐ No

Please put additional comments on separate page, and number the added pages

Passenger / Victim - Details / injuries - describe: _____

Type of build: ☐ small ☐ medium ☐ large Approximate weight: _____ Approximate age: _____

Description of clothing / shoes: _____

Glasses? ☐ Yes ☐ No Was person carrying parcels, bags, etc.? ☐ No ☐ Yes - specify: _____

Did the person make any statements? ☐ No ☐ Yes - specify: _____

To be completed by GO Employee

 Additional information attached: ☐ CSR ☐ Comments ☐ Other (*specify*):
 Forwarded Original to: ☐ Claims Copies to: ☐ Supervisor ☐ Transit Enforcement ☐ Other (*specify*):

Employee name (<i>Please Print</i>)	Employee no.	Work location
Employee signature	Date completed	Time completed



Hot Work Permit Guidelines / Checklist

The "Hot Work Permit" is required for any "Hot Work" performed out of designated areas, indoors or outdoors, involving open flames or producing heat and/or sparks.

This includes but is not limited to: Brazing, Cutting, Grinding, Soldering, Thawing Pipe, Torch Applied Roofing and Welding

- Step 1: Complete the "Identification" section (Supervisor, Contractor or Hot Work Operator)
 Step 2: Complete the "Timeline" section (Contractor/Hot Work Operator and Firewatches)
 Step 3: Complete "Checklist", Review Permit, Assign Permit Number, Sign (Hot Work Authority/Consultant)
 Step 4: Post the "Hot Work Permit" on site (Supervisor, Contractor)
 Step 5: After work is complete remove the 'Hot Work Permit' and return it to Hot Work Authority (Supervisor/Contractor)
 Step 6: Hot Work Authority to forward to GO Transit Facility Manager and/or Project file. Copy to remain at project location for review

NOTE: In the event of fire at project locations initiate the Site Emergency Response Plan.
 For GO Transit Facilities activate the nearest Fire Alarm Pull Station

Emergency Response	Control Center	Security
--------------------	----------------	----------

Checklist: Mark boxes "Y" if safety measure is required and in place.
 Mark boxes "N" if safety measure is not required.

General Requirements

- ☐ Personnel must have reviewed "Hot Work Procedures".
- ☐ Hot work must be performed by qualified persons.
- ☐ Hot work equipment must be in good condition.
- ☐ In order to eliminate any possible explosive atmosphere, any area or container must have been cleared of all flammable liquids and vapors, dust, lint, and oily deposits.
- ☐ Available sprinklers, hose streams, fire extinguishers must be in service/operable.
- ☐ This permit must be posted adjacent to the work area.
- ☐ Warning signs must be posted in the immediate area.

Personal / Public Safety Equipment

- ☐ Portable screens must be used in public areas.
- ☐ Aprons, welding helmet with visor, and gloves where applicable must be used.

Other Precautions Taken

- ☐ Zone bypass of the fire alarm panel, or Sprinkler System.
- ☐ Covering of smoke detector(s) or sprinkler heads.
- ☐ Portable smoke extractor used indoors.

Fire Watch / Area Monitoring

- ☐ A fire watch has been assigned to watch for dangerous sparks in the area as well as in the floors above and below, and in adjacent areas as required.

- ☐ Fire watch must be provided during and for a minimum of 30 minutes after completion of the work, including any coffee or lunch breaks.
- ☐ Fire watch must be provided with suitable portable fire extinguishers/fire hoses and is appropriately trained.
- ☐ Hot work area must be monitored periodically for up to 4 hours after the job is completed by a fire watch, co-ordinator (or designate), or Security.

Specific requirements within 11 m (35 ft) of work

- ☐ Flammable liquids and vapours, dust, lint, and oily deposits must be removed.
- ☐ Explosive atmosphere in the area must be eliminated.
- ☐ Atmosphere is properly monitored and ventilation required for Confined Space.
- ☐ Combustible floors must be covered with fire resistant tarpaulins.
- ☐ Other combustibles must be relocated where possible or otherwise protected with fire-resistant tarpaulins or metal shields.
- ☐ Wall and floor openings must be covered; fire resistant tarpaulins must be suspended beneath.

