



SPECIFICATIONS

SOLICITATION #: 15-22037

BUILDING: PEN
717 White Lake Road Avenue
Penticton, BC

PROJECT: PEN – Electrical Service Upgrade

PROJECT #: PEN-A1-005213

Date: June 2015

SPECIFICATION

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National Research Council Conseil national de recherches
Canada Canada

Administrative Services Direction des services
& Property management administratif et gestion
Branch (ASPM) de l'immobilier (SAGI)

Construction Tender Form

Project Identification **PEN – Electrical Service Upgrade**

Tender No.: **15-22037**

1.2 Business Name and Address of Tenderer

Name _____

Address _____

Contact Person(Print Name) _____

Telephone (_____) _____ **Fax:** (_____) _____

1.3 Offer

I/We the Tenderer, hereby offer to Her Majesty the Queen in Right of Canada (hereinafter referred to as “Her Majesty”) represented by the National Research Council Canada to perform and complete the work for the above named project in accordance with the Plans and Specifications and other Tender Documents, at the place and in the manner set out therein for the Total Tender Amount (to be expressed in numbers only) of: \$_____. _____ **in lawful money of Canada (excluding GST/HST)**

The above amount is inclusive of all applicable (*) Federal, Provincial and Municipal taxes except that in the event of a change in any tax imposed under the Excise Act, the Excise Tax Act, the Old Age Security Act, the Customs Act, the Customs Tariff or any provincial sales tax legislation imposing a retail sales tax on the purchase of tangible personal property incorporated into Real Property, that occurs

- .1 after the date this tender was mailed or delivered, or
- .2 if this tender is revised, after the date of the last revision

the amount of this offer shall be decreased or decreased in the manner provided for in GC22 of the General Conditions of the Contract Documents.

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1.3.1 Offer (continued)

(*) For the purpose of this tender, the Goods and Services Tax (GST) is not to be considered as an applicable tax.

In the province of Quebec, the Quebec Sales Tax is not to be included in the tender amount because the Federal Government is exempt from this tax. Tenderers shall make arrangements directly with the provincial Revenue Department to recover any tax they may pay on good and services acquired in the performance of this contract. However, tenderers should include in their tender amount Quebec Sales Tax for which an Input Tax Refund is not available.

1.4 Acceptance and Entry into Contract

I/We undertake, within fourteen (14) days of notification of acceptance of my/our offer, to sign a contract for the performance of the work provided I/we are notified, by the Department, of the acceptance of my/our offer within 30 days of the tender closing date.

1.5 Construction Time

I/We Agree to complete the work within the time stipulated in the specification from the date of notification of acceptance of my/our offer.

1.6 Bid Security

I/We herewith enclose tender security in accordance with Article 5 of the General Instruction to Tenderers.

I/We understand that if a security deposit is furnished as tender security and if I/we refuse to enter into a contract when called upon to do so, my/our security deposit shall be forfeited but the Minister may, if it is in the public interest, waive the right of Her Majesty to forfeit the security deposit.

I/We understand that if the security furnished is not in the approved form as described in Article 5 of the General Instructions to Tenderers, my/our tender is subject to disqualification.

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Branch (ASPM) de l'immobilier (SAGI)

1.7 Contract Security

Within fourteen (14) days after receipt of written notification of the acceptance of my/our offer, I/we will furnish contract security in accordance with the Contract Conditions "F" of the Contract Documents.

I/We understand that the contract security referred to herein, if provided in the form of a bill of exchange, will be deposited into the Consolidated Revenue Fund of Canada.

1.8 Appendices

This Tender Form includes Appendix No. ____N/A_____.

1.9 Addenda

The Total Tender Amount provides for the Work described in the following Addenda:

| NUMBER | DATE | NUMBER | DATE |
|--------|------|--------|------|
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(Tenderers shall enter numbers and dates of addenda)

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| National Research Council Canada | Conseil national de recherches Canada |
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|---|--|
| Administrative Services & Property management Branch (ASPM) | Direction des services administratif et gestion de l'immobilier (SAGI) |
|---|--|

1.10 Execution of Tender

The Tenderer shall refer to Article 2 of the General Instructions to Tenderers.

**SIGNED, ATTESTED TO AND DELIVERED on the _____ day of
_____ on behalf of**

(Type or print the business name of the Tenderer)

AUTHORIZED SIGNATORY (IES)

(Signature of Signatory)

(Print name & Title of Signatory)

(Signature of Signatory)

(Print name & Title of Signatory)

SEAL

BUYANDSELL NOTICE

PEN – Electrical Service Upgrade

The National Research Council Canada, 717 White Lake Road, Penticton, BC has a requirement for a project that includes:

The National Research Council of Canada at 717 White Lake Road in Kaleden BC is upgrading the electrical service for the site due to aging infrastructure and new equipment coming online

The observatory was commissioned in 1959 and much of the main infrastructure such as the power line and main site switch that is still in use was installed in 1959 and is past the end of its useful life. The upgrade will include new infrastructure at the utility provider interface (Fortis), which will include new overhead infrastructure, underground feed, power cable, site switch, transformer and substation for the CHIME facility and other feeds to related equipment extending to the main site substation as well as to the new CHIME facility.

The site has previously installed the majority of the underground infrastructure for the project in 2014, which consisted of installing conduit and pulls pits. The next step in the process is to have the rest of the project completed and commissioned which as stated previously will consist of having new utility poles and associated equipment installed at the entrance to the site, installing concrete pads for all the outdoor equipment, extending the previously installed conduit to stub up into the pads, installing the new feeder cables to equipment pads, installing equipment, testing and commissioning the new system.

1. GENERAL:

Questions regarding any aspect of the project are to be addressed to and answered only by the Departmental Representative (or his designate) or the Contracting Authority.

Any information received other than from the Departmental Representative (or his designate) or the Contracting Authority will be disregarded when awarding the contract and during construction.

Firms intending to submit tenders on this project should obtain tender documents through the Buyandsell.gc.ca TMA services provider. Addenda, when issued, will be available from the Buyandsell.gc.ca TMA service provider. Firms that elect to base their bids on tender documents obtained from other sources do so at their own risk and will be solely responsible to inform the tender calling authority of their intention to bid. Tender packages are not available for distribution on the actual day of tender closing.

2. MANDATORY SITE VISIT:

It is mandatory that the bidder attends one of the site visits at the designated date and time. At least one representative from proponents that intend to bid must attend.

The site visits will be held on June 30th and July 3rd, 2015 at **10:00**. Meet Kory Phillips at PEN Building, 717 White Lake Road, Penticton, BC. Bidders who, for any reason, cannot attend at the specified date and time will not be given an alternative appointment to view the site and their tenders, therefore, will be considered as non-responsive. **NO EXCEPTIONS WILL BE MADE.**

As proof of attendance, at the site visit, the Contracting Authority will have an Attendance Form which **MUST** be signed by the bidder's representative. It is the responsibility of all bidders to ensure they have signed the Mandatory Site Visit Attendance form prior to leaving the site. Proposals submitted by bidders who have not attended the site visit or failed to sign the Attendance Form will be deemed non-responsive.

3. TENDER CLOSING DATE:

Tender closing date is July 23rd , 2015 at 14:00.

4. TENDER RESULTS

Following the Tender closing, the tender results will be sent by facsimile to all Contractors who submitted a tender

5. SECURITY REQUIREMENT FOR CANADIAN CONTRACTORS

5.1 MANDATORY SECURITY REQUIREMENT:

.1 All personnel that will be involved with the project must be security screened to **RELIABILITY** status level as defined in the security policy of Canada.

6.0 WSBC (WORK SAFE BC)

.1 All Bidders must provide a valid WSBC certificate with their Tender or prior to contract award.

7.0 OFFICE OF THE PROCUREMENT OMBUDSMAN

.1 Dispute Resolution Services

The parties understand that the Procurement Ombudsman appointed pursuant to Subsection 22.1(1) of the *Department of Public Works and Government Services Act* will, on request or consent of the parties to participate in an alternative dispute resolution process to resolve any dispute between the parties respecting the interpretation or application of a term and condition of this contract and their consent to bear the cost of such process, provide to the parties a proposal for an alternative dispute resolution process to resolve their dispute. The Office of the Procurement Ombudsman may be contacted by telephone at 1-866-734-5169 or by e-mail at boa.opo@boa-opo.gc.ca.

.2 Contract Administration

The parties understand that the Procurement Ombudsman appointed pursuant to Subsection 22.1(1) of the *Department of Public Works and Government Services Act* will review a complaint filed by [*the supplier or the contractor or the name of the entity awarded this contract*] respecting administration of this contract if the requirements of Subsection 22.2(1) of the *Department of Public Works and Government Services Act* and Sections 15 and 16 of the *Procurement Ombudsman Regulations* have been met, and the interpretation and application of the terms and conditions and the scope of the work of this contract are not in dispute. The Office of the Procurement Ombudsman may be contacted by telephone at 1-866-734-5169 or by e-mail at boa.opo@boa-opo.gc.ca.

.3 The Office of the Procurement Ombudsman (OPO) was established by the Government of Canada to provide an independent avenue for suppliers to raise complaints regarding the award of contracts under \$25,000 for goods and under \$100,000 for services. You have the option of raising issues or concerns regarding the solicitation, or the award resulting from it, with the OPO by contacting them by telephone at 1-866-734-5169 or by e-mail at boa.opo@boa-opo.gc.ca. You can also obtain more information on the OPO services available to you at their website at www.opo-boa.gc.ca.

The Departmental Representative or his designate for this project is: **Kory Phillips**
Telephone: **250 497-2361**

Contracting Authority for this project is: **Marc Bédard** marc.bedard@nrc-cnrc.gc.ca
Telephone: **613 993-2274**

INSTRUCTIONS TO BIDDERS

Article 1 – Receipt of Tender

- 1a) Tenders must be received not later than the specified tender closing time. Tenders received after this time are invalid and shall not be considered, regardless of any reason for their late arrival.
- 1b) A letter of printed telecommunication from a bidder quoting a price shall not be considered as a valid tender unless a formal tender has been received on the prescribed Tender Form.
- 1c) Bidders may amend their tenders by letter or printed telecommunication provided that such amendments are received not later than the specified tender closing time.
- 1d) Any amendments to the tender which are transmitted by telefax must be signed and must clearly identify the tenderer.

All such amendments are to be addressed to:
National Research Council of Canada
Marc Bedard, Senior Contracting Officer
Building M-22
Montreal Road, Ottawa, Ontario
K1A 0R6

Fax: (613) 991-3297

Article 2 – Tender Form & Qualifications

- 1) All tenders must be submitted on the Construction Tender Form and the tender must be signed in compliance with the following requirements:
 - a) Limited Company: The full names of the Company and the name(s) and status of the authorized signing officer(s) must be printed in the space provided for that purpose. The signature(s) of the authorized officer(s) and the corporate seal must be affixed.
 - b) Partnership: The firm name and the name(s) of the person(s) signing must be printed in the space provided. One or more of the partners must sign in the presence of a witness who must also sign. An adhesive coloured seal must be affixed beside each signature.
 - c) Sole Proprietorship : The business name and the name of the sole proprietor must be printed in the space provided. The sole proprietor must sign in the presence of a witness who must also sign. An adhesive coloured seal must be affixed beside each signature.
- 2) Any alterations in the printed part of the Construction Tender Form or failure to provide the information requested therein, may render the tender invalid.
- 3) All space in the Construction Tender Form must be completed and any handwritten or typewritten corrections to the parts so completed must be initialed immediately to the side of the corrections by the person or persons executing the tender on behalf of the the tenderer.
- 4) Tenders must be based on the plans, specifications and tender documents provided.

Article 3 - Contract

- 1) The Contractor will be required to sign a contract similar to the Standard Contract Form for Fixed Price Construction Contracts, a blank specimen of which is enclosed in the package for reference purposes.

Article 4 – Tender Destination

- 1a) Tenders are to be submitted in sealed envelopes to:
National Research Council Canada
Administrative Services and Property Management Branch
PEN Building
717 White Lake Road
Penticton, BC
V2A 6J9

Endorsed "Tender for (insert title of work as it appears in the drawings and specifications)" and must bear the name and address of the tenderer.

- 1b) Unless otherwise specified, the only documents required to be submitted with the tender are the Tender form and the Bid Security.

Article 5 - Security

- 1a) Bid Security is required and must be submitted in one of the following forms:
 - i) a certified cheque payable to the Receiver General for Canada and drawn on a member of the Canadian Payments Association or a local cooperative credit society that is a member of a central cooperative credit society having membership in the Canadian Payments Association; **OR**
 - ii) bonds of the Government of Canada, or bonds unconditionally guaranteed as to principal and interest by the Government of Canada; **OR**
 - iii) a bid bond.
- 1b) Regardless of the Bid Security submitted, it should never be more than \$250,000 maximum, calculated at 10% of the first \$250,000 of the tendered price, plus 5% of any amount in excess of \$250,000.
- 2a) Bid Security shall accompany each tender or, if forwarded separately from the tender, shall be provided not later than the specified tender closing time. Bid Security must be in the ORIGINAL form. Fax or photocopies and NOT acceptable. FAILURE TO PROVIDE THE REQUIRED BID SECURITY SHALL INVALIDATE THE TENDER.
- 2b) If the tender is not accepted, the Bid Security submitted pursuant to Article 8 shall be returned to the tenderer.
- 3a) The successful tenderer is required to provide security within 14 days of receiving notice of tender acceptance. The tenderer must furnish EITHER:
 - i) a Security Deposit as described in 1(b) above together with a Labour and Material Payment Bond in the amount of at least 50% of the amount payable under the contract, **OR**

- ii) a Performance Bond and a Labour and Material Payment Bond – each in the amount of 50% of the amount payable under the contract.
- 3b) Should it not be possible to obtain a Labour Material Payment Bond as required under 3(a) above, on making application thereof to at least two acceptable Bonding Companies, an additional Security Deposit of a straight 10% of the amount payable under the contract must be furnished.
- 3c) Where a tender has been accompanied by a Security Deposit, as described in 1(b) above, the amount of the Security Deposit required under 3(a) above may be reduced by the amount of the Security Deposit which accompanied the tender.
- 3d) Bonds must be in an approved form and from the companies whose

bonds are acceptable to the Government of Canada. Samples of the approved form of Bid Bond, Performance Bond and Labour and Material Payment Bond and a list of acceptable Bonding Companies may be obtained from the Contracting Officer, National Research Council, Building M-22, Montreal Road, Ottawa, Ontario, K1A 0R6.

Article 6 – Interest On Security Deposits

- 1) Tenderers are notified that they must make their own arrangements with their bankers as to the interest, if any, on the amount of the certified cheque accompanying their tender. The Council will not pay interest on said cheque pending the awarding of the contract nor be responsible for the payments of interest under any arrangement made by the tenderers.

Article 7 – Sales Tax

- 1) The amount of the tender shall include all taxes as levied under the Excise Act, the Excise Tax Act, the Old Age Security Act, the Customs Act or the Customs Tariff, in force or applicable at the time.
- 2) In Quebec, the Provincial Sales Tax should not be included in the Tender Price as the Federal Government is exempt. Tenderers should contact the Provincial Revenue Minister to recover all taxes paid for goods and services rendered under this contract.

Tenderers must include in their Tender Price the amount of Provincial Sales Tax for which the exemption does not apply.

Article 8 – Examination of Site

- 1) All parties tendering shall examine the sites of the proposed work before sending in their tender and make themselves thoroughly acquainted with the same and obtain for themselves any and all information that may be necessary for the proper carrying out of the Contract. No after claim will be allowed or entertained for any work or material that may be requisite and necessary for the proper execution and completion of this Contract with the exception of that provided for under GC 35 in the General Conditions of the General Specification.

Article 9 – Discrepancies, Omissions, Etc.

- 1a) Bidders finding discrepancies in, or omissions from, drawings, specifications or other documents, or having any doubt as to the meaning or intent of any part thereof, should at once notify the Engineer who will send written instructions or explanation to all bidders.
- 1b) Neither the Engineer nor the Council will be responsible for oral instructions.
- 1c) Addenda or corrections issued during the time of the bidding shall be covered in the proposal. However, the contract supersedes all communications, negotiations and agreements, either written or oral, relating to the work and made prior to the date of the contract.

Article 10 – No additional Payments for Increased Costs

- 1) The only other adjustments in the contract price allowed are those specified in the General Conditions of the General Specification. The contract price will not be amended for change in freight rates, exchange rates, wage rates or cost of materials, plant or services.

Article 11 – Awards

- 1a) The Council reserves the power and right to reject tenders received from parties who cannot show a reasonable acquaintance with and preparation for the proper performance of the class of work herein specified and shown on plans. Evidence of such competence must be furnished by the tenderers if required to do so.
- 1b) A tenderer may be required to furnish to the Contracting Office, National Research Council of Canada, Building M-22, 1200 Montreal Road, Ottawa, Ontario, K1A 0R6, Canada, unsigned copies of the insurance requirements as covered by the Insurance Conditions of the General Specification.
- 1c) The Council does not bind itself to accept the lowest or any tender.

Article 12 – Harmonized Sales Tax

- 1) The Harmonized Sales Tax (HST) which is now in effect shall be considered an applicable tax for the purpose of this tender. However, the bidder shall NOT include any amount in the bid price for said HST. The successful contractor will indicate on each application for payment as a separate amount the appropriate HST the Owner is legally obliged to pay. This amount will be paid to the Contractor in addition to the amount certified for payment under the Contract in addition to the amount certified for payment under the Contract and will therefore not affect the Contract Price. The Contractor agrees to remit any HST collected or due to Revenue Canada.

Acceptable Bonding Companies

Published September 2010

The following is a list of insurance companies whose bonds may be accepted as security by the government.

1. Canadian Companies

- ACE INA Insurance
- Allstate Insurance Company of Canada
- Ascentus Insurance Ltd. (Surety only)
- Aviva Insurance Company of Canada
- AXA Insurance (Canada)
- AXA Pacific Insurance Company
- Canadian Northern Shield Insurance Company
- Certas Direct Insurance Company (Surety only)
- Chartis Insurance Company of Canada (formerly AIG Commercial Insurance Company of Canada)
- Chubb Insurance Company of Canada
- Commonwealth Insurance Company
- Co-operators General Insurance Company
- CUMIS General Insurance Company
- The Dominion of Canada General Insurance Company
- Echelon General Insurance Company (Surety only)
- Economical Mutual Insurance Company
- Elite Insurance Company
- Everest Insurance Company of Canada
- Federated Insurance Company of Canada
- Federation Insurance Company of Canada
- Gore Mutual Insurance Company
- Grain Insurance and Guarantee Company
- The Guarantee Company of North America
- Industrial Alliance Pacific General Insurance Corporation
- Intact Insurance Company
- Jevco Insurance Company (Surety only)
- Lombard General Insurance Company of Canada
- Lombard Insurance Company
- Markel Insurance Company of Canada
- The Missisquoi Insurance Company
- The Nordic Insurance Company of Canada
- The North Waterloo Farmers Mutual Insurance Company (Fidelity only)
- Novex Insurance Company (Fidelity only)
- The Personal Insurance Company
- Pilot Insurance Company
- Quebec Assurance Company
- Royal & Sun Alliance Insurance Company of Canada
- Saskatchewan Mutual Insurance Company
- Scottish & York Insurance Co. Limited
- The Sovereign General Insurance Company
- TD General Insurance Company
- Temple Insurance Company

- Traders General Insurance Company
- Travelers Guarantee Company of Canada
- Trisura Guarantee Insurance Company
- The Wawanesa Mutual Insurance Company
- Waterloo Insurance Company
- Western Assurance Company
- Western Surety Company

2. Provincial Companies

Surety bonds issued by the following companies may be accepted provided that the contract of suretyship was executed in a province in which the company is licensed to do business as indicated in brackets.

- AXA Boreal Insurance Company (P.E.I., N.B., Que., Ont., Man., B.C.)
- AXA Boreal Insurance Company (P.E.I., N.B., Que., Ont., Man., B.C.)
- ALPHA, Compagnie d'Assurances Inc. (Que.)
- Canada West Insurance Company (Ont., Man., Sask, Alta., B.C., N.W.T.) (Surety only)
- The Canadian Union Assurance Company (Que.)
- La Capitale General Insurance Inc. (Nfld. & Lab., N.S., P.E.I., Que.(Surety only), Man., Sask., Alta., B.C., Nun., N.W.T., Yuk.)
- Coachman Insurance Company (Ont.)
- Continental Casualty Company (Nfld. & Lab., N.S., P.E.I., N.B., Que., Ont., Man., Sask., Alta., B.C., Nun., N.W.T., Yuk.)
- GCAN Insurance Company (Nfld. & Lab., N.S., P.E.I., N.B., Que., Ont., Man., Sask., Alta., B.C., Nun., N.W.T., Yuk.)
- The Insurance Company of Prince Edward Island (N.S., P.E.I., N.B.)
- Kingsway General Insurance Company (N.S., N.B., Que., Ont., Man., Sask., Alta., and B.C.)
- Liberty Mutual Insurance Company (Nfld. & Lab., N.S., P.E.I., N.B., Que., Ont., Man., Sask., Alta., B.C., Nun., N.W.T., Yuk.)
- Manitoba Public Insurance Corporation (Man.)
- Norgroupe Assurance Générales Inc.
- Orleans General Insurance Company (N.B., Que., Ont.)
- Saskatchewan Government Insurance Office (Sask.)
- SGI CANADA Insurance Services Ltd. (Ont., Man., Sask., Alta.)
- L'Unique General Insurance Inc. (Nfld. & Lab., N.S., P.E.I., N.B., Que.(Surety only), Ont.(Surety only), Man., Sask., Alta., B.C.(Surety only), Nun., N.W.T., Yuk.)

3. Foreign Companies

- Aspen Insurance UK Limited
- Compagnie Française d'Assurance pour le Commerce Extérieur (Fidelity only)
- Eagle Star Insurance Company Limited
- Ecclesiastical Insurance Office Public Limited Company (Fidelity only)
- Lloyd's Underwriters
- Mitsui Sumitomo Insurance Company, Limited
- NIPPONKOA Insurance Company, Limited
- Sompo Japan Insurance Inc.
- Tokio Marine & Nichido Fire Insurance Co., Ltd.
- XL Insurance Company Limited (Surety only)
- Zurich Insurance Company Ltd

Articles of Agreement

These Articles of Agreement made in duplicate this day of .

Between

Her Majesty the Queen, in right of Canada (referred to in the contract documents as “ Her Majesty”) represented by the National Research Council Canada (referred to in the contract documents as the “Council”)

and

(referred to in the contract documents as the “Contractor”)

Witness that in consideration for the mutual promises and obligations contained in the contract, Her Majesty and the Contractor covenant and agree as follows:

A1 Contract Documents

(23/01/2002)

- 1.1 Subject to A1.4 and A1.5, the documents forming the contract between Her Majesty and the Contractor, referred to herein as the contract documents, are
 - 1.1.1 these Articles of Agreement,
 - 1.1.2 the document attached hereto, marked “A” and entitled “Plans and Specifications”, referred to herein as the Plans and Specifications,
 - 1.1.3 the document attached hereto, marked “B” and entitled “Terms of Payment”, referred to herein as the Terms of Payment,
 - 1.1.4 the document attached hereto, marked “C” and entitled “General Conditions”, referred to herein as the General Conditions,
 - 1.1.5 the document attached hereto, marked “D” and entitled “Labour Conditions”, referred to herein as the Labour Conditions,
 - 1.1.6 the document attached hereto, marked “E” and entitled “Insurance Conditions”, referred to herein as the Insurance Conditions,
 - 1.1.7 the document attached hereto, marked “F” and entitled “Contract Security Conditions”, referred to herein as the Contract Security Conditions, and
 - 1.1.8 any amendment or variation of the contract documents that is made in accordance with the General Conditions.
 - 1.1.9 the document entitled Fair Wage Schedules for Federal Construction Contracts referred to herein as Fair Wage Schedules
 - 1.1.10

Articles of Agreement

The Council hereby designates _____ of _____ of the Government of Canada as the Engineer for the purposes of the contract, and for all purposes of or incidental to the contract, the Engineer's address shall be deemed to be:

1.2 In the contract

1.3.1 "Fixed Price Arrangement" means that part of the contract that prescribes a lump sum as payment for performance of the work to which it relates; and

1.3.2 "Unit Price Arrangement" means that part of the contract that prescribes the product of a price multiplied by a number of units of measurement of a class as payment for performance of the work to which it relates.

1.3 Any of the provisions of the contract that are expressly stipulated to be applicable only to a Unit Price Arrangement are not applicable to any part of the work to which a Fixed Price Arrangement is applicable.

1.4 Any of the provisions of the contract that are expressly stipulated to be applicable only to a Fixed Price Arrangement are not applicable to any part of the work to which a Unit Price Arrangement is applicable.

A2 Date of Completion of Work and Description of Work

(23/01/2002)

2.1 The contractor shall, between the date of these Articles of Agreement and the _____, _____, in the careful and workmanlike manner, diligently perform and complete the following work:

which work is more particularly described in the Plans and Specifications.

Articles of Agreement

A3 Contract Amount

(23/01/2002)

- 3.1 Subject to any increase, decrease, deduction, reduction or set-off that may be made under the Contract, Her Majesty shall pay the Contractor at the times and in the manner that is set out or referred to in the Terms of Payment
- 3.1.1 the sum of _____ (GST/HST extra), in consideration for the performance of the work or the part thereof that is subject to Fixed Price Arrangement, and
- 3.1.2 a sum that is equal to the aggregate of the products of the number of units of Measurement of each class of labour, plant and material that is set out in a Final Certificate of Measurement referred to in GC44.8 multiplied in each case by the appropriate unit price that is set out in the Unit Price Table in consideration for the performance of the work or the part thereof that is subject to a Unit Price Arrangement.
- 3.2 For the information and guidance of the Contractor and the persons administering the contract on behalf of Her Majesty, but not so as to constitute a warranty , representation or undertaking of any nature by either party, it is estimated that the total amount payable by Her Majesty to the Contractor for the part of the work to which a Unit Price Arrangement is applicable will be approximately \$N/A
- 3.3 A3.1.1 is applicable only to a Fixed Price Arrangement.
- 3.4 A3.1.2 and A3.2 applicable only to a Unit Price Arrangement.

A4 Contractor's Address

(23/01/2002)

- 4.1 For all purposes of or incidental to the contract, the Contractor's address shall be deemed to be:

Articles of Agreement

A5 Unit Price Table

(23/01/2002)

5.1 Her Majesty and the Contractor agree that the following table is the Unit Price Table for the purposes of the contract.

| Column 1 Item | Column 2 Class of Labour Plant Or Material | Column 3 Unit of Measurement | Column 4 Estimated Total Quantity | Column 5 Price per Unit | Column 6 Estimated Total Price |
|-------------------------|--|---|--|-----------------------------------|---|
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5.2 The Unit Price Table that is set out in A5.1 designates the part of the work to which a Unit Price Arrangement is applicable.

5.3 The part of the work that is not designated in the Unit Price Table referred to in A5.2 is the part of the work to which a Fixed Price Arrangement is applicable.

Articles of Agreement

Signed on behalf of Her Majesty by

as Senior Contracting Officer

and _____

as _____

of the **National Research Council Canada**

on the _____

day of _____

Signed, sealed and delivered by

as _____ and
Position

by _____

as _____ and
Position

of

on the _____

day of _____

Seal

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ATTACHMENT

ADDITIONAL SCOPE OF WORK
FORTIS BC REFERENCE 2556843

1. SCOPE OF WORK

- .1 Work under this contract covers the electrical service upgrade at the National Research Council site located at 717 White Lake Road, Kaleden, BC.

