



# **REGIONAL DISTRICT of Fraser-Fort George**

## **INVITATION TO TENDER PS-25-01**

### **SUPPLY AND INSTALLATION OF ANTENNA TOWER**

**Date Issued:** Wednesday April 2, 2025

**Closing Location:** Regional District Office  
3<sup>rd</sup> Floor, 155 George Street,  
Prince George, BC V2L 1P8

**Closing Time:** May 1, 2025  
2:00 pm p.m. (Pacific Standard Time)  
No Public Opening

**Inquiries:** Email Bonnie Seitz at [bseitz@rdffg.bc.ca](mailto:bseitz@rdffg.bc.ca)  
Deadline: April 10, 2025

**Note:** Late submissions will not be considered

Regional District of Fraser-Fort George  
155 George Street, Prince George BC V2L 1P8  
Telephone 250-960-4400 / Toll Free 1-800-667-1959 / Fax 250-562-8676  
[www.rdffg.ca](http://www.rdffg.ca)

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## **INVITATION TO TENDER**

### **PART A – INTRODUCTION**

The Regional District of Fraser-Fort George (Regional District) invites tenders from qualified contractors to supply and install an antenna tower for Regional District property located at 5645 Buckhorn Lade Road, Prince George, BC.

The Regional District's objective is to award a contract to the successful Tenderer who can demonstrate that their primary focus is the construction of communications towers and can deliver a high quality, well managed project.

### **TENDER DOCUMENTS**

The Invitation to Tender (ITT) documents may be obtained on or after April 2, 2025

- (a) in a PDF (Public Document Format) file format from the Regional District's website at [www.rdffg.ca](http://www.rdffg.ca);
- (b) on the BCBid® website at [www.bcbid.gov.bc.ca](http://www.bcbid.gov.bc.ca).

All subsequent information regarding this ITT, including amendments, Addendum(s) and answers to questions will also be available as above.

It is the sole responsibility of the tenderer to ascertain that they have received a full set of Tender Documents. Upon submission of their bid, the tenderer will be deemed conclusively to have been in possession of a full set of Tender Documents (listed in Part B, Section 2.1).

Tenders not submitted in strict accordance with these instructions or not complying with the requirements in this ITT may be rejected.

To be considered, Tenders must be signed by an authorized signatory of the Tenderer. By signing the Tender, the Tenderer is bound to statements made in response to this ITT. Any Tender received by the Regional District that is unsigned will be rejected.

The lowest of any Tender will not necessarily be accepted. The Regional District of Fraser-Fort George reserves the right to accept or reject any or all Tenders.

### **TENDER SUBMISSION AND CLOSING LOCATION AND TIME:**

The Regional District will accept Tenders submitted either by direct delivery (hand delivery, courier, or post/mail) or electronically to the Closing Location and Time, as outlined below.

Tenders will be received by the General Manager of Financial Services at the Regional District of Fraser-Fort George, 3rd floor, 155 George Street, Prince George, BC (the "**Closing Location**"), no later than 2:00 p.m. local time on May 1, 2025 (the "**Closing Time**") or by email to [purchasing@rdffg.bc.ca](mailto:purchasing@rdffg.bc.ca). There will not be a public opening for this Tender.

Tenders must be in English and must be submitted using the submission methods below.

The Closing Time and time for this tender is May 1, 2025, at 2:00 p.m.

**For Tenders to be submitted by hard copy direct delivery:**

Two complete copies of your Tender must be submitted in a sealed envelope with the following information written on the outside of the envelope containing the tender, as well as on the outside of the courier envelope/box (if sending by courier):

1. Attention: General Manager of Financial Services  
Regional District of Fraser-Fort George  
3<sup>rd</sup> Floor, 155 George Street  
Prince George, BC V2L 1P8
2. Invitation to Tender, PS-25-01 – Supply and Installation of Antenna Tower
3. Responding Tenderer's name and address

**Facsimile Tenders will NOT be accepted.**

**For Tenders to be Submitted Electronically, with no Bid Security:**

"Prince George Time" will be conclusively deemed to be the time indicated in the electronic timestamp the Tender receives upon delivery to the email address specified herein.

Tenderers must submit all portions of their Tender by email in accordance with the following:

**Subject of the file to be: PS-25-01 – Supply and Installation of Antenna Tower (Insert Responding Tenderer's Name)**

All emailed documents must be in PDF format and should be in one combined file. Tenderers should ensure that the files should not collectively exceed 35MB. Zip the files to reduce the size if needed. Submitting the files via Drop Box, FTP, or similar programs, is not acceptable.

Tenders must be submitted to [purchasing@rdffg.bc.ca](mailto:purchasing@rdffg.bc.ca). DO NOT deliver a physical copy of the tender package to the Regional District of Fraser Fort George.

The Regional District does not assume any risk or responsibility or liability, including in contract or tort (including negligence), whatsoever to any Tenderer:

1. for ensuring that any electronic email system being operated by or for the Regional District is in good working order, able to receive transmissions, or not engaged in receiving other transmissions such that a Tenderer's electronic transmission, including the transmission of an electronic copy of its Tender, cannot be received;
2. for errors, problems or technical difficulties with respect to a Tenderer's electronic transmission, including the transmission of an electronic copy of its Tender;
3. that a Tenderer's electronic transmission, including the transmission of an electronic copy of its Tender, is received by the Regional District of Fraser-Fort George in its entirety or within any time limit specified by this Tender.

## **PART B – INSTRUCTIONS TO TENDERERS**

The Regional District of Fraser-Fort George, hereinafter referred to as the Regional District, invites Tenders for: PS-25-01 Supply and Installation of Antenna Tower, from Tenderers who can demonstrate that their primary focus is construction of communication towers.

**Instructions regarding obtaining the Tender Documents are contained in Part A: Introduction.**

Questions relating to the tender or project must be directed to the Project Manager:  
Bonnie Seitz, Community Services Leader  
Regional District of Fraser-Fort George  
155 George Street  
Prince George, BC V2L 1P8  
Email: [bseitz@rdffg.bc.ca](mailto:bseitz@rdffg.bc.ca)

**Deadline for question submissions is 4:00 p.m. (local time) on April 10, 2025**

Those questions that are determined to be of a common interest to all potential Tenderer's will be summarized and posted as Addendum(s) on the Regional District's website as well as the BCBid® website.

### **TENDER PROCESS**

#### **1.0 Definitions**

- 1.1 "**Addendum(s)**" means all additional information regarding this ITT including amendments to the ITT.
- 1.2 "**BC Bid**" means the BC Bid website located at [www.bcbid.ca](http://www.bcbid.ca).
- 1.3 "**Board**" means the Board of the Regional District.
- 1.4 "**Closing Location**" means the location specified in Part A - Introduction.
- 1.5 "**Closing Time**" means the closing time and date specified in Part A - Introduction.
- 1.6 "**Contract**" means the contract substantially in the form attached to this ITT.
- 1.7 "**Contractor**" means the successful Tenderer to the ITT who enters into a Contract with the Regional District.
- 1.8 "**Form of Tender**" means the form of tender attached to this ITT.
- 1.9 "**ITT**" means the solicitation described in this document, including any attached or referenced appendices, schedules or exhibits and as may be modified in writing from time to time by the Regional District by Addendum(s).
- 1.10 "**Must**" means a requirement that must be met in order for a Tender to receive consideration.

- 1.11 "**Project Manager**" means the Regional District's representative.
- 1.12 "**Regional District**" means the Regional District of Fraser-Fort George.
- 1.13 "**Should**", or "**May**" means a requirement having a significant degree of importance to the objective of the ITT, but which the Regional District would strongly prefer to be fulfilled, and which the Regional District may in its sole discretion elect to treat the failure to fulfill as a grounds for rejection of a Tender.
- 1.14 "**Tender**" means a submission in response to this ITT.
- 1.15 "**Tender Documents**" means the documents listed in section 2.1.
- 1.16 "**Tenderer**" means the person submitting a Tender.
- 1.17 "**Work**" means the total construction and related services required by the Tender documents.

## **2.0 Tender Documents**

### **2.1 The Tender Documents are:**

- (a) Part A – Introduction;
- (b) Part B – Instructions to Tenderers; and
- (c) Appendices:
  - i. Appendix A – Bidder Checklist;
  - ii. Appendix B – Tender Form;
  - iii. Appendix C – Schedule of Prices – Tendered Price;
  - iv. Appendix D – List of Contractor's Personnel;
  - v. Appendix E – List of Subcontractors;
  - vi. Appendix F – Tender's Experience in Similar Work;
  - vii. Appendix G – Conflict of Interest Disclosure Statement
  - viii. Appendix H – Goods and Services Tax Information;
  - ix. Appendix I – Contract Agreement;
  - x. Appendix J – Scope of Work and Certifications; and
  - xi. Appendix K – Optional Equipment/Specifications.

- 2.2 If there is a conflict between or among the Specifications and the other Tender Documents, the other Tender Documents shall prevail over the Specifications.

### **3.0 Acceptance of Terms and Conditions**

Submitting a Tender indicates acceptance of all the terms and conditions set out in the ITT, including those that follow and that are included in all appendices and any Addendum(s).

### **4.0 Submission Instructions**

- 4.1 Each Tenderer must complete and provide Appendix B – H and J – K .
- 4.2 All prices and notations should be legibly written in a non-erasable medium. Erasures, interlineations, or other corrections should be initialed by an authorized signatory of the Tenderer.
- 4.3 Subject to any alternatives or options in respect of which the Regional District requests pricing or other information in an Appendix to the ITT, Tenders are to be all inclusive and without qualification or condition.
- 4.4 The Regional District may, at any time and for any reason, extend the Closing Time by means of a written amendment published on the Regional District's website, at [www.rdffg.ca](http://www.rdffg.ca) and at BC Bid.
- 4.5 Each Tender must be signed by an authorized signatory or authorized signatories of the Tenderer, as is necessary for due execution on behalf of the Tenderer. Each Tender by a company or partnership should specify the full name of the legal entity submitting the Tender.
- 4.6 It is the sole responsibility of the Tenderer to ascertain that they have received a full set of the Tender Documents. Upon submission of their Tender, the Tender will be deemed conclusively to have been in possession of a full set of the Tender Documents.
- 4.7 If the Regional District, in the Regional District's sole discretion, determines that a clarification, addition, deletion, or revision of the ITT is required then the Regional District will issue an addendum, and the addendum will be posted on the Regional District website and BC Bid.
- 4.8 It is the sole responsibility of the Tenderer to check for Addendum(s). Addendum(s) issued during the time of Tendering must be signed by the Tenderer and included with the Tender and will become a part of the Tender documents.
- 4.9 The Regional District will not be responsible for any costs incurred by the respondent which may result from the preparation or submission of documents pertaining to this Tender. Accuracy and completeness of a Tender is the Tenderer's responsibility.

### **5.0 Discrepancies or Omissions**

- 5.1 Tenderers finding discrepancies or omissions in the specifications or other documents herein or having doubts on the meaning or intent of any part thereof, should immediately request in

written form, either by email or by mail, clarification from the Project Manager. Upon receipt of the written request for clarification, The Project Manager may, in the person's sole discretion, send written instructions or explanations to all parties registered as having returned the acknowledgement letter, and make amendments to this ITT. No responsibility will be accepted for oral instructions. Any request must be received prior to April 10, 2025.

- 5.2 It is the responsibility of each Tenderer to thoroughly examine the Tender Documents and satisfy itself as to the full requirements of this ITT and their acceptability to the Tenderer.

## **6.0 Late Submissions**

Tenders will be marked with their receipt time upon receipt. Only complete Tenders received before the Closing Time will be considered to have been received on time. Tenders received late will be marked late and not considered or evaluated. In case of a dispute, the Tender receipt time as recorded by the Regional District will prevail whether accurate or not.

## **7.0 Changes to Tenders**

A Tenderer that has already submitted a Tender may amend its Tender prior to the Closing Time:

- (a) For changes to price only, by submitting an amendment via email or mail at the address identified at the beginning of Part B of this Invitation to Tender, identifying a plus or minus variance to the Tenderer's Tender Price; or
- (b) In all cases, by delivering a completely new Tender in accordance with Part A to this Invitation to Tender, clearly indicating it replaces the previously submitted Tender.

Any such revision must clearly identify the ITT number and the Closing Time. A Tender revision submitted as aforesaid shall effectively amend the Tender and the Regional District shall only review and evaluate the Tender as amended.

## **8.0 Bid Prices**

- 8.1 The Tenderer will be deemed to have satisfied themselves as to the sufficiency of the Tender for the work and the price stated in the Schedule of Prices. These prices will cover all their obligations under the Contract, and all matters necessary to the proper completion and maintenance of the work, and will include the supply of all labour, equipment material, supervision, services, taxes and assessments, together with the Tenderer's overhead and profit, except where otherwise provided elsewhere in this ITT.
- 8.2 Tender prices must remain open for acceptance for a period of 60 days from the Closing Time unless otherwise stated by the Regional District.

## **9.0 Subcontractors**

All Subcontractors, including affiliates of the Tenderer, should be clearly identified in the Tender as per the form attached as Appendix E.

A Tenderer may not subcontract to a firm or individual whose current or past corporate or other interests, may, in the Regional District's opinion, give rise to an actual, perceived or potential conflict



of interest in connection with the services described in the Tender. This includes, but is not limited to, involvement by the firm or individual in the preparation of the Tender or a relationship with any employee, contractor or representative of the Regional District involved in preparation of the Tender, participating in evaluation or in the administration of the Contract. If a Tenderer is in doubt as to whether a proposed Subcontractor might be in a conflict of interest, the Tenderer should consult with the Project Manager prior to submitting a Tender. By submitting a Tender, the Tenderer represents that it is not aware of any circumstances that would give rise to a conflict of interest that is actual, perceived or potential, in respect of the Tender.