Work on walls / ceilings

- ☐ Construction is non-combustible and without combustible covering or insulation.
- ☐ Combustibles on the other side of walls must have been adequately protected or removed.

Hot Work Authority: (Print Name)	Permit Number
Signature	Date

0566-14

Original - Work Site

Copy - Plant Maintenance / Project Manager



Hot Work Permit

Identification	<input type="checkbox"/> Contractor Company Name <input type="checkbox"/> GO Transit Shop / Department		Permit No.
	Date of Issue		
	Applicable to all operations involving heat, such as: Arc/Gas Welding, Cutting, Torches, Brazing, Gas Heating, abrasive grinding and cutting.		
	Hot Work Operator: <i>(Print name)</i>		Fire Watch: <i>(Print name)</i>
	Task Description:		
	Process, Tools or equipment utilized?		
	Where are the exact locations where the tasks will be done?		
This permit is valid: From _____ Time _____ DD / MM / YYYY To _____ Time _____ DD / MM / YYYY			

I have noted all provisions and will adhere to all standards and regulations so imposed.

Time Line	GO Transit Hot Work Authority: <i>(Please print)</i>			Project Number
	Signature			Date
	Contractor / Supervisor: <i>(Please print)</i>			
	Signature			Date
	30 Minute Fire Watch Completed	Time	Date (DD / MM / YYYY)	Signature
	60 Minute Fire Watch Completed	Time	Date (DD / MM / YYYY)	Signature
	4 Hour Fire Watch Completed	Time	Date (DD / MM / YYYY)	Signature

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Original - Work Site

Copy - Plant Maintenance / Project Manager



Confined Space Entry Permit

Date	Valid Time	Permit Number																																
Location and Description of Confined Space																																		
Purpose of Entry																																		
Entry Supervisor		Phone #																																
Hazards (Review the confined space, delete any hazard not potentially or actually present for that specific confined space.) <table border="0"> <tr> <td>Pre-Entry Readings</td> <td>Biological Material</td> <td>Engulfment</td> <td>Falling</td> </tr> <tr> <td>% of Oxygen _____</td> <td>Conflict</td> <td>Flying Particles/Liquid</td> <td>Lack of Oxygen</td> </tr> <tr> <td>% of LEL's 0 _____</td> <td>Electrical Current</td> <td>Light Extremes</td> <td>Moving Equipment/Parts</td> </tr> <tr> <td>Flammable/Combustibles _____</td> <td>Lapse of Consciousness</td> <td>Noise</td> <td>Panic</td> </tr> <tr> <td>Poisons & Toxics _____</td> <td>Muscular/Skeletal Stress</td> <td>Pressure</td> <td>Reactive Material</td> </tr> <tr> <td>Other: (Toxic, Noise, Temp. etc.) _____</td> <td>Structural Failure</td> <td>Temperature Extremes</td> <td>Vehicle Traffic</td> </tr> <tr> <td>_____</td> <td>Blocked Pathways</td> <td>Clutter</td> <td></td> </tr> <tr> <td>_____</td> <td>Corrosives</td> <td>Curiosity</td> <td></td> </tr> </table>			Pre-Entry Readings	Biological Material	Engulfment	Falling	% of Oxygen _____	Conflict	Flying Particles/Liquid	Lack of Oxygen	% of LEL's 0 _____	Electrical Current	Light Extremes	Moving Equipment/Parts	Flammable/Combustibles _____	Lapse of Consciousness	Noise	Panic	Poisons & Toxics _____	Muscular/Skeletal Stress	Pressure	Reactive Material	Other: (Toxic, Noise, Temp. etc.) _____	Structural Failure	Temperature Extremes	Vehicle Traffic	_____	Blocked Pathways	Clutter		_____	Corrosives	Curiosity	
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_____	Blocked Pathways	Clutter																																
_____	Corrosives	Curiosity																																
Gas Detector Operator	Unit ID Info	Time of Test																																
Hazard Management Requirements (Put a ✓ in the box for task completed or N/A in the box if the task is not necessary)																																		
Lockout Switches & Valves		Entrant to Attendant Communications																																
Blanking/Blocking of Pipes		Personal Protective Equipment																																
Depressurization of Pipes		Chemical Protective Clothing																																
Vehicle Barricades		Entrant Respiratory Protection																																
Pedestrian Barricades		Retrieval System w/ Rescuer PPE																																
Ventilation		First Aid & Packaging Equipment																																
Purging		Chocking of Mechanical/Moving Parts																																
Special Work Precautions		Lighting																																
Hot Work / High Temperature / Other:		Refreshing/Clean up/Decontamination System																																
Rescue Assignments																																		
Attendant	Retrieval System Set Up	Air System Monitor																																
Retrieval Personnel	Emergency Assistance	Contact Method																																