2. DRAWINGS

- .1 The following drawings illustrate the work and form part of the contract documents:

3. COMPLETION

- .1 Complete all work within 24 week(s) after receipt of notification of acceptance of tender, the project must commence as soon as possible after contract award

4. GENERAL

- .1 The word "provide" in this Specification means to supply and install.
- .2 Provide items mentioned in either the drawings or the specification.

5. SPECIFIED ACCEPTABLE & ALTERNATIVE EQUIPMENT & MATERIALS

- .1 Materials and equipment scheduled and/or specified on the drawings or in the specifications have been selected to establish a performance and quality standard. In most cases, acceptable manufacturers are stated for any material or equipment specified by manufacturer's name and model number. Contractors may base their tender price on materials and equipment supplied by any of the manufacturers' names as acceptable for the particular material or equipment.
- .2 In addition to the manufacturers specified or named as acceptable, you may propose alternative manufacturers of materials or equipment to the Departmental Representative for acceptance. For a product to be considered as an alternative product substitute, make a written application to the Departmental Representative during the tender period, not later than ten (10) working days before tender closing.
- .3 Certify in writing that the alternative meets all requirements of the specified material or equipment. In addition, it shall be understood that all costs required by or as a result of acceptance or proposed alternatives, will be borne by the contractor.
- .4 Approval of alternatives will be signified by issue of an Addendum to the Tender Documents.
- .5 Any alternative manufacturers or materials submitted which are incomplete and cannot be evaluated, or are later than ten (10) working days before tender closing date or after the tender period, will not be considered.

6. MINIMUM STANDARDS

- .1 Conform to or exceed minimum acceptable standards of the various applicable federal, provincial and municipal codes such as The National Building Code, The National Fire

Code, Canadian Plumbing Code, Canadian Electrical Code, Canadian Code for Construction Safety and the Provincial Construction Safety Act.

- .2 Work to conform to referenced standards and codes as reaffirmed or revised to date of specification.

7. WORKPLACE HAZARDOUS MATERIAL INFORMATION SYSTEM (WHMIS)

- .1 The general contractor shall comply with Federal and Provincial legislation regarding the WHMIS. The contractor's responsibilities include, but are not limited to the following:
 - .1 To ensure that any controlled product brought on site by the contractor or sub-contractor is labeled;
 - .2 To make available to the workers and the Departmental Representative, Material Safety Data Sheets (MSDS) for these controlled products;
 - .3 To train own workers about WHMIS, and about the controlled products that they use on site;
 - .4 To inform other contractors, sub-contractors, the Departmental Representative, authorized visitors and outside inspection agency personnel about the presence and use of such products on the site.
 - .5 The site foreman or superintendent must be able to demonstrate, to the satisfaction of the Departmental Representative, that he/she has had WHMIS training and is knowledgeable in its requirements. The Departmental Representative can require replacement of this person if this condition or implementation of WHMIS is not satisfactory.

8. DESIGNATED SUBSTANCES

Comply with Provincial legislation if encountering specifically listed designated substances on the work site while performing the work described in these contract documents:

- .1 It is the responsibility of the general contractor to ensure that each prospective subcontractor for this project has received a copy of the listed designated substances which may be present on site .
- .2 The general contractor is advised to take the following precautions when dealing with the above substances:

9. COST BREAKDOWN

- .1 Submit, for approval by the Departmental Representative, a cost breakdown of tender 72 hours after the contract is awarded.
- .2 Use the approved cost breakdown as the basis for submitting all claims.
- .3 Request Departmental Representative's verbal approval to amount of claim prior to preparing and submitting the claim in its final form.

10. SUB-TRADES

- .1 Submit no later than 72 hours after tender closing, a complete list of sub trades for the Departmental Representative's review.

11. PERSONNEL SECURITY AND IDENTIFICATION

- .1 All persons employed by the contractor, or by any subcontractor and present on the site must be security cleared in accordance with the requirements of the Section entitled Special Instructions to Tenderers.
- .2 All such persons must wear and keep visible identification badges as issued by the Security Office of NRC.

12. WORKING HOURS AND ESCORTING REQUIREMENTS

- .1 Normal working hours on the NRC property are from 8:00 a.m. until 4:30 p.m., Monday to Friday inclusive, except statutory holidays.
- .2 At all other times, special written passes are required for access to the building site.
- .3 Before scheduling any work outside normal working hours, obtain permission from the Departmental Representative to perform the specific tasks.
- .4 An escort may be required whenever working outside normal hours. Contractor to bear the associated costs.

13. SCHEDULE

- .1 The contractor shall prepare a detailed schedule, fixing the date for commencement and completion of the various parts of the work and update the said schedule. Such schedule shall be made available to the Departmental Representative not later than two weeks after the award of the contract and prior to commencement of any work on site.
- .2 Notify Departmental Representative in writing of any changes in the schedule.

14 day(s) before the scheduled completion date, arrange to do an interim inspection with the Departmental Representative.

14. PROJECT MEETINGS

- .1 Hold regular project meetings at times and locations approved by the Departmental Representative.
- .2 Notify all parties concerned of meetings to ensure proper coordination of work.
- .3 Departmental Representative will set times for project meetings and assume responsibility for recording and distributing minutes.

15. SHOP DRAWINGS

- .1 Submit to Departmental Representative for review, shop drawings, product data and samples specified within 4 week(s) after contract award.
- .2 Submit to Departmental Representative for review a complete list of all shop drawings, product data and samples specified and written confirmation of corresponding delivery dates within one (1) week after shop drawings, product data and samples approval date. This list shall be updated on a ONE week basis and any changes to the list shall be immediately notified in writing to the Departmental Representative.
- .3 Review shop drawings, data sheets and samples prior to submission.
- .4 Submit electronic copy of all shop drawings and product data and samples for review, unless otherwise specified.
- .5 Review of shop drawings and product data by the Departmental Representative does not relieve the contractor of the responsibility for errors and omissions and for the conformity with contract documents.

16. SAMPLES AND MOCK-UPS

- .1 Submit samples in sizes and quantities as specified.
- .2 Where colour, pattern or texture is criterion, submit full range of samples.
- .3 Construct field samples and mock-ups at locations acceptable to Departmental Representative.
- .4 Reviewed samples or mock-ups will become standards of workmanship and material against which installed work will be checked on the project.

17. MATERIALS AND WORKMANSHIP

- .1 Install only new materials on this project unless specifically noted otherwise.
- .2 Only first class workmanship will be accepted, not only with regard to safety, efficiency, durability, but also with regard to neatness of detail and performance.

18. WORK & MATERIALS SUPPLIED BY OWNER

- .1 Work and materials not included in this contract are described on drawings and in this specification.
- .2 Deliver to a storage place, as directed by the Departmental Representative, all materials returned to the Owner.
- .3 Unless otherwise specified, accept owner-supplied materials at their storage location and provide all transportation as required.
- .4 General Contractor's duties:

- .1 Unload at site.
- .2 Promptly inspect products and report damaged or defective items.
- .3 Give written notification to the Departmental Representative for items accepted in good order.
- .4 Handle at site, including uncrating and storage.
- .5 Repair or replace items damaged on site.
- .6 Install, connect finished products as specified.

19. SITE ACCESS

- .1 Make prior arrangements with the Departmental Representative before starting work or moving materials and equipment on site.
- .2 Obtain approval of Departmental Representative for regular means of access during the construction period.
- .3 Obtain approval of Departmental Representative before temporarily suspending operations on site; before returning to the site and before leaving the site at the end of the job.
- .4 Provide and maintain access to site.
- .5 Build and maintain temporary roads and provide snow removal during period of work.
- .6 Make good any damage and clean up dirt, debris, etc., resulting from contractor's use of existing roads.

20. USE OF SITE

- .1 Restrict operations on the site to the areas approved by the Departmental Representative
- .2 Locate all temporary structures, equipment, storage, etc., to the designated areas.
- .3 Restrict parking to the designated areas.

21. ACCEPTANCE OF SITE

- .1 Inspect the site before commencing work, review any unexpected conditions with the Departmental Representative.
- .2 Commencement of work will imply acceptance of existing conditions.

22. SITE OFFICE & TELEPHONE

- .1 Contractor to erect a temporary site office at his own expense.
- .2 Install and maintain a telephone, if necessary. Cell phones are not permitted at site unless in an emergency situation
- .3 Use of NRC phones is not permitted unless in the case of an emergency.

23. SANITARY FACILITIES

- .1 Obtain permission from the Departmental Representative to use the existing washroom facilities in the building.

24. TEMPORARY SERVICES

- .1 A source of temporary power will be made available in the area. Bear all costs to make connections to the power source and perform distribution on site.
- .2 Provide all load centres, breakers, conduit, wiring, disconnects, extension cords, transformers, as required from the source of power.
- .3 Power is to be used only for power tools, lighting, controls, motors, and not for space heating.
- .4 A source of temporary water will be made available if required.
- .5 Bear all costs associated with distributing the water to the required locations.
- .6 Comply with NRC requirements when connecting to existing systems in accordance with the articles entitled "Co-operation" and "Service Interruptions" of this section.
- .7 Temporary power and water can only be made available in the main site and not where the overhead portion of the upgrade is occurring as it is remote to the main site

25. DOCUMENTS REQUIRED AT WORK SITE

- .1 The contractor shall keep on the site, one (1) up-to-date copy of all contract documents, including specifications, drawings, addenda, shop drawings, change notices, schedule and any reports or bulletins pertaining to the work, in good order, available to the Departmental Representative and to his / her representatives at all times.
- .2 At least one (1) copy of specifications and drawings shall be marked by the contractor to show all work "As Built" and shall be provided to the Departmental Representative with the Application for Payment and for the Final Certificate of Completion.

26. CO-OPERATION

- .1 Co-operate with NRC staff in order to keep disruption of normal research work to an absolute minimum.
- .2 Work out in advance, a schedule for all work which might disrupt normal work in the building.
- .3 Have schedule approved by the Departmental Representative.
- .4 Notify the Departmental Representative in writing, 72 hours prior to any intended interruption of facilities, areas, corridors, mechanical or electrical services and obtain requisite permission.

27. PROTECTION AND WARNING NOTICES

- .1 Provide all materials required to protect existing equipment.
- .2 Erect dust barriers to prevent dust and debris from spreading through the building.
- .3 Place dust protection in the form of cover sheets over equipment and furniture and tape these sheets to floors, to ensure no dust infiltration.
- .4 Repair or replace any and all damage to Owner's property caused during construction, at no cost to the Owner and to the satisfaction of the Departmental Representative.
- .5 Protect the buildings, roads, lawns, services, etc. from damage which might occur as a result of this work.
- .6 Plan and co-ordinate the work to protect the buildings from the leakage of water, dust, etc.
- .7 Ensure that all doors, windows, etc., that could allow transfer of dust, noise, fumes, etc., to other areas of the building are kept closed.
- .8 Be responsible for security of all areas affected by the work under the Contract until acceptance by NRC. Take all necessary precautions to prevent entry to the work area by unauthorized persons and guard against theft, fire and damage by any cause. Secure working area at the end of each day's work and be responsible for same.
- .9 Provide and maintain adequate safety barricades around the work sites to protect NRC personnel and the public from injury during the construction.
- .10 Post warnings, in all instances where possible injury could occur such as Work Overhead, Hard Hat Areas, etc. or as required by the Departmental Representative.
- .11 Provide temporary protective enclosures over building entrances and exits to protect pedestrians. All enclosures to be structurally sound against weather and falling debris.

28. BILINGUALISM

- .1 Ensure that all signs, notices, etc. are posted in both official languages.
- .2 Ensure that all identification of services called for by under this contract are bilingual.

29. LAYOUT OF WORK

- .1 Location of equipment, fixtures, outlets and openings indicated on drawings or specified are to be considered as approximate.
- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with the manufacturer's recommendations for safety, access and maintenance.
- .3 Employ competent person to lay out work in accordance with the contract documents.

30. DISCREPANCIES & INTERFERENCES

- .1 Prior to the start of the work, examine drawings and specifications. Report at once to the Departmental Representative, any defects, discrepancies, omissions or interferences affecting the work.
- .2 Contractor to immediately inform the Departmental Representative in writing, of any discrepancies between the plans and the physical conditions so the Departmental Representative may promptly verify same.
- .3 Any work done after such a discovery, until authorized, is at the contractor's risk.
- .4 Where minor interferences as determined by the Departmental Representative are encountered on the job and they have not been pointed out on the original tender or on the plans and specifications, provide offsets, bends or reroute the services to suit job conditions at no extra cost.
- .5 Arrange all work so as not to interfere in any way with other work being carried out.

31. MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.
- .2 Notify the Departmental Representative in writing of any conflict between these specifications and manufacturer's instruction. Departmental Representative will designate which document is to be followed.

32. TEMPORARY HEATING AND VENTILATING

- .1 Bear the costs of temporary heat and ventilation during construction including costs of installation, fuel, operation, maintenance, and removal of equipment.
- .2 Use of direct-fired heaters discharging waste products into the work areas will not be permitted unless prior approval is given by the Departmental Representative.
- .3 Furnish and install temporary heat and ventilation in enclosed areas as required to:
 - .1 Facilitate progress of work.
 - .2 Protect work and products against dampness and cold.
 - .3 Reduce moisture condensation on surfaces to an acceptable level.
 - .4 Provide ambient temperature and humidity levels for storage, installation and curing of materials.
 - .5 Provide adequate ventilation to meet health regulations for a safe working environment.
- .4 Maintain minimum temperature of 10 °C (50 °F) or higher where specified as soon as finishing work is commenced and maintain until acceptance by the Departmental Representative. Maintain ambient temperature and humidity levels as required for comfort of NRC personnel.

- .5 Prevent hazardous or unhealthy accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction including also, storage areas and sanitary facilities.
 - .1 Dispose of exhaust materials in a manner that will not result in a harmful or unhealthy exposure to persons.
- .6 Maintain strict supervision of operation of temporary heating and ventilating equipment.
 - .1 Enforce conformance with applicable codes and standards.
 - .2 Comply with instructions of the Departmental Representative including provision of full-time watchman services when directed.
 - .3 Enforce safe practices.
 - .4 Vent direct-fired combustion units to outside.
- .7 Submit tenders assuming existing or new equipment and systems will not be used for temporary heating and ventilating.
- .8 After award of contract, Departmental Representative may permit use of the permanent system providing agreement can be reached on:
 - .1 Conditions of use, special equipment, protection, maintenance, and replacement of filters.
 - .2 Methods of ensuring that heating medium will not be wasted and in the case of steam, agreement on what is to be done with the condensate.
 - .3 Saving on contract price.
 - .4 Provisions relating to guarantees on equipment.

33. CONNECTIONS TO AND INTERRUPTIONS TO EXISTING SERVICES

- .1 Where work involves breaking into or connecting to existing services, carry out work at times and in the manner agreed to by the Departmental Representative and by authorities having jurisdiction, with minimum disruption to NRC Personnel and vehicular traffic and minimum service interruption. Do not operate any NRC equipment or plant.
- .2 Before commencing work, establish location and extent of service lines in area of work and notify Departmental Representative of findings.
- .3 Submit a schedule to and obtain approval from the Departmental Representative for any shut-down or closure of active service or facility; allow minimum 72 hours notice. Adhere to approved schedule and provide notice to the Departmental Representative.
- .4 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .5 Provide detours, bridges, alternate feeds, etc., as required to minimize disruptions.
- .6 Protect existing services as required and immediately make repairs if damage occurs.
- .7 Remove any abandoned service lines as indicated on the contract documents and as approved by the Departmental Representative; cap or otherwise seal lines at cut-off points. Record and provide a copy to the Departmental Representative of locations of maintained, re-routed and abandoned service lines.

34. CUTTING AND PATCHING

- .1 Cut existing surfaces as required to accommodate new work.
- .2 Remove all items as shown or specified.
- .3 Patch and make good with identical materials, the surfaces that have been disturbed, cut or damaged, to the satisfaction of the Departmental Representative.
- .4 Where new pipes pass through existing construction, core drill an opening. Size openings to leave 12mm (1/2") clearance around the pipes or pipe insulation. Do not drill or cut any surface without the approval of the Departmental Representative.
- .5 Obtain written approval of the Departmental Representative before cutting openings through existing or new structural members.
- .6 Seal all openings where cables, conduits or pipes pass through walls with an acoustic sealant conforming to CAN/CGSB-19.21-M87.
- .7 Where cables, conduits and pipes pass through fire rated walls and floors, pack space between with compressed glass fibres and seal with fire stop caulking in accordance with CAN/CGSB-19.13-M87 AND NBC 3.1.7.

35. FASTENING DEVICES

- .1 Do not use explosive actuated tools, without first obtaining permission from the Departmental Representative.
- .2 Comply with the requirements of CSA A-166 (Safety Code for Explosive Actuated Tools).
- .3 Do not use any kind of impact or percussion tool without first obtaining permission from the Departmental Representative.

36. OVERLOADING

- .1 Ensure that no part of the building or work is subjected to a load which will endanger safety or cause permanent deformation or structural damage.

37. DRAINAGE

- .1 Provide temporary drainage and pumping as required to keep excavations and site free of water.

38. ENCLOSURE OF STRUCTURES

- .1 Construct and maintain all temporary enclosures as required to protect foundations, sub-soil, concrete, masonry, etc., from frost penetration or damage.
- .2 Maintain in place until all chances of damage are over and proper curing has taken place.

- .3 Provide temporary weather tight enclosures for exterior openings until permanent sash and glazing and exterior doors are installed.
- .4 Provide lockable enclosures as required to maintain the security of NRC facilities and be responsible for the same.
- .5 Provide keys to NRC security personnel when required.
- .6 Lay out the work carefully and accurately and verify all dimensions and be responsible for them. Locate and preserve general reference points.
- .7 Throughout the course of construction, keep continuously acquainted with field conditions, and the work being developed by all trades involved in the project. Maintain an awareness of responsibility to avoid space conflict with other trades.
- .8 Conceal all services, piping, wiring, ductwork, etc., in floors, walls or ceilings except where indicated otherwise.

39. STORAGE

- .1 Provide storage as required to protect all tools, materials, etc., from damage or theft and be responsible for the same.
- .2 Do not store flammable or explosive materials on site without the authorization of the Departmental Representative.

40. GENERAL REVIEW

- .1 Periodic review of the contractor's work by the Departmental Representative does not relieve the contractor of the responsibility of making the work in accordance with contract documents. Contractor shall carry out his own quality control to ensure that the construction work is in accordance with contract documents.
- .2 Inform the Departmental Representative of any impediments to the installation and obtain his / her approval for actual location.

41. INSPECTION OF BURIED OR CONCEALED SERVICES

- .1 Prior to concealing any services that are installed, ensure that all inspection bodies concerned, including NRC, have inspected the work and have witnessed all tests. Failure to do so may result in exposing the services again at the contractor's expense.

42. TESTING

- .1 On completion, or as required by local authority inspectors and/or Departmental Representative during progress of work and before any services are covered up and flushing is complete, test all installations in the presence of the Departmental Representative.

- .2 Obtain and hand to the Departmental Representative all acceptance certificates or test reports from authority having jurisdiction. The project will be considered incomplete without the same.

43. PARTIAL OCCUPANCY

- .1 NRC may request partial occupancy of the facility if the contract extends beyond the expected completion date.
- .2 Do not restrict access to the building, routes, and services.
- .3 Do not encumber the site with materials or equipment.

44. DISPOSAL OF WASTES

- .1 Dispose of waste materials including volatiles, safely off NRC property. Refer to the section entitled "General and Fire Safety Requirements" included as part of this specification.

45. CLEAN-UP DURING CONSTRUCTION

- .1 On a daily basis, maintain project site and adjacent area of campus including roofs, free from debris and waste materials.
- .2 Provide on-site dump containers for collection of waste materials and rubbish.

46. FINAL CLEAN-UP

- .1 Upon completion do a final clean-up to the satisfaction of the Departmental Representative.
- .2 Clean all new surfaces, lights, existing surfaces affected by this work, replace filters, etc.
- .3 Clean all resilient flooring and prepare to receive protective finish. Protective finish applied by NRC

47. WARRANTY AND RECTIFICATION OF DEFECTS IN WORK

- .1 Refer to General Conditions "C", section GC32.
- .2 Ensure that all manufacturers' guarantees and warranties are issued in the name of the **General** Contractor and the National Research Council.

48. MAINTENANCE MANUALS

- .1 Provide three (3) bilingual copies of maintenance manuals or two English and two French maintenance manuals immediately upon completion of the work and prior to release of holdbacks.
- .2 Manuals to be neatly bound in hard cover loose leaf binders.

- .3 Manuals to include operating and maintenance instructions, all guarantees and warranties, shop drawings, technical data, etc., for the material and apparatus supplied under this contract.

END OF SECTION

1. GENERAL CONSTRUCTION SAFETY REQUIREMENTS

- .1 The Contractor shall take all necessary steps to protect personnel (workers, visitors, general public, etc.) and property from any harm during the course of the contract..
- .2 The Contractor shall be solely responsible for the construction safety of both its employees and those of its sub-contractors at the work site, and for initiating, maintaining and supervising safety precautions, programs and procedures in connection with the performance of the work.
- .3 The Contractor shall comply with all Federal, Provincial and Municipal safety codes and regulations and all provincial OSH regulation . In the event of any conflict between any provisions in legislation or codes, the most stringent provisions shall apply.
- .4 Periodic review of the contractor's work by the Departmental Representative, using the criteria of the contract documents, does not relieve the contractor of his safety responsibilities in carrying out the work in accordance with the contract documents. The contractor shall consult with the Departmental Representative to ensure that this responsibility is carried out.
- .5 The Contractor shall ensure that only competent personnel are permitted to work on site. Throughout the term of the contract, any person will be removed from the site who is not observing or complying with the safety requirements.
- .6 All equipment shall be in safe operating condition and appropriate to the task.
- .7 Following a project and site hazard assessment, the Contractor shall develop a Site Specific Safety Plan based on the following minimum requirements:
 - .1 Provide a safety board mounted in a visible location on the project site, with the following information included thereon:
 - .1 Notice of Project
 - .2 Site specific Safety Policy
 - .3 Copy of Provincial OSH regulation
 - .4 Building Schematic showing emergency exits
 - .5 Building emergency procedures
 - .6 Contact list for NRC, Contractor and all involved sub-contractors
 - .7 Any related MSDS sheets
 - .8 Proper Emergency phone number
 - .8 The Contractor shall provide competent personnel to implement its safety program and those of any Health and Safety Act legislation applicable at this project location, and to ensure they are being complied with.
 - .9 The Contractor shall provide safety orientation to all its employees as well as those of any subcontractors under its jurisdiction.

- .10 The Departmental Representative will monitor to ensure that safety requirements are met and that safety records are properly kept and maintained. Continued disregard for safety standards can cause the contract to be cancelled and the Contractor or sub-contractors removed from the site.
- .11 The Contractor will report to the Departmental Representative and jurisdictional authorities, any accident or incident involving Contractor or NRC personnel or the public and/or property arising from the Contractor's execution of the work.
- .12 If entry to a laboratory is required as part of the work of the Contractor, a safety orientation shall be provided to all his employees as well as those of any subcontractors regarding lab safety requirements and procedures, as provided by the Researcher or the Departmental Representative.

2. FIRE SAFETY REQUIREMENTS

.1 Authorities

- 1. The Fire Commissioner of Canada (FC) is the authority for fire safety at NRC.
- 2. For the purpose of this document, "Departmental Representative" will be deemed as the NRC person in charge of the project and who will enforce these Fire Safety Requirements.
- 3. Comply with the following standards as published by the Office of the Fire Commissioner of Canada:
 - a. Standard No. 301 - June 1982 "Standard for Construction Operations";
 - b. Standard No. 302 - June 1982 "Standard for Welding and Cutting".

.2 Smoking .1 Smoking is prohibited on all NRC property

.3 Hot Work

- .1 Prior to commencement of any "Hot Work" involving welding, soldering, burning, heating, use of torches or salamanders or any open flame, obtain a Hot Work Permit from the Departmental Representative.
- .2 Prior to commencement of "Hot Work", review the area of hot work with the Departmental Representative to determine the level of fire safety precautions to be taken.
- .3 Hot work will be kept to an absolute minimum due to the extreme fire risk at the site, if hot work is required the contractor will inform the departmental representative as far in advance as possible and will ensure all safety precautions are taken to minimize the risk of fire, such as finding solutions to eliminate the need for hot work, having water, portable fire extinguishers and fire fighting tools on hand.

.4 Reporting Fires

- .1 Know the exact location of the nearest Fire Alarm Pull Station and telephone, including the emergency phone number.
- .2 REPORT immediately, all fire incidents as follows:
 - .1 Activate nearest fire alarm pull station and;
 - .2 Telephone the emergency phone numbers which will be provided at the project kick off meeting:
 4. When reporting a fire by phone, give the location of fire, building number and be prepared to verify location.
 5. The person activating fire alarm pull station must remain at a safe distance from the scene of the fire but readily available to provide information and direction to the Fire Department personnel.

.5 Interior and Exterior Fire protection & Alarm Systems

- .1 DO NOT OBSTRUCT OR SHUT OFF FIRE PROTECTION EQUIPMENT OR SYSTEMS, INCLUDING BUT NOT LIMITED TO FIRE ALARM SYSTEMS, SMOKE/HEAT DETECTORS, SPRINKLER SYSTEM, PULL STATIONS, EMERGENCY CALL BUTTONS AND PA SYSTEMS, WITHOUT AUTHORIZATION FROM THE DEPARTMENTAL REPRESENTATIVE.
- .2 WHEN ANY FIRE PROTECTION EQUIPMENT IS TEMPORARILY SHUT DOWN, ALTERNATIVE MEASURES AS PRESCRIBED BY THE DEPARTMENTAL REPRESENTATIVE SHALL BE TAKEN TO ENSURE THAT FIRE PROTECTION IS MAINTAINED.
- .3 DO NOT LEAVE FIRE PROTECTION OR ALARM SYSTEMS INACTIVE AT THE END OF A WORKING DAY WITHOUT NOTIFICATION AND AUTHORISATION FROM THE DEPARTMENTAL REPRESENTATIVE. THE DEPARTMENTAL REPRESENTATIVE WILL ADVISE THE (FPO) OF THE DETAILS OF ANY SUCH EVENT.
- .4 DO NOT USE FIRE HYDRANTS, STANDPIPES AND HOSE SYSTEMS FOR OTHER THAN FIRE FIGHTING PURPOSES UNLESS AUTHORISED BY DEPARTMENTAL REPRESENTATIVE.

.6 Fire Extinguishers

- .1 Provide a minimum of 1-20 lb. ABC Dry Chemical Fire Extinguisher at each hot work or open flame location.
- .2 Provide fire extinguishers for hot asphalt and roofing operations as follows:
 - a. Kettle area - 1-20 lb. ABC Dry Chemical;
 - b. Roof - 1-20 lb. ABC Dry Chemical at each open flame location.
- .3 Provide fire extinguishers equipped as below:
 - c. Pinned and sealed;
 - d. With a pressure gauge;
 - e. With an extinguisher tag signed by a fire extinguisher servicing company.