## **10.0 Rejection of a Tender**

- 10.1 The Regional District may, in its sole discretion, reject any and all Tenders, or accept the Tender deemed most favourable in the interests of the Regional District. The lowest, or any Tender, will not necessarily be awarded.
- 10.2 Tenders which contain qualifying conditions or otherwise fail to conform to the instructions contained in this ITT may be disqualified or rejected. The Regional District may, however, in its sole discretion, reject or retain for its consideration Tenders which are non-conforming because they do not contain the content or form required by the ITT, or for failure to comply with the process for submission set out in this ITT, whether or not such non-compliance is material.
- 10.3 The Regional District's intent is to enter into a Contract with the Tenderer who has submitted the best offer. The Regional District reserves the right to accept any or none of the Tenders submitted and will evaluate Tenders based on the best value offered to the Regional District and not necessarily the lowest price. The Regional District reserves the right in its sole unrestricted discretion to:
- (a) accept any Tender which the Regional District deems most advantageous to itself;
  - (b) reject any and/or all irregularities in a Tender submitted;
  - (c) waive any defect or deficiency in a Tender whether or not that defect or deficiency materially or substantially affects the Tender and accept that Tender;
  - (d) reject any and/or all Tender for any reason, without discussion with the Tenderer(s);
  - (e) accept a Tender which is not the lowest Tender; and
  - (f) cancel or reissue the Tender without any changes.
- 10.4 Without limiting any other provision of this Tender, the Regional District may, in its sole discretion, reject a Tender submitted by a Tenderer, if the Tenderer or any officer or director of a corporate Tenderer, is, or has been within a period of two years prior to the Closing Time, engaged either directly or indirectly through another corporation or legal entity in a legal proceeding initiated in any court against the Regional District in relation to any contract with, or works or services provided to the Regional District.

## **11.0 Conflict of Interest**

- 11.1 When submitting a Tender, the Tenderer must complete, sign and include with their Tender a conflict of interest disclosure statement (Appendix G).
- 11.2 Without limiting any other provision of this ITT, the Regional District may reject a Tender based on an actual, potential or perceived conflict of interest.

The Regional District may reject any Tender where:

- a. one or more of the directors, officers, principals, partners, senior management employees, shareholders or owners of the Tenderer, is an officer, employee or director of the Regional District or a consultant involved in the procurement process, or is a member of the immediate family of an officer, employee or director of the Regional District or a consultant involved in the procurement process; or
- b. in the case of a Tender submitted by a Tenderer who is an individual person, where that individual is an officer, employee or director of the Regional District or a consultant involved in the procurement process or is a member of the immediate family of an officer, employee or director of the Regional District or a consultant involved in the procurement process.

A Tenderer who has any concerns regarding whether a current or prospective employee, advisor or member of that Tenderer is, or may be, a Restricted Party, is encouraged to request an advance decision by submitting to the Project Manager, not less than ten working days prior to the Closing Time, by email, the following information:

- (a) names and contact information of the Tenderer and the person for which the advance opinion is requested;
- (b) a description of the relationship that raises the possibility or perception of a conflict of interest or unfair advantage; and
- (c) copies of any relevant documentation.

The Regional District may make an advance decision regarding whether the person is a Restricted Party, and whether the Regional District will reject a Tender based on the information provided.

## **12.0 Tender Evaluation**

12.1 The purpose of this ITT is to select a Tenderer with the capability and experience to efficiently and cost effectively complete the work described in this ITT.

12.2 The Regional District shall be the sole judge of a Tender and its decision shall be final. The Regional District staff shall use the following criteria to evaluate tenders received:

- |    |  |                 |
|----|--|-----------------|
| a. | Tender Price                           | 35 points       |
| b. | Tenderer's Experience and Track Record | 25 points       |
| c. | Technical Proposal and Methodology     | 20 points       |
| d. | Compliance and Certifications          | 15 points       |
| e. | Health and Safety Record               | <u>5 points</u> |

TOTAL      100 points

12.3 The Tenderer acknowledges that the Regional District may rely upon criteria that the Regional District deems relevant even though such criteria may not have been disclosed to the Tenderer. By submitting a Tender, the Tenderer acknowledges the Regional District's right under this clause and absolutely waives any right of action against the Regional District for the

Regional District's failure to accept the Tenderer's Tender, whether or not such right of action arises in contract, negligence, bad faith or any other cause of action.

- 12.4 Notwithstanding any other provision in this ITT, the award of a Contract by the Regional District may be subject to the availability of funding and the approval of the Board.

### **13.0 Proof of Ability**

The Tenderer will be competent and capable of performing the Work. The Tenderer is required to provide evidence of previous experience and financial responsibility before the contract is awarded.

### **14.0 Examination of Contract Documents and Site**

- 14.1 The Tenderer will satisfy themselves as to the practicality of executing the work in accordance with the Contract, and they will be held to have satisfied themselves in every particular before making up their Tender by inquiry, measurement, calculation and inspection of the site.
- 14.2 The Tenderer may examine the site and its surroundings before submitting their Tender by request to the Project Manager. As part of the tender, Figure 1 – Buckhorn Tower Layout, Figure 2 – Site Location and an Attachment – GEO Technical Report have been included to assist in Tender preparation.
- 14.3 The Tenderer will examine the quantities and nature of the work and equipment necessary for the completion of the work, and the means to access the site, the accommodation they may require, and in general, will obtain all relevant information as to risks, contingencies and other circumstances which may influence their Tender.

### **15.0 Liability for Errors**

- 15.1 The Regional District will not be responsible for any costs incurred by Tenderers as a result of the preparation or submission of a Tender pertaining to this ITT. The accuracy and completeness of the Tender is the Tenderer's responsibility. If errors are discovered, they will be corrected by the Tenderer at their expense.
- 15.2 Tenderers acknowledge that the Regional District, in the preparation of the ITT supply of oral or written information to Tenderers, review of Tenders or the carrying out the Regional District's responsibilities under this ITT, does not owe a duty of care to Tenderers.

### **16.0 Limitation of Liability**

Except for claims for costs of preparation of its Tender, each Tenderer, by submitting a Tender, irrevocably waives any claim, action, or proceeding against the Regional District including without limitation any judicial review or injunction application or against any of the Regional District's employees, advisors or representatives for damages, expenses or costs including costs of Tender preparation, loss of profits, loss of opportunity or any consequential loss for any reason including: any actual or alleged unfairness on the part of the Regional District at any stage of the Tender process; if the Regional District does not award or execute a contract; or, if the Regional District is subsequently determined to have accepted a noncompliant Tender or otherwise breached or fundamentally breached the terms of this ITT.

## **17.0 Ownership of Tenders and Freedom of Information**

- 17.1 Tenders will be received and held in confidence by the Regional District, subject to the provisions of the Freedom of Information and Protection of Privacy Act and this ITT. Each Tender should clearly identify any information that is considered to be confidential or proprietary information.
- 17.2 As an exception to Tenders being received and held in confidence, Tenderers are advised and acknowledge that any contract entered into as a result of this Tender may be subject to Board approval, which may be discussed and voted on at a meeting of the Board that is open to the public. If Board approval is required, details of Tenders, including but not limited to proposed or negotiated fees, may be provided to the Board in a publicly available staff report, discussed at a Council meeting that is open to the public, and posted on a publicly available electronic agenda on the Regional District's website.

## **18.0 Confidentiality**

In accordance with the *Freedom of Information and Protection of Privacy Act*, Tenderers will treat as confidential and will not, without prior written consent of the Regional District, publish, release, or disclose, or permit to be published, released, or disclosed, any information supplied to, obtained by, or which comes to the knowledge of a Tenderer as a result of this ITT except insofar as such publication, release or disclosure is required by the laws of British Columbia.

## **PART C – CONTRACT CONDITIONS**

### **1. Form of Contract**

A sample contract agreement is included as Appendix I.

### **2. Start and Duration of Contract**

The term of the Contract will begin at 12:01 a.m., on the execution of the Contract and will conclude upon completion of the project. A construction start date will be mutually agreed upon by both the contractor and Regional District. Once construction begins the contractor will not stop until it is completed. This project must be completed no later than October 31, 2025.

### **3. Term and Termination**

The term of this Contract shall commence as set out in Section 2. and shall continue in effect until terminated by either party as provided herein. Either party may terminate this Agreement at any time, with or without cause, by providing not less than 30 business days advance written notice to the other party. The Contractor or the Regional District may terminate this Agreement immediately in writing if either party becomes insolvent, enters bankruptcy, receivership, or other like proceeding (voluntary or involuntary) or makes an assignment for the benefit of creditors.

### **4. Intent of Contract Documents**

This Contract is not an agreement of employment. The Contractor is an independent contractor, and nothing herein will be construed to create a partnership, joint venture, or agency and neither party will be responsible for the debts or obligations of the other.

### **5. Assignment of Contract**

The Contractor will not sublet, sell, transfer, assign, or otherwise dispose of the Contract or any portions thereof, or their right, title or interest therein, or their obligations thereunder without written consent of the Regional District, except for an assignment to a bank of the payments to be received hereunder.

### **6. Payment**

The Contractor will invoice the Regional District on a monthly basis. The invoice will itemize payment due for services delivered at the facility during the previous month on the Tender Sum in the Schedule of Prices. Invoices should quote contract number PS-25-01.

The Regional District will, by the thirtieth day of the month following that for which payment is required on receipt of an invoice and on advice from the Manager that the Work has been satisfactorily carried out, pay the Contractor for Work completed in accordance with the Contract in the previous month. No payment will be made for materials supplied by the Regional District.

### **7. Changes to the Contract Work**

The Regional District, without invalidating the Contract, may make changes by altering, adding to, or deducting from the work. The Contractor will proceed with the work as changed and the work will

be executed under the provisions of the Contract. No changes will be undertaken by the Contractor without written order of the Regional District, except in an emergency endangering life or property, and no claims for additional compensation will be valid unless the change was so ordered. The Regional District will entertain no payment for extra work or changes in the Contract unless a "Change Order" form is completed and signed by the Regional District and the Contractor.

If, in the opinion of the Regional District, such changes affect the Contract amount, these will be adjusted at the time of ordering the changes. The value of the addition or deduction from the Contract amount will be decided by the Regional District based on a lump sum estimate submitted by the Contractor and accepted by the Regional District.

## **8. Insurance**

The Contractor shall, without limiting its obligations or liabilities, and at its own expense, provide and maintain throughout the Contract term, the following insurance with insurers licenced in the Province of British Columbia, in forms acceptable to the Regional District. All required insurance (except automobile insurance on vehicles owned by the Contractor) shall be endorsed to show the Regional District as additional insured and to require that the Regional District be provided with 30 days' advance written notice of cancellation or material change. The Contractor will provide the Regional District with evidence of the required insurance, in a form acceptable to the Regional District, upon notification of award and prior to the execution and delivery of the Contract:

- i. Commercial General Liability (CGL) in an amount not less than \$3,000,000 inclusive per occurrence insuring against bodily injury and property damage and including liability assumed under the Contract. Such CGL coverage shall include the following liability extensions: Contingent Employers Liability, Broad Form Products & Completed Operations, Personal Injury, Blanket Contractual, and Cross Liability. The Regional District is to be added as an additional insured.
- ii. Where the Contractor requires the use of Automobiles to undertake the work of the Contract, the Contractor will have the following:
  - a. Automobile Liability on all vehicles owned, operated, or licenced in the name of the Contractor in an amount not less than \$2,000,000 per occurrence.
  - b. Non-owned Automobile Liability insurance in an amount not less than \$2,000,000 per occurrence.
- iii. Equipment insurance on all equipment owned or rented by the Contractor to its full insurable value.

The Contractor shall ensure that all sub-contractors forming from this Contract meet the insurance requirements outlined above.

It is the sole responsibility of the Contractor to determine if additional limits of liability insurance coverage are required to protect them from risk.

## **9. Damage to Existing Property**

In the event of damage to the Regional District's property arising from actions of the Contractor, the procedure will be as follows:

1. The Contractor will immediately advise the Regional District of any damage to the Regional District's property.
2. Upon investigation, the Regional District will notify the Contractor of damages to be repaired.
3. If the Contractor does not reply within 72 hours, the Regional District will repair to the appropriate specifications or regulations and deduct the cost of the repair from payment to the Contractor.

#### **10. WorkSafeBC**

The Contractor will use due care and take all necessary precautions to assure the protection of persons and property while undertaking the Work and will comply with the Workers Compensation Act of the Province of British Columbia.

Prior to undertaking any of the Work in this Service Agreement, the Contractor will provide the Regional District with a Clearance Letter confirming they are in good standing with WorkSafeBC and will pay and keep current all assessments required by WorkSafeBC in relation to the Service Agreement amount.

Out of Province Contractors will be compliant with WorkSafeBC's registration requirements pertaining to out-of-province firms. Where WorkSafeBC registration requirements allow for a Contractor to be registered with another Province's Worker's Compensation Board or like organization, the Contractor will provide the Regional District with their registration number and written documentation confirming that the Contractor is in good standing with the appropriate Worker's Compensation Board, or like organization. The Contractor will pay and keep current all assessments required to maintain good standing in relation to the Service Agreement amount.

#### **11. Indemnity and Release by Contractor**

Notwithstanding the compliance of the Contractor with all the clauses concerning insurance, the Contractor shall indemnify, protect, and save harmless the Regional District, its officials, officers, employees, volunteers, servants, and agents from and against any and all liabilities, damages, losses, claims, costs, expenses of any kind whatsoever (including legal costs), and actions recoverable by any third party from the Regional District, arising from or caused by a negligent act or omission of, or breach of this Agreement on the part of, the Contractor, and shall be paid by the Contractor. If the Regional District pays, or is required to pay, any damages, costs, or fees on account of the actions, claims and demands herein recited, or if the property of the Regional District shall be charged in any way as a result of the aforesaid actions, causes of actions, and claims for demands, then the Regional District shall be entitled to recover from the Contractor all such damages, costs, fees or other charges together with any costs or expenses incurred in so doing. The Contractor covenants and agrees that this clause shall survive the termination of the Contract herein granted.