Certification

I certify that I have personally examined the confined space and am satisfied that all the particular requirements listed in the procedures have been met AND THAT THE SPACE IS FREE FROM HAZARDS AND WILL REMAIN FREE FROM HAZARDS, making it safe to enter. (DELETE THE CAPITALIZED STATEMENT BEFORE SIGNING IF STATEMENT IS NOT TRUE.)

(Signature of Evaluator)

(Print Name)

(Date)

Entrant Permit Review Acknowledgement

The Confined Space Permit for this job has been reviewed with me and I will undertake to follow the stipulated procedures for this job.

Entrant Name	Signature	Entrant Name	Signature

Facility Supervisors / Project Coordinators – File original at site and fax completed copy to Human Resources (416) 369-5742

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Spills Report

Part I - Control Centre Communication Record

Reported to (name)		Office	
Reported by (name)		Office	
Location of spill (facility, track mile, street or other as appropriate)		Date & Time of Spill	
Material spilled		Est. quantity of spill or area impacted	
Initial action taken			
Has source of spill been curtailed? <input type="checkbox"/> Yes <input type="checkbox"/> No Has all material been contained? <input type="checkbox"/> Yes <input type="checkbox"/> No Has spill occurred in public area? <input type="checkbox"/> Yes <input type="checkbox"/> No Potential migration off-site or to a watercourse? <input type="checkbox"/> Yes * <input type="checkbox"/> No			
SAC notified? *		MOE Incident No. assigned	
<input type="checkbox"/> Yes <input type="checkbox"/> No Person's name		Time notified <input type="checkbox"/> AM <input type="checkbox"/> PM HR MIN	
Supervisor notified?		Time notified <input type="checkbox"/> AM <input type="checkbox"/> PM	
<input type="checkbox"/> Yes <input type="checkbox"/> No Person's name		HR MIN	

* MOE Spills Action Centre notification required for any spill to the natural environment of abnormal quantity or quality: 1-800-268-6060

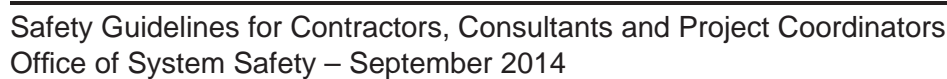
Part II

Specific area of spill	
Description of incident	
Materials involved	
MSDS available?	Was container labelled?
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Equipment involved	
Actual or potential property damage	
Actual or potential environmental impact	
Actual or potential Health / Safety impact	
Cause of spill (include details of main cause and factors contributing to spill severity, control / clean-up limitations etc.)	
Actions Taken	

Personnel on Site				Time of Arrival				
Supervisor				Time HR	MIN	<input type="checkbox"/> AM <input type="checkbox"/> PM		
Spills Response	Team members			Time HR	MIN	<input type="checkbox"/> AM <input type="checkbox"/> PM		
	Team members			Time HR	MIN	<input type="checkbox"/> AM <input type="checkbox"/> PM		
	Team members			Time HR	MIN	<input type="checkbox"/> AM <input type="checkbox"/> PM		
	Team members			Time HR	MIN	<input type="checkbox"/> AM <input type="checkbox"/> PM		
MOE representative, if present				Title	Phone No.	Time HR	MIN	<input type="checkbox"/> AM <input type="checkbox"/> PM
Others on Site	Name	Representing		Time HR	MIN	<input type="checkbox"/> AM <input type="checkbox"/> PM		
	Name	Representing		Time HR	MIN	<input type="checkbox"/> AM <input type="checkbox"/> PM		
	Name	Representing		Time HR	MIN	<input type="checkbox"/> AM <input type="checkbox"/> PM		
	Name	Representing		Time HR	MIN	<input type="checkbox"/> AM <input type="checkbox"/> PM		
Clean-up Details	Method of material containment and spills supplies used							
	Method of disposal							
Quantity & type of wastes generated		Was waste manifested? <input type="checkbox"/> No <input type="checkbox"/> Yes	Waste Gen. No.	Manifest No.	Date of waste shipment D M Y			
Cost of disposal In-house External		Disposal contractor		Date of completion D M Y				
Comments and recommendations								
Photo's attached: <input type="checkbox"/> Yes <input type="checkbox"/> No Additional information attached: <input type="checkbox"/> Yes <input type="checkbox"/> No								
Supervisor's signature					Date of completion D M Y			
Manager's signature (required for MOE Reportable Spills only)					Date of completion D M Y			