- .4 Carbon Dioxide (CO₂) extinguishers will not be considered as substitutes for the above.

.7 Roofing Operations

- .1 Kettles:
 - .1 Arrange for the location of asphalt kettles and material storage with the Departmental Representative before moving on site. Do not locate kettles on any roof or structure and keep them at least 10m (30 feet) away from a building.
 - .2 Equip kettles with 2 thermometers or gauges in good working order; a hand held and a kettle-mounted model.
 - .3 Do not operate kettles at temperatures in excess of 232°C (450 °F).
 - .4 Maintain continuous supervision while kettles are in operation and provide metal covers for the kettles to smother any flames in case of fire. Provide fire extinguishers as required in article 2.6.
 - .5 Demonstrate container capacities to Departmental Representative prior to start of work.
 - .6 Store materials a minimum of 6m (20 feet) from the kettle.
- .2 Mops:
 - .1 Use only glass fibre roofing mops.
 - .2 Remove used mops from the roof site at the end of each working day.
- .3 Torch Applied Systems:
 - .1 DO NOT USE TORCHES NEXT TO WALLS.
 - .2 DO NOT TORCH MEMBRANES TO EXPOSED WOOD OR CAVITY
 - .3 Provide a Fire Watch as required by article 2.9 of this section.
- .4 Store all combustible roofing materials at least 3m (10 feet) away from any structure.
- .5 Keep compressed gas cylinders a minimum of 6m (20 feet) away from the kettle, protected from mechanical damage and secured in an upright position.

.8 Welding / Grinding Operations

- .1 Contractor to provide fire blankets, portable fume extraction devices, screens or similar equipment to prevent exposure to welding flash, or sparks from grinding.

.9 Fire Watch

- .1 Provide a fire watch for a minimum of one hour after the termination of any hot work operation.
- .2 For temporary heating, refer to General Instructions Section 00 010 00.
- .3 Equip fire watch personnel with fire extinguishers as required by article 2.6.

.10 Obstruction of access/egress routes-roadways, halls, doors, or elevators

- .1 Advise the Departmental Representative in advance of any work that would impede the response of Fire Department personnel and their apparatus. This includes violation of minimum overhead clearance, erection of barricades and the digging of trenches.
- .2 Building exit routes must not be obstructed in any way without special permission from the Departmental Representative, who will ensure that adequate alternative routes are maintained.
- .3 The Departmental Representative will advise the FPO of any obstruction that may warrant advanced planning and communication to ensure the safety of building occupants and the effectiveness of the Fire Department.

.11 Rubbish and Waste Materials

- .1 Keep rubbish and waste materials to a minimum and a minimum distance of 6m (20 feet) from any kettle or torches.
- .2 Do not burn rubbish on site.
- .3 Rubbish Containers
 - .1 Consult with the Departmental Representative to determine an acceptable safe location for any containers and the arrangement of chutes etc. prior to bringing the containers on site.
 - .2 Do not overfill the containers and keep area around the perimeter free and clear of any debris.
- .4 Storage
 - .1 Exercise extreme care when storing combustible waste materials in work areas. Ensure maximum possible cleanliness, ventilation and that all safety standards are adhered to when storing any combustible materials.
 - .2 Deposit greasy or oily rags or materials subject to spontaneous combustion in CSA or ULC approved receptacles and remove at the end of the work day or shift, or as directed.

.12 Flammable Liquids

- .1 The handling, storage and use of flammable liquids is governed by the current National Fire Code of Canada.
- .2 Flammable Liquids such as gasoline, kerosene and naphtha may be kept for ready use in quantities not exceeding 45 litres (10 imp gal), provided they are stored in approved safety cans bearing the ULC seal of approval and kept away from buildings, stockpiled combustible materials etc. Storage of quantities of flammable liquids exceeding 45 litres (10 imp gal) for work purposes, require the permission of the Departmental Representative.

- .3 Flammable liquids are not to be left on any roof areas after normal working hours.
- .4 Transfer of flammable liquids is prohibited within buildings.
- .5 Do not transfer flammable liquids in the vicinity of open flames or any type of heat producing device.
- .6 Do not use flammable liquids having a flash point below 38 °C (100 °F) such as naphtha or gasoline as solvents or cleaning agents.
- .7 Store flammable waste liquids for disposal in approved container located in a safe, ventilated area. Waste flammable liquids are to be removed from the site on a regular basis.
- .8 Where flammable liquids, such as lacquers or urethane are used, ensure proper ventilation and eliminate all sources of ignition. Inform the Departmental Representative prior to, and at the cessation of such work.

3. Questions and/or clarifications

- .1 Direct any questions or clarification on Fire or General Safety, in addition to the above requirements, to the Departmental Representative.

END OF SECTION

PART 1 GENERAL

1.1 WORK INCLUDED

- .1 Requirements for the materials and standard of work for the installation of the underground conduit between the utility pole (Fortis BC) and the 15kV switchgear units near survey point '48' and the machine shop and the conduits feeding the new CHIME site.
- .2 The bulk of the underground conduit and all pull boxes were installed in 2014. The concrete pads for equipment were not installed in 2014 and therefore all conduit is capped underground and surveyed. The 2015 tender will include both the installation of new conduit and extension of existing conduit as identified on the project drawings listed in section 1.2.

1.2 RELATED DRAWINGS

- .1 E3000 Electrical 15kV Cable Routing
- .2 E3001 Electrical 15kV Cable Routing CHIME Site
- .3 E3100 Electrical Conduit Section Details (1 of 2)
- .4 E3101 Electrical Conduit Section Details (2 of 2)
- .5 E4052 15kV Outdoor Switchgear Electrical Conduit Layout
- .6 E4153 CHIME Site Electrical Conduit Layout

1.3 REFERENCE STANDARDS

- .1 Canadian Standards Association (CSA)
 - .1 CSA 22.1-12 - Canadian Electrical Code Part I, Safety Standard for Electrical Installations.
 - .2 CSA 22.2-211.1-06 – Rigid types EB1 and DB2/ES2 PVC conduit

1.4 SYSTEM DESCRIPTION

- .1 Approximately 750 meters of buried 4" DB2 conduit to be used for 15kV cable between utility pole (Fortis) and 'future' outdoor 15kV switchgear. [This conduit is installed and capped at both ends and requires additional materials/labour to complete]

- .2 Approximately 135 meters of buried 4” DB2 conduit to be used for 15kV cable between the ‘future’ outdoor 15kV switchgear and the existing 225kVA transformer installed adjacent to the mechanical shop. [This conduit is installed and capped at both ends and requires additional materials/labour to complete]
- .3 One rigid PVC bend (90°) installed to utility standards for the pole riser and one rigid PVC bend (90°) for switchgear entrance. [This was not completed in 2014 and is required for 2015 tender]
- .4 Approximately 220 meters of buried 4” DB2 conduit to be used for 15kV cable between the ‘future’ outdoor 15kV switchgear and the Chime facility. [This conduit is installed and capped at both ends and requires additional materials/labour to complete]
- .5 Approximately 220 meters of buried 4” DB2 conduit to be used for 208V cable between the Block House and the Chime facility. [This conduit is installed and capped at both ends and requires additional materials/labour to complete]
- .6 Approximately 70 meters of buried 4” DB2 conduit to be used for 208V cable between the Chime facility and the adjacent 1MV satellite. [This conduit is installed and capped at both ends and requires additional materials/labour to complete]
- .7 Approximately 70 meters of buried 6” DB2 conduit to be used for communications cable between the Chime facility and the adjacent satellite. [This conduit is installed and capped at both ends and requires additional materials/labour to complete]
- .8 Approximately 65 meters of buried 4” DB2 conduit to be used for 900V cable between the Chime facility and the CART site. [This conduit is installed and capped at both ends and requires additional materials/labour to complete]
- .9 Approximately 4 x 40 meters of buried 6” DB2 conduit to be used for 208/120V cables between the 15kV Unit Substation and the pad mounted LV equipment. [This conduit has not been installed and requires all materials/labour to complete]

1.5 SUBMITTALS

- .1 Prior to purchase of pre-cast pull boxes, contractor is required to submit drawings for approval.
- .2 Upon completion of the installation, the contractor is required to submit the following information:
 - .1 Accurate survey co-ordinates of all buried conduit and pull boxes.

PART 2 PRODUCTS

2.1 CONDUIT

- .1 Size: 4" nominal DB2, 20' length, bell end (IPEX 08245 or equal).
- .2 End bell for 4" DB2 (IPEX 29064 or equal).
- .3 Coupler for 4" DB2 (IPEX 29004 or equal).
- .4 45° sweep, 4" DB2, 60" radius (IPEX 29116 or equal).
- .5 22 1/2° sweep, 4" DB2, 36" radius (IPEX 29204 or equal).
- .6 90° sweep, 4" rigid PVC, 60" radius (IPEX 29096 or equal).
- .7 Adapter, 4" Rigid PVC to 4" DB2 (IPEX 29184 or equal).
- .8 Expansion joints, 4" DB2 (IPEX 29154 or equal).
- .9 Plugs, 4" (IPEX 29078 or equal).
- .10 6" conduit and accessories to be equivalent to the 4" components above.

2.2 PULL BOXES

- .1 Precast concrete junction box (Koncast 832 Junction Vault or equal).
- .2 Include concrete collar complete with single piece steel lid (galvanized finish).

2.3 WARNING TAPE

- .1 Detectable underground warning tape, "CAUTION BURIED ELECTRIC LINE BELOW", red tape with black lettering, minimum 6" wide, 5mil thickness, heavy duty polyethylene with a foil core.

2.4 PULL STRING

- .1 Pull string, 3/16" stranded polyvinyl, 11,000 N minimum tensile strength.
- .2 Pull string to have measurement markings every meter.

2.5 OTHER MATERIALS

- .1 PVC solvent weld, concrete, grout, sand, gravel and any other required materials to be provided by the contractor.

PART 3 EXECUTION

3.1 SAFETY PRECAUTIONS

- .1 Contractor is responsible to ensure that all work performed is in compliance with the Workers Compensation Board of BC and any other relevant regulations.
- .2 The excavation of the trench is to be located approximately 4m offset from the existing 15kV direct buried cable. The existing cable will remain energized throughout the excavation and installation process. The contractor is responsible to ensure that a cable locator is used prior to all excavation work.

3.2 EXCAVATIONS

- .1 Excavate trenches for buried conduit as per drawings E3100 and E3101. Excavate trench with a 4m offset from the existing 15kV underground cable as shown on drawing E3000. Minimum trench width for each run is to be as per the project drawings.
- .2 At the Fortis pole and at the existing 225kVA transformer where the new trench will be closer than 4m to the cable, cautious hand excavation will be required.
- .3 Surround conduit within minimum 300mm of clean sand backfill (100mm below and above).
- .4 Burial depth is 750mm from finished grade to top of conduit (1000mm for all conduit terminating at the Chime facility). For areas where shallow bedrock is encountered and it is not feasible to excavate trench to 950mm depth refer to drawing E3100. Conduit will be grouted into the bedrock.
- .5 Burial depth is 600mm from finished grade to top of conduit for the 4 x 6" conduits between the 15kV unit substation and the padmount LV equipment.

3.3 PLACEMENT OF CONDUIT

- .1 All main runs to be 45° bends or less with a radius of 1.5m (22.5° bends to have a radius of 1m).
- .2 Conduit shall not be installed if the ambient temperature is below -10°C.
- .3 Conduit shall enter, exit and be located in concrete pull boxes as shown in drawings.
- .4 All conduit terminated in pull boxes shall leave at right angles to the box wall for a minimum of 1 meter before any change in direction.
- .5 Install flush bell ends on duct at each pull box.

- .6 Install tapered plugs in all open conduit ends including pull boxes, direct buried and above grade stub up locations.
- .7 All conduit stub-ups must extend a minimum of 100mm above grade and shall be capped (but not sealed).

3.4 PLACEMENT OF CONCRETE IN TRENCHES

- .1 All concrete shall meet the requirements of CSA-A23.1-00. “Concrete materials and methods of concrete construction”.
- .2 Grout or mortar shall be prepared as per the manufacturers’ instructions.
- .3 For sections where bedrock is uncovered less than 1m below grade a minimum of 100mm concrete crown cover over the trench is required and must be troweled to a relatively smooth crown to prevent pooling of water.
- .4 In placing concrete around the conduit, adjust the delivery chute so the fall of the concrete into the trench is minimal.

3.5 BACK FILL

- .1 Prior to back fill of trench or placement of concrete after conduit is in place the installation must be inspected by the project engineer or DRAO representative. Notify the DRAO representative at least 24 hours prior to time of inspection.
- .2 A minimum of 100mm of clean sand is to be installed above and below the conduit. The sand shall be hand tamped only (no mechanical tampers to be used).
- .3 Native fill shall be used to backfill the trench above the 100mm of clean sand. The first 300mm of fill above the sand shall contain rocks no larger than 150mm in diameter.
- .4 Frozen material shall not be used as backfill. Under freezing conditions backfill material shall be dry.
- .5 Underground warning tape shall be installed approximately 300mm below grade.
- .6 Contractor shall maintain open excavations at their own liability and expense and is fully responsible to minimize the hazards to people and property while trenches are open.

3.6 ACCESSORY INSTALLATION

- .1 Contractor to pull a mandrel/swab (diameter 1/4" smaller than conduit internal diameter) through each completed conduit run to ensure conduit integrity after installation is complete.

3.7 RESTORATION

- .1 After completion of conduit installation return all ground and pavement surfaces to original condition.

3.8 INSPECTION OF INSTALLATIONS

- .1 Inspection by DRAO representative or consulting engineer is required at the following installation phases (Notify the DRAO representative at least 24 hours prior to time of inspection):
 - .1 Prior to back fill of trench or placement of concrete after conduit is in place.
 - .2 During the installation of pull strings and mandrel pull.
 - .3 Prior to back fill around pull boxes.

END OF SECTION

PART 1 GENERAL

1.1 WORK INCLUDED

- .1 Requirements for the 15kV Outdoor Switchgear including the following:
 - .1 Ratings and Standards
 - .2 Loadbreak Switches and Breakers
 - .3 Voltage and Current Transformers
 - .4 Termination Types
 - .5 Factory Testing
 - .6 Field Testing

1.2 RELATED DRAWINGS

- .1 E-4000 Single Line Diagram
- .2 E-4050 Equipment Layout
- .3 E-4051 Grounding Layout
- .4 E-4052 Conduit Layout

1.3 REFERENCE STANDARDS

- .1 The CSA standards take priority over the IEEE and ANSI standards in the event of a discrepancy.
- .2 American National Standards Institute (ANSI)
 - .1 ANSI C37.54-2002(R2010) AC High Voltage Circuit Breakers Applied as Removable Elements in Metal-Enclosed Switchgear – Conformance Test Procedures
 - .2 ANSI C37.57-2003(R2010) Switchgear – Metal-Enclosed Interrupter Switchgear Assemblies – Conformance Testing
 - .3 ANSI / NETA ATS-2009 Standard for Acceptance Testing Specifications for Electrical Power Equipment and Systems.
- .3 Institute of Electrical and Electronics Engineers, (IEEE)

- .1 IEEE C57.12.28, Pad-Mounted Equipment - Enclosure Integrity.
- .4 Canadian Standards Association (CSA)
 - .1 CAN/CSA-C22.2 No.31-10, Switchgear Assemblies.
 - .2 CSA C22.2 No.58-M1989 (R2010), High-Voltage Isolating Switches.

1.4 SYSTEM DESCRIPTION

- .1 Outdoor 15kV Switchgear rated as follows:
 - .1 Nominal ratings: 12.47kV, 60Hz, 600A
 - .2 Short circuit rating: 16kA
 - .3 Impulse rating: 95kV BIL
 - .4 Phases: 3 Phase, 3-Wire.
 - .5 Cells: 1 Main breaker with VT/CT and disconnect switch cell, 3 feeder cells with fused disconnects.
- .2 Finished product must bear an approval label accepted by the BC Safety authority (eg. CSA approval or equal).
- .3 Switchgear to be 'Service Entrance' rated in compliance with Fortis BC requirements.

1.5 SUBMITTALS

- .1 The following submittals are required for approval (by Owner's agent, Consultant and/or Engineer) prior to release for manufacturing:

- .1 General arrangement drawings that show the following details:
 - .1 Overall dimensions and weight.
 - .2 Location of cable terminations including termination height.
 - .3 Location of control terminals (where applicable).
 - .4 Location and dimensions of all cable entry areas.
 - .5 Location and dimensions of seismic anchoring.
 - .6 Location and dimensions of grounding pads.
 - .7 Layout of internal and front panel components suitably identified.
- .2 Schematic or wiring diagram of low voltage control devices. (where applicable).
- .3 Surface preparation and coating schedule.

PART 2 PRODUCTS

2.1 ENCLOSURE

- .1 The enclosure integrity must meet the requirements for tamper resistance set forth in ANSI C57.12.28 or equivalent CSA standard.
 - .1 Enclosure to be tamper-resistant from outside. All doors to be equipped with tamper-resistant padlockable hasps in addition to requiring a special-tool for opening. (Penta-head socket for example)
 - .2 No external auxiliary devices or fittings that are susceptible to vandalism or tampering are permitted. Any such required devices are to be mounted behind the tamper-resistant doors.
 - .3 Enclosure to be vermin proof, with doors closed it must be impossible to insert a 6mm diameter rod into any location.
- .2 Enclosure shall be constructed to meet or exceed NEMA 3R requirements.
- .3 Outdoor padmount style, suitable for mounting on concrete pad.
- .4 Provision for lifting by crane. If spreader bar is required then the recommended arrangement must be shown on the general arrangement drawings.
- .5 All cables bottom-entry.
- .6 Low voltage and high voltage compartments equipped with individual doors and to be separated by metallic barriers. It must be possible to access the LV compartments without any exposure to HV parts.
- .7 Use non-corrosive bolts and hardware.
- .8 All descriptive labels and nameplates to be permanent engraved type, mechanically fastened.
- .9 All cells to have an anti-condensation coating applied on the interior of the roof.
- .10 Exterior Color: ANSI 61 Grey.
- .11 Supplier to submit a coating schedule for review.
- .12 All low voltage wiring for power and control to shielded and armoured.
- .13 Provide a two-year warranty. (Five years on exterior coatings).

2.2 SWITCHGEAR CELL CONTENTS

.1 Cells are numbered from left to right when facing the front:

.2 CELL #1: Entrance Switch and Main Breaker

- .1 Bottom entry cable termination, with cable support blocks. Allow sufficient room for spreading and termination of a 3c#1 TECK cable.
- .2 Provide three ground-ball studs, one per phase. Install for ease of application of grounding tails.
- .3 Current transformers, 150:5 Ratio, C200 protection class, one per phase (three total). Polarity pointing towards the utility.
- .4 Station class surge arrestors, connected with removeable links or suitably rated jumper cables, one per phase (three total). Rated for 10.2kV Maximum Continuous Operating Voltage (MCOV).
- .5 15kV, 600A disconnect switch. All three phases to be visible through shatter resistant viewing window with clear view of all three switch blades in the open and closed position.
- .6 Equip switch with one set of "A" (normally open) and one set of "B" (normally closed) auxiliary contacts, wired to terminals.
- .7 Isolating barrier between upper switch compartment, and lower circuit breaker/VT compartment.
- .8 One VT, connected phase to phase, ratio of 12000:120V (100:1) or similar. Rated 1500VA. Include suitable primary fuses. Terminate secondary connections to a single pole 15A circuit-breaker.
 - .1 All control power, space heaters and lamps to be powered from the single VT.
 - .2 Provide capacitor backup for relay and breaker such that they will still be able to trip in the event of an overcurrent that causes the supply voltage to collapse.
 - .3 Capacitor backup to include a means of testing/verifying that it is in good working order without actually tripping the breaker.
- .9 One fixed circuit breaker, vacuum type rated 15kV, 600A nominal, 16kA interrupt capacity.
 - .1 Required interrupting time is 37 milliseconds or better.

- .2 Circuit breaker to be capable of 30,000 nominal load operations before requiring maintenance or replacement.
 - .3 Circuit breaker to be rated for 120VAC control for tripping, closing and charging.
 - .4 Include at least six “A” (normally open) contacts and four “B” (normally closed) auxiliary contacts, wired to terminals.
 - .5 Wire all circuit breaker controls to readily accessible customer terminals.
 - .6 Rated to operate at -15°C without the need for additional space heaters.

 - .10 Include open/closed indicating lamps, rated for 120VAC.
 - .11 Key interlocks as follows:
 - .1 Key “K1A” – Circuit Breaker may not close without K1A, and K1A is trapped unless the breaker is opened.
 - .2 Key “K1B” – Disconnect switch may not close without K1B, and K1B is trapped unless the switch is fully opened.
 - .3 Use Kirk type interlock or equal.
 - .4 Lower circuit breaker/VT compartment door to be equipped with Key interlock “K1B”. Door cannot open without “K1B”, and “K1B” is trapped in the door until it is locked closed.

 - .12 Include 250W thermostat-controlled anti-condensation heater.
 - .13 Include 60W incandescent light with on/off switch, used to illuminate and view the main HV switch-blades. Design to allow bulb replacement without exposure to high voltage.
 - .14 Copper ground bus not smaller than 50mm x 6mm extending the full width of the cell and situated at the bottom of the cell and connected to ground bus in adjacent cell.
- .3 CELLS #2, #3 and #4 (All three cells identical)**
- .1 15kV, 600A Load break switch. All three phases to be visible through shatter resistant viewing window with clear view of all three switch blades in the open and closed position. Switch to be equipped with interlocks as follows: (Note, letter “x” equals “2” for cell #2, equals “3” for cell #3, equals “4” for cell #4)

- .1 Key “Kx” – Switch may not open or close without Kx, and Kx is trapped unless the switch is fully opened.
- .2 User Kirk type interlock or equal.
- .2 Equip switch with one set of “A” (normally open) and one set of “B” (normally closed) auxiliary contacts, wired to terminals.
- .3 Install barrier between switch compartment and fuse compartment.
- .4 15kV Fuses, current rating as indicated on the drawings.
- .5 Fuse access door to be key-interlocked with key “Kx”. “Kx” must be inserted before the door can be unlocked and opened. The keys remain trapped until the door is closed and locked.
- .6 Include 250W thermostat-controlled anti-condensation heater in each cell powered from miniature circuit breaker accessible in LV compartment.
- .7 Include 60W incandescent light with on/off switch, used to illuminate and view the main HV switch-blades. Design to allow bulb replacement without exposure to high voltage. Lighting circuit to be powered from separate miniature circuit breaker accessible in LV compartment.
- .8 Copper ground bus not smaller than 50mm x 6mm extending the full width of the cell and situated at the bottom of the cell and connected to ground bus in adjacent cells.

2.3 INTERLOCKING

- .1 Refer to drawing E-4000 for the requested interlocking scheme.
- .2 Use Schneider or Kirk brand interlocks.

2.4 PROTECTION AND CONTROL

- .1 Install all protection and control devices in a low voltage enclosure that is separated from all high voltage circuits by a metallic barrier and can be safely accessed when live.
- .2 Include capacitive-storage devices for control-power to the HV circuit breakers (trip circuit) and the SEL-751A relay such that they can satisfactorily operate (trip) during nearby phase fault with corresponding voltage collapse.
- .3 Include one 10-pole test-switch, ABB type FT “Flexitest” or equal. Connect the poles as follows:

- .1 Switch #1
 - A – H: 15kV Current transformer pairs (4 pairs – three phases plus residual connected neutral).
 - I: 15kV VT
 - J: Trip blocking to 15kV Breaker (RED)
- .4 Include trip/close pushbuttons for the circuit breaker. Trip buttons green, close buttons red. Trip buttons to be wired directly into circuit breaker trip-circuit. Close buttons to be wired to SEL-751A digital inputs, with closing signal to breaker provided by the SEL-751A.
- .5 Include opened/closed indicating LED lamps for each circuit breaker, connected via circuit-breaker 52a/52b contacts. Opened lamp green, closed lamp red.
- .6 Include protection relay, type SEL-751A by Schweitzer Engineering Laboratories. Recommended part number is 751A01A3A0X0X850000. Configure the inputs and outputs as follows:
 - IN101: 15CB1, "52A"
 - IN102: 15CB1, "52B"
 - IN301: 15DS1, "52A"
 - IN302: 15DS1, "52B"
 - IN303: Spare
 - IN304: Spare
 - IN305: Spare
 - IN306: Spare
 - IN307: Spare
 - IN308: Spare
 - OUT101: Trip
 - OUT102: Close
 - OUT103: Spare

- .7 Include engraved lamacoid nameplates, mechanically fastened to front and rear switchgear doors/access covers.
- .8 The character “ / “ used in these specifications denotes a carriage return. Do not include the character, start a new line.
- .9 Main equipment lamacoid “15KV SWITCHGEAR”, larger size than all other labels.
- .10 Disconnect switches as:
 - .1 “15DS1 / MAIN ENTRANCE SWITCH”
 - .2 “15DS2 / FEEDER #1 / MACHINE SHOP UNIT SUB”
 - .3 “15DS3 / FEEDER #2 / CHIME FACILITY”
 - .4 “15DS4 / FEEDER #3 / SPARE”
- .11 Circuit breakers as:
 - .1 “15CB1 / MAIN ENTRANCE BREAKER”

2.5 WARNING SIGNS

- .1 Provide high voltage warning signs in accordance with CSA standards.

2.6 MANDATORY SPARE PARTS

- .1 Provide three spare HV fuses of each type.
- .2 Provide two spare control fuses of each type.
- .3 Provide two spare VT fuses of each type.
- .4 Provide two spare control relay coil/contact blocks of each type.
- .5 Provide two replacement LED bulbs of each type.
- .6 Provide one replacement capacitor storage device.

PART 3 EXECUTION

3.1 INSTALLATION

- .1 Contractor is responsible for delivery, off-loading and placement of equipment at site.

- .2 Contractor is responsible for supply and installation of all cable termination kits, lugs and any other necessary hardware.
- .3 Contractor is responsible for onsite testing and commissioning. A final test report of the results is required to be sealed and submitted by a professional engineer registered in the province of British Columbia.

3.2 QUALITY ASSURANCE

- .1 A mandatory equipment inspection is required at the manufacturer's facility by the Owner's Agent, Consultant and/or Engineer. The scheduled date for equipment testing at the factory must be provided in writing a minimum of 15 days prior to testing in order to accommodate the inspection and/or witness testing.
- .2 Owner's Agent, Consultant and/or Engineer will witness standard factory testing of complete switchgear assembly, including operation of switches, circuit breaker and controls.
- .3 Submit electronic copies of production test results in PDF to Engineer, Consultant or Owner's Agent before equipment is shipped from factory.
- .4 Include electronic copy of maintenance data for complete switchgear assembly including components.

3.3 FACTORY TESTS

- .1 High Voltage withstand test. (DC test permissible)
- .2 Contact resistance test across all bus splices, switches and circuit breakers.
- .3 Operational and timing tests of circuit breakers and disconnect switch.
- .4 Saturation and polarity tests on all CT's.
- .5 Turns ratio and polarity tests on all VT's.

3.4 FIELD TESTS

- .1 Supplier to provide the following on site field testing after installation of the switchgear:

- .1 Visual inspection of finished installation.
- .2 HV circuit breaker and relay testing.
- .3 Mechanical inspection of incoming and feeder cells to verify correct operation and alignment of load break switches.