#### **12. Force Majeure**

If either the Contractor or the Regional District are prevented from performing their obligations under the Contract, or where the Regional District's work in respect of which the Contractor is providing Services cannot be performed, because of an act of God, an act of a legislative, administrative or judicial entity, fire, flood, labour strike or lock-out, epidemic, unusually severe weather, or other



similar cause outside of the control of the Parties (collectively "Force Majeure"), then the obligations of the Contractor and the Regional District under the Contract shall be suspended for so long as the condition constituting Force Majeure continues. The Party affected by Force Majeure shall provide the other Party with notice of the anticipated duration of the Force Majeure event, any actions being taken by the Party providing notice to avoid or minimize the effect of the Force Majeure event and shall make reasonable efforts to remove or mitigate the effects of the condition constituting Force Majeure. Upon the termination of the Force Majeure event, the Regional District shall grant to the Contractor a time extension for performance of any milestone dates required as part of the Services as may be agreed with the Contractor or, if the Regional District and the Contractor are unable to reach agreement, as determined by the dispute resolution process under Section 22 of the Contract. Where as a result of Force Majeure there is a material increase in the Contractor's cost of or the time required for the performance of the Services that is not offset by a decrease in cost, then the Regional District shall increase the amount of the service fee payable to the Contractor under Section 6 of this Agreement, as may be agreed by the Contractor, or as determined under Section 22 of the Contract. If the event of Force Majeure results in a material increase in the cost of the work to be performed in respect of which the Contractor is providing the Services, then the Regional District may choose not to proceed with the completion of the work and may terminate this Agreement. If the Regional District terminates this Agreement following the termination of the Force Majeure event, then it shall compensate the Contractor in accordance with Section 3 of this Agreement.

### **13. Ownership and Freedom of Information**

- 13.1 Tenders will be received and held in confidence by the Regional District, subject to the provisions of the Freedom of Information and Protection of Privacy Act and this ITT. Each Tender should clearly identify any information that is considered to be confidential or proprietary information.
- 13.2 As an exception to Tenders being received and held in confidence, Tenderers are advised and acknowledge that any contract entered into as a result of this Tender may be subject to Board approval, which may be discussed and voted on at a meeting of the Board that is open to the public. If Board approval is required, details of Tenders, including but not limited to proposed or negotiated fees, may be provided to the Board in a publicly available staff report, discussed at a Council meeting that is open to the public, and posted on a publicly available electronic agenda on the Regional District's website.

### **14. Rights of Waiver**

A waiver, or any breach of any provision of this ITT, will not constitute or operate as a waiver, or any other breach, of any other provisions, nor will any failure to enforce any provision herein operate as a waiver of such provisions or of any other provisions.

### **15. Severability**

All paragraphs of the Contract are severable one from the other. Should a court of competent jurisdiction find that any one or more paragraphs herein are void or unenforceable, the validity of the remaining paragraphs hereof will not be affected.

### **16. Independent Contractor**

The Contractor shall be fully independent and shall not act as an agent or employee of the Regional



District. The Contractor shall be solely responsible for its employees, and any subcontracts the Contractor lets, and for their compensation, benefits, contributions, and taxes, if any.

**17. Character of Workers**

The Contractor and workers must have sufficient knowledge, skill, and experience to perform properly the work assigned to them and to be tactful and courteous in dealing with the public and the Regional District's staff. Any supervisor or worker employed by the Contractor or Sub-Contractor who, in the opinion of the Owner, does not perform their work in a competent manner, appears to act in a disorderly or intemperate manner, appears to be under the influence of drugs or alcohol, or is negligent, or willfully misconducts themselves will, at the written request of the Owner, be removed from the site of the work immediately and will not be employed again in any portion of the work without the approval of the Senior Manager of Public Safety Services.

**18. Assignment and Subcontracting**

This Agreement does not create any right or benefit in anyone other than the Regional District and the Contractor and shall not be assigned by either party without the prior written approval of the other party.

**19. Regional District's Termination of Contract**

In the event of the breach or non-performance by the Contractor of any of the covenants, conditions, and agreements contained in the Contract to be performed, the Regional District reserves the right to terminate this Contract without notice. The Regional District may also deduct from the payments due to the Contractor any payments or expenditures it is required to make to remedy any such non-performance or breach hereof.

**20. Contractor's Termination of Contract**

The Contractor shall have the right to terminate the Contract in the event the Regional District fails to pay for the Work performed except as provided in the Contract Documents within 30 days from the specified date of payment and fails to remedy such default within 10 days of the Contractor's written notice to do so.

**21. Regional District's Right to Correct Deficiencies**

The Regional District shall have and retain full authority to inspect the work of the Contractor to ensure that the requirements of the Contract are being fulfilled. Upon failure of the Contractor to perform the work in accordance with the Contract Documents, and after five days written notice to the Contractor, or without notice if any emergency or danger to the work or public exists, the Regional District may, without prejudice to any other remedy they may have, correct such deficiencies. The cost of Work performed by the Regional District in correcting deficiencies shall be paid by the Contractor or may be deducted from monies payable to the Contractor.

**22. Dispute Resolution**

If a claim, dispute, or controversy arises out of or relates to the interpretation, application, enforcement, or performance of services under this agreement, the Contractor and the Regional District agree first to try in good faith to settle the dispute by negotiations between the Contractor

and the Regional District. If such negotiations are unsuccessful, the Contractor and the Regional District agree to attempt to settle the dispute by arbitration if both parties agree. If the dispute cannot be settled through arbitration, the Contractor and the Regional District may agree to attempt to settle the dispute through good faith mediation. If the dispute cannot be resolved through mediation and unless otherwise mutually agreed, the dispute shall be settled by litigation in an appropriate court in the Province of British Columbia.

### **23. Permit and Regulations**

The Contractor will, at their own expense unless pre-approved in writing by the Regional District, procure all other permits, certificates, and licenses required by law for the execution of the work and will comply with all federal, provincial, and local laws and regulations affecting the execution of the work, save in so far as the Contract Documents specifically provide otherwise.

### **24. Scope of Work**

This Regional District requires Services as laid out in Appendix J “Scope of Work and Certifications” and Appendix K “Optional Equipment/Specifications” in Invitation to Tender PS-25-01 Supply and Installation of Antenna Tower.

### **25. Project Manager’s Status**

The Project Manager or their delegate will be the Regional District's representative during the period of operation and will observe the Work in progress on behalf of the Regional District for the purpose of ensuring that the Work has been satisfactorily carried out. The Project Manager will have the authority to stop the Work whenever such a stoppage may be necessary, in their opinion, to ensure the proper execution of the Work in accordance with the provisions of the Contract.

If at any time the Project Manager is of the opinion that there exists a danger to life or to property, they may order the Contractor to stop Work or to take such remedial measures as is considered necessary.

The Contractor will comply with such an order immediately. Neither the giving nor the carrying out of such orders thereby entitles the Contractor to any extra payment, and the Regional District will not be held liable for any damages or any breach of laws, bylaws or regulations that may result.

### **26. Protection of Work and Property**

The Contractor shall take all reasonable precautions necessary to protect the Regional District's property from damage during the performance of the Contract and shall make good on any damage to the Regional District's property caused by the Contractor, its Sub-Contractor, employees, or agents during the performance of the Contract.

### **27. Occupational Health and Safety**

The Contractor will ensure that they follow all occupational health and safety policies and procedures established by the Regional District. Contractors, their employees, or agents not complying with the Regional District's health and safety expectations will be required to stop Work. They will not be allowed to resume Work until the safety requirements are met.

**28. Goods and Services Tax (GST)**

Federal law states that a 5% tax be paid on all goods and services. If the Contractor does not qualify as a small supplier, then the Contractor is required to identify the tax (GST/PST, as applicable) on all invoices, and the Regional District is liable to pay this amount to the Contractor.

**29. Disputed Work**

If, in the opinion of the Contractor, they are being required to perform work beyond that which the Contract requires him to do, whether at the discretion of the Regional District or otherwise, they will, within five days, deliver to the Project Manager a written notice of protest in the form prescribed herein prior to proceeding with any of the disputed work. The five-day time period commences from the time of direction given by the Manager or the time at which the Contractor determines that he is required to perform such work, whichever occurs first.

The Contractor will keep accurate and detailed cost records that should indicate the cost of the work done under protest. The Contractor will not be entitled to payment if they fail to keep and produce such records.

**30. Notice of Protest**

TO:	Public Safety Services Leader Regional District of Fraser-Fort George
FROM:	(Contractor)
DATE:	
SUBJECT:	THE CONTRACT
Date of Direction:	
You have required me to perform the following work that is beyond the scope of the Contract. (Set out details of work). (Include dates where applicable)	
The additional costs and claim for this work is as follows: (Set out details of cost)	
All supporting documentation and invoices are attached.	
I understand that I am required to keep accurate and detailed cost records, which will indicate the cost of the work done under protest, and failure to keep such records will be a bar to any recovery by me.	
Signature of Contractor	





Regional District and its elected officials, officers and employees for damages, expenses or costs, loss of profits, loss of opportunity or any consequential loss for any reason, including any such claim, action or proceeding arising from:

- 1) any actual or alleged unfairness on the part of the Regional District at any stage of the tender process, including without limitation any alleged unfairness in the evaluation of a tender or award of a contract;
- 2) a decision by the Regional District not to award a contract to that tenderer; or
- 3) the Regional District's award of a contract to a tenderer whose tender does not conform to the requirements of this ITT.

I/We hereby acknowledge receipt and inclusion of the following Addendum(s) to the ITT Documents:

Addendum No. \_\_\_\_\_ dated: \_\_\_\_\_ Addendum No. \_\_\_\_\_ dated: \_\_\_\_\_

Addendum No. \_\_\_\_\_ dated: \_\_\_\_\_ Addendum No. \_\_\_\_\_ dated: \_\_\_\_\_

Addendum No. \_\_\_\_\_ dated: \_\_\_\_\_ Addendum No. \_\_\_\_\_ dated: \_\_\_\_\_

Signed and Delivered by:

\_\_\_\_\_  
Signature of Authorized Signatory

\_\_\_\_\_  
Name of Tenderer

\_\_\_\_\_  
Name of Authorized Signatory (Please print)

\_\_\_\_\_  
Address

\_\_\_\_\_  
Title

\_\_\_\_\_  
City, Province, Postal Code

Signed in the presence of:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Address

\_\_\_\_\_  
Name of Witness (Please print)

\_\_\_\_\_  
City, Province, Postal Code

**APPENDIX C - SCHEDULE OF PRICES – TENDERED PRICE**

**Tender Price**

Lump sum tendered price for [INSERT PROJECT]  
(excluding GST) \$ \_\_\_\_\_

GST \$ \_\_\_\_\_

Total including GST \$ \_\_\_\_\_

TOTAL Contract Value (including GST) \$ \_\_\_\_\_

### APPENDIX D - LIST OF CONTRACTOR'S PERSONNEL

The Contractor agrees that the personnel employed by them will be as listed below and further agrees that any changes or additions made to this list will be made in writing to the Regional District.

<b>Name of Employee</b>	<b>Employee's Experience / Qualifications</b>

<b>Name of Onsite Supervisor</b>	<b>Supervisor's Experience / Qualifications</b>



### APPENDIX E - LIST OF SUBCONTRACTORS

The Contractor agrees that the Subcontractors engaged by it will be as listed below and further agrees that any changes or additions made to this list will be made in writing to the Regional District.

<b>Name of Subcontractor</b>	<b>Address of Subcontractor</b>	<b>Work to Be Performed by Subcontractor</b>

## APPENDIX F - TENDERER'S EXPERIENCE IN SIMILAR WORK

The Contractor is to demonstrate that they have a minimum of five years of current customer service experience as well as staff supervision experience. List professional and recent experience.

<b>Year</b>	<b>Work Performed</b>	<b>Reference Contact (name and phone number)</b>	<b>Value</b>



## APPENDIX H - GOODS AND SERVICES TAX INFORMATION

Supplier:

\_\_\_\_\_  
Name

\_\_\_\_\_  
Address

\_\_\_\_\_  
City

\_\_\_\_\_  
Province

\_\_\_\_\_  
Postal Code

\_\_\_\_\_  
Phone Number

Are you a GST Registrant?

Yes \_\_\_\_\_

No \_\_\_\_\_

If YES, please indicate your registration number: \_\_\_\_\_

If NO, please fill in the following (check appropriate box):

☐ Supplier qualifies as a small supplier under s. 148 of the legislation

☐ Other: Specify \_\_\_\_\_

\_\_\_\_\_  
Signature of Authorized Person

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

## APPENDIX I - CONTRACT AGREEMENT

BETWEEN:

**REGIONAL DISTRICT OF FRASER-FORT GEORGE**, a local government incorporated pursuant to the *Local Government Act* and having its business office located at:  
155 George Street  
Prince George, BC V2L 1P8

(hereinafter called "the Regional District")

OF THE FIRST PART

AND:

**CONTRACTOR**

a company duly incorporated under the laws of British Columbia and having a place of business at:  
address  
address, pc

(hereinafter called the "Contractor")

OF THE SECOND PART

WITNESSETH that the Contractor and the Regional District undertake and agree as follows:

1. The Contractor will:

- (a) Provide all necessary labour, equipment, transportation, materials, supervision, and services to perform all of the work, and fulfill everything as set forth in, and in strict accordance with, the Contract documents for "Invitation to Tender PS-25-01 – Supply and Installation of Antenna Tower.
- (b) Commence to actively proceed with the work of the Contract on date of execution.

2. The Regional District will pay to the Contractor as full compensation for the performance and fulfilment of this Contract, the sum or sums of money specified herein in the manner and at the times specified in the Contract Documents.

3. The Invitation and Instructions to tenderers, Tender Form, List of Contractors Personnel, List of Subcontractors, Tender's Experience in Similar Work, Schedule of Prices, Conflict of Interest Statement, Goods and Services Tax Information, all appendices, amendments and Addendum(s), as well as the tenderer's submission, are incorporated herein, to the intent and purpose as though recited in full herein, and the whole will form the Contract and will endure to the benefit of, and be binding upon, the parties hereto and their successors, executors, administrators, and assigns.

4. No implied contract of any kind whatsoever, by or on behalf of the Regional District, will arise or be implied from anything contained in this Contract or from any position or situation of the parties at any time, it being understood and agreed that the express contracts, covenants and

agreements made herein by the parties hereto are, and will be, the only contract, covenants and agreements on which any rights against the Regional District may be founded.

5. Subject to Clause 4, this Contract will supersede all communications, negotiations, and agreements, either written or verbal, made between the parties hereto in respect of matters pertaining to this Contract prior to the execution and delivery hereof.
6. All communications in writing between the parties will be deemed to have been received by the addressee if delivered to the individual, or to a member of a firm, or to the Regional District for whom they are intended, or if sent by hand delivery, mail or registered mail as follows:

The contractor at \_\_\_\_\_  
address

The Regional District at 155 George Street, Prince George, BC V2L 1P8.