Important: Send completed form, associated correspondence & reports to System Safety at: systemsafety@gotransit.com













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Excavator Hand Signals

Load Up 1	Load Down 2	Swing Left 3	Swing Right 4
Turn Left 5	Turn Right 6	Travel 7	This Far To Go 8
Everything Slow 9	Stop Engine 10	Stop 11	Emergency Stop 12
Boom Up 13	Boom Down 14	Telescope in 15	Telescope Out 16
Dipper In 17	Dipper Out 18	Counter Rotate 19	Counter Rotate 20
Open Bucket 21	Close Bucket 22	Dog Everything 23	 IHSA.ca <i>Work Safe for Life</i> 5110 Creekbank Road, #400 Mississauga, ON L4W 0A1 1-800-263-5024 905-625-0100 V015

No response should be made to unclear signals!

 <p>HOIST With upper arm extended to the side, forearm and index finger pointing straight up, hand and finger make small circles.</p>	 <p>LOWER With arm and index finger pointing down, hand and finger make small circles.</p>	 <p>USE MAIN HOIST A hand taps on top of the head. Then regular signal is given to indicate desired action.</p>	 <p>USE WHIPLINE (Auxiliary Hoist) With arm bent at elbow and forearm vertical, elbow is tapped with other hand. Then regular signal is used to indicate desired action.</p>
 <p>BOOM UP With arm extended horizontally to the side, thumb points up with other fingers closed.</p>	 <p>BOOM DOWN With arm extended horizontally to the side, thumb points down with other fingers closed.</p>	 <p>MOVE SLOWLY A hand is placed in front of the hand that is giving the action signal. (Hoist slowly shown in example.)</p>	 <p>SWING With arm extended horizontally, index finger points in direction that boom is to swing.</p>
 <p>BOOM DOWN AND RAISE THE LOAD With arm extended horizontally to the side and thumb pointing down, fingers open and close while load movement is desired.</p>	 <p>BOOM UP AND LOWER THE LOAD With arm extended horizontally to the side and thumb pointing up, fingers open and close while load movement is desired.</p>	 <p>STOP With arm extended horizontally to the side, palm down, arm is swung back and forth.</p>	 <p>EMERGENCY STOP With both arms extended horizontally to the side, palms down, arms are swung back and forth.</p>

Crane Hand Signals

 <p>TRAVEL With all fingers pointing up, arm is extended horizontally out and back to make a pushing motion in the direction of travel.</p>	 <p>STOP EVERYTHING Hands held together at waist level.</p>	 <p>TRAVEL (BOTH TRACKS) Rotate fists around each other in front of body; direction of rotation away from body indicates travel forward; rotation towards body indicates travel backward. (For crawler cranes only)</p>	 <p>TRAVEL (ONE TRACK) Indicate track to be locked by raising fist on that side. Rotate other fist in front of body in direction that other track is to travel. (For crawler cranes only)</p>
 <p>TELESCOPE OUT (TELESCOPING BOOMS) With hands to the front at waist level, thumbs point outward with other fingers closed.</p>	 <p>TELESCOPE IN (TELESCOPING BOOMS) With hands to the front at waist level, thumbs point at each other with other fingers closed.</p>	 <p>TELESCOPE OUT (TELESCOPING BOOMS) One hand signal. One fist in front of chest with thumb tapping chest.</p>	 <p>TELESCOPE IN (TELESCOPING BOOMS) One hand signal. One fist in front of chest, thumb pointing outward and heel of fist tapping chest.</p>

Notes

Notes

[illegible]

Notes

[illegible]