END OF SECTION

PART 1 GENERAL

1.1 WORK INCLUDED

- .1 Supply, installation and testing requirements for the 1.5MVA, 15kV:208/120V Unit Substation including the following:
 - .1 Ratings and Standards
 - .2 Loadbreak Switches and Breakers
 - .3 Voltage and Current Transformers
 - .4 Termination Types
 - .5 Factory Testing
 - .6 Field Testing

1.2 RELATED DRAWINGS

- .1 E4100 Single Line Diagram
- .2 E4150 Unit Substation Equipment Layout

1.3 REFERENCE STANDARDS

- .1 The CSA standards take priority over the IEEE and ANSI standards in the event of a discrepancy.
- .2 American National Standards Institute (ANSI)
 - .1 ANSI C37.54-2002(R2010) AC High Voltage Circuit Breakers Applied as Removable Elements in Metal-Enclosed Switchgear – Conformance Test Procedures
 - .2 ANSI C37.57-2003(R2010) Switchgear – Metal-Enclosed Interrupter Switchgear Assemblies – Conformance Testing
 - .3 ANSI / NETA ATS-2009 Standard for Acceptance Testing Specifications for Electrical Power Equipment and Systems.
- .3 Institute of Electrical and Electronics Engineers, (IEEE)

- .1 IEEE C57.12.28, Pad-Mounted Equipment - Enclosure Integrity.
 - .2 IEEE C57.12.34, Standard for Requirements for Pad-Mounted, Compartmental-Type, Self-Cooled, Three-Phase Distribution Transformers, 5 MVA and Smaller; High Voltage, 34.5 kV Nominal System Voltage and Below; Low Voltage, 15 kV Nominal System Voltage and Below
 - .3 IEEE C57.12.90, Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers
 - .4 IEEE 386, Separable Insulated Connector Systems for Power Distribution Systems above 600 V.
- .4 Canadian Standards Association (CSA)
- .1 CAN/CSA-C227.4-06 (R2011) - Three-Phase, Pad-Mounted Distribution Transformers with Separable Insulated High-Voltage Connectors.
 - .2 CAN/CSA-C802.1-13 (R2013) – Minimum Efficiency Values for Liquid-Filled Distribution Transformers.
 - .3 CAN/CSA-C22.2 No.31-10, Switchgear Assemblies.
 - .4 CSA C22.2 No.58-M1989 (R2010), High-Voltage Isolating Switches.

1.4 SYSTEM DESCRIPTION

- .1 One Vacuum Fault Interrupter Unitized Padmount substation (Prime Engineering Part No. ENG-SUB-3PH-VFI or pre-approved equal). Alternative products that meet or exceed these specifications and have been pre-approved by the consulting engineer will be accepted.
- .2 Unit substation is used to feed the CHIME facility, Block House, CART facility and is fed from the 15kV Outdoor Switchgear upstream.
- .3 Unit substation to be equipped with 15kV visible isolation switch and vacuum fault interrupter, overcurrent protection and three LV power circuit breakers.
- .4 Finished product must bear an approval label accepted by the BC Safety authority (eg. CSA approval or equal).

1.5 SUBMITTALS

- .1 The following submittals are required for approval prior to release for manufacturing:

- .1 General arrangement drawings that show the following details:
 - .1 Overall dimensions, weight and volume of insulating fluid.
 - .2 Location of power terminals.
 - .3 Location of control terminals (where applicable).
 - .4 Location and dimensions of cable entry area and terminations for the HV incoming cable and all LV outgoing cables.
 - .5 Location and dimensions of seismic anchoring.
 - .6 Location and dimensions of grounding pads.
 - .7 Identify location and part descriptions of all accessories and ancillary devices.
- .2 Transformer nameplate drawing.
- .3 Schematic or wiring diagram of low voltage control devices. (where applicable).
- .4 Surface preparation and coating schedule.
- .2 The following submittals are required before shipment of the equipment. The equipment will not be considered delivered until the following information is received:
 - .1 Installation and maintenance manual.
 - .2 Specifications / data-sheets of all ancillary devices.
 - .3 MSDS sheet for insulating fluid.
 - .4 Factory test reports.
 - .5 “As Built” drawings.

PART 2 PRODUCTS

2.1 GENERAL

- .1 The enclosure integrity of the tank and cabinet to meet the requirements for tamper resistance set forth in ANSI C57.12.28 or equivalent CSA standard.

- .1 Entire substation to be tamper-resistant from outside. All doors to be equipped with tamper-resistant padlockable hasps in addition to requiring a special-tool for opening. (Penta-head socket for example)
- .2 No external auxiliary devices or fittings that are susceptible to vandalism or tampering are permitted. Any such required devices are to be mounted behind the tamper-resistant doors.
- .2 Outdoor padmount style, suitable for mounting on concrete pad.
- .3 HV cables are bottom-entry. LV cables are both bottom entry and rear entry for the 2000A and 1200A feeds to the CHIME facility which will be exposed cable tray.
- .4 Low voltage and high voltage compartments equipped with individual doors to be separated by metallic barriers.
- .5 Include one complete spare set of each fuse type, including control fuses.
- .6 All descriptive labels and nameplates to be permanent engraved type, mechanically fastened.
- .7 Provision for lifting complete unit substation by crane. If spreader bar is required then the recommended arrangement must be shown on the general arrangement drawings.
- .8 Provide a two-year warranty. (Five years on coatings).

2.2 TRANSFORMER

- .1 Transformer to be rated for 1.5MVA KNAN (EnviroTemp FR3) based on 40°C ambient temperature and 65°C winding temperature rise.
- .2 Minimum impedance of 5% or greater is required.
- .3 Minimum efficiency is to be in accordance with CAN/CSA-C802.1-13 (R2013) – Minimum efficiency values for liquid-filled distribution transformers.
- .4 Primary and Secondary Winding material to be aluminum.

.5 Windings & terminals rated as follows:

| | | | |
|-----------------------------------|------------------------|-------------|----------------|
| HIGH VOLTAGE TERMINALS | Nominal Voltage | (V) | 12,470 |
| | B.I.L | (kV) | 95 |
| | Winding Type | | Delta |
| | Taps | | +/- 2.5%, 5.0% |
| LOW VOLTAGE TAPS | Nominal Voltage | (V) | 208/120 |
| | B.I.L | (kV) | 30 |
| | Winding Type | | Wye |

.6 Transformer 'K' Factor = 13.

.7 Include the following accessories:

- .1 Liquid level gauge
- .2 Liquid temperature gauge with alarm contacts.
- .3 Pressure / vacuum gauge.
- .4 Oil-filling top-valve (1") and threaded cap.
- .5 Oil-drain (2") and sampling valves with threaded caps. Sampling valve to be accessible without being exposed to HV parts.
- .6 Cover mounted pressure relief-device.
- .7 Oil-level detection switch with low level trip contacts.
- .8 Two stainless steel grounding pads with NEMA 2-hole patterns
- .9 Non-PCB decal
- .10 Danger high voltage warning signs
- .11 Touch-up paint
- .12 Seismic bracing of core and coil and provisions for seismic anchoring.

2.3 15KV VACUUM FAULT INTERRUPTER

- .1 General ratings are 12.47kV nominal voltage, 600A nominal current, 12.5kA short-time (interrupting) current, 95kV BIL.

- .2 The Primary side overcurrent protection shall be a Vacuum Fault Interrupter (VFI), which shall have a 3-pole single throw gang snap action load break switch under E200 Environmentally friendly oil, in series and interlocked with a 3-pole single set of vacuum bottles. There shall be a position indicator for the snap action switch, and a position indicator for the vacuum bottles. The switch and breaker shall have a continuous rating and an interrupting rating of 600 amps at 15 KV. The VFI must have a fault interrupting rating of 12.5 kA.
- .3 The VFI shall have a grounding switch, complete with padlock provisions for locking and preventing inadvertent operation.
- .4 Include three (3) capacitive voltage transformers on the incoming 200A copper dead break bushings for incoming connection and three (3) live line indicators to indicate the presence of the incoming supply voltage.
- .5 Bottom entry cable termination, with cable support blocks. Allow sufficient room for spreading and termination of a 3C#1 TECK Cable.
- .6 Include solid state overcurrent protection, with built in power supply for tripping of the breaker. The solid state overcurrent protection should be as a minimum three phase 50/51 phase protection, and 50/51 ground protection. No batteries or capacitor trip devices are to be used for tripping of the VFI.
- .7 Live parts downstream of 15kV switch to be accessible only through interlocking scheme. Refer to single line diagram for more detail.
- .8 Include a 250W, 208VAC thermostat-controlled anti-condensation heater.
- .9 Include shatter-resistant viewing window for HV switch, allowing clear view of all three switch-blades in open and closed positions. Window shall be installed behind the outer exterior door and thus not accessible to unauthorized personnel.
- .10 Include 60W lamp with on/off switch, used to illuminate and view the main HV switch-blades. Design to allow bulb replacement without exposure to high voltage.
- .11 Provide the following current transformers:

- .1 200:1 ratio
- .2 C100 protection rating.
- .3 Polarity directed away from the transformer.
- .4 Wire secondaries to stud-type shorting terminals in the low-voltage compartment.

2.4 208/120V SWITCHBOARD

- .1 General ratings 208/120V nominal voltage, 5000A nominal current, 85kA I_{sc}, 30kV BIL.
- .2 Include four (4) LV (208V, 3P) power circuit breakers. Refer to single-line diagram E-4100 for individual breaker ratings. All breakers to be provided with auxiliary shunt-trip modules.
- .3 The 600A and 400A breakers will be bottom entry cables. Include NEMA two hole pattern connections on the load side of each breaker suitable for the number of cables as indicated on drawing E-4100.
- .4 The 2000A and 1200A breakers will be fed by exposed cable bus. Allow provision for rear entry 24" cable bus and supplier to provide a suitable auxiliary box to be bolted to the unit sub enclosure by the onsite contractor and used for arrangement of cable phasing for breaker connections prior to entering the unit substation enclosure. The box must be NEMA 3 rated and suitable for the Teck 90 cable connector terminations.
- .5 Provide an SE-701 relay mounted in the LV compartment of the unit sub. Mount a 200:5A (Startco CT-200) below X0 bushing of the transformer with the secondary of the CT wired to the SE-701. The trip contact of the SE-701 is to be wired to such that all three power circuit breakers are tripped via their respective shunt trip modules in the event of a ground fault.
- .6 Include 250W, 208VAC thermostat-controlled anti-condensation heater.

2.5 INTERLOCKING

- .1 Refer to drawing E4100 for the requested interlocking scheme.
- .2 Use Kirk Key brand interlocks or equal.
- .3 Modifications may be submitted for approval, provided the modified scheme meets the following requirements:

- .1 High voltage switches cannot be opened or closed unless their respective circuit breakers are already open.
- .2 Control power transformers, HV fuses, live busing and transformer bushings cannot be accessed unless the 15kV switch is both open and locked.

2.6 PAINT

- .1 Exterior Color: ANSI 61 Grey.
- .2 Supplier to submit a coating schedule for review.
- .3 Provide a 5-year warranty on exterior coatings.

2.7 SPARE PARTS

- .1 Provide a list of recommended spare parts.

2.8 NAMEPLATES AND WARNING SIGNS

- .1 Include engraved lamacoid nameplates, mechanically fastened to front and rear switchgear doors/access covers.
- .2 The character “/ “ used in these specifications denotes a carriage return. Do not include the character, start a new line.
- .3 Main equipment lamacoid “C.H.I.M.E. 15kV Unit Substation”.
- .4 HV and LV Enclosure nameplates:
 - .1 “HV INCOMING / 15DS5, 15CB2”.
 - .2 “LV DISTRIBUTION”.
- .5 LV circuit breakers identified as:
 - .1 “2CB1 / C.H.I.M.E. PDC No.1 FEEDER”
 - .2 “2CB2 / C.H.I.M.E. PDC No.2 FEEDER”.
 - .3 “2CB3 / BLOCKHOUSE FEEDER”.
 - .4 “2CB4 / LP-1 FEEDER”.
- .6 Provide high voltage warning signs in accordance with CSA standards.

PART 3 EXECUTION

3.1 INSTALLATION

- .1 Contractor is responsible for delivery, off-loading and placement of equipment at site.
- .2 Contractor is responsible for supply and installation of all HV and LV cable terminations, lugs and any other necessary hardware.
- .3 Contractor is responsible for onsite testing and commissioning. A final test report of the results is required to be sealed and submitted by a professional engineer registered in the province of British Columbia.

3.2 FACTORY TESTS

- .1 No-Load losses at rated voltage
- .2 Total losses at rated current
- .3 Percent Impedance (85 °C) at rated current
- .4 Excitation current (100% voltage) test
- .5 Winding resistance measurement tests
- .6 Ratio tests using all tap settings
- .7 Polarity and phase relation tests
- .8 Induced potential tests
- .9 Full wave impulse test
- .10 Insulation Power Factor
- .11 Insulation Resistance test.
- .12 Core to ground resistance test.

3.3 FIELD TESTS

- .1 Supplier to provide the following on-site field testing after installation of the unit substation:

- .1 Visual inspection of finished installation.
 - .2 HV circuit breaker and relay testing.
 - .3 Transformer turns ratio.
 - .4 Core to ground resistance test.
 - .5 Insulation resistance test.
 - .6 Oil quality tests, including dielectric, water-in-oil and color
- .2 LV Equipment tests:
- .1 LV Breaker set up and testing.
 - .2 SE-701 ground fault testing.

END OF SECTION

PART 1 GENERAL

1.1 WORK INCLUDED

- .1 Supply and installation requirements for the low voltage equipment at the CHIME, Blockhouse and CART sites including the following:
 - .1 Ratings and Standards
 - .2 Distribution Panels, Breakers and Splitters
 - .3 Enclosures
 - .4 Cable Types

1.2 RELATED DRAWINGS

- .1 E4100 CHIME Single Line Diagram
- .2 E4150 CHIME Unit Substation Layout
- .3 E4151 LV Equipment Layout
- .4 E4152 CHIME Grounding Layout
- .5 E4153 CHIME Conduit Layout.
- .6 E4300 Blockhouse Single Line Diagram.
- .7 E5000 Site Grounding Layout.
- .8 E6000 CART – Enclosure Installation Details.

1.3 REFERENCE STANDARDS

- .1 Canadian Standards Association (CSA)
 - .1 Canadian Electrical Code CSA C22.1 (2015)

1.4 SYSTEM DESCRIPTION

- .1 The Chime LV equipment is fed from the 1.5MVA unit substation via underground conduits. The equipment is housed within an outdoor NEMA 3R enclosure used to feed the Blockhouse, CART and the MV-1 dish as detailed on the project drawings.

- .2 The Blockhouse will be fed from the CHIME facility using a 600V step up and step down transformer. The blockhouse will require a new 208V breaker installed on the secondary of the step down transformer feeding a new splitter box. The splitter box will feed the existing distribution panels.
- .3 The CART site includes the supply and installation of a new enclosure to house the existing distribution equipment. The existing 3C #1 cable will be re-used to feed the site from the CHIME LV distribution.
- .4 All products including the enclosures must bear an approval label accepted by the BC Safety authority (eg. CSA approval or equal).

1.5 SUBMITTALS

- .1 The following submittals are required for approval prior to purchase of equipment:
 - .1 Vendor shop drawings that include at minimum the following details for each piece of LV equipment:
 - .1 Overall dimensions and weight.
 - .2 Electrical ratings including voltage, ampacity and kA ratings.
 - .3 Manufacturers data sheets identifying model and part number to be provided for the project.

PART 2 PRODUCTS

2.1 GENERAL

- .1 All equipment to be CSA certified or equivalent.
- .2 Any deviation from these specifications must be pre-approved by the owner or engineering consultant.

2.2 CHIME SITE

- .1 Contractor to supply, deliver, place and install all equipment at CHIME as shown on the drawings. This includes all transformers, lighting panel, circuit breakers, underground conduit, rigid metal conduit and enclosures. The scope of work includes the supply and installation of all cables and termination lugs /hardware required to complete the installation.
- .2 Supply and installation of the NEMA 3R outdoor enclosure.

- .1 The enclosure must be suitable for mounting on a concrete pad with bottom entry for conduits. The enclosure is front access only with two hinged doors.
 - .2 Enclosure dimensions approximately 1524mm (W) x 1830mm (H) x 406mm (D). Contractor is responsible to ensure that there is adequate space to mount the distribution panel and two enclosed circuit breakers as shown in the drawings based on the equipment to be supplied.
 - .3 All doors to be equipped with tamper-resistant padlockable hasps.
 - .4 Enclosure must be CSA approved (or equivalent).
 - .5 Include inner back panel for mounting equipment.
 - .6 Provision for lifting by overhead crane.
 - .7 Colour ANSI 61 grey powder coating.
 - .8 Enclosure to include Type 3R louvered vents.
 - .9 Provide a bonding stud on the enclosure door and a grounding stud within the enclosure.
- .3 LV distribution panel (LP-1).
- .1 208V, 400A, 4W panel complete with 400A main breaker
 - .2 Minimum 65kA short circuit rating for bus and all breakers.
 - .3 30 circuit panel with the following breakers:
 - .1 3P, 225A
 - .2 3P, 100A
 - .3 3P, 30A
 - .4 4 x 1P 15A.
- .4 CB1-T2 – Enclosed Circuit Breaker.

- .1 600V, 3P, 200A, 10kA Isc
- .2 NEMA 1 enclosure.
- .3 Padlockable in the 'OFF' position.
- .4 Cutler Hammer SFDN225 or equal.
- .5 CB1-T3 – Enclosed Circuit Breaker
 - .1 600V, 3P, 100A, 10kA Isc
 - .2 NEMA 1 enclosure.
 - .3 Padlockable in the 'OFF' position.
 - .4 Cutler Hammer SFDN100 or equal.

2.3 BLOCKHOUSE SITE

- .1 Contractor to supply, deliver, place and install all equipment at Blockhouse as shown on the drawings. This includes all transformers, circuit breakers, underground conduit, rigid metal conduit, splitter boxes and enclosures. The scope of work includes the supply and installation of all cables and termination lugs required to complete the installation. The existing 75kVA and 45kVA transformers will be removed and replaced by a 150kVA, 600V:208/120V outdoor transformer with a 400A secondary breaker mounted in an outdoor enclosure. The 400A breaker will feed a splitter box mounted inside the Blockhouse and the splitter will feed the two existing distribution panels.
- .2 Supply and installation of a NEMA 3R outdoor enclosure to house the 400A secondary breaker .
 - .1 The enclosure must be suitable for mounting on a concrete (cinder block) building. The enclosure is front access only with hinged door.
 - .2 Enclosure door to be equipped with tamper-resistant padlockable hasp.
 - .3 Enclosure must be CSA approved (or equivalent).
 - .4 Colour ANSI 61 grey.
- .3 CB1-T4 – Enclosed Circuit Breaker.

- .1 208V, 3P, 400A, 14kA Isc
- .2 NEMA 1 enclosure.
- .3 Padlockable in the 'OFF' position.
- .4 Cutler Hammer SKDN400 or equal.
- .4 400A Splitter box
 - .1 208V, 400A, 4W splitter box.
 - .2 Splitter box dimensions must fit within available space.
 - .3 Electripro EPOB404 or equal (508mm W x 559mm H x 152mm D).

2.4 CART SITE

- .1 Contractor to supply, deliver, place and install all equipment at CART as shown on the drawings. This includes the supply of the enclosure. The scope of work includes the installation of the new enclosure and disassembly and reinstallation of the distribution equipment from the existing enclosure into the new enclosure. The supply and installation of all cables and termination lugs and connectors required to complete the installation is included. The Siemens disconnect currently mounted on the side of the enclosure is to be relocated and mounted inside of the new enclosure.
- .2 Supply and installation of a NEMA 4 outdoor enclosure to replace the existing outdoor enclosure.
 - .1 The enclosure is front access only with hinged door.
 - .2 Enclosure door to be equipped with tamper-resistant padlockable hasp.
 - .3 Dimensions 1524mm x 914mm x 254mm.
 - .4 Provide inner panel for mounting equipment
 - .5 Install two (2) Type 3R louvered vent kits
 - .6 Install a door stop kit.
 - .7 Enclosure must be CSA approved (or equivalent).
 - .8 Hammond Manufacturing Part No. 1418N4T10 or equal.

2.5 NAMEPLATES AND WARNING SIGNS

- .1 Include engraved lamacoid nameplates, mechanically fastened to front of enclosure doors/access covers.
- .2 Provide lamacoid identifiers for equipment as identified on the project drawings. This includes circuit breakers, lighting panels, transformers and any other equipment with a unique identifier.
- .3 Provide warning signs in accordance with CSA standards.

PART 3 EXECUTION

3.1 INSTALLATION

- .1 Contractor is responsible for supply, delivery, off-loading and placement of equipment at site.
- .2 Contractor is responsible for supply and installation of all HV and LV cable terminations, lugs, cable fittings, fastening devices, cable connectors, splices, taps and any other necessary hardware to complete the installation.
- .3 All cable is Teck 90 unless otherwise indicated. Any deviation must be pre-approved by the owner prior to installation.
- .4 Contractor is responsible for onsite testing and energization of the equipment and must provide documentation demonstrating that each component has been inspected and tested.
- .5 Contractor is responsible for grounding and bonding of all equipment. The HV grounding requirements are detailed in the project drawings. The CHIME, Blockhouse, 15kV Outdoor switchgear and the existing mechanical shop are all bonded together with a #4/0 bare copper conductor pulled through the conduit. All LV grounding and bonding is to be installed in compliance with the requirements of the Canadian Electrical Code.
- .6 Contractor to supply and install anchor bolts and associated hardware as required for installation of the equipment. All outdoor equipment must be fastened to concrete using suitable anchor bolts.
- .7 Contractor is responsible for the installation of all conduits as shown on the project drawings. Final stub up locations will be provided once the vendor drawings have been approved and released for manufacturing. All conduit is 100mm diameter unless otherwise noted.

3.2 FIELD TESTS

- .1 Contractor to provide the following on-site field testing after installation of equipment
 - .1 Visual inspection of finished installation.
 - .2 Cable insulation resistance
 - .1 Check resistance to ground before energizing
 - .2 Megger all circuits, feeders and equipment and maintain a list of test results

END OF SECTION

PART 1 GENERAL

1.1 WORK INCLUDED

- .1 Requirements for the supply and installation of a 75kVA, dry-type, Outdoor NEMA 3R rated, step-up transformer to be installed between the Chime facility and the CART facility.

1.2 RELATED SECTIONS

- .1 None

1.3 REFERENCE STANDARDS

- .1 CSA C22.2 No. 47-13, UL 1562
- .2 NEMA ST-20-2014
- .3 CSA 22.1-12 Canadian Electrical Code Part I, Safety Standard for Electrical Installations.

1.4 SYSTEM DESCRIPTION

- .1 One 75kVA, 208V:600V, Delta-Wye, outdoor NEMA 3R rated, dry type transformer with encapsulated windings to step up the voltage between the Chime facility and the CART facility.
- .2 Hammond Power Solutions Fortress transformer or equal.

1.5 SUBMITTALS

- .1 Submit shop drawing and product data for approval and final documentation in the quantities listed according to the Conditions of the contract:
 - a) Customer name. Customer location and customer order number shall identify all transmittals.
 - b) Product Data including KVA rating, Temperature Rise, Detailed enclosure dimensions and cable entry/exit locations, Primary & Secondary nominal voltages, primary voltage taps, no load & full load losses, impedances, unit weight, warranty; Efficiency (where applicable) per Canadian Energy Efficiency Regulations (SOR/94-651)

1.6 WARRANTY

- .1 The transformers shall carry a minimum 10 year warranty.

PART 2 PRODUCTS

2.1 RATINGS

- .1 208V:600/347V transformers:
 - .1 Transformer to be rated for 75kVA based on 30°C ambient temperature and 115°C winding temperature rise.
 - .2 Impedance of $\leq 4\%$ is preferred.
 - .3 Winding rated as follows:

| | | | |
|---------------------------------|------------------------|------------|----------------------|
| LOW VOLTAGE WINDING | NOMINAL VOLTAGE | (V) | 208 |
| | WINDING TYPE | | DELTA |
| | TAPS | | +/-2.5%, 5.0% |
| HIGH VOLTAGE WINDING | NOMINAL VOLTAGE | (V) | 600 |
| | WINDING TYPE | | WYE |
| | TAPS | | +/-2.5%, 5.0% |

- .4 CSA certified.

2.2 CONSTRUCTION

- .1 Outdoor NEMA 3R enclosure, suitable for mounting on concrete pad.
- .2 Copper windings.
- .3 Windings encapsulated with electrical grade silica and resin compounds.

END OF SECTION

PART 1 GENERAL

1.1 WORK INCLUDED

- .1 Requirements for the supply and installation of 150kVA, 208V:600/347V, dry-type, outdoor NEMA 3R rated, step-up transformer to be installed between the Chime facility and the Block House.
- .2 Requirements for the supply and installation of the 150kVA, 600V:208/120V, dry-type, outdoor NEMA 3R rated, step-down transformer to be installed between the Chime facility and the Block House.

1.2 RELATED SECTIONS

- .1 None.

1.3 REFERENCE STANDARDS

- .1 CSA C22.2 No. 47-13, UL 1562
- .2 NEMA ST-20-2014
- .3 CSA 22.1-12 Canadian Electrical Code Part I, Safety Standard for Electrical Installations.

1.4 SYSTEM DESCRIPTION

- .1 One 150kVA, 208V:600/347V, Delta-Wye, pad mount, outdoor NEMA 3R rated, dry-type transformer with encapsulated windings to step-up the voltage between the Chime facility and the Block House.
- .2 One 150kVA, 600V:208/120V, Delta-Wye, pad mount, outdoor NEMA 3R rated, dry-type transformer with encapsulated windings to step-down the voltage between the Chime facility and the Block House.
- .3 Hammond Power Solutions Fortress transformers or approved equal.

1.5 SUBMITTALS

- .1 Submit shop drawing and product data for approval and final documentation in the quantities listed according to the Conditions of the contract:
 - a) Customer name. Customer location and customer order number shall identify all transmittals.

- b) Product Data including KVA rating, Temperature Rise, Detailed enclosure dimensions and cable entry/exit locations, Primary & Secondary nominal voltages, primary voltage taps, no load & full load losses, impedances, unit weight, warranty; Efficiency (where applicable) per Canadian Energy Efficiency Regulations (SOR/94-651)

1.6 WARRANTY

- .1 The transformers shall carry a minimum 10 year warranty.

PART 2 PRODUCTS

2.1 RATINGS

- .1 208V:600/347V step-up transformer:
 - .1 Transformer to be rated for 150kVA based on 30 °C ambient temperature and 115 °C winding temperature rise.
 - .2 Impedance of not more than 4%.
 - .3 Winding rated as follows:

| | | | |
|-----------------------------|------------------------|------------|----------------------|
| LOW VOLTAGE WINDING | NOMINAL VOLTAGE | (V) | 208V |
| | WINDING TYPE | | DELTA |
| | TAPS | | +/-2.5%, 5.0% |
| HIGH VOLTAGE WINDING | NOMINAL VOLTAGE | (V) | 600V |
| | WINDING TYPE | | WYE |
| | TAPS | | +/-2.5%, 5.0% |

- .4 CSA certified
- .2 600V:208V step-down transformer:
 - .1 Transformer to be rated for 150kVA based on 30 °C ambient temperature and 115 °C winding temperature rise.
 - .2 Impedance of not more than 4%.
 - .3 Winding rated as follows:

| | | | |
|---------------------------------|------------------------|------------|----------------------|
| HIGH VOLTAGE WINDING | NOMINAL VOLTAGE | (V) | 600V |
| | WINDING TYPE | | DELTA |
| | TAPS | | +/-2.5%, 5.0% |
| LOW VOLTAGE WINDING | NOMINAL VOLTAGE | (V) | 208V |
| | WINDING TYPE | | WYE |
| | TAPS | | +/-2.5%, 5.0% |

.4 CSA certified.