IN WITNESS WHEREOF the parties have duly executed this Contract.

SIGNED ON BEHALF OF THE  
**REGIONAL DISTRICT OF FRASER-FORT GEORGE**

\_\_\_\_\_  
Senior Manager of Public Safety Services

\_\_\_\_\_  
Date

\_\_\_\_\_  
GM of Legislative and Corporate Services

\_\_\_\_\_  
Date

SIGNED ON BEHALF OF  
**CONTRACTOR**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
(Name and Title) (Please print)

## APPENDIX J – SCOPE OF WORK AND CERTIFICATIONS

The Contractor will provide all labour, equipment, transportation, materials, supervision, and services to perform all of the work necessary to construct an antenna tower, including footings, foundation and transmission line bridge and installation of antennas, lines, and associated parts. Optionally supply the antenna, and lines, and optionally perform antenna and line sweep tests. All required geotechnical work will be done by the Regional District and provided to the successful tenderer. Tenderers are not to include the cost for geotechnical work in their tender submission.

1. The Contractor is responsible for regularly scheduling the cleanup and disposal of all materials and debris generated by their activities during the course of the work.
2. The Contractor is responsible for removal of a portion of the adjacent fence during construction and restore the fence after construction if this is needed to construct the tower.
3. The Contractor will not interfere with the day-to-day operations on the property or other work being conducted on the property while completing the work required.
4. The Regional District accepts no responsibility for damage, vandalism or theft to any of the Contractor's equipment used or stored at the site.
5. The Contractor will exercise good public relations while fulfilling their responsibilities under the Contract and will ensure that their employees do the same.
6. The Contractor will ensure that workers have sufficient knowledge, skill and experience to properly and safely perform the work.

If the unit is non-compliant on any of these specifications as outlined in Appendix J and K, then the fourth column on this form MUST be completed detailing what the variation being supplied is and the reason for the variation.

		Compliant	Noncompliant	State the variation being supplied if line item is noncompliant
<b>1.0</b>	<b>Tower Specifications – General</b>			
1.1	Unless otherwise specifically stated, any references to the antenna tower shall include the complete installed tower structure including footings, foundation and transmission line bridge.			
1.2	The antenna tower shall be designed and constructed to provide a projected reliable, usable life of at least 50 years, based on normal, periodic preventative maintenance throughout the projected life of the tower.			
1.3	The antenna tower structure and all tower structure materials shall be hot galvanized steel construction.			
1.4	The concrete tower base, including footings and foundation shall be treated with a concrete sealant to prevent moisture penetration, and cracking during freezing weather conditions.			
1.5	<p>Screw anchor foundations are acceptable as long as they meet all engineering requirements. The design, construction and installation of the complete tower, which includes the tower structure, footings, foundation and other support structures shall as a minimum:</p> <ul style="list-style-type: none"> <li>a. meet latest CSA standard CSA S37, based on all antennae and antenna transmission lines installed as detailed on Figure 1;</li> <li>b. not exceed a twist and/or tilt of 1.0 degrees.</li> <li>c. painted to meet Canadian Obstruction Markings requirements, which is standard orange and white.</li> <li>d. meet all Canadian Aviation Regulations (CARs) Standards Obstruction Markings</li> </ul>			





		Compliant	Noncompliant	State the variation being supplied if line item is noncompliant
	621.19, be certified; and e. all drawings shall be signed and sealed by a Professional Engineer, qualified in the design of large self-supporting tower structures.			
<b>2.0</b>	<b>Antenna and Antenna Transmission Line Physical Loading on the Tower</b>			
2.1	The tower shall be designed, constructed, and installed based on supporting the antennas and antenna transmission lines as detailed in Figure 1.			
2.2	Please note that the antenna locations and types are for tower design reference purposes only.			
2.3	Construction of the tower shall include mounting pipes for the antennas listed on Figure 1 that cannot be directly clamped to the tower legs.			
<b>3.0</b>	<b>Height Above Ground Level</b>			
3.1	The top of the tower shall extend 45 m (147.638 ft) above ground level.			
3.2	The height of the tower above ground shall exclude all top mounted antennas, all mountings for antennas, and lightning rods.			
<b>4.0</b>	<b>On Tower RF Transmission Line Guideways</b>			
4.1	The tower shall include a transmission line (cable) guideway over the entire height of the tower, for attaching and routing the antenna transmission lines as specified in Figure 1, including space for a total of 8 lines.			
4.2	The transmission line guideways shall be permanently attached to the tower and shall be designed specifically to attach the RF transmission lines with stainless steel clamps and hangers.			



		Compliant	Noncompliant	State the variation being supplied if line item is noncompliant
4.3	The guideways shall provide for vertical cable support mounting holes at intervals of no greater than 1m (3.28 ft), to prevent cable droop, or cable stretch caused by the natural weight of the cables over the entire height of the tower.			
4.4	The width of the guideway shall be sufficient to permit horizontal spacing of each transmission line to the next so that each line can be independently removed and installed without affecting the installation of the other lines.			
4.5	The outdoor ethernet cables may be replaced with elliptical wave guides depending on microwave radio selection.			
4.6	The Contract excludes all clamps and hangers for securing the cables to the guideway.			
<b>5.0</b>	<b>Tower Climbing Provisions</b>			
5.1	The tower shall be supplied complete with a permanently attached ladder and fall arrest cable or rail system that meets all CSA and WorkSafeBC standards for personnel safety, for climbing and working on the tower.			
5.2	Contractor to include 3 fall arrest cable slide/trolleys.			
5.3	CSA/WorkSafeBC approved personnel climbing provisions shall be installed on the tower in such a way as to avoid interference with the cable guideways and prevent inadvertent damage to the cables or antenna systems on the tower by personnel using the equipment.			



		Compliant	Noncompliant	State the variation being supplied if line item is noncompliant
<b>6.0</b>	<b>Tower Electrical Grounding</b>			
6.1	The Contractor shall supply and install all grounding for the tower. The grounding shall meet the BC electrical.			
6.2	The tower grounding will consist of a circular ground ring around the tower with 2.4 m (8 ft) ground rods connected to the ground ring conductor at 3 m to 4.6 m (10 ft. to 15 ft.) intervals.			
6.3	Ground rings shall be installed in direct contact with the earth at a depth of 1.2 m (4 ft) below the earth's surface, or below the frost line, whichever is deeper.			
6.4	The ground ring shall be bonded separately to each tower leg.			
6.5	In all cases the ground connection shall be with #1 AWG minimum stranded copper wire. The wire shall be securely bonded at each end using listed irreversible high-compression fittings.			
6.6	The ground connections to the tower and the transmission line bridge, including the transmission line bridge supports, shall be via proper copper-bronze electrical connectors that are attached to the steel structure with threaded stainless steel or copper-bronze bolts, lock washer and nuts.			
6.7	The Contractor shall supply and install a tower ground bus and connect it to the tower grounding system. The ground bus shall be mounted on the tower near the transmission line bridge for ground connections to the antenna lines before they leave the tower to the transmission line bridge.			



		Compliant	Noncompliant	State the variation being supplied if line item is noncompliant
6.8	The tower ground system shall be connected to the existing ground system. We have no records of how the building is grounded though most of the Regional District of Fraser-Fort George fire halls have a radial ground circling the building. If the building radial ground is not accessible, a ground wire shall be routed underground to the antenna line cable port entrance and connected to the inside ground bar.			
6.9	The actual routing of the site grounding system will be determined between the Contractor and the Regional District Project Manager or designate as part of the final design approval process.			
<b>7.0</b>	<b>Site Commissioning and Acceptance</b>			
7.1	The commissioning procedure shall clearly demonstrate that the tower is constructed and installed in full compliance with the Contract prior to acceptance by the Regional District.			
<b>8.0</b>	<b>Warranty – Terms and Conditions</b>			
8.1	Contractor to provide a minimum one-year, all-inclusive warranty for: design; materials; equipment; parts; labour; construction; installation; and include regular service and maintenance for the first year. Warranty to begin as of date of acceptance by the Regional District.			
8.2	All written quotes shall clearly state the detailed terms and conditions of the warranty offered.			



		Compliant	Noncompliant	State the variation being supplied if line item is noncompliant
8.3	Tenderers shall clearly state all special provisions, unique terms and conditions, and related costs to warranty the design, construction, and installation on the Schedule of Prices in "Other" if warranty exceeds the minimum shown above, otherwise warranty cost will be taken to be included in the Contract Price on the Schedule of prices.			
<b>9.0</b>	<b>Warranty – Service and Maintenance During Warranty Period</b>			
9.1	Tenderers shall clearly state on the Schedule of Prices their maximum response time to be on-site to correct problems where an emergency exists, for critical tower structure issues, or for safety related concerns.			
9.2	Tenderers will also provide on the Schedule of Prices their maximum response time to be on-site to correct non-emergency situations.			
<b>10.0</b>	<b>Documentation to be supplied by contractor – pre-ordering and pre-construction/installation approval documentation</b>			
10.1	The Contractor shall supply one hard copy and one electronic copy (format to be determined by the Regional District) of pre-order and pre-construction/installation drawings/schematics for the tower, foundation, footings, transmission line bridge, and grounding system.			
10.2	All structural design drawings shall be signed and sealed by a Professional Engineer registered with the Association of Professional Engineers of British Columbia.			



		Compliant	Noncompliant	State the variation being supplied if line item is noncompliant
<b>11.0</b>	<b>Documentation to be supplied by the contractor – as built drawings and documentation</b>			
11.1	The Contractor shall supply at least two complete hard copy sets and one electronic copy (format to be determined by the Regional District) of as built construction documentation (drawings, schematics, etc.) of the tower, foundation, footings, transmission line bridge, and grounding system.			
11.2	As built drawings for the project shall include those that clearly show where the below ground conductors and ground rods are located.			
11.3	As built drawings shall show the type of cable guideway, and capacity of all guideway provisions.			
11.4	All documentation shall be complete and unabridged and shall be in a bound or 3-ring binder manual format.			
11.5	All documentation, drawings, and schematics provided by the Contractor to the Regional District become the property of the Regional District.			
<b>12.0</b>	<b>Transmission Line Bridge</b>			
12.1	The tower shall be supplied and installed complete with a transmission line bridge between the tower structure and the equipment building for supporting and protecting RF transmission lines routed from the tower to the communications equipment building. Tentative length of transmission line bridge is 3.65m (12 ft.)			
12.2	The transmission line bridge shall be designed and installed to be able to support and protect all antenna RF transmission line specified in Figure 1, as well as two additional lines for future capacity.			



		Compliant	Noncompliant	State the variation being supplied if line item is noncompliant
12.3	The transmission line bridge shall follow a straight line from the tower to the corner of the building.			
12.4	Tentative design is for the top of the transmission line bridge to be 2.43 meters above ground level.			
12.5	The transmission line bridge shall include provisions for securing the antenna RF transmission lines individually with stainless steel or other suitable non-corrosive clamps and hangers at intervals of not greater than 1 meter over the entire length of the transmission line bridge.			
12.6	The width of the transmission line bridge protective cover shall be sufficient to permit the transmission lines to be horizontally spaced under the bridge in a way that permits each transmission line to be removed and installed without affecting the installation of the other lines.			
12.7	The transmission line bridge shall meet the same wind and ice loading requirements as the tower.			
<b>13.0</b>	<b>Contract Price</b>			
13.1	The Contract price on the "Schedule of Prices" is a fixed price that will not change without a change order subject to Section 10.0 Changes, and there will be no passing on of price increases to the Regional District following the signing of a contract. If you are non-compliant with this statement, please "check" the "non-compliant" column and provide page numbers in the bid submission that provide detail on potential costs that are being proposed to			



		Compliant	Noncompliant	State the variation being supplied if line item is noncompliant
	be passed onto the Regional District after the contract execution.			



## APPENDIX K – OPTIONAL EQUIPMENT/SPECIFICATIONS

		Price (excluding taxes)
<b>1.0</b>	<b>Supply of Antenna and Line and Associated Parts</b>	
1.1	Supply the antennas and lines numbered 1,2,3, and 6 listed on Figure 1 tower drawing.	
1.2	Supply the antenna line connectors and ground kits. Connectors are N-female.	
1.3	Supply antenna line stainless steel hangers, hardware, and any required stainless-steel clamps for mounting the hangers for horizontal antenna line runs.	
<b>2.0</b>	<b>Install of Antennas and Lines</b>	
2.1	Install antennas numbered 1,2,3, and 6 listed on Figure 1 tower drawing.	
2.2	Install the antenna line hangers, lines, and connectors for the above.	
2.3	Horizontal runs of antenna lines on the tower shall be supported by clamps and hangers, Ty wraps are not acceptable.	
2.4	Install antenna line ground kits at the top of the tower, and where the lines leave the tower to the transmission line bridge. The bottom ground kit wires will be bolted to the supplied ground bus bar.	
2.5	All antenna connectors and ground kits outside the building shall be properly weather proofed. The contractor will discuss the method to be used for the antenna connector weather proofing with the Regional District of Fraser-Fort George technical staff before the work is done.	



		Price (excluding taxes)
3.0	Perform Antenna and Line Sweeps Tests	
3.1	Perform antenna and line sweep tests for the antenna and lines numbered 1, 2, 3, and 6 listed on Figure 1 tower drawing, and provide the test results.	





ATTACHMENT – GEO TECHNICAL REPORT

# TECHNICAL MEMO

---

**To**

Melanie Perrin, Manager of Public Safety Operations  
Regional District of Fraser Fort George

**From**

Walter B. Rathbun, P.Eng.

Reviewed by:

George Zhou, P.Eng.

2341- Prince George, BC

---

**Re**

**Geotechnical Assessment for Buckhorn Fire Hall  
Communication Tower**

5645 Buckhorn Lake Road, Prince George, BC

---

**Date**

March 9, 2021

---

## 1. Introduction

As requested, McElhanney Ltd. (McElhanney) has prepared this report which summarizes our geotechnical recommendations for the proposed cellular communications tower located at civic address 5645 Buckhorn Lake Road in Prince George, BC. The geotechnical assessment results and recommendations for the proposed development are reported herein.

The work was undertaken in accordance with the McElhanney Client Agreement dated October 8, 2020. No biological, archaeological, or environmental reviews were completed as part of this assessment.

## 2. Scope of Work

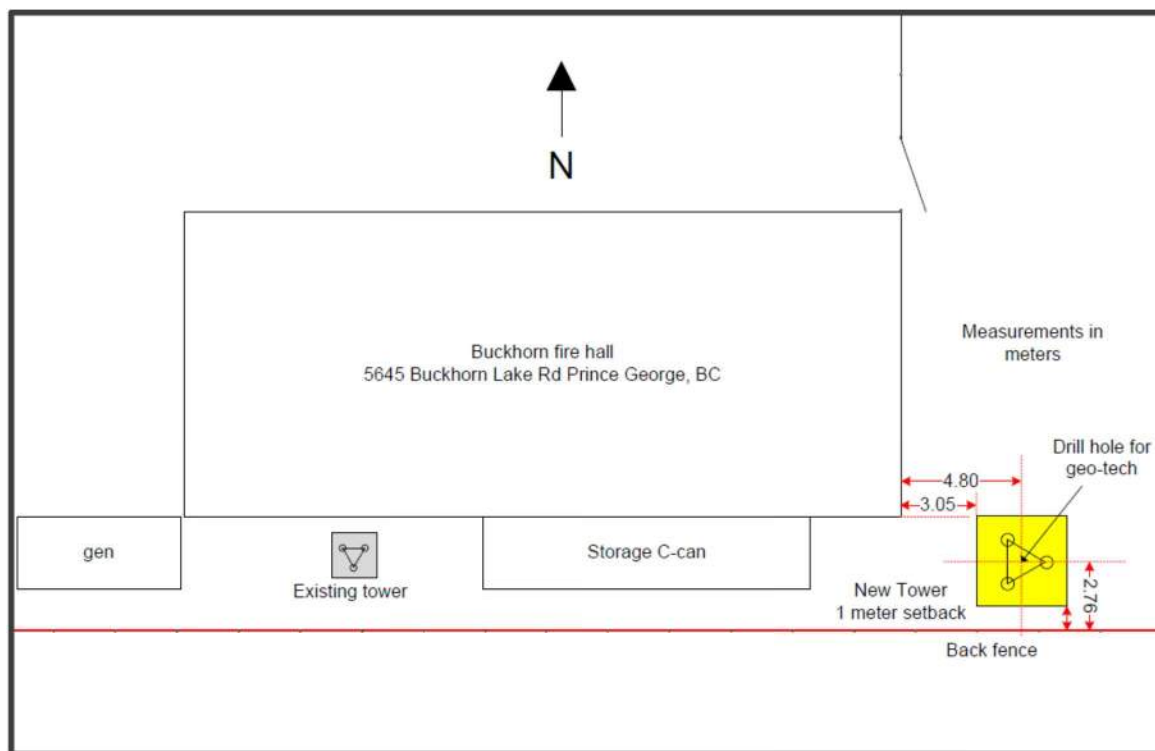
The scope of work for this geotechnical assessment as agreed in McElhanney's client agreement is summarized as follows:

- Summary of encountered soil and groundwater conditions;
- Suitability of the site for the proposed development;
- Geotechnical considerations that may impact design and/or construction;
- Shallow and pile foundation design;
- Seismic Site Classification;

Following review of soils information and a discussion with the Client, parameters for input to foundation design allowing the option of either modification of the shallow foundation design or, if necessary, an option combined with helical pile foundations. This has been provided due to the encountered firm, fine grained soils at depth and expected overturning moments at the base of the tower structure.

### 3. Proposed Development

This assessment will support the development of a new 50.2m high cellular communications tower designed by Westower Communications at the existing Buckhorn Firehall located in Prince George, BC. It is understood that the tower will be located approximately 1m north the existing rear fence, and approximately 3.05m east of the existing Buckhorn fire hall building. **Figure 1** shows the proposed layout and location of the tower.



*Figure 1: Site location plan showing location of proposed tower in relation to the Buckhorn Fire Hall Building.*

The preferred tower construction will consist of a reinforced shallow 3.6m x 3.6m pad foundation founding at 2.5m depth, with three columns extending from the pad affixed to the tower base, as shown in drawings provided by the Client (Westower Drawing No. 961399, dated April 23, 1996).



## 4. Approach and Methodology

### 4.1. DESKTOP REVIEW

The following background information was reviewed when preparing this report:

- RDFFG-Buckhorn VFD Tentative new tower location for Geotech, Revision 4 (provided by Client, dated May 6, 2020).
- Surficial Geology – Prince George, British Columbia. Map 1288A, accompanies GSC Bulletin 196, published 1971, Geological Survey of Canada, Department of Energy, Mines and Resources.
- MOE Technical Report 29. *Soils of the Prince George – McLeod Lake Area*, Report No. 23 British Columbia Soil Survey, dated January 1989, Victoria, BC.

### 4.2. GEOLOGIC SETTING

Available surficial geology mapping and references indicate the site is underlain by glacio-lacustrine deposits as shown in the sketch provided in **Figure 2** below.

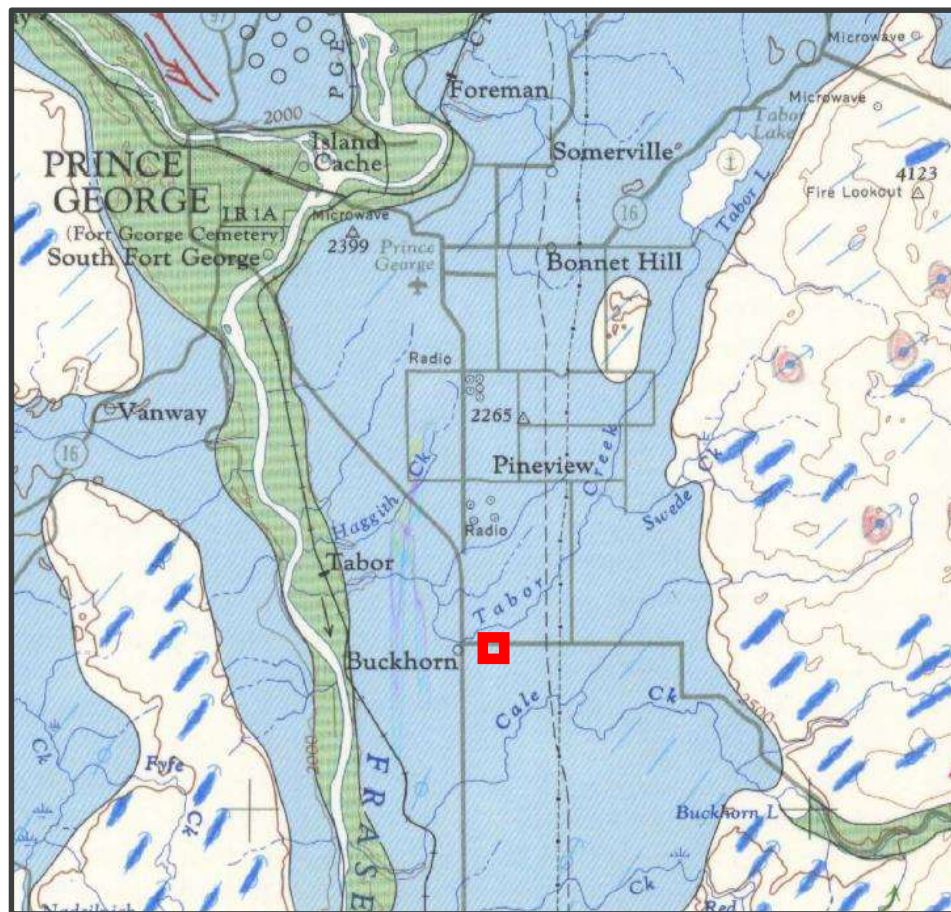


Figure 2 – Portion of “Surficial Geology - Prince George (reproduced from Map 1288A, Geological Survey of Canada, Department of Energy, Mines and Resources).





The MOE Technical Report 29 indicate glacio-lacustrine deposits in the vicinity of Prince George are predominantly of clayey and silty, with inclusions of sand, and are usually well sorted and well stratified lake deposits of glacial origin (MOE, 1989, p. 11).

### 4.3. GEOTECHNICAL DRILLING INVESTIGATION

The geotechnical investigation was supervised by McElhanney personnel on November 4, 2020. The investigation included the drilling of two (2) solid stem augured boreholes (BH20-01 and BH20-02) to a maximum depth of 17.3m. The approximate borehole locations are shown on the attached **Drawing B-01**.

Prior to the investigation, a BC One Call was carried out and local underground utilities operators were contacted to determine the location of existing utilities in the study area. A qualified utility locates sub-contractor was engaged to ensure that proposed boreholes did not interfere with existing utilities.

Boreholes were completed using a CME 850X solid stem auger drill rig owned and operated by Geotech Drilling Services Ltd. based out of Prince George, BC. Standard Penetration Testing (SPT) was conducted in regular intervals in BH20-01 and BH20-02 at the time of the geotechnical investigation. SPT blow counts were logged in 0.15m intervals to produce blow count profiles as depicted in the attached borehole logs.

The subsurface and groundwater conditions encountered during drilling were logged and photographed in the field by McElhanney. Soil samples were collected, labelled, sealed in containers, and sent to McElhanney's Prince George material testing laboratory for further assessment.

Following completion of the investigation, borehole locations were logged with a handheld GPS summarized in **Table 4-1** below. Boreholes were backfilled to surface level with spoil material and tamped using a handheld shovel.

**Table 4-1: Borehole Summary** <sup>1</sup>.

BOREHOLE ID <sup>1</sup>	LOCATION (UTM COORDINATES) <sup>2</sup>		MAXIMUM DEPTH <sup>3</sup> (m)	DEPTH TO GROUNDWATER <sup>3</sup> (m)
	NORTHING	EASTING		
BH20-01	523358	5960558	17.3	10.3
BH20-02	523363	5960564	11.2	10.3

Notes:

1. Refer to borehole log sheets for detailed description of subsurface soil and groundwater conditions.
2. Borehole locations were logged using a handheld GPS by McElhanney on November 4, 2020.
3. Depth of hole below ground surface and SPT depth measurements are approximate.



## 5. Site Conditions

The legal description of the subject property is Lot 1, Plan PGP34320, District Lot 1959, Land District 05, PID: 015-449-742, and the civic address is 5645 Buckhorn Lake Road, Prince George, BC. The land parcel is approximately 0.918 Ha in plan area.

### 5.1. SURFACE CONDITIONS

The proposed tower site is currently developed with the existing Buckhorn Firehall building, a generator, a storage C-can and an existing cellular communications tower. The topography of the site is generally flat, with a gentle down slope from the east towards the west of the site at an approximate grade of 5%. At the time of the drilling investigation, the lot was lightly vegetated with mainly manicured grass lawns and deciduous brush.

### 5.2. SUBSURFACE INVESTIGATION

Based on available soil and bedrock geology mapping, the site is expected to be underlain by glacio-lacustrine deposits. Soil conditions observed in the boreholes are summarized in **Table 5-1** and detailed in the attached borehole logs in accordance with the **Modified Unified Classification System for Soils**.

**Table 5-1: Inferred Geotechnical Units.**

BOREHOLE ID	CLAY AND SILT, TRACE SAND (GLACIO-LACUSTRINE) (m)	CLAYEY GLACIAL TILL (m)	DEPTH TO GROUNDWATER (mbgs)
BH20-01	0 - 10.6	10.6 - 17.3 (EOH)	10.4
BH20-02	0 - 10.6	10.6 - 11.2 (EOH)	10.4

*Note: End of Hole (EOH), meters below ground surface (mbgs).*

In general, the encountered subsurface conditions were consistent with the referenced geological mapping descriptions.

### 5.3. GROUNDWATER

Light to moderate groundwater seepage was observed in each borehole at the time of the investigation at a depth of approximately 10.4m. Groundwater levels can be expected to fluctuate seasonally and with cycles of precipitation. McElhanney should be contacted if there is a significant departure in groundwater conditions encountered during construction.





## 6. Geotechnical Comments and Recommendations

### 6.1. SUITABILITY OF THE SITE FOR THE PROPOSED DEVELOPMENT

The above referenced site is considered geotechnically safe and suitable for the proposed development, provided that the recommendations presented herein are followed. As the site investigation encountered firm to stiff clays to silty clays overlying hard glacial till soils at depth. Options are presented herein for support of the proposed tower using both:

1. shallow foundation of 3.6mx3.6mx0.5m raft buried 2.0m below finished grade, as proposed by Westower Communications, if feasible; and,
2. A modified shallow foundation design incorporating helical piles for additional capacity.

The geotechnical recommendations presented in this report are based on site observations, field and laboratory testing results, and available designs by Westower Communications made available by the Client regarding the proposed tower, and McElhanney's experience with similar projects.

The primary concern for the tower is to keep the tower stable under a lateral force applied on the tower, including wind load and seismic loading. Since the tower is at least 50.3m high, a lateral force applied on the geometry center or mass center of the tower can generate a significant overturning moment. To keep the tower stable, the tower foundation shall be designed such that the foundation size and mass, as well as the soil weight on top of the foundation can generate a resisting moment greater than the overturning moment with a Factor of Safety of 3.0, as specified in the 2018 BC Building Code. In case shallow foundation cannot provide an adequate resisting moment, helical piles or tie down soil anchors can be considered to increase the resistance moment.

### 6.2. SHALLOW FOUNDATION BEARING CAPACITY

Tower foundation bearing on native soils and buried 2.0m below the finished grade as shown in the Westower foundation plans can be designed using the following bearing capacities, assuming the underlying undrained shear strength of firm clayey silt to silty clay of 50kPa:

- Ultimate Limit State (ULS) of 290kPa; and
- Serviceability Limit State (SLS) of 85kPa.

The above bearing capacities shall be used for the bearing base or raft foundation size designed under the vertical loading and loading combinations of vertical and lateral loading, as specified in the 2018 BC Building Code.





## 6.5. GENERAL EXCAVATION RECOMMENDATIONS

The excavation for the tower base need to extent 2.0m deep, we recommend a 1.5H:1V or flatter side slope be used if space is available. The side slope is expected to be stable for a period of 4~5 months. However, we required the side slope be reviewed by a geotechnical engineer, once it reached 1.2 m deep, a written approval WCB inspection by the geotechnical engineer is required before any workers can entry the excavation for further operations.