2.2 CONSTRUCTION

- .1 Outdoor NEMA 3R enclosure, suitable for mounting on concrete pad.
- .2 Copper windings.
- .3 Windings encapsulated with electrical grade silica and resin compounds.

2.3 INSTALLATION

- .1 Contractor responsible for the supply and installation of the transformer as per the project drawings. All cables and cable terminations are the responsibility of the contractor.

END OF SECTION

PART 1 GENERAL

1.1 WORK INCLUDED

- .1 Requirements for the supply and installation of the 15kV main power cable between the utility pole (Fortis BC) and the 15kV outdoor switchgear near survey point '48'. Also included is the 15kV feeder runs between the outdoor switchgear and both the Machine shop and the new Chime site.

1.2 RELATED SECTIONS

- .1 None

1.3 REFERENCE STANDARDS

- .1 CSA 22.1-12 Canadian Electrical Code Part I, Safety Standard for Electrical Installations.
- .2 IEEE 576 – Recommended practice for installation, termination and testing of insulated power cables.

1.4 SYSTEM DESCRIPTION

- .1 Shielded armored power cable between the utility pole (Fortis BC) and the 15kV outdoor switchgear. Preference will be given to submittals with the cable delivered on a single spool and supplied and installed in one continuous length. However if multiple spools are required for logistics than each spool must be of sufficient length for each run between pull boxes(Fortis Pole to Pull Box#2, Pull Box#2 to Pull Box#1 and Pull Box#1 to the 15kV Outdoor Switchgear). Contractor is responsible for supply and installation of the 15kV splice kits if required (Refer to Section 2.2).
- .2 Shielded power cable between the 15kV outdoor switchgear and the existing 225kVA transformer installed adjacent to the Mechanical Shop.
- .3 Shielded power cable between the 15kV outdoor switchgear and the new Chime facility.

1.5 SUBMITTALS

- .1 Upon completion of the installation, the contractor is required to submit the following information:
 - .1 Power cable insulation test results.

PART 2 PRODUCTS

2.1 POWER CABLE

- .1 Cables to be installed:
 - .1 15kV Shielded, Armored Power Cable, type HVTECK.
 - .2 Three conductors, #1 AWG copper, Class B stranding, #6 AWG Ground wire.
 - .3 Tree-Retardant Cross-linked Polyethylene (TRXLPE) insulation, rated for 15kV 133%, 90°C rated.
 - .4 Tape Shield: Copper.
 - .5 Aluminium interlocked Armor (AIA).
 - .6 Oil, sunlight and moisture resistant jacket.
 - .7 Minimum Pulling Tension – 911 Kgs
 - .8 Maximum Weight – 4597 Kgs/Km.
 - .9 General Cable Cat# 17496.010100 or **approved equivalent**.

2.2 POWER CABLE TERMINATIONS

- .1 Use 3M part no. 7622-S-2-3G conductor termination kits or **approved equal** for Pole top terminations. QTY – 1
- .2 Use 3M part no. 7622-T-110, RJK-2 conductor termination kits or **approved equal** for 15kV Switchgear terminations, 225kVA Transformer terminations and Chime facility terminations. QTY – 3
- .3 Use 3M part no. TS-15kV-3C-2-4/0 splice kits or **approved equal** for Pull box splices (if required). QTY – 3
- .4 Provide 2-hole compression lugs for the terminations.
- .5 HV cable shields to be bonded at source end only.

PART 3 EXECUTION

3.1 CABLE REELS

- .1 Purchase cable in practical reel lengths. Contractor is responsible for ensuring that the cable lengths on each reel are suitable for each run of cable as shown on the site survey.

3.2 CABLE TESTS

- .1 Instruct suppliers to ship all cable reels with both cable ends accessible for testing.
- .2 Test all cable reels prior to installation.
- .3 Test all cable sections prior to making splices.
- .4 Test entire cables upon completion.
- .5 Power cable tests:
 - .1 Insulation resistance test to 56kV (DC) for 5 minutes. Record leakage currents at 15sec, 30sec, 45sec, 60sec and 1 minute intervals thereafter and calculate Polarization Index (PI) value. All phases should be tested individually with other two phases grounded. Perform tests phase to ground, with all untested conductors grounded.
 - .2 Short-circuit all three phase conductors at one end and measure the resistance between phases at the other end.

END OF SECTION

The below items will be included as part of the contract documents set out by Struthers Tech, Primary Engineering and the NRC

- 1) It is the contractor's responsibility to ensure all permits needed for the work are obtained and inspections are performed.
- 2) The contractor will provide a per meter price for the UG power cable in their tender package and if awarded the contract it will be the responsibility of the contractor to determine the exact length of power cable. The NRC will provide estimated lengths only which are as follows:
(A) From "Fortis pole to 15kV switch gear" 720 meters.
(B) From "15kV switch gear to existing 225 kVA transformer" beside machine shop 154 meters.
(C) From "15kV switch gear to CHIME facility" 260 meters.
(D) From "CHIME facility to blockhouse" 180 meters.
(E) From "CHIME facility to MV1 dish" 70 meters
- 3) The contractor will break out their price for the work identified in the package to identify the main site portion of the work (Fortis pole to existing main site 225 kVA transformer, including new 15kV Outdoor switch gear) and the portion of the work downstream of the 15kV outdoor switchgear feeder to the CHIME site (15kV cable, unit substation and LV equipment). Together these will form the overall price of the project.
- 4) The contractor must coordinate any excavating activities for the installation of the utility poles or anchors with the NRC as far in advance as possible due to the need to possibly have an archaeological monitor present from the ONA while the excavating is occurring
- 5) The utility poles must conform to the specs set out by Primary Engineering and must also not display the following defects. No minimum top sizes, drilled RKs, SKs, reverse sweep, flat sides, hour glass, red birds or large machine damage which extends past treatment depth. The utility poles must have the following: sapwood in ground line area at a minimum, full length Penta treatment with incising in the ground line area at a minimum, and must exhibit a natural looking taper.
- 6) It is the contractor's responsibility to ensure there are no buried utilities by calling BC1 or any other means necessary to clear the area where the overhead portion of the upgrade will be installed before excavating.
- 7) The contractor must submit a design build specification sealed by a Professional Engineer for the concrete pads required to install all of the equipment as identified in the Struthers tech drawings and specifications. The contractor must include the cost of at least one site inspection by the engineer prior to pouring concrete (or additional inspections as required by the engineer to sign off on the final concrete installation) The costs for concrete testing must be included in the bid price and the results reviewed by the engineer to ensure it meets the Engineering specifications.
- 8) As indicated in the electrical specifications the contractor must pull a mandrel through the existing conduit prior to extending or stubbing up into the pad locations and then again prior to the installation of power cable.
- 9) The contractor must supply 3 sets of drawings and maintenance manuals in hard copy as well as one copy in an electronic format.

- 10) The final cut over must be completed when the weather forecast is well above 0 Celsius and will be scheduled with the NRC at least two weeks prior to cut over.
- 11) It is the contractors responsibility to coordinate the power supply cut over with the utility (Fortis BC) and pay all of the associated costs to Fortis BC for the cut over, see quotation document from Ian Beauchamp from Fortis titled "version 19feb2015 oi2556843 Quote letter".
- 12) All equipment used during construction is to be in good working order and should meet applicable standards and regulations regarding noise and air emissions (e.g., Occupational Health and Safety Act, and provincial Drive Clean standards and City of Penticton and Regional District by laws where appropriate).
- 13) All contractors must respect the radio-quiet nature of the area and the sensitivity of the environment.
- 14) Care should be taken to avoid importation of new invasive species to the site. This can be accomplished through (where feasible):
 - Pressure washing or inspecting vehicles and equipment prior to entering the project site, to ensure they are free of plant parts.
 - Minimizing the import of soils, gravel and other aggregate material. When required, obtain 'weed free' materials.
- 15) Areas known or thought to support designated species and environmentally sensitive ecosystems will be avoided (contractors and partners must contact the Site Infrastructure Manager (Kory Phillips) to be informed of these sensitive areas).
- 16) Work will be stopped if evidence shows a potential archaeological artifact or deposit and the B.C. Ministry of Forests, Lands, and Natural Resource Operations Archeology Branch (1-250-953-3334) and the Okanagan Nation Alliance (1-866-662-9609) will be contacted for instructions on how to proceed.
- 17) Adequate spill containment materials will be readily available and employees and contractors working on the project will review NRC emergency procedures with the NRC Facilities Manager (Kory Phillips).
- 18) The disturbed area will be seeded with a native seed mix to restore vegetation as soon as possible.
- 19) In the event that species at risk is disturbed, work will be stopped and the Site Infrastructure Manager (Kory Phillips) will be contacted immediately.



FortisBC Inc.
Processing - Customer Costs
Suite 100, 1975 Springfield Road
Kelowna, BC V1Y 7V7
www.fortisbc.com

02/19/2015
Reference No. 2556843

Herzberg Inst Of Astrophysics ("Customer")
Box 248
Penticton, BC
V2A 6J9

Dear Sir / Madam:

Re: Electrical Service Request – 717 White Lake RD Kaleden, BC – “Commercial” Letter Agreement

Thank you for your enquiry with respect to the availability and cost of providing a line extension for your electrical service. As outlined in the FortisBC Inc. ("FortisBC") electrical tariff (Schedule 74-Extensions) approved by the British Columbia Utilities Commission, FortisBC will contribute to the cost of the extension based on the rate schedule applicable to the customer. Service and metering charges are specified in Schedule 80 & 82 of the electrical tariff. A copy of the Fortis BC tariff can be found at www.fortisbc.com/ElectricityTariff.

Payment Required Prior to Construction:

| | |
|--|--------------------|
| Customer Portion of Extension Costs | \$ 5,024.91 |
| GST @ 5% | \$ 251.25 |
| Payment Required (Collectively referred to as the "Costs") | \$ 5,276.16 |

The above Costs do not include the related Service Installation Charge as defined in schedule 82 of FortisBC's [electrical tariff](#). This charge will be based upon the service size as shown on the electrical affidavit on the day of your service connection. The Service Installation Charge for single-phase services up to 200amps will be either \$533 for overhead or \$565 for underground. If single-phase, aboveground (overhead), and between 201 up to 400 amps in size, the charge will be \$937. The applicable charge will appear on your first consumption billing.

If you wish to proceed with your request for the line extension, please sign and date this letter in the space provided below and return the signed acceptance letter together with a certified cheque, bank draft, or money order marked with reference number 2556843. If the above Costs are \$0.00 please return only the signed "Letter Agreement" to the address noted above.

This "Letter Agreement" (reference number 2556843) is valid for 90 days from the date noted above, **expiring May 20, 2015** (the "**Expiration Date**"). If customer driven delays prevent the extension from being constructed prior to the Expiration Date; FortisBC reserves the right to re-estimate the extension Costs using current values and to charge the customer for their respective portion of such re-estimated extension costs.

A **security deposit** and/or **General Service Contract** may be required based on the connected load of the service. The security deposit is payable with the customer's first consumption invoice. Please contact FortisBC's Customer Service Center at 1-866-436-7847 to discuss payment options related to Security Deposits. Large Commercial Customers, for which a General Service Contract is required, will be contacted by a FortisBC Customer Relationship Manager to discuss rate options. Customers with 40-500 KW of demand will be contacted by a FortisBC PowerSense Representative to discuss energy efficient measures and rate options.

Customer Site-Related Responsibilities

As part of the extension process, the customer is required to:

1. Provide right of way to FortisBC on all private properties related to the design. The rights of ways normally required prior to the installation and connection of the electrical facilities may be:
 - a. A **pinned, surveyed** right of way on any underground primary facilities completed by a British Columbia Land Surveyor (BCLS). Note: the customer is responsible for survey and all associated costs. Survey mylars must be reviewed and approved by the FortisBC designer. Explanatory surveys are not acceptable.
 - b. A **blanket** right of way for primary / secondary overhead or secondary underground facilities owned by FortisBC.

Note: The right of way documents will be provided to the customer for execution by FortisBC and shall be in FortisBC's standard form, as amended from time to time. The executed document(s) must be returned to FortisBC for registration at the Land Titles Office prior to work being completed.

2. Complete the right of way clearing on your property as per FortisBC standards.
3. Blasting may be required. Unless otherwise specified this quotation **does not** include allowances for blasting which may be needed if the areas selected for excavation are found unsuitable for conventional digging.

Underground installations require the customer to also:

4. Prepare the site to final grade and complete all required civil work as per the attached drawing. Please review the "Specification for Installation of Underground Conduit Systems" in the FortisBC website through this link: www.fortisbc.com/InstallGuide.
5. Place a pull string in the duct(s) for FortisBC to use at a later date to install the conductor.

Note - This work must be completed by a qualified contractor who is the holder of a valid Raceway Certificate. It is the customer's responsibility to ensure such qualifications are in place. FortisBC will not be held liable for the contractor's work and the customer hereby indemnifies FortisBC for the same.

Customer's Construction Options

Schedule 74, Section 4, Item 3, of FortisBC's electrical tariff provides an option whereby you may select FortisBC, or a contractor authorized by FortisBC, to construct the extension. Should you elect to use a contractor, Schedule 74 requires that the extension be constructed to FortisBC standards and that you pay FortisBC the cost associated with the preparation of the construction package, as well as an operations and maintenance surcharge for the extension.

Construction Schedule

Lead times for construction will vary depending on construction resources and material availability. The construction of the extension will be scheduled to commence after the following items have been completed:

1. The Customer completes the following:
 - a. Letter Agreement has been signed and returned to our offices;
 - b. If payment is required a certified cheque, bank draft, or money order is sent to our offices in the amount of the Costs as noted above.
 - c. Security Deposit has been paid, if applicable;
 - d. General Service Contract has been signed and returned to our offices, if applicable;
 - e. FortisBC's standard form (as amended from time to time) right of way document has been signed and returned to the FortisBC Land Department for registration at the Land Titles Office.

- f. Customer Site-Related Responsibilities:
 - i. The right of way clearing has been completed as per FortisBC standards;
 - ii. Blasting has been completed, if applicable;
 - iii. Final grade and civil work completed, if applicable
- 2. FortisBC has obtained all necessary permits from third parties relating to installations FortisBC completes.
- 3. The civil work has been inspected and approved by a FortisBC representative.
- 4. All curbs, gutters and pavement are complete.

Once the extension is complete, final arrangements for the connection of your service can be made by calling 1 866 436 7847. At that time, FortisBC will collect customer billing information and verify that the service has been approved for connection by the Provincial Electrical Inspection Office.

At the time of service connection, two copies of the Electrical Safety Act Authorization Form from the Provincial Electrical Inspection Office must be available on site. Regulations require that one copy is to remain on site at all times. FortisBC will remove the other copy for its files. FortisBC's copy is to be made available at the point of connection in a weatherproof, clear plastic bag placed clearly in the meter socket location. Failure to provide the authorization form as requested will result in connection delays and additional charges if a further visit is required.

For more information with respect to the terms, conditions, rate schedules and specifications outlining customer and company responsibilities, please refer to the FortisBC Electric Tariff on our web site at fortisbc.com/ElectricityTariff and the British Columbia Service and Metering Guide located at fortisbc.com/ServiceMeterGuide

FortisBC collects, uses and discloses the personal information of its individual customers for the purpose of establishing and managing the relationship between FortisBC and the customer in the provision of electricity distribution services. FortisBC is committed to complying with the *Personal Information Protection Act* and therefore requires your signature on this quote as consent to collect, use and disclose the personal information necessary to establish and maintain a business relationship. FortisBC's privacy policy can be found on our website at: www.fortisbc.com

FortisBC looks forward to serving you. If you require additional information regarding this extension, please call me at 250-498-8218.

Yours truly,



Ian Beauchamp
Design Specialist
Fax: 1 866 265 9856

Proposal reference No. 2556843 accepted:

By signing in the space provided below, I/We, the Customer, agree to be legally bound to the terms and conditions stated herein. This Letter Agreement will expire on **May 20, 2015**

Signature

Title

Date

Printed Name _____

Att: Construction Drawing



TP1 Amount Payable – General

1.1 Subject to any other provisions of the contract, Her Majesty shall pay the Contractor, at the times and in the manner hereinafter set out, the amount by which

1.1.1 the aggregate of the amounts described in TP2 exceeds

1.1.2 the aggregate of the amounts described in TP3

and the Contractor shall accept that amount as payment in full satisfaction for everything furnished and done by him in respect of the work to which the payment relates.

TP2 Amounts Payable to the Contractor

2.1 The amounts referred to in TP1.1.1 are the aggregate of

2.1.1 the amounts referred to in the Articles of Agreement, and

2.1.2 the amounts, if any, that are payable to the Contractor pursuant to the General Conditions.

TP3 Amounts Payable to Her Majesty

3.1 The amounts referred to in TP1.1.2 are the aggregate of the amounts, in any, that the Contractor is liable to pay Her Majesty pursuant to the contract.

3.2 When making any payments to the Contractor, the failure of Her Majesty to deduct an amount referred to in TP3.1 from an amount referred to in TP2 shall not constitute a waiver of the right to do so, or an admission of lack of entitlement to do so in any subsequent payment to the Contractor.

TP4 Time of Payment

4.1 In these Terms of Payment

4.1.1 The “payment period” means a period of 30 consecutive days or such other longer period as is agreed between the Contractor and the Departmental Representative.

4.1.2 An amount is “due and payable” when it is due and payable by Her Majesty to the Contractor according to TP4.4, TP4.7 or TP4.10.

4.1.3 An amount is overdue when it is unpaid on the first day following the day upon which it is due and payable.

4.1.4 The “date of payment” means the date of the negotiable instrument of an amount due and payable by the Receiver General for Canada and given for payment.

4.1.5 The “Bank Rate” means the discount rate of interest set by the Bank of Canada in effect at the opening of business on the date of payment.



- 4.2 The Contractor shall, on the expiration of a payment period, deliver to the Departmental Representative in respect of that payment period a written progress claim that fully describes any part of the work that has been completed, and any material that was delivered to the work site but not incorporated into the work during that payment period.
- 4.3 The Departmental Representative shall, not later than ten days after receipt by him of a progress claim referred to in TP4.2,
- 4.3.1 inspect the part of the work and the material described in the progress claim; and
- 4.3.2 issue a progress report, a copy of which the Departmental Representative will give to the Contractor, that indicates the value of the part of the work and the material described in the progress claim that, in the opinion of the Departmental Representative,
- 4.3.2.1 is in accordance with the contract, and
- 4.3.2.2 was not included in any other progress report relating to the contract.
- 4.4 Subject to TP1 and TP4.5 Her Majesty shall, not later than 30 days after receipt by the Departmental Representative of a progress claim referred to in TP4.2, pay the Contractor
- 4.4.1 an amount that is equal to 95% of the value that is indicated in the progress report referred to in TP4.3.2 if a labour and material payment bond has been furnished by the Contractor, or
- 4.4.2 an amount that is equal to 90% of the value that is indicated in the progress report referred to in TP4.3.2 if a labour and material payment bond has not been furnished by the Contractor.
- 4.5 It is a condition precedent to Her Majesty's obligation under TP4.4 that the Contractor has made and delivered to the Departmental Representative,
- 4.5.1 a statutory declaration described in TP4.6 in respect of a progress claim referred to in TP4.2,
- 4.5.2 in the case of the Contractor's first progress claim, a construction schedule in accordance with the relevant sections of the Specifications, and
- 4.5.3 if the requirement for a schedule is specified, an update of the said schedule at the times identified in the relevant sections of the Specifications.
- 4.6 A statutory declaration referred to in TP4.5 shall contain a deposition by the Contractor that
- 4.6.1 up to the date of the Contractor's progress claim, the Contractor has complied with all his lawful obligations with respect to the Labour Conditions; and
- 4.6.2 up to the date of the Contractor's immediately preceding progress claim, all lawful obligations of the Contractor to subcontractors and suppliers of material in respect of the



work under the contract have been fully discharged.

- 4.7 Subject to TP1 and TP4.8, Her Majesty shall, not later than 30 days after the date of issue of an Interim Certificate of Completion referred to in GC44.2, pay the Contractor the amount referred to in TP1 less the aggregate of
- 4.7.1 the sum of all payments that were made pursuant to TP4.4;
 - 4.7.2 an amount that is equal to the Departmental Representative's estimate of the cost to Her Majesty or rectifying defects described in the Interim Certificate of Completion; and
 - 4.7.3 an amount that is equal to the Departmental Representative's estimate of the cost to Her Majesty of completing the parts of the work described in the Interim Certificate of Completion other than the defects referred to in TP4.7.2.
- 4.8 It is a condition precedent to Her Majesty's obligation under TP4.7 that the Contractor has made and delivered to the Departmental Representative,
- 4.8.1 a statutory declaration described in TP4.9 in respect of an Interim Certificate of Completion referred to in GC44.2, and
 - 4.8.2 if so specified in the relevant sections of the Specifications, and update of the construction schedule referred to in TP4.5.2 and the updated schedule shall, in addition to the specified requirements, clearly show a detailed timetable that is acceptable to the Departmental Representative for the completion of any unfinished work and the correction of all defects.
- 4.9 A statutory declaration referred to in TP4.8 shall contain a deposition by the contractor that up to the date of the Interim Certificate of Completion the Contractor has
- 4.9.1 complied with all of the Contractor's lawful obligations with respect to the Labour Conditions;
 - 4.9.2 discharged all of the Contractor's lawful obligations to the subcontractors and suppliers of material in respect of the work under the contract; and
 - 4.9.3 discharged the Contractor's lawful obligations referred to in GC14.6.
- 4.10 Subject to TP1 and TP4.11, Her Majesty shall, not later than 60 days after the date of issue of a Final Certificate of Completion referred to in GC44.1, pay the Contractor the amount referred to in TP1 less the aggregate of
- 4.10.1 the sum of all payments that were made pursuant to TP4.4; and
 - 4.10.2 the sum of all payments that were made pursuant to TP4.7.
- 4.11 It is a condition precedent to Her Majesty's obligation under TP4.10 that the Contractor has made and delivered a statutory declaration described in TP4.12 to the Departmental Representative.



- 4.12 A statutory declaration referred to in TP4.11 shall, in addition to the depositions described in TP4.9, contain a deposition by the Contractor that all of the Contractor's lawful obligations and any lawful claims against the Contractor that arose out of the performance of the contract have been discharged and satisfied.

TP5 Progress Report and Payment Thereunder Not Binding on Her Majesty

- 5.1 Neither a progress report referred to in TP4.3 nor any payment made by Her Majesty pursuant to these Terms of Payment shall be construed as an admission by Her Majesty that the work, material or any part thereof is complete, is satisfactory or is in accordance with the contract.

TP6 Delay in Making Payment

- 6.1 Notwithstanding GC7 any delay by Her Majesty in making any payment when it is due pursuant to these Terms of Payment shall not be a breach of the contract by Her Majesty.

- 6.2 Her Majesty shall pay, without demand from the Contractor, simple interest at the Bank Rate plus 1 -1/4 per centum on any amount which is overdue pursuant to TP4.1.3, and the interest shall apply from and include the day such amount became overdue until the day prior to the date of payment except that

- 6.2.1 interest shall not be payable or paid unless the amount referred to in TP6.2 has been overdue for more that 15 days following

6.2.1.1 the date the said amount became due and payable, or

6.2.1.2 the receipt by the Departmental Representative of the Statutory Declaration referred to in TP4.5, TP4.8 or TP4.11,

whichever is the later, and

- 6.6.2 interest shall not be payable or paid on overdue advance payments if any.

TP7 Right of Set-off

- 7.1 Without limiting any right of set-off or deduction given or implied by law or elsewhere in the contract, Her Majesty may set off any amount payable to Her Majesty by the Contractor under this contract or under any current contract against any amount payable to the Contractor under this contract.

- 7.2 For the purposes of TP7.1, "current contract" means a contract between Her Majesty and the Contractor

7.2.1 under which the Contractor has an undischarged obligation to perform or supply work, labour or material, or

7.2.2 in respect of which Her Majesty has, since the date of which the Articles of Agreement were made, exercised any right to take the work that is the subject of the contract out of the Contractor's hands.



TP8 Payment in Event of Termination

- 8.1 If the contract is terminated pursuant to GC41, Her Majesty shall pay the Contractor any amount that is lawfully due and payable to the Contractor as soon as is practicable under the circumstances.

TP9 Interest on Settled Claims

- 9.1 Her Majesty shall pay to the Contractor simple interest on the amount of a settled claim at an average Bank Rate plus 1 ¼ per centum from the date the settled claim was outstanding until the day prior to the date of payment.
- 9.2 For the purposes of TP9.1,
- 9.2.1 a claim is deemed to have been settled when an agreement in writing is signed by the Departmental Representative and the Contractor setting out the amount of the claim to be paid by Her Majesty and the items or work for which the said amount is to be paid.
- 9.2.2 an "average Bank Rate" means the discount rate of interest set by the Bank of Canada in effect at the end of each calendar month averaged over the period the settled claim was outstanding.
- 9.2.3 a settled claim is deemed to be outstanding from the day immediately following the date the said claim would have been due and payable under the contract had it not been disputed.
- 9.3 For the purposes of TP9 a claim means a disputed amount subject to negotiation between Her Majesty and the Contractor under the contract.



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GC1 Interpretation

1.1 In the contract

- 1.1.1 where reference is made to a part of the contract by means of numbers preceded by letters, the reference shall be construed to be a reference to the particular part of the contract that is identified by that combination of letters and numbers and to any other part of the contract referred to therein;
- 1.1.2 “contract” means the contract document referred to in the Articles of Agreement;
- 1.1.3 “contract security” means any security given by the Contractor to Her Majesty in accordance with the contract;
- 1.1.4 “Departmental Representative” means the officer or employee of Her Majesty who is designated pursuant to the Articles of Agreement and includes a person specially authorized by him to perform, on his behalf, any of his functions under the contract and is so designated in writing to the Contractor;
- 1.1.5 “material” includes all commodities, articles and things required to be furnished by or for the Contractor under the contract for incorporation into the work;
- 1.1.6 “Minister” includes a person acting for, or if the office is vacant, in place of the Minister and his successors in the office, and his or their lawful deputy and any of his or their representatives appointed for the purposes of the contract;
- 1.1.7 “person” includes, unless the context otherwise requires, a partnership, proprietorship, firm, joint venture, consortium and a corporation;
- 1.1.8 “plant” includes all animals, tools, implements, machinery, vehicles, buildings, structures, equipment and commodities, articles and things other than material, that are necessary for the due performance of the contract;
- 1.1.9 “subcontractor” means a person to whom the Contractor has, subject to GC4, subcontracted the whole or any part of the work;
- 1.1.10 “superintendent” means the employee of the Contractor who is designated by the Contractor to act pursuant to GC19;
- 1.1.11 “work includes, subject only to any express stipulation in the contract to the contrary, everything that is necessary to be done, furnished or delivered by the Contractor to perform the contract.