Where excavation scenarios are not clearly defined in this report, the geotechnical engineer should be consulted to assess potential hazards and provide recommendations. Guidelines in the Occupational Health and Safety Regulation under Part 20, Sections 20.78 through 20.95 should be adhered to for any excavation on site, as required.

Shallower groundwater seepage or surface water runoff may result in a loss of bearing strength. Therefore, ingress of groundwater into any excavation should be controlled by grading, perimeter ditching or a combination of sumps and pumps. Any water or snow that collects on the foundation subgrade should be removed and be allowed to dry prior to construction of building foundations.

## 6.6. SEISMIC SITE CLASSIFICATION

The site classification for seismic site response as per the National Building Code of Canada (NBCC 2015, Section 4.1.8.4) is classified as Site Class D ("stiff soil") for seismic design purposes.

McElhanney should be given the opportunity to review the final development plan, which could affect our recommendations.

# 7. Geotechnical Assurance and Quality Assurance

Prior to final design submission, it is recommended further geotechnical review of the founding conditions should be carried out to confirm that the geotechnical recommendations are sufficient and / or have been applied according to the design intent, and what if any further geotechnical investigation is required.

It is recommended that the following items are reviewed by a geotechnical engineer during construction:

- Excavation: WCB inspection for the excavation side slope
- Helical pile: Review the pile records to verify helical pile installation depth and final torque readings.
- Associated roadways, sidewalks, and utilities: stripping and structural fill backfill and compaction

Field reviews should be carried out by a qualified geotechnical engineer or their designated representative. McElhanney is able to provide material testing services during construction such as laboratory material gradation, compaction density and concrete testing if desired by the successful construction contractor.











## Statement of Limitations – Geotechnical Services

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**Use of this Report.** This report was prepared by McElhanney Ltd. ("McElhanney") for the particular site, design objective, development and purpose (the "Project") described in this report and for the exclusive use of the client identified in this report (the "Client"). The data, interpretations and recommendations pertain to the Project and are not applicable to any other project or site location and this report may not be reproduced, used or relied upon, in whole or in part, by a party other than the Client and Building Authority, without the prior written consent of McElhanney. The Client may provide copies of this report to its affiliates, contractors, subcontractors and regulatory authorities for use in relation to and in connection with the Project provided that any reliance, unauthorized use, and/or decisions made based on the information contained within this report are at the sole risk of such parties. McElhanney will not be responsible for the use of this report on projects other than the Project, where this report or the contents hereof have been modified without McElhanney's consent, to the extent that the content is in the nature of an opinion, and if the report is preliminary or draft. This is a technical report and is not a legal representation or interpretation of laws, rules, regulations, or policies of governmental agencies. The professional services retained for this Project include only the geotechnical aspects of the subsurface conditions at the site, unless otherwise specifically stated and identified in this report. In particular, environmental conditions such as surface and subsurface contamination are outside the scope of this report.

**Standard of Care and Disclaimer of Warranties.** This study and report have been prepared in accordance with generally accepted engineering and scientific judgments, principles and practices. McElhanney expressly disclaims any and all warranties in connection with this report including, without limitation, any warranty that this report and the associated site review work has uncovered all potential geotechnical liabilities associated with the subject property.

**Effect of Changes.** All evaluations and conclusions stated in this report are based on facts, observations, site-specific details, legislation and regulations as they existed at the time of the site assessment. Some conditions are subject to change over time and the Client recognizes that the passage of time, natural occurrences, and direct or indirect human intervention at or near the site may substantially alter such evaluations and conclusions. Construction activities can significantly alter soil, rock and other geologic conditions on the site. McElhanney should be requested to re-evaluate the conclusions of this report and to provide amendments as required prior to any reliance upon the information presented herein upon any of the following events: a) any changes (or possible changes) as to the site, purpose, or development plans upon which this report was based, b) any changes to applicable laws subsequent to the issuance of the report, c) new information is discovered in the future during site excavations, construction, building demolition or other activities, or d) additional subsurface assessments or testing conducted by others.

**Subsurface Risks.** Soil, rock and groundwater data were collected in general accordance with the standards and methods described in the document. The classification and identification of soils, rocks and geologic formations was based on commonly accepted methods employed in the practice of geotechnical engineering and related disciplines. Interpretations of groundwater levels and flow direction are based on water level observations at selected test hole locations and are expected to fluctuate. Observations at test holes indicate the approximate subsurface conditions at those locations only. Subsurface conditions between test holes were based, by necessity, on judgement and assumptions of what exists between the actual locations sampled, and may vary significantly from actual site conditions and all persons making use of this report should be aware of, and accept, this risk. Even a comprehensive sampling and testing program, implemented in accordance with appropriate equipment by experienced personnel, may fail to detect all or certain conditions.

**Information from Client and Third Parties.** McElhanney has relied in good faith on information provided by the Client and third parties noted in this report and has assumed such information to be accurate, complete, reliable, non-fringing, and fit for the intended purpose without independent verification. McElhanney accepts no responsibility for any deficiency, misstatements or inaccuracy contained in this report as a result of omissions or errors in information provided by third parties or for omissions, misstatements or fraudulent acts of persons interviewed.

**Underground Utilities and Damages.** In the performance of the services, McElhanney has taken reasonable precautions to avoid damage or injury to subterranean structures or utilities. Subsurface sampling may result in unavoidable contamination of certain subsurface areas not known to be previously contaminated such as, but not limited to, a geologic formation, the groundwater or other hydrous body. McElhanney will adhere to an appropriate standard of care during the conduct of any subsurface sampling.

**Independent Judgments.** McElhanney will not be responsible for the independent conclusions, interpretations, interpolations and/or decisions of the Client, or others, who may come into possession of this report, or any part thereof. This restriction of liability includes decisions made to purchase, finance or sell land or with respect to public offerings for the sale of securities.

**Construction.** The subsurface information contained in this report were obtained for the owner's information and design. The extent and detail of assessments necessary to determine all relevant conditions that may affect construction costs would normally be greater than the assessments carried out for this report. Accordingly, a contingency fund to allow for the possibility of variations of subsurface conditions should be included in the construction budget to cover costs associated with modifications of the design and construction procedures resulting from conditions that vary from the assumptions in this report. If during construction, subsurface conditions are found to be other than those described in this report, McElhanney is to be notified and may alter or modify the geotechnical report recommendations. If McElhanney is not retained to provide services during construction, then McElhanney is not responsible for confirming or recording that subsurface conditions do not materially differ from those interpreted conditions contained in this report or for confirming or recording that construction activities have not adversely affected subsurface conditions or the recommendations contained in this report.

# **APPENDIX B**

Drawing B-01 – Borehole Site Plan



**BOREHOLE COORDINATES**  
 BH20-01 UTM 10 523358 5960558  
 BH20-02 UTM 10 523363 5960564

### LEGEND

⊗ BOREHOLE LOCATIONS

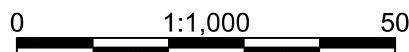
### NOTES:

- 1) ALL LOCATIONS ARE APPROXIMATE
- 2) REFERENCED FROM BING AERIAL MAP

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THIS DRAWING AND DESIGN HAS BEEN PREPARED FOR THE CLIENT IDENTIFIED, TO MEET THE STANDARDS AND REQUIREMENTS OF THE APPLICABLE PUBLIC AGENCIES AT THE TIME OF PREPARATION. McELHANNEY, ITS EMPLOYEES, SUBCONSULTANTS AND AGENTS WILL NOT BE LIABLE FOR ANY LOSSES OR OTHER CONSEQUENCES RESULTING FROM THE USE OR RELIANCE UPON, OR ANY CHANGES MADE TO, THIS DRAWING BY ANY THIRD PARTY, INCLUDING CONTRACTORS, SUPPLIERS, CONSULTANTS AND STAKEHOLDERS, OR THEIR EMPLOYEES OR AGENTS, WITHOUT McELHANNEY'S PRIOR WRITTEN CONSENT.

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TITLE: BUCKHORN FIRE HALL TOWER GEOTECH		CLIENT: REGIONAL DISTRICT OF FRASER FORT GEORGE	
LOCATION: BUCKHORN, BC		DRAWN: RS	FIGURE:  <b>1</b>
PROJECT No.: 2341-02750-19		CHECKED: TG	
REPORT TYPE & YEAR: GEOTECHNICAL ASSESSMENT FOR BUCKHORN FIRE HALL TOWER		DATE: NOVEMBER 2020	

# **APPENDIX C**

Modified Unified Classification System for Soils









McElhanney Ltd.

BH20-02

PAGE 1 OF 2

CLIENT Regional District of Fraser Fort GeorgePROJECT NAME Buckhorn Fire Hall TowerPROJECT NUMBER 2341-02750-19PROJECT LOCATION Prince George, BCDATE STARTED 11/4/20 COMPLETED 11/4/20GROUND ELEVATION \_\_\_\_\_ HOLE SIZE 0.15 mDRILLING CONTRACTOR Geotech Drilling Ltd.

GROUND WATER LEVELS:

DRILLING METHOD Solid Stem Auger▽ AT TIME OF DRILLING 10.30 mLOGGED BY T.Garden CHECKED BY W. RathbunAT END OF DRILLING ---

NOTES \_\_\_\_\_

AFTER DRILLING ---

GEOTECH BH PLOTS 2341-02750-10 BUCKHORN FIRE HALL TOWER.GPJ GINT STD CANADA LAB.GDT 11/16/20

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	DRY UNIT WT. (Mg/m <sup>3</sup> )	SPT N VALUE ▲			
								20	40	60	80
2		CLAY and SILT, trace sand (fine-grained), soft, medium to high plastic, grey-brown, moist.	GB 1								
			SPT 1		1-2-5-8 (7)						
4			GB 2								
			SPT 2		2-2-4-4 (6)						
6			GB 3								
			SPT 3		2-2-3-4 (5)						
8			GB 4								
			SPT 4		2-3-3-3 (6)						
10		Transitions to CLAY and SAND (fine-grained), some gravel, soft, medium to high plastic, grey-brown, moist.	GB 5								

(Continued Next Page)

CLIENT Regional District of Fraser Fort GeorgePROJECT NAME Buckhorn Fire Hall TowerPROJECT NUMBER 2341-02750-19PROJECT LOCATION Prince George, BC

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (kPa)	DRY UNIT WT. (Mg/m <sup>3</sup> )	SPT N VALUE ▲	
								20 40 60 80	
								PL MC LL 20 40 60 80	
								□ FINES CONTENT (%) □	
								20 40 60 80	
		CLAY and GRAVEL (sub-rounded to sub-angular), sandy, some silt (poorly graded), hard/dense, brown-grey, damp.	SPT 5		19-32-34- 60 (66)				

End of borehole due to reaching target depth.  
Light groundwater seepage starting @ 10.3m.  
Borehole backfilled with cuttings and tamped with handheld shovel.  
Bottom of borehole at 11.20 meters.



# APPENDIX D

Laboratory Testing Results:

- Atterberg Limits
- Sieve Testing



# McElhanney

McElhanney Ltd.

12-556 North Nechako Rd Tel 250 561 2229  
 Prince George BC Fax 250 563 1941  
 Canada V2K 1A1 www.mcelhanney.com

## ATTERBERG LIMITS Laboratory Analysis Report ASTM D4318

**PROJECT NAME:** Buckhorn Firehall Geotechnical Assessment

**PROJECT NO.** 2341-02750-19

**CLIENT:** Regional District of Fraser Fort-George

**SAMPLE:** GB01 BH20-01

**SOIL PREPARATION ('X' those that apply):**

**DEPTH:** 0'-5'

**Wet:**

**Wash (#40)**

**DATE SAMPLED:** Nov. 4, 2020

**Dry (Air)**

**Dry (#40)**

x

**DATE TESTED:** Nov. 21, 2020

**Dry (Oven)**

x

**Mech.**

TRIAL NO.	LIQUID LIMIT			PLASTIC LIMIT	
	1	2	3	4	5
NO. OF BLOWS	34	28	18		
WT.OF WET SAMPLE +TARE ( GRMS.)	30.49	29.97	29.24	19.31	19.22
WT.OF DRY SAMPLE +TARE ( GRMS.)	24.50	24.14	23.64	18.11	17.96
TARE ( GRMS.)	14.13	14.39	14.33	14.34	14.31
MOISTURE CONTENT %	57.8	59.8	60.2	31.8	34.5

### RESULT SUMMARY

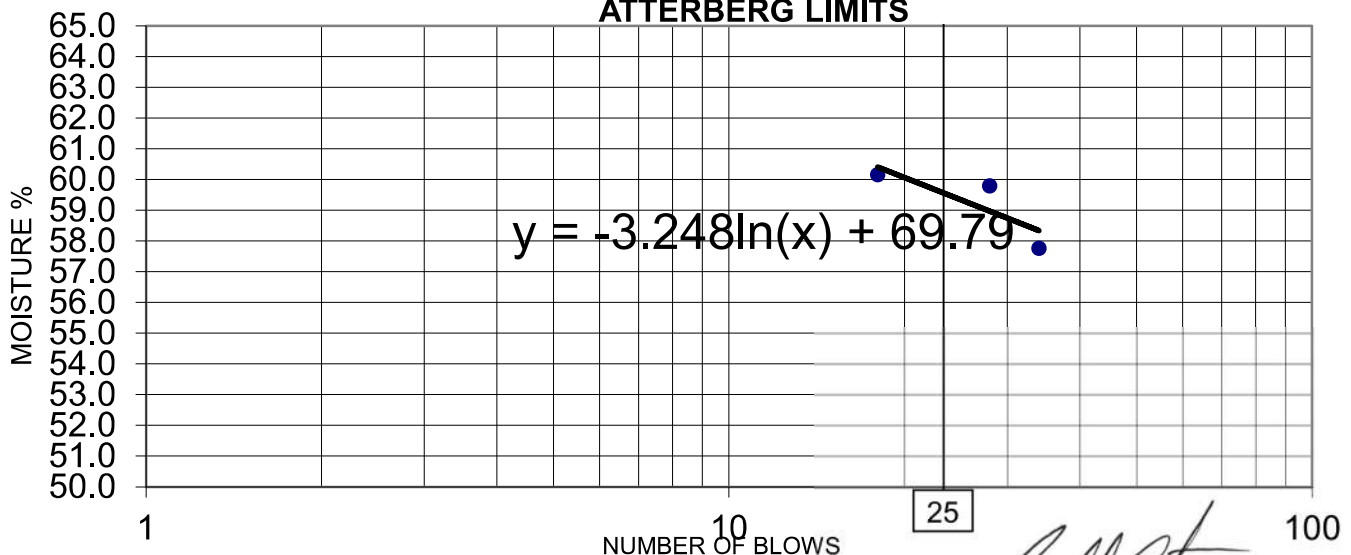
Liquid Limit (LL) **59** %  
 Plastic Limit (PL) **33** %  
 Plastic Index (LL-PL) **26**

Natural Water Content **36** %  
 Flow Index **24.10**  
 Toughness Index **1.09**  
 Liquidity Index ( B Value ) **0.11**

### SOIL DESCRIPTION:

SOIL CLASSIFICATION - **MH**

### ATTERBERG LIMITS



Tested by: T.Garden

Reviewed by: Gerald Stevenson, Laboratory Supervisor



McElhanney Ltd.

12-556 North Nechako Rd

Prince George, BC, Canada, V2K 1A1

Tel: 250-561-2229 Fax: 250-563-1941

**PROJECT NAME:** Buckhorn Firehall Geotechnical Assessment

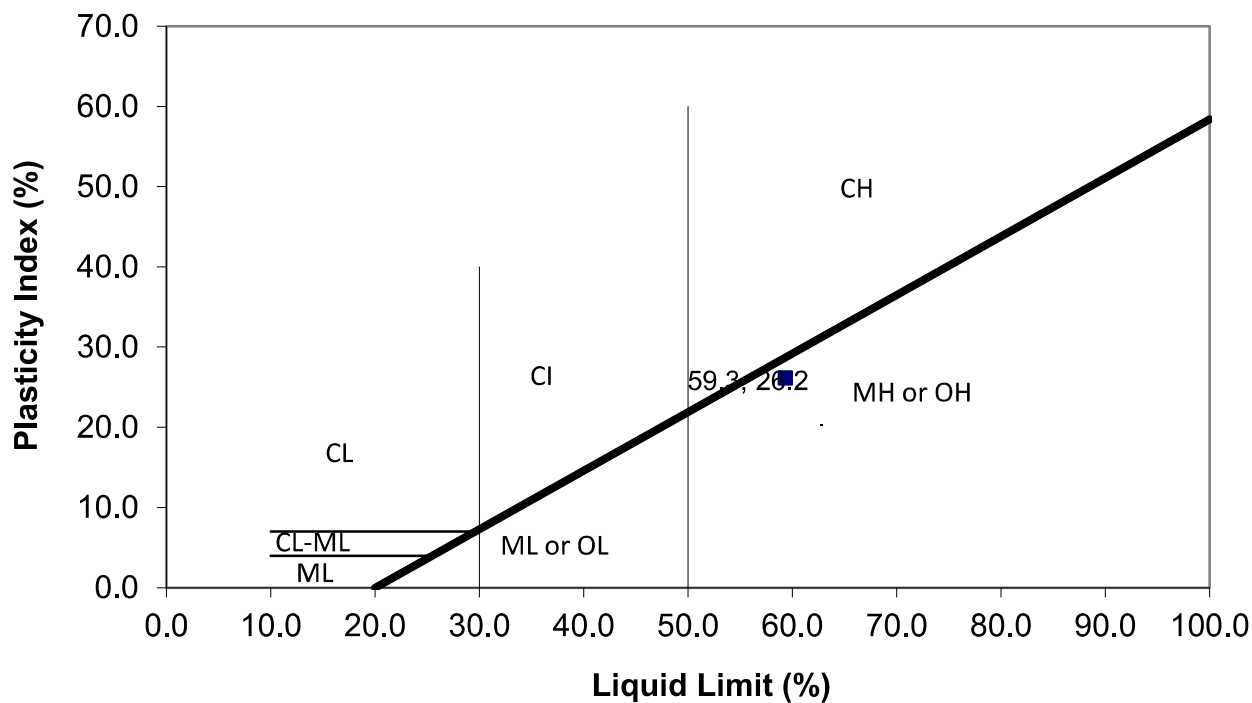
**PROJECT NO.** 2341-02750-19

**DATE SAMPLED:** Nov. 4, 2020

**DATE TESTED:** Nov. 21, 2020

Sample I.D.	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Soil Classification	Natural Water Content (%)	Soil Description / Comments
GB01 BH20-01	59.3	33.2	26.2	MH	36.2	MH

### Plasticity Chart



Tested by: T.Garden

Reviewed by: Gerald Stevenson, Laboratory Supervisor







# McElhanney

McElhanney Ltd.

12-556 North Nechako Rd Tel 250 561 2229  
 Prince George BC Fax 250 563 1941  
 Canada V2K 1A1 www.mcelhanney.com

## ATTERBERG LIMITS Laboratory Analysis Report ASTM D4318

**PROJECT NAME:** Buckhorn Firehall Geotechnical Assessment

**PROJECT NO.** 2341-02750-19

**CLIENT:** Regional District of Fraser Fort-George

**SAMPLE:** BH20-01 SPT07

**SOIL PREPARATION ('X' those that apply):**

**DEPTH:** 45'-47'

**Wet:**

**Wash (#40)**

**DATE SAMPLED:** Nov. 4, 2020

**Dry (Air)**

**Dry (#40)** x

**DATE TESTED:** Nov. 21, 2020

**Dry (Oven)** x

**Mech.**

	LIQUID LIMIT			PLASTIC LIMIT	
TRIAL NO.	1	2	3	4	5
NO. OF BLOWS	27	23	16		
WT.OF WET SAMPLE +TARE ( GRMS.)	27.54	29.22	31.18	19.18	19.58
WT.OF DRY SAMPLE +TARE ( GRMS.)	24.62	25.82	27.26	18.56	18.91
TARE ( GRMS.)	14.25	14.26	14.27	14.30	14.36
MOISTURE CONTENT %	28.2	29.4	30.2	14.6	14.7

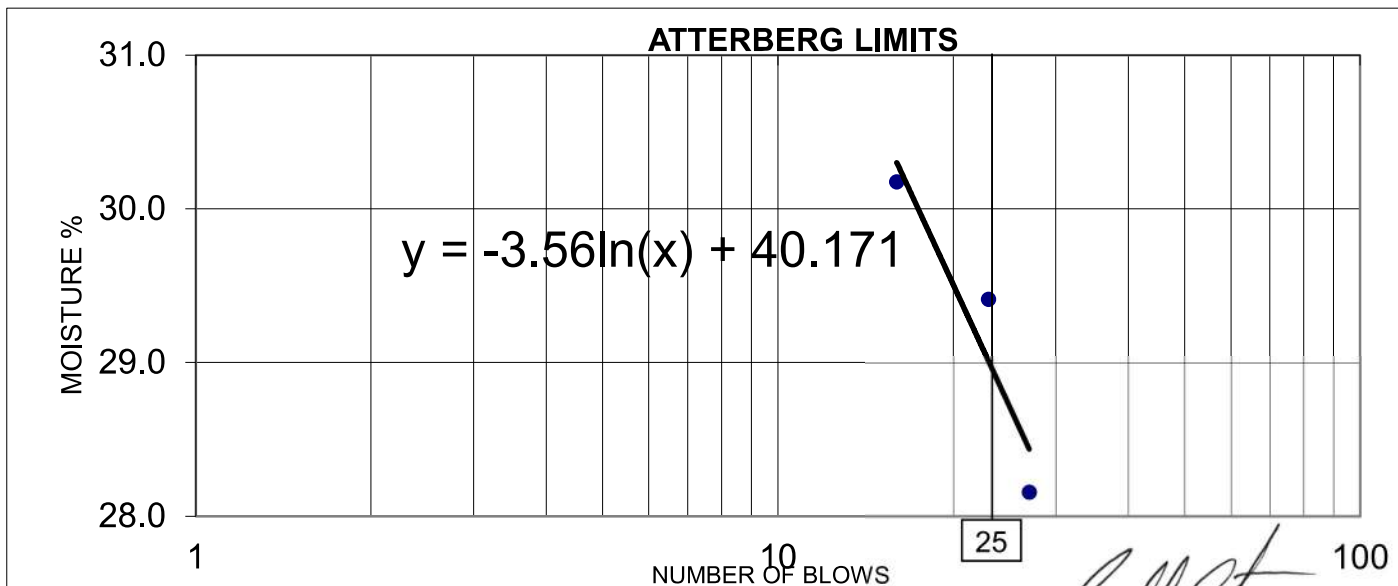
### RESULT SUMMARY

Liquid Limit (LL) **29** %  
 Plastic Limit (PL) **15** %  
 Plastic Index (LL-PL) **14**

Natural Water Content **14** %  
 Flow Index **18.00**  
 Toughness Index **0.78**  
 Liquidity Index ( B Value ) **-0.08**

### SOIL DESCRIPTION:

SOIL CLASSIFICATION - **CL**



Tested by: T.Garden

Reviewed by: Gerald Stevenson, Laboratory Supervisor



McElhanney Ltd.

12-556 North Nechako Rd

Prince George, BC, Canada, V2K 1A1

Tel: 250-561-2229 Fax: 250-563-1941

## ATTERBERG LIMITS Laboratory Analysis Report

**PROJECT NAME:** Buckhorn Firehall Geotechnical Assessment

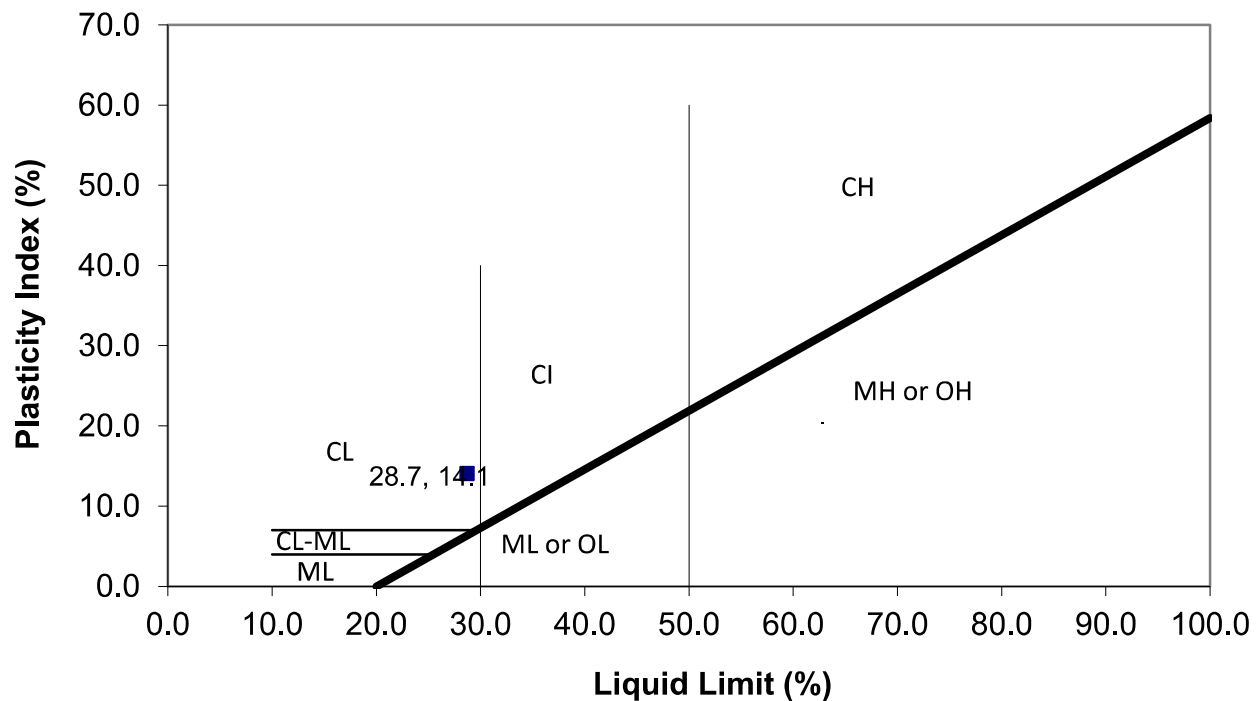
**PROJECT NO.** 2341-02750-19

**DATE SAMPLED:** Nov. 4, 2020

**DATE TESTED:** Nov. 21, 2020

Sample I.D.	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Soil Classification	Natural Water Content (%)	Soil Description / Comments
BH20-01 SPT07	28.7	14.6	14.1	CL	13.6	CL

### Plasticity Chart



Tested by: T.Garden

Reviewed by: Gerald Stevenson, Laboratory Supervisor



# McElhanney

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## ATTERBERG LIMITS Laboratory Analysis Report ASTM D4318

**PROJECT NAME:** Buckhorn Firehall Geotechnical Assessment

**PROJECT NO.** 2341-02750-19

**CLIENT:** Regional District of Fraser Fort-George

**SAMPLE:** BH20-02 GB02

**SOIL PREPARATION ('X' those that apply):**

**DEPTH:** 7'-10'

**Wet:**

**Wash (#40)**

**DATE SAMPLED:** Nov. 4, 2020

**Dry (Air)**

**Dry (#40)**

x

**DATE TESTED:** Nov. 21, 2020

**Dry (Oven)**

x

**Mech.**

TRIAL NO.	LIQUID LIMIT			PLASTIC LIMIT	
	1	2	3	4	5
NO. OF BLOWS	32	27	22		
WT.OF WET SAMPLE +TARE ( GRMS.)	28.00	26.63	32.49	18.31	20.05
WT.OF DRY SAMPLE +TARE ( GRMS.)	22.42	21.36	24.79	17.32	18.80
TARE ( GRMS.)	14.26	14.12	14.41	14.36	14.34
MOISTURE CONTENT %	68.4	72.8	74.2	33.4	28.0