1.2 The headings in the contract documents, other than in the Plans and Specifications, form no part of the contract but are inserted for convenience of reference only.

1.3 In interpreting the contract, in the event of discrepancies or conflicts between anything in the Plans and Specifications and the General Conditions, the General Conditions govern.



- 1.4 In interpreting the Plans and Specifications, in the event of discrepancies or conflicts between
- 1.4.1 the Plans and Specifications, the Specifications govern;
 - 1.4.2 the Plans, the Plans drawn with the largest scale govern; and
 - 1.4.3 figured dimensions and scaled dimensions, the figured dimensions govern.

GC2 Successors and Assigns

- 2.1 The contract shall inure to the benefit of and be binding upon the parties hereto and their lawful heirs, executors, administrators, successors and assigns.

GC3 Assignment of Contract

- 3.1 The contract may not be assigned by the Contractor, either in whole or in part, without the written consent of the Minister.

GC4 Subcontracting by Contractor

- 4.1 Subject to this General Condition, the Contractor may subcontract any part of the work.
- 4.2 The Contractor shall notify the Departmental Representative in writing of his intention to subcontract.
- 4.3 A notification referred to in GC4.2 shall identify the part of the work, and the subcontractor with whom it is intended to subcontract.
- 4.4 The Departmental Representative may object to the intended subcontracting by notifying the Contractor in writing within six days of receipt by the Departmental Representative of a notification referred to in GC4.2.
- 4.5 If the Departmental Representative objects to a subcontracting pursuant to GC4.4, the Contractor shall not enter into the intended subcontract.
- 4.6 The contractor shall not, without the written consent of the Departmental Representative, change a subcontractor who has been engaged by him in accordance with this General Condition.
- 4.7 Every subcontract entered into by the Contractor shall adopt all of the terms and conditions of this contract that are of general application.
- 4.8 Neither a subcontracting nor the Departmental Representative's consent to a subcontracting by the Contractor shall be construed to relieve the Contractor from any obligation under the contract or to impose any liability upon Her Majesty.

GC5 Amendments



- 5.1 No amendment or change in any of the provisions of the contract shall have any force or effect until it is reduced to writing.

GC6 No Implied Obligations

- 6.1 No implied terms or obligations of any kind by or on behalf of Her Majesty shall arise from anything in the contract and the express covenants and agreements therein contained and made by Her Majesty are the only covenants and agreements upon which any rights against Her Majesty are to be founded.
- 6.2 The contract supersedes all communications, negotiations and agreements, either written or oral, relating to the work that were made prior to the date of the contract.

GC7 Time of Essence

- 7.1 Time is of the essence of the contract.

GC8 Indemnification by Contractor

- 8.1 The Contractor shall indemnify and save Her Majesty harmless from and against all claims, demand, losses, costs, damages, actions, suits, or proceedings by whomever made, brought or prosecuted and in any manner based upon, arising out of, related to, occasioned by or attributable to the activities of the Contractor, his servants, agents, subcontractors and sub-subcontractors in performing the work including an infringement or an alleged infringement of a patent of invention or any other kind of intellectual property.
- 8.2 For the purpose of GC8.1, "activities" includes any act improperly carried out, any omission to carry out an act and any delay in carrying out an act.

GC9 Indemnification by Her Majesty

- 9.1 Her Majesty shall, subject to the Crown Liability Act, the Patent Act, and any other law that affects Her Majesty's rights, powers, privileges or obligations, indemnify and save the Contractor harmless from and against all claims, demands, losses, costs, damage, actions, suits or proceedings arising out of his activities under the contract that are directly attributable to
- 9.1.1 lack of or a defect in Her Majesty's title to the work site whether real or alleged; or
- 9.1.2 an infringement or an alleged infringement by the Contractor of any patent of invention or any other kind of intellectual property occurring while the Contractor was performing any act for the purposes of the contract employing a model, plan or design or any other thing related to the work that was supplied by Her Majesty to the Contractor.

GC10 Members of House of Commons Not to Benefit



- 10.1 As required by the Parliament of Canada Act, it is an express condition of the contract that no member of the House of Commons shall be admitted to any share of part of the contract or to any benefit arising therefrom.

GC11 Notices

- 11.1 Any notice, consent, order, decision, direction or other communication, other than a notice referred to in GC11.4, that may be given to the Contractor pursuant to the contract may be given in any manner.
- 11.2 Any notice, consent, order, decision, direction or other communication required to be given in writing, to any party pursuant to the contract shall, subject to GC11.4, be deemed to have been effectively given
- 11.2.1 to the Contractor, if delivered personally to the Contractor or the Contractor's superintendent, or forwarded by mail, telex or facsimile to the Contractor at the address set out in A4.1, or
- 11.2.2 to Her Majesty, if delivered personally to the Departmental Representative, or forwarded by mail, telex or facsimile to the Departmental Representative at the address set out in A1.2.1.
- 11.3 Any such notice, consent, order, decision, direction or other communication given in accordance with GC11.2 shall be deemed to have been received by either party
- 11.3.1 if delivered personally, on the day that it was delivered,
- 11.3.2 if forwarded by mail, on the earlier of the day it was received and the sixth day after it was mailed, and
- 11.3.3 if forwarded by telex or facsimile, 24 hours after it was transmitted.
- 11.4 A notice given under GC38.1.1, GC40 and GC41, if delivered personally, shall be delivered to the Contractor if the Contractor is doing business as sole proprietor or, if the Contractor is a partnership or corporation, to an officer thereof.

GC12 Material, Plant and Real Property Supplied by Her Majesty

- 12.1 Subject to GC12.2, the Contractor is liable to Her Majesty for any loss of or damage to material, plant or real property that is supplied or placed in the care, custody and control of the Contractor by Her Majesty for use in connection with the contract, whether or not that loss or damage is attributable to causes beyond the Contractor's control.
- 12.2 The Contractor is not liable to Her Majesty for any loss or damage to material, plant or real property referred to in GC12.1 if that loss or damage results from and is directly attributable to reasonable wear and tear.
- 12.3 The Contractor shall not use any material, plant or real property referred to in GC12.1 except for



the purpose of performing this contract.

- 12.4 When the Contractor fails to make good any loss or damage for which he is liable under GC12.1 within a reasonable time after being required to do so by the Departmental Representative, the Departmental Representative may cause the loss or damage to be made good at the Contractor's expense, and the Contractor shall thereupon be liable to Her Majesty for the cost thereof and shall, on demand, pay to Her Majesty an amount equal to that cost.
- 12.5 The Contractor shall keep such records of all material, plant and real property referred to in GC12.1 as the Departmental Representative from time to time requires and shall satisfy the Departmental Representative, when requested, that such material, plant and real property are at the place and in the condition which they ought to be.

GC13 Material, Plant and Real Property Become Property of Her Majesty

- 13.1 Subject to GC14.7 all material and plant and the interest of the Contractor in all real property, licenses, powers and privileges purchased, used or consumed by the Contractor for the contract shall, after the time of their purchase, use or consumption be the property of Her Majesty for the purposes of the work and they shall continue to be the property of Her Majesty.
- 13.1.1 in the case of material, until the Departmental Representative indicates that he is satisfied that it will not be required for the work, and
- 13.1.2 in the case of plant, real property, licenses, powers and privileges, until the Departmental Representative indicates that he is satisfied that the interest vested in Her Majesty therein is no longer required for the purposes of the work.
- 13.2 Material or plant that is the property of Her Majesty by virtue of GC13.1 shall not be taken away from the work site or used or disposed of except for the purposes of the work without the written consent of the Departmental Representative.
- 13.3 Her Majesty is not liable for loss of or damage from any cause to the material or plant referred to in GC13.1 and the Contractor is liable for such loss or damage notwithstanding that the material or plant is the property of Her Majesty.

GC14 Permits and Taxes Payable

- 14.1 The Contractor shall, within 30 days after the date of the contract, tender to a municipal authority an amount equal to all fees and charges that would be lawfully payable to that municipal authority in respect of building permits as if the work were being performed for a person other than Her Majesty.
- 14.2 Within 10 days of making a tender pursuant to GC14.1, the Contractor shall notify the Departmental Representative of his action and of the amount tendered and whether or not the municipal authority has accepted that amount.
- 14.3 If the municipal authority does not accept the amount tendered pursuant to GC14.1 the Contractor shall pay that amount to Her Majesty within 6 days after the time stipulated in GC14.2.



- 14.4 For the purposes of GC14.1 to GC14.3 “municipal authority” means any authority that would have jurisdiction respecting permission to perform the work if the owner were not Her Majesty.
- 14.5 Notwithstanding the residency of the Contractor, the Contractor shall pay any applicable tax arising from or related to the performance of the work under the contract.
- 14.6 In accordance with the Statutory Declaration referred to in TP4.9, a Contractor who has neither residence nor place of business in the province in which work under the contract is being performed shall provide Her Majesty with proof of registration with the provincial sales tax authorities in the said province.
- 14.7 For the purpose of the payment of any applicable tax or the furnishing of security for the payment of any applicable tax arising from or related to the performance of the work under the contract, the Contractor shall, notwithstanding the fact that all material, plant and interest of the Contractor in all real property, licenses, powers and privileges, have become the property of Her Majesty after the time of purchase, be liable, as a user or consumer, for the payment or for the furnishing of security for the payment of any applicable tax payable, at the time of the use or consumption of that material, plant or interest of the Contractor in accordance with the relevant legislation.

GC15 Performance of Work under Direction of Departmental Representative

- 15.1 The Contractor shall
- 15.1.1 permit the Departmental Representative to have access to the work and its site at all times during the performance of the contract;
 - 15.1.2 furnish the Departmental Representative with such information respecting the performance of the contract as he may require; and
 - 15.1.3 give the Departmental Representative every possible assistance to enable the Departmental Representative to carry out his duty to see that the work is performed in accordance with the contract and to carry out any other duties and exercise any powers specially imposed or conferred on the Departmental Representative under the contract.

CG16 Cooperation with Other Contractors

- 16.1 Where, in the opinion of the Departmental Representative, it is necessary that other contractors or workers with or without plant and material, be sent onto the work or its site, the Contractor shall, to the satisfaction of the Departmental Representative, allow them access and cooperate with them in the carrying out of their duties and obligation.
- 16.2 If
- 16.2.1 the sending onto the work or its site of other contractors or workers pursuant to GC16.1 could not have been reasonably foreseen or anticipated by the Contractor when entering into the contract, and



16.2.2 the Contractor incurs, in the opinion of the Departmental Representative, extra expense in complying with GC16.1, and

16.2.3 The Contractor has given the Departmental Representative written notice of his claim for the extra expense referred to in GC16.2.2 within 30 days of the date that the other contractors or workers were sent onto the work or its site,

Her Majesty shall pay the Contractor the cost, calculated in accordance with GC48 to GC50, of the extra labour, plant and material that was necessarily incurred.

GC17 Examination of Work

17.1 If, at any time after the commencement of the work but prior to the expiry of the warranty or guarantee period, the Departmental Representative has reason to believe that the work or any part thereof has not been performed in accordance with the contract, the Departmental Representative may have that work examined by an expert of his choice.

17.2 If, as a result of an examination of the work referred to in GC17.1, it is established that the work was not performed in accordance with the contract, then, in addition to and without limiting or otherwise affecting any of Her Majesty's rights and remedies under the contract either at law or in equity, the Contractor shall pay Her Majesty, on demand, all reasonable costs and expenses that were incurred by Her Majesty in having that examination performed.

GC18 Clearing of Site

18.1 The Contractor shall maintain the work and its site in a tidy condition and free from the accumulation of waste material and debris, in accordance with any directions of the Departmental Representative.

18.2 Before the issue of an interim certificate referred to in GC44.2, the Contractor shall remove all the plant and material not required for the performance of the remaining work, and all waste material and other debris, and shall cause the work and its site to be clean and suitable for occupancy by Her Majesty's servants, unless otherwise stipulated in the contract.

18.3 Before the issue of a final certificate referred to in GC44.1, the Contractor, shall remove from the work and its site all of the surplus plant and material and any waste material and other debris.

18.4 The Contractor's obligations described in GC18.1 to GC18.3 do not extend to waste material and other debris caused by Her Majesty's servants or contractors and workers referred to in GC16.1.

GC19 Contractor's Superintendent

19.1 The Contractor shall, forthwith upon the award of the contract, designate a superintendent.

19.2 The Contractor shall forthwith notify the Departmental Representative of the name, address and telephone number of a superintendent designate pursuant to GC19.1.



- 19.3 A superintendent designated pursuant to GC19.1 shall be in full charge of the operations of the Contractor in the performance of the work and is authorized to accept any notice, consent, order, direction, decision or other communication on behalf of the Contractor that may be given to the superintendent under the contract.
- 19.4 The Contractor shall, until the work has been completed, keep a competent superintendent at the work site during working hours.
- 19.5 The Contractor shall, upon the request of the Departmental Representative, remove any superintendent who, in the opinion of the Departmental Representative, is incompetent or has been conducting himself improperly and shall forthwith designate another superintendent who is acceptable to the Departmental Representative.
- 19.6 Subject to GC19.5, the Contractor shall not substitute a superintendent without the written consent of the Departmental Representative.
- 19.7 A breach by the Contractor of GC19.6 entitles the Departmental Representative to refuse to issue any certificate referred to in GC44 until the superintendent has returned to the work site or another superintendent who is acceptable to the Departmental Representative has been substituted.

GC20 National Security

- 20.1 If the Minister is of the opinion that the work is of a class or kind that involves the national security, he may order the Contractor
- 20.1.1 to provide him with any information concerning persons employed or to be employed by him for purposes of the contract; and
 - 20.1.2 to remove any person from the work and its site if, in the opinion of the Minister, that person may be a risk to the national security.
- 20.2 The Contractor shall, in all contracts with persons who are to be employed in the performance of the contract, make provision for his performance of any obligation that may be imposed upon him under GC19 to GC21.
- 20.3 The Contractor shall comply with an order of the Minister under GC20.1

GC21 Unsuitable Workers

- 21.1 The Contractor shall, upon the request of the Departmental Representative, remove any person employed by him for purposes of the contract who, in the opinion of the Departmental Representative, is incompetent or has conducted himself improperly, and the Contractor shall not permit a person who has been removed to return to the work site.

GC22 Increased or Decreased Costs



- 22.1 The amount set out in the Articles of Agreement shall not be increased or decreased by reason of any increase or decrease in the cost of the work that is brought about by an increase or decrease in the cost of labour, plant or material or any wage adjustment arising pursuant to the Labour Conditions.
- 22.2 Notwithstanding GC22.1 and GC35, an amount set out in the Articles of Agreement shall be adjusted in the manner provided in GC22.3, if any change in a tax imposed under the Excise Act, the Excise Tax Act, the Old Age Security Act, the Customs Act, the Customs Tariff or any provincial sales tax legislation imposing a retail sales tax on the purchase of tangible personal property incorporated into Real Property
- 22.2.1 occurs after the date of the submission by the Contractor of his tender for the contract,
- 22.2.2 applies to material, and
- 22.2.3 affects the cost to the Contractor of that material.
- 22.3 If a change referred to in GC22.2 occurs, the appropriate amount set out in the Articles of Agreement shall be increased or decreased by an amount equal to the amount that is established by an examination of the relevant records of the Contractor referred to in GC51 to be the increase or decrease in the cost incurred that is directly attributable to that change.
- 22.4 For the purpose of GC22.2, where a tax is changed after the date of submission of the tender but public notice of the change has been given by the Minister of Finance before that date, the change shall be deemed to have occurred before the date of submission of the tender.

GC23 Canadian Labour and Material

- 23.1 The Contractor shall use Canadian labour and material in the performance of the work to the full extent to which they are procurable, consistent with proper economy and expeditious carrying out of the work.
- 23.2 Subject to GC23.1, the Contractor shall, in the performance of the work, employ labour from the locality where the work is being performed to the extent to which it is available, and shall use the offices of the Canada Employment Centres for the recruitment of workers wherever practicable.
- 23.3 Subject to GC23.1 and GC23.2, the Contractor shall, in the performance of the work, employ a reasonable proportion of persons who have been on active service with the armed forces of Canada and have been honourably discharged therefrom.

GC24 Protection of Work and Documents

- 24.1 The Contractor shall guard or otherwise protect the work and its site, and protect the contract, specifications, plans, drawings, information, material, plant and real property, whether or not they are supplied by Her Majesty to the Contractor, against loss or damage from any cause, and he shall not use, issue, disclose or dispose of them without the written consent of the Minister, except as may be essential for the performance of the work.



- 24.2 If any document or information given or disclosed to the Contractor is assigned a security rating by the person who gave or disclosed it, the Contractor shall take all measures directed by the Departmental Representative to be taken to ensure the maintenance of the degree of security that is ascribed to that rating.
- 24.3 The Contractor shall provide all facilities necessary for the purpose of maintaining security, and shall assist any person authorized by the Minister to inspect or to take security measures in respect of the work and its site.
- 24.4 The Departmental Representative may direct the Contractor to do such things and to perform such additional work as the Departmental Representative considers reasonable and necessary to ensure compliance with or to remedy a breach of GC24.1 to GC24.3.

GC25 Public Ceremonies and Signs

- 25.1 The Contractor shall not permit any public ceremony in connection with the work without the prior consent of the Minister.
- 25.2 The Contractor shall not erect or permit the erection of any sign or advertising on the work or its site without the prior consent of the Departmental Representative.

GC26 Precautions against Damage, Infringement of Rights, Fire, and Other Hazards

- 26.1 The Contractor shall, at his own expense, do whatever is necessary to ensure that
- 26.1.1 no person, property, right, easement or privilege is injured, damaged or infringed by reasons of the Contractor's activities in performing the contract;
 - 26.1.2 pedestrian and other traffic on any public or private road or waterway is not unduly impeded, interrupted or endangered by the performance or existence of the work or plant;
 - 26.1.3 fire hazards in or about the work or its site are eliminated and, subject to any direction that may be given by the Departmental Representative, any fire is promptly extinguished;
 - 26.1.4 the health and safety of all persons employed in the performance of the work is not endangered by the method or means of its performance;
 - 26.1.5 adequate medical services are available to all persons employed on the work or its site at all times during the performance of the work;
 - 26.1.6 adequate sanitation measures are taken in respect of the work and its site; and
 - 26.1.7 all stakes, buoys and marks placed on the work or its site by or under the authority of the Departmental Representative are protected and are not removed, defaced, altered or destroyed.
- 26.2 The Departmental Representative may direct the Contractor to do such things and to perform such additional work as the Departmental Representative considers reasonable and necessary to ensure



compliance with or to remedy a breach of GC26.1.

- 26.3 The Contractor shall, at his own expense, comply with a direction of the Departmental Representative made under GC26.2.

GC27 Insurance

- 27.1 The Contractor shall, at his own expense, obtain and maintain insurance contracts in respect of the work and shall provide evidence thereof to the Departmental Representative in accordance with the requirements of the Insurance Conditions "E".

- 27.2 The insurance contracts referred to in GC27.1 shall

27.2.1 be in a form, of the nature, in the amounts, for the periods and containing the terms and conditions specified in Insurance Conditions "E", and

27.2.2 provide for the payment of claims under such insurance contracts in accordance with GC28.

GC28 Insurance Proceeds

- 28.1 In the case of a claim payable under a Builders Risk/Installation (All Risks) insurance contract maintained by the Contractor pursuant to GC27, the proceeds of the claim shall be paid directly to Her Majesty, and

28.1.1 the monies so paid shall be held by Her Majesty for the purposes of the contract, or

28.1.2 if Her Majesty elects, shall be retained by Her Majesty, in which event they vest in Her Majesty absolutely.

- 28.2 In the case of a claim payable under a General Liability insurance contract maintained by the Contractor pursuant to GC27, the proceeds of the claim shall be paid by the insurer directly to the claimant.

- 28.3 If an election is made pursuant to GC28.1, the Minister may cause an audit to be made of the accounts of the Contractor and of Her Majesty in respect of the part of the work that was lost, damaged or destroyed for the purpose of establishing the difference, if any, between

28.3.1 the aggregate of the amount of the loss or damage suffered or sustained by Her Majesty, including any cost incurred in respect of the clearing and cleaning of the work and its site and any other amount that is payable by the Contractor to Her Majesty under the contract, minus any monies retained pursuant to GC28.12, and

28.3.2 the aggregate of the amounts payable by Her Majesty to the Contractor pursuant to the contract up to the date of the loss or damage.

- 28.4 A difference that is established pursuant to GC28.3 shall be paid forthwith by the party who is determined by the audit to be the debtor to the party who is determined by the audit to be the



creditor.

- 28.5 When payment of a deficiency has been made pursuant to GC28.4, all rights and obligations of Her Majesty and the Contractor under the contract shall, with respect only to the part of the work that was the subject of the audit referred to in GC28.3, be deemed to have been expended and discharged.
- 28.6 If an election is not made pursuant to GC28.1.2 the Contractor shall, subject to GC28.7, clear and clean the work and its site and restore and replace the part of the work that was lost, damaged or destroyed at his own expense as if that part of the work had not yet been performed.
- 28.7 When the Contractor clears and cleans the work and its site and restores and replaces the work referred to in GC 28.6, Her Majesty shall pay him out of the monies referred to in GC28.1 so far as they will thereunto extend.
- 28.8 Subject to GC28.7, payment by Her Majesty pursuant to GC28.7 shall be made in accordance with the contract but the amount of each payment shall be 100% of the amount claimed notwithstanding TP4.4.1 and TP4.4.2.

GC29 Contract Security

- 29.1 The Contractor shall obtain and deliver contract security to the Departmental Representative in accordance with the provisions of the Contract Security Conditions.
- 29.2 If the whole or a part of the contract security referred to in GC29.1 is in the form of a security deposit, it shall be held and disposed of in accordance with GC43 and GC45.
- 29.3 If a part of the contract security referred to in GC29.1 is in the form of a labour and material payment bond, the Contractor shall post a copy of that bond on the work site.

GC30 Changes in the Work

- 30.1 Subject to GC5, the Departmental Representative may, at any time before he issues his Final Certificate of Completion,
- 30.1.1 order work or material in addition to that provided for in the Plans and Specifications;
and
- 30.1.2 delete or change the dimensions, character, quantity, quality, description, location or position of the whole or any part of the work or material provided for in the Plans and Specifications or in any order made pursuant to GC30.1.1,
- if that additional work or material, deletion, or change is, in his opinion, consistent with the general intent of the original contract.
- 30.2 The Contractor shall perform the work in accordance with such orders, deletions and changes that are made by the Departmental Representative pursuant to GC30.1 from time to time as if they had appeared in and been part of the Plans and Specifications.



- 30.3 The Departmental Representative shall determine whether or not anything done or omitted by the Contractor pursuant to an order, deletion or change referred to in GC30.1 increased or decreased the cost of the work to the Contractor.
- 30.4 If the Departmental Representative determines pursuant to GC30.3 that the cost of the work to the Contractor has been increased, Her Majesty shall pay the Contractor the increased cost that the Contractor necessarily incurred for the additional work calculated in accordance with GC49 or GC50.
- 30.5 If the Departmental Representative determines pursuant to GC30.3 that the cost of the work to the Contractor has been decreased, Her Majesty shall reduce the amount payable to the Contractor under the contract by an amount equal to the decrease in the cost caused by the deletion or change referred to in GC30.1.2 and calculated in accordance with GC49.
- 30.6 GC30.3 to GC30.5 are applicable only to a contract or a portion of a contract for which a Fixed Price Arrangement is stipulated in the contract.
- 30.7 An order, deletion or change referred to in GC30.1 shall be in writing, signed by the Departmental Representative and given to the Contractor in accordance with GC11.

GC31 Interpretation of Contract by Departmental Representative

- 31.1 If, at any time before the Departmental Representative has issued a Final Certificate of Completion referred to in GC44.1, any question arises between the parties about whether anything has been done as required by the contract or about what the Contractor is required by the contract to do, and, in particular but without limiting the generality of the foregoing, about
- 31.1.1 the meaning of anything in the Plans and Specification,
 - 31.1.2 the meaning to be given to the Plans and Specifications in case of any error therein, omission therefrom, or obscurity or discrepancy in their working or intention,
 - 31.1.3 whether or not the quality or quantity of any material or workmanship supplied or proposed to be supplied by the Contractor meets the requirements of the contract,
 - 31.1.4 whether or not the labour, plant or material provided by the Contractor for performing the work and carrying out the contract are adequate to ensure that the work will be performed in accordance with the contract and that the contract will be carried out in accordance with its terms,
 - 31.1.5 what quantity of any kind of work has been completed by the Contractor, or
 - 31.1.6 the timing and scheduling of the various phases of the performance of the work,
- the question shall be decided by the Departmental Representative whose decision shall be final and conclusive in respect of the work.
- 31.2 The Contractor shall perform the work in accordance with any decisions of the Departmental



Representative that are made under GC31.1 and in accordance with any consequential directions given by the Departmental Representative.

GC32 Warranty and Rectification of Defects in Work

32.1 Without restricting any warranty or guarantee implied or imposed by law or contained in the contract documents, the Contractor shall, at his own expense,

32.1.1 rectify and make good any defect or fault that appears in the work or comes to the attention of the Minister with respect to those parts of the work accepted in connection with the Interim Certificate of Completion referred to GC44.2 within 12 months from the date of the Interim Certificate of Completion;

32.1.2 rectify and make good any defect or fault that appears in or comes to the attention of the Minister in connection with those parts of the work described in the Interim Certificate of Completion referred to in GC44.2 within 12 months from the date of the Final Certificate of Completion referred to in GC44.1.

32.2 The Departmental Representative may direct the Contractor to rectify and make good any defect or fault referred to in GC32.1 or covered by any other expressed or implied warranty or guarantee.

32.3 A direction referred to in GC32.2 shall be in writing, may include a stipulation in respect of the time within which a defect or fault is required to be rectified and made good by the Contractor, and shall be given to the Contractor in accordance with GC11.

32.4 The Contractor shall rectify and make good any defect or fault described in a direction given pursuant to GC32.2 within the time stipulated therein.

GC33 Non-Compliance by Contractor

33.1 If the Contractor fails to comply with any decision or direction given by the Departmental Representative pursuant to GC18, GC24, GC26, GC31 or GC32, the Departmental Representative may employ such methods as he deems advisable to do that which the Contractor failed to do.

33.2 The Contractor shall, on demand, pay Her Majesty an amount that is equal to the aggregate of all cost, expenses and damage incurred or sustained by Her Majesty by reason of the Contractor's failure to comply with any decision or direction referred to in GC33.1, including the cost of any methods employed by the Departmental Representative pursuant to GC33.1.

GC34 Protesting Departmental Representative's Decisions

34.1 The Contractor may, within ten days after the communication to him of any decision or direction referred to in GC30.3 or GC33.1, protest that decision or direction.

34.2 A protest referred to in GC34.1 shall be in writing, contain full reasons for the protest, be signed



by the Contractor and be given to Her Majesty by delivery to the Departmental Representative.

- 34.3 If the Contractor gives a protest pursuant to GC34.2, any compliance by the Contractor with the decision or direction that was protested shall not be construed as an admission by the Contractor of the correctness of that decision or direction, or prevent the Contractor from taking whatever action he considers appropriate in the circumstances.
- 34.4 The giving of a protest by the Contractor pursuant to GC34.2 shall not relieve him from complying with the decision or direction that is the subject of the protest.
- 34.5 Subject to GC34.6, the Contractor shall take any action referred to in GC34.3 within three months after the date that a Final Certificate of Completion is issued under GC44.1 and not afterwards.
- 34.6 The Contractor shall take any action referred to in GC34.3 resulting from a direction under GC32 within three months after the expiry of a warranty or guarantee period and not afterwards.
- 34.7 Subject to GC34.8, if Her Majesty determines that the Contractor's protest is justified, Her Majesty shall pay the Contractor the cost of the additional labour, plant and material necessarily incurred by the Contractor in carrying out the protested decision or direction.
- 34.8 Costs referred to in GC34.7 shall be calculated in accordance with GC48 to GC50.

GC35 Changes in Soil Conditions and Neglect or Delay by Her Majesty

- 35.1 Subject to GC35.2 no payment, other than a payment that is expressly stipulated in the contract, shall be made by Her Majesty to the Contractor for any extra expense or any loss or damage incurred or sustained by the Contractor.
- 35.2 If the Contractor incurs or sustains any extra expense or any loss or damage that is directly attributable to
- 35.2.1 a substantial difference between the information relating to soil conditions at the work site that is contained in the Plans and Specifications or other documents supplied to the Contractor for his use in preparing his tender or a reasonable assumption of fact based thereon made by the Contractor, and the actual soil conditions encountered by the Contractor at the work site during the performance of the contract, or
- 35.2.2 any neglect or delay that occurs after the date of the contract on the part of Her Majesty in providing any information or in doing any act that the contract either expressly requires Her Majesty to do or that would ordinarily be done by an owner in accordance with the usage of the trade,

he shall, within ten days of the date the actual soil conditions described in GC35.2.1 were encountered or the neglect or delay described in GC35.2.2 occurred, give the Departmental Representative written notice of his intention to claim for that extra expense or that loss or damage.

- 35.3 When the Contractor has given a notice referred to in GC35.2, he shall give the Departmental Representative a written claim for extra expense or loss or damage within 30 days of the date that



a Final Certificate of Completion referred to in GC44.1 is issued and not afterwards.

- 35.4 A written claim referred to in GC35.3 shall contain a sufficient description of the facts and circumstances of the occurrence that is the subject of the claim to enable the Departmental Representative to determine whether or not the claim is justified and the Contractor shall supply such further and other information for that purpose as the Departmental Representative requires from time to time.
- 35.5 If the Departmental Representative determines that a claim referred to in GC35.3 is justified, Her Majesty shall make an extra payment to the Contractor in an amount that is calculated in accordance with GC47 to GC50.
- 35.6 If, in the opinion of the Departmental Representative, an occurrence described in GC35.2.1 results in a savings of expenditure by the Contractor in performing the contract, the amount set out in the Articles of Agreement shall, subject to GC35.7, be reduced by an amount that is equal to the saving.
- 35.7 The amount of the saving referred to in GC35.6 shall be determined in accordance with GC47 to GC49.
- 35.8 If the Contractor fails to give a notice referred to in GC35.2 and a claim referred to in GC35.3 within the times stipulated, an extra payment shall not be made to him in respect of the occurrence.

GC36 Extension of Time

- 36.1 Subject to GC36.2, the Departmental Representative may, on the application of the Contractor made before the day fixed by the Articles of Agreement for completion of the work or before any other date previously fixed under this General Condition, extend the time for its completion by fixing a new date if, in the opinion of the Departmental Representative, causes beyond the control of the Contractor have delayed its completion.
- 36.2 An application referred to in GC36.1 shall be accompanied by the written consent of the bonding company whose bond forms part of the contract security.

GC37 Assessments and Damages for Late Completion

- 37.1 For the purposes of this General Condition
- 37.1.1 the work shall be deemed to be completed on the date that an Interim Certificate of Completion referred to in GC44.2 is issued, and
- 37.1.2 "period of delay" means the number of days commencing on the day fixed by the Articles of Agreement for completion of the work and ending on the day immediately preceding the day on which the work is completed but does not include any day within a period of extension granted pursuant to GC36.1, and any other day on which, in the opinion of the Departmental Representative, completion of the work was delayed for reasons beyond the control of the Contractor.



- 37.2 If the Contractor does not complete the work by the day fixed for its completion by the Articles of Agreement but completes it thereafter, the Contractor shall pay Her Majesty an amount equal to the aggregate of
- 37.2.1 all salaries, wages and travelling expenses incurred by Her Majesty in respect of persons overseeing the performance of the work during the period of delay;
 - 37.2.2 the cost incurred by Her Majesty as a result of the inability to use the completed work for the period of delay; and
 - 37.2.3 all other expenses and damages incurred or sustained by Her Majesty during the period of delay as a result of the work not being completed by the day fixed for its completion.
- 37.3 The Minister may waive the right of Her Majesty to the whole or any part of the amount payable by the Contractor pursuant to GC37.2 I, in the opinion of the Minister, it is in the public interest to do so.

GC38 Taking the Work Out of the Contractor's Hands

- 38.1 The Minister may, at his sole discretion, by giving a notice in writing to the Contractor in accordance with GC11, take all or any part of the work out of the Contractor's hands, and may employ such means as he sees fit to have the work completed if the Contractor
- 38.1.1 Has not, within six days of the Minister or the Departmental Representative giving notice to the Contractor in writing in accordance with GC11, remedied any delay in the commencement or any default in the diligent performance of the work to the satisfaction of the Departmental Representative;
 - 38.1.2 has defaulted in the completion of any part of the work within the time fixed for its completion by the contract;
 - 38.1.3 has become insolvent;
 - 38.1.4 has committed an act of bankruptcy;
 - 38.1.5 has abandoned the work;
 - 38.1.6 has made an assignment of the contract without the consent required by GC3.1; or
 - 38.1.7 has otherwise failed to observe or perform any of the provisions of the contract.
- 38.2 If the whole or any part of the work is taken out of the Contractor's hands pursuant to GC38.1,
- 38.2.1 the Contractor's right to any further payment that is due or accruing due under the contract is, subject only to GC38.4, extinguished, and
 - 38.2.2 the Contractor is liable to pay Her Majesty, upon demand, an amount that is equal to the amount of all loss and damage incurred or sustained by Her Majesty in respect of the



Contractor's failure to complete the work.

- 38.3 If the whole or any part of the work that is taken out of the Contractor's hands pursuant to GC38.1 is completed by Her Majesty, the Departmental Representative shall determine the amount, if any, of the holdback or a progress claim that had accrued and was due prior to the date on which the work was taken out of the Contractor's hands and that is not required for the purposes of having the work performed or of compensating Her Majesty for any other loss or damage incurred or sustained by reason of the Contractor's default.
- 38.4 Her Majesty may pay the Contractor the amount determined not to be required pursuant to GC38.3.

GC39 Effect of Taking the Work Out of the Contractor's Hands

- 39.1 The taking of the work or any part thereof out of the Contractor's hands pursuant to GC38 does not operate so as to relieve or discharge him from any obligation under the contract or imposed upon him by law except the obligation to complete the performance of that part of the work that was taken out of his hands.
- 39.2 If the work or any part thereof is taken out of the Contractor's hands pursuant to GC38, all plant and material and the interest of the Contractor is all real property, licenses, powers and privileges acquired, used or provided by the Contractor under the contract shall continue to be the property of Her Majesty without compensation to the Contractor.
- 39.3 When the Departmental Representative certifies that any plant, material, or any interest of the Contractor referred to in GC39.2 is no longer required for the purposes of the work, or that it is not in the interest of Her Majesty to retain that plant, material or interest, it shall revert to the Contractor.

G40 Suspension of Work by Minister

- 40.1 The Minister may, when in his opinion it is in the public interest to do so, require the Contractor to suspend performance of the work either for a specified or an unspecified period by giving a notice of suspension in writing to the Contractor in accordance with GC11.
- 40.2 When a notice referred to in GC40.1 is received by the Contractor in accordance with GC11, he shall suspend all operations in respect of the work except those that, in the opinion of the Departmental Representative, are necessary for the care and preservation of the work, plant and material.
- 40.3 The Contractor shall not, during a period of suspension, remove any part of the work, plant or material from its site without the consent of the Departmental Representative.
- 40.4 If a period of suspension is 30 days or less, the Contractor shall, upon the expiration of that period, resume the performance of the work and he is entitled to be paid the extra cost, calculated in accordance with GC48 to GC50, of any labour, plant and material necessarily incurred by him as a result of the suspension.



- 40.5 If, upon the expiration of a period of suspension of more than 30 days, the Minister and the Contractor agree that the performance of the work will be continued by the Contractor, the Contractor shall resume performance of the work subject to any terms and conditions agreed upon by the Minister and the Contractor.
- 40.6 If, upon the expiration of a period of suspension of more than 30 days, the Minister and the Contractor do not agree that performance of the work will be continued by the Contractor or upon the terms and conditions under which the Contractor will continue the work, the notice of suspension shall be deemed to be a notice of termination pursuant to GC41.

GC41 Termination of Contract

- 41.1 The Minister may terminate the contract at any time by giving a notice of termination in writing to the Contractor in accordance with GC11.
- 41.2 When a notice referred to in GC41.1 is received by the Contractor in accordance with GC11, he shall, subject to any conditions stipulated in the notice, forthwith cease all operations in performance of the contract.
- 41.3 If the contract is terminated pursuant to GC41.1, Her Majesty shall pay the Contractor, subject to GC41.4, an amount equal to
- 41.3.1 the cost to the contractor of all labour, plant and material supplied by him under the contract up to the date of termination in respect of a contract or part thereof for which a Unit Price Arrangement is stipulated in the contract, or
 - 41.3.2 the lesser of
 - 41.3.2.1 an amount, calculated in accordance with the Terms and Payment, that would have been payable to the Contractor had he completed the work, and
 - 41.3.2.2 an amount that is determined to be due to the Contractor pursuant to GC49 in respect of a contract or part thereof for which a Fixed Price Arrangement is stipulated in the contract
- less the aggregate of all amounts that were paid to the Contractor by Her Majesty and all amounts that are due to Her Majesty from the Contractor pursuant to the contract.
- 41.4 If Her Majesty and the Contractor are unable to agree about an amount referred to in GC41.3 that amount shall be determined by the method referred to in GC50.

GC42 Claims Against and Obligations of the Contractor or Subcontractor

- 42.1 Her Majesty may, in order to discharge lawful obligations of and satisfy claims against the Contractor or a subcontractor arising out of the performance of the contract, pay any amount that is due and payable to the Contractor pursuant to the contract directly to the obligees of and the claimants against the Contractor or the subcontractor but such amount if any, as is paid by Her Majesty, shall not exceed that amount which the Contractor would have been obliged to pay to



such claimant had the provisions of the Provincial or Territorial lien legislation, or, in the Province of Quebec, the law relating to privileges, been applicable to the work. Any such claimant need not comply with the provisions of such legislation setting out the steps by way of notice, registration or otherwise as might have been necessary to preserve or perfect any claim for lien or privilege which claimant might have had;

- 42.2 Her Majesty will not make any payment as described in GC42.1 unless and until that claimant shall have delivered to Her Majesty:
- 42.2.1 a binding and enforceable Judgment or Order of a court of competent jurisdiction setting forth such amount as would have been payable by the Contractor to the claimant pursuant to the provisions of the applicable Provincial or Territorial lien legislation, or, in the Province of Quebec, the law relating to privileges, had such legislation been applicable to the work; or
 - 42.2.2 a final and enforceable award of an arbitrator setting forth such amount as would have been payable by the Contractor to the claimant pursuant to the provisions of the applicable Provincial or Territorial lien legislation, or, in the Province of Quebec, the law relating to privileges, had such legislation been applicable to the work; or
 - 42.2.3 the consent of the Contractor authorizing a payment.
- For the purposes of determining the entitlement of a claimant pursuant to GC42.2.1 and GC42.2.2, the notice required by GC42.8 shall be deemed to replace the registration or provision of notice after the performance of work as required by any applicable legislation and no claim shall be deemed to have expired, become void or unenforceable by reason of the claimant not commencing any action within the time prescribed by any applicable legislation.
- 42.3 The Contractor shall, by the execution of his contract, be deemed to have consented to submit to binding arbitration at the request of any claimant those questions that need be answered to establish the entitlement of the claimant to payment pursuant to the provisions of GC42.1 and such arbitration shall have as parties to it any subcontractor to whom the claimant supplied material, performed work or rented equipment should such subcontractor wish to be adjoined and the Crown shall not be a party to such arbitration and, subject to any agreement between the Contractor and the claimant to the contrary, the arbitration shall be conducted in accordance with the Provincial or Territorial legislation governing arbitration applicable in the Province or Territory in which the work is located.
- 42.4 A payment made pursuant to GC42.1 is, to the extent of the payment, a discharge of Her Majesty's liability to the Contractor under the contract and may be deducted from any amount payable to the Contractor under the contract.
- 42.5 To the extent that the circumstances of the work being performed for Her Majesty permit, the Contractor shall comply with all laws in force in the Province or Territory where the work is being performed relating to payment period, mandatory holdbacks, and creation and enforcement of mechanics' liens, builders' liens or similar legislation or in the Province of Quebec, the law relating to privileges.
- 42.6 The Contractor shall discharge all his lawful obligations and shall satisfy all lawful claims against him arising out of the performance of the work at least as often as the contract requires Her



Majesty to pay the Contractor.

- 42.7 The Contractor shall, whenever requested to do so by the Departmental Representative, make a statutory declaration deposing to the existence and condition of any obligations and claims referred to in GC42.6.
- 42.8 GC42.1 shall only apply to claims and obligations
- 42.8.1 the notification of which has been received by the Departmental Representative in writing before payment is made to the Contractor pursuant to TP4.10 and within 120 days of the date on which the claimant
- 42.8.1.1 should have been paid in full under the claimant's contract with the Contractor or subcontractor where the claim is for money that was lawfully required to be held back from the claimant; or
- 42.8.1.2 performed the last of the services, work or labour, or furnished the last of the material pursuant to the claimant's contract with the Contractor or subcontractor where the claim is not for money referred to in GC42.8.1.1, and
- 42.8.2 the proceedings to determine the right to payment of which, pursuant to GC42.2. shall have commenced within one year from the date that the notice referred to in GC42.8.1 was received by the Departmental Representative, and
- the notification required by GC42.8.1 shall set forth the amount claimed to be owing and the person who by contract is primarily liable.
- 42.9 Her Majesty may, upon receipt of a notice of claim under GC42.8.1, withhold from any amount that is due and payable to the Contractor pursuant to the contract the full amount of the claim or any portion thereof.
- 42.10 The Departmental Representative shall notify the Contractor in writing of receipt of any claim referred to in GC42.8.1 and of the intention of Her Majesty to withhold funds pursuant to GC42.9 and the Contractor may, at any time thereafter and until payment is made to the claimant, be entitled to post, with Her Majesty, security in a form acceptable to Her Majesty in an amount equal to the value of the claim, the notice of which is received by the Departmental Representative and upon receipt of such security Her Majesty shall release to the Contractor any funds which would be otherwise payable to the Contractor, that were withheld pursuant to the provisions of GC42.9 in respect of the claim of any claimant for whom the security stands.

GC43 Security Deposit – Forfeiture or Return

- 43.1 If
- 43.1.1 the work is taken out of the Contractor's hands pursuant to GC38,
- 43.1.2 the contract is terminated pursuant to GC41, or
- 43.1.3 the Contractor is in breach of or in default under the contract,



Her Majesty may convert the security deposit, if any, to Her own use.

- 43.2 If Her Majesty converts the contract security pursuant to GC43.1, the amount realized shall be deemed to be an amount due from Her Majesty to the Contractor under the contract.
- 43.3 Any balance of an amount referred to in GC43.2 that remains after payment of all losses, damage and claims of Her Majesty and others shall be paid by Her Majesty to the Contractor if, in the opinion of the Departmental Representative, it is not required for the purposes of the contract.

GC44 Departmental Representative's Certificates

44.1 On the date that

44.1.1 the work has been completed, and

44.1.2 the Contractor has complied with the contract and all orders and directions made pursuant thereto,

both to the satisfaction of the Departmental Representative, the Departmental Representative shall issue a Final Certificate of Completion to the Contractor.

44.2 If the Departmental Representative is satisfied that the work is substantially complete he shall, at any time before he issues a certificate referred to in GC44.1, issue an Interim Certificate of Completion to the Contractor, and

44.2.1 for the purposes of GC44.2 the work will be considered to be substantially complete,

44.2.1.1 when the work under the contract or a substantial part thereof is, in the opinion of the Departmental Representative, ready for use by Her Majesty or is being used for the purpose intended; and

44.2.1.2 when the work remaining to be done under the contract is, in the opinion of the Departmental Representative, capable of completion or correction at accost of not more than

44.2.1.2.1 -3% of the first \$500,000, and

44.2.1.2.2 -2% of the next \$500,000, and

44.2.1.2.3 -1% of the balance

of the value of the contract at the time this cost is calculated.

44.3 For the sole purpose of GC44.2.1.2, where the work or a substantial part thereof is ready for use or is being used for the purposes intended and the remainder of the work or a part thereof cannot be completed by the time specified in A2.1, or as amended pursuant to GC36, for reasons beyond the control of the Contractor or where the Departmental Representative and the Contractor agree not to complete a part of the work within the specified time, the cost of that part of the work



which was either beyond the control of the Contractor to complete or the Departmental Representative and the Contractor have agreed not to complete by the time specified shall be deducted from the value of the contract referred to GC44.2.1.2 and the said cost shall not form part of the cost of the work remaining to be done in determining substantial completion.

44.4 An Interim Certificate of Completion referred to in GC44.2 shall describe the parts of the work not completed to the satisfaction of the Departmental Representative and all things that must be done by the Contractor

44.4.1 before a Final Certificate of Completion referred to in GC44.1 will be issued, and

44.4.2 before the 12-month period referred to in GC32.1.2 shall commence for the said parts and all the said things.

44.5 The Departmental Representative may, in addition to the parts of the work described in an Interim Certificate of Completion referred to in GC44.2, require the Contractor to rectify any other parts of the work not completed to his satisfaction and to do any other things that are necessary for the satisfactory completion of the work.

44.6 If the contract or a part thereof is subject to a Unit Price Arrangement, the Departmental Representative shall measure and record the quantities of labour, plant and material, performed, used and supplied by the Contractor in performing the work and shall, at the request of the Contractor, inform him of those measurements.

44.7 The Contractor shall assist and co-operate with the Departmental Representative in the performance of his duties referred to in GC44.6 and shall be entitled to inspect any record made by the Departmental Representative pursuant to GC44.6.

44.8 After the Departmental Representative has issued a Final Certificate of Completion referred to in GC44.1, he shall, if GC44.6 applies, issue a Final Certificate of Measurement.

44.9 A Final Certificate of Measurement referred to in GC44.8 shall

44.9.1 contain the aggregate of all measurements of quantities referred to in GC44.6, and

44.9.2 be binding upon and conclusive between Her Majesty and the Contractor as to the quantities referred to therein.

GC45 Return of Security Deposit

45.1 After an Interim Certificate of Completion referred to in GC44.2 has been issued, Her Majesty shall, if the Contractor is not in breach of or in default under the contract, return to the Contractor all or any part of the security deposit that, in the opinion of the Departmental Representative, is not required for the purposes of the contract.

45.2 After a Final Certificate of Completion referred to in GC44.1 has been issued, Her Majesty shall return to the Contractor the remainder of any security deposit unless the contract stipulates otherwise.



- 45.3 If the security deposit was paid into the Consolidated Revenue Fund of Canada, Her Majesty shall pay interest thereon to the Contractor at a rate established from time to time pursuant to section 21(2) of the Financial Administration Act.

GC46 Clarification of Terms in GC47 to GC50

- 46.1 For the purposes of GC47 to GC50,
- 46.1.1 "Unit Price Table" means the table set out in the Articles of Agreement, and
- 46.1.2 "plant" does not include tools customarily provided by a tradesman in practicing his trade.

GC47 Additions or Amendments to Unit Price Table

- 47.1 Where a Unit Price Arrangement applies to the contract or a part thereof the Departmental Representative and the Contractor may, by an agreement in writing,
- 47.1.1 add classes of labour or material, and units of measurement, prices per unit and estimated quantities to the Unit Price Table if any labour, plant or material that is to be included in the Final Certificate of Measurement referred to in GC44.8 is not included in any class of labour, plant or material set out in the Unit Price Table; or
- 47.1.2 subject to GC47.2 and GC47.3, amend a price set out in the Unit Price Table for any class of labour, plant or material included therein if the Final Certificate of Measurement referred to in GC44.8 shows or is expected to show that the total quantity of that class of labour, plant or material actually performed, used or supplied by the Contractor in performing the work is
- 47.1.2.1 less than 85% of that estimated total quantity, or
- 47.1.2.2 in excess of 115% of that estimated total quantity.
- 47.2 In no event shall the total cost of an item set out in the Unit Price Table that has been amended pursuant to GC47.1.2.1 exceed the amount that would have been payable to the Contractor had the estimated total quantity actually been performed, used or supplied.
- 47.3 An amendment that is made necessary by GC47.1.2.2 shall apply only to the quantities that are in excess of 115%.
- 47.4 If the Departmental Representative and the Contractor do not agree as contemplated in GC47.1, the Departmental Representative shall determine the class and the unit of measurement of the labour, plant or material and, subject to GC47.2 and GC47.3, the price per unit therefore shall be determined in accordance with GC50.

GC48 Determination of Cost – Unit Price Table



- 48.1 Whenever, for the purposes of the contract, it is necessary to determine the cost of labour, plant or material, it shall be determined by multiplying the quantity of that labour, plant or material expressed in the unit set out in column 3 of the Unit Price Table by the price of that unit set out in column 5 of the Unit Price Table.

GC49 Determination of Cost – Negotiation

- 49.1 If the method described in GC48 cannot be used because the labour, plant or material is of a kind or class that is not set out in the Unit Price Table, the cost of that labour, plant or material for the purposes of the contract shall be the amount agreed upon from time to time by the Contractor and the Departmental Representative.
- 49.2 For the purposes of GC49.1, the Contractor shall submit to the Departmental Representative any necessary cost information requested by the Departmental Representative in respect of the labour, plant and material referred to in GC49.1

GC50 Determination of Cost – Failing Negotiation

- 50.1 If the methods described in GC47, GC48 or GC49 fail for any reason to achieve a determination of the cost of labour, plant and material for the purposes referred to therein, that cost shall be equal to the aggregate of
- 50.1.1 all reasonable and proper amounts actually expended or legally payable by the Contractor in respect of the labour, plant and material that falls within one of the classes of expenditure described in GC50.2 that are directly attributable to the performance of the contract,
 - 50.1.2 an allowance for profit and all other expenditures or costs, including overhead, general administration cost, financing and interest charges, and every other cost, charge and expenses, but not including those referred to in GC50.1.1 or GC50.1.3 or a class referred to in GC50.2, in an amount that is equal to 10% of the sum of the expenses referred to in GC50.1.1, and
 - 50.1.3 interest on the cost determined under GC50.1.1 and GC50.1.2, which interest shall be calculated in accordance with TP9,

provide that the total cost of an item set out in the Unit Price Table that is subject to the provisions of GC47.1.2.1 does not exceed the amount that would have been payable to the Contractor had the estimated total quantity of the said item actually be performed, used or supplied.

- 50.2 For purposes of GC50.1.1 the classes of expenditure that may be taken into account in determining the cost of labour, plant and material are,
- 50.2.1 payments to subcontractors;
 - 50.2.2 wages, salaries and travelling expenses of employees of the Contractor while they are actually and properly engaged on the work, other than wages, salaries, bonuses, living



and travelling expenses of personnel of the Contractor generally employed at the head office or at a general office of the Contractor unless they are engaged at the work site with the approval of the Departmental Representative,

- 50.2.3 assessments payable under any statutory authority relating to workmen's compensation, unemployment insurance, pension plan or holidays with pay;
- 50.2.4 rent that is paid for plant or an amount equivalent of the said rent if the plant is owned by the Contractor that is necessary for and used in the performance of the work, if the rent of the equivalent amount is reasonable and use of that plant has been approved by the Departmental Representative;
- 50.2.5 payments for maintaining and operating plant necessary for and used in the performance of the work, and payments for effecting such repairs thereto as, in the opinion of the Departmental Representative, are necessary to the proper performance of the contract other than payments for any repairs to the plant arising out of defects existing before its allocation to the work;
- 50.2.6 payments for material that is necessary for and incorporated in the work, or that is necessary for and consumed in the performance of the contract;
- 50.2.7 payments for preparation, delivery, handling, erection, installation, inspection protection and removal of the plant and material necessary for and used in the performance of the contract; and
- 50.2.8 any other payments made by the Contractor with the approval of the Departmental Representative that are necessary for the performance of the contract.

GC51 Records to be kept by Contractor

51.1 The Contractor shall

- 51.1.1 maintain full records of his estimated and actual cost of the work together with all tender calls, quotations, contracts, correspondence, invoices, receipts and vouchers relating thereto.
- 51.1.2 make all records and material referred to in GC5.1.1 available to audit and inspection by the Minister and the Deputy Receiver General for Canada or by persons acting on behalf of either of both of them, when requested;
- 51.1.3 allow any of the person referred to in GC51.1.2 to make copies of and to take extracts from any of the records and material referred to in GC51.1.1; and
- 51.1.4 furnish any person referred to in GC51.1.2 with any information he may require from time to time in connection with such records and material.

51.2 The records maintained by the Contractor pursuant to GC51.1.1 shall be kept intact by the Contractor until the expiration of two years after the date that a Final Certificate of Completion referred to in GC44.1 was issued or until the expiration of such other period of time as the



Minister may direct.

- 51.3 The Contractor shall cause all subcontractors and all other persons directly or indirectly controlled by or affiliated with the Contractor and all persons directly or indirectly having control of the Contractor to comply with GC51.1 and GC51.2 as if they were the Contractor.

GC52 Conflict of Interest

- 52.1 It is a term of this contract that no former public office holder who is not in compliance with the Conflict of Interest and Post-Employment Code for Public Office Holders shall derive a direct benefit from this contract.

GC53 Contractor Status

- 53.1 The Contractor shall be engaged under the contract as an independent contractor.
- 53.2 The Contractor and any employee of the said Contractor is not engaged by the contract as an employee, servant or agent of Her Majesty.
- 53.3 For the purposes of GC53.1 and GC53.2 the Contractor shall be solely responsible for any and all payments and deductions required to be made by law including those required for Canada or Quebec Pension Plans, Unemployment Insurance, Worker's Compensation or Income Tax.



GENERAL CONDITONS

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- IC 2 Risk Management**
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GENERAL INSUANCE COVERAGES

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COMMERCIAL GENERAL LIABILITY

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BUILDER'S RISK – INSTALLATION FLOATER – ALL RISKS

- BR 1 Scope of Policy**
- BR 2 Property Insured**
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- BR 4 Amount of Insurance**
- BR 5 Deductible**
- BR 6 Subrogation**
- BR 7 Exclusion Qualifications**

INSURER'S CERTIFICATE OF INSURANCE



General Conditions

IC 1 Proof of Insurance (02/12/03)

Within thirty (30) days after acceptance of the Contractor's tender, the Contractor shall, unless otherwise directed in writing by the Contracting Officer, deposit with the Contracting Officer an Insurer's Certificate of Insurance in the form displayed in this document and, if requested by the Contracting Officer, the originals or certified true copies of all contracts of insurance maintained by the Contractor pursuant to the Insurance Coverage Requirements shown hereunder.

IC 2 Risk Management (01/10/94)

The provisions of the Insurance Coverage Requirements contained hereunder are not intended to cover all of the Contractor's obligations under GC8 of the General Conditions "C" of the contract. Any additional risk management measures or additional insurance coverages the Contractor may deem necessary to fulfill its obligations under GC8 shall be at its own discretion and expense.

IC 3 Payment of Deductible (01/10/94)

The payment of monies up to the deductible amount made in satisfaction of a claim shall be borne by the Contractor.

IC 4 Insurance Coverage (02/12/03)

The Contractor has represented that it has in place and effect the appropriate and usual liability insurance coverage as required by these Insurance Conditions and the Contractor has warranted that it shall obtain, in a timely manner and prior to commencement of the Work, the appropriate and usual property insurance coverage as required by these Insurance Conditions and, further, that it shall maintain all required insurance policies in place and effect as required by these Insurance Conditions.



INSURANCE COVERAGE REQUIREMENTS

PART I GENERAL INSURANCE COVERAGES (GIC)

GCI 1 Insured (02/12/03)

Each insurance policy shall insure the Contractor, and shall include, as an Additional Named Insured, Her Majesty the Queen in right of Canada, represented by the National Research Council Canada.

GIC 2 Period of Insurance (02/12/03)

Unless otherwise directed in writing by the Contracting Officer or otherwise stipulated elsewhere in these Insurance Conditions, the policies required hereunder shall be in force and be maintained from the date of the contract award until the day of issue of the Departmental Representative's Final Certificate of Completion.

GIC 3 Proof of Insurance (01/10/94)

Within twenty five (25) days after acceptance of the Contractor's tender, the Insurer shall, unless otherwise directed by the Contractor, deposit with the Contractor an Insurer's Certificate of Insurance in the form displayed in the document and, if requested, the originals or certified true copies of all contracts of insurance maintained by the Contractor pursuant to the requirements of these Insurance Coverages.

GIC 4 Notification (01/10/94)

Each Insurance policy shall contain a provision that (30) days prior written notice shall be given by the Insurer to Her Majesty in the event of any material change in or cancellation of coverage. Any such notice received by the Contractor shall be transmitted forthwith to Her Majesty.

PART II COMMERCIAL GENERAL LIABILITY

CGL 1 Scope of Policy (01/10/94)

The policy shall be written on a form similar to that known and referred to in the insurance industry as IBC 2100 – Commercial General Liability policy (Occurrence form) and shall provide for limit of liability of not less than \$2,000,000 inclusive for Bodily Injury and Property Damage for any one occurrence or series of occurrences arising out of one cause. Legal or defence cost incurred in respect of a claim or claims shall not operate to decrease the limit of liability.

CGL 2 Coverages/Provisions (01/10/94)



The policy shall include but not necessarily be limited to the following coverages/provisions.

- 2.1 Liability arising out of or resulting from the ownership, existence, maintenance or use of premises by the Contractor and operations necessary or incidental to the performance of this contract.
- 2.2 "Broad Form" Property Damage including the loss of use of property.
- 2.3 Removal or weakening of support of any building or land whether such support be natural or otherwise.
- 2.4 Elevator liability (including escalators, hoists and similar devices).
- 2.5 Contractor's Protective Liability
- 2.6 Contractual and Assumed Liabilities un this contact.
- 2.7 Completed Operations Liability – The insurance, including all aspects of this Part II of these Insurance Conditions shall continue for a period of at least one (1) year beyond the date of the Departmental Representative's Final Certificate of Completion for the Completed Operations.
- 2.8 Cross Liability – The Clause shall be written as follows:

Cross Liability – The insurance as is afforded by this policy shall apply in respect to any claim or action brought against any one Insured by any other Insured. The coverage shall apply in the same manner and to the same extent as though a separate policy had been issued to each Insured. The inclusion herein of more than one Insured shall not increase the limit of the Insurer's liability.

- 2.9 Severability of Interests – The Clause shall be written as follows:

Severability of Interests – This policy, subject to the limits of liability stated herein, shall apply separately to each Insured in the same manner and to the same extent as if a separate policy had been issued to each. The inclusion herein of more than one insured shall not increase the limit of the Insurer's liability.

CGL 3 Additional Exposures (02/12/03)

The policy shall either include or be endorsed to include the following exposures of hazards if the Work is subject thereto:

- 3.1 Blasting
- 3.2 Pile driving and calsson work
- 3.3 Underpinning
- 3.4 Risks associated with the activities of the Contractor on an active airport



- 3.5 Radioactive contamination resulting from the use of commercial isotopes
- 3.6 Damage to the portion of an existing building beyond that directly associated with an addition, renovation or installation contract.
- 3.7 Marine risks associated with the contraction of piers, wharves and docks.

**CGL 4 Insurance Proceeds
(01/10/94)**

Insurance Proceeds from this policy are usually payable directly to a Claimant/Third Party.

**CGL 5 Deductible
(02/12/03)**

This policy shall be issued with a deductible amount of not more than \$10,000 per occurrence applying to Property Damage claims only.

**PART III
BUILDER'S RISK – INSTALLATION FLOATER – ALL RISKS**

**BR 1 Scope of Policy
(01/10/94)**

The policy shall be written on an "All Risks" basis granting coverages similar to those provided by the forms known and referred to in the insurance industry as "Builder's Risk Comprehensive Form" or "Installation Floater – All Risks".

**BR 2 Property Insured
(01/10/94)**

The property insured shall include:

- 2.1 The Work and all property, equipment and materials intended to become part of the finished Work at the site of the project while awaiting, during and after installation, erection or construction including testing.
- 2.2 Expenses incurred in the removal from the construction site of debris of the property insured, including demolition of damaged property, de-icing and dewatering, occasioned by loss, destruction or damage to such property and in respect of which insurance is provided by this policy.

**BR 3 Insurance Proceeds
(01/10/94)**

- 3.1 Insurance proceeds from this policy are payable in accordance with GC28 of the General Conditions "C" of the contract.
- 3.2 This policy shall provide that the proceeds thereof are payable to Her Majesty or as the Minister may direct.



- 3.3 The Contractor shall do such things and execute such documents as are necessary to effect payment of the proceeds.

BR 4 Amount of Insurance
(01/10/94)

The amount of insurance shall not be less than the sum of the contract value plus the declared value (if any) set forth in the contract documents of all material and equipment supplied by Her Majesty at the site of the project to be incorporated into and form part of the finished Work.

BR 5 Deductible
(02/12/03)

The Policy shall be issued with a deductible amount of not more than \$10,000.

BR 6 Subrogation
(01/10/94)

The following Clause shall be included in the policy:

"All rights of subrogation or transfer of rights are hereby waived against any corporation, firm, individual or other interest, with respect to which, insurance is provided by this policy".

BR 7 Exclusion Qualifications
(01/10/94)

The policy may be subject to the standard exclusions but the following qualifications shall apply:

- 7.1 Faulty materials, workmanship or design may be excluded only to the extent of the cost of making good thereof and shall not apply to loss or damage resulting therefrom.
- 7.2 Loss or damage caused by contamination by radioactive material may be excluded except for loss or damage resulting from commercial isotopes used for industrial measurements, inspection, quality control radiographic or photographic use.
- 7.3 Use and occupancy of the project or any part of section thereof shall be permitted where such use and occupancy is for the purpose for which the project is intended upon completion.



INSURER'S CERTIFICATE OF INSURANCE

(TO BE COMPLETED BY INSURER (NOT BOKER) AND DELIVERD TO NATIONAL RESEARCH COUNCIL CANADA WITH 30 DAYS FOLLOWING ACCEPTANCE OF TENDER)

CONTRACT

| | | |
|---------------------|-----------------|------------|
| DESCRIPTION OF WORK | CONTRACT NUMBER | AWARD DATE |
| LOCATION | | |

INSURER

| |
|---------|
| NAME |
| ADDRESS |

BROKER

| |
|---------|
| NAME |
| ADDRESS |

INSURED

| |
|--------------------|
| NAME OF CONTRACTOR |
| ADDRESS |

ADDITIONAL INSURED

| |
|---|
| HER MAJESTY THE QUEEN IN RIGHT OF CANADA AS REPRESENTED BY THE NATIONAL RESEARCH COUNCIL CANADA |
|---|

THIS DOCUENT CERTIFIES THAT THE FOLLOWING POLICES OF INSURANCE ARE AT PRESENT IN FORCE COVERING ALL OPERATIONS OF THE INSURE IN CONNECTION WITH THE CONTRACT MADE BETWEEN THE NAMED INSURED AND THE NATIONAL RESEARCH COUNCIL CANADA AND IN ACCORDANCE WITH THE INSURANCE CONDITIONS "E"

| POLICY | | | | | |
|----------------------------------|--------|----------------|-------------|---------------------|------------|
| TYPE | NUMBER | INCEPTION DATE | EXPIRY DATE | LIMITS OF LIABILITY | DEDUCTIBLE |
| COMMERCIAL GENERAL LIABILITY | | | | | |
| BUILDERS RISK "AL RISKS" | | | | | |
| INSTALLATION FLOATER "ALL RISKS" | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

THE INSURER AGREES TO NOTIFY THE NATIONAL RESEARCH COUNCIL CANADA IN WRITING 30 DAYS PRIOR TO ANY MATERIAL CHANGE IN OR CANCELLATION OF ANY POLICY OR COVERAGE SPECIFICALLY RELATED TO THE CONTRACT

| | | |
|--|-----------|-------------------|
| NAME OF INSURER'S OFFICER OR AUTHORIZED EMPLOYEE | SIGNATURE | DATE: |
| | | TELEPHONE NUMBER: |

ISSUANCE OF THIS CERTIFIATE SHALL NOT LIMIT OR RESTRICT THE RIGHT OF THE NATIONAL RESEARCH COUNCIL CANADA TO REQUEST AT ANY TIME DUPLICATE COPIES OF SAID INSURANCE POLICIES



CS1 Obligation to provide Contract Security

- 1.1 The Contractor shall, at the Contractor's own expense, provide one or more of the forms of contract security prescribed in CS2.
- 1.2 The Contractor shall deliver to the Departmental Representative the contract security referred to in CS1.1 within 14 days after the date that the Contractor receives notice that the Contractor's tender or offer was accepted by Her Majesty.

CS2 Prescribed Types and Amounts of Contract Security

- 2.1 The Contractor shall deliver to the Departmental Representative pursuant to CS1
 - 2.1.1 a performance bond and a labour and material payment bond each in an amount that is equal to not less than 50% of the contract amount referred to in the Articles of Agreement, or
 - 2.1.2 a labour and material payment bond in an amount that is equal to not less than 50% of the contract amount referred to in the Articles of Agreement, and a security deposit in an amount that is equal to
 - 2.1.2.1 not less than 10% of the contract amount referred to in the Articles of Agreement where that amount does not exceed \$250,000, or
 - 2.1.2.2 \$25,000 plus 5% of the part of the contract amount referred to in the Articles of Agreement that exceeds \$250,000, or
 - 2.1.3 a security deposit in an amount prescribed by CS2.1.2 plus an additional amount that is equal to 10% of the contract amount referred to in the Articles of Agreement.
- 2.2 A performance bond and a labour and material payment bond referred to in CS2.1 shall be in a form and be issued by a bonding or surety company that is approved by Her Majesty.
- 2.3 The amount of a security deposit referred to in CS2.1.2 shall not exceed \$250,000 regardless of the contract amount referred to in the Articles of Agreement.
- 2.4 A security deposit referred to in CS2.1.2 and CS2.1.3 shall be in the form of
 - 2.4.1 a bill of exchange made payable to the Receiver General of Canada and certified by an approved financial institution or drawn by an approved financial institution on itself, or
 - 2.4.2 bonds of or unconditionally guaranteed as to principal and interest by the Government of Canada.
- 2.5 For the purposes of CS2.4
 - 2.5.1 a bill of exchange is an unconditional order in writing signed by the Contractor and addressed to an approved financial institution, requiring the said institution to pay, on demand, at a fixed or determinable future time a sum certain of money to, or to the order



of, the Receiver General for Canada, and

- 2.5.2 If a bill of exchange is certified by a financial institution other than a chartered bank then it must be accompanied by a letter or stamped certification confirming that the financial institution is in at least one of the categories referred to in CS2.5.3
- 2.5.3 an approved financial institution is
 - 2.5.3.1 any corporation or institution that is a member of the Canadian Payments Association,
 - 2.5.3.2 a corporation that accepts deposits that are insured by the Canada Deposit Insurance Corporation or the Régie de l'assurance-dépôts du Québec to the maximum permitted by law,
 - 2.5.3.3 a credit union as defined in paragraph 137(6)(b) of the *Income Tax Act*,
 - 2.5.3.4 a corporation that accepts deposits from the public, if repayment of the deposit is guaranteed by Her Majesty in right of a province, or
 - 2.5.3.5 The Canada Post Corporation.
- 2.5.4 the bonds referred to in CS2.4.2 shall be
 - 2.5.4.1 made payable to bearer, or
 - 2.5.4.2 accompanied by a duly executed instrument of transfer of the bonds to the Receiver General for Canada in the form prescribed by the Domestic Bonds of Canada Regulations, or
 - 2.5.4.3 registered, as to principal or as to principal and interest in the name of the Receiver General for Canada pursuant to the Domestic Bonds of Canada Regulations, and
 - 2.5.4.4 provided on the basis of their market value current at the date of the contract.



Government of Canada / Gouvernement du Canada

| |
|--|
| Contract Number / Numéro du contrat |
| Security Classification / Classification de sécurité |

**SECURITY REQUIREMENTS CHECK LIST (SRCL)
LISTE DE VÉRIFICATION DES EXIGENCES RELATIVES À LA SÉCURITÉ (LVERS)**

PART A - CONTRACT INFORMATION / PARTIE A - INFORMATION CONTRACTUELLE

| | | | |
|---|-------------------------------------|--|------|
| 1. Originating Government Department or Organization / Ministère ou organisme gouvernemental d'origine | National Research Council of Canada | 2. Branch or Directorate / Direction générale ou Direction | ASPM |
|---|-------------------------------------|--|------|

| | |
|--|---|
| 3. a) Subcontract Number / Numéro du contrat de sous-traitance | 3. b) Name and Address of Subcontractor / Nom et adresse du sous-traitant |
|--|---|

4. Brief Description of Work / Brève description du travail
The National Research Council of Canada at 717 White Lake Road in Kaledon BC is upgrading the electrical service for the site due to aging infrastructure and new equipment coming online

5. a) Will the supplier require access to Controlled Goods? / Le fournisseur aura-t-il accès à des marchandises contrôlées? No / Non Yes / Oui

5. b) Will the supplier require access to unclassified military technical data subject to the provisions of the Technical Data Control Regulations? / Le fournisseur aura-t-il accès à des données techniques militaires non classifiées qui sont assujetties aux dispositions du Règlement sur le contrôle des données techniques? No / Non Yes / Oui

6. Indicate the type of access required / Indiquer le type d'accès requis

6. a) Will the supplier and its employees require access to PROTECTED and/or CLASSIFIED information or assets? / Le fournisseur ainsi que les employés auront-ils accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS? (Specify the level of access using the chart in Question 7. c) / (Préciser le niveau d'accès en utilisant le tableau qui se trouve à la question 7. c) No / Non Yes / Oui

6. b) Will the supplier and its employees (e.g. cleaners, maintenance personnel) require access to restricted access areas? No access to PROTECTED and/or CLASSIFIED information or assets is permitted. / Le fournisseur et ses employés (p. ex. nettoyeurs, personnel d'entretien) auront-ils accès à des zones d'accès restreintes? L'accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS n'est pas autorisé. No / Non Yes / Oui

6. c) Is this a commercial courier or delivery requirement with no overnight storage? / S'agit-il d'un contrat de messagerie ou de livraison commerciale sans entreposage de nuit? No / Non Yes / Oui

7. a) Indicate the type of information that the supplier will be required to access / Indiquer le type d'information auquel le fournisseur devra avoir accès

| | | |
|---------------------------------|--------------------------------------|---|
| Canada <input type="checkbox"/> | NATO / OTAN <input type="checkbox"/> | Foreign / Étranger <input type="checkbox"/> |
|---------------------------------|--------------------------------------|---|

7. b) Release restrictions / Restrictions relatives à la diffusion

| | | |
|---|---|---|
| No release restrictions / Aucune restriction relative à la diffusion <input type="checkbox"/> | All NATO countries / Tous les pays de l'OTAN <input type="checkbox"/> | No release restrictions / Aucune restriction relative à la diffusion <input type="checkbox"/> |
| Not releasable / À ne pas diffuser <input type="checkbox"/> | | |
| Restricted to: / Limité à: <input type="checkbox"/> | Restricted to: / Limité à: <input type="checkbox"/> | Restricted to: / Limité à: <input type="checkbox"/> |
| Specify country(ies): / Préciser le(s) pays: | Specify country(ies): / Préciser le(s) pays: | Specify country(ies): / Préciser le(s) pays: |

7. c) Level of Information / Niveau d'information

| | | |
|---|--|---|
| PROTECTED A / PROTÉGÉ A <input type="checkbox"/> | NATO UNCLASSIFIED / NATO NON CLASSIFIÉ <input type="checkbox"/> | PROTECTED A / PROTÉGÉ A <input type="checkbox"/> |
| PROTECTED B / PROTÉGÉ B <input type="checkbox"/> | NATO RESTRICTED / NATO DIFFUSION RESTREINTE <input type="checkbox"/> | PROTECTED B / PROTÉGÉ B <input type="checkbox"/> |
| PROTECTED C / PROTÉGÉ C <input type="checkbox"/> | NATO CONFIDENTIAL / NATO CONFIDENTIEL <input type="checkbox"/> | PROTECTED C / PROTÉGÉ C <input type="checkbox"/> |
| CONFIDENTIAL / CONFIDENTIEL <input type="checkbox"/> | NATO SECRET / NATO SECRET <input type="checkbox"/> | CONFIDENTIAL / CONFIDENTIEL <input type="checkbox"/> |
| SECRET / SECRET <input type="checkbox"/> | COSMIC TOP SECRET / COSMIC TRÈS SECRET <input type="checkbox"/> | SECRET / SECRET <input type="checkbox"/> |
| TOP SECRET / TRÈS SECRET <input type="checkbox"/> | | TOP SECRET / TRÈS SECRET <input type="checkbox"/> |
| TOP SECRET (SIGINT) / TRÈS SECRET (SIGINT) <input type="checkbox"/> | | TOP SECRET (SIGINT) / TRÈS SECRET (SIGINT) <input type="checkbox"/> |



PART A (continued) / PARTIE A (suite)

8. Will the supplier require access to PROTECTED and/or CLASSIFIED COMSEC information or assets?
Le fournisseur aura-t-il accès à des renseignements ou à des biens COMSEC désignés PROTÉGÉS et/ou CLASSIFIÉS? No / Non Yes / Oui

If Yes, indicate the level of sensitivity:
Dans l'affirmative, indiquer le niveau de sensibilité :

9. Will the supplier require access to extremely sensitive INFOSEC information or assets?
Le fournisseur aura-t-il accès à des renseignements ou à des biens INFOSEC de nature extrêmement délicate? No / Non Yes / Oui

Short Title(s) of material / Titre(s) abrégé(s) du matériel :
Document Number / Numéro du document :

PART B - PERSONNEL (SUPPLIER) / PARTIE B - PERSONNEL (FOURNISSEUR)

10. a) Personnel security screening level required / Niveau de contrôle de la sécurité du personnel requis

- | | | | |
|---|---|---|--|
| <input checked="" type="checkbox"/> RELIABILITY STATUS COTE DE FIABILITÉ | <input type="checkbox"/> CONFIDENTIAL CONFIDENTIEL | <input type="checkbox"/> SECRET SECRET | <input type="checkbox"/> TOP SECRET TRÈS SECRET |
| <input type="checkbox"/> TOP SECRET - SIGINT TRÈS SECRET - SIGINT | <input type="checkbox"/> NATO CONFIDENTIAL NATO CONFIDENTIEL | <input type="checkbox"/> NATO SECRET NATO SECRET | <input type="checkbox"/> COSMIC TOP SECRET COSMIC TRÈS SECRET |
| <input type="checkbox"/> SITE ACCESS ACCÈS AUX EMPLACEMENTS | | | |

Special comments:

Commentaires spéciaux :

NOTE: If multiple levels of screening are identified, a Security Classification Guide must be provided.

REMARQUE: Si plusieurs niveaux de contrôle de sécurité sont requis, un guide de classification de la sécurité doit être fourni.

10. b) May unscreened personnel be used for portions of the work?
Du personnel sans autorisation sécuritaire peut-il se voir confier des parties du travail? No / Non Yes / Oui

If Yes, will unscreened personnel be escorted?
Dans l'affirmative, le personnel en question sera-t-il escorté? No / Non Yes / Oui

PART C - SAFEGUARDS (SUPPLIER) / PARTIE C - MESURES DE PROTECTION (FOURNISSEUR)

INFORMATION / ASSETS / RENSEIGNEMENTS / BIENS

11. a) Will the supplier be required to receive and store PROTECTED and/or CLASSIFIED information or assets on its site or premises?
Le fournisseur sera-t-il tenu de recevoir et d'entreposer sur place des renseignements ou des biens PROTÉGÉS et/ou CLASSIFIÉS? No / Non Yes / Oui

11. b) Will the supplier be required to safeguard COMSEC information or assets?
Le fournisseur sera-t-il tenu de protéger des renseignements ou des biens COMSEC? No / Non Yes / Oui

PRODUCTION

11. c) Will the production (manufacture, and/or repair and/or modification) of PROTECTED and/or CLASSIFIED material or equipment occur at the supplier's site or premises?
Les installations du fournisseur serviront-elles à la production (fabrication et/ou réparation et/ou modification) de matériel PROTÉGÉ et/ou CLASSIFIÉ? No / Non Yes / Oui

INFORMATION TECHNOLOGY (IT) MEDIA / SUPPORT RELATIF À LA TECHNOLOGIE DE L'INFORMATION (TI)

11. d) Will the supplier be required to use its IT systems to electronically process, produce or store PROTECTED and/or CLASSIFIED information or data?
Le fournisseur sera-t-il tenu d'utiliser ses propres systèmes informatiques pour traiter, produire ou stocker électroniquement des renseignements ou des données PROTÉGÉS et/ou CLASSIFIÉS? No / Non Yes / Oui

11. e) Will there be an electronic link between the supplier's IT systems and the government department or agency?
Disposera-t-on d'un lien électronique entre le système informatique du fournisseur et celui du ministère ou de l'agence gouvernementale? No / Non Yes / Oui



| |
|--|
| Contract Number / Numéro du contrat |
| Security Classification / Classification de sécurité |

PART C - (continued) / PARTIE C - (suite)

For users completing the form manually use the summary chart below to indicate the category(ies) and level(s) of safeguarding required at the supplier's site(s) or premises.
 Les utilisateurs qui remplissent le formulaire manuellement doivent utiliser le tableau récapitulatif ci-dessous pour indiquer, pour chaque catégorie, les niveaux de sauvegarde requis aux installations du fournisseur.

For users completing the form online (via the Internet), the summary chart is automatically populated by your responses to previous questions.
 Dans le cas des utilisateurs qui remplissent le formulaire en ligne (par Internet), les réponses aux questions précédentes sont automatiquement saisies dans le tableau récapitulatif.

SUMMARY CHART / TABLEAU RÉCAPITULATIF

| Category / Catégorie | PROTECTED / PROTÉGÉ | | | CLASSIFIED / CLASSIFIÉ | | | NATO | | | | COMSEC | | | | | | |
|--|---------------------|---|---|------------------------|--------|-------------|---------------------------|-------------------|-------------|--|---------------------|---|---|--------------|--------|-------------|--|
| | A | B | C | CONFIDENTIAL | SECRET | TOP SECRET | NATO RESTRICTED | NATO CONFIDENTIAL | NATO SECRET | COSMIC TOP SECRET / COSMIC TRÈS SECRET | PROTECTED / PROTÉGÉ | | | CONFIDENTIAL | SECRET | TOP SECRET | |
| | | | | CONFIDENTIEL | | TRÈS SECRET | NATO DIFFUSION RESTREINTE | NATO CONFIDENTIEL | | | A | B | C | CONFIDENTIEL | | TRÈS SECRET | |
| Information / Assets / Renseignements / Biens / Production | | | | | | | | | | | | | | | | | |
| IT Media / Support TI | | | | | | | | | | | | | | | | | |
| IT Link / Lien électronique | | | | | | | | | | | | | | | | | |

12. a) Is the description of the work contained within this SRCL PROTECTED and/or CLASSIFIED?
 La description du travail visé par la présente LVERS est-elle de nature PROTÉGÉE et/ou CLASSIFIÉE? No / Non Yes / Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification".
 Dans l'affirmative, classifiez le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire.

12. b) Will the documentation attached to this SRCL be PROTECTED and/or CLASSIFIED?
 La documentation associée à la présente LVERS sera-t-elle PROTÉGÉE et/ou CLASSIFIÉE? No / Non Yes / Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification" and indicate with attachments (e.g. SECRET with Attachments).
 Dans l'affirmative, classifiez le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire et indiquez qu'il y a des pièces jointes (p. ex. SECRET avec des pièces jointes).



| |
|--|
| Contract Number / Numéro du contrat |
| Security Classification / Classification de sécurité |

PART D - AUTHORIZATION / PARTIE D - AUTORISATION

13. Organization Project Authority / Chargé de projet de l'organisme

| | | |
|--|---|---|
| Name (print) - Nom (en lettres moulées) Kory Phillips | Title - Titre Site Operations Supervisor | Signature |
| Telephone No. - N° de téléphone 250-497-2361 | Facsimile No. - N° de télécopieur | E-mail address - Adresse courriel kory.phillips@nrc-cnrc.gc.ca |
| | | Date 2015/05/29 |

14. Organization Security Authority / Responsable de la sécurité de l'organisme

| | | |
|--|--|---|
| Name (print) - Nom (en lettres moulées) Charlotte Carrier | Title - Titre Controlled goods and contracts security | Signature |
| Telephone No. - N° de téléphone 613-993-8956 | Facsimile No. - N° de télécopieur 613-990-0946 | E-mail address - Adresse courriel cahrlotte.carrier@nrc-cnrc.gc.ca |
| | | Date 25/02/2015 |

15. Are there additional instructions (e.g. Security Guide, Security Classification Guide) attached?
Des instructions supplémentaires (p. ex. Guide de sécurité, Guide de classification de la sécurité) sont-elles jointes?

No / Non Yes / Oui

16. Procurement Officer / Agent d'approvisionnement

| | | |
|--|--|-----------------------------------|
| Name (print) - Nom (en lettres moulées) M BEDARD | Title - Titre Senior Contracting Officer | Signature |
| Telephone No. - N° de téléphone 613 993-2274 | Facsimile No. - N° de télécopieur | E-mail address - Adresse courriel |
| | | Date 24/6/15 |

17. Contracting Security Authority / Autorité contractante en matière de sécurité

| | | |
|---|-----------------------------------|-----------------------------------|
| Name (print) - Nom (en lettres moulées) | Title - Titre | Signature |
| Telephone No. - N° de téléphone | Facsimile No. - N° de télécopieur | E-mail address - Adresse courriel |
| | | Date |