### RESULT SUMMARY

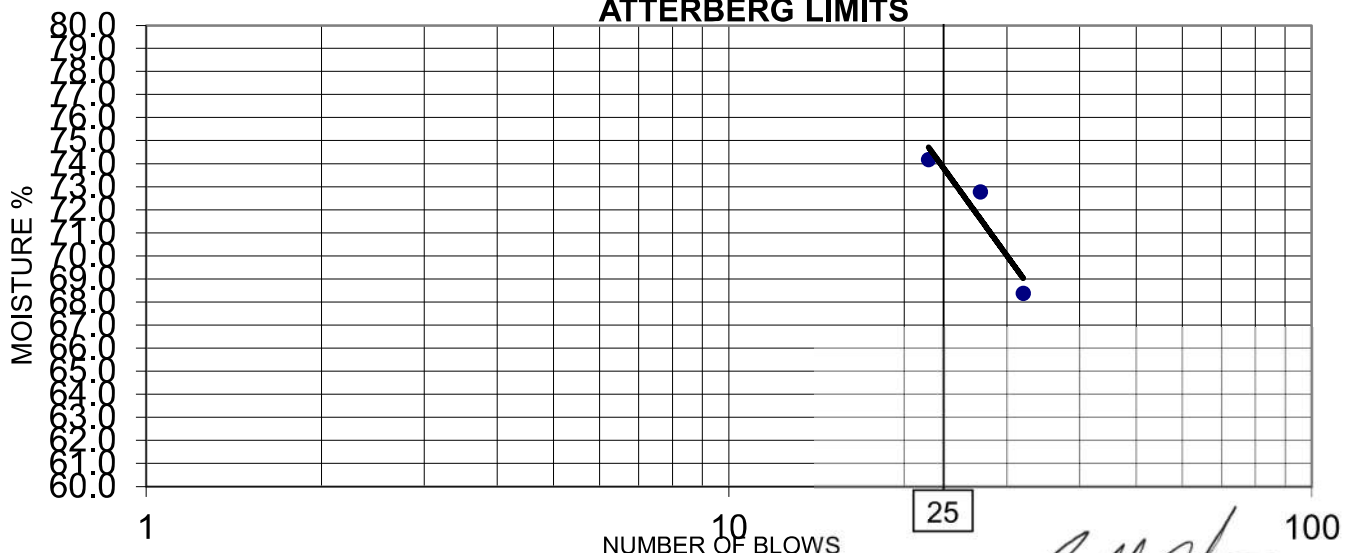
Liquid Limit (LL) **73** %  
 Plastic Limit (PL) **31** %  
 Plastic Index (LL-PL) **42**

Natural Water Content **36** %  
 Flow Index **59.74**  
 Toughness Index **0.70**  
 Liquidity Index ( B Value ) **0.14**

### SOIL DESCRIPTION:

SOIL CLASSIFICATION - **CH**

### ATTERBERG LIMITS



Tested by: T.Garden

Reviewed by: *Gerald Stevenson*  
 Gerald Stevenson, Laboratory Supervisor





**McElhanney**

**ATTERBERG LIMITS**  
**Laboratory Analysis Report**

McElhanney Ltd.

12-556 North Nechako Rd

Prince George, BC, Canada, V2K 1A1

Tel: 250-561-2229 Fax: 250-563-1941

**PROJECT NAME:** Buckhorn Firehall Geotechnical Assessment

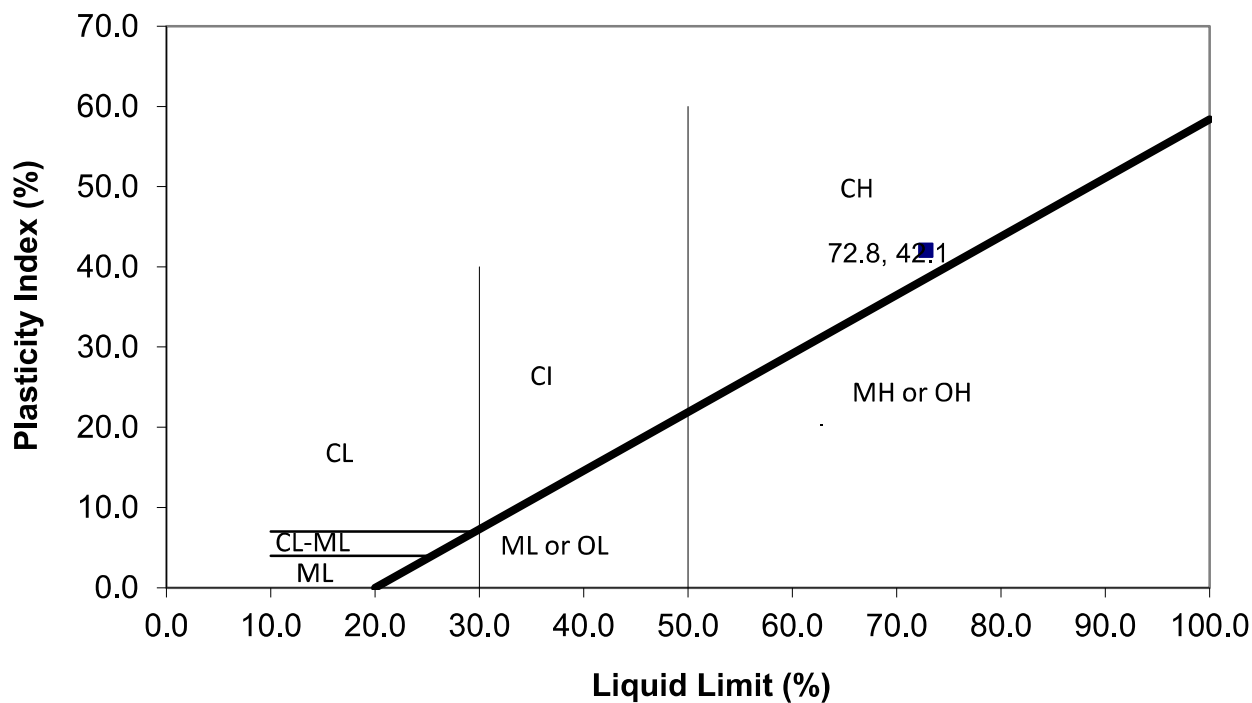
**PROJECT NO.** 2341-02750-19

**DATE SAMPLED:** Nov. 4, 2020

**DATE TESTED:** Nov. 21, 2020

Sample I.D.	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Soil Classification	Natural Water Content (%)	Soil Description / Comments
BH20-02 GB02	72.8	30.7	42.1	CH	36.3	CH

**Plasticity Chart**



Tested by: T.Garden

Reviewed by: Gerald Stevenson, Laboratory Supervisor

PROJECT NO. 2341-2750-19  
CLIENT Regional District of Fraser  
c.c. Fort George

TO [ Regional District of Fraser Fort  
George  
155 George Street  
Prince George, BC  
V2L 1P8 ]

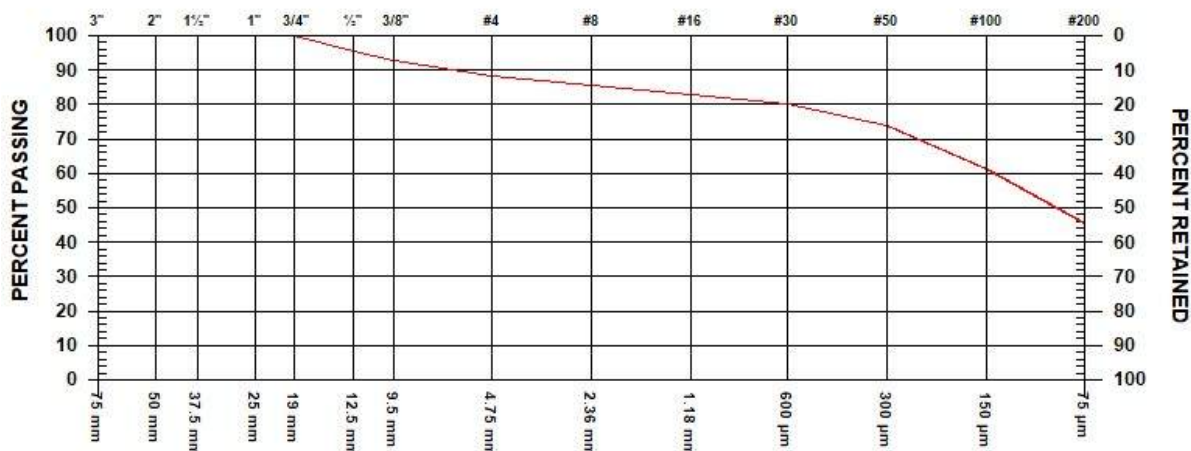
PROJECT RDFFG General  
Buckhorn Firehall Geotech  
CONTRACTOR Geotech Drilling Ltd.

SIEVE TEST NO. 1      DATE RECEIVED 2020.Nov.05      DATE TESTED 2020.Nov.22      DATE SAMPLED 2020.Nov.04

Prince George

SUPPLIER  
SOURCE BH20-02 Grab 5 30'-35'  
SPECIFICATION  
MATERIAL TYPE Drill Sample

SAMPLED BY TG  
TESTED BY GB  
TEST METHOD WASHED



GRAVEL SIZES			PERCENT PASSING	GRADATION LIMITS
3"	75 mm			
2"	50 mm			
1 1/2"	37.5 mm			
1"	25 mm			
3/4"	19 mm		100.0	
1/2"	12.5 mm		95.4	
3/8"	9.5 mm		92.6	

SAND SIZES AND FINES		PERCENT PASSING	GRADATION LIMITS
No. 4	4.75 mm	88.4	
No. 8	2.36 mm	85.4	
No. 16	1.18 mm	82.9	
No. 30	600 µm	80.2	
No. 50	300 µm	73.7	
No. 100	150 µm	61.3	
No. 200	75 µm	45.3	

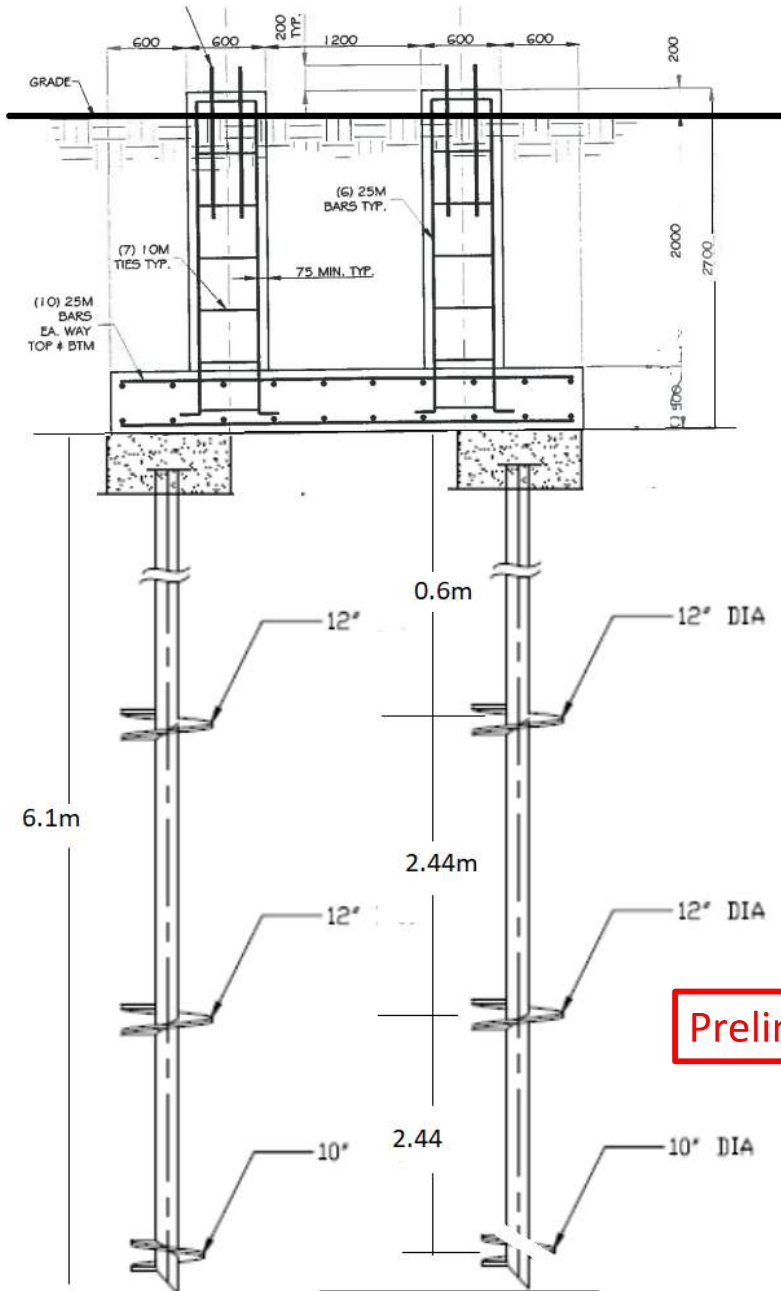
MOISTURE CONTENT 17.2%

COMMENTS

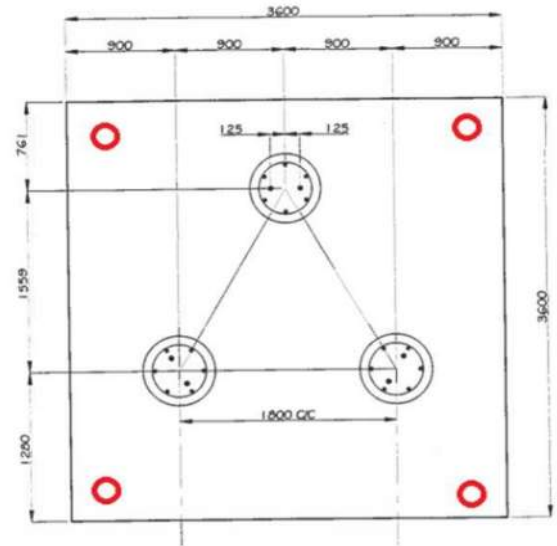




## Section View



## Plan View



Preliminary - Not for Construction

### Notes:

1. Drawing modified from Westover Drawing no. 961399, dated April 23, 1996.
2. Four helical piles to be installed at the corners of foundation pad base as needed to increase resistance to overturning moment.
3. Helical pile shaft diameter is 41.275mm (2-3/8"), shaft wall thickness 6.45mm (0.245"), and total length is 9.1m (30ft).
4. Three helical plates of diameter 305mm (12"), 305mm (12"), and 254 (10") installed at indicated depth intervals.
3. Each pile installed to a torsional resistance of 1650ft-lb and minimum depth of 6.1m (20ft) below the underside of Westover pad foundation as shown in drawing no. 961399, dated April 23, 1